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December 30, 2025

***Via Hand Delivery & Electronic Mail***

Mr. Steve Kahl
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480
ndpsc@nd.gov

In re: Minnesota Power
Longspur Wind 230-kV Transmission Line - Morton & Mercer Counties
Siting Application
Our File No. 111345-000003

Dear Mr. Kahl:

On behalf of Minnesota Power, a business unit of ALLETE, Inc., enclosed for filing please find the following:

1) Minnesota Power's Consolidated Application for a Certificate of Corridor Compatibility and Transmission Facility Route Permit in Morton and Mercer Counties, North Dakota (8 binder set copies);

2) Minnesota Power's checks in the amounts of $54,409.37 and $2,176.37 for the Commission's filing and administrative fees, respectively, set forth under North Dakota Century Code Sections 49-22-22(1)(b) and 49-22-22(4);

3) Affidavit of Service by Mail pertaining to service of the Application upon the Morton and Mercer County Auditors pursuant to North Dakota Administrative Code Section 69-06-05-01(4); and,

4) Notice of Appearance.

We are also enclosing a USB containing project GIS and an electronic version of the application for your convenience.

Please feel free to contact me if you have any questions. Thank you.

1 PU-25-305 Filed 12/30/2025 Pages: 928
Consolidated Application for Certificate of Corridor Compatibility, Transmission Facility Route Permit and Notice of Appearance

Minnesota Power
Casey Furey, Crowley Fleck, PLLP

38 PU-25-304 Filed 05/20/2026 Pages: 928
Exhibit 2 - Longspur Wind 230-kV Transmission Line Application (Dkt #1)
Minnesota Power

39 PU-25-305 Filed 05/20/2026 Pages: 928
Exhibit 2 - Longspur Wind 230-kV Transmission Line Application (Dkt #1)
Minnesota Power

Sincerely,

Casey A. Furey

CAF/lh
Enc.

cc:

| | |
|---|---|
| Morton County Auditor | (via U.S. Mail) |
| Mercer County Auditor | (via U.S. Mail) |
| Jim Klempir | (via email) |
| Alex Luman | (via email) |
| Mitchell Bettenhausen | (via email) |
| Erik Edison | (via email) |

# CONSOLIDATED APPLICATION FOR A CERTIFICATE OF CORRIDOR COMPATIBILITY AND TRANSMISSION FACILITY ROUTE PERMIT

# LONGSPUR WIND 230-kV TRANSMISSION LINE

**MORTON AND MERCER COUNTIES, NORTH DAKOTA**

**PREPARED BY:**

**Merjent, Inc.**

1 Main Street SE, Suite 300
Minneapolis, Minnesota 55414

**December 2025**

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Table 1.1-1 below provides a summary of information included in this Application and the section of the document in which each siting requirement is addressed.

TABLE 1.1-1

**Certificate and Route Permit Completion Checklist**

| State Authority and Description | Section Addressed |
|---|---|
| **North Dakota Administrative Code 69-06-05-01. Application. 2. Contents** | |
| 2. The application must contain: | |
| a. A description of: | |
| (1) The type of facility proposed | 1.0, 1.2 |
| (2) Purpose of the facility | 1.0, 1.2, 2.1 |
| (3) The technology to be used | 4.0, 5.0 |
| (4) The type of product to be transmitted | 1.0, 1.2, 4.0 |
| (5) The source of the product to be transmitted | 1.0 |
| (6) The final destination of the transmission line | 1.0, 1.2, Figure 4 |
| (7) The proposed size and design and any alternate size or design that was considered, including: | |
| (a) The width of right of way; | 1.2 |
| (b) The approximate length of the facility; | 1.0, 1.2, 4.1 |
| (c) The estimated span length for electric facilities; | 4.1 |
| (d) The anticipated type of structure for electric facilities; | 1.2, 4.1, Figure 8 |
| (e) The voltage for electric facilities; | 1.0, 1.2, 4.1 |
| (f) The requirement for and location of any new associated facilities | 1.5, 2.1, 3.0, 4.0 |
| b. The anticipated time schedule for accomplishing major events, including: | |
| (1) Obtaining the certification of corridor compatibility; | 1.4 |
| (2) Obtaining the route permit; | 1.4 |
| (3) Completing right-of-way acquisition; | 1.4 |
| (4) Starting construction; | 1.4 |
| (5) Completing construction; | 1.4 |
| (6) Testing operations; and | 1.4 |
| (7) Commencing operations. | 1.4 |
| c. A copy of each evaluative study or assessment of the environmental impact of the proposed facility submitted to the agencies listed in section 69-06-01-05 and each response received. | Appendix B, Appendix C |
| d. An analysis of the need for the proposed facility based on present and projected demand for the product transmitted, including the most recent system studies supporting the analysis of the need. | 1.0, 2.0 |
| e. A description of any feasible alternative methods for serving the need | 2.2 |

TABLE 1.1-1

**Certificate and Route Permit Completion Checklist**

| State Authority and Description | | Section Addressed |
|---|---|---|
| f. | The width of a corridor must be at least ten percent of its length, but not less than one mile [1.61 kilometers] or greater than six miles [9.66 kilometers] unless another appropriate width is determined by the ND PSC | 1.2 |
| g. | A study area that includes a proposed corridor of sufficient width to enable the ND PSC to evaluate the factors addressed in North Dakota Century Code section 49-22-09. | 1.2 |
| h. | A discussion of the factors in North Dakota Century Code section 49-22-09 to aid the ND PSC's evaluation of the proposed route. | 3.5 |
| i. | | |
| j. | Identification and map of the criteria that led to the proposed route location within the designated corridor, including exclusion areas, avoidance areas, selection criteria, policy criteria, design construction limitations, and economic considerations. | 3.1, 3.2, 3.3, 3.4, 4.0, 5.0, 6.1, All Figures |
| k. | A discussion of the relative value of each criteria and how the applicant selected the proposed corridor location, giving consideration to all criteria and how the location, construction, and operation of the facility will affect each criteria. | 3.1, 3.2, 3.3, 3.4, 4.0, 5.0 |
| l. | A discussion of the general mitigative measures that the applicant will take to minimize adverse impacts that result from a route location in the proposed corridor and the construction and operation of the facility. | 1.3, 5.0, 6.0 |
| m. | The qualifications of each person involved in the corridor location study. | 9.0 |
| n. | A map identifying the criteria that led to the proposed route location within the designated corridor and the location of any new associated facilities. Several different criteria may be shown on each map depending on the map scale and the density and nature of the criteria. | All Figures |
| o. | An eight and one-half-inch by eleven-inch black and white map suitable for newspaper publication depicting the site area. | Electronically provided |
| p. | A discussion of present and future natural resource development in the area. | 1.6, Figure 6 |
| q. | Map and GIS requirements. The applicant shall provide information that is complete, current, presented clearly and concisely, and supported by appropriate references to technical and other written material available to the ND PSC. | All Figures, GIS provided |
| **North Dakota Administrative Code 69-06-08-02. Transmission facility corridor and route criteria**. | | |
| 1. | Exclusion areas. | 3.1, Figure 7 |
| 2. | Avoidance areas. | 3.2, Figure 7 |
| 3. | Selection criteria. | 3.3 |
| 4. | Policy criteria. | 3.4 |
| **North Dakota Century Code 49-22-08. Application for a certificate - Notice of filing - Amendment - Designation of a site or corridor.** | | |
| 1. | An application for a certificate shall be in such form as the ND PSC may prescribe, containing the following information: | |
| a. | A description of the size and type of facility. | 1.0, 1.2, 4.1 |
| b. | A summary of any studies which have been made of the environmental impact of the facility. | 6.4, 6.6, 6.7, 6.8, 6.9, Appendix B |

TABLE 1.1-1

**Certificate and Route Permit Completion Checklist**

| State Authority and Description | Section Addressed |
|---|---|
| c. A statement explaining the need for the facility. | 1.0, 2.1 |
| d. An identification of the location of the preferred site for any electric conversion facility. | 1.0, 1.3, All Figures |
| e. An identification of the location of the preferred corridor for any electric transmission facility. | 1.0, 1.3, All Figures |
| f. A description of the merits and detriments of any location identified and a comprehensive analysis with supporting data showing the reasons why the preferred location is best suited for the facility. | 1.0, 1.2, 1.3, 1.6, 2.1, 3.0, 6.0 |
| g. A description of mitigative measures that will be taken to minimize all foreseen adverse impacts resulting from the location, construction, and operation of the proposed facility. | 6.0 |
| h. An evaluation of the proposed site or corridor with regard to the applicable considerations set out in section 49-22-09 and the criteria established pursuant to section 49-22-05.1. | 3.5, 3.6 |
| i. Such other information as the applicant may consider relevant or the ND PSC may require. | Appendix B |
| **North Dakota Century Code 49-22-08.1 - Application for a permit - Notice of filing - Amendment - Designation of a route.** | |
| 1. An application for a route permit for an electric transmission facility within a designated corridor must be filed no later than two years after the issuance of the certificate and must be in such form as the ND PSC may prescribe, containing the following information: | |
| a. A description of the type, size, and design of the proposed facility. | 1.0, 1.2, 4.1 |
| b. A description of the location of the proposed facility. | 1.0, 1.3, All Figures |
| c. An evaluation of the proposed route with regard to the applicable considerations set out in section 49-22-09 and the criteria established pursuant to section 49-22-05.1. | 3.5, 3.6 |
| d. A description of mitigative measures that will be taken to minimize all foreseen adverse impacts resulting from the location, construction, and operation of the proposed facility | 6.0 |
| e. A description of the right-of-way preparation and construction and reclamation procedures. | 1.3, 5.0 |
| f. A statement setting forth the manner in which: | |
| (1) The utility will inform affected landowners of easement acquisition, and necessary easement conditions and restrictions. | 1.3, 3.3, 3.5, 6.2.2 |
| (2) The utility will compensate landowners for easements, without reference to the actual consideration to be paid. | 1.3, 3.3, 3.5, 6.2.2 |
| g. Such other information as the utility may consider relevant or the ND PSC may require. | Appendix B |
| **North Dakota Century Code 49-22-09. Factors to be considered in evaluating applications and designation of sites, corridors, and routes.** | |
| 1. The ND PSC shall be guided by, but is not limited to, the following considerations, where applicable, to aid the evaluation and designation of sites, corridors, and routes: | |
| a. Available research and investigations relating to the effects of the location, construction, and operation of the proposed facility on public health and welfare, natural resources, and the environment. | 1.0, 1.3, 4.0, 5.0, 6.0, Appendix B |
| b. The effects of new energy conversion and transmission technologies and systems designed to minimize adverse environmental effects. | 3.5, 4.0, 5.0, 6.0 |
| c. The potential for beneficial uses of waste energy from a proposed energy conversion facility. | Not applicable |

TABLE 1.1-1

**Certificate and Route Permit Completion Checklist**

| State Authority and Description | | Section Addressed |
|---|---|---|
| d. | Adverse direct and indirect environmental effects which cannot be avoided should the proposed site or route be designated. | 3.5, 6.0 |
| e. | Alternatives to the proposed site, corridor, or route which are developed during the hearing process and which minimize adverse effects. | 1.0, 1.3, 2.2, 3.0 |
| f. | Irreversible and irretrievable commitments of natural resources should the proposed site, corridor, or route be designated. | 3.5, 5.0, 6.0 |
| g. | The direct and indirect economic impacts of the proposed facility. | 3.5, 6.1 |
| h. | Existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site, corridor, or route. | 1.6, 3.5, Figure 6 |
| i. | The effect of the proposed site or route on existing scenic areas, historic sites and structures, and paleontological or archaeological sites. | 3.5, 6.4, 6.5 |
| j. | The effect of the proposed site or route on areas which are unique because of biological wealth or because they are habitats for rare and endangered species. | 3.5, 6.8, 6.9 |
| k. | Problems raised by federal agencies, other state agencies, and local entities. | 7.0, Appendix C |

## 1.0 INTRODUCTION

Minnesota Power respectfully submits this consolidated application for a Certificate of Corridor Compatibility (Certificate) and Transmission Facility Route Permit (Route Permit) to the North Dakota Public Service Commission (ND PSC) to construct the approximately 2.5-mile-long Longspur Wind 230-kilovolt (kV) Transmission Line (Project) in Morton and Mercer Counties, North Dakota (Figures 1 through 3).

The Project will convey power from the planned Longspur Wind Energy Center (Wind Energy Center) in Morton County to the point of interconnection at the existing Tri-County Substation, owned by Minnesota Power (Figure 4) in Mercer County. The Tri-County Substation was identified as the optimal point of interconnection based on interconnection studies and the Wind Energy Center's load injection needs. Due to the existing design of the substation, the Project is required to connect at a voltage of 230-kV.

Minnesota Power, an operating division of ALLETE, Inc., requested proposals for up to 400 megawatts (MW) of wind generation. The Wind Energy Center was chosen in an open process of competitive bids in Minnesota Power's 2024 Wind Request for Proposals with the Minnesota Public Utilities Commission. This request is part of Minnesota Power's vision for additional electric generation to meet the needs of its customers. The Wind Energy Center will have a nameplate capacity of approximately 202.5 MW, consisting of up to 45 turbines. Per ND PSC regulations, the Wind Energy Center requires a separate application for a Certificate of Site Compatibility, which Minnesota Power is filing concurrently with this application.

Interconnection of the Project consists of two Midcontinent Independent System Operator (MISO) interconnection requests (J2097 & J2157) for 100 MW each into Minnesota Power's 230-kV Tri-County Substation. The Wind Energy Center interconnection requests are awaiting MISO Phase 3 results in MISO's 2021-Cycle study group, which will reveal final interconnection costs, and are scheduled to be released in early Q1 of 2026. Following phase 3 results, Minnesota Power will negotiate the Generator Interconnection Agreement (GIA), which is scheduled to be executed by the end of Q2 2026.

Concurrently with this application, Minnesota Power is also filing an application for a Certificate of Site Compatibility for the Wind Energy Center. Pursuant to North Dakota Century Code (N.D.C.C.) Section 49-22-13, Minnesota Power respectfully requests that the hearing on this application for a Certificate of Corridor Compatibility and Route Permit be consolidated and held on the same date and in conjunction with the hearing on its separately filed application for the Wind Energy Center Certificate of Site Compatibility.

Minnesota Power is a public utility headquartered in Duluth, Minnesota. Minnesota Power supplies retail electric service to 150,000 retail customers, including some of the nation's largest industrial customer operations, and wholesale electric service to 14 municipalities in a 26,000-square-mile electric service territory located in northeastern Minnesota. Minnesota Power's transmission network is interconnected with the regional transmission grid to promote reliability. Minnesota Power is a member of MISO and the Midwest Reliability Organization (MRO).

Minnesota Power operates a 1,600 MW peak demand system with electric power generation in the form of wind, solar, and hydropower generation facilities, as well as coal, biomass, and natural gas-fired power plants in Minnesota and additional wind facilities in North Dakota. Minnesota Power also purchases electricity from independent power producers and other public utilities. Minnesota Power currently delivers 550 MW of electricity to Minnesota Power's service area via

its 465-mile-long High Voltage Direct Current (HVDC) +/-250-kV transmission line (HVDC Line), with terminals near Center, North Dakota and Hermantown, Minnesota.

## 1.1 COMPLIANCE WITH THE ENERGY CONVERSION AND TRANSMISSION FACILITY SITING ACT

The North Dakota Energy Conversion and Transmission Facility Siting Act, N.D.C.C. Chapter 49-22 (Siting Act) requires the proponent of an electric transmission facility with a design in excess of 115-kV to obtain a Certificate of Corridor Compatibility and Route Permit from the ND PSC in order to locate, construct, and operate the facility in the State of North Dakota. An application must meet certain criteria set forth in the Siting Act, as well as in North Dakota Administrative Code (N.D. Admin Code) Article 69-06. A transmission facility is required to be sited in an orderly manner compatible with environmental preservation and the efficient use of resources (N.D.C.C. 49-22-02).

In this application, Minnesota Power presents the information required by the Siting Act and the ND PSC's siting rules. Minnesota Power has considered the Exclusion and Avoidance Areas, Selection Criteria, and Policy Criteria in the design of the Project, in accordance with N.D. Admin Code 69-06-05-01, N.D. Admin Code 69-06-08-02, N.D.C.C. 49-22-08, N.D.C.C. 49-22-08.1, and N.D.C.C. 49-22-09. Information regarding Project design and technical information has been included in this application to allow a thorough understanding of the Project and to aid in review by the ND PSC, regulatory agencies, and the public. Table 1.1-1 provides a summary of information included in this application and the section of the application in which each siting requirement is addressed, if applicable.

## 1.2 PROJECT SUMMARY

Minnesota Power proposes to site, construct, and operate the proposed 230-kV transmission line in Morton and Mercer Counties, North Dakota. The Project is an approximately 2.5-mile-long, 230-kV transmission line that will convey power from the planned Wind Energy Center collection substation in Morton County to the point of interconnection at the existing Tri-County Substation in Mercer County. The Wind Energy Center collection substation is being developed as part of the Wind Energy Center and is not included within this Project. The Tri-County Substation is, and will continue to be, owned and operated by Minnesota Power.

The Project's permanent facilities will include approximately 18 transmission line structure locations, including six locations with dead-end structures and 12 tangent structures, 230-kV electrical conductors, one laydown yard for equipment within the parcel owned by Minnesota Power in Mercer County, and a new connection within the fenced area of the existing Tri-County Substation.

The structure design will be weathering steel monopoles. Three of the structures will be located in Mercer County on a single parcel of land owned by Minnesota Power, and one of those three structures will be within the existing Tri-County Substation.

The Project's temporary facilities will include:

- Wire stringing, pulling and tensioning sites; and
- Temporary construction access between pole locations

Minnesota Power will own the entire Project and, as a result, will manage the construction of all equipment and associated facilities. Minnesota Power will select a third-party engineering, procurement, and construction (EPC) contractor to manage and complete construction of the Project.

Terms used in this application associated with the Project are defined in Table 1.2-1.

TABLE 1.2-1

**Project Terms**

| Term | Definition/Description |
|---|---|
| Project Route | In accordance with N.D.C.C. Section 49-22-03(14), "Route" is defined as the location of an electric transmission facility within a designated corridor. The Project Route aligns with the transmission line centerline and is approximately 2.5 miles long. |
| Project Corridor | The area around the Project Route where easements were acquired (also referred to as the right-of-way). The Project Corridor is the typical easement that will be used during construction and maintained during the life of the Project. The Project Corridor is typically 158- to 510-feet-wide and encompasses approximately 74 acres. |
| Study Area | The Study Area analyzed for the Project is one-mile wide (0.5 mile on either side of the Project Route) and encompasses approximately 1,990 acres. [a] |

[a] N.D. Admin. Code 69-06-05-01(2)(f) states that the "width of the corridor must be at least ten percent of its length, but not less than one mile [1.61 kilometers] or greater than six miles [9.66 kilometers] unless another appropriate width is determined by the ND PSC." Minnesota Power proposes a one-mile-wide Study Area, with a 158- to 510-foot-wide Project Corridor, the combination of which is sufficient for the ND PSC to evaluate the factors addressed in N.D.C.C. Section 49-22-09.

The Study Area encompasses the Project Route and Project Corridor and is centered on the Project Route with 0.5 mile on either side of the Project Route. Upon evaluation of the one-mile-wide Study Area, Minnesota Power seeks a Certificate for a corridor between 158 and 510 feet in width as shown on Figures 1 through 3, and which is referred to throughout the application as the Project Corridor and defined above. Variability in Project Corridor width is due to crossing requirements with existing utilities.

## 1.3 PROJECT LOCATION

The Project is in Morton and Mercer Counties in west-central North Dakota, north of the City of Glen Ullin and east of State Highway 49. The Project generally runs in a north-south alignment and is approximately 2.5 miles long, with 0.37 mile in Mercer County and 2.1 miles in Morton County. Minnesota Power has negotiated agreements for easements with all landowners along the Project Route (Figure 5). All facilities are on private land except where the Project crosses one public road right-of-way (30th Street Southwest).

Table 1.3-1 lists the township, range, and sections that include the Project Route and Project Corridor.

TABLE 1.3-1

**Project Route and Project Corridor Location**

| County | Township | Range | Section [a] |
|---|---|---|---|
| Morton | 140N | 88W | 3, 10 |
| Mercer | 141N | 88W | 36 |

[a] Note that the Project Route and Project Corridor may be located within the section but may not encompass the entire section.

Table 1.3-2 lists the township, range, and sections included in the Study Area.

TABLE 1.3-2

**Study Area Location**

| County | Township | Range | Section [a] |
|---|---|---|---|
| Morton | 140N | 88W | 2, 3, 10, 11, 14, 15 |
| Oliver | 141N | 87W | 31 |
| Mercer | 141N | 88W | 36 |

[a] Note that locations within the Study Area may be located within the section but may not encompass the entire section.

The Project Route was designed to parallel existing linear features such as section lines, quarter section lines, roadways, and field edges to the greatest extent possible. Siting the Project parallel to existing linear features offers several advantages including reduced impacts on farming and the environment and improved compatibility with the surrounding landscape.

## 1.4 SCHEDULE

A summary of the anticipated time schedule for the Project, including obtaining the Certificate of Corridor Compatibility and Route Permit and construction and operation, are included below in Table 1.4-1.

TABLE 1.4-1

**Anticipated Time Schedule**

| Activity | Anticipated Time |
|---|---|
| Completing right-of-way acquisition | Complete |
| Obtaining the Certificate of Corridor Compatibility | Q2 2026 |
| Obtaining the Route Permit | Q2 2026 |
| Starting construction | Q3 2026 |
| Completing construction | Q4 2027 |
| Testing operations | Q3 – Q4 2027 |
| Commencing commercial operation | Q4 2027 |

## 1.5 EXPANSIONS OR ADDITIONS

Minnesota Power does not propose any additions or expansions to the Project at this time. Should Minnesota Power seek to develop adjacent areas in the future, all necessary permits and approvals would be obtained to allow such expansion.

## 1.6 Present and Future Natural Resource Development

In Morton and Mercer Counties, publicly known present and future natural resources development projects associated with energy development include surface coal mining, coal fired generation plants, carbon capture facilities, oil exploration, and wind energy development. Publicly known present and future natural resource development projects in Morton and Mercer Counties and within areas near the Study Area are described below and depicted in Figure 6.

Within two miles of the Study Area, there are three abandoned mines. The approximate locations are shown on Figure 6. No active coal mines are present within the Study Area. No oil exploration wells are present within the Study Area.

Within Morton and Mercer Counties, SCS Carbon Transport LLC is proposing to develop the Summit Carbon Solutions Midwest Carbon Express, a carbon dioxide ($CO_{2)}$ pipeline and sequestration project (See Case PU-22-391 Midwest Carbon Express $CO_2$ Pipeline Project). SCS Carbon Transport LLC is partnering with 57 ethanol plants across a five-state region. The project will transport $CO_2$ via pipeline from existing ethanol plants to underground injection control facilities where the CO2 will be permanently stored underground in deep geologic formations. The project will cross Burleigh, Cass, Dickey, Emmons, Logan, McIntosh, Morton, Oliver, Richland and Sargent Counties, North Dakota

Within Mercer County, there are seven existing wind turbines associated with the Glen Ullin Energy Center (Clean Energy 1). Within Morton County, there are 36 existing wind turbines associated with the Glen Ullin Energy Center (Clean Energy 1) and 73 associated with the Bison 1 through 3 Wind Projects, which are operated by Minnesota Power. Also, within Mercer County there is one proposed wind energy generation facilities, including the Red Butte Wind Energy Center. Wind turbine locations, known existing wind turbines, and known proposed wind project boundaries and study areas are included on Figure 6.

# 2.0 NEED FOR FACILITY

## 2.1 NEED ANALYSIS

This section provides an analysis of the need for the Project based on present and projected demand for wind energy, including the most recent studies supporting the analysis of the need. Demand for wind energy and the Project come from a variety of needs, including Minnesota Power's Request for Proposal, and power forecast demands. A more detailed description of each of the needs for the Project is described in detail below.

The need for the Project is driven by the need for the planned Wind Energy Center and that project's point of interconnection.

In addition, Minnesota Power requested proposals for up to 400 MW of wind generation. The Wind Energy Center will have a nameplate capacity of approximately 200 MW, which will support Minnesota Power's generation goals within Minnesota Power's service territory.

## 2.2 ALTERNATIVE METHODS TO SERVICE THE NEED

Minnesota Power identified the point of interconnection as the existing Minnesota Power Substation since the only infrastructure needed is a ring bus. There is no existing infrastructure that could connect the Wind Energy Center to existing transmission. The location of the Wind Energy Center was identified as an optimal site from wind resource, transmission, landowner participation, economic, and environmental perspectives. Therefore, there is no feasible alternative method to service the facility need. The Project Route is the most viable alternative, parallels existing public roads and section lines, and it is the most direct route that also minimizes impacts on exclusion and avoidance criteria, while optimizing selection and policy criteria, as identified in N.D. Admin Code Section 69-06-08-02.

## 2.3 TEN-YEAR PLAN

In accordance with N.D.C.C. Section 49-22-04 and N.D. Admin. Chapter 69-06-02, Minnesota Power's 10-year plan referenced its 2021 Integrated Resource Plan, Case Number PU-24-267. This Wind Energy Center and Project were selected to meet a portion of the 300 to 400 MW of new wind resource requirement referenced in the 2021 Integrated Resource Plan.

## 3.0 SITE SELECTION CRITERIA

The Project Corridor is based on the location of the existing infrastructure, landowner participation, field surveys, known environmentally sensitive areas, review of Mercer and Morton County and state transmission line requirements, and communications with local, state, and federal agencies. North Dakota has several site selection criteria that are considered by the ND PSC to determine suitability of the transmission line. Minnesota Power has reviewed the criteria in N.D. Admin Code Chapter 69-06-08 and has considered these criteria in the Project's design. These criteria are discussed in the sections below.

## 3.1 EXCLUSION AREAS

In accordance with N.D. Admin Code Section 69-06-08-02(1), which implements N.D.C.C. Section 49-22-05.1, the geographical areas listed in Table 3.1-1 must be excluded in the consideration of a transmission facility route. Exclusion areas may be located within a corridor, but at no given point can such an area or areas encompass more than 50 percent of the corridor width unless there is no reasonable alternative. N.D. Admin Code Section 69-06-08-02 further specifies that a buffer zone of a reasonable width to protect the integrity of the area must be included. Natural screening may be considered in determining the width of the buffer zone.

The Project information included in Table 3.1-1 shows none of the exclusion areas listed in N.D. Admin Code Section 69-06-08-02(1) are located within the Project Study Area. Furthermore, the archaeological sites in question, which were identified during archaeological field surveys for the Project, have been recommended as not eligible for listing on the National Register of Historic Places (NRHP) and therefore do not require avoidance by the Project, pending agreement by the North Dakota State Historical Society. Figure 7, which would normally depict the exclusion areas identified within the Project area, does not depict any exclusion areas because: a) archaeological sites are confidential and are not to be depicted in public documents; b) there are no other listed exclusion areas in the Project Study Area; and c) they will be avoided by infrastructure.

TABLE 3.1-1

**Exclusion Areas**

| Transmission Facility Corridor and Route Criteria | Description if Present in or Applicable to the Project | Proposed Buffer | Section Addressed |
|---|---|---|---|
| **1. Exclusion areas** | | | |
| a. Designated or registered national: parks; memorial parks; historic sites and landmarks; natural landmarks; monuments; and wilderness areas. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 6.5 |
| b. Designated or registered state: parks; historic sites; monuments; historical markers; archaeological sites; and nature preserves. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 6.4, 6.5, 7.0, Figure 7 |
| c. County parks and recreational areas; municipal parks; and parks owned or administered by other governmental subdivisions. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 6.5 |
| d. Areas critical to the life stages of threatened or endangered animal or plant species. | Not Present within Corridor or Route. | No impacts are anticipated. | 6.8, 6.9 |
| e. Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged. | Not Present within Corridor or Route. | No impacts are anticipated. | 6.8, 6.9 |

TABLE 3.1-1

**Exclusion Areas**

| Transmission Facility Corridor and Route Criteria | Description if Present in or Applicable to the Project | Proposed Buffer | Section Addressed |
|---|---|---|---|
| f. Areas within one thousand two hundred feet of the geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 3.6, 6.3 |
| g. Areas within 30 feet on either side of a direct line between ICBM launch or launch control facilities to avoid microwave interference. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 3.6, 6.3 |

[a] Known archaeological sites are not depicted on Figure 7 due to confidentiality.

## 3.2 AVOIDANCE AREAS

In accordance with N.D. Admin Code Section 69-06-08-02(2), the geographical areas listed in Table 3.2-1 may not be approved as a site for routing of a transmission facility unless the applicant shows that, under the circumstances, there is no reasonable alternative. Avoidance areas may be located within a corridor, but at no given point can such an area or areas encompass more than 50 percent of the corridor width unless there is no reasonable alternative. N.D. Admin Code Section 69-06-08-02(2) further requires a buffer zone of a reasonable width to protect the integrity of the area. Natural screening may be considered in determining the width of the buffer zone. Figure 7, which would normally depict the avoidance areas identified within the Project Study Area, does not depict any avoidance areas because there are no listed avoidance areas in the Project Study Area.

TABLE 3.2-1

**Avoidance Areas**

| Transmission Facility Corridor and Route Criteria | Description if Present in or Applicable to the Project | Proposed Buffer | Section Addressed |
|---|---|---|---|
| **2. Avoidance areas** | | | |
| a. Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 6.5 |
| b. Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 6.5, Figure 7 |
| c. Historical resources which are not specifically designated as exclusion or avoidance areas. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 6.4, Figure 7[a] |

TABLE 3.2-1

**Avoidance Areas**

| Transmission Facility Corridor and Route Criteria | Description if Present in or Applicable to the Project | Proposed Buffer | Section Addressed |
|---|---|---|---|
| d. Areas which are geologically unstable. | Present in Corridor. A geotechnical and geophysical analysis has been performed and areas which are geologically unstable are avoided and spanned as necessary. No transmission line structure locations will be located within a landslide deposit, as indicated by the North Dakota Geological Survey landslide mapping program. | No impacts are anticipated, and no buffer is proposed. | 6.6, Figure 7 |
| e. Within 500 feet of a residence, school, or place of business. | No residences, schools, or businesses are located within 500 feet of the Corridor. | No impacts are anticipated, and no buffer is proposed. | 3.6, Figure 7 |
| f. Reservoirs and municipal water supplies. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 6.7 |
| g. Water sources for organized rural water districts. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 6.7 |
| h. Irrigated land (note this is no longer part of the siting criteria (NDCC Sec. 49-22-05.1(2))). | Not applicable. | Not applicable. | Not applicable |
| i. Areas of recreational significance which are not designated as exclusion areas. | Not present within Corridor or Route | No impacts are anticipated, and no buffer is proposed. | 6.5, 7.0 |

[a] Known archaeological sites are not depicted due to confidentiality.

## 3.3 SELECTION CRITERIA

In accordance with N.D. Admin Code Section 69-06-08-02(3), a site can be approved in an area only when the applicant demonstrates to the ND PSC that any significant adverse effects resulting from the location, construction, and operation of the facility in that area, as they relate to the criteria listed in Table 3.3-1, will be at an acceptable minimum, or that those effects will be managed and maintained at an acceptable minimum.

TABLE 3.3-1

**Selection Criteria**

| Transmission Facility Corridor and Route Criteria | Potential Effects | Section Addressed |
|---|---|---|
| **3. Selection criteria.** | | |
| a. The impact upon agriculture: | | |
| (1) Agricultural production. | Negligible/minimal effect anticipated. Areas within the construction easement may be disturbed during field surveys and construction but will be restored as practicable. Landowners will be compensated through an easement payment and for loss of agricultural production. | 1.3, 4.3, 6.1, Figure 10 |

TABLE 3.3-1

**Selection Criteria**

| Transmission Facility Corridor and Route Criteria | Potential Effects | Section Addressed |
|---|---|---|
| (2) Family farms and ranches. | Negligible/minimal effect anticipated. Transmission lines are a compatible use with existing family farms and ranches, and the Project will not displace any farms or ranches. | 6.1 |
| (3) Land which the owner demonstrates has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation. | No effect anticipated. There is no known irrigation within the Study Area, and, thus, no effects are anticipated. Participating landowners have not expressed concerns related to economically suitable irrigation on their land. | NA |
| (4) Surface drainage patterns and ground water flow patterns. | No effect anticipated. Project infrastructure will avoid impacts on surface waters and will be designed in such a manner that runoff from the upper portions of the watershed can flow unrestricted to the lower portion of the watershed. | 6.7, Figure 12, Appendix B1 |
| b. The impact upon: | | |
| (1) Sound-sensitive land uses. | Negligible/minimal effect anticipated. Following construction, there will be a minimal amount of sound from the Project as a result of corona effects, which occur when air molecules near conducting wire are ionized due to changes in the electric field intensity at the conductor surface. The sound is most noticeable when conductors are wet as a result of precipitation. | 6.3 |
| (2) The visual effect on the adjacent area. | Negligible/minimal effect anticipated. The Project will be visible to landowners and travelers along roadways. Existing transmission lines and roads are present in the viewshed. | 1.6, Figure 6 |
| (3) Extractive and storage resources. | No effect anticipated. | NA |
| (4) Wetlands, woodlands, and wooded areas. | Negligible/minimal effect anticipated. The Project will avoid direct impacts on all wetlands. Trees/shrubs will be replaced consistent with the ND PSC's Tree and Shrub Mitigation Specifications. | 3.3, 6.5.2, 6.7, 6.9.2, Figure 12, Appendix B1 |
| (5) Radio and television reception, and other communication or electronic control facilities. | No effect anticipated. | 6.2 |
| (6) Human health and safety. | No effect anticipated. The Project will be designed and constructed to meet or exceed the standards of the National Electrical Safety Code (NESC). Regular maintenance and inspections will be performed during the life of the Project to ensure its continued integrity. | 4.0, 5.2, 6.2, 6.3 |
| (7) Animal health and safety. | No effect anticipated. Construction work will be coordinated with landowners to avoid impacts on livestock. | 6.1, 6.5 |
| (8) Plant life. | Negligible/minimal effect anticipated. The Project is located adjacent to existing roads and will be located mostly in agricultural land. Trees/shrubs will be replaced consistent with the ND PSC's Tree and Shrub Mitigation Specifications. Temporarily disturbed areas will be restored as practicable. | 1.3, 3.6, 5.2, 6.5, 6.8, 6.9 |

## 3.4 POLICY CRITERIA

In accordance with N.D. Admin. Code Section 69-06-08-02(4), the ND PSC may give preference to an applicant who will maximize benefits that result from the adoption of the policies and

practices listed in Table 3.4-1 and may require the adoption of such policies and practices as appropriate.

TABLE 3.4-1

**Policy Criteria**

| Energy Conversion Facility Siting Criteria | Description if Present in or Applicable to the Project | Section Addressed |
|---|---|---|
| **4. Policy Criteria** | | |
| a. Location and design. | The Project location is based on landowner participation, field surveys, known environmentally sensitive areas, and review of Morton and Mercer Counties and state transmission line requirements. Project design will meet the requirements of the National Electrical Safety Code requirements and policies, designing the system to efficiently transfer electricity, ensuring worker and public health and safety, and constructing facilities to most effectively and efficiently meet its delivery obligations. | 1.0, 1.3, 3.0, 4.0, 5.2, All Figures |
| b. Training and utilization of available labor in this state for the general and specialized skills required. | Minnesota Power has used several local firms in developing the Project and compiling this application and will continue to use local labor to the extent practicable. | 6.1 |
| c. Economies of construction and operation. | It is anticipated that 350 construction jobs will be created for the Project and Wind Energy Center and up to 11 full time jobs will be created for operations and maintenance | 6.1 |
| d. Use of citizen coordinating committees. | Not applicable. | Not applicable |
| e. A commitment of a portion of the transmitted product for use in this state. | The energy produced by the Wind Energy Center will be transmitted along the Project into the Tri-County 230-kV Substation. | 1.0, 2.0 |
| f. Labor relations. | No labor relations would be negatively affected by the Project. | Not applicable |
| g. The coordination of facilities. | Minnesota Power has coordinated with utility operators along the Project Route to avoid conflicts or disruptions. | 5.0 |
| h. Monitoring of impacts. | The engineering, procurement, and construction contractor will employ best management practices during construction to monitor soil impacts and segregate topsoil. A storm water pollution prevention plan will be prepared for the Project. | 5.0 |
| i Utilization of existing and proposed rights of way and corridors. | The Project's design emphasizes the utilization of existing rights of way and corridors, which encompasses roads, section lines, quarter sections, edges of agricultural fields, and transmission lines. | 1.3, 2.2, Figures 1-3 |
| j. Other existing or proposed transmission facilities. | The Project was designed, where practicable, to parallel existing rights-of-ways. | 1.3, 1.6, Figure 6 |

## 3.5 FACTORS TO BE CONSIDERED

The North Dakota Energy Conversion and Transmission Facility Siting Act, N.D.C.C. Section 49-22-09, lists the factors in Table 3.5-1 to be considered in evaluating applications and designation of sites, corridors, and routes.

TABLE 3.5-1

**Factors to be Considered**

| Factors to be Considered | Evaluation | Section Addressed |
|---|---|---|
| **1. The ND PSC shall be guided by, but is not limited to, the following considerations, where applicable, to aid the evaluation and designation of sites, corridors, and routes:** | | |
| a. Available research and investigations relating to the effects of the location, construction, and operation of the proposed facility on public health and welfare, natural resources, and the environment. | Research and investigations relating to the effects of the location, construction, and operation of the proposed facility on public health and welfare, natural resources, and the environment have been evaluated | 1.0, 1.3, 4.0, 5.0, 6.0, Appendix B |
| b. The effects of new energy conversion and transmission technologies and systems designed to minimize adverse environmental effects. | Minnesota Power will utilize best management practices that minimize impacts on the environment. The Project has been designed to minimize adverse environmental effects. | 3.0, 4.0, 5.0, 6.0 |
| c. The potential for beneficial uses of waste energy from a proposed energy conversion facility. | Not applicable. | Not applicable |
| d. Adverse direct and indirect environmental effects which cannot be avoided should the proposed site be designated. | The Project is expected to impact up to 0.03 acres of land due to pole placement. An additional 21.3 acres of land will be temporarily affected due to construction. | 4.3, 6.0 |
| e. Alternatives to the proposed site which are developed during the hearing process and which minimize adverse effects. | Minnesota Power believes that the Project Route is the most viable route and most direct route where voluntary easements can be acquired with landowners. The Project Route also maximizes conformance with the exclusion, avoidance, selection, and policy criteria identified in N.D. Admin Code Section 69-06-08-02. | 1.0, 1.3, 2.2, 3.0 |
| f. Irreversible and irretrievable commitments of natural resources should the proposed site be designated. | There are few commitments of resources associated with this Project that are irreversible and irretrievable, but these include those resources primarily related to construction. | 5.0, 6.0 |
| g. The direct and indirect economic impacts of the proposed facility. | Direct and indirect economic impacts of the Project include payments for participating landowners, employment, property tax for the substation parcel, transmission line tax payment to the state of North Dakota based on mileage and voltage, and sales/use tax on materials. | 6.1 |
| h. Existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site, corridor, or route. | No conflicts are anticipated with existing state, local government, or private entities' development plans. | 1.6. Figure 6 |
| i. The effect of the proposed site on existing scenic areas, historic sites and structures, and paleontological or archaeological sites. | There are no designated recreational or scenic resources that will be affected by the Project. Archaeological sites, as identified through a Class I Literature Search and a Class III Cultural Resources Inventory, and historical sites identified through a Class II Architectural History Inventory are present in the form of two isolated finds that have been recommended as not eligible for listing in the NRHP. No avoidance is needed. An Unanticipated Discoveries Plan will be prepared that will outline the procedure utilized to address any unanticipated discoveries of cultural resources identified during construction. | 6.4, 6.5 |
| j. The effect of the proposed site on areas which are unique because of biological wealth or because they are habitats for rare and endangered species. | No effect anticipated. All rare and endangered species habitats will be avoided. | 6.7, 6.8, 6.9 |
| k. Problems raised by federal agencies, other state agencies, and local entities. | Concerns raised by federal, state, or local entities have been addressed. Minnesota Power is in ongoing discussions with National Park Service regarding studies of potential visual impacts on Knife River Indian Villages. | 7.0, Appendix C |

## 3.6 SETBACKS

The setbacks used in designing the Project comply with or exceed those required by the ND PSC per N.D. Admin. Code Section 69-06-08-02(1)-(2), the Morton County Land Use Code (Morton County, 2025), and the Mercer County Zoning Ordinance (Mercer County, 2024). Setbacks were measured from the outermost portion of the transmission line facility to the nearest point of the applicable feature. Table 3.6-1 includes the setback distances as designated by the ND PSC used in designing the Project.

The Project has been sited parallel to existing roads to the extent possible to minimize impacts on farming and ranching operations and natural resources. Setbacks from existing infrastructure were used in designing the Project.

The Project is an allowed use in Morton County and will obtain a Conditional Use Permit from Mercer County.

TABLE 3.6-1

**Setback Distances as Designated by the ND PSC**

| Setback Type | Setback Distance |
|---|---|
| The geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility. | 1,200 feet [a] |
| Areas on either side of a direct line between ICBM launch or launch control facilities to avoid microwave interference. | 30 feet |
| Residence, school, or place of business. | 500 feet [b] |

[a] The nearest ICBM launch or launch control facility is approximately 46 miles north of the Study Area.

[b] Per N.D.C.C. 49-22-05.1(3), a residence setback may be waived in writing by the owner of the residence.

## 3.7 COUNTY CRITERIA

Minnesota Power has prioritized close coordination with Morton and Mercer Counties throughout the development of the Project and associated Wind Energy Center. As part of Minnesota Power's commitment to transparency and community involvement, the Project team recently conducted meetings with the county planning and zoning departments, as well as the county commissions, to provide comprehensive updates on the Project's progress. Adherence to county setbacks is discussed in Section 3.6.

Minnesota Power met with Mercer County Planning & Zoning on April 30, 2025, to provide an update on the Project and Wind Energy Center. Minnesota Power met with Morton County planning and Zoning on May 1, 2025, to discuss the Project and Wind Energy Center. On August 8, 2025, a Project update was provided to the Mercer County Planning & Zoning Director Jennifer Neumiller and a Wind Energy Center update to Morton County Planning and Zoning Director Natalie Pierce.

Minnesota Power will continue to meet with county officials as the Project and its associated Wind Energy Center moves forward for any necessary local construction permits (e.g., building permits, road use agreements). Minnesota Power submitted the Morton County Special Use Permit application for the Wind Energy Facility on September 29, 2025, and the Mercer County Conditional Use Permit application for a transmission line in an area zoned as agricultural I on August 8, 2025 (Appendix D). The Mercer County Conditional Use Permit for the Transmission Line was approved on October 1, 2025, and the Morton County Special Use Permit for the Wind Energy Facility was approved on November 25, 2025 (Appendix D).

# 4.0 PROJECT DESIGN

## 4.1 TRANSMISSION LINE

The Project will consist of an approximately 2.5-mile-long, 230-kV single-circuit transmission line with approximately 18 transmission line structure locations. The structure design will primarily consist of weathered steel monopoles, including 6 dead-end structures and 12 tangent structures. The exact quantity and distribution of structure types may change during detailed design and construction.

The monopole structures will range in height from approximately 85 feet to 105 feet with an average of approximately 95 feet, depending on the required span distances between structures and area topography. The span between structures will average approximately 750 feet, depending on topography; taller structures could be used for crossing existing distribution and transmission lines or where unusual terrain exists. The monopole structures will be designed to support three phases of double bundled conductor and an overhead Optical Ground Wire (OPGW). The OPGW will provide lightning protection and fiber optic communications between the Wind Energy Center collection substation and the Tri-County 230 kV Substation for systems control. Tangent, angle (used where the transmission line changes direction), and dead end (used to provide longitudinal stability along the length of the line) structures will be constructed with reinforced concrete foundations. Figure 8 provides diagrams of the monopole structures.

Project construction and design will meet the requirements of the National Electrical Safety Code (NESC), Minnesota Power's internal design standards, and other applicable local or national building codes. Minimum conductor clearance is measured at the point of greatest conductor sag and closest proximity to the ground. The transmission line will be constructed with clearances that exceed standards set by NESC. Final engineering design will determine specific structure heights to maintain NESC clearances at the lowest point of conductor sag for all operating conditions. Clearances may be increased to account for site-specific situations. Table 4.1-1 includes a description of various Project design component characteristics.

TABLE 4.1-1

**Project Design Components**

| Description of Design Component | Values |
|---|---|
| Voltage (kV) | 230 |
| Length of transmission line | 2.5 miles |
| Approximate total number of structures | 18 |
| Conductor size | 1.404-inch Diameter |
| Typical minimum and maximum span distances between structures | MIN: 180 feet<br>MAX: 893 feet |
| Average span | 750 feet |
| Minimum and maximum structure height | 85 feet -105 feet |
| Average height of structures | 95 feet |
| Average number of structures | 12 Tangents and 6 Dead-Ends |
| Minimum conductor-to-ground clearance to agricultural land at 100 degrees Celsius (°C) | 26.7 feet |
| Minimum conductor-to-ground clearance to railroad at 100°C | 34.7 feet (N/A) |
| Minimum conductor-to-ground clearance to paved highways at 100°C | 26.7 feet (N/A) |
| Circuit configuration | Delta for Tangents, Vertical for Dead-Ends |

## 4.2 PROJECT ACCESS

Minnesota Power will use existing public and private access to the maximum extent possible. Where existing access is unavailable, temporary access roads will be used to access areas where there are environmental constraints between structures limiting access or where structures are not located adjacent to existing roads. All access roads avoid aquatic, biological, cultural, and tribal resource constraints and any changes made to temporary access roads during construction will be surveyed. Temporary access will only be as wide as needed and construction will predominantly take place when the ground is dry and hard enough to support construction equipment with no improvements, but occasionally timber mats may be required to cross aquatic sites. Generally, little to no grading or vegetation clearing will be required.

## 4.3 PROJECT IMPACT ASSUMPTIONS

Permanent impacts are those required for Project operation, consisting mostly of individual structure locations. Temporary impacts are those impacts that result during construction to accommodate equipment and temporary activities outside of the areas that will remain as the permanent Project footprint during operation (Table 4.3-1).

TABLE 4.3-1

**Estimated Project Ground Disturbance Impacts**

| Project Component | Disturbance Assumptions | Impact Multiplier [a] | Temporary Impact (acres) | Permanent Impact (acres) |
|---|---|---|---|---|
| Single-pole structures (Longspur 230-kV) | Temporary: 200 feet x 130 feet area = 26,000 square feet = 0.59 acres | 18 new structures/ 18 new foundations | 10.7 | -- |
| | Permanent: 10 feet diameter = 78.54 square feet$^2$ = 0.0018 acre | | - | 0.03 |
| Structure site access | Temporary: 24 feet wide<br>Permanent: None | 2.37 miles of structure site access along Project Corridor | 4.7 | None |
| Laydown area(s) | Temporary: 9.1 acres<br>Permanent: None | - | 9.1 | None |
| Access Roads (Existing County Road) | Permanent | | | - |
| | | **Total (acres) [b]** | **21.4** | **.03** |

[a] Impact multipliers are based on preliminary engineering design and could change during final design.

[b] Rounded to the nearest tenth of an acre. Total impact areas may overestimate actual impacts.

# 5.0 CONSTRUCTION, OPERATION, AND MAINTENANCE

## 5.1 PRE-CONSTRUCTION SURVEYING AND GEOTECHNICAL ANALYSES

Minnesota Power and/or its contractors will perform initial transmission line survey work, consisting of survey control, route centerline location, profile surveys, and access surveys prior to construction. These surveys will likely be conducted concurrently with other pre-construction tasks.

Geotechnical analyses will be conducted at select locations along the transmission line to determine engineering requirements for structures. A truck-mounted auger will be transported to each site to drill a small-diameter borehole. Cuttings from each borehole will be evaluated to determine soil characteristics. An experienced geotechnical testing laboratory will perform the sample analysis. Geotechnical analyses will be confined to a relatively small area needed for site access and equipment operations.

## 5.2 PROJECT CONSTRUCTION

Structures will be installed at existing grades. Therefore, structure locations will not be graded or leveled, unless it is necessary to provide a reasonably level area for construction crews and equipment, such as auger trucks, cranes, and other installation vehicles (e.g., bucket trucks, stringing, and clipping trucks). Blading will be confined to the Project Corridor and will be accomplished using bulldozers or front-end loaders. Soil removed during leveling will be stockpiled and replaced following construction; special emphasis will be placed on salvaging topsoil to be used for reclamation. The ground will be re-graded to the approximate original contour and revegetated (rangeland) or tilled (cropland) when the work is completed. Temporary disturbance to soils will be mitigated by returning the sites to their original use unless other arrangements are made with the landowner to facilitate the long-term maintenance of the transmission line.

Temporary ground disturbance will occur during the setting of structures and support anchors. These disturbances will occur during the boring of the hole used for setting the structure and support anchor. Boring equipment will be used to facilitate the installation of the transmission foundation. Soil removed during boring activities will be spread around the base of the structure. Boring equipment will be used to facilitate the installation of transmission foundations. The foundations will be constructed of reinforced concrete with prefabricated anchor bolt cases placed in the boreholes. Soil removed during boring activities will be sloped around the structure after installation or in adjacent upland areas. Approximately 60 to 75 cubic yards of concrete will be required per dead end structure and approximately 25 cubic yards of concrete will be required for the tangent structures, with the large majority of the structures directly embedded. The most noticeable impact on the Project Route will be land disturbance in the area of transmission structure construction to allow adequate room for operation of equipment. Following the structure installation, the disturbed area will be groomed and seeded, including replacement of trees and shrubs outside of the Project Corridor. Where practicable, trees and low-growing vegetation will not be removed if future growth will not interfere with the operation or maintenance of the line. There may be limited use of herbicides to remove or control the growth of vegetation in some areas. Herbaceous and smaller woody plants will not be disturbed, except for those that will be crushed unavoidably during structure installation. During operations, vegetation will be monitored regularly and trimmed so that it does not exceed safety provisions. The Project will be constructed to maintain minimum conductor-to-ground clearance as required by the NESC.

After structures have been erected, conductors will be installed by establishing stringing setup areas. Conductors will be installed between setup areas using a “controlled tension method,” which ensures that the cable comes off the reel at a constant tension without backlashes. Conductor stringing operations will also require brief access to each structure to secure the conductor wires to the insulators or shield wire clamps once final line sag is established.

Stringing equipment generally consists of wire pullers, tensioners, conductor reels, shield wire reels, and stringing blocks. Stringing operations consist of pulling lightweight cables or ropes through the stringing sheaves located at every structure site. This cable or rope will be used to pull the conductors through the sheaves under sufficient tension to keep the conductor from coming into contact with the ground. Temporary guard or clearance poles will be installed over existing distribution or communication lines, streets, roads, highways, railways, or other obstructions after any necessary notifications are made and/or permits are obtained. This ensures that conductors will not obstruct traffic or come into contact with existing energized conductors or other cables and protects the conductors from damage. Once a section of a line has been installed, temporary structures will be removed, holes backfilled, and the area of disturbance reseeded to produce the same cover that was removed.

Debris associated with transmission line construction may include construction materials such as packaging material, insulator crates, conductor reels, and wrapping. This debris may also include excess excavated soil and removed vegetation. Materials with salvage value, including conductor reels, unused conductor and hardware, structures, and other materials, will be removed from the site for reuse. Excess soil and vegetation will be spread across uplands in the Project Corridor. Solid waste will be temporarily stored within the Project Corridor or construction laydown areas and then transported to appropriate disposal facilities. Debris will be disposed of in accordance with local, state, and federal regulations.

Temporary staging areas will be located within the Project Corridor and/or construction laydown areas and will be limited to the structure site areas for structure laydown and framing prior to structure installation. Disturbed areas will be restored to their original condition to the maximum extent practicable.

Construction-related tasks are outlined below.

- Pre-construction: Environmental surveys, geotechnical analysis, cultural resources surveys, avian surveys, micro-siting, engineering, design, land procurement, various utility studies, and long-lead equipment procurement.
- Surveying: Initial line-survey work consisting of aerial photography, survey control, route centerline location, profile surveys, and access surveys.
- Structures: Vegetation removal (as needed) and drilling for foundations.
- Delivery and Assembly: Flatbed truck deliveries to installation locations, structure assembly with cranes and bucket trucks, backfill foundation footings with rock and tamp into place to prevent structure movement or settling.
- Wire Installation: Wires will be strung, pulled, and tensioned using heavy, truck-mounted winches that also carry reels of conductor and cable.
- Post-construction reclamation activities generally include:
    - cleaning up all construction sites, including removing and properly disposing of debris;

- removing all temporary facilities, including staging areas;
- installing appropriate erosion control measures; and
- reseeding and replacing trees and shrubs as necessary in disturbed areas with vegetation similar to vegetation that was removed and restoring the areas to their original condition to the extent practicable. Trees and shrubs will be replaced consistent with the ND PSC's Tree and Shrub Mitigation Specifications.

## 5.3 CONSTRUCTION MANAGEMENT

The EPC contractor will have primary responsibility for construction management, and will undertake the following activities:

- securing building, electrical, grading, road, and utility permits;
- performing detailed civil, structural and electrical engineering;
- scheduling execution of construction activities;
- forecasting Project labor requirements and budgeting;
- coordinating and managing the work of all Project subcontractors; and
- providing direct supervision for the installation of all Project components including foundations, structures, insulators and conductors, and interconnection equipment.

Construction activities under the EPC's supervision will generally consist of:

- project development;
- foundation excavation;
- reinforced concrete foundation installation;
- electrical and communications equipment installation;
- transmission line assembly and erection;
- system testing; and
- restoration of temporary impact areas.

Throughout the construction phase, ongoing coordination will occur between Minnesota Power and the EPC. The EPC's on-site Project construction manager will help to coordinate ongoing communication with local officials and landowners. Minnesota Power, the EPC construction manager, and the operations and maintenance (O&M) staff manager will work together to ensure a smooth transition from construction through Project commissioning and operation.

## 5.4 COMMISSIONING

The Project will be commissioned after completion of the construction phase and detailed inspection and testing. Inspection and testing will occur for each component of the Project.

## 5.5 OPERATION AND MAINTENANCE

The Project will be operated in conjunction with the Wind Energy Center with up to 11 full-time employees based at the Wind Energy Center O&M building. The Project will also be monitored through the Supervisory Control and Data Acquisitions system located at the Wind Energy Center O&M building. Project O&M will consist of continuous remote monitoring and regular on-site inspections and maintenance as needed.

# 6.0 ENVIRONMENTAL ANALYSIS

## 6.1 LOCAL ECONOMIES

### 6.1.1 Description of Resources

**Morton County**

According to the Job Service North Dakota Labor Market Information Center (NDLMI), Morton County's 2024 resident population was 34,194, a one-year numeric increase of 147 residents or population increase of +0.4 percent. The unemployment rate for Morton County in May 2025 was 2.0 percent. One year prior, the unemployment rate was 2.0 percent. There were 311 job openings in Morton County in June 2025. On average in the fourth quarter of 2024, the private industry in Morton County employing the largest number of workers was health care and social assistance. The private industry with the highest average weekly wage in the fourth quarter of 2024 was utilities (NDLMI, 2025a; U.S. Census Bureau, 2024a).

In Morton County, agriculture is an important part of the economy with 688 farms located in the county (USDA National Agricultural Statistics Service [NASS], 2022a). According to the 2022 Census of Agriculture, the total market value of agricultural products produced in Morton County was $255,364,000, of which 58 percent was from crops and 42 percent from livestock. The principal crops include wheat, forage, corn, soybeans, and sunflowers, and the primary livestock is cattle (USDA NASS, 2022b).

In July 2025, Morton County had 205 homes for sale with the majority in the towns of Mandan, New Salem, and Glen Ullin (Zillow, 2025). U.S. Census Bureau data from the 2020 census indicates there are approximately 1,280 vacant housing units in Morton County (U.S. Census Bureau, 2024b). Lodging facilities including hotels, inns, and motels are available in the towns of New Salem, Mandan, and Glen Ullin.

**Mercer County**

According to Job Service NDLMI, Mercer County's 2024 resident population was 8,348, a one-year numeric increase of 26 residents or population increase of +0.3 percent. The unemployment rate for Mercer County in May 2025 was 2.3 percent. One year prior, the unemployment rate was 2.4 percent. There were 52 job openings in Mercer County in June 2025. On average in the fourth quarter of 2024, the private industry in Mercer County employing the largest number of workers was utilities. The private industry with the highest average weekly wage in the fourth quarter was mining, quarrying, and oil and gas extraction (NDLMI, 2025b; U.S. Census Bureau, 2024a).

In Mercer County, agriculture is an important part of the economy with 296 farms located in the county (USDA NASS, 2022a). According to the 2022 Census of Agriculture, the total market value of agricultural products produced in Mercer County was $73,889,000, of which 64 percent was from crops and 36 percent from livestock. The principal crops include forage, wheat, corn, soybeans, and barley, and the primary livestock is cattle (USDA NASS, 2022c).

In July 2025, Mercer County had 53 homes for sale with the majority in the towns of Beulah and Hazen (Zillow, 2025). U.S. Census Bureau data from the 2020 census indicates there are approximately 1,182 vacant housing units in Mercer County (U.S. Census Bureau, 2024c). Lodging facilities including hotels, inns, and motels are available in the towns of Hazen and Beulah.

### 6.1.2 Impacts/Mitigation

The Project and the Wind Energy Center will have positive economic impacts for the local population, including right-of-way or lease payments for participating landowners, employment, and property and sales tax revenue. Economic losses from farmland that is taken out of production for operation of the Project are anticipated to be minimal in comparison to the additional income provided by the Project.

Minnesota Power estimates that the Project and the Wind Energy Center will provide approximately $33 million in state tax revenue over 35 years and approximately $19 million in sales tax revenue. The Project and the Wind Energy Center also will provide over $62 million in payments to participating landowners over 35 years, which will not only benefit those landowners, but also the local economy as that money is reinvested in local goods and services. Minnesota Power estimates that the total cost for the Project and Wind Energy Center would be approximately $791 million.

The Project and the Wind Energy Center will create up to 11 full-time O&M jobs. Most of these employees are expected to reside locally. The full-time positions include one site manager and several technicians. Additionally, the Project and the Wind Energy Center will create approximately 350 temporary construction jobs.

Landowner compensation has been established under individual lease options and easement agreements and includes compensation for crop damage during surveys and construction. In an environment of uncertain and often declining agricultural prices and yields, the supplemental income provided to farmers from leases is expected to provide stability to farm incomes and thus will help assure the continued viability of farming for participating landowners. Project construction will not cause additional impacts on leading industries within the Study Area.

To the extent that local contractors are used for portions of the construction, wages and salaries paid to contractors and workers in Morton and Mercer Counties will contribute to the total personal income of the region. Additional personal income will be generated for residents in the counties as well as the state by circulation and recirculation of dollars paid out by the applicant as business expenditures and state and local taxes. Expenditures made on equipment, energy, fuel, operating supplies, and other products and services will benefit businesses in the counties and the state.

It is likely that general skilled labor is available either in the county or the state to serve the basic infrastructure and site development needs. Specialized labor will be required for certain components of Project development. It is likely that this labor will be imported from other areas of the state or from other states, as the relatively short duration of construction does not warrant special training of local or regional labor. Balancing the use of local contractors and imported specialized contractors will likely alleviate any labor relations issues.

During construction, out-of-town laborers will likely use lodging facilities in and around the cities of Washburn, Hazen, Beulah, New Salem, Mandan, and Bismarck. It is expected that full-time O&M staff will reside in nearby towns with available housing.

## 6.2 PUBLIC SERVICES

### 6.2.1 Description of Resources

#### Local Government Services

Within the Study Area is a network of established roads and utilities that provide access and necessary services to cities, communities, homesteads, and farms. There are no incorporated or unincorporated cities within the Study Area. The closest city, which is Glen Ullin, North Dakota, is located approximately 9 miles south of the Study Area.

#### Electrical Service

Mor-Gran-Sou Electric Co-op and Roughrider Electric Co-op provide rural electrical service in the Study Area.

#### Roads

Public roads within the Study Area within Mercer County include County Road 60th Ave SW. Public roads within the Study Area within Morton County include County Roads 30th Street SW, 62nd Ave SW, 31st Street SW, and 32nd Street SW. There are no state highways within the Study Area. The Study Area lies in the North Dakota Department of Transportation (NDDOT) District Boundary of Bismark and Dickinson, North Dakota.

#### Traffic

Existing daily traffic volumes for state highways, county roads, and township roads that are in proximity to the Study Area are documented in Table 6.2-1. In general, the NDDOT indicates that roads with vehicle counts under 100 annual average daily traffic are rarely counted and roads with no count data are likely lower than those with count data.

TABLE 6.2-1

**Existing Daily Traffic Levels**

| Roadway Segment | Average Daily Traffic | Average Daily Truck Traffic | Year |
|---|---|---|---|
| ND Highway 49, north of 30th Street | 1,580 | 235 | 2014 |
| ND Highway 49, north of 33rd Street | 1,630 | 250 | 2014 |
| ND Highway 49, north of 32nd Street | 1,385 | 265 | 2022 |
| 33rd Street, east of ND Highway 49 | 30 | 0 | 2014 |
| 30th Street, east of ND Highway 49 | 45 | 10 | 2014 |

Source: NDDOT's Transportation Information Map (NDDOT, 2024)

#### Communications

Comsearch analyzed the potential impacts of the Project on licensed, proposed and applied non-federal government microwave systems (Appendix B2). The analysis identified three microwave paths intersecting the Minnesota Power Project Route.

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the Project (Appendix B2). The analysis concluded that no licensed and operational AM or FM broadcast stations were identified within 30 kilometers of the Project Route.

The corona-induced broadband electromagnetic radiation (EMR) from transmission lines can produce interference with some communications signals if there is an overlap in the signal and EMR frequencies. Broadband corona EMR discharge typically occurs in the frequency spectrum from below 100 kilohertz (kHz) to approximately 1,000 megahertz (MHz), which overlaps with the frequencies used for AM and FM radio and some television signals.

### 6.2.2 Impacts/Mitigation

**Local Government Services**

No impacts on local government services are anticipated, and no mitigation is required.

**Electrical Service**

No impact on electrical service is anticipated, and no mitigation is required.

**Roads**

No permanent access roads will be built to construct or maintain the Project. Much of the Project Route is adjacent to existing public roads or section lines and can be accessed with minimal off-road work. In areas where the Project Route is not adjacent to existing roads, Minnesota Power will enter into agreements with landowners for temporary construction access.

The capacity of any road and level-of-service to the traveling public will not be affected, and no mitigation is required.

**Traffic**

There will be a temporary increase in vehicular traffic during construction activities. The maximum construction workforce is expected to generate approximately 1,000 additional vehicle trips per day on each road to support construction of the Project and Wind Energy Center. While there may be some noticeable increase in heavy vehicle traffic in discrete locations for limited amounts of time, the capacity of roads and level-of-service to the traveling public will be negligible as any combination of state and county highways and other township roads will be used. Specific truck routes will be dictated by delivery location. Additional operating permits will be sought from the state or county for over-sized and over-weight truck movements. Minnesota Power will coordinate with Morton County and Mercer County to obtain necessary road use agreements. The capacity of any road and level of service to the traveling public will not be permanently affected, and as such, no mitigation is required.

**Water Supply**

Construction will not significantly impact local water supply. Construction will require water for reinforced concrete foundations, backfill, compaction, and dust control; however, construction water estimates are subject to change due to final site investigation and weather. The Project will not require appropriation of surface water or permanent dewatering.

The abandonment of wells is not anticipated. However, in the event wells are abandoned, they will be sealed as required by North Dakota law. Therefore, no mitigation is required.

**Communications**

With sufficient corona activity, some radio and television interference can be noticeable; however, the radio sound generated by a transmission line is very low in power and interference is generally only experienced in very close proximity to the transmission line. These effects are most pronounced directly underneath the line conductors and decrease with distance from the transmission line. The level of interference with reception of a radio signal also depends on the relative locations of the radio transmitter, the radio receiver, and the transmission line. A transmission line that is directly between a radio transmitter and a listener's receiver may be more likely to interfere with that listener's reception, whereas a transmission line behind or beside the listener in relation to the transmitter will not necessarily cause interference depending on the radio receiver's antenna.

As digital signal processing has been integrated into television and radio receivers, the potential interference impact of corona-generated radio sound has been further reduced. Moreover, the advent of cable and satellite television service, and the federally mandated conversion to digital television broadcast in June 2009, have greatly reduced the occurrence of corona-generated interference. Newer digital television receivers are equipped with systems to filter out interference; therefore, no mitigation is required.

## 6.3 PUBLIC HEALTH, WELFARE, AND SAFETY

### 6.3.1 Description of Resources

**Aerospace and Military Operations**

Minnesota Power and its representatives have notified the following aerospace and military operations agencies and organizations of the Project and solicited feedback concerning the development of the Project: the Federal Aviation Administration (FAA), North Dakota Aeronautics Commission, Grand Forks Air Force Base (AFB), Minot AFB, 91st Missile Maintenance Squadron, U.S. Department of Defense, and Military Aviation and Installation Assurance Siting Clearinghouse (Clearinghouse). Responses from the aerospace and military operations agencies and organizations are summarized in Section 7.0, and correspondence is included in Appendix C.

The nearest Project feature to a known intercontinental ballistic missile (ICBM) launch or launch control facility is approximately 46 miles north of the Study Area.

**Sound**

Corona from transmission line conductors can generate electromagnetic "noise" at the same frequencies transmitted by radio and television signals. Corona consists of the breakdown or ionization of air within a few centimeters of conductors and hardware. Aeolian vibration is produced when a steady flow of wind interacts with an object such as a transmission line. Wind must blow steadily and perpendicular to the lines to set up oscillating forces.

The Study Area is primarily rural and agricultural. There are no populated towns within the Study Area. The existing acoustic environment is defined primarily by distant traffic sound from the nearby arterial highways and will also include intermittent aircraft overflights and sound from

agricultural operations. In addition to anthropogenic sound sources, the windy conditions of this site define a somewhat elevated ambient sound level, which increases with wind speed. Windy conditions can generate sound caused by the rustling of grass and tree leaves.

**Electromagnetic Fields**

Power frequency electromagnetic fields (EMF) are created wherever electricity flows. Leading U.S. and international scientific organizations, such as the National Cancer Institute and the World Health Organization, have evaluated EMF research. These organizations generally conclude that, overall, the body of scientific research does not show that exposure to EMF causes or contributes to any type of cancer or any other disease or illness (National Institute of Environmental Health Sciences [NIEHS], 1999).

**Hazardous Materials/Hazardous Waste**

The Project is located in a rural area of North Dakota. Hazardous wastes from large industrial or commercial activities are not likely to be present in the Study Area. Potential hazards may exist in rural areas from farm dumps and agricultural chemicals. A Phase I Environmental Site Assessment (Phase I ESA) will be completed prior to construction. The Phase I ESA will identify any recognized environmental conditions that may exist. A recognized environmental condition includes the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property.

Potentially hazardous materials associated with the Project include fuel, hydraulic fluid, or other hazardous substances that may be stored onsite during construction. When more than 1,320 gallons of oil storage are located on-site in containers 55-gallons or larger and a reasonable expectation of discharge of oil into water, a Spill Prevention, Control, and Countermeasures (SPCC) Plan is required to address the safe and secure containment of oil as well as procedures for operations and spill prevention practices.

**Security**

The Study Area is located in a region characterized by low population density and there are no cities or towns within the Study Area. The Study Area falls within unincorporated Mercer and Morton Counties and is within the Glen Ullin emergency services boundary (NDGISHUB). This department will determine the designated ambulance response service and fire department service for incidents reported through the 9-1-1 emergency system. The nearest emergency hospital is Sakakawea Medical Center in Hazen.

### 6.3.2 Impacts/Mitigation

**Aerospace and Military Operations**

The maximum expected transmission structure height will be approximately 110 feet above ground level, and no part of the Project will exceed 200 feet above ground level.

**Sound**

Project construction and maintenance may cause short-term but unavoidable sound impacts due to construction and equipment. Construction and maintenance activities will also generate traffic that will have potential sound effects, such as trucks travelling to and from the Project on public roads. Sound generated by construction activities is generally exempt from state and local noise

regulation. Once the Project has been built, no significant sound impacts are anticipated. Project maintenance will occur periodically but is not expected to result in significant sound generation.

Corona effects occur when air molecules near conducting wire are ionized due to changes in the electric field intensity at the conductor surface. Measures such as carefully handling the conductor during construction to avoid nicking or scraping or otherwise damaging the surface and using hardware with no sharp edges or points are typically adequate to control corona. Corona effects are expected to be low enough that no objectionable audible sound will result outside the Study Area. The sound is most noticeable when conductors are wet because of precipitation.

Aeolian vibration is produced when a steady flow of wind interacts with an object such as a transmission line. Wind must blow steadily and perpendicular to the lines to set up oscillating forces. The resulting vibration can produce resonance if the frequency of the vibration matches the natural frequency of the line. However, sound from aeolian vibration is expected to be minimal outside of the Project Corridor; therefore, no mitigation is proposed.

**Electromagnetic Fields**

Many studies of EMF have been conducted, but none have identified a cause-and-effect relationship between EMF exposure and health effects or a mechanism by which EMF could cause disease (NIEHS, 1999). No impacts from EMF are expected; therefore, no mitigation is proposed.

**Hazardous Materials/Hazardous Waste**

Prior to construction, Minnesota Power will conduct a Phase I ESA and the results will be used to avoid and minimize risk associated with potential recognized environmental conditions in the Project Corridor. Significant findings are not anticipated due to the known historic uses of the property. As with any construction activity, there is the possibility of accidentally spilling fuel, hydraulic fluid, or other hazardous substances during construction of the Project. The potential of such events will be minimized through implementation of an SPCC Plan, which will include the following:

- Construction equipment will be equipped with spill cleanup kits.
- Equipment refueling will take place at secure areas, away from wetlands or drainages.
- Workers will be trained in spill clean-up and the use of spill cleanup kits.

These measures will ensure that surface and groundwater quality will not be degraded through inadvertent spillage of contaminants.

## 6.4 CULTURAL RESOURCES

### 6.4.1 Description of Resources

**Previously Recorded Sites**

Merjent compiled and reviewed existing cultural resources data for the Project and established pre-contact Native American period and Euro-American historic period contexts for the Project and immediate region. Known cultural resources data were compiled and summarized.

Merjent conducted a cultural resources Class I file search in August 2024, with an update in January 2025, to evaluate the Project and a larger 1-mile study area (Study Area) buffer of the proposed Project Corridor to provide a wider context. The file search used records of the State Historical Society of North Dakota (SHSND) to identify known archaeological sites, architectural properties, and cultural resources surveys. The NRHP database and historical records, maps, and aerial photography were also consulted. This file search was conducted to compile cultural resources data for the Study Area and is the basis for understanding the types of resources that may currently be undetected in the Project Corridor. The file search is not a replacement for other cultural resources studies such as a Class III cultural resources survey.

Records curated with the SHSND Archaeology and Historic Preservation Files document 13 previously completed cultural resources studies within the Project Corridor and 1-mile Study Area. Conducted between 2012 and 2021, almost all previous investigations are linear and small block surveys associated with infrastructure development. Over half of the cultural resource studies are related to wind energy development and road improvements. Other common survey types include oil and gas projects, bridge inventories, and electrical and water transmission developments. About three-quarters of the previous studies are contemporary and were completed after 2013. A total of four previous surveys overlap the proposed Project Corridor. The majority are for a windfarm adjacent to the Project area and for an oil pipeline project (Table 6.4.1-1).

TABLE 6.4.1-1

**Previous Survey Manuscripts Within the 1-Mile Study Area**

| MS Number | Report Title | Authors | Report Year |
|---|---|---|---|
| 12901 | Class III Cultural Resource Inventory for the Allete Energy 230kV Transmission Line Project in Mercer, Morton, and Oliver Counties, North Dakota | (Burns, Christina G. – Primary Author) | 2012 |
| 14224 | Addendum to Bison 4 Wind Energy Center: A Class III Intensive Cultural Resources Inventory in Mercer and Oliver Counties, North Dakota | (Reiners, Linsey – Primary Author) | 2013 |
| 14356* | West Substation Location Survey: A Class III Intensive Cultural Resource Inventory in Mercer County, North Dakota | (Brooks, Brittany – Primary Author) | 2013 |
| 14976 | 2013 Survey Report Addendum: Center Service Area Rural Distribution Lines Supplemental Class II-III Cultural Resources Inventory Southwest Water Pipeline Project Mercer, Morton, and Oliver Counties, North Dakota SWPP Contract 7-9E | (Jackson, Michael A. – Primary Author); (Rokke, Nathan J. – Contributing Author); (Toom, Dennis L. – Contributing Author) | 2014 |
| 15062 | Addendum to Bison 4 Wind Energy Center Access Roads and Borrow Areas: A Class III Intensive Cultural Resource Inventory in Mercer and Oliver Counties, North Dakota | (Brooks, Brittany – Primary Author) | 2014 |
| 15491 | Addendum to Bison 4 Wind Energy Center Crane Path Reroutes II: A Class III Intensive Cultural Resource Inventory in Oliver County, North Dakota | (Brooks, Brittany – Primary Author) | 2014 |
| 15938* | Dakota Access, LLC Dakota Access Pipeline Project (ND) 2014 Dakota Access Class II/III Cultural Resources Inventory | (Mueller, Andrew C. - Primary Author); (Picka, Craig M. - Contributing Author); (Sather, Dean T. - Contributing Author); (Terry, Matthew - Contributing | 2015 |

TABLE 6.4.1-1

**Previous Survey Manuscripts Within the 1-Mile Study Area**

| MS Number | Report Title | Authors | Report Year |
|---|---|---|---|
| | | Author) | |
| 16512* | Dakota Access, LLC, Dakota Access Pipeline Project (ND) Volume 1, 2015 Dakota Access Class II/III Cultural Resources Inventory | (Mueller, Andrew C. - Primary Author); (Picka, Craig M. - Contributing Author); (Sather, Dean T. - Contributing Author); (Terry, Matthew - Contributing Author) | 2015 |
| 17092 | 2015 Survey Report Addendum: Center Service Area Rural Distribution Lines Supplemental Class II and Class III Cultural Resources Inventories for the Southwest Water Pipeline Project, Oliver, Mercer, and Morton Counties, North Dakota, SWPP Contract 7-9E | (Cox, Matthew A. – Contributing Author); (Kromarek, Nicole – Primary Author) | 2016 |
| 18093 | Addendum to the Clean Energy I Wind Farm: A Class III Intensive Cultural Resource Inventory in Morton and Mercer Counties, North Dakota | (Atkinson, Alex – Primary Author) | 2018 |
| 18192* | Addendum II to the Clean Energy I Wind Farm: A Class III Intensive Cultural Resource Inventory in Morton and Mercer Counties, North Dakota | (Brooks, Brittany – Primary Author) | 2018 |
| 18351 | Addendum III to the Clean Energy I Wind Farm: A Class III Intensive Cultural Resource Inventory in Morton and Mercer Counties, North Dakota | (Abbott, Melody – Primary Author) | 2019 |
| 19389 | A Class III Cultural Resource Inventory for the Bison & Glen Ullin Wind Project Radar Stations in Morton and Oliver Counties, North Dakota | (Altieri, Irene – Primary Author) | 2021 |

* Surveys Within the Proposed Project Corridor

There has been very little systematic survey within the actual Project Corridor, and most previous studies sample the Study Area around the northern perimeter of the Project. Usually facilitated by recent wind energy development projects, surveys around the periphery provide useful data for projecting the frequency and types of sites likely to be detected. The small survey sample reflects a relatively low to moderate site density of about one to five archaeological sites per land section (640 acres), but the linear assessments provide a very limited systematic sample within the greater section of land.

Records in the North Dakota Archaeology and Historic Preservation Files identify 11 cultural resources in the Study Area. This sample includes archaeological sites, site leads (probable site locations), isolated finds, and architectural buildings or structures. Pre-contact period Native American cultural resources include three archaeological sites and four isolated finds. Historical Euro-American resources include two architectural properties, one archaeological site, and one site lead (Table 6.4.1-2).

TABLE 6.4.1-2

**Previously Recorded Sites Within the 1-Mile Study Area**

| SITE ID | Type | Affiliation | SITE TYPE | NRHP Status |
|---|---|---|---|---|
| 32MO233 | Site | Historic | Stagecoach Road- Abandoned Fort Keogh to Fort Lincoln | Unevaluated |
| 32MO1516 | Site | Historic | Cultural Material Scatter | Not Eligible |
| 32MOX579* | Isolated Find | Precontact | Chipped Stone | Not Eligible |
| 32MOX580* | Isolated Find | Precontact | Chipped Stone | Not Eligible |
| 32OL666 | Site | Architectural | Barn | Eligible |
| 32OL673 | Site | Precontact | Cairn | Eligible |
| 32OL674 | Site | Precontact | Cairn | Unevaluated |
| 32OL690 | Site | Precontact | Cairn | Eligible |
| 32OLX263 | Isolated Find | Precontact | Chipped Stone | Not Eligible |
| 32OLX268 | Isolated Find | Precontact | Chipped Stone | Not Eligible |
| 32ME2404 | Site | Multi-Component (Architectural, Historic) | Farmstead, Cultural Material Scatter | Not Eligible |

* Sites Within the Project Corridor

Native American components are characterized by occurrences of stone feature sites and isolated chipped stone finds. The three pre-contact archaeological sites all consisted of cairns. Generalizing, Native American components in the Project and Study areas are low-duration and low-intensity occupations representing limited, and specialized activities, and perhaps temporary habitations. Some of these lands remain unbroken by mechanized agriculture, and the preservation of surface features like cairns and stone circles indicate that some of the Study Area sites retain their integrity. Cairns may be specialized features related to hunting, marking trails, communicating information, or denoting other important spots on the landscape.

Particularly with the archaeological sites, few pre-contact Native American components have been evaluated for their National Register eligibility. Four occurrences of isolated lithic artifacts have been determined or are recommended as not meeting the eligibility requirements of the NRHP. Two pre-contact archaeological sites have been recommended or determined as eligible and one pre-contact cultural resource is unevaluated. The two sites that are eligible for the NRHP are two cairn sites. Preservation of integrity is important to support the eligibility of Native American sites in the region, and agriculture can have a deleterious effect on historic significance. The small sample of previously documented sites in the Study Area are probably very representative of the types of Native American sites that are currently undetected in the Project Corridor.

Historic period Euro-American components in the Study Area include architectural properties and archaeological sites. There are two resources with historical buildings or structures, one archaeological site, and one site lead. The sample of previously recorded sites include a homestead, barn, and a historic cultural material scatter. The site lead consists of a road (Bismarck and Fort Keogh Stage Road).

One site, a barn, has been recommended as meeting eligibility requirements of the NRHP; one site is unevaluated regarding eligibility for listing in the NRHP; and two resources have been evaluated as not eligible. Historical architecture is common in the Study area, but most of these properties do not meet eligibility requirements of the NRHP, likely due to decades of refurbishment and remodeling that has affected their integrity and historic character.

Within the Study Area there are a total of two previously recorded pre-contact isolated finds. The two previously recorded pre-contact isolated finds are all chipped stone. All isolated finds have been recommended as not eligible for listing in the NRHP.

Based on the review of known cultural resources in the Study Area, there is potential for resources to exist in the Study Area, such as pre-contact period Native American archaeological sites, historical Euro-American architectural properties as buildings and structures, and historic period archaeological sites. A small proportion of lands in the Study Area have not been cultivated, and this may foster site preservation and integrity. Native American sites, particularly those with preserved features, may meet eligibility requirements of the NRHP. Architectural properties are unlikely to retain their historic significance and sufficient integrity to support NRHP eligibility. Historic period archaeological sites are likely to be similar.

Merjent completed a Class III pedestrian survey of the proposed transmission line corridor, substation, and associated transmission line work areas between January 31, 2025, March 5 to 14, 2025, April 9, 2025, April 14 to 18, 2025, April 23, 2025, and May 26, 2025. During the survey, two new historic sites were identified. The two historic archaeological farm sites are recommended as unevaluated for listing on the NRHP. Merjent recommends avoiding direct ground disturbance to these two resources. Two previously recorded isolated finds were revisited within the transmission line corridor. No additional artifacts were identified, and the resources had previously been subjected to shovel testing, with negative results. The isolated finds had been recommended not eligible for listing in the NRHP. Merjent agrees with the previous recommendation of not eligible. No further work or avoidance is recommended for those resources. The Class III report, which includes results of the Corridor survey was reviewed by the SHSND on October 22, 2025. Comments were noted for on the wind energy center portion of the project, but there were no comments for the transmission line Corridor. A revised report was submitted in November 2025. The current Project utilizes an avoidance strategy design to completely avoid previous and newly documented archaeological sites that are recommended for avoidance by the SHSND. Avoidance buffers will be delineated prior to construction to avoid impacts on archaeological resources.

### 6.4.2 Impacts/Mitigation

Archaeological sites will be avoided during construction in accordance with input from the SHSND. Cultural sites that are recommended for avoidance by the SHSND that are near proposed construction easements will be fenced to reduce the potential for inadvertent disturbance. Therefore, no direct impacts on cultural resources are anticipated.

An Unanticipated Discoveries Plan has been prepared that will outline the procedure utilized to address any unanticipated discoveries of cultural resources, including possible human remains (Appendix A). If unanticipated discoveries are made during construction, the Unanticipated Discoveries Plan will provide direction to on-site personnel and their consultants regarding proper procedures for addressing the discoveries. If burials are discovered during construction, construction activities would stop within 100 feet of the site and the site would be protected until the appropriate county sheriff's office has been contacted. The Sheriff will be responsible for contacting the North Dakota State Forensic Examiner to determine if the remains are associated

with a crime scene. If the remains are determined not to be part of an active crime scene or investigation, the North Dakota Chief Archaeologist will be contacted to coordinate how to proceed.

## 6.5 LAND USE RESOURCES

### 6.5.1 Description of Resources

The Study Area is located in rural North Dakota, in an area predominantly comprised of cultivated land, hayfields, pasturelands, and grasslands. Accordingly, much of the Study Area is used for agricultural purposes supporting both livestock grazing and crops, and most of the Study Area has been converted to commercial crops. Wooded areas within the Study Area are limited to shelterbelts between fields, windbreaks surrounding farmsteads, along drainages, and near wetlands.

**Public Lands**

The Study Area is not located within any designated or registered national sites, including memorial parks, historic sites and landmarks, natural landmarks, historic districts, monuments, wilderness areas, wildlife areas, wild, scenic, or recreational rivers, wildlife refuges, national grasslands, or nature preserves (NDGISHUB, 2025).

The Study Area is not located within any state or federally designated grasslands, county parks and recreational areas, municipal parks, parks administered by other governmental subdivisions, hardwood draws, or enrolled woodlands.

State Mineral Trust Land and State Surface Trust Land is present within the Study Area; however, it is not within the Project Corridor.

**Easements and Agreements**

One surface state trust land parcel is located within the Study Area (see Figure 9). The state trust land does not overlap with the Project Corridor.

Within the Study Area there are no Private Land Open to Sportsmen easements (NDGIS, 2025) and there are also no lands or waters (wetland or grassland easements) administered by the U.S. Fish and Wildlife Service (USFWS) (USFWS, 2023a) (Figure 9).

Conservation Reserve Program (CRP) lands administered by the Farm Service Agency (FSA) through the U.S. Department of Agriculture (USDA) have the potential to occur in the Study Area. In exchange for yearly compensation, CRP lands are removed from agricultural production and planted with species that will improve environmental quality and health, with a long-term goal of establishing valuable land cover to improve water quality, prevent soil erosion, and reduce the loss of wildlife habitat (USDA, FSA 2023). Specific CRP acres are subject to privacy laws between each landowner and the FSA. No CRP land is known to occur within the Study Area.

**Land Cover**

Land cover classifications, including acreage and percentage within the Study Area, are shown in Table 6.5.1-1 and Figure 10. The Study Area is comprised primarily of cultivated crops (48 percent) and herbaceous land (33.40 percent).

TABLE 6.5.1-1

**Land Cover**

| Land Cover | Acreage within Study Area | Percentage of Study Area |
|---|---|---|
| Cultivated Crops | 954.83 | 47.98% |
| Deciduous Forest | 1.33 | 0.07% |
| Developed, Low Intensity | 3.60 | 0.18% |
| Developed, Medium Intensity | 0.22 | 0.01% |
| Developed, Open Space | 69.95 | 3.52% |
| Emergent Herbaceous Wetlands | 8.45 | 0.42% |
| Hay/Pasture | 284.19 | 14.28% |
| Herbaceous | 664.55 | 33.40% |
| Open Water | 0.89 | 0.04% |
| Shrub/Scrub | 0.51 | 0.03% |
| Woody Wetlands | 1.33 | 0.07% |
| **Total** | **1,989.4** | **100.00%** |

Source: National Land Cover Database (NLCD) (Homer et al., 2015).

There are unbroken grasslands within the Project Corridor (see Figure 11). Unbroken grassland is grassland that has not been actively or historically disturbed by tilling, construction, or other mechanical methods. Other disturbance methods such as grazing, haying, fire, or other types of management actions, as well as undesirable species, do not change the status of an unbroken grassland to broken. The North Dakota Game and Fish Department (NDGFD) defines unbroken grasslands as “grasslands that have not been tilled or otherwise broken” (NDGFD, 2021).

An unbroken grassland assessment was completed using desktop assessment and field survey confirmation. The assessment concluded that two transmission structures would be located within unbroken grassland; therefore, minor impacts on unbroken grassland are anticipated. All temporary impacts during construction would be reclaimed with locally sourced native seed mixes.

### 6.5.2 Impacts/Mitigation

Minnesota Power will work with landowners to minimize impacts on their land. Where feasible, the Project was positioned parallel to section lines, existing roads, and field edges to lessen the fragmentation of land. Once construction activities have been completed, temporary construction areas will be able to go back to their previous use.

Minnesota Power will protect existing trees and shrubs by avoiding tree removal where possible. However, some tree removal will be necessary to accommodate construction of structures and comply with clearance requirements during operations of the Project. Minnesota Power will replace trees and shrubs in a manner consistent with the ND PSC’s Tree and Shrub Mitigation Specifications. Minnesota Power agrees to the ND PSC’s Tree and Shrub Mitigation Specifications, which limit clearance up to 50 feet in width. It is anticipated that up to five trees will need to be cleared as part of the Project.

Minnesota Power proposes the following mitigation measures:

- Develop and implement a Noxious Weed Management and Control Plan to prevent the spread of weeds during construction and to implement prescribed treatments to eliminate, to the maximum extent possible, the invasion of weeds from surrounding lands. Minnesota Power will provide a Noxious Weed Management Control Plan to the Morton and Mercer County Weed Boards. Provide contractors with static constraint maps and facilitate compliance through on-site environmental construction monitoring.
- Protect existing trees and shrubs by avoiding tree removal where possible, or if removal is necessary, replace consistent with the ND PSC's Tree and Shrub Mitigation Specifications.
- Coordinate with local Natural Resources Conservation Service staff to revegetate non-cropland and pasture areas temporarily disturbed during construction or operation of the Project with locally sourced native seed mixes appropriate to the region.
- Reseed temporarily disturbed areas or restore to cropland, based on the conditions of the area prior to construction and based on landowner preference.

**Public Lands**

No public lands will be directly impacted as impacts on public lands will mainly be visual in nature. Additionally, the Project is surrounded by existing infrastructure (Figure 9) and will not create a significant additional visual impact. As such, no mitigation is proposed.

**Easements and Agreements**

If CRP land is identified, removal from the program will be negotiated between the individual landowner and the FSA. No mitigation is required.

**Land Cover**

The development of the Project will not result in a significant change in land use within the Study Area. Construction of the Project will permanently impact approximately .03 acre, which includes 0.003 acre of unbroken grassland, and will temporarily impact approximately 21.3 acres, of which 1.4 acres are unbroken grassland and 0.41 acre are broken grassland.

## 6.6 GEOLOGICAL AND SOIL RESOURCES

### 6.6.1 Description of Resources

**Geology and Soils**

The Study Area is in the Missouri Plateau Class IV ecoregion and the Northwestern Great Plains ecoregion. The Missouri Plateau was largely unaffected by glaciation and retains its original soils and complex stream drainage pattern. The uppermost bedrock unit in the Study Area is mainly Sentinel Butte Formation with the Bear Den Member crossing the central portion of the Study Area (Murphy, 2004). The Sentinal Butte Formation consists of alternating beds of grayish brown to gray sandstone, siltstone, mudstone, claystone, and lignite.

Soil characteristics within the Study Area were assessed using the Natural Resources Conservation Service Soil Survey Geographic Database (SSURGO). The SSURGO database provides a description of the soils present and information about their unique properties and productivity (USDA, 2025). In all, 38 soil types are found within the Project Corridor. The dominant

soil map units found within the Project Corridor are classified as silt loams, sandy loams, or loams and range from well drained to very poorly drained. Table 6.6.1-1 below contains additional information about each soil type in the Project Corridor.

Table 6.6.1-1

**Soil Types within the Project Corridor**

| Soil ID | Soil Type | Acres | Percent of Total |
|---|---|---|---|
| E2801A | Amor-Arnegard loams, 0 to 3 percent slopes | 9.00 | 0.45 |
| E2601C | Amor-Cabba loams, 6 to 9 percent slopes | 97.55 | 4.9 |
| E2601D | Amor-Cabba loams, 9 to 15 percent slopes | 2.31 | 0.12 |
| E2803B | Amor-Shambo loams, 3 to 6 percent slopes | 29.77 | 1.5 |
| E2607D | Amor-Werner loams, 9 to 15 percent slopes | 26.29 | 1.32 |
| E2609C | Amor-Werner-Farnuf loams, 6 to 9 percent slopes | 3.59 | 0.18 |
| E2107A | Arnegard loam, 0 to 2 percent slopes | 159.82 | 8.03 |
| E2107B | Arnegard loam, 2 to 6 percent slopes | 26.92 | 1.35 |
| E1601B | Beisigl-Lihen loamy fine sands, 0 to 6 percent slopes | 55.05 | 2.77 |
| E0415A | Belfield-Daglum complex, 0 to 2 percent slopes | 44.62 | 2.24 |
| E0617B | Belfield-Wyola-Daglum complex, 2 to 6 percent slopes | 62.34 | 3.13 |
| E2741D | Cabba-Chama-Sen silt loams, 9 to 15 percent slopes | 15.79 | 0.79 |
| E2737C | Chama-Cabba-Sen silt loams, 6 to 9 percent slopes | 10.76 | 0.54 |
| E4711A | Dimmick silty clay, 0 to 1 percent slopes | 7.28 | 0.37 |
| E2203A | Farland silt loam, 0 to 2 percent slopes | 20.99 | 1.05 |
| E1423F | Flasher-Vebar-Parshall complex, 9 to 35 percent slopes | 0.08 | 0 |
| E0811A | Grail silty clay loam, 0 to 2 percent slopes | 7.54 | 0.38 |
| E4005A | Harriet loam, 0 to 2 percent slopes, occasionally flooded | 14.88 | 0.75 |
| E4139A | Korchea-Fluvaquents complex, channeled, 0 to 2 percent slopes, frequently flooded | 20.77 | 1.04 |
| E1805B | Lihen-Parshall complex, 0 to 6 percent slopes | 75.02 | 3.77 |
| E4585B | Manning fine sandy loam, 2 to 6 percent slopes | 45.17 | 2.27 |
| E2927B | Morton-Farland silt loams, 3 to 6 percent slopes | 10.49 | 0.53 |
| E2933C | Morton-Werner silt loams, 6 to 9 percent slopes | 17.82 | 0.9 |
| E1823A | Parshall fine sandy loam, 0 to 2 percent slopes | 21.17 | 1.06 |
| E2819B | Reeder-Farnuf loams, 3 to 6 percent slopes | 71.40 | 3.59 |
| E2987B | Sen-Chama silt loams, 3 to 6 percent slopes | 89.49 | 4.5 |
| E2145A | Shambo loam, 0 to 2 percent slopes | 20.63 | 1.04 |
| E1865B | Tally-Parshall fine sandy loams, 2 to 6 percent slopes | 17.98 | 0.9 |
| E1333C | Vebar-Cohagen fine sandy loams, 6 to 9 percent slopes | 333.15 | 16.74 |
| E1355D | Vebar-Flasher-Tally complex, 9 to 15 percent slopes | 47.07 | 2.37 |
| E1625A | Vebar-Parshall fine sandy loams, 0 to 3 percent slopes | 97.35 | 4.89 |
| E1625B | Vebar-Parshall fine sandy loams, 3 to 6 percent slopes | 334.42 | 16.81 |
| E0861B | Virgelle complex, 0 to 6 percent slopes | 32.35 | 1.63 |
| E2651F | Werner-Amor-Arnegard loams, 9 to 50 percent slopes | 28.85 | 1.45 |
| E2747D | Werner-Chama-Sen silt loams, 9 to 15 percent slopes | 67.39 | 3.39 |
| E3531C | Williams loam, 6 to 9 percent slopes | 9.26 | 0.47 |

Table 6.6.1-1

**Soil Types within the Project Corridor**

| Soil ID | Soil Type | Acres | Percent of Total |
|---|---|---|---|
| E3527B | Williams-Bowbells loams, 3 to 6 percent slopes | 46.42 | 2.33 |
| E0837B | Wyola silty clay loam, 2 to 6 percent slopes | 9.32 | 0.47 |

There are no oil and gas wells within the Study Area or Project Corridor.

The North Dakota Geological Survey (NDGS) indicated that there are several landslides mapped within the Wind Energy Center Study Area. Mapped landslide areas are not present within the transmission line Study Area (Anderson, 2019; Anderson et al., 2023).

**Mining and Mineral Interests**

The Study Area does not contain any active or abandoned lignite mines (North Dakota Geographic Information Systems [NDGIS], 2025) and there are no identified lignite reserves in the Study Area (Murphy, 2009). State Mineral Trust Land and State Surface Trust Land is present within the Study Area; however, it is not within the Project Corridor.

### 6.6.2 Impacts/Mitigation

**Geology and Soils**

Impacts on soils will be limited to areas removed from their current use by the occupancy of Project structures. Soil disturbance activities including grading and leveling at structure locations have the potential to contribute to soil erosion through the exposure of soils that were previously vegetated and stable.

Minnesota Power proposes the following mitigative measures:

- Use the Project's Storm Water Pollution Prevention Plan (SWPPP) during construction to mitigate disturbed soils and prevent erosion.
- Maintain appropriate water and soil conservation practices during construction through the implementation of best management practices (BMPs). These practices include silt fencing, temporary reseeding, permanent seeding, mulching, filter strips, erosion blankets, grassed waterways and sod stabilization, and separation of topsoil and subsoil.
- Implement a 25 miles-per-hour (mph) speed limit on dirt and gravel roads to minimize dust.
- Alleviate compaction of soils if it occurs during construction.

A geotechnical and geophysical analysis is being performed and areas that are geologically unstable will be avoided and spanned as necessary.

**Mining and Mineral Interests**

Since the Study Area doesn't contain any active or abandoned lignite mines, impacts are not anticipated and no mitigation is required. State Mineral Trust Land and State Surface Trust Land is present within the Study Area; however, it is not within the Project Corridor and mitigation is not anticipated.

## 6.7 SURFACE WATER AND GROUNDWATER RESOURCES

### 6.7.1 Description of Resources

**Groundwater**

The Study Area is located within the Missouri Slope Geological Region, an unglaciated region of North Dakota comprised of sandstone and shale layers. Natural wetlands and waterbodies are less abundant in this region than in the eastern part of the state and are more scattered, seasonal, and drought sensitive. Wetlands are typically found in small depressions or in riparian areas along stream channels (USFWS, 1996).

The state contains two principal types of aquifers: surficial and bedrock. Within the Study Area, only bedrock aquifers are present; surficial aquifers are absent. According to correspondence from the North Dakota Department of Environmental Quality (NDDEQ), the Elm Creek Aquifer is identified, but it does not overlap with the Study Area. Instead, it is located along the southwestern boundary of the associated wind project site, approximately 4.6 miles southwest of the transmission line Study Area. The Study Area does not overlap with source water protection areas or sensitive groundwater areas. (NDDEQ, 2025).

Water wells that draw water from aquifers or groundwater are not located within the Study Area (North Dakota Department of Water Resources [NDDWR], 2025). Water wells serve various purposes, including domestic and stock uses. The nearest water wells are more than a mile from the Study Area.

**Surface Waters**

Within the Study Area there are several intermittent, unnamed tributaries. The northern half of the Study Area drains to the Brush Creek-Knife River watershed and the southern half of the Study Area drains to the Haymarsh Creek watershed.

Based on correspondence with the NDDEQ, the southern half of the Study Area overlies the Wilson Creek subwatershed where impairments for *E. coli* are found. The NDDEQ also identified Elm Creek subwatershed for fecal coliform impairments and the Hailstone Creek for *E. coli* in the Danzig Dam subwatershed; however, these locations do not overlap with the Study Area.

Merjent delineated wetlands and other waters in support of the Project (Appendix B1). Other waters can include, but are not limited to, streams, ponds, impoundments, prairie potholes, and lakes. Field surveys occurred in May 2025 within the survey corridor. The survey corridor is any location where potential Project infrastructure could be sited within the Study Area. Wetlands and other waters delineations followed methodology from the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory, 1987) and Regional Supplement to the USACE Wetland Delineation Manual: Great Plains Region (Version 2.0) (USACE, 2010). The USFWS National Wetlands Inventory and U.S Geological Survey National Hydrography Dataset were used to identify potential surface waters within the Study Area (USFWS, 2025a; United Stats Geological Survey [USGS], 2025, Figure 12). This data is used to inform field delineations. Wetlands and other waters delineated in support of the Project are shown on Figure 12.

**Floodplains**

North Dakota Department of Water Resources' Risk Assessment Mapservice (NDRAM) (NDRAM, 2025) and Federal Emergency Management Agency (FEMA) provide floodplain

information for the Study Area. The NDRAM base level engineering (BLE) flood data indicates that 100-year (1 percent Annual Chance) floodplains are located along the unnamed stream located within the Project Corridor. FEMA did not identify floodplains within the Study Area. A 2025 comment letter received from the NDDWR confirmed that there are no FEMA National Flood Insurance Program (NFIP) floodplains identified or mapped where the proposed project is to take place. In addition, the letter also confirmed that flood risk has been identified through the NDRAM BLE.

Review of the Flood Insurance Rate Maps shows that the portion of the Project Corridor located within Morton County is mapped as Flood Zone D. Flood Zone D indicates that flooding may be possible in some areas, but studies and mapping have not been conducted for the area. The portion of the Project Corridor within Mercer County is mapped as Flood Zone X. Flood Zone X indicates it is an area of minimal flood hazard. (FEMA, 2025). The NDRAM BLE indicates a 100-year floodplain is located within the Project Corridor.

### 6.7.2 Impacts/Mitigation

**Groundwater**

If shallow groundwater is disturbed by construction, it is anticipated that it would resume its natural course of flow upon construction completion and would not be significantly impacted. Based on the relatively small amount of permanent infrastructure at each structure location, the Project would not contribute to significant impacts on groundwater flow or recharge.

**Surface Waters**

The Project will not require appropriation of surface water or permanent dewatering. Temporary dewatering of groundwater (e.g., locally lowering groundwater levels in the vicinity of the excavation) may be required during construction.

The Project has been designed to minimize impacts on wetlands and other waters to the extent practicable. Based on field surveys for wetlands and other waters, the Project is not expected to permanently impact wetlands or other waters; however, temporary impacts to wetlands may occur due to construction activities. Temporary impacts to wetlands from access roads may be up to 0.55 acre and temporary impacts from construction areas associated with structure installation may be up to 0.40 acre. Temporary wetland impacts total up to 0.95 acre. Minnesota Power will work with the applicable agencies, including the USACE, to determine and apply for required permits.

If dewatering of excavations is necessary during foundation construction, and as long as the water is known to be uncontaminated, all water would be discharged to vegetated uplands according to items outlined in the SWPPP. If discharge water is suspected to be contaminated, an application for a temporary discharge permit (NDG-070000) will be submitted to the NDDEQ. Minnesota Power proposes the following measures:

- Minimize impacts on wetlands and other waters to the extent practicable.
- The Project will be built to allow stormwater runoff to flow without restriction.
- Wetlands will be delineated and flagged prior to construction when in close proximity to Project features.

- Maintain appropriate water and soil conservation practices during construction through the implementation of BMPs outlined in the SWPPP. These practices include silt fencing, temporary reseeding, permanent seeding, mulching, filter strips, erosion blankets, grassed waterways, and sod stabilization.
- Coverage under the NDDEQ's North Dakota Pollutant Discharge Elimination System (NDPDES) general construction permit will be obtained prior to the start of construction.
- Provide contractors with static constraint maps and ensure compliance through onsite environmental construction monitoring.

The southern half of the Study Area overlays with the Wilson Creek subwatershed, which is listed as impaired for *E. coli*. Appropriate practices will take place to prevent the Project from contributing to the impairment.

**Floodplains**

Floodplains are located within the Project Corridor as mapped by the BLE. The Project is not expected to permanently impact floodplains; however, temporary impacts to floodplains may occur due to construction activities. Temporary impacts to floodplains from access roads may be up to 0.83 acre and temporary impacts from construction areas associated with structure installation and laydown areas may be up to 0.52 acre. Temporary floodplain impacts total up to 1.35 acres. Minnesota Power will work with the applicable agencies, including the USACE, to determine and apply for required permits. As noted in the 2025 NDDWR comment letter, "The State of North Dakota has no formal NFIP permitting authority as all NFIP permitting decisions are considered by impacted NFIP participating communities, the community with zoning authority for the area in question." Minnesota Power will work directly with the local floodplain administrators of the zoning authorities to determine and apply for required permits.

## 6.8 WILDLIFE RESOURCES

### 6.8.1 Description of Resources

Species that are typically found near the Project Route include numerous species of birds, often associated with the Missouri River; however, one area to the west of the Project Route, Haymarsh Slough, has at least 77 recorded species. These records include waterfowl, raptors, songbirds, shorebirds, and upland birds (eBird, 2025). There are 17 species of reptiles and amphibians found in Morton and Mercer Counties, such as western tiger salamander (*Ambystoma mavortium*), plains spadefoot (*Spea bombifrons*), and spiny softshell (*Apalone sipifera)* (HerpMapper, 2025). Game species such as white-tailed deer *(Odocoileus virginianus),* mule deer *(Odocoileus hemionus),* and pronghorn *(Antilocapra americana*) are commonly found in the area. Other mammals such as black-tailed prairie dogs *(Cynomys ludovicianus),* badgers *(Taxidea taxus),* and coyotes *(Canis latrans)* are also common within the area.

Minnesota Power conducted numerous wildlife studies to evaluate, avoid, and minimize potential impacts on species of concern from Project development and operation. Wildlife surveys were conducted in coordination with USFWS and NDGFD. The following desktop assessments and field studies were conducted with respect to the voluntary USFWS 2012 Final Land-Based Wind Energy Guidelines (USFWS, 2012) to document wildlife habitat and use.

- Sharp-tailed grouse (*Tympanuchus phasianellus*) lek surveys were completed in April and May 2024 (Appendix B3) and March to May 2025 (Appendix B4).

- Eagle nest surveys were completed in April 2024 (Appendix B5).
- Eagle and raptor nest surveys were completed in 2025 (Appendix B6).
- Desktop whooping crane (*Grus americana*) habitat review was completed in 2025 (Appendix B7).
- Northern long-eared bat (NLEB; *Myotis septentrionalis*) desktop habitat assessment completed in 2025 (Appendix B8).
- Northern long-eared bat (NLEB; *Myotis septentrionalis*) Presence Absence surveys completed in 2025 (Appendix B9)
- Dakota skipper (*Hesperia dacotae*) habitat assessment was completed in August and October 2025 (Appendix B10) and no suitable habitat was present within the Project Corridor.
- Desktop and parcel-level identification of unbroken grassland tracts completed in 2020 and were updated throughout field surveys until 2024 (Appendix B11).

**Avian Species**

The Migratory Bird Treaty Act (MBTA) was enacted in 1918 for the purpose of prohibiting the use of birds and bird parts in the millinery industry. Under the MBTA, it is illegal "to pursue, hunt, take, capture, kill, possess, offer for sale, sell … purchase … ship, export, import …transport or cause to be transported… any migratory bird, any part, nest, or eggs of any such bird …" (16 United States Code 703). The word "take" is defined by regulation as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 Code of Federal Regulation [CFR] 10.12). The USFWS maintains a list of all species protected by the MBTA at 50 CFR 10.13.

The legal opinion that was first issued by the U.S. Department of the Interior on December 17, 2017, is again authoritative and binding as of April 11, 2025, and states that MBTA prohibits affirmative, purposeful acts aimed at reducing an animal to human control and does not extend to all types of economic activity that have an accidental or unintended, negative impact on migratory birds.

Additionally, bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (BGEPA). The BGEPA protects bald eagles and golden eagles throughout their range in the United States. Although it does not designate critical habitat, BGEPA protects individual eagles and nests from disturbance.

**Sharp-tailed Grouse Lek Surveys**

Western EcoSystems Technology, Inc. (WEST) completed two years of ground-based sharp-tailed grouse (STGR) lek surveys (see Figure 13). Surveys were conducted within a study area that encompassed the Project Corridor and the Project Study Area. During the 2024 survey, there were 13 active leks detected during ground-based surveys, including six previously known leks and seven newly discovered leks within the Project area and 2.0-mile buffer. Within the survey area, six active leks were observed, with the majority (four) located along the eastern edge of the proposed Wind Energy Project area. The majority (11) of the active leks within the survey area were located within grasslands. No activity was observed at historic Lek ID 5. The average number of STGR observed at active leks during the 2024 survey season was 6.8 individuals. No

other observations STGR were recorded during surveys. Among these leks, none were located within the Project Corridor.

In 2025, a total of 22 active leks were detected during ground-based surveys, including nine historical lek locations and 13 newly discovered leks. No leks are located within the Project Corridor or Study Area. No activity was observed at five previously known leks. The average number of STGR observed at active leks during the 2025 survey season was approximately seven individuals. Among these leks, none were located within the Project Corridor.

**Raptor Nest Surveys**

Minnesota Power completed one year of ground-based eagle nest surveys. The 2024 survey was conducted within an area that encompassed the Project Corridor and the Study Area. Survey design was informed by USFWS *Land-based Wind Energy Guidelines* (USFWS, 2012), USFWS Eagle Conservation Plan Guidance: Module 1 – Land-based Wind Energy (v2; USFWS, 2013), and the NDGFD Wind Energy Development: Best Management Practices (NDGFD, 2021).

During the 2024 survey, biologists detected two eagle nests (one new and one historic) within the survey area. Nest 1 was a new nest found during the survey and was determined to be active with one adult bald eagle (*Haliaeetus leucocephalus*) observed sitting in the nest in an incubating position and a second adult perched in an adjacent tree. Nest 2, a historic nest, was determined to be active, with one adult bald eagle observed sitting in the nest in an incubating position. No other large or very large stick nests were observed within the Study Area. None of these nests are located within the Project Corridor.

In 2025, Minnesota Power completed its second consecutive year of eagle and raptor nest monitoring. No additional nests were identified beyond those documented during the 2024 surveys. The nearest known eagle nest remains approximately 25,000 feet from the centerline of the transmission line (Piorkowski et al., 2025).

**Whooping Crane**

Minnesota Power completed a desktop assessment for whooping crane habitat that encompassed the Project Corridor and the Study Area. For this analysis, WEST used the Relative Probability of Occurrence Model (hereafter Niemuth Model) and the Decile Model, developed specifically for North and South Dakota (Niemuth et al., 2018), for assessing potentially suitable whooping crane stopover habitat within the Project Route and separately for 5-kilometer (km) and 20-km analysis areas.

The Project Area is located within the migration corridor that contains 50% of the whooping crane (WHCR) sightings. No WHCR have been recorded within the Project Area; however, they have been recorded in the vicinity based on USFWS telemetry data and observation data. The Project Area contains potentially suitable stopover habitat for WHCR, including cultivated cropland cover and herbaceous/grassland with interspersed creeks, ponds, and wetlands. An analysis of suitable WHCR habitat was conducted using two models specifically developed for North and South Dakota and recommended by NDGFD: relative probability of occurrence Niemuth Model and the resulting Decile Model. These models were developed through the USFWS's Habitat and Populations Evaluation Team.

Both the Niemuth Model and the Decile Model were used to summarize predicted WHCR use. Three independent areas were compared for analyses: Project Area, a surrounding 5-km buffer, and a surrounding 20-km buffer. Using the Niemuth Model, predicted WHCR habitat use within

the Project Area ranged from 0.0025–0.0602 on a scale of 0–1.0. The 5-km buffer ranged from 0.0015-0.0809, and the 20-km buffer ranged from 0.005-0.1294. The upper range of predicted use for the Project Area was lower than both the 5-km and 20-km upper predicted ranges, indicating a relatively low predicted probability of habitat use by WHCR within the Project Area. Evaluating the Decile Model, results indicated that a higher proportion of higher use deciles were represented within the Project Area than the 5-km or 20-km buffers. However, from the Project Area, lower use deciles were found to the west of the Project Area and higher use deciles were identified east of the Project Area, especially east of the Missouri River.

**Bat Species**

The Project route and Study Area are located within the secondary range of the NLEB (NDGFD, 2019b). No NLEB bat hibernacula have been identified in North Dakota (Dyke et al., 2015; NDGFD, 2019b); the closest hibernacula are greater than 200 miles from the Project Route in the Black Hills of southwestern South Dakota and in central Minnesota (Gillam et al., 2015; ICF, 2023). Based on the desktop review and site reconnaissance visit, wooded areas are limited in the Project Route and Study Area, primarily occurring near homesteads and farms. Structures, such as bridges, barns, and buildings, observed during the site reconnaissance within the Project and Study Area may also be suitable for roosting (USFWS, 2020). WEST conducted a desktop habitat assessment which delineated two areas totaling 21.0 acres (8.5 hectares) of potentially suitable NLEB summer habitat. Of this, 13.0 acres (5.3 hectares) occurred within the Project Route and 8.0 acres (3.2 hectares) occurred outside the Project Route. No NLEB habitat was documented within the Study Area or Project Corridor (see Figure 14).

WEST conducted a presence/probable absence mist-net survey to determine if NLEB occurred in the Project area during the 2025 summer maternity season. Mist-net surveys were conducted following methods described in the USFWS *2024 Range-Wide Indiana Bat and Northern Long-eared Bat Survey Guidelines* and surveys were conducted from July 12 through 17, 2025 (WEST, 2025a) with 2 to 4 net-sets deployed per night, for a total of 12 net-nights. However, surveys on the night of July 14 were considered invalid due to persistent lightning. Therefore, a total of 10 valid net-nights were completed, meeting the minimum level of effort required for the Project.

No bats (including federally threatened or endangered species) were captured during the survey period. These results indicated that NLEB were likely absent from the Project area.

### 6.8.2 Impacts/Mitigation

**Avian Species**

Potential impacts from the Project to avian species include direct impacts, such as collisions with the transmission lines, and indirect impacts, such as displacement or habitat loss and fragmentation. Potential impacts on raptor nests and grouse leks were minimized to the greatest extent practicable through site planning and avoidance of documented nest and lek locations.

Raptor nests will be avoided to the extent practicable and disturbance minimized during nesting season. Vegetative removal will be conducted outside of this March through July period to the extent practicable to avoid impacts on previously undetected nests. Any tree removal needed from March through July will be preceded by a visual check of the trees for any raptor nests. No raptor nests with eggs or chicks will be removed at any time.

**Sharp-tailed Grouse**

No STGR leks are located within the Project Corridor; therefore, impacts are not anticipated.

**Whooping Crane**

The Study Area is located within the portion of the migration corridor that contains 50 percent of confirmed whooping crane sightings, whooping cranes may occur at the Study Area during migration; however, the analysis indicated that there have been no observations or telemetry locations documented within the Project Route and the probability of occurrence is low. The Project is not anticipated to affect whooping cranes.

**Bat Species**

Potential impacts from the Project to bat species include indirect impacts, such as displacement or habitat loss and fragmentation. Direct impacts such as collision with the Project are not anticipated.

Highly suitable habitats (e.g., woodlands) for bats are largely absent from the Study Area. Natural roosting habitat (individual trees, windrows, woodlots, and riparian zones) is limited and fragmented. Lower quality habitat in the form of grasslands and agriculture lands compose the majority of the Study Area. Bat species may transit through the Study Area during spring and fall migration; however, identifiable migration and movement corridors for bats are not known in the Study Area. There are no large, forested riparian corridors for bat species to follow or use as stopover day roosting sites. Forested areas within the Study Area consist mainly of small, wooded parcels that are disconnected from each other. Given the lack of large, forested riparian corridors and limited roosting habitat within the Study Area, use of the Study Area by migrating bats is likely to be low.

To minimize potential impacts on the NLEB and its roosting habitat during the active season, restrictions on tree removal will be in effect within a 3-mile conservation buffer around NLEB positive locations that intersect the Study Area from April 1 to October 31. Consequently, trees considered suitable roosting habitat, including both alive and standing dead trees with a diameter of over 3 inches at breast height and possessing exfoliating bark, cracks, crevices, and/or cavities, will be retained and not removed within the designated conservation buffer during that time. If trees considered suitable roosting habitat require removal for construction between April 1 to October 31, an emergence survey will be completed for each tree to ensure bats are not roosting in trees during removal. This survey protocol will follow standard USFWS survey guidelines (USFWS, 2023b).

**Mitigation**

Minnesota Power conducted desktop assessments and field studies and consulted with the NDGFD and USFWS on appropriate avoidance, minimization, and offset measures so that the Project would have minimal environmental impacts. Based on the above, the following measures will be used to the extent practicable by Minnesota Power:

- Design utility lines with respect to Avian Power Line Interaction Committee (APLIC) guidelines to prevent bird collision, as practicable (APLIC, 2012).

- Design utility lines to provide adequate raptor proofing as described in the APLIC Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC, 2006) on the structures in coordination with applicable state and federal agencies.
- Minimize construction activities to the extent practicable within 0.5 mile of known STGR lek locations during the lekking and breeding season.
- The Project Corridor has been sited at least 2 miles from known active eagle nests.
- If any raptor nest is discovered during construction, the nest will be monitored to determine if there is a change in the nest activity status in order to avoid impacts that might have the potential to precipitate nest abandonment.
- Provide contractors with static constraint maps and ensure compliance through onsite environmental construction monitoring.
- Implement a 25-mph speed limit on Project roads to minimize wildlife collisions.
- Prepare a voluntary Wildlife Conservation Strategy (WCS) that includes an adaptive management approach, so that information gathered during post-construction monitoring can be used to inform future management decisions on the Project.
- Implement an operational Wildlife Response and Reporting System (WRRS). The WRRS will include reporting protocols to report and document bird and bat mortality during routine maintenance activities. If a dead or injured bird or bat is found, its location will be marked and reported to the Plant Lead/Site Supervisor. The dead or injured bird or bat will not be removed from the location it was found.

## 6.9 RARE AND UNIQUE NATURAL RESOURCES

### 6.9.1 Description of Resources

The USFWS administers the Endangered Species Act of 1973 (ESA), which mandates protection of species federally listed as threatened and endangered (T&E) and their associated habitats. An endangered species is a species that is in danger of extinction throughout all or a significant portion of its range. A threatened species is a species that is likely to become endangered in the foreseeable future. Critical habitat for these species can be designated if that habitat includes specific areas that are occupied by a species at the time of listing or unoccupied areas that are considered essential to the conservation of a species. Candidate species receive no statutory protection from the USFWS unless they are formally listed. North Dakota does not have a state T&E species list; however, it recognizes those federally listed under the ESA.

The USFWS Information for Planning and Conservation (IPaC) tool (USFWS, 2025b) indicated that four federally listed species have been previously documented within the Study Area (Table 6.9.1-1). These species are described in detail below.

TABLE 6.9.1-1

**Federal Threatened, Endangered, and Proposed Species Previously Documented Within the Study Area**

| Common Name | Scientific Name | Status | Designated Critical Habitat |
|---|---|---|---|
| Whooping crane | *Grus americana* | Endangered | The Project is outside the designated critical habitat |
| Piping plover | *Charadrius melodus* | Threatened | The Project is outside the designated critical habitat |

TABLE 6.9.1-1

**Federal Threatened, Endangered, and Proposed Species Previously Documented Within the Study Area**

| Common Name | Scientific Name | Status | Designated Critical Habitat |
|---|---|---|---|
| Rufa red knot | *Calidris canutus rufa* | Threatened | The Project is outside the designated critical habitat |
| Monarch butterfly | *Danaus plexippus* | Proposed Threatened | No designated critical habitat |
| Dakota skipper | *Hesperia dacotae* | Threatened | The Project is outside the designated critical habitat |
| Western regal fritillary | *Argynnis idalia occidentalis* | Proposed Endangered | The Project is outside the designated critical habitat |
| Suckley's cuckoo bumblebee | *Bombus suckleyi* | Proposed Endangered | The Project is outside the designated critical habitat |

Source: U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (USFWS, 2025b).

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected throughout their range in the United States by the BGEPA. Although it does not designate critical habitat, BGEPA protects individual eagles and nests from disturbance.

North Dakota Parks and Recreation reviewed the North Dakota Natural Heritage biological conservation database to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate 1-mile radius of the Project. The review indicated that one animal species of concern, the Sprague's pipit (*Anthus spragueii*), was documented within the vicinity of the Project in 1976.

### Piping Plover

The piping plover is a small migratory shorebird that breeds in three locations in North America: the shorelines of the Great Lakes, the shores of rivers and lakes in the Northern Great Plains, and along the Atlantic Coast (USFWS, 2016). In North Dakota, the species arrive on their breeding grounds from mid-March through mid-May. Nesting generally begins by the end of April, and they will typically be present until mid-August. The preferred breeding habitat includes wide shorelines that are sparsely vegetated and have gravel, sand, or pebbles. In North Dakota, these areas can be found along alkali lakes, sub-saline semi-permanent lakes, ponds, and rivers. These areas are also where the piping plover will forage for beetles, crustaceans, mollusks, and other small animals found along the shoreline (Dyke et al., 2015).

Federally designated critical habitat (DCH) for the piping plover occurs throughout the shores of the Missouri River and within the Alkali Lakes Core Area. The nearest DCH is located approximately 29 miles east of the Project along the Missouri River. The Project is within the range of the piping plover, but not within the primary range. Suitable habitat consisting of sandy, gravelly beaches, sandbars, wetlands, or lakes was not found during a desktop review. With the absence of preferred nesting habitat and the distance from the Project to a site of preferred habitat, it is unlikely that piping plover would occur at the Project location (Dyke et al., 2015).

### Rufa Red Knot

The rufa red knot is a large sandpiper known for its long-distance migration between breeding grounds in the Canadian Arctic and several wintering areas in the southern hemisphere. In North

Dakota, the species is a rare migrant, travelling annually between its northern breeding and nesting grounds and several wintering regions, including the southeast United States, the northeast Gulf of Mexico, northern Brazil, and Tierra del Fuego at the southern tip of South America (USFWS, 2022a). The species does not breed in North Dakota (Dyke et al., 2015).

Federally designated critical habitat has been proposed for the red knot; however, North Dakota is not a part of those proposed locations (USFWS, 2021). Although red knots are found primarily in intertidal habitats, especially near coastal inlets, estuaries, and bays, they have been observed in both alkaline and freshwater lakes of North Dakota during migration as well as within the Missouri River drainage system, sewage lagoons, and large permanent freshwater wetlands (Dyke et al., 2015). Observations have been scattered throughout the state without consistent stopover sites being observed. Suitable habitat consisting of coastal marine and estuarine areas, or freshwater lakes was not found during a desktop review. With the absence of preferred nesting and foraging habitat, it is unlikely that the rufa red knot would occur at the Project location.

**Whooping Crane**

The historic range of the whooping crane extended from the Arctic coast south to central Mexico, and from Utah east to New Jersey, into South Carolina, Georgia, and Florida. There are now only three populations of whooping cranes in North America. One population consists of captive-raised birds that migrate between Wisconsin and Florida. A second is a non-migratory, captive-raised population in central Florida. The third, the Aransas/Wood Buffalo population, is a self-sustaining, wild population that migrates in the spring and fall to breed in Wood Buffalo National Park in Canada and winter in the coastal marshes of Texas. This migration occurs within an approximately 200-mile-wide corridor that has 95 percent of the confirmed whooping crane sightings. Stopover habitat for foraging and roosting occurs throughout Oklahoma, Kansas, Nebraska, North Dakota, and South Dakota in a variety of croplands with nearby shallow wetlands and marshes and edges and sandbars of shallow rivers (USFWS, 2022b).

WEST completed a whooping crane habitat assessment for the Longspur Wind Project (25,933 acres), which included the Project Corridor. The habitat assessment evaluated land use types and topography to assess the potential for whooping crane use as suitable stopover habitat (Piorkowski and Burmester, 2025). The analysis used two models: 1) relative probability of occurrence model (RPOM); and 2) decile model (low values indicate high probability of occurrence and high values indicate low probability of occurrence). These models have been developed specifically for North and South Dakota and are the preferred models by USFWS North Dakota Ecological Service Field Office and consistent with NDGFD.

The analysis indicated that there have been no observations or telemetry locations documented within the Project Route. The Project is located within the portion of the migration corridor that contains 50 percent of confirmed whooping crane sightings. The RPOM indicated that 99 percent of the Project Route's relative probability ranges from 0 to 0.5; therefore, it is expected that habitat within the Project Route would have a maximum of approximately 6 percent probability of whooping crane occurrence during migration. The decile model, on a scale of 1 to 10 indicated that the Project Route intersected two decile values, three and four. This result is indicative and similar to the RPOM's findings that the Project Route is expected to have whooping crane occurrences during migration; however, the probability of occurrence is low.

**Dakota Skipper**

The Dakota skipper is a small-to-medium sized butterfly characterized by a short, sturdy body and a quick, skipping flight. The species is an obligate of untilled, high-quality native prairie containing a variety of wildflowers and grasses. Provided these conditions are present, the species can be

found in both wetlands and uplands, but do not thrive in heavily grazed or cultivated areas or in areas with significant trees and/or shrub cover. The preferred wetland habitat is associated with plant species consisting of bluestem grasses, wood lily, and harebell. The preferred upland habitat contains bluestem grasses, needlegrass, purple coneflower, and blanketflower.

Since the species became listed, the Dakota skipper's range has been found to be broader than originally thought with occupancy studies finding new populations in areas not previously surveyed or considered (USFWS, 2019). The USFWS Dakota skipper species distribution model shows the relative probability of Dakota skipper occurrence in North Dakota based on known occupied sites identified through surveys (Barnes et al., 2023). Although the Project is on the edge of the Dakota skipper primary range (USFWS, 2024d), patches of native prairie with a probability of occurrence greater than 50 percent occur in the Project Route.

WEST completed a grassland habitat assessment for the Longspur Wind Project in Morton County, which in turn, gave indication of Dakota skipper habitat (Piorkowski et al., 2024). In addition, WEST conducted a Dakota skipper habitat survey in 2025 (WEST, 2025b) and approximately 7,813 acres of native, unbroken grasslands were previously identified during the grassland habitat assessment. Of these, 2,965 acres were identified as potential Dakota skipper habitat (Type B) that were surveyed during August and October 2025. An estimated 2,692 acres were surveyed via pedestrian surveys while 273 acres were surveyed from public roads due to access restrictions. There were 17 individual patches of suitable Dakota skipper habitat identified, resulting in 20.96 acres within the surveyed grasslands. No suitable Dakota skipper habitat was identified in grasslands visually surveyed from public roads.

**Monarch Butterfly**

The monarch butterfly is well-known for the species' long-distance migration throughout North America. There are two populations, located east and west of the Rocky Mountains. Primary drivers affecting the monarch include loss and degradation of habitat, exposure to insecticides, and climate change. The species can be found in a wide variety of habitats including prairies, grasslands, urban gardens, road ditches, and agricultural fields, if there is a healthy and abundant milkweed supply and a diversity of nectar resources. Milkweed is the sole host plant for oviposition and for the larvae to feed on until the larvae pupates into a butterfly. Most adults only live approximately two to five weeks; however, some overwintering adults live six to nine months as they undergo reproductive diapause (USFWS, 2024a).

On December 12, 2024, USFWS published a proposed rule listing the monarch butterfly as federally threatened with a 4(d) rule under the ESA. A final rule is expected to be published to the federal register in 12 months, and the listing made effective 30 to 60 days later (i.e., January or February 2026). Proposed species are not protected under the ESA, and as such, a determination of effect is not applicable. However, federal agencies are required to confer with the USFWS on agency actions that may be likely to jeopardize the continued existence of a proposed species. This refers to an action that would reasonably be expected to directly or indirectly appreciably reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of said species.

Suitable habitat is present in the Project's workspace and Project actions will have temporary impacts on native vegetation serving as a food source to monarch butterflies. If, during the course of the Project, monarch butterfly becomes federally listed on the ESA, Minnesota Power will coordinate or consult with the USFWS as appropriate.

**Suckley's Cuckoo Bumble Bee**

Suckley's cuckoo bumble bees' (Suckley's) range spans from the Yukon south to Arizona and as far as Newfoundland in a widely distributed range of elevations. Suckley's are obligatory social parasites and cannot successfully reproduce without the availability of a suitable host colony of other *Bombus* species. Host bumble bee nests are often found in abandoned underground holes in a variety of habitat types including meadows, fallow fields, croplands, urban areas, and forests. When female Suckley's emerge from hibernation, they take over the nest of a suitable host colony (most notably, western bumble bees and Nevada bumble bees) and the host workers provide for the Suckley's young. Once developed, all Suckley's adults are reproductive and leave the nest to mate. The males die after mating, but the females continue to feed on nectar and pollen prior to overwintering in areas separate from nesting habitat, likely using loose substrates such as leaf litter, duff, or rotting logs. A generalist, adult females, eggs, larvae, male drone, and new females all require a diversity of native floral resources for pollen and nectar. The species is found in a variety of habitats, including prairies, grasslands, farmsteads, woodlands, boreal forests, active and fallow agricultural fields, and urban areas (USFWS, 2024b).

On December 17, 2024, the USFWS published a proposed rule listing the Suckley's cuckoo bumble bee as federally endangered under the ESA. A final rule is expected to be published to the federal register in 12 months, and the listing made effective 30 to 60 days later (i.e., January or February 2026). Proposed species are not protected under the ESA, and as such, a determination of effect is not applicable. However, federal agencies are required to confer with the USFWS on agency actions that may be likely to jeopardize the continued existence of a proposed species. This refers to an action that would reasonably be expected directly or indirectly to appreciably reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of said species.

Suitable habitat is present in the Project's workspace and Project actions will have temporary impacts on native vegetation serving as a food source to Suckley's cuckoo bumble bee. If, during the course of the Project, Suckley's cuckoo bumble bee becomes federally listed on the ESA, Minnesota Power will coordinate or consult with the USFWS as appropriate.

**Western Regal Fritillary**

The regal fritillary is a strong-flying, non-migratory butterfly with a wingspan up to four inches. The forewing is orange with black markings, while the hindwing is mostly black with a row of white spots across the middle. The spots on the outer margin of the hindwing is white in females and orange in males. The caterpillars are velvety black, yellow, or deep orange, with orange or red stripes, and yellow-white branching spines with black tips (USFWS, 2023c).

The species is found in native tallgrass prairie habitats and was once commonly found in 32 states extending north in New England, south to Oklahoma, and west to Colorado. Today, the eastern subspecies is restricted to Fort Indiantown Gap National Guard Training Center in Pennsylvania. The western subspecies is found in portions of Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, Wisconsin, and Wyoming. Regal fritillaries can range widely with females potentially traveling up to 100 miles searching for three main habitat components: violet hostplants for larvae, nectar plants for adults, and native grasses to provide protection throughout the life cycle. Adults can be found foraging in both upland and wet prairie habitats; however, habitat can only be considered suitable for all life stages if violet species are present to provide shelter and forage for larvae. The density of violets seems to correlate positively to the number of butterflies within a given area. Habitat alteration has reduced the species' range and abundance (USFWS, 2023c).

Adults mate once annually in mid to late summer; however, females undergo reproductive diapause until fall. Eggs hatch in about 3 to 4 weeks and then larvae quickly seek duff material where they overwinter. When active in spring, larvae begin feeding on young violets. Mortality is high during the larvae stage. After a 2- to 4-week pupae stage in late spring, adults emerge in early summer. Dispersal of adults may be driven by localized threats or poor habitat conditions and success is dependent upon connectivity of suitable habitat, availability of nectar sources, and habitat patch sizes among other factors.

On August 6, 2024, the USFWS published a proposed rule listing the western regal fritillary as federally threatened under the ESA. Proposed species are not protected under the ESA, and as such, a determination of effect is not applicable. However, federal agencies are required to confer with the USFWS on agency actions that may be likely to jeopardize the continued existence of a proposed species. This refers to an action that would reasonably be expected directly or indirectly to appreciably reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of said species.

Suitable habitat is present in the Project's workspace and Project actions will have temporary impacts on native vegetation serving as a food source to western regal fritillaries. If, during the course of the Project, western regal fritillary becomes federally listed on the ESA, Minnesota Power will coordinate or consult with the USFWS as appropriate.

### 6.9.2 Impacts/Mitigation

Minnesota Power is developing a voluntary WCS, which includes an adaptive management approach so that information gathered and experience gained from post-construction monitoring can be used to inform future management decisions for the Project. Per the WRRS protocol, if a dead or injured federally listed species is found, it must be left undisturbed and reported to USFWS. No irreversible damage to rare or unique animal or plant species is anticipated. Individual species are discussed below.

**Piping Plover**

There were no piping plovers observed during the avian use surveys conducted for the Longspur Wind Project (O'Neil and Piorkowski, 2025). The Project is within the range of the piping plover, but not within the primary range. Suitable habitat consisting of sandy, gravelly beaches, sandbars, wetlands, or lakes was not found during a desktop review. With the absence of preferred nesting habitat and the distance from the Project to a site of preferred habitat, it is unlikely that piping plover would occur at the Project location.

**Rufa Red Knot**

There were no rufa red knots observed during the avian use surveys conducted for the Longspur Wind Project (O'Neil and Piorkowski, 2025). Suitable habitat consisting of coastal marine and estuarine areas, or freshwater lakes were not found during a desktop review. With the absence of preferred nesting and foraging habitat, it is unlikely that the rufa red knot would occur at the Project location.

**Whooping Crane**

Although the Study Area is located within the portion of the migration corridor that contains 50 percent of confirmed whooping crane sightings, whooping cranes may occur at the Study Area during migration; however, the analysis indicated that there have been no observations or

telemetry locations documented within the Project Route and the probability of occurrence is low. The Project is not anticipated to affect whooping cranes.

**Dakota Skipper**

Project infrastructure will be sited and the construction easement was designed to avoid impacts on all suitable Dakota skipper habitat. Habitat surveys were conducted in the fall of 2025 and no suitable habitat was identified; therefore, no impacts on Dakota skipper are anticipated.

**Monarch Butterfly**

Project infrastructure will be sited to minimize potential impacts on suitable monarch butterfly habitat. Although the monarch butterfly is not currently listed under the ESA, Minnesota Power recognizes its conservation importance and will take proactive steps to avoid and minimize disturbance No significant impacts on monarch butterflies are expected.

**Suckley's Cuckoo Bumble Bee**

Project infrastructure will be sited to minimize potential impacts on suitable Suckley's cuckoo bumble bee habitat. Although the species is not currently listed under the ESA, Minnesota Power recognizes its conservation importance and will take proactive steps to avoid and minimize disturbance No significant impacts on Suckley's cuckoo bumble bee are expected.

**Western Regal Fritillary**

Project infrastructure will be sited to minimize potential impacts on suitable western regal fritillary habitat. Although the species is not currently listed under the ESA, Minnesota Power recognizes its conservation importance and will take proactive steps to avoid and minimize disturbance. No significant impacts on western regal fritillaries are expected.

**Mitigative Measures**

Minnesota Power conducted environmental studies and consulted with the NDGFD and USFWS on appropriate avoidance, minimization, and offset measures so that the Project would have minimal environmental impacts. Based on the above, including all aforementioned mitigation measures from Section 6.8, Minnesota Power will apply the following additional measures, to the extent practicable:

- Provide the appropriate whooping crane identification guide materials to be in all Project maintenance and operations vehicles for reference.
- If necessary, implement a tree removal restriction for suitable NLEB habitat within three miles of NLEB positive locations from April 1 to October 31 unless an emergence survey clears trees for clearing.
- Field-verified suitable Dakota skipper habitat will continue to be avoided. High visibility fencing (e.g., snow fence) will be placed around field-verified suitable Dakota skipper habitat areas in close proximity to construction to restrict construction equipment from disturbing these areas.
- Provide contractors with training, spatial data and static constraints maps that identity if and where field verified suitable Dakota skipper habitat is located and where construction equipment is restricted.

- Educate construction contractors about threatened and endangered species and associated mitigative measures being implemented for each respective species.
- Provide contractors with static constraint maps and ensure compliance through onsite environmental construction monitoring.

# 7.0 PUBLIC AND AGENCY COORDINATION

Throughout the development of the Project, Minnesota Power has coordinated with landowners and other stakeholders through a combination of in-person meetings, mailers, and phone calls. Landowner meetings occurred throughout development with landowner meetings for infrastructure, providing an opportunity for open communication and feedback from landowners. County meetings occurred on April 20, 2025, with Mercer County and May 1, 2025, with Morton County. State and Federal Agency meetings have occurred with USFWS and NDGFD occurred on December 4, 2024. Meetings with Department of Agriculture occurred on October 31, 2025. Minnesota Power is continuing conversations with Department of Agriculture on Voluntary Grassland Mitigation and USFWS and NDGFD for mitigation on reports and species. Minnesota Power is committed to maintaining coordination with landowner stakeholders throughout the development and lifetime of the Project.

In June 2025, Minnesota Power and its representatives sent Project notification letters to key local, state, and federal agencies, organizations, and groups per Section 69-06-01-05 of the N.D. Admin. Code. The Project notification letters included a description of the Project, a solicitation request for any sensitive resources, current or planned development, or property interests the agency may have in or around the Study Area that Minnesota Power should consider, request for applicable permits, and a map of the Study Area.

The table below provides a summary of the correspondence between Minnesota Power and agencies, groups, and organizations. Attachment C includes templates of the Project notification letters, and correspondence with agencies and organizations including letters received in response to the Project notification letter, emails, and meeting summaries as of September 2025. Table 7.0-1 below and Appendix C are generally organized in the order in which the agency appears in Section 69-06-01-05 of the N.D. Admin. Code and are generally organized with the earliest correspondence date first.

Table 7.0-1

**Summary of Agency Comments**

| Agency | Comment Date | Comment Summary | Section Addressed |
|---|---|---|---|
| North Dakota Aeronautics Commission (NDAC) | July 8, 2025 | On July 8, 2025, Grant Erwin, an airport planner with the North Dakota Aeronautics Commission responded and indicated that they currently have no comments regarding the proposed project. The closest public airport to the project area is Glen Ullin Regional Airport (D57). The closest boundary of the study area is approximately 3.7 nautical miles from the airfield. At this distance, there are no dangers or obstructions to any protected surfaces at the airport. Other airports near to the project area are Beulah Municipal (95D), and Mercer County Regional (KHZE) airports. At distances of approximately 15.7 nautical miles and 19.4 nautical miles respectively, NDAC has no concerns regarding the airspace & protected surfaces for these airports. The NDAC recommends contacting the three airport authorities and the FAA.<br><br>On July 26, 2025, Minnesota Power sent project introduction letters to the Glen Ullin Regional Airport, the Beulah Municipal Airport, and the Mercer County Regional Airport. | 6.3 |

Table 7.0-1

**Summary of Agency Comments**

| Agency | Comment Date | Comment Summary | Section Addressed |
|---|---|---|---|
| North Dakota Attorney General | N/A | No response | N/A |
| North Dakota Department of Agriculture | June 26, 2025 | Minnesota Power met with the NDDA on October 31, 2025, to discuss compensatory mitigation for grasslands on the Project. Minnesota Power has provided the NDDA its proposed mitigation on December 4, 2025.<br><br>On June 26, 2025, J.P. Bialke, a General Counsel/Senior Policy Advisor with the North Dakota Department of Agriculture, responded with information related to new laws for mitigating or offsetting potential project direct or indirect adverse environmental impacts from energy facility construction and operation. Mr. Bialke included the North Dakota Mitigation Program statutes (amended March 2025), and the North Dakota Environmental Impact Mitigation Program administrative rules (July 2024). The NDDA is required to notify the Public Service Commission of mitigation efforts to create, restore, or mitigate similar habitat affected by the construction or operation of an energy conversion or transmission facility and offered future assistance if needed. | 6,8 |
| North Dakota Department of Health | N/A | No response | N/A |
| North Dakota Department of Human Services | N/A | No response | N/A |
| North Dakota Department of Labor and Human Rights | N/A | No response | N/A |
| North Dakota Department of Career and Technical Education | N/A | No response | N/A |
| North Dakota Department of Commerce | N/A | No response | N/A |
| Energy Infrastructure and Impact Office | N/A | No response | N/A |

Table 7.0-1

**Summary of Agency Comments**

| Agency | Comment Date | Comment Summary | Section Addressed |
|---|---|---|---|
| North Dakota Game and Fish Department (NDGFD) | Letter dated June 29, 2025 | On December 4, 2024 Minnesota Power met with the North Dakota Game and Fish Department to review the Project. In attendance was Bruce Kreft Chief Conservation and Communications Division of the North Dakota Game and Fish Department and Elisha Mueller Conservation Biologist. NDGFD discussed habitat conservation priorities, stressing avoidance of grasslands within two miles of sharp-tailed grouse leks and requesting avian habitat offset analysis using site-specific data. They raised cumulative impact considerations, grassland conversion rates, and mitigation funding strategies with NDDA. NDGFD asked for turbine layout details and early access to study results for comment 30 days before the PSC hearing.<br>On June 29, 2025, Bruce Kreft, Chief Conservation and Communications Division of the North Dakota Game and Fish Department, responded and emphasized the importance of native prairie and wetland habitat. Mr. Kreft also noted the need for lek surveys for the sharp-tailed grouse, acoustic surveys for bats, and use of the USFWS Habitat and Population Evaluation Team model for the whooping crane, and recommended surveys for raptor nests during breeding season. Mr. Kreft requested a Wildlife Conservation Strategy and any voluntary offsets 100 days prior to the hearing date. | 6.8 |
| North Dakota Industrial Commission | N/A | No response | N/A |
| Office of Governor Kelly Armstrong | N/A | No response | N/A |
| North Dakota Department of Transportation (NDDOT) | July 14, 2025 | On July 14, 2025, Jon Ketterling, Director of the Office of Project Development for the North Dakota Department of Transportation, responded and indicated that the project, as proposed, would have no adverse impacts on North Dakota Department of Transportation highways. | 6.3 |
| State Historical Society of North Dakota | July 8, 2025 | On July 8, 2025, William Peterson, Director of the State Historical Society of North Dakota, responded and recommended the following cultural resources surveys: a current Class I literature search for previously recorded cultural resources in the project area and a Class III intensive archaeology survey of all areas (unless recently surveyed) of direct impacts including crane paths, met towers, access roads, turbine locations, and staging areas. Mr. Peterson also recommended a Class II and Class III survey by a permitted architectural historian for standing buildings and structures over 45 years old in the visual APE and within a two-mile radius of individual turbine locations for eligibility to the National Register of Historic Places or the State Historic Sites Registry. | 6.2 |
| North Dakota Indian Affairs Commission | N/A | No response | N/A |
| Job Service North Dakota | N/A | No response | N/A |
| North Dakota Department of Trust Lands | N/A | No response | N/A |

Table 7.0-1

**Summary of Agency Comments**

| Agency | Comment Date | Comment Summary | Section Addressed |
|---|---|---|---|
| North Dakota Parks and Recreation Department (NDPRD) | July 10, 2025 | On July 10, 2025, Kathy Duttenhefner, Natural Resources Division Chief for the North Dakota Parks and Recreation Department, responded and noted that the project does not appear to affect any properties NDPRD owns, leases, or manages; or any properties protected under Section 6(f) of the LWCF. Ms. Duttenhefner included a map and details related to one animal species of concern (*Anthus spragueii*, Sprague's Pipit) known to occur within an approximate one-mile radius of the project area. | 6.9 |
| Natural Resources Conservation Service | July 2, 2025 | On July 2, 2025, Susan Samson-Liebig, Acting State Soil Scientist for the Bismark State Office of the Natural Resources Conservation Service, responded that due to the involvement of no federal funding with the project, the Farmland Protection Policy Act does not apply. Ms. Samson-Liebig recommended impacts on wetlands be avoided but also provided requirements for installation of permanent structures where wetlands occur in order that the impacts would be considered minimal. | 6.7 |
| North Dakota Department of Water Resources | Letter dated July 15 and emailed on July 25, 2025 | Kyle Yrkoski, a planner with the North Dakota Department of Water Resources, responded and noted that while there are no FEMA National Flood Insurance Program floodplains in the project area, the North Dakota Risk Assessment MapService and Base Level Engineering data show a risk for flood. | 6.7 |
| United States Department of Defense | N/A | No response | N/A |
| United States Fish and Wildlife Service | N/A | On December 4, 2024 Minnesota Power met with the United States Fish and Wildlife Service to review the Project. In attendance was Hannah Edens Fish and Wildlife Biologist. USFWS participated in discussions on survey design and species considerations. They emphasized including species of greatest conservation need in the Site Characterization Study and adding regal fritillary to grassland and Dakota skipper assessments. Guidance was provided on northern long-eared bat habitat, noting smaller roosting trees may be suitable, and on bat acoustic survey design. USFWS requested study plans for presence/probable absence surveys and timely delivery of wildlife results and the Wildlife Conservation Strategy 100 days before the PSC hearing | 6.9 |
| United States Army Corps of Engineers (USACE) | N/A | No response | N/A |
| Federal Aviation Administration (FAA) | N/A | Minnesota Power filled project information for a 7460-1 form for Determination of No Hazard. | N/A |
| Grand Forks County | N/A | No response | N/A |
| Nelson County | N/A | No response | N/A |
| North Dakota Transmission Authority (NDTA) | N/A | No response | N/A |
| North Dakota Pipeline Authority | N/A | No response | N/A |

Table 7.0-1

**Summary of Agency Comments**

| Agency | Comment Date | Comment Summary | Section Addressed |
|---|---|---|---|
| North Dakota Department of Environmental Quality (NDDEQ) | July 21, 2025 | On July 21, 2025, Karl Rockeman, Deputy Director of the North Dakota Department of Environmental Quality, responded and stated the Department owns no land in or adjacent to the project and the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for North Dakota. Mr. Rockeman noted the project overlies the Elm Creek aquifer and there is a TMDL allocation for fecal coliform in the Elm Creek watershed. Impairments for *E. coli* are found in the Wilson Creek watershed and in Hailstone Creek in the Danzig Dam watershed. Mr. Rockeman attached NDDEQ construction and environmental disturbance requirements related to the project. | 6.5 |
| North Dakota Geological Survey | June 26, 2025 | On June 26, 2025, Fred Anderson, Surface Geology Section Manager for the North Dakota Geological Survey, responded and noted there are several landslide areas mapped in the study area. Most are located in the southeastern portion of the study area, with several concentrated along Wilson Creek in northwestern Morton County. Mr. Anderson recommended avoiding landslide areas whenever possible for potential locations for structures or towers. A link to landslide maps and data sets was provided. | 6.6 |
| North Dakota Forest Service | N/A | No response | N/A |
| Bureau of Land Management (BLM) | N/A | No response | N/A |
| Military Aviation and Installation Assurance Siting Clearinghouse (Clearinghouse) | N/A | No response | N/A |
| 91st Missile Maintenance Squadron | N/A | No response | N/A |
| Minot Air Force Base (AFB) | N/A | No response | N/A |
| Grand Forks AFB | N/A | No response | N/A |
| National Telecommunications and Information Administration (NTIA) | N/A | On October 4, 2024, John McFall, Deputy Chief of Spectrum Services Division, responded to Frank O'Brien's (Comsearch), stating that the Project plans were provided to the federal agencies represented in the Interdepartmental Radio Advisory Committee. Mr. McFall noted the DOE had concerns with the wind Project Area being 67.7 kilometers west of KBIS Bismark, North Dakota NEXRAD and within the notification zone of that radar. The DOE added there will be low impact and only the lowest elevation angle can be contaminated and provided a contact for notification if the Project Area changes or the turbine heights increases by 10 meters or more. Mr. McFall also noted the Project has the potential to impact Western Area Power Administration (WAPA) operations and requested Comsearch coordination with WAPA. | N/A |

## 8.0 POTENTIAL PERMITS/APPROVALS

Table 8.0-1 outlines the federal, state, and county permits or approvals that have been identified as potentially required for the construction and operation of the Project. Permits dependent on the final Project layout will be applied for after receiving ND PSC approval, but prior to construction.

TABLE 8.0-1

**Potential Permits and Approvals Required for Construction and Operation**

| Agency | Permit or Approval | Status [a] | Need |
|---|---|---|---|
| **Federal Approvals** | | | |
| United States Army Corps of Engineers | Section 404 CWA Permit | 3 | Required if dredging or filling waters of the U.S. |
| | Section 10 Rivers and Harbors Act Permit | N/A | Required for work in or affecting Section 10 waters |
| U.S. Fish and Wildlife Service | Section 7, Endangered Species Act | 3 | Required if the Project has a federal nexus. Consultation is the responsibility of the lead federal agency. |
| U.S. Fish and Wildlife Service | Section 9, Endangered Species Act | 3 | Compliance with Section 9 of the ESA is mandatory. Without a federal nexus, no "unauthorized take" can occur without a Habitat Conservation Plan. |
| State Historical Society of North Dakota | Section 106, National Historic Preservation Act (NHPA) Compliance | 3 | Required for any projects that receive federal funding, permits, or approvals |
| Federal Aviation Administration | Form 7460-1, Notice of Proposed Construction | 3 | Notice and approval are required for structures over 200 feet above ground level, structures near airports, or siting within line of sight of radar of an air defense facility. |
| U.S. Environmental Protection Agency | Spill Prevention, Control, and Countermeasure Plan | N/A | Required for aboveground oil storage with 1,320 gallons |
| U.S. Fish and Wildlife Service (USFWS) | Special Use Permit | N/A | Not required as no USFWS easements are present. |
| **State of North Dakota** | | | |
| North Dakota Public Service Commission | Certificate of Corridor Compatibility and Transmission Facility Route Permit | 2 | The North Dakota Energy Conversion and Transmission Facility Siting Act, N.D.C.C. Chapter 49-22 (Siting Act) requires the proponent of an electric transmission facility with a design in excess of 115-kV to obtain a Certificate of Corridor Compatibility and Route Permit from the ND PSC in order to locate, construct, and operate the facility in the State of North Dakota. An application must meet certain criteria set forth in the Siting Act, as well as in North Dakota Administrative Code (N.D. Admin Code) Article 69-06. |
| State Historical Society of North Dakota (SHSND) | Concurrence with Effect Determinations | 1 | Reports for the Class III Cultural Resources Inventory have been submitted to SHSND for review. |
| North Dakota Department of Environmental Quality | National Pollutant Discharge Elimination System Permit: General Construction Storm Water | 3 | Required for disturbance of over one acre of land and a stormwater pollution prevention plan must be prepared. |
| North Dakota Department of Environmental Quality | 401 Water Quality Certification | 3 | Required in conjunction with Section 404 permit for filling jurisdictional WOTUS. Coverage is automatic under Nationwide permits |
| North Dakota Highway Patrol | Oversized/Overweight Permit | 3 | Required for hauling oversized/overweight loads on State Highways. |

TABLE 8.0-1

**Potential Permits and Approvals Required for Construction and Operation**

| Agency | Permit or Approval | Status [a] | Need |
|---|---|---|---|
| North Dakota Department of Transportation | Road Approach/Access Permit | 3 | Required for construction of access roads from State Highways. |
| | Utility Permit/Risk Management Documents | 3 | Required for utility crossings on State Highway right-of-way. |
| North Dakota Department of Water Resources | Drainage Permit | N/A | The Project will not drain a pond, slough, lake or sheetwater, or any series thereof, that has a watershed area (*i.e.*, drainage area) of 80 acres or more. |
| | Conditional or Temporary Permit for water appropriation | N/A | No water appropriation required. |
| | Water Permit | 3 | Required if drilling a well. |
| **Morton County** | | | |
| Morton County | Stormwater Management Plan | **3** | Morton County Land Use Code Article 8, Section 8-030 states: Every applicant for a building permit, subdivision approval, special use permit, or a permit to allow land disturbing activities shall submit a stormwater management plan to the County Engineer, unless deemed to be exempt by the provisions of this section. No building permit, subdivision approval, special use permit, or permit to allow land disturbing activities shall be issued until approval of the stormwater management plan or a waiver of the approval requirement has been obtained |
| **Mercer County** | | | |
| Mercer County | Conditional Use Permit | 1 | Mercer County Ordinance, Chapter Three I indicates a Conditional Use Permit is required for a transmission facility. |
| Mercer County | Stormwater Management Plan | 3 | Mercer County Ordinance, Chapter Two, IV states: Any other instances where an applicant seeks approval by Planning and Zoning Board and the Planning and Zoning Board feels a storm water plan is necessary to protect surrounding and adjacent property owners, public infrastructure, ecologically sensitive areas, erosion sensitive areas, or areas in need of protection from storm water flow events. |

[a] Status Explanation: 1 = Completed and approved, 2 = Applied and/or decision pending, 3 = Will apply for prior to construction as applicable.

## 9.0 QUALIFICATIONS OF CONTRIBUTORS

The qualifications of each significant contributor involved in the facility site location study and this application are provided below in Table 9.0-1.

TABLE 9.0-1

**Qualifications of Contributors**

| Name and Project Role | Education and Professional Experience |
|---|---|
| **Daniel Flo**<br>Project Manager<br>Merjent, Inc | Mr. Flo has over 20 years of experience with regulatory compliance, environmental review, and site and route permitting for a variety of energy development projects including renewable energy generation, electric transmission, oil and gas transmission, and refinery upgrades. Mr. Flo has managed project permitting in North Dakota, including applications to the North Dakota Public Service Commission for crude oil pipelines, electric transmission projects, and wind projects, since 2011. Mr. Flo has a JD from Lewis & Clark Law School in Portland, Oregon and a BS in Geography from Minnesota State University, Mankato. |
| **Mandy Bohnenblust**<br>Deputy Project Manager<br>Merjent, Inc | Ms. Bohnenblust has over 15 years of experience providing environmental consulting services to energy companies, focusing on project management, local, state, and federal permitting, construction compliance, surveys and consultations for biological resources and protected species. Ms. Bohnenblust routinely works on power-related projects, including transmission lines, throughout the Midwest. She is trained in Section 7 consultation and consults with state and federal agencies to comply with endangered species laws. Ms. Bohnenblust has a Master of Science in Environmental Pollution from Penn State and Bachelor of Science in biology from Truman State University. |
| **Damien Reinhardt**<br>Cultural Resources<br>Merjent, Inc. | Mr. Reinhart is an Environmental Consultant with 18 years of experience in consulting and working for federal agencies, focusing on cultural and natural resource management. His expertise includes all facets of cultural resource management, natural resource project management with experience in all levels of NEPA analysis, paleontological services; and project permitting with state and federal agencies. Mr. Reinhart has worked on oil and gas, wind, transmission, fiber optics, and mining projects in North Dakota, South Dakota, Montana, Minnesota, Wisconsin, Iowa, and Nebraska. Mr. Reinhart has nearly a decade of experience working for federal agencies, where he excelled at consultation with Native American tribes, stakeholders, other state and federal agencies, municipalities, and the public regarding compliance with cultural resources, natural resources, land management and recreation laws and standards. He holds a Master of Arts degree in Anthropology from the University of Minnesota, Twin Cities, a Bachelor of Arts in Anthropology from North Dakota State University, an Associate of Arts degree in History from Bismarck State College. |
| **Mike French**<br>Project Manager<br>Minnesota Power | Mr. French has over 30 years' experience designing and managing infrastructure projects throughout Michigan, Wisconsin, Minnesota and North Dakota. His work includes water process infrastructure (water treatment and supply and wastewater conveyance and treatment) for large industrial users, including pulp & paper and mining. He has over ten years' experience managing the implementation of numerous electrical transmission projects including substations and transmission lines. Michael is a registered Professional Engineer in six states (those listed previously plus Iowa and Illinois). He holds a Bachelor of Science in Environmental Engineering from Michigan Technological University and a Master of Business Administration from Western Michigan University. |
| **Alexander Luman**<br>Environmental Compliance Specialist<br>Minnesota Power | Mr. Luman is an Environmental Compliance Specialist with two years of experience supporting permitting and environmental review for renewable energy and electric transmission projects. His work includes regulatory coordination and documentation preparation to support federal, state, and local permitting processes. Mr. Luman has contributed to habitat assessments, endangered species consultations, and mitigation planning, including work on wind energy projects in North Dakota and Iowa and transmission line projects in Minnesota. He holds a Bachelor of Science in Environmental Science from Northern Michigan University. |
| **Lucas Hodenfield**<br>Transmission Engineer<br>Minnesota Power | Mr. Hodnefield is a Civil Engineer that has over 8 years of experience designing and maintaining transmission line infrastructure ranging from 69kV to 345kV on projects throughout Minnesota and North Dakota. His work includes the scoping, estimating, routing, structural design of Transmission Line structures and wires cover standard wood pole, laminated poles and custom designed steel, material specification, outage coordination, construction support and project closeout. Lucas is a registered Professional Engineer in North Dakota and Minnesota; he holds a Bachelor of Science Degree in Civil Engineering from the University of North Dakota. |

TABLE 9.0-1

**Qualifications of Contributors**

| Name and Project Role | Education and Professional Experience |
|---|---|
| **Mitchell Bettenhausen**<br>Project Manager<br>Minnesota Power | Mr.Bettenhausen has 11 years of experience in the energy sector building a strong foundation in renewable energy, specializing in wind energy operations and project management. His expertise includes managing operating wind facilities, implementing safety and regulatory compliance, and leading large-scale renewable energy projects from development through execution. He has successfully overseen the operations and maintenance of multiple wind farms in North Dakota, ensuring optimal performance, regulatory compliance, and alignment with organizational goals. His work involves managing the lifecycle of wind energy projects, including site development, permitting, construction, and ongoing operations, while collaborating with cross-functional teams to optimize energy production and improve operational efficiency. He holds an Associate in Applied Science in Energy Services and Renewable Technology from Bismarck State College, Bachelor of Science in Energy Management from Bismarck State College, and a Master's in Business with a specialization in Organizational Leadership from University of Mary. |
| **Martin Piorkowski**<br>Senior Biologist, Project Manager<br>Western EcoSystems Technology | Mr. Piorkowski is a Senior Biologist and Project Manager in the Western EcoSystems Technology (WEST) office in Bismarck, North Dakota. Martin provides oversight and support for renewable energy projects in the Upper Great Plains. Martin's focus is on wildlife and renewable energy interactions and has extensive experience in designing and implementing landscape-scale surveys and monitoring projects. He has received a BS in Biology from The Pennsylvania State University and a master's in Zoology from Oklahoma State University. |

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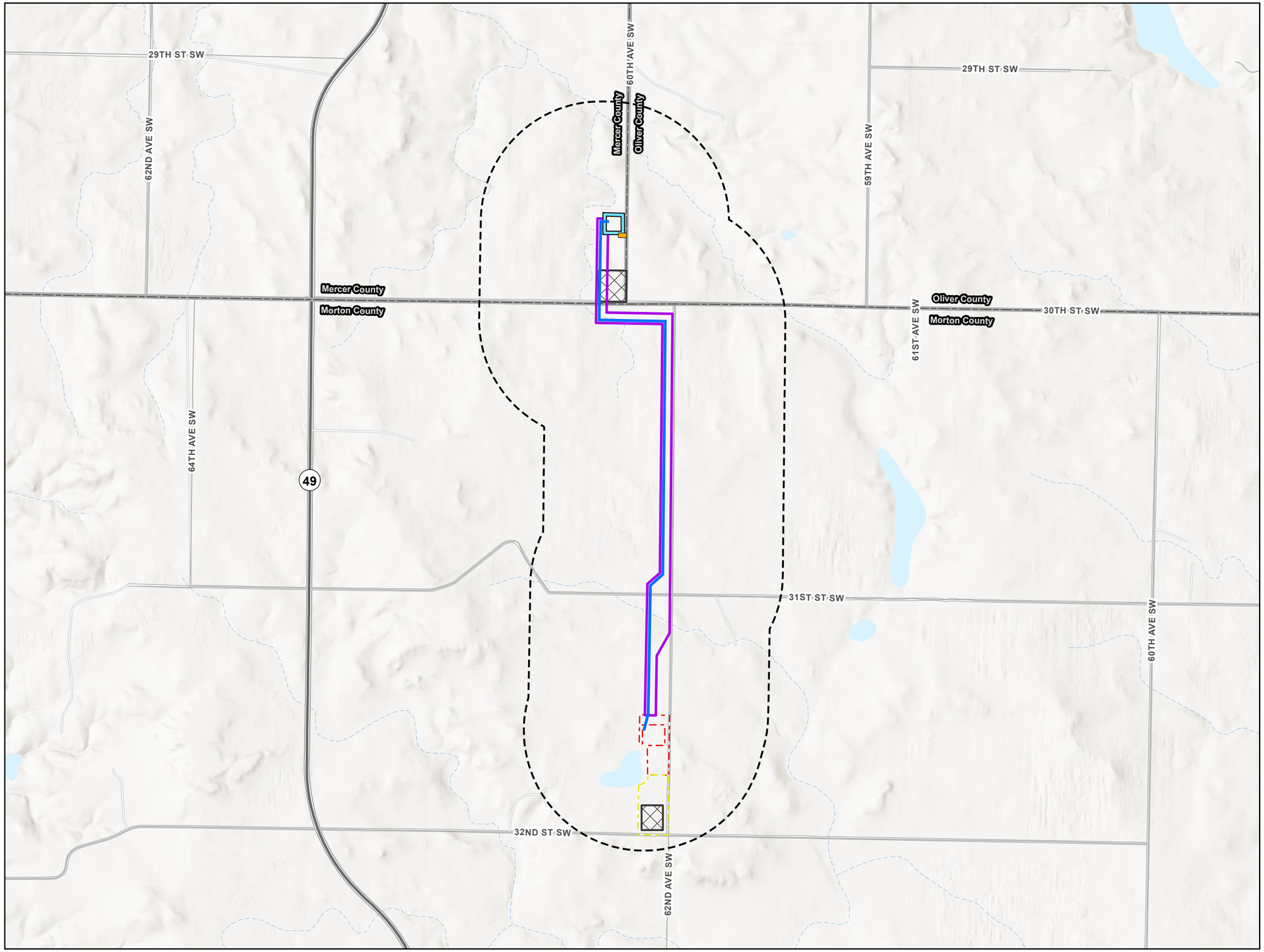
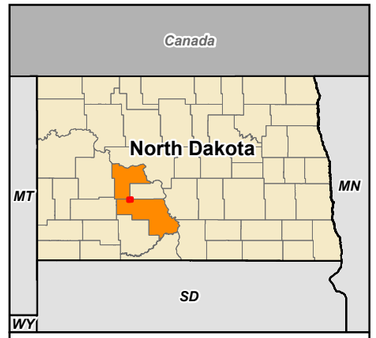
## 11.0 TERMS AND ABBREVIATIONS

| | |
|---|---|
| AFB | Air Force Base |
| APLIC | Avian Power Line Interaction Committee |
| BGEPA | Bald and Golden Eagle Protection Act |
| BLE | base level engineering |
| BMPs | Best Management Practices |
| Certificate | Certificate of Corridor Compatibility |
| CFR | Code of Federal Regulation |
| Clearinghouse | Military Aviation and Installation Assurance Siting Clearinghouse |
| $CO_2$ | carbon dioxide |
| CRP | Conservation Reserve Program |
| DCH | Designated Critical Habitat |
| EMF | electromagnetic fields |
| EMR | electromagnetic radiation |
| EPC | engineering, procurement, and construction |
| ESA | Endangered Species Act of 1973 |
| FAA | Federal Aviation Administration |
| FEMA | Federal Emergency Management Agency |
| FSA | Farm Service Agency |
| GIA | Generator Interconnection Agreement |
| HVDC | High Voltage Direct Current |
| ICBM | intercontinental ballistic missile |
| IPaC | Information for Planning and Consultation |
| kHz | kilohertz |
| kV | kilovolt |
| MBTA | Migratory Bird Treaty Act |
| MHz | Megahertz |
| MISO | Midcontinent Independent System Operator |
| mph | miles per hour |
| MRO | Midwest Reliability Organization |
| MW | megawatt |
| N.D. Admin. Code | North Dakota Administrative Code |
| N.D.C.C. | North Dakota Century Code |
| NASS | National Agricultural Statistics Service |
| ND PSC | North Dakota Public Service Commission |
| NDAC | North Dakota Aeronautics Commission |
| NDDEQ | North Dakota Department of Environmental Quality |
| NDDOT | North Dakota Department of Transportation |
| NDDWR | North Dakota Department of Water Resources |
| NDGFD | North Dakota Game and Fish Department |
| NDGIS | North Dakota GIS |
| NDGISHUB | North Dakota GIS Hub Data Portal |
| NDGS | North Dakota Geological Survey |

| | |
|---|---|
| NDLMI | Job Service North Dakota Labor Market Information Center |
| NDPDES | North Dakota Pollutant Discharge Elimination System |
| NDRAM | North Dakota Risk Assessment MapService |
| NDTA | North Dakota Transmission Authority |
| NESC | National Electrical Safety Code |
| NIEHS | National Institute of Environmental Health Sciences |
| NFIP | National Flood Insurance Program |
| NLCD | National Land Cover Database |
| NLEB | northern long-eared bat |
| NRHP | National Register of Historic Places |
| NTIA | National Telecommunications and Information Administration |
| O&M | operations and maintenance |
| OPGW | Optical Ground Wire |
| Phase I ESA | Phase I Environmental Site Assessment |
| Project | Longspur Wind 230-kV Transmission Line |
| Route Permit | Transmission Facility Route Permit |
| RPOM | Relative Probability of Occurrence Model |
| SHS | State Historic Site |
| SHSND | State Historical Society of North Dakota |
| Siting Act | Energy Conversion and Transmission Facility Siting Act |
| SPCC | Spill Prevention, Control, and Countermeasures |
| SSURGO | Soil Survey Geographic Database |
| STGR | sharp-tailed grouse |
| SWPPP | Storm Water Pollution Prevention Plan |
| T&E | threatened and endangered |
| USACE | U.S. Army Corps of Engineers |
| USDA | U.S. Department of Agriculture |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| WCS | Wildlife Conservation Strategy |
| WEST | Western EcoSystems Technology, Inc. |
| Wind Energy Center | Longspur Wind Energy Center |
| WRRS | Wildlife Response and Reporting System |

**Figures**

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N
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- Project Route
- Parking
- Existing Tri-County Substation
- Project Corridor
- Study Area
- O&M Facility
- Longspur Substation
- Construction Laydown Area/Parking
- County Boundary
- State/Federal Highway
- County Road

# Figure 1: Project Route and Study Area (Street)

**Minnesota Power Longspur Wind 230-kV Transmission Line**

**Mercer and Morton Counties, North Dakota**

merjent

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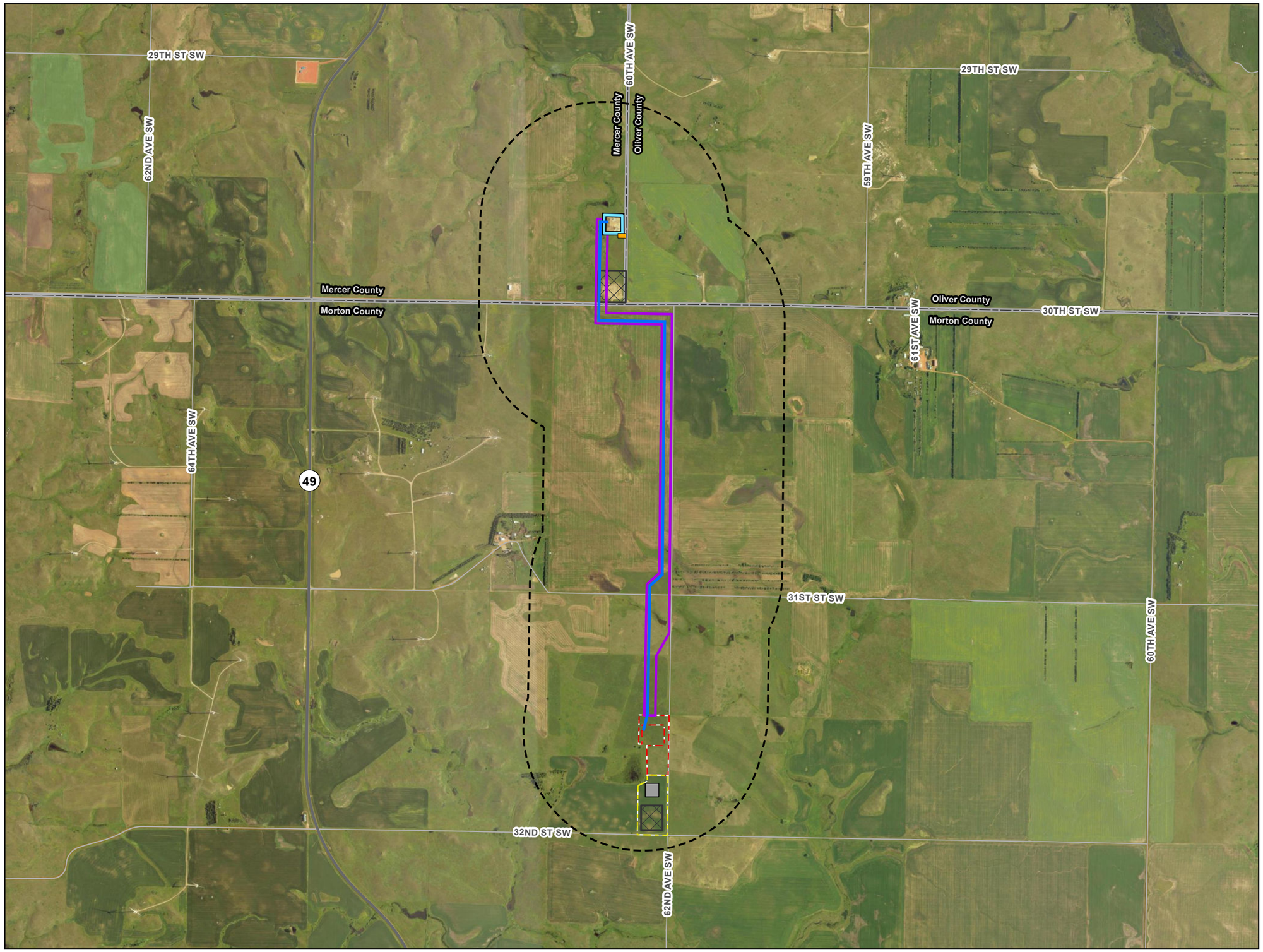


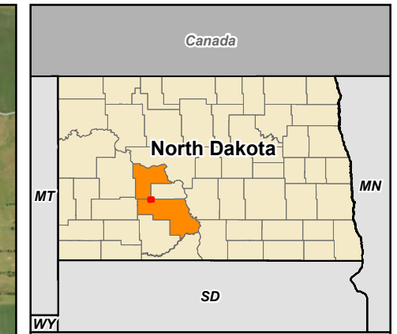


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N W E S

- Project Route
- Project Corridor
- Study Area
- Existing TriCounty Substation
- Construction Laydown Area/Parking
- Longspur Substation
- O&M Facility
- O&M Building
- County Boundary
- Parking

# Figure 2: Project Route and Study Area (Aerial)

**Minnesota Power Longspur Wind 230-kV Transmission Line**

**Mercer and Morton Counties, North Dakota**

merjent

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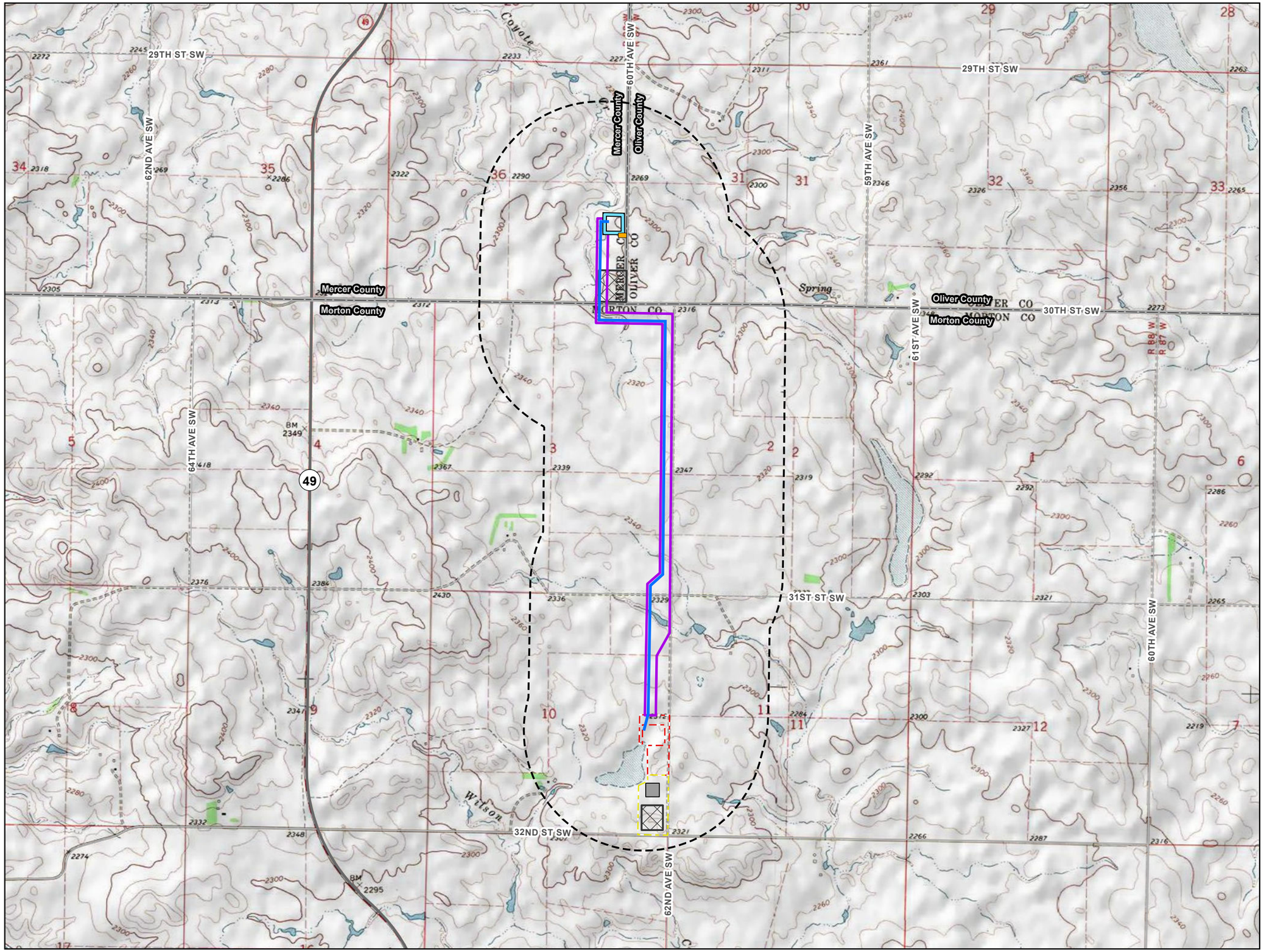


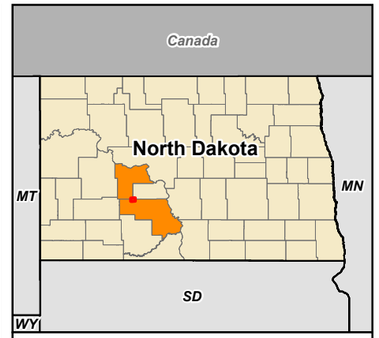


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- Project Route
- Project Corridor
- Study Area
- Existing TriCounty Substation
- Construction Laydown Area/Parking
- Longspur Substation
- O&M Facility
- O&M Building
- Parking
- County Boundary

**Figure 3:**
**Project Route and Study Area (Topographic)**

**Minnesota Power Longspur Wind 230-kV Transmission Line**

**Mercer and Morton Counties, North Dakota**

merjent

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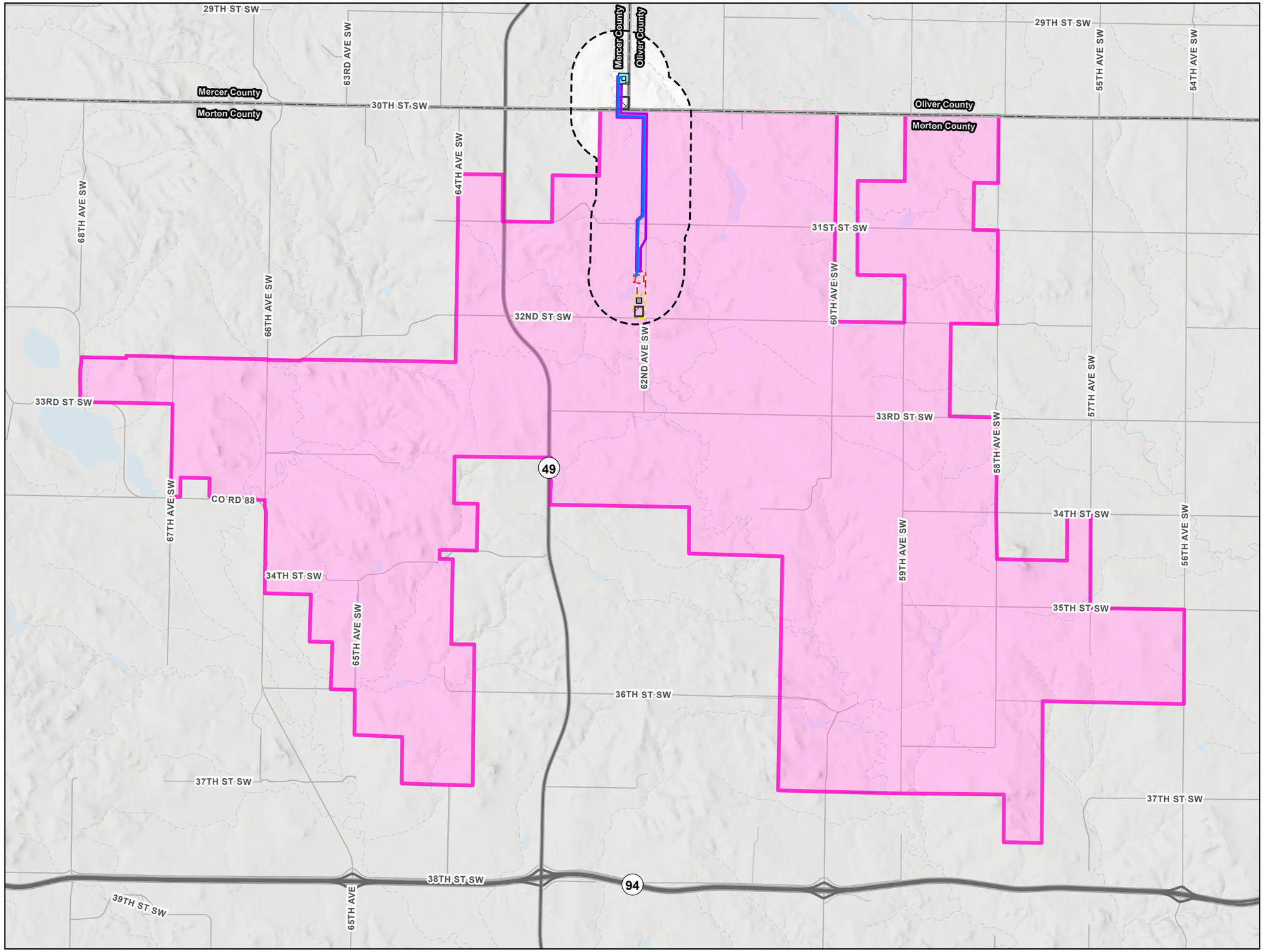


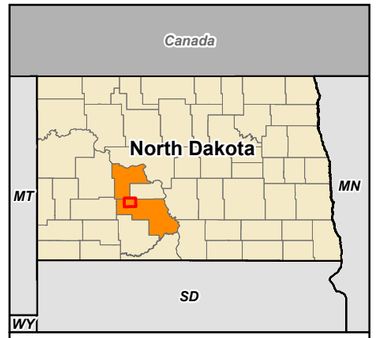


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- Project Route
- Project Corridor
- Study Area
- Existing TriCounty Substation
- Construction Laydown Area/Parking
- Wind Energy Center Project Area
- Longspur Substation
- O&M Facility
- O&M Building
- Parking
- County Boundary

# Figure 4: Project Route, Study Area, and Wind Project

**Minnesota Power Longspur Wind 230-kV Transmission Line**

**Mercer and Morton Counties, North Dakota**

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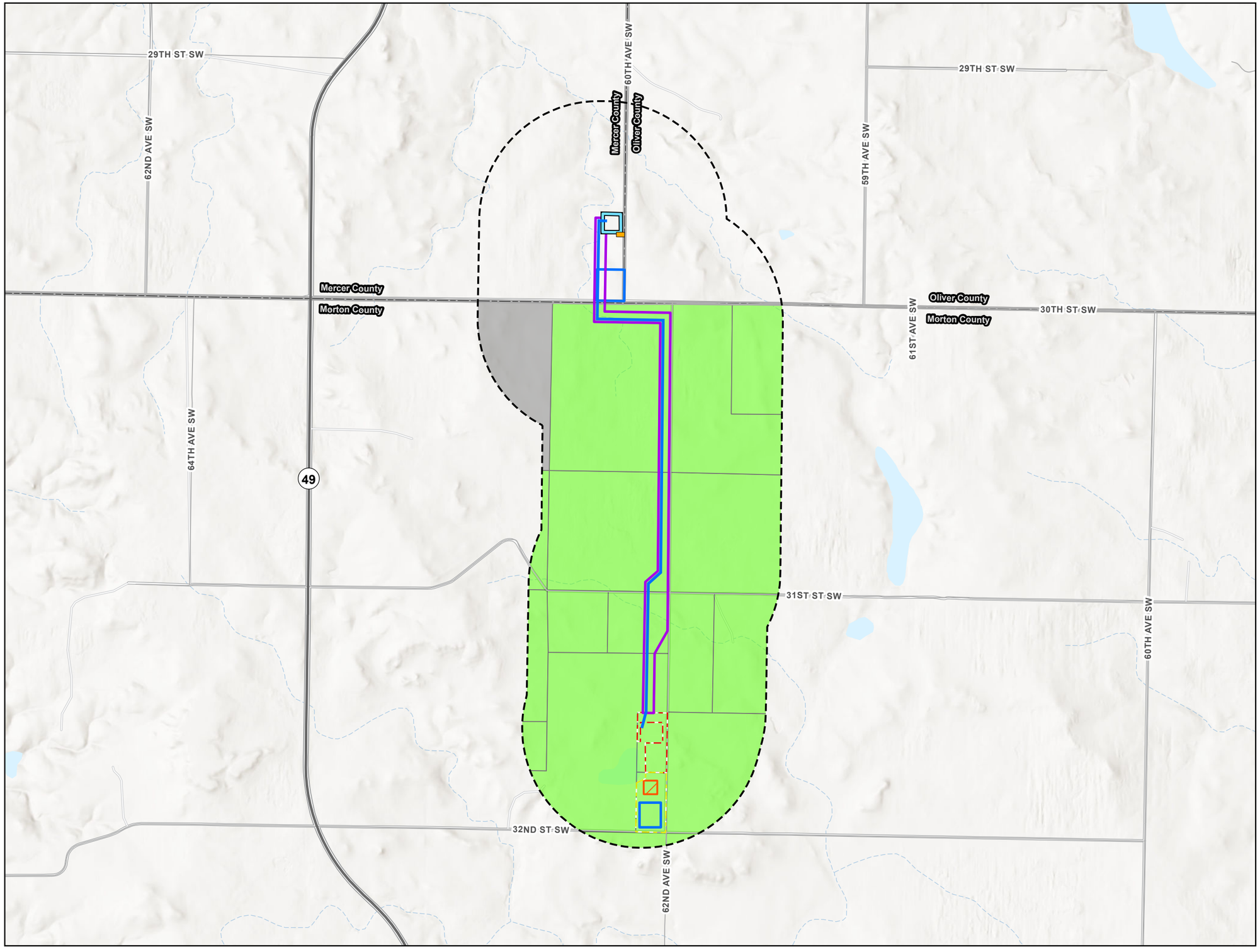


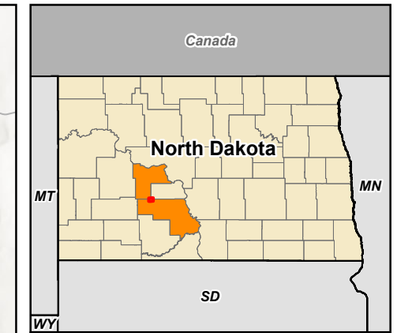


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N S E W

- Project Route
- Project Corridor
- Study Area
- Existing TriCounty Substation
- Construction Laydown Area/Parking
- Longspur Substation
- O&M Facility
- O&M Building
- Parking
- County Boundary
- Participating Landowner
- Non-Participating Landowner

# Figure 5: Participating Landowners

## Minnesota Power Longspur Wind 230-kV Transmission Line

**Mercer and Morton Counties, North Dakota**

merjent

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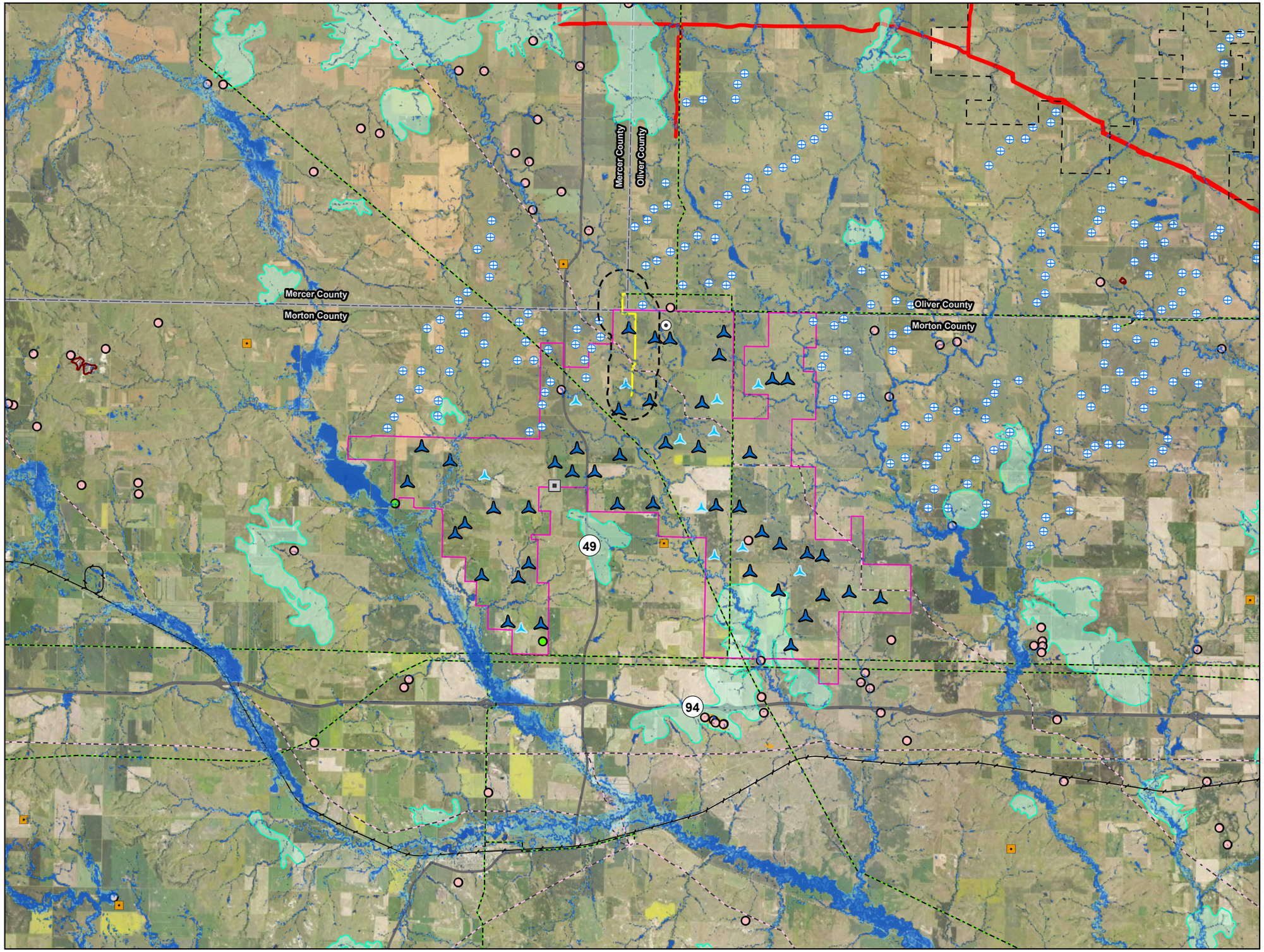


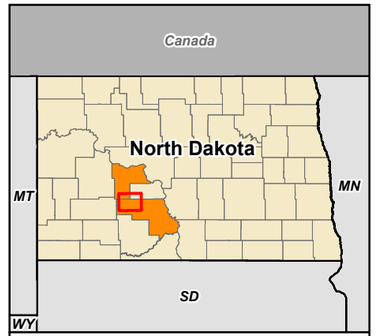


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Existing Development
- Wind Turbine
- Exploration Well
- Potential Coal Mine
- Abandoned Mine
- Proposed ADLS Tower
- Proposed MET Tower
- Transmission Line
- Oil & Gas Pipeline
- Railroad
- Lignite Reserve
- Previously Mined Land (NDGS 2007)
- Previously Mined Land (USDA 2023)

Proposed Development
- Project Route
- Study Area
- Proposed Carbon Capture Infrastructure
- Longspur Wind Proposed Alternate Turbine
- Longspur Wind Proposed Primary Turbine
- Longspur Wind Energy Center Project Area
- Red Butte Wind Energy Center Study Area

# Figure 6: Present and Future Natural Resources Development

## Minnesota Power Longspur Wind 230-kV Transmission Line

**Mercer and Morton Counties, North Dakota**

merjent

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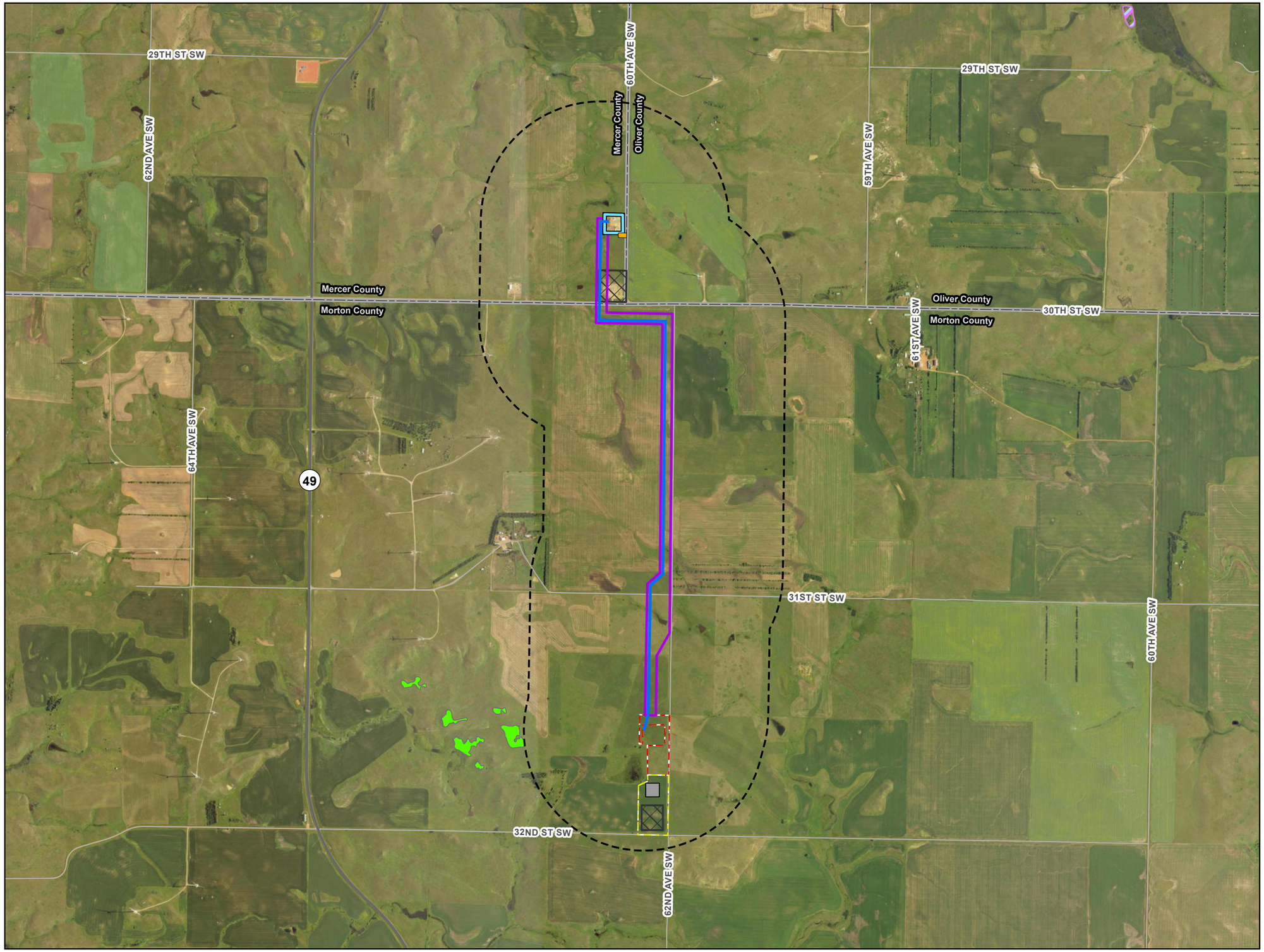


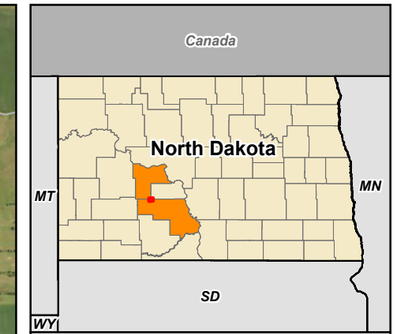


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N W E S

- Project Route
- Project Corridor
- Study Area
- Existing TriCounty Substation
- Construction Laydown Area/Parking
- Longspur Substation
- O&M Facility
- O&M Building
- Parking
- Landslides
- DASK Habitat
- County Boundary

*Known archaeological sites are not depicted due to confidentiality
*No avoidance or exclusion areas present

# Figure 7: Exclusion and Avoidance Areas

## Minnesota Power Longspur Wind 230-kV Transmission Line

### Mercer and Morton Counties, North Dakota

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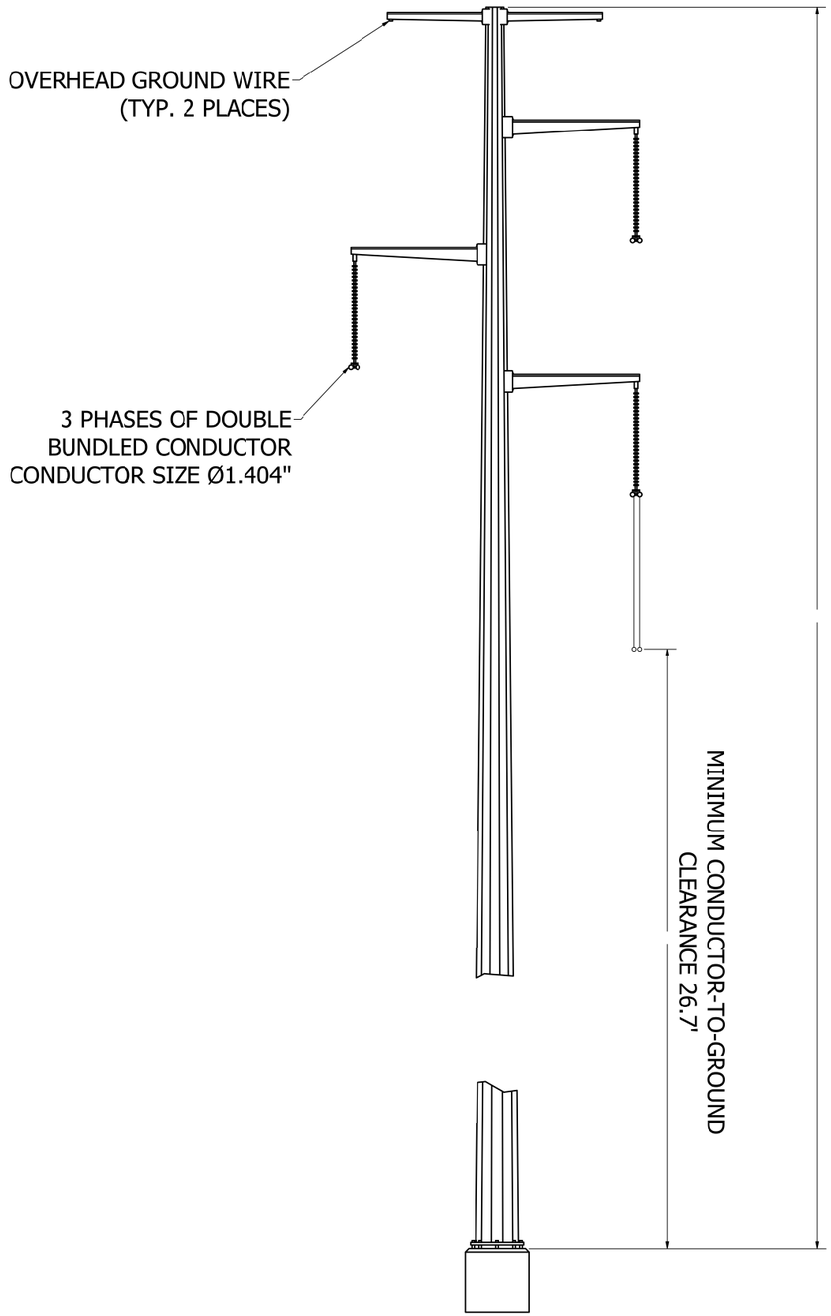
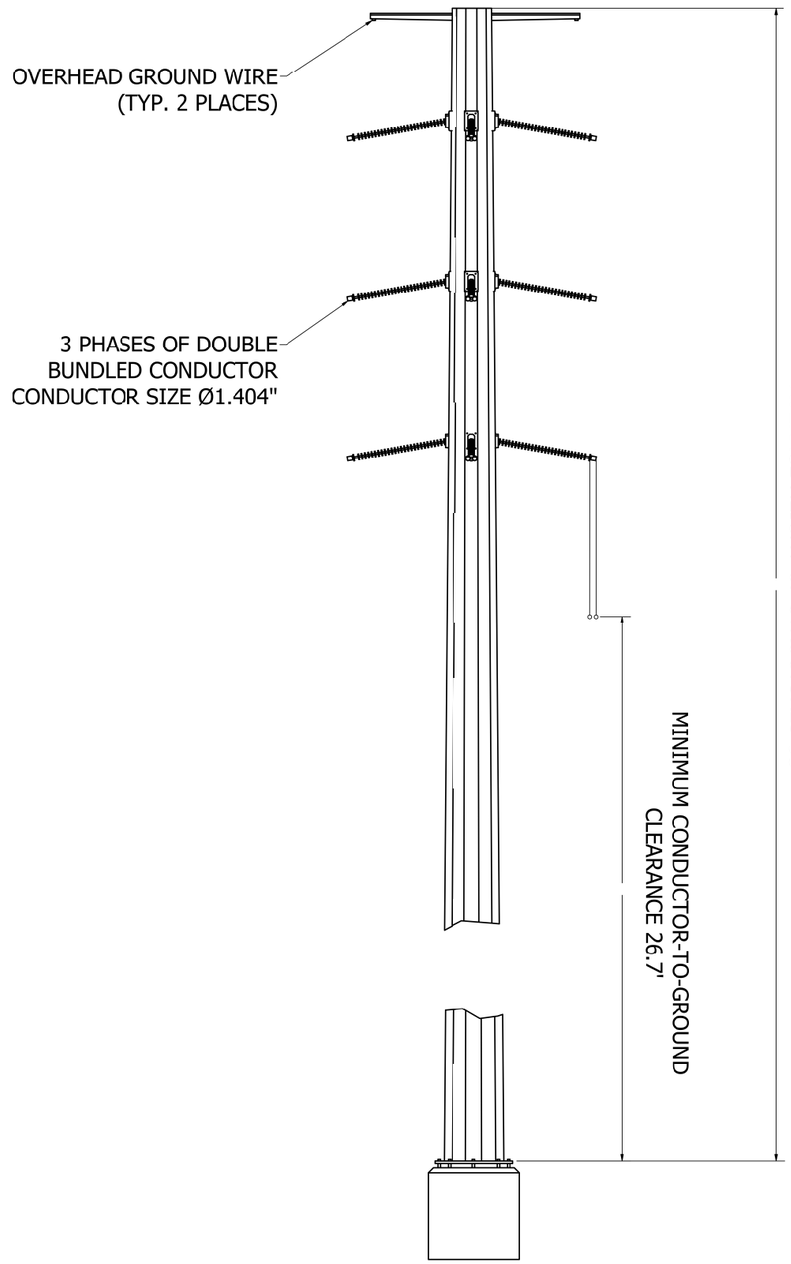
For Environmental Review Purposes Only

Date: (12/15/2025) Source: Z:\Clients\M_P\MN_Power\Longspur_Wind\ArcGIS\Permitting\PSC\Longspur_Tline_PSC_Application.aprx




Not to Scale

**Figure 8:**
**Structure Diagrams***

***Final Dimensions Subject to Change Pending Engineering Design**

**Minnesota Power Longspur Wind 230-kV Transmission Line**

**Mercer and Morton Counties, North Dakota**

merjent

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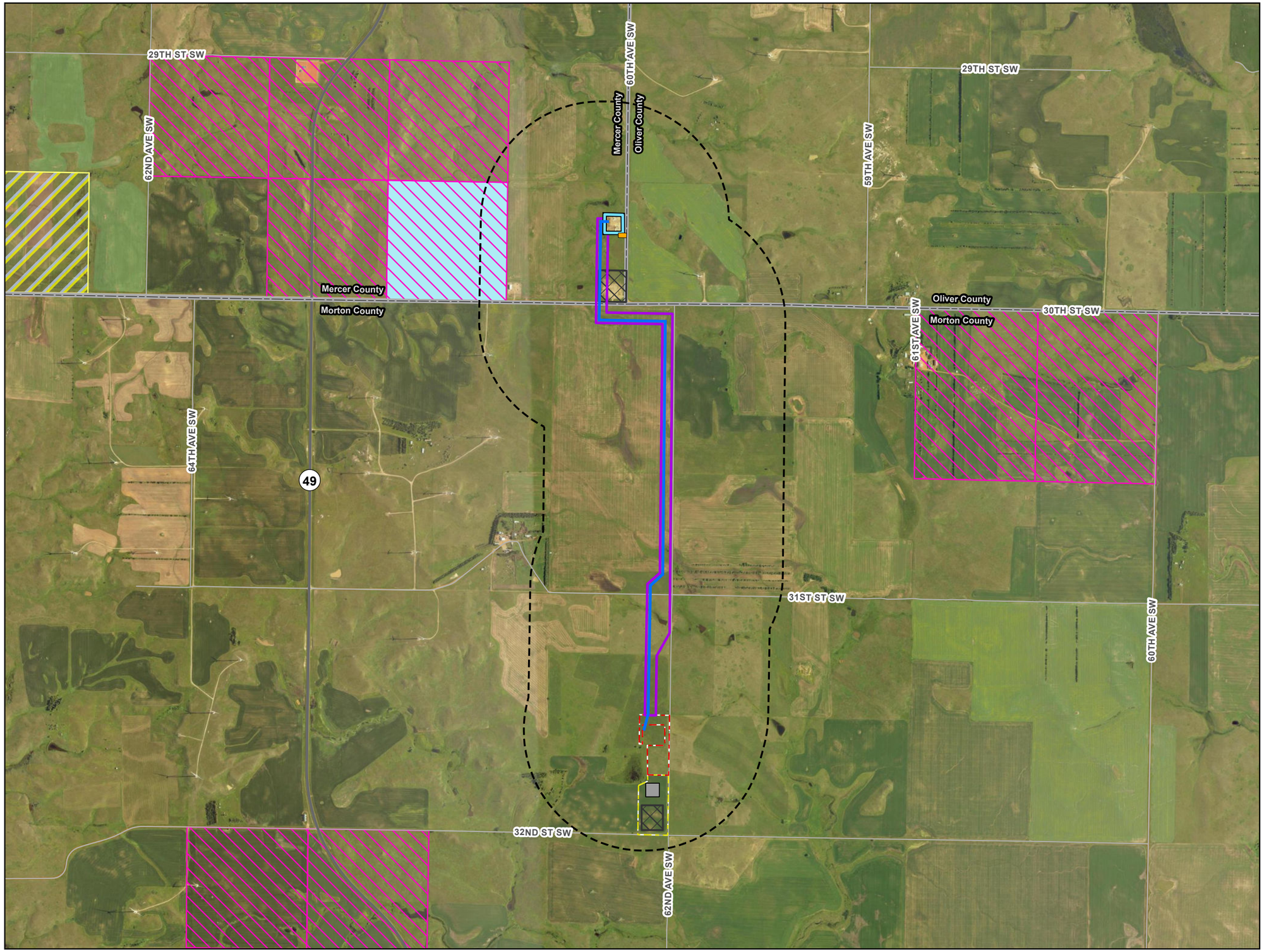


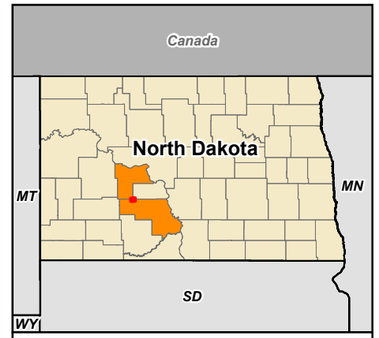


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N
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- Project Route
- Project Corridor
- Study Area
- Existing TriCounty Substation
- Longspur Substation
- Construction Laydown Area/Parking
- O&M Facility
- O&M Building
- Parking
- County Boundary
- State Mineral Trust Land
- State Surface Trust Land
- Private Land Open to Sportsmen Agreement

# Figure 9: Public Lands, Easements, and Agreements

## Minnesota Power Longspur Wind 230-kV Transmission Line

**Mercer and Morton Counties, North Dakota**

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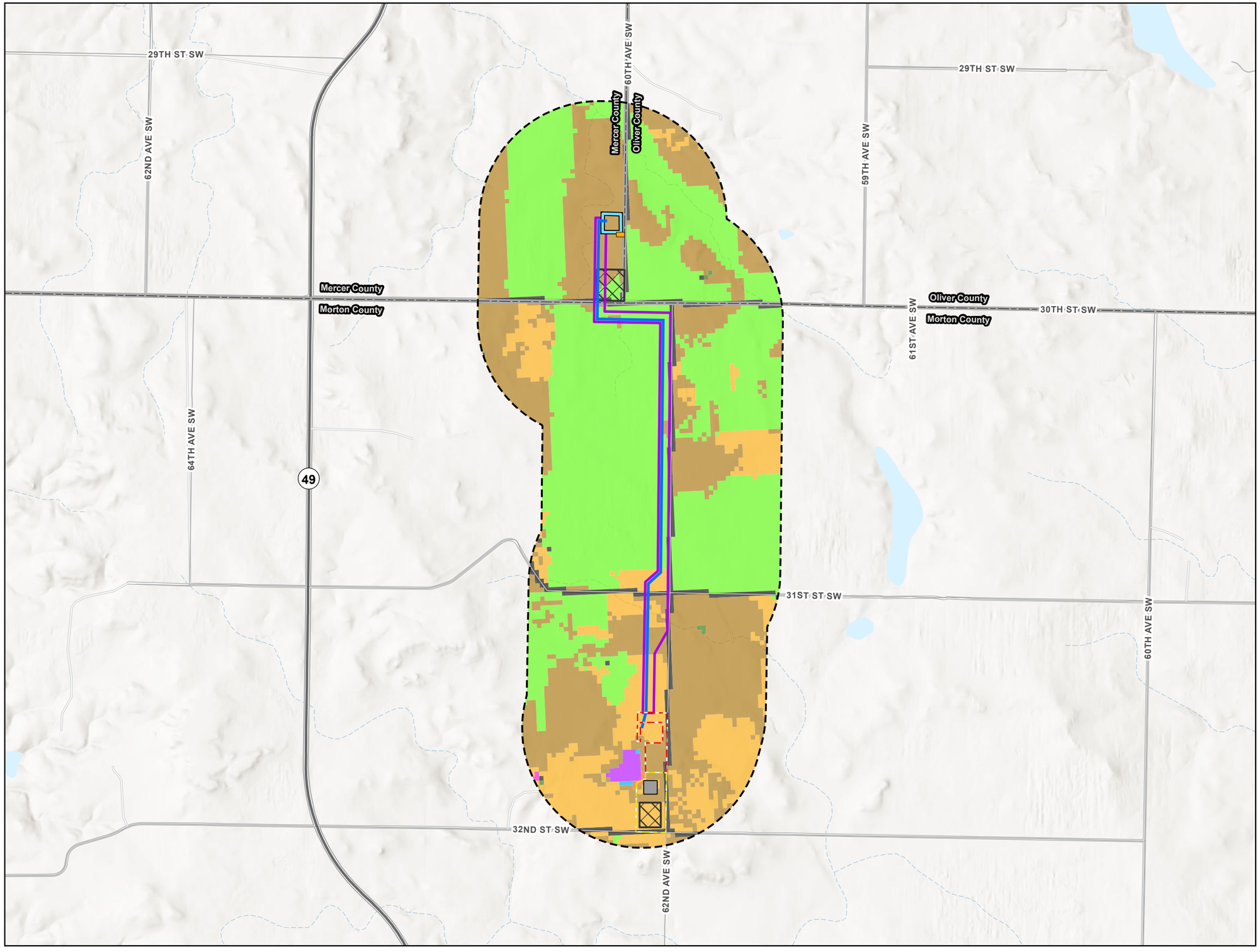


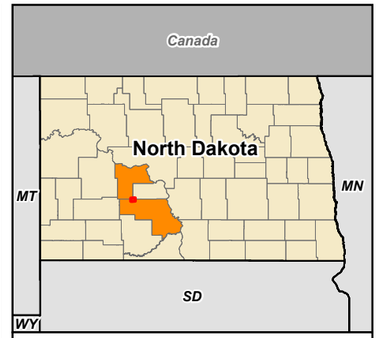


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- Project Route
- Project Corridor
- Study Area
- Existing TriCounty Substation
- Construction Laydown Area/Parking
- Longspur Substation
- O&M Facility
- O&M Building
- Parking
- County Boundary

National Land Cover Database

- Cultivated Crops (47.98%)
- Deciduous Forest (0.07%)
- Developed 3.71%)
- Emergent Herbaceous Wetlands (0.42%)
- Hay/Pasture (14.28%)
- Herbaceous (33.39%)
- Open Water (0.04%)
- Shrub/Scrub (0.03%)
- Woody Wetlands (0.07%)

# Figure 10: Land Use

**Minnesota Power Longspur Wind 230-kV Transmission Line**

**Mercer and Morton Counties, North Dakota**

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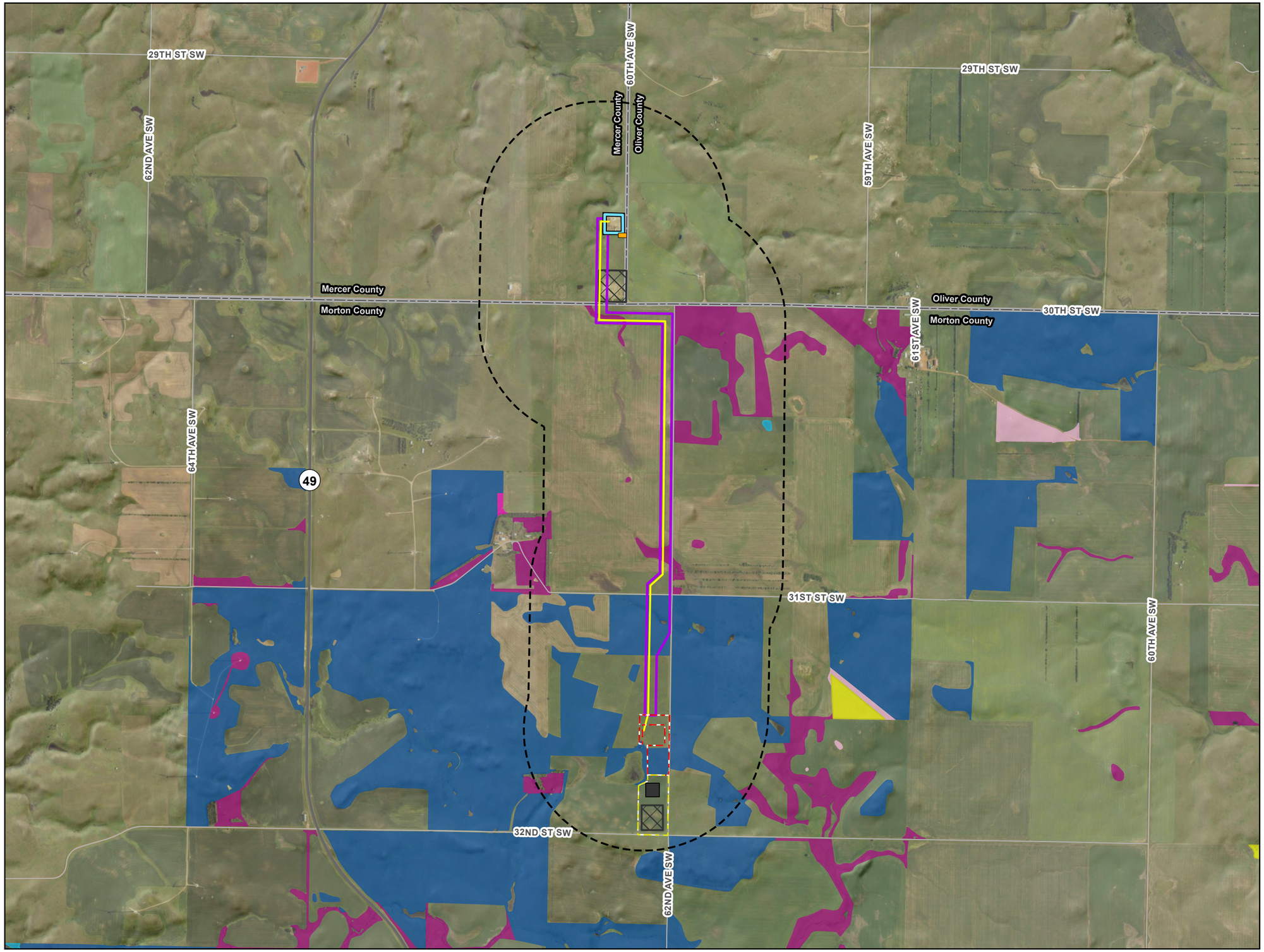


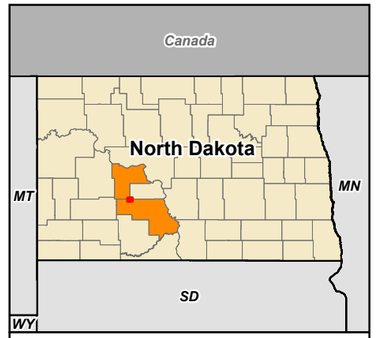


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- Project Route
- Project Corridor
- Study Area
- Existing TriCounty Substation
- Longspur Substation
- Construction Laydown Area/Parking
- O&M Facility
- O&M Building
- Parking
- County Boundary

Grassland

- Broken
- Broken-Desktop
- Broken-Previous Survey
- Unbroken
- Unbroken-Desktop
- Unbroken-Previous Survey

# Figure 11: Grasslands

**Minnesota Power Longspur Wind 230-kV Transmission Line**

**Mercer and Morton Counties, North Dakota**

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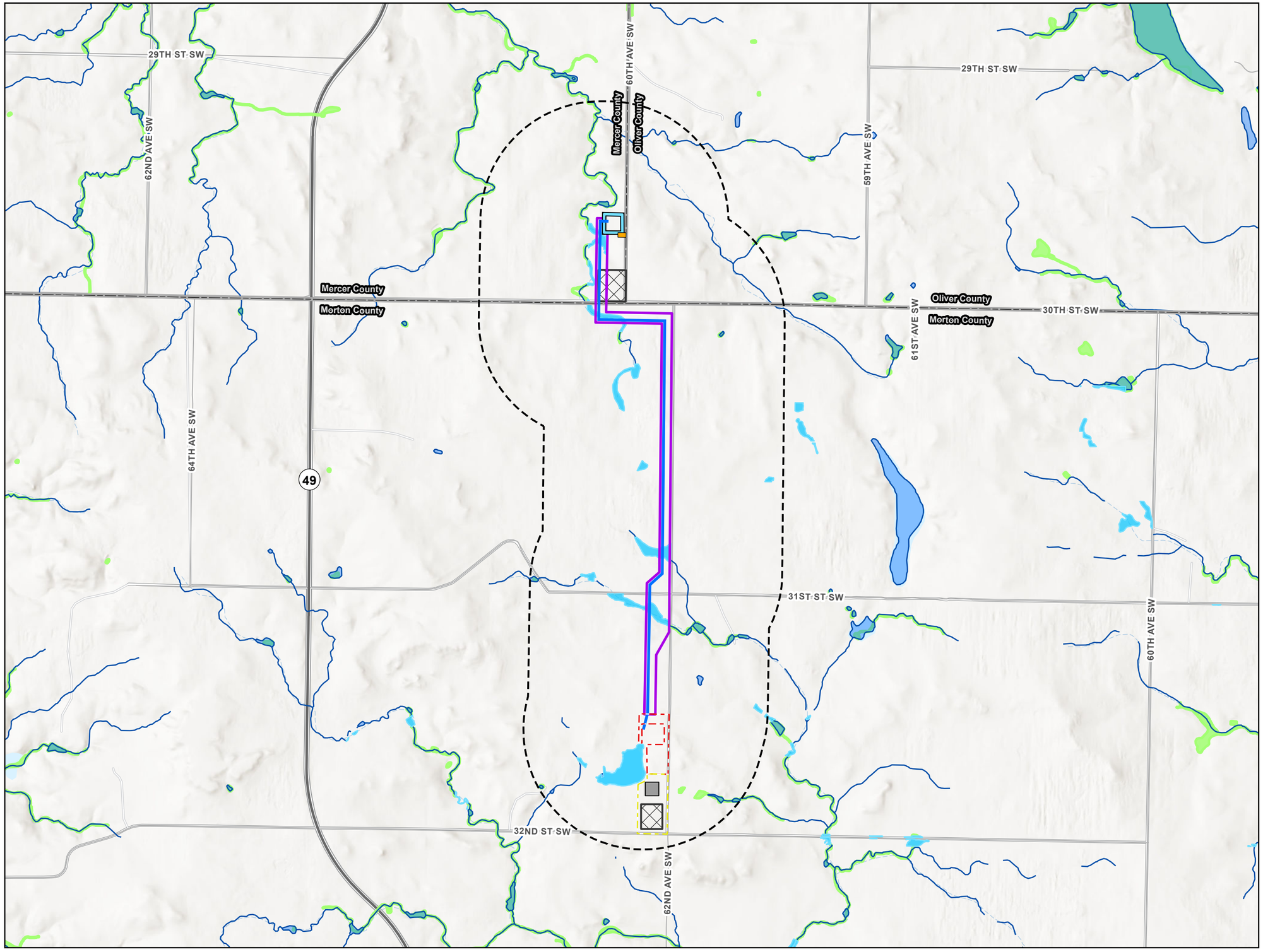


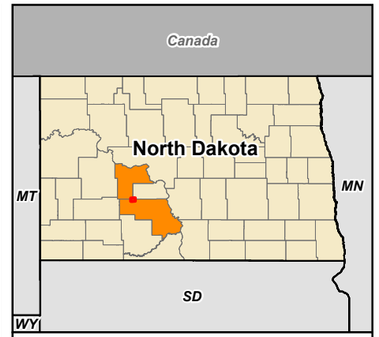


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- Project Route
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- Study Area
- Existing TriCounty Substation
- Longspur Substation
- Construction Laydown Area/Parking
- O&M Facility
- O&M Building
- Parking
- County Boundary
- Delineated Wetland
- NWI Wetland
- NHD Waterbody
- NHD Waterway

# Figure 12: Surface Water and National Wetlands Inventory

**Minnesota Power Longspur Wind 230-kV Transmission Line**

**Mercer and Morton Counties, North Dakota**

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Date: 12/15/2025

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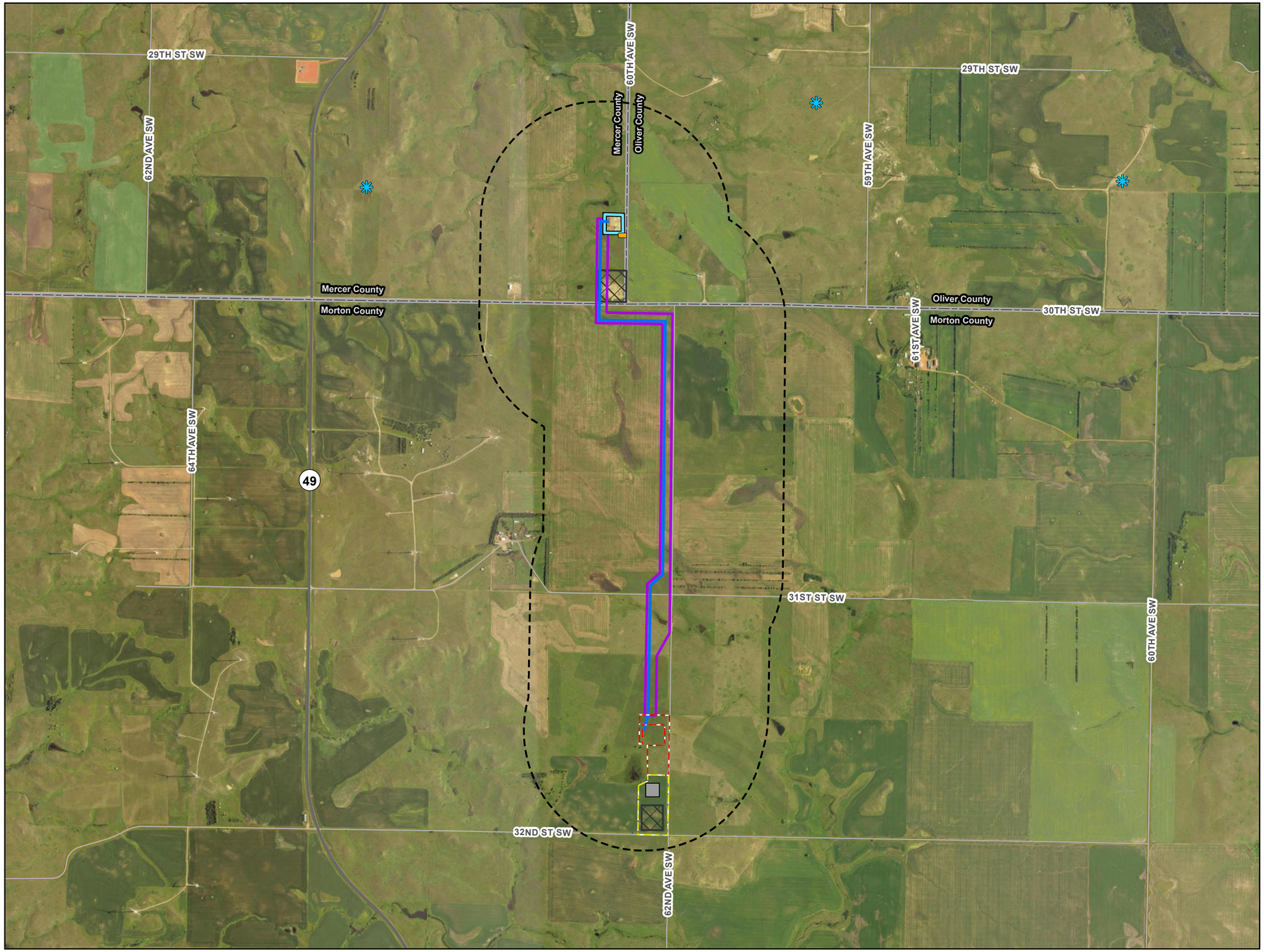


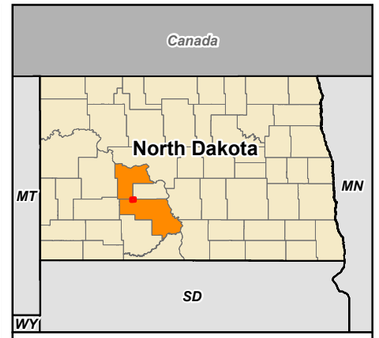


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N
W E
S

- Project Route
- Project Corridor
- Study Area
- Existing TriCounty Substation
- Longspur Substation
- Construction Laydown Area/Parking
- O&M Facility
- O&M Building
- Parking
- County Boundary

Sharp-Tailed Grouse Lek Location (2025)

- Active *
- Active - Historical
- Inactive - Historical *

* Not in current map extent

# Figure 13: Sharp-Tailed Grouse Lek

**Minnesota Power Longspur Wind 230-kV Transmission Line**

**Mercer and Morton Counties, North Dakota**

Merjent

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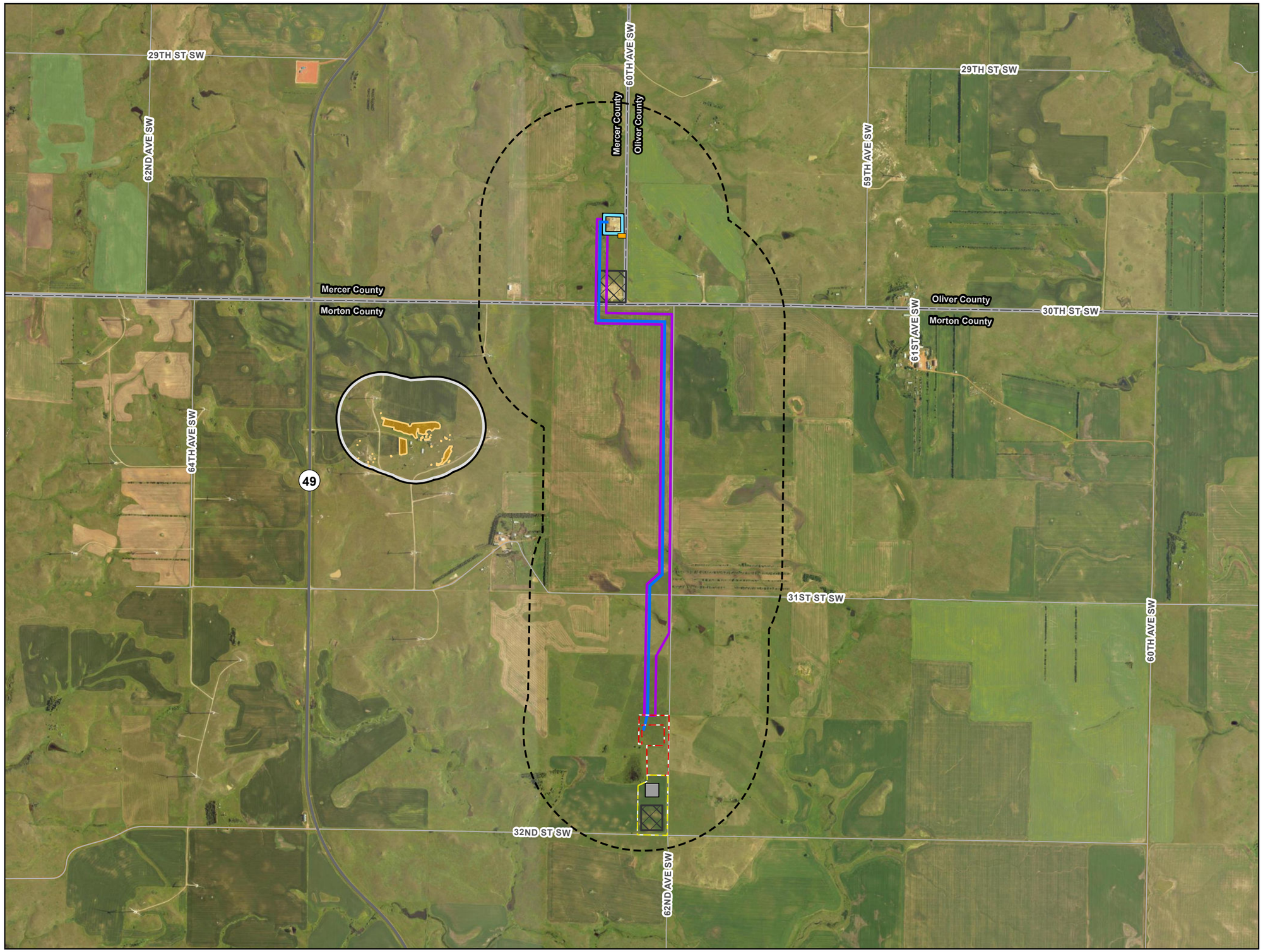


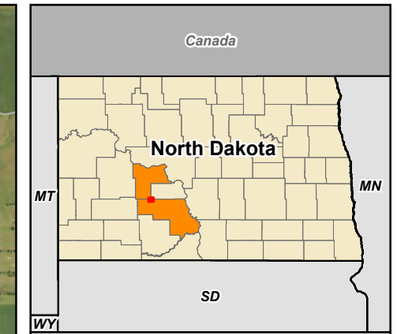


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N W E S

- Project Route
- Project Corridor
- Study Area
- Existing TriCounty Substation
- Longspur Substation
- Construction Laydown Area/Parking
- O&M Facility
- O&M Building
- Parking
- County Boundary
- Potential Northern Long-Eared Bat Habitat
- 1,000ft Connected Habitat Buffer

# Figure 14: Northern Long-Eared Bat Habitat

## Minnesota Power Longspur Wind 230-kV Transmission Line

### Mercer and Morton Counties, North Dakota

merjent

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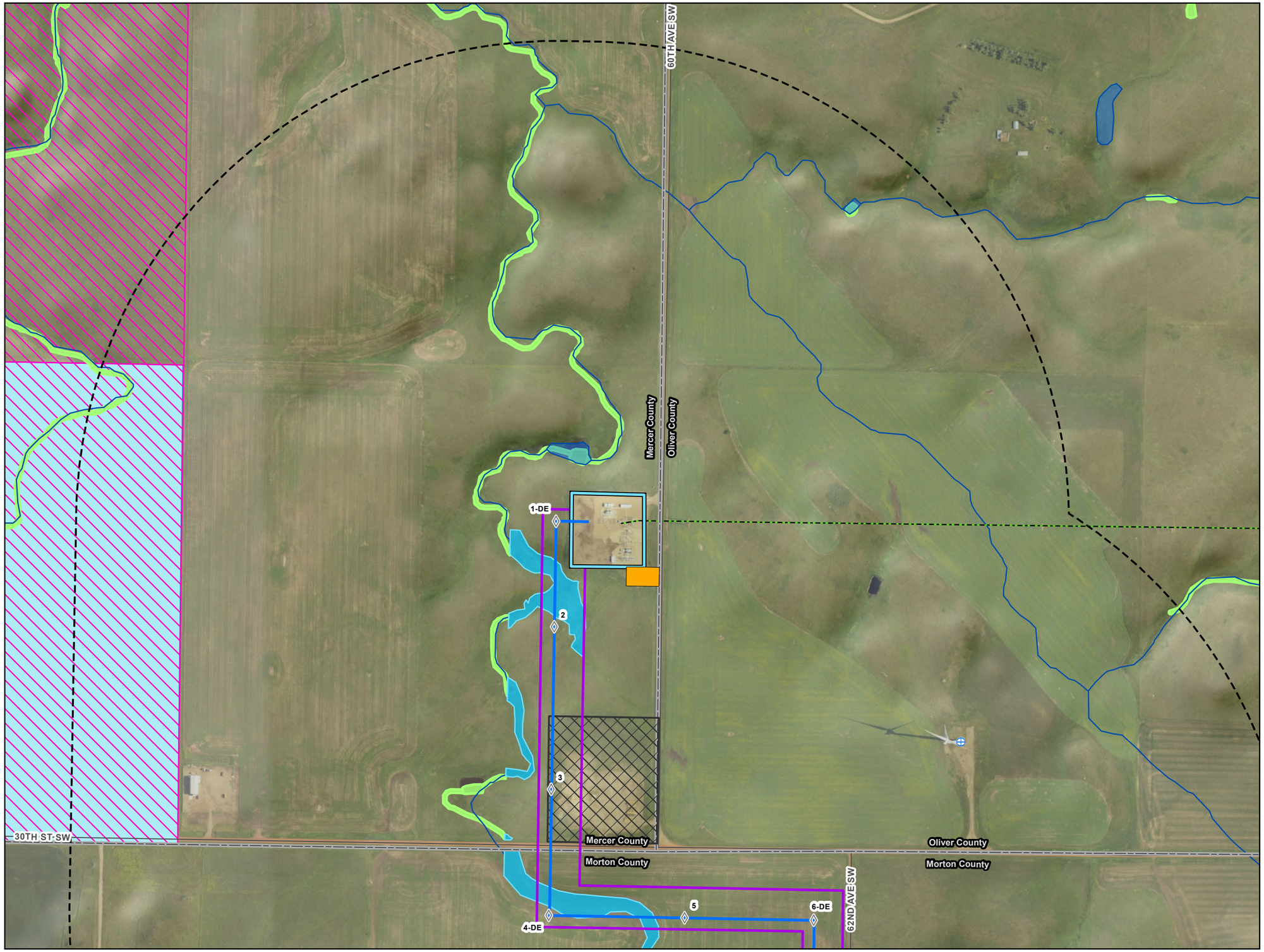


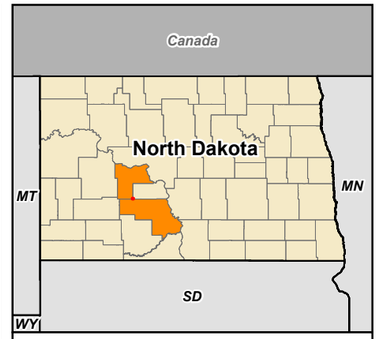


*Page 1 of 4*

0 250 500 Feet

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N
W E
S

- Project Structure
- O&M Building
- O&M Facility
- Longspur Substation
- Project Route
- Parking
- Existing TriCounty Substation
- Project Corridor
- Study Area
- Construction Laydown Area/Parking
- Existing Wind Turbine
- Delineated Wetland
- NHD Waterbody
- NHD Waterway
- NWI Wetland
- Existing Transmission Line
- State Surface Trust Land
- State Mineral Trust Land
- County Boundary

# Figure 15: Site Plan Detail (Aerial)

**Minnesota Power Longspur Wind 230-kV Transmission Line**

**Mercer and Morton Counties, North Dakota**

merjent

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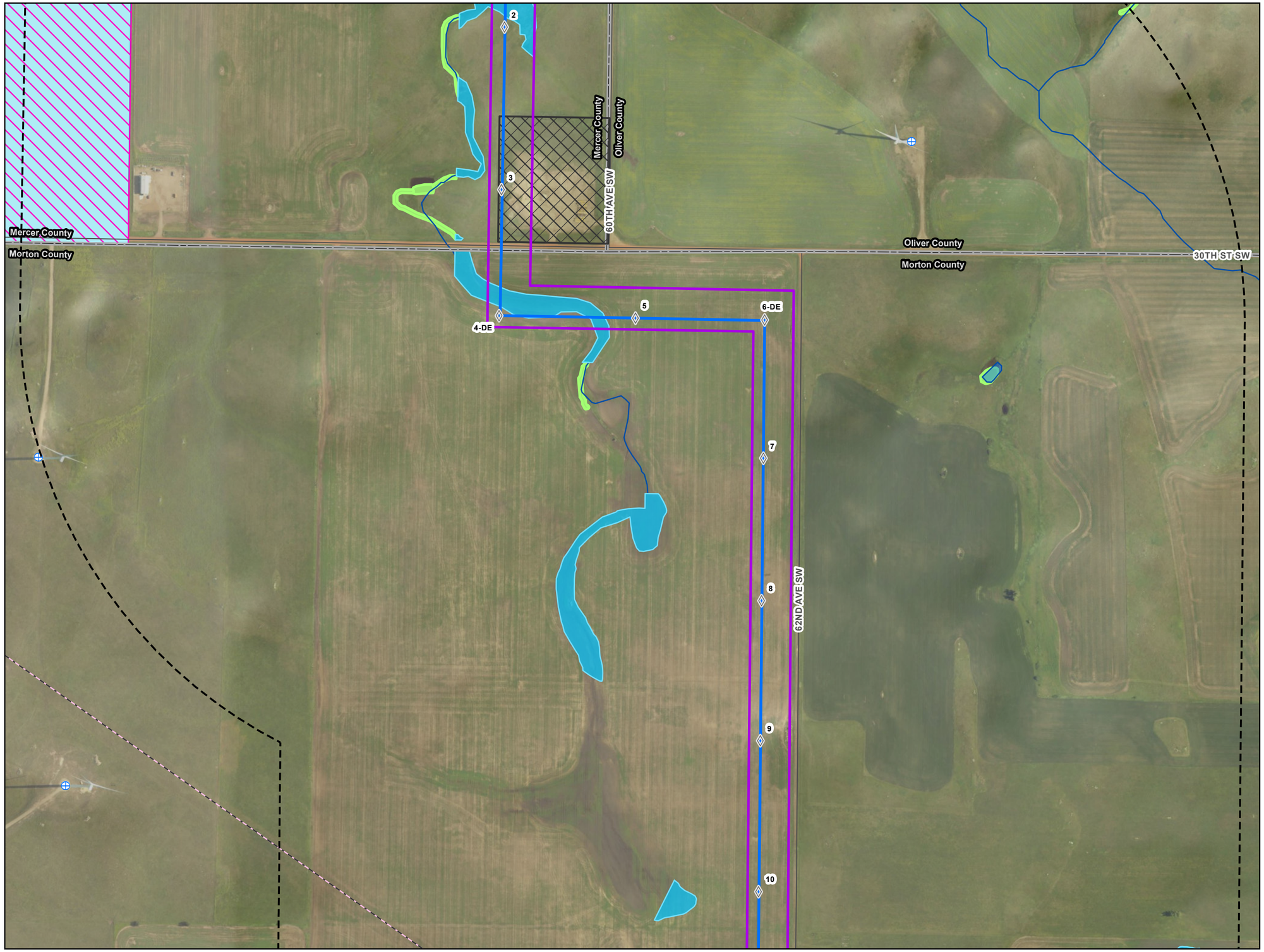
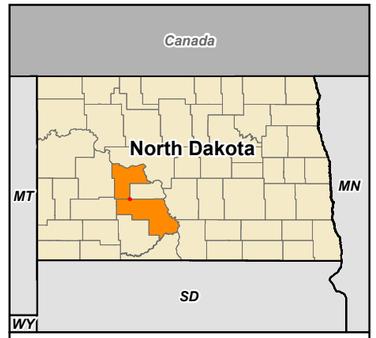
Date: (12/15/2025) Source: Z:\Clients\M_P\MN_Power\Longspur_Wind\ArcGIS\Permitting\PSC\Longspur_Line_PSC_Application.aprx

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N W E S

- Project Structure
- O&M Building
- O&M Facility
- Longspur Substation
- Project Route
- Parking
- Existing TriCounty Substation
- Project Corridor
- Study Area
- Construction Laydown Area/Parking
- Existing Wind Turbine
- Delineated Wetland
- NHD Waterbody
- NHD Waterway
- NWI Wetland
- Existing Pipeline
- State Surface Trust Land
- State Mineral Trust Land
- County Boundary

**Figure 15:**
**Site Plan Detail**
**(Aerial)**

**Minnesota Power Longspur**
**Wind 230-kV Transmission Line**

**Mercer and Morton Counties,**
**North Dakota**

Source: Z:\Clients\M_P\MN_PowerLongspur_Wind\ArcGIS\Permitting\PSC\Longspur_Line_PSC_Application.aprx
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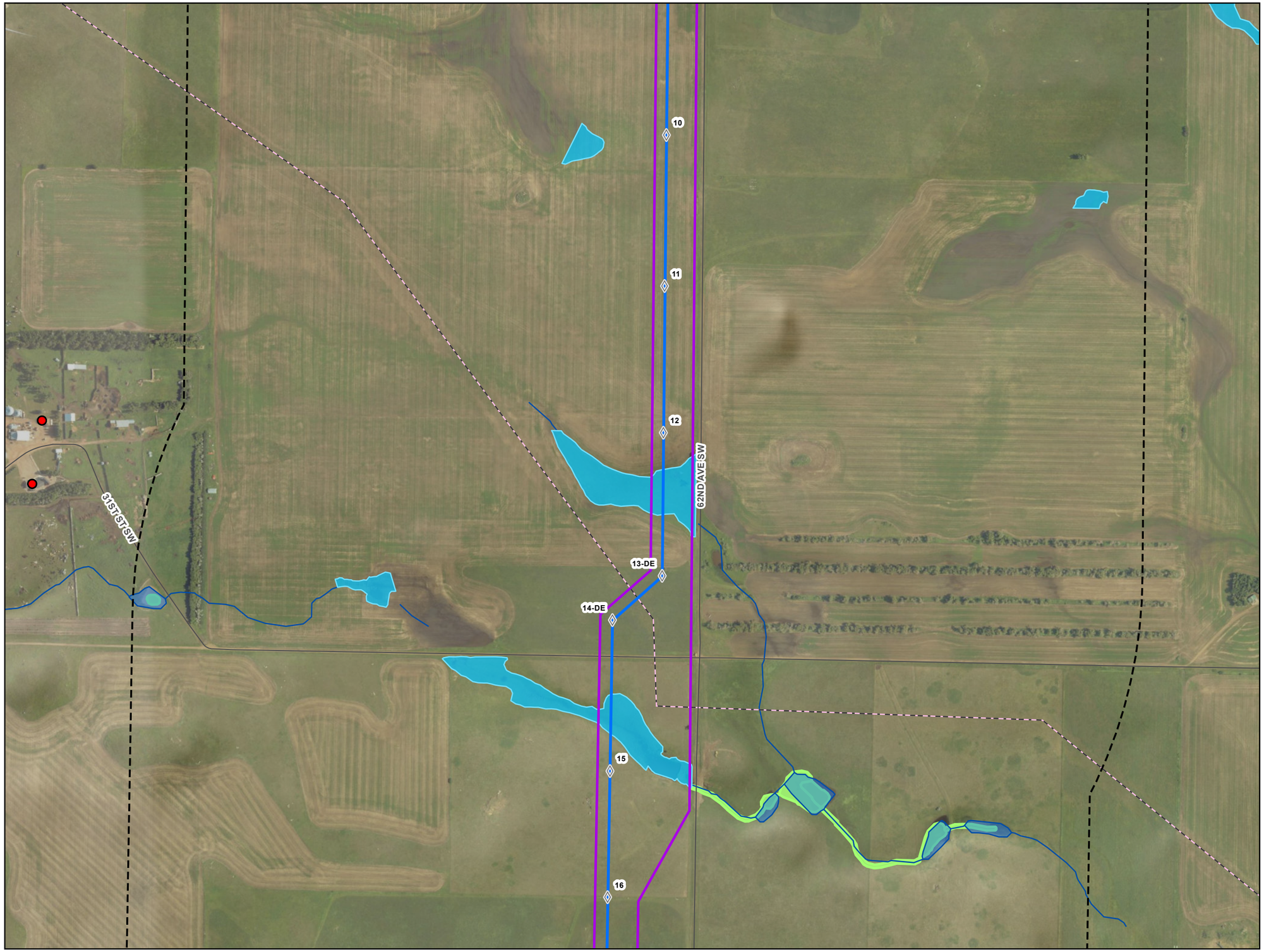


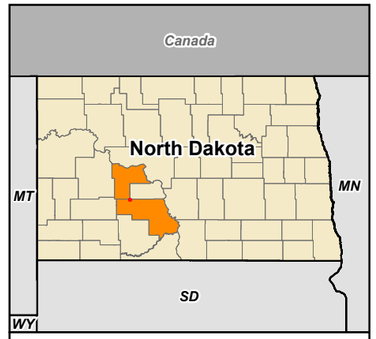


*Page 3 of 4*

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N
W E
S

- Project Structure
- O&M Building
- O&M Facility
- Longspur Substation
- Project Route
- Parking
- Existing TriCounty Substation
- Project Corridor
- Study Area
- Construction Laydown Area/Parking

- Presumed Occupied Residence
- Delineated Wetland
- NHD Waterbody
- NHD Waterway
- NWI Wetland
- Existing Pipeline
- County Boundary

**Figure 15:**
**Site Plan Detail**
**(Aerial)**

**Minnesota Power Longspur**
**Wind 230-kV Transmission Line**

**Mercer and Morton Counties,**
**North Dakota**

merjent

For Environmental Review Purposes Only

Date: (12/15/2025) Source: Z:\Clients\M_P\MN_Power\Longspur_Wind\ArcGIS\Permitting\PSC\Longspur_Line_PSC_Application.aprx

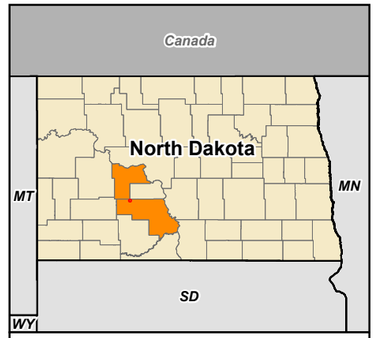
16

17

18-DE

32ND ST SW

62ND AVE SW

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0 250 500 Feet

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N
W E
S

- Project Structure
- O&M Building
- O&M Facility
- Longspur Substation
- Project Route
- Parking
- Existing TriCounty Substation
- Project Corridor
- Study Area
- Construction Laydown Area/Parking

- Delineated Wetland
- NHD Waterbody
- NHD Waterway
- NWI Wetland
- Existing Transmission Line
- Existing Pipeline
- County Boundary

# Figure 15: Site Plan Detail (Aerial)

**Minnesota Power Longspur Wind 230-kV Transmission Line**

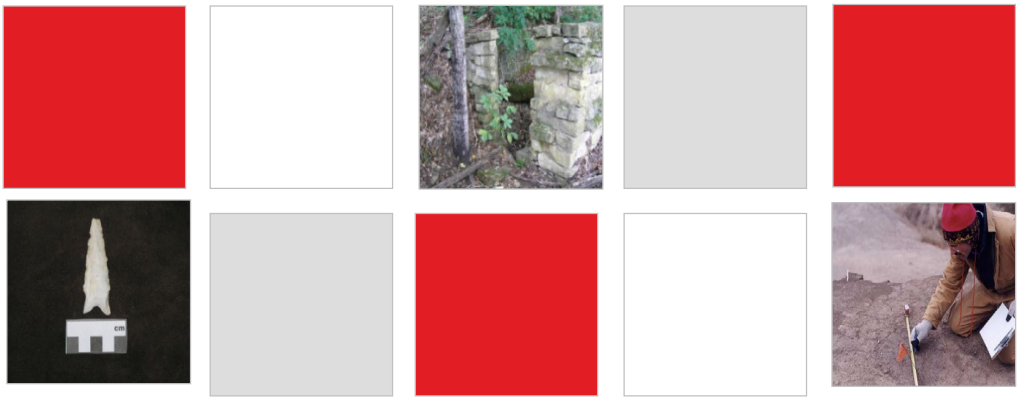
**Mercer and Morton Counties, North Dakota**

merjent

For Environmental Review Purposes Only

Date: (12/15/2025) Source: Z:\Clients\M_P\MN_PowerLongspur_Wind\ArcGIS\Permitting\PSC\Longspur_Line_PSC_Application.aprx

**APPENDIX A**
**Unanticipated Discoveries Plan**



# Minnesota Power

## Unanticipated Discovery Plan for the Longspur Wind 230-kV Transmission Line

**Mercer and Morton Counties, North Dakota**

PREPARED BY

Merjent, Inc.
1 Main Street SE, Suite 300
Minneapolis, Minnesota 55414

Damien Reinhart
Author

**Damien Reinhart**
**Principal Investigator**

December 2025

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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| m | meter |
| Merjent | Merjent, Inc. |
| NDAC | North Dakota Administrative Code |
| NDCC | North Dakota Century Code |
| NRHP | National Register of Historic Places |
| Plan | Unanticipated Discovery Plan |
| Project | Longspur Wind 230-kV Transmission Line Project |
| SHSND | State Historical Society of North Dakota |

## 1.0 INTRODUCTION

This Unanticipated Discovery Plan (Plan) documents the procedures to be implemented in the event that cultural resources are discovered during construction of the Longspur Wind 230-kV Transmission Line Project (Project). Minnesota Power is proposing a Project located on privately owned lands in Mercer and Morton Counties, North Dakota. Minnesota Power retained Merjent, Inc. (Merjent) to complete this Plan in support of the North Dakota Public Service Commission's Combined Certificate of Corridor Compatibility and Route Permit application.

Significant historical or archaeological artifacts or sites located on lands under the jurisdiction of the State of North Dakota or its political subdivisions are protected under Section 55-02-07 of the North Dakota Century Code (NDCC). Furthermore, NDCC Section 23-06-27 and North Dakota Administrative Code (NDAC) Section 40-02-03 provide special protection of human burial sites, human remains, and burial goods. In accordance with applicable North Dakota laws and regulations, this Plan contains procedures for addressing cultural resource discoveries identified by construction personnel during construction of the Project, including procedures for the initial treatment of discoveries, the evaluation and treatment of discoveries, and the treatment of human remains.

A Class I and Class III cultural resource inventory was performed for the Project area (Reinhart and Cox 2025). Merjent completed a Class III pedestrian survey of the proposed transmission line corridor, substation, and associated transmission line work areas between January 31, 2025, March 5 to 14, 2025, April 9, 2025, April 14 to 18, 2025, April 23, 2025, and May 26, 2025. During the survey, two new historic sites were identified. The two historic archaeological farm sites are recommended as unevaluated for listing on the National Register of Historic Places (NRHP). Merjent recommends avoiding direct ground disturbance to these two resources. Two previously recorded isolated finds were revisited within the transmission line corridor. No additional artifacts were identified, and the resources had previously been subjected to shovel testing, with negative results. The isolated finds had been recommended not eligible for listing in the NRHP. Merjent agrees with the previous recommendation of not eligible. No further work or avoidance is recommended for those resources. The two unevaluated resources will be avoided by project re-design. Therefore, it was recommended that a determination of *No Significant Sites Affected* be granted for the Project to proceed as planned. The report was submitted to the State Historical Society of North Dakota (SHSND) for review and they will have 30 days to provide comment. This Plan has been prepared because the potential exists for exposure of previously unidentified or buried cultural material within the project route during mechanical excavation.

## 2.0 QUALIFICATIONS

### 2.1 CONSTRUCTION PERSONNEL

Training is necessary to ensure construction personnel recognize potential archaeological resources. All Minnesota Power responsible parties and construction personnel will meet with Minnesota Power representatives for basic training prior to participating in construction. This training will provide orientation regarding recognition of cultural resources as well as a general overview of the culture history of the region, so that construction personnel are familiar with the types of archaeological resources that may be encountered during construction. The training will also outline the steps to be followed in the event of a significant archaeological

discovery during construction (e.g., the discovery of human remains). The following items will be reviewed during the training program.

- Definition of a discovery and examples of discoveries.
- Steps towards discovery protection until such time as they can be properly evaluated by a qualified archaeologist.
- Proper notification of the appropriate Minnesota Power personnel.
- The necessity of reporting discoveries in a timely manner and complying with the other stipulations provided in this Plan.
- The need to treat any human skeletal remains that are encountered with dignity and respect.
- Penalties for failure to report discoveries or to comply with the procedures outlined in this Plan.

## 3.0 DISCOVERY DEFINITION

Archaeological discoveries consist of evidence of human activity that is more than 50 years old with potential to yield data pertinent to regional history and prehistory. Prehistoric discoveries include, but are not limited to, features (e.g., small hearth features, house pit features, storage features), artifact concentrations, and activity areas. Historic discoveries include, but are not limited to, features (e.g., historic hearths, trash deposits, structures, old canals, roads), artifact concentrations, and activity areas. Small concentrations of non-human bone will not be considered discoveries.

## 4.0 PROCEDURES FOR ADDRESSING DISCOVERIES IDENTIFIED BY CONSTRUCTION PERSONNEL

The following procedures will be initiated in the event unanticipated cultural resources are discovered. A flow chart presenting an abbreviated version of the procedures is provided in Appendix A. When a discovery is encountered, the construction activity that resulted in the exposure of the discovery will be immediately halted and the construction manager will be notified. The construction manager in turn will notify the Minnesota Power project manager.

Minnesota Power's responsible party involved in unanticipated discoveries of archaeological materials will order construction contractors to suspend ground-disturbing activities adjacent to the discovery. Cessation of ground-disturbing activity will encompass a sufficient area to protect the discovery and provide a buffer zone for adequate and safe investigation of the discovery and any associated features or artifacts. A recommended guideline for the buffer zone is at least 100 feet (30 meters [m]) around the discovery, but its size can be adjusted to protect the discovery adequately without unnecessary hindrance to construction. Visual barriers such as temporary fencing will be placed around the discovery area to protect it from further disturbance. Vehicle traffic within the vicinity may need to be limited or halted until the discovery is inspected.

Minnesota Power's responsible party will then notify and consult an archaeologist qualified under NDAC Section 40-02-02 to review the discovery. In the event a qualified archaeologist is not immediately available, photographs of the discovery may be transmitted to the archaeologist for review, at which time the archaeologist will determine if a field visit is required.

During the review phase, suspension of all work and vehicle traffic in the buffered area is required. If the archaeologist determines that the discovery is non-cultural, Minnesota Power will be notified and the halted construction activity can resume.

If the discovery is deemed cultural and a field visit is required, the archaeologist will be scheduled for an on-site visit as soon as possible. In the meantime, Minnesota Power's responsible party will notify the construction manager to suspend work within the buffered discovery area until the field visit by the archaeologist occurs. During the field visit, the archaeologist will determine whether the discovery is potentially significant.

## 5.0 TREATMENT OF DISCOVERIES BY ARCHAEOLOGICAL PERSONNEL

When a discovery is reviewed by an archaeologist, the discovery will be fully recorded according to approved standards. The initial treatment of any discovery will consist of recording the location of the discovery; recording summary data concerning the feature(s) and/or other remains (including dimensions, qualitative characteristics, and associated remains); photographing the discovery and the overall context of the exposed material; and profiling trench walls containing cultural features or strata (where safe and prudent). The feature(s) will then be excavated and a sample or all feature fill will be collected for laboratory analysis including pollen studies, flotation, and carbon dating as appropriate. Feature plans and profiles will be drawn. Features will be photographed. Uncollected feature fill will be screened using 0.25-inch mesh. If necessary, additional horizontal exposure of sediments/deposits around the feature may be investigated to evaluate the feature context.

When appropriate, the location around the discovered cultural material will be tested to determine the extent of the cultural material. Testing can include, but is not limited to, excavation of controlled units over and around the feature area or placement of test units and/or auger probes. Testing will be designed to identify the nature and extent of the discovery and any associated activity area(s) or other features, if present. Collection of a discovery will occur when appropriate.

## 6.0 AGENCY NOTIFICATION AND REPORTING

If a discovery is deemed potentially significant, Minnesota Power and the archaeologist will consult and coordinate with a Principal Investigator to determine the next course of action. If necessary, the Principal Investigator will coordinate with the SHSND to propose procedures for further treatment of the discovery, while minimizing impacts to the construction schedule to the extent possible. Suspended construction activities in the discovery area may not proceed until approval has been obtained from the SHSND and other involved agencies and parties.

A report detailing all cultural resources identified, recorded, tested, and/or excavated during the construction phase of the Project, regardless of significance, will be prepared by the archaeologist and submitted to the SHSND for review.

## 7.0 SPECIAL PROCEDURES FOR DISCOVERIES OF HUMAN REMAINS

Should human remains be encountered during construction of the Project, per the protocol outlined above, all work will be immediately halted at the general location of the discovery. This location will be immediately secured, including a buffer zone of 100 feet (30 m) surrounding the discovery. Construction personnel and vehicles will promptly vacate the buffer zone. Vehicle traffic within the buffer zone will be limited to that necessary to remove vehicles and

equipment from the buffer zone. Care will be taken to prevent any disturbance of the potential human remains during removal of vehicles and equipment. Until appropriate consultation has occurred, the discovery will remain protected from any disturbance, such that no remains or associated artifacts are touched, moved, or collected.

Following notification of the construction manager and Minnesota Power project manager, Minnesota Power will immediately notify local law enforcement, the county coroner, and the SHSND. Contact information for relevant parties is listed in Table 7.0-1.

TABLE 7.0-1
**Contact Information**

| Contact/Agency | Telephone | Address |
|---|---|---|
| County Sheriff's Office, Mercer County, North Dakota | 701.745.3333 | 419 North Ave, Stanton, ND 58571 |
| County Sheriff's Office, Morton County, North Dakota | 701.667.3330 | 205 1st Ave NW, Mandan, ND 58554 |
| Coroner, Mercer County Medical Examiner and Coroner, Hazen, North Dakota | 701.748.2225 | 517 8th Avenue Northeast, Hazen, ND 58545 |
| Coroner, Morton County Medical Examiner and Coroner, Mandan, North Dakota | 701.667.1000 | 2008 Twin City Drive, Mandan, ND 58554 |
| Chief Archaeologist (Andrew Robinson), Archaeology and Historic Preservation Division, State Historical Society of North Dakota | 701.328.2666 | 612 East Boulevard Avenue<br>Bismarck, North Dakota 58505<br>arobinson@nd.gov |

The coroner and local law enforcement will make the official ruling on the nature of the remains, being either forensic or archaeological. The subsequent treatment of the discovery, including custody of the remains, will follow guidelines set forth in the NDCC Chapter 23-06 and NDAC Section 40-02-03, as follows.

- If the remains are deemed forensic (non-archaeological), the county coroner will retain custody of the remains and determine the plan of action.
- If the remains are deemed to be archaeological (historic or prehistoric) in nature, within 24 hours of notification, the SHSND will send a staff member to evaluate the remains and determine the race and age of the remains, if possible. The subsequent plan of action will depend on the race of the burial.
    - If human remains are determined to be non-Native American, the SHSND will retain custody of the burial and, following consultation with appropriate parties, determine a plan of action.
    - If the human remains are determined to be Native American or of unknown race, the remains will be left in place and protected from any form of disturbance until a plan for their protection or removal can be generated. The SHSND will contact and consult with the North Dakota Intertribal Reinterment Committee to determine the subsequent plan of action.

A flow chart presenting an abbreviated version of the procedures to be followed should human remains be encountered is provided in Appendix B.

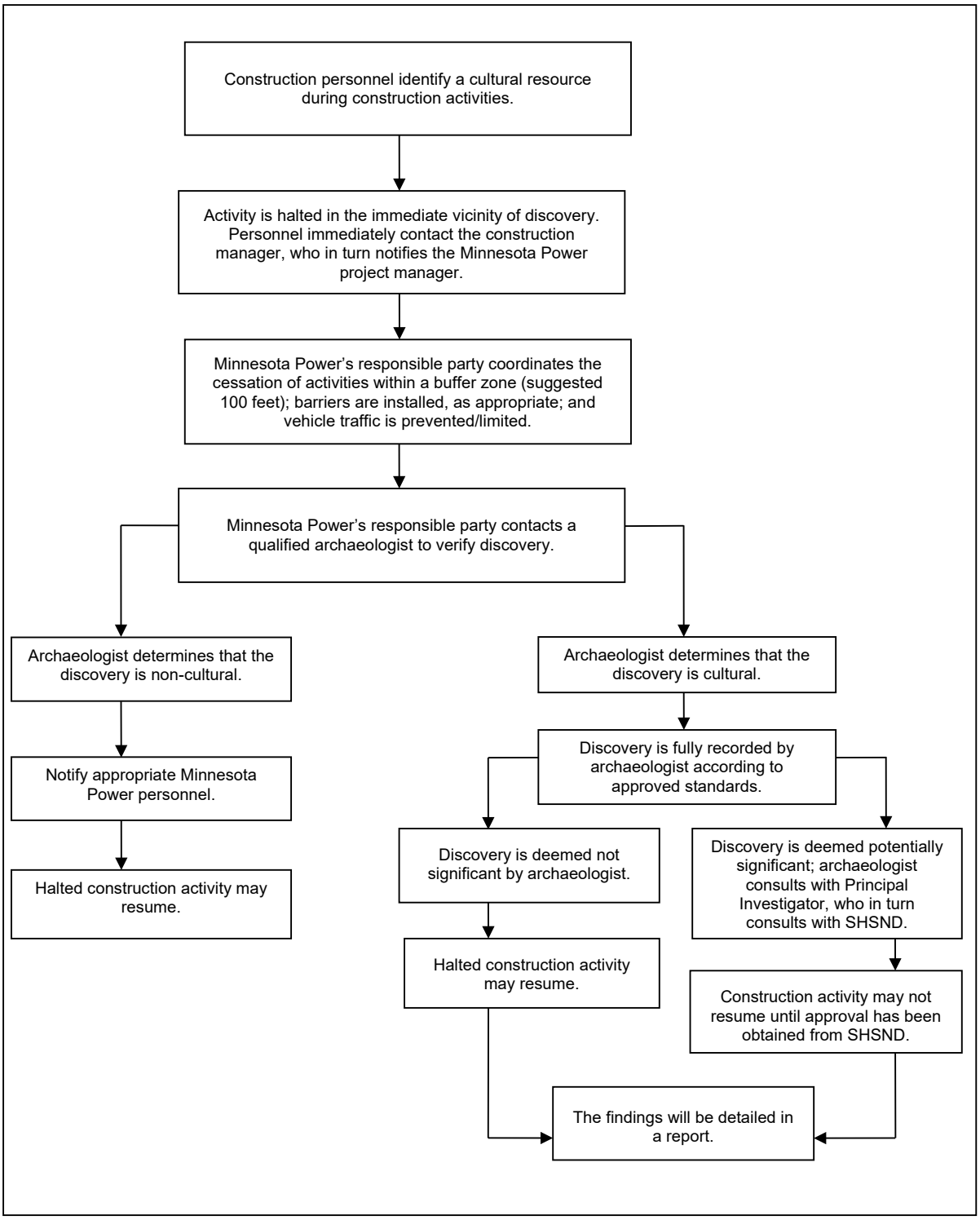
## 8.0 REFERENCES CITED

Reinhart, Damien and Matthew Cox. 2025. *A Class I and III Cultural Resources Inventory of the Minnesota Power Longspur Windfarm Project, Morton and Mercer Counties, North Dakota*. Submitted to the State Historical Society of North Dakota by Merjent, Inc. Minneapolis, MN.

# APPENDIX A

# Procedures for Addressing Cultural Resource Discoveries by Construction Personnel

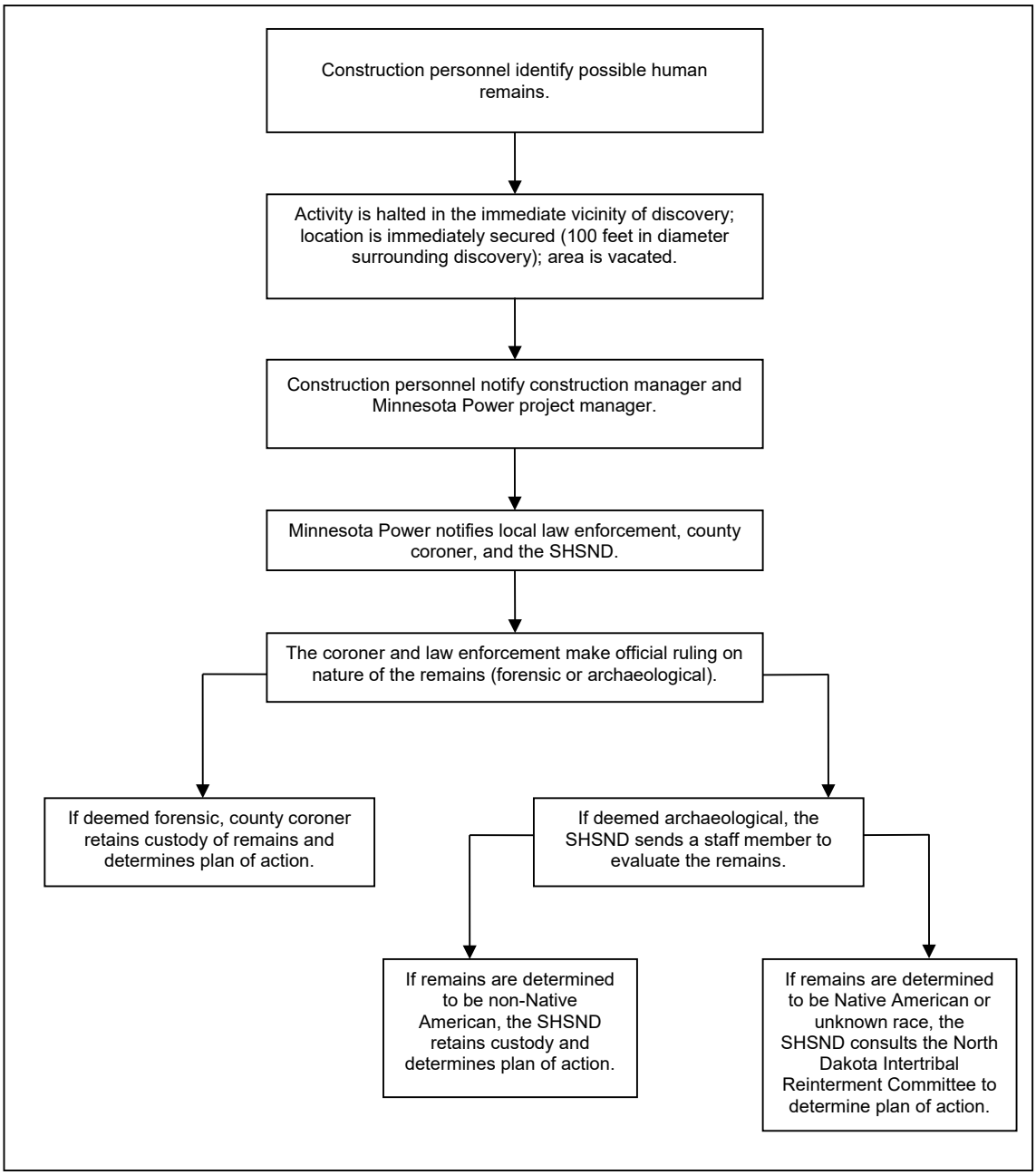
## Procedures for Addressing Cultural Resource Discoveries by Construction Personnel



# APPENDIX B

# Procedures for the Treatment of Unanticipated Discovery of Human Remains

## Procedures for the Treatment of Unanticipated Discovery of Human Remains



**APPENDIX B**
Studies and Assessments

Studies and Assessments

B1. Wetlands and Other Waters Delineation Report

# WETLAND AND WATERBODY DELINEATION REPORT

## Longspur Wind Project

## Mercer and Morton Counties, North Dakota

## Minnesota Power

**Prepared by:**

merjent

**December 2025**

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## 1.0 INTRODUCTION

Merjent, Inc. (Merjent), Verdanterra, LLC (Verdanterra), and Western EcoSystems Technology, Inc. (WEST) conducted field surveys to determine the presence and extent of wetlands and waterbodies for Minnesota Power's proposed Longspur Wind Project (Project) located in Mercer and Morton Counties, North Dakota (see Figure 1). Waterbodies can include, but are not limited to, streams, ponds, and lakes.

This wetland and waterbody delineation report describes the wetlands and waterbodies present within the 4,651.32-acre survey area (Survey Area) available for the Project (see Figure 1). The delineated boundaries and communities described in this report will be used for project planning and the basis on which impacts to wetland and waterbodies will be determined. The purpose of this report is to document the findings from the field survey efforts that were performed May 19 to May 23, 2025, by Merjent; October 7 to October 14, 2025, by Verdanterra; and October 21 to November 4, 2025, by WEST.

This report outlines the field survey methods and results, as completed by Merjent, Verdanterra, and WEST. This report has been compiled by the following staff that are trained and experienced in wetland delineation methods and applicable regulations:

**Kyle Hanson (Field Manager; Senior QA/QC)** is a wetland scientist with 17 years of experience working in the Upper Midwest. He is a Professional Wetland Scientist and Certified Minnesota Wetland Professional with experience including 11 years conducting wetland delineations and wetland mitigation bank management in Minnesota and Wisconsin. His work has supported client projects in utilities, residential and commercial development, public transit, recreational trails, and wetland restoration and mitigation banking. Mr. Hanson is responsible for performing environmental field surveys, document preparations, wetland replacement plans, and permit applications.

**Matt Pudlo (Field Lead, Report Author)** is a biologist with over five years of experience in natural resources. His expertise includes performing wetland delineations, T&E species reviews and habitat assessments, regulatory permitting, technical writing, and designing soil erosion and sedimentation control plans for project sites. He has worked on oil & gas, power, and renewable energy projects in seventeen different states throughout the United States.

**Adam Weishair (Field Lead)** is a Field Services Specialist 6, specializing in wetland delineations, environmental surveys, and compliance in the Upper Midwest. Mr. Weishair has five years of experience serving Oil & Gas, Transmission, Transportation, and Development sectors, and seven years of experience conducting field surveys for the US Fish and Wildlife Service and the National Park Service. Mr. Weishair has conducted field surveys and desktop reviews of threatened and endangered species surveys, grassland assessments, wetland delineations, cultural resources, and Phase I environmental site assessments, environmental SWPPP surveys, and construction compliance.

**Kallie Koon, MS (Report Author)** is a skilled field botanist experienced in wetland delineations and vegetation monitoring. She received a BS in Biology from Arkansas Tech University, as well as a MS in Botany from Miami University. She has worked in multiple herbaria and has taught Field Botany at Miami University. She has performed wetland delineations and habitat evaluations throughout the Upper Midwest and has received a certificate in wetland delineation from the Wetland Training Institute.

**Jameson Loesch (GIS Analyst)** is a Senior Analyst with over 10 years of experience conducting environmental review, permitting, compliance, and project management in the energy and utility industry throughout the Midwestern United States. His expertise focuses on utilizing GIS and other geospatial tools to make environmental review and decision making more efficient and effective during the planning, permitting, construction, and post-construction phases of his projects. Mr. Loesch has extensive experience through all phases of the environmental permitting process having worked as a field lead coordinating and conducting wetland delineations, botanical surveys, rare species surveys, and construction site compliance monitoring; as a GIS project manager developing site, access, and stormwater plans, while also conducting in depth desktop reviews and managing geospatial data in support of routing, planning, and permitting needs; and as a lead in the development of permit applications and enforcement at the local, state, and federal levels. Mr. Loesch is also experienced in conducting threatened/endangered species reviews, having completed a mix of desktop reviews, field surveys, agency consultations, and coordination with clients to ensure proper planning and compliance on over 1000 projects to date.

**Verdanterra** is an environmental, land survey, and engineering consulting firm, driven by innovative professionals committed to providing exceptional customer service.

Verdanterra's wetland ecologists, wildlife biologists, and soil scientists are experts in conducting natural resource field assessments. They are experienced at performing field assessments on complex linear projects, such as pipelines and transmission lines. They understand the challenges of spanning regulatory jurisdictions and what is required to meet state and federal requirements. Their staff understands the value of rapidly collecting high-quality and defensible data to help keep their clients' projects moving forward.

**Western EcoSystems Technology, Inc. (WEST)** provides environmental and statistical consulting services and contract research nationally and internationally for industry, government, and private organizations. They offer clients a unique combination of field ecology and statistics to help solve ongoing and contemporary natural resource challenges.

WEST's wetland scientists across the US and Canada provide desktop assessments, field delineations, permit support, and mitigation planning and monitoring. Staying current with regulatory guidelines, WEST's wetland scientists map and assess aquatic resources following US Army Corps of Engineers (USACE) guidelines under the Clean Water Act and expanding state regulations to help develop permit strategies.

# 2.0 DEFINITIONS

## 2.1 WETLANDS DEFINITION

The *United States Army Corps of Engineers* (USACE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) defines wetlands as follows:

> "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

In order for a surveyor to make a positive determination that a wetland is present based on the methods described in the *USACE Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (USACE, 2010), one positive indicator (except in certain situations) from each of the three elements must be present, which are as follows:

- dominance of hydrophytic plant species;
- presence of hydric soil; and
- wetland hydrology is present during the growing season.

Where one or more elements used to define the presence or absence, extent, or composition of wetland communities is obscured fully or in part by conditions that are naturally problematic and/or significantly disturbed, the extent of the wetland area and the communities within the wetland may be difficult to define. In these situations, the presence or absence of undisturbed wetland indicators, landscape position, topography, and a review of aerial photography are used to inform professional judgement to determine wetland boundaries and community types.

## 2.2 WATERBODIES DEFINITION

Waterbodies are defined as both linear surface water conveyances (streams) and non-linear surface water features (open waterbodies).

### 2.2.1 Streams Definition

Streams are defined as any linear waterway otherwise referred to as, but not limited to, streams, creeks, rivers, or other local designations. Streams are characterized by evidence of flow and a continuous bed and bank, bounded by observed and defined field indicators.

### 2.2.2 Open Waterbodies Definition

Open waterbodies are defined as non-linear features that permanently hold water deeper than approximately six feet and of enough duration to preclude most aquatic vegetation or other wetland characteristics. These features include those commonly referred to as, but not limited to, ponds, lakes, or reservoirs.

# 3.0 METHODS

## 3.1 RESOURCE REVIEW

The following processes and procedures were followed to determine the potential presence of wetlands and waterbodies within the Survey Area. Prior to the field survey, Merjent's delineators review available desktop resources to identify suspected wetlands and waterbodies which advise the development and execution of the field survey.

### 3.1.1 Topography

Merjent reviewed the U.S. Geological Survey (USGS) topographic map (USGS, 2019) The review of topographical data aided in determining general locations of wetland and waterbody features and surface water flow across a landscape within and surrounding the Survey Area.

### 3.1.2 Soil Survey

Merjent reviewed the Natural Resources Conservation Service (NRCS), U.S. Dept. of Agriculture (USDA) Soil Survey Geographic Database (SSURGO; Soil Survey Staff, NRCS, USDA, 2019) soils inventory prior to the field survey. SSURGO data describes the soils for the Survey Area and surrounding landscape. Attributes within each soil's series can provide evidence for potential wetlands, most commonly the Hydric Soils classification attribute. While historical land use and common drainage practices have led to many of these areas no longer supporting any remaining indication of wetland conditions, hydric soils series are still useful in determining areas with which to focus survey effort.

### 3.1.3 Mapped Aquatic Resources

A desktop review was completed using the following aquatic resources datasets prior to the field survey:

- The National Wetlands Inventory (NWI; United States Fish and Wildlife Service [USFWS], 2021) is a nation-wide layer developed locally to remotely identify wetland areas based on additional background information. Portions may be updated at the state or county level at various time intervals, and some may be field verified in select locations.

- The USGS National Hydrography Dataset (NHD; USGS, 2004) provides the most up-to-date and comprehensive nationwide dataset for rivers, streams, canals, lakes, ponds, coastline, dams, and stream gages.

### 3.1.4 Recent Climatic Conditions and Precipitation Data

The Antecedent Precipitation Tool (APT) was used to determine antecedent, or recent, rainfall conditions for a given location to the range of normal rainfall conditions that occurred during the preceding 30 years. The APT is a desktop tool developed by the USACE. The APT is commonly used by the USACE and U.S. Environmental Protection Agency (USEPA) to support decisions as to whether field data collection and other site-specific observations occurred under normal climatic conditions. This tool was originally developed by the USACE to streamline the review of climate data, which supports decision-making related to wetland delineations. In addition to providing a standardized methodology to evaluate normal precipitation conditions, the APT can also be used

to assess the presence of drought conditions, as well as the approximate dates of the wet and dry seasons for a given location (USEPA, 2021).

## 3.2 FIELD SURVEY METHODS

### 3.2.1 Naming Conventions

Features identified in associated figures and appendices are named in the following manner:

- Wetlands (w001, w002, etc.)
- Streams (s01, s02, etc.)
- Open water features (o01, o02, etc.)
- Wetland determination data points (dp001, dp002, etc.)
- Stream data points (sp01, sp02, etc.)
- Photo locations (pp0001, pp0002, etc.)

Features are named consecutively, as encountered in the field, and may not follow a geographical spatial order.

### 3.2.2 Wetlands

Merjent delineated wetlands based on the methodology described in the *USACE Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (USACE, 2010). Delineators documented wetland indicators, or lack of, on Wetland Determination Data Forms at locations representative of the vegetative communities being described during the field survey within or near the wetland. Delineators identified vegetative wetland communities according to the *Cowardin* (Cowardin et al., 1979) classification system.

#### 3.2.2.1 Wetland Determination Data Forms

Wetland Determination Data Forms were completed during the field survey as written documentation of how representative sample point locations meet or do not meet each of the wetland criteria. Plant species nomenclature follows the *National Wetland Plant List* (USACE, 2022). Hydric soils were identified using the methods outlined in *Field Indicators of Hydric Soils in the United States, Version 9.2* (USDA-NRCS, 2025).

Wetland Determination Data Forms were completed during the field survey for desktop-mapped resources that are determined to be absent. In areas of upland associated with hydric soils or linear stream features, representative photos are taken of upland conditions. In areas of upland conditions within NWI mapped features, a sample point, Wetland Determination Data Form, and photos are taken to document upland conditions, unless the area is significantly sloped or otherwise obviously upland; in those circumstances, representative photos may be deemed sufficient.

#### 3.2.2.2 Naturally Problematic and Significantly Disturbed Features

Naturally Problematic and Significantly Disturbed features are those by which wetland indicators of, or lack thereof, are obscured, and additional context may be needed in making accurate determinations. Commonly encountered Naturally Problematic conditions include hardpan, natural cobble or gravel, bedrock, and a dominance of upland and/or facultative upland plant

species. Significantly Disturbed conditions relate specifically to the obscuring of indicators caused by anthropogenic influence or recent, catastrophic natural disturbances. Commonly encountered anthropogenic Significantly Disturbed conditions include row crop agriculture, forestry practices, and site clearing or grading. Natural Significantly Disturbed conditions can include dam breaches or other major flooding and storm-related blowdown.

Where wetland indicators may be disturbed or naturally problematic, a conservative assumption of the presence or absence of wetlands may be made using the observable wetland indicators and best professional judgement. Additional desktop review may also be used and can be useful, especially in agricultural settings.

### 3.2.3 Streams

Merjent identified and mapped streams in accordance with the *USACE National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (David et. al., 2025). Biologists filled out data forms at data points during the field survey within stream areas to document indicators, or lack of, for each suspected feature.

For these features, the OHWM width, substrate, and estimated flow were recorded, along with the OHWM indicators and analysis found within the data sheets. The OHWM determination is a direct in-field observation, used to document evidence used to determine the shape of the channel of a linear feature that reflects the magnitudes and variety of flows necessary to define it based on direct observations and indicators. The OHWM width is the result of the compilation of evidence observed in-field (David et. al., 2025).

#### 3.2.3.1 Rapid Ordinary High Water Mark Field Identification Data Sheets

The Rapid OHWM Field Identification Data Sheets were completed during field survey as written documentation of what indicators of the potential OHWM were observed, and how they are applied in determining the OHWM.

This data sheet was developed for the sole purpose of identifying the OHWM of linear features, and it does not apply to open waterbodies such as lakes or ponds.

### 3.2.4 Open Waterbodies

Boundaries for open waterbodies were generally mapped at the transition between the presence and absence of surface water. Wetland vegetative communities may be present on either side of the open waterbody boundary.

### 3.2.5 Site Photographs

Representative photos were collected for each wetland community and waterbody identified. Photos were taken up, down, and across each linear stream feature. Site photos were collected throughout the Survey Area to demonstrate upland and transitional conditions. Representative photographs are provided in Appendix A.

### 3.2.6 Limitations of Survey Data

Merjent surveyed all data point locations and boundaries of wetlands, streams, and open waterbodies using Global Positioning System (GPS) technology capable of sub-meter accuracy.

While these surveys provide reasonably accurate and industry-standard spatial data, they do not provide the same level of accuracy as a professional land survey.

For linear features narrower than twice the accuracy of GPS (i.e., 2 meters), the centerline was mapped, and the feature is widened using GIS. A center line may be taken for forested features where GPS accuracy can be reduced. Lateral extents for anomalies such as impoundments or culvert washes are collected in-field to accurately map the variability along entire feature.

Feature boundaries were not flagged during the field survey.

# 4.0 RESULTS

## 4.1 DESKTOP REVIEW RESULTS

### 4.1.1 Previous Wetland and Waterbody Delineation Review

Merjent is unaware of previous wetland and waterbody delineation mapping at this site or associated regulatory review; as such, a review of previous wetland and waterbody delineations was not completed.

### 4.1.2 Background Data Review

#### 4.1.2.1 Topography

The topographic map (see Figure 2) for this Project shows relatively flat landscapes with some areas of rolling hills and slopes within the Survey Area (USGS, 2019).

#### 4.1.2.2 Soil Survey

The SSURGO soil map (see Figure 3) identifies 58 soil types within the Survey Area, two of which are classified as hydric (see Table 4.1.2-1 below; Soil Survey Staff; NRCS, USDA, 2019). Hydric soils are primarily located in swales within the Survey Area.

TABLE 4.1.2-1

**Mapped Soil Units**

| Symbol | Description | Hydric Soil Unit? | Acres |
|---|---|---|---|
| E0415A | Belfield-Daglum complex, 0 to 2 percent slopes | No | 122.09 |
| E0454B | Daglum-Rhoades complex, 0 to 6 percent slopes | No | 156.44 |
| E0454C | Daglum-Rhoades complex, 6 to 9 percent slopes | No | 36.59 |
| E0541C | Rhoades-Daglum-Rhoades, severely eroded complex, 0 to 9 percent slopes | No | 8.57 |
| E0605A | Belfield-Grail clay loams, 0 to 2 percent slopes | No | 126.35 |
| E0617B | Belfield-Wyola-Daglum complex, 2 to 6 percent slopes | No | 204.46 |
| E0623B | Grail-Belfield clay loams, 2 to 6 percent slopes | No | 160.59 |
| E0651A | Regent-Janesburg complex, 0 to 3 percent slopes | No | 27.67 |
| E0651B | Regent-Janesburg complex, 3 to 6 percent slopes | No | 330.78 |
| E0651C | Regent-Janesburg complex, 6 to 9 percent slopes | No | 7.80 |
| E0701F | Dogtooth-Janesburg-Cabba complex, 6 to 35 percent slopes | No | 59.64 |
| E0811A | Grail silty clay loam, 0 to 2 percent slopes | No | 13.27 |
| E0835A | Wyola-Grail silty clay loams, 0 to 2 percent slopes | No | 12.03 |
| E0837B | Wyola silty clay loam, 2 to 6 percent slopes | No | 130.57 |
| E0837C | Wyola silty clay loam, 6 to 9 percent slopes | No | 7.61 |
| E1009B | Moreau-Barkof silty clays, 3 to 6 percent slopes | No | 2.62 |
| E1025A | Regent-Wyola silty clay loams, 0 to 3 percent slopes | No | 10.06 |
| E1025B | Regent-Wyola silty clay loams, 3 to 6 percent slopes | No | 37.91 |
| E1025C | Regent-Wyola silty clay loams, 6 to 9 percent slopes | No | 35.63 |
| E1333C | Vebar-Cohagen fine sandy loams, 6 to 9 percent slopes | No | 399.11 |
| E1355D | Vebar-Flasher-Tally complex, 9 to 15 percent slopes | No | 173.92 |
| E1403D | Beisigl-Flasher-Telfer loamy fine sands, 6 to 15 percent slopes | No | 5.69 |
| E1423F | Flasher-Vebar-Parshall complex, 9 to 35 percent slopes | No | 21.40 |
| E1601B | Beisigl-Lihen loamy fine sands, 0 to 6 percent slopes | No | 76.77 |

TABLE 4.1.2-1

**Mapped Soil Units**

| Symbol | Description | Hydric Soil Unit? | Acres |
|---|---|---|---|
| E1625A | Vebar-Parshall fine sandy loams, 0 to 3 percent slopes | No | 26.92 |
| E1625B | Vebar-Parshall fine sandy loams, 3 to 6 percent slopes | No | 277.46 |
| E1805B | Lihen-Parshall complex, 0 to 6 percent slopes | No | 52.24 |
| E1823A | Parshall fine sandy loam, 0 to 2 percent slopes | No | 13.26 |
| E1865B | Tally-Parshall fine sandy loams, 2 to 6 percent slopes | No | 14.36 |
| E2107A | Arnegard loam, 0 to 2 percent slopes | No | 63.45 |
| E2107B | Arnegard loam, 2 to 6 percent slopes | No | 4.72 |
| E2145A | Shambo loam, 0 to 2 percent slopes | No | 20.70 |
| E2145B | Shambo loam, 2 to 6 percent slopes | No | 18.29 |
| E2203A | Farland silt loam, 0 to 2 percent slopes | No | 75.51 |
| E2203B | Farland silt loam, 2 to 6 percent slopes | No | 96.51 |
| E2203C | Farland silt loam, 6 to 9 percent slopes | No | 1.13 |
| E2601C | Amor-Cabba loams, 6 to 9 percent slopes | No | 337.32 |
| E2601D | Amor-Cabba loams, 9 to 15 percent slopes | No | 251.88 |
| E2607D | Amor-Werner loams, 9 to 15 percent slopes | No | 4.61 |
| E2617F | Cabba-Chama-Shambo loams, 9 to 50 percent slopes | No | 59.65 |
| E2737C | Chama-Cabba-Sen silt loams, 6 to 9 percent slopes | No | 232.28 |
| E2741D | Cabba-Chama-Sen silt loams, 9 to 15 percent slopes | No | 80.56 |
| E2801A | Amor-Arnegard loams, 0 to 3 percent slopes | No | 48.39 |
| E2803B | Amor-Shambo loams, 3 to 6 percent slopes | No | 206.53 |
| E2819B | Reeder-Farnuf loams, 3 to 6 percent slopes | No | 122.41 |
| E2913B | Chama-Sen-Cabba silt loams, 3 to 6 percent slopes | No | 43.56 |
| E2927B | Morton-Farland silt loams, 3 to 6 percent slopes | No | 64.27 |
| E2931C | Morton-Cabba silt loams, 6 to 9 percent slopes | No | 189.19 |
| E2987B | Sen-Chama silt loams, 3 to 6 percent slopes | No | 31.28 |
| E3033D | Ringling-Daglum loams, 6 to 15 percent slopes | No | 5.06 |
| E4005A | Harriet loam, 0 to 2 percent slopes, occasionally flooded | Yes | 51.13 |
| E4139A | Korchea-Fluvaquents complex, channeled, 0 to 2 percent slopes, frequently flooded | No | 37.32 |
| E4161A | Straw loam, 0 to 2 percent slopes, rarely flooded | No | 2.94 |
| E4569F | Wabek-Cabba-Shambo complex, 6 to 35 percent slopes | No | 1.27 |
| E4575A | Wanagan loam, 0 to 2 percent slopes | No | 16.59 |
| E4585B | Manning fine sandy loam, 2 to 6 percent slopes | No | 30.04 |
| E4711A | Dimmick silty clay, 0 to 1 percent slopes | Yes | 2.42 |
| E4999 | Water | No | 0.50 |
| | | **TOTAL:** | **4,651.32** |

Source: Soil Survey Staff, NRCS, USDA, 2019

### 4.1.2.3 Mapped Aquatic Resources

The hydrology map (see Figure 4) shows 32.34 acres of NWI-mapped wetland features within the Survey Area (see Table 4.1.2-2 below; USFWS, 2021). NWI-mapped wetland features are located within valleys and swales in meadows and agricultural fields throughout the Survey Area. Additionally, multiple NHD-mapped surface water features are located within the Survey Area (USGS, 2004).

TABLE 4.1.2-2

**Mapped NWI Features**

| Symbol | Description | Acres |
|---|---|---|
| PABFh | Palustrine; Aquatic bed; Semipermanently flooded; Diked/impounded | 2.36 |
| PEM1A | Palustrine; Emergent; Persistent; Temporarily flooded | 9.86 |
| PEM1C | Palustrine; Emergent; Persistent; Seasonally flooded | 8.74 |
| PEM1Ch | Palustrine; Emergent; Persistent; Seasonally flooded; Diked/impounded | 0.09 |
| PEM1Cx | Palustrine; Emergent; Persistent; Seasonally flooded; Excavated | <0.01 |
| PFOA | Palustrine; Forested; Temporarily flooded | 0.05 |
| PUBFx | Palustrine; Unconsolidated bottom; Semipermanently flooded; Excavated | 0.06 |
| R4SBC | Riverine; Intermittent; Streambed; Seasonally flooded | 11.18 |
| R5UBH | Riverine; Unknown perennial; Unconsolidated bottom; Permanently flooded | <0.01 |
| | **TOTAL:** | **32.34** |

Source: USFWS, 2021

### 4.1.3 Current, Historic, and High-Resolution Aerial Imagery

Merjent reviewed multiple sources of historic aerial imagery to evaluate the Survey Area for wetland signatures. Based on this review, potential wet signatures were present in depressions and swales in valleys and agricultural fields throughout the Survey Area.

### 4.1.4 Recent Climatic Conditions and Precipitation Data

Merjent compared recent precipitation data with historic precipitation data from a 30-year dataset using the Antecedent Precipitation Tool (APT) to determine if normal hydrologic and climatic conditions were present on-site during field surveys. The APT analysis indicated normal precipitation conditions were present during the field surveys from May 19 to May 23, 2025, and October 7 to October 14, 2025. Wetter than normal precipitation conditions were present during the field surveys from October 21 to November 4, 2025 (see Appendix B; USEPA, 2021).

## 4.2 FIELD SURVEY RESULTS

From May 19 to May 23, 2025, Merjent wetland ecologists conducted a wetland and waterbody delineation of the Survey Area to evaluate site conditions and determine boundaries of wetlands and waterbodies. Verdanterra continued the survey from October 7 to October 14, 2025. WEST completed the remaining survey efforts from October 21 to November 4, 2025.

Dominant land use within the Survey Area includes active agricultural fields, upland meadows, field edges, and roadside right-of-way (ROW).

Weather conditions at the time of surveys were favorable and did not impair observations. All portions of the Survey Area were accessible during the field survey.

### 4.2.1 Uplands

The majority of the upland areas within the Survey Area consisted of active agricultural fields planted with soybeans (*Glycina max*), canola (*Brassica napus*), corn (*Zea mays*), or wheat (*Triticum spp.*) in the 2025 growing season.

Upland meadows were also present throughout the Survey Area. These meadows commonly had a dense herbaceous stratum dominated by smooth brome (*Bromus inermis*), common snowberry (*Symphoricarpos albus*), Kentucky blue grass (*Poa pratensis*), and alfalfa (*Medicago sativa*).

The Survey Area also includes some roadside rights-of-way. These areas were dominated by smooth brome, fox-tail barley (*Hordeum jubatum*), alfalfa, and common snowberry.

### 4.2.2 Wetlands

106 wetlands totaling 77.79 acres were identified within the Survey Area according to *Cowardin* (1979) classification (see Figure 5; Summary of Delineated Wetlands Table in Appendix C). All identified wetlands consisted of either palustrine emergent (PEM) communities or palustrine unconsolidated bottom (PUB) communities. Representative photographs of the wetlands are provided in Appendix A. More detailed information for the associated data points is found in the wetland determination data forms in Appendix D. Summaries of the various types of PEM and PUB wetlands identified within the Survey Area are provided below.

#### 4.2.2.1 Vegetated Palustrine Emergent Wetlands

Vegetated PEM wetlands (62.83 acres) were identified throughout the Survey Area. These communities were commonly adjacent to stream channels and in vegetated swales in agricultural fields. These communities typically had a dense herbaceous stratum. Species commonly encountered in the herbaceous stratum included reed canary grass (*Phalaris arundinacea*), freshwater cord grass (*Spartina pectinata*), fox-tail barley, smooth brome, curly dock (*Rumex crispus*), narrow-leaf cat-tail (*Typha angustifolia*), Kentucky blue grass, and soft-stem club-rush (*Schoenoplectus tabernaemontani*). There were no species observed in the tree or sapling/shrub strata.

The soils in the vegetated PEM wetlands commonly met the criteria for hydric soil indicators: Depleted Below Dark Surface (A11), Loamy Mucky Mineral (F1), Depleted Matrix (F3), or Redox Dark Surface (F6).

Common indicators of wetland hydrology observed included Surface Water (A1), High Water Table (A2), Saturation (A3), Salt Crust (B11), Surface Soil Cracks (B6), Sparsely Vegetated Concave Surface (B8), Drainage Patterns (B10), Dry-Season Water Table (C2), Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2), and FAC-neutral Test (D5).

#### 4.2.2.2 Roadside Ditch Palustrine Emergent Wetlands

Roadside ditch PEM wetlands (0.16 acre) were identified throughout the Survey Area. These communities had dense herbaceous strata dominated by reed canary grass, freshwater cord grass, smooth brome, lamp rush (*Juncus effusus*), narrow-leaf cat-tail, river club-rush (*Schoenoplectus fluviatilis*), and uptight sedge (*Carex stricta*). There were no species observed in the tree or sapling/shrub strata.

The soils in the roadside ditch PEM wetlands commonly met the criteria for hydric soil indicators: Depleted Matrix (F3) or Redox Dark Surface (F6).

Common indicators of wetland hydrology observed included Surface Water (A1), Saturation (A3), Geomorphic Position (D2), and FAC-neutral Test (D5).

#### 4.2.2.3 Farmed Palustrine Emergent Wetlands

Farmed PEM wetlands (13.01 acres) also were identified throughout the Survey Area. These communities were typically found in depressions or swales within the agricultural fields in the Survey Area. These areas were planted with soybeans, canola, corn, or wheat in the 2025 growing season. Farmed wetlands were bare of non-agricultural vegetation or had sparsely vegetated herbaceous strata that typically consisted of weedy annual species. Species commonly observed within the farmed wetlands included Mexican fireweed (*Bassia scoparia*), yellow bristle grass (*Setaria pumila*), fox-tail barley, stink grass (*Eragrostis cilianensis*), and large barnyard grass (*Echinochloa crus-galli*). There were no species observed in the tree or sapling/shrub strata.

The soils in the farmed PEM wetlands commonly met the criteria for hydric soil indicators: Depleted Below Dark Surface (A11), Depleted Matrix (F3), or Redox Dark Surface (F6).

Common indicators of wetland hydrology observed included Surface Water (A1), High Water Table (A2), Saturation (A3), Salt Crust (B11), Surface Soil Cracks (B6), Drainage Patterns (B10), Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2), and FAC-neutral Test (D5).

#### 4.2.2.4 Palustrine Unconsolidated Bottom

Several wetlands within the Survey Area also contained a PUB component (1.79 acres). In some areas, the wetland boundary was determined via desktop analysis and visually confirmed due to safety reasons or access limitations. For these areas, soils were assumed to be hydric based on landscape position, the dominance of hydrophytic vegetation, and observed wetland hydrology indicators.

Species commonly encountered in the herbaceous stratum included primarily freshwater cord grass and lamp rush. There were no species observed in the tree or sapling/shrub strata.

The soils in the PUB wetlands meet the criteria for the hydric soil indicator Redox Dark Surface (F6).

Common indicators of wetland hydrology observed include Surface Water (A1), Saturation (A3), Geomorphic Position (D2), and FAC-neutral Test (D5).

#### 4.2.2.5 Naturally Problematic and Significantly Disturbed Datapoints

Multiple wetlands were found in agricultural fields within the Survey Area. These wetlands had significantly disturbed vegetation due to recurring agricultural activities. In these situations, the problematic hydrophytic vegetation indicator was used if hydric soil and wetland hydrology were confirmed.

### 4.2.3 Streams

Survey crews identified 21 streams totaling 1.54 acres (6,209 linear feet) within the Survey Area (see Summary of Delineated Streams Table in Appendix E). The completed Rapid OHWM Field Identification Data Sheets are provided in Appendix F. Representative photographs of the streams are provided in Appendix A. Summaries of the stream types are provided below.

#### 4.2.3.1 Ephemeral Streams

Ten ephemeral streams (0.16 acre; 2,967 linear feet) were identified within the Survey Area.

Stream data points were recorded to document OHWM indicators present within the Survey Area. The OHWMs for the ephemeral streams were typically determined by combination of observations such as a break in slope on the banks, in-stream bedforms and other bedload transport evidence, exposed roots below intact soil layer, vegetation matted down and/or bent, and changes in vegetation type and density.

#### 4.2.3.2 Intermittent Streams

Seven intermittent streams (0.18 acre; 1,562 linear feet) were identified within the Survey Area.

Stream data points were recorded to document OHWM indicators present within the Survey Area. The OHWMs for the intermittent streams were typically determined by a combination of observations such as a break in slope on the banks, in-stream bedforms and other bedload transport evidence, vegetation matted down and/or bent, and changes in vegetation type and density.

#### 4.2.3.3 Perennial Streams

Four perennial streams (1.20 acres; 1,680 linear feet) were identified within the Survey Area.

Stream data points were recorded to document OHWM indicators present within the Survey Area. The OHWMs for the perennial streams were typically determined by a combination of observations such as a break in slope on the banks, in-stream bedforms and other bedload transport evidence, vegetation matted down and/or bent, and changes in vegetation type and density.

### 4.2.4 Open Waterbodies

Merjent identified one open waterbody (o01) totaling 0.08 acre within the Survey Area (See Page 162 of Figure 5). The open waterbody was identified west of wetland w063 as part of a larger wetland/stream/waterbody complex.

## 5.0 SUMMARY AND CONCLUSION

Merjent, Verdanterra, and WEST performed a delineation of wetlands and other surface water features for the Longspur Wind Project in Mercer and Morton Counties, North Dakota.

Based on the field survey and review of desktop resources, it is our professional opinion that 106 wetlands totaling 77.79 acres, 21 streams totaling 1.54 acres (6,209 linear feet), and one open waterbody totaling 0.08 acre were identified within the 4,651.32-acre Survey Area. This report represents our best professional judgment based on our local knowledge and experience.

## 6.0 DISCLAIMER

The survey results described in this report represent the physical conditions encountered at the time the field survey was performed. In addition, the surveys were performed using regulatory guidance and scientific methods in effect and current at the time. If regulatory frameworks or technical guidance change in the future, some additional survey work or modifications to the survey report may be required.

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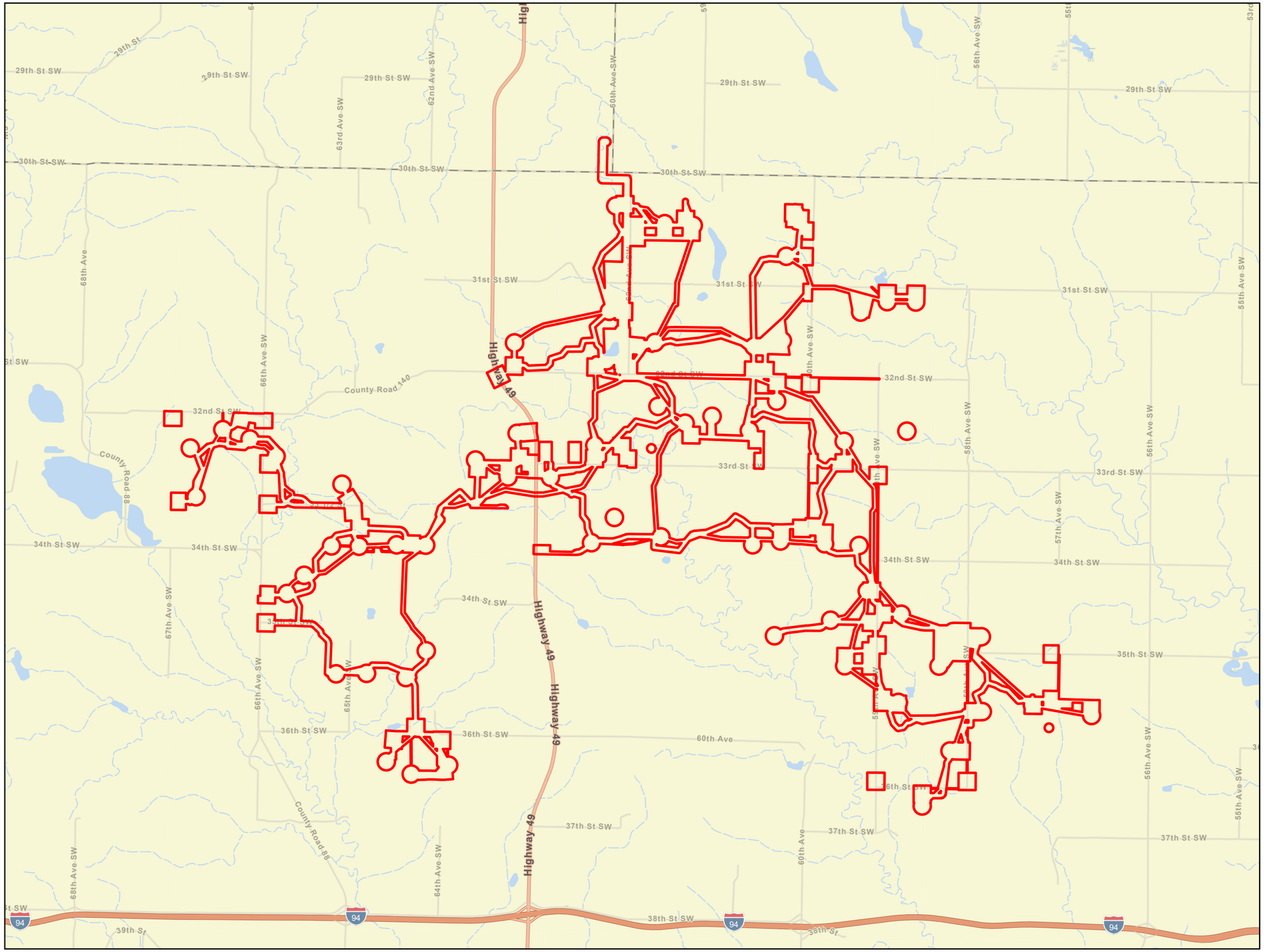
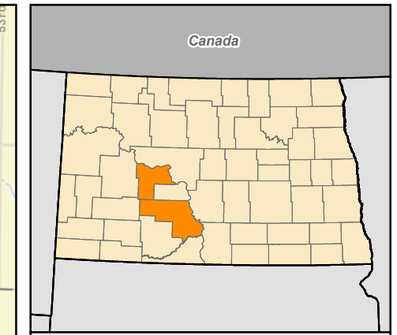
# Figure 1

# Project Location




0 0.5 1 Miles

1 inch = 1 mile

N S E W

Survey Area

**Figure 1**
**Project Location**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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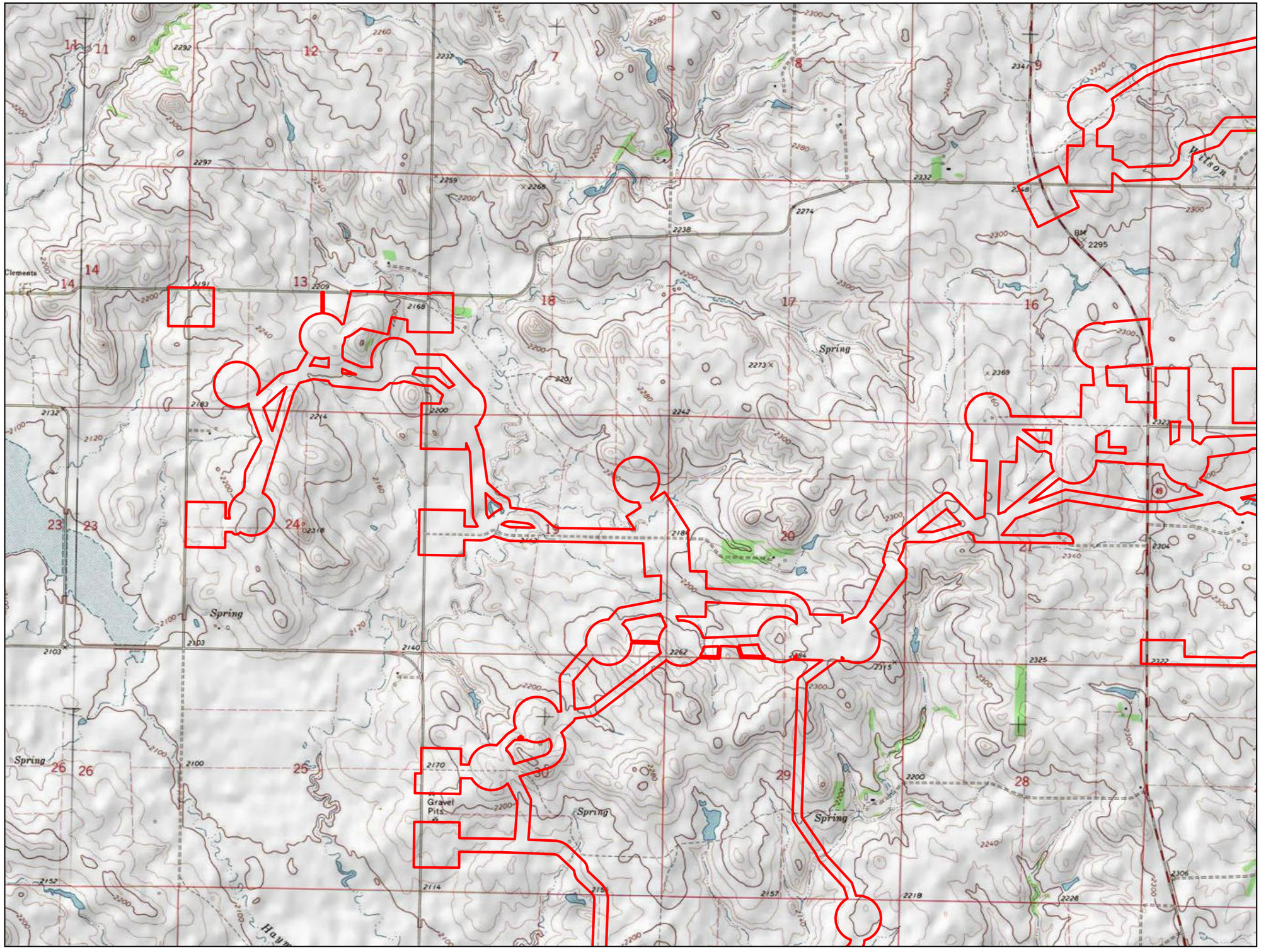
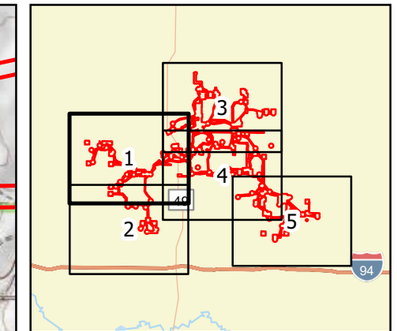
# Figure 2

# Topographic Map




0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

Survey Area

**Figure 2**
**Topographic Map**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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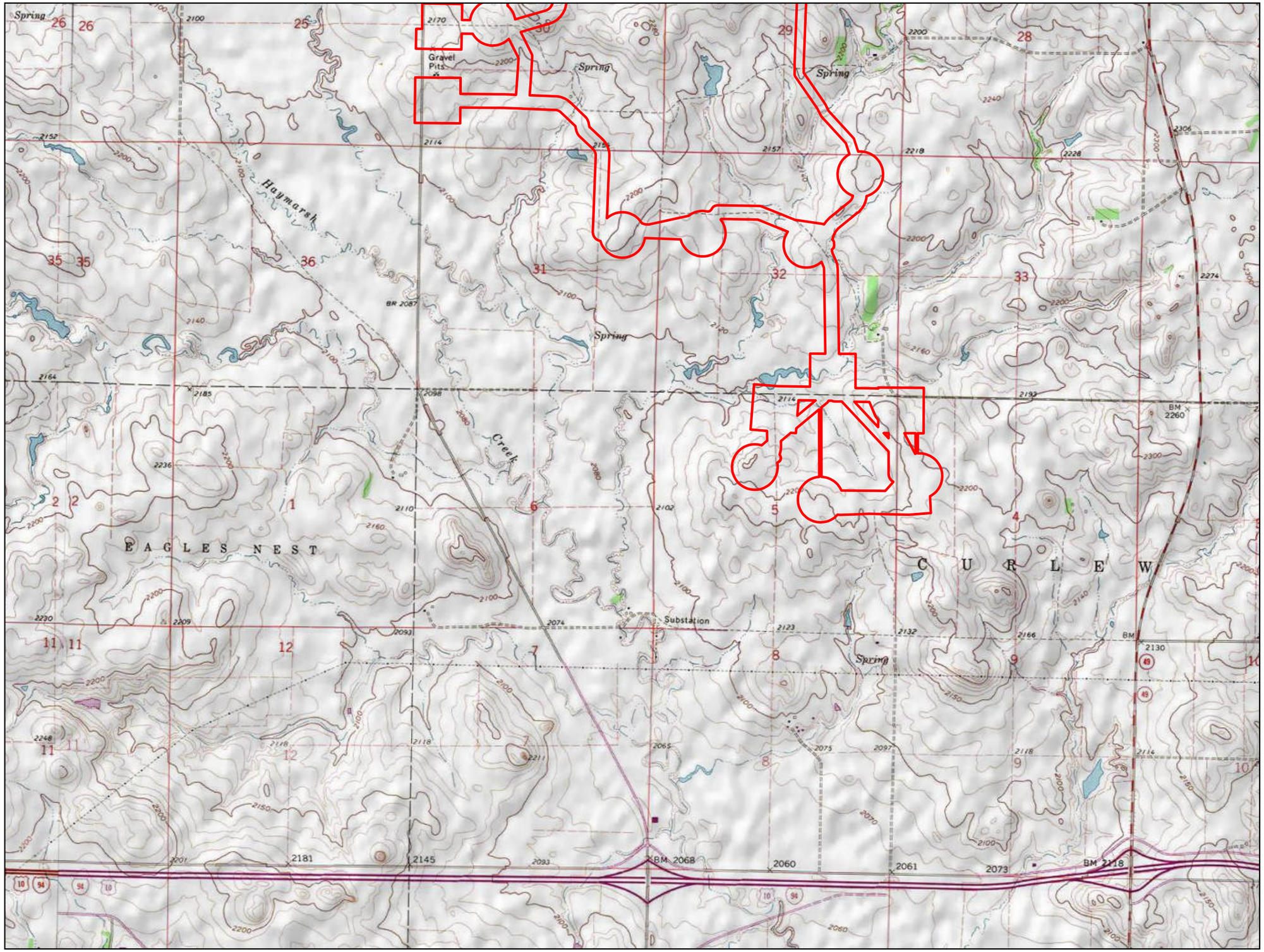


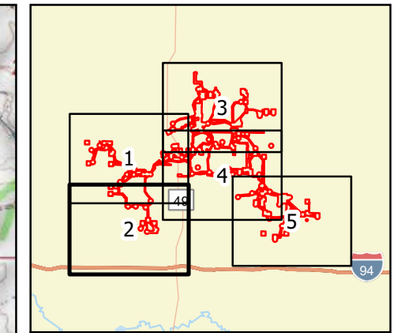


0 1,000 2,000 Feet

1 inch = 2,000 feet

N S E W

Survey Area

**Figure 2**
**Topographic Map**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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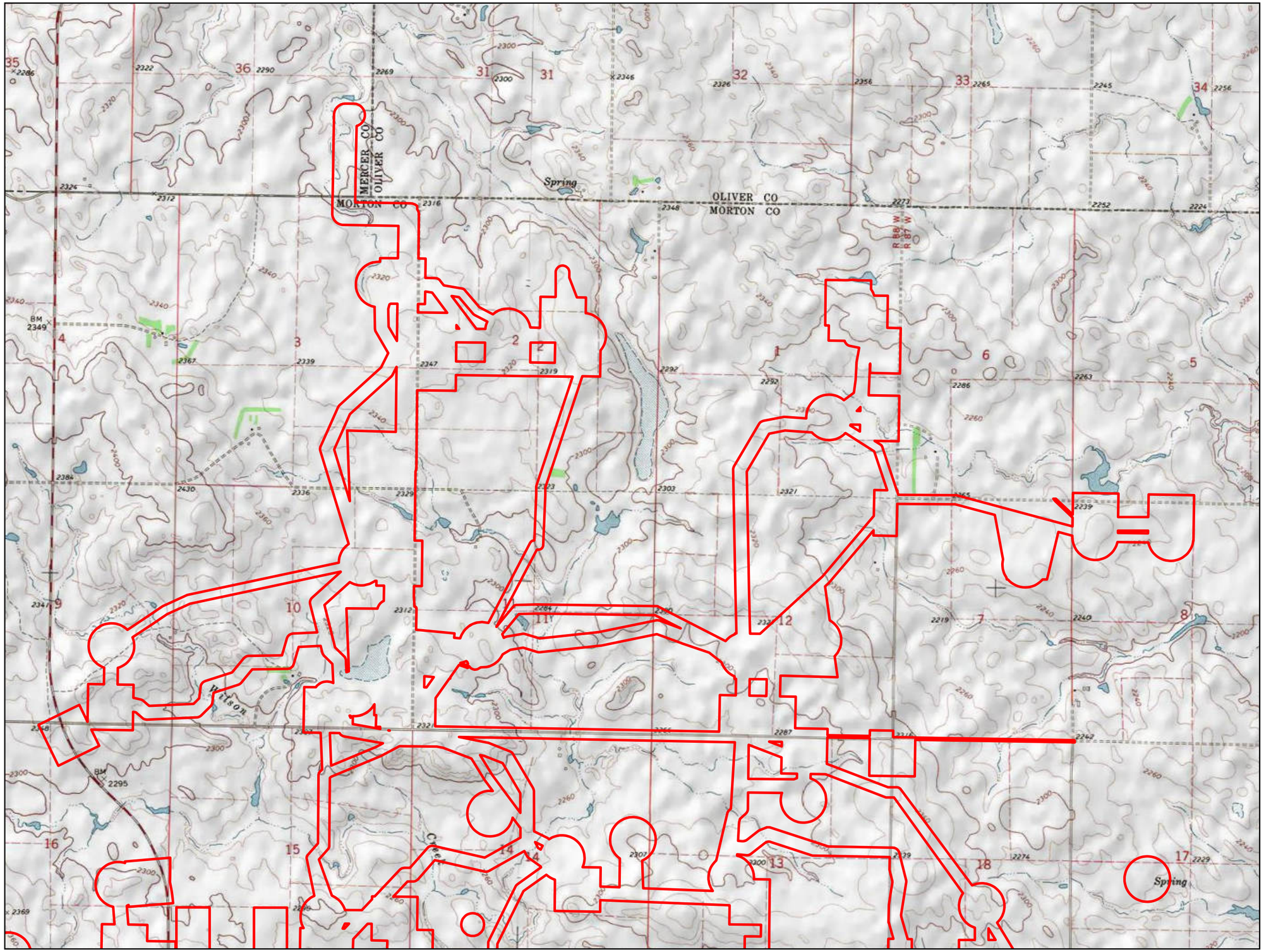


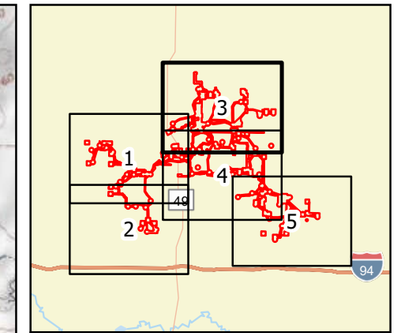


0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

Survey Area

**Figure 2**
**Topographic Map**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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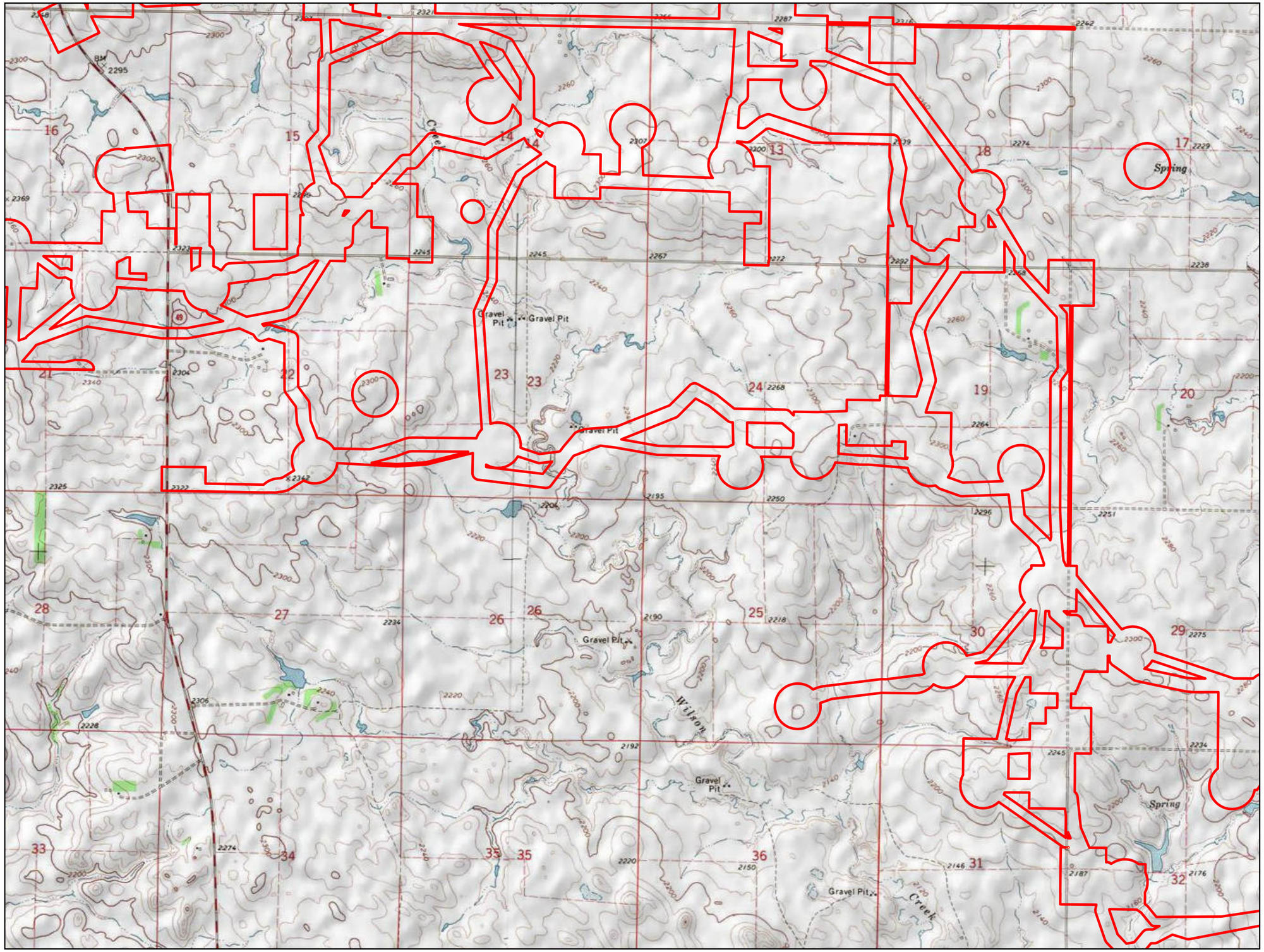


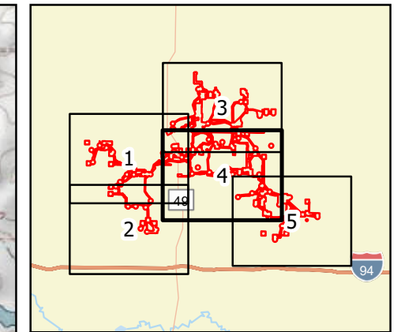


0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

Survey Area

**Figure 2**
**Topographic Map**
**Longspur Wind Project**
**Minnesota Power**
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**North Dakota**

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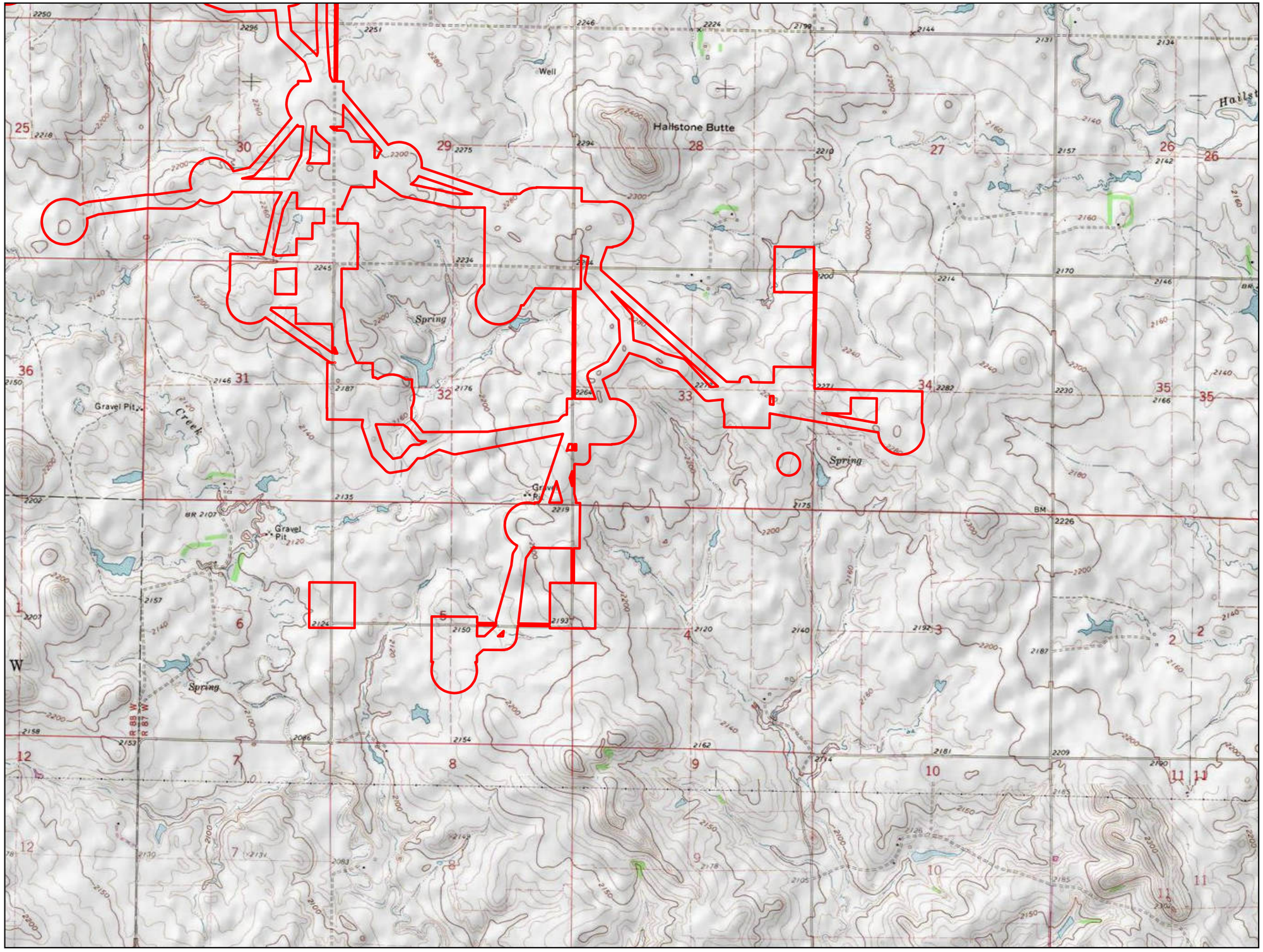


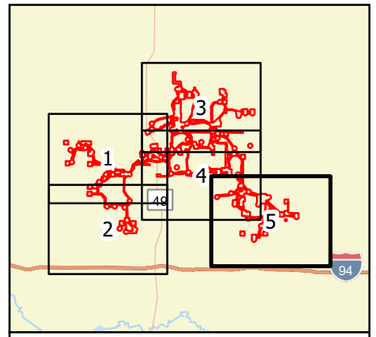


0 1,000 2,000 Feet

1 inch = 2,000 feet

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Survey Area

**Figure 2**
**Topographic Map**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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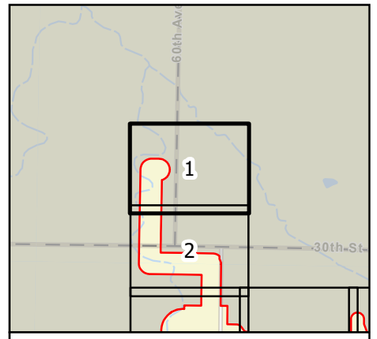
# Figure 3

# Soil Units (SSURGO)




0 100 200 Feet

1 inch = 200 feet

N
W E
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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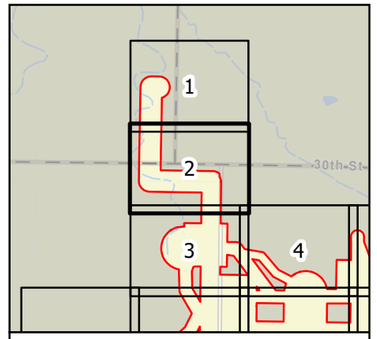


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1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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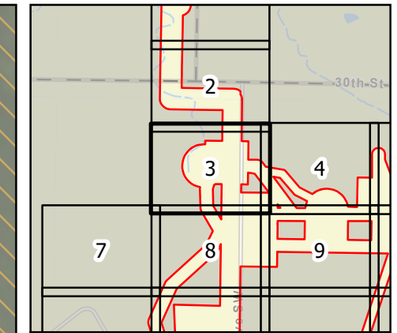


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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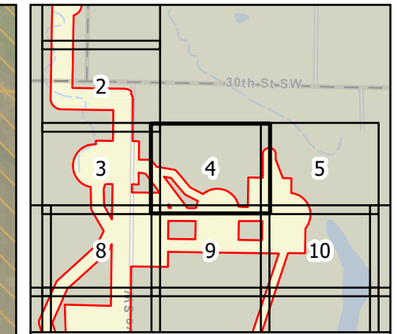


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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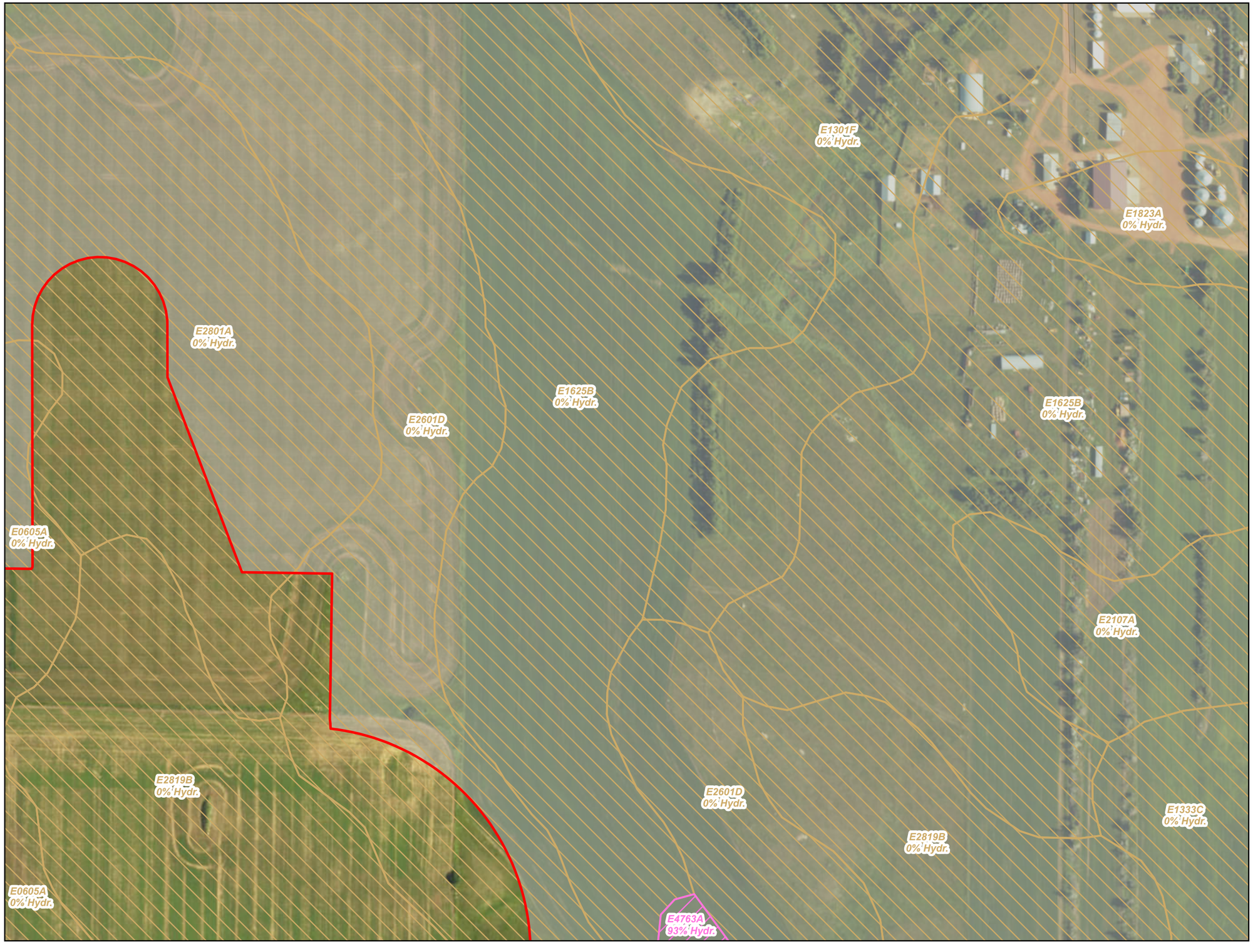


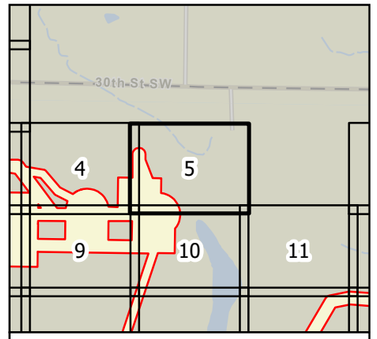


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1 inch = 200 feet

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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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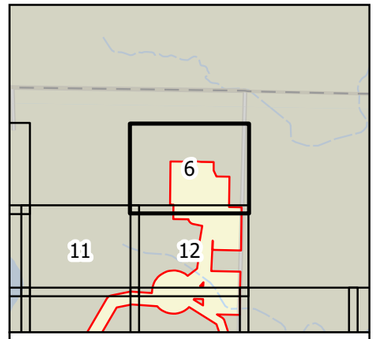


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1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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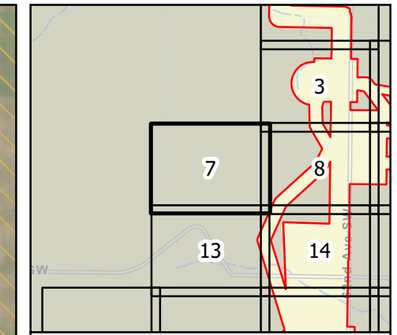


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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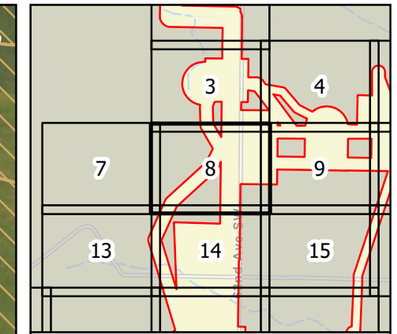


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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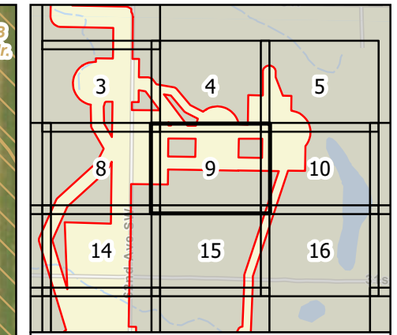


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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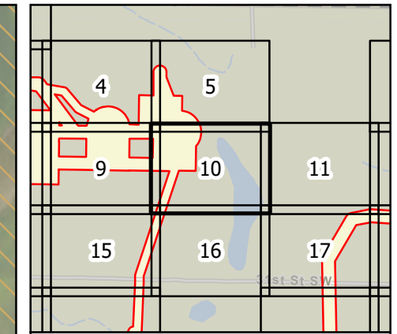


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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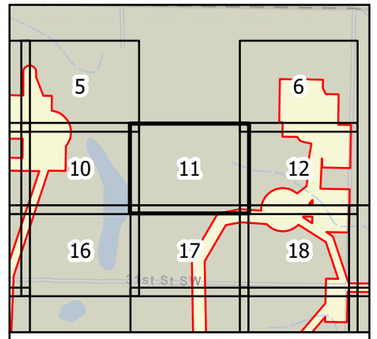


Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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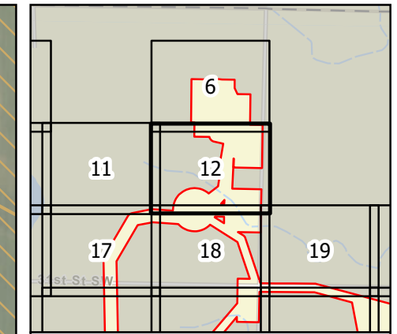


0 100 200 Feet

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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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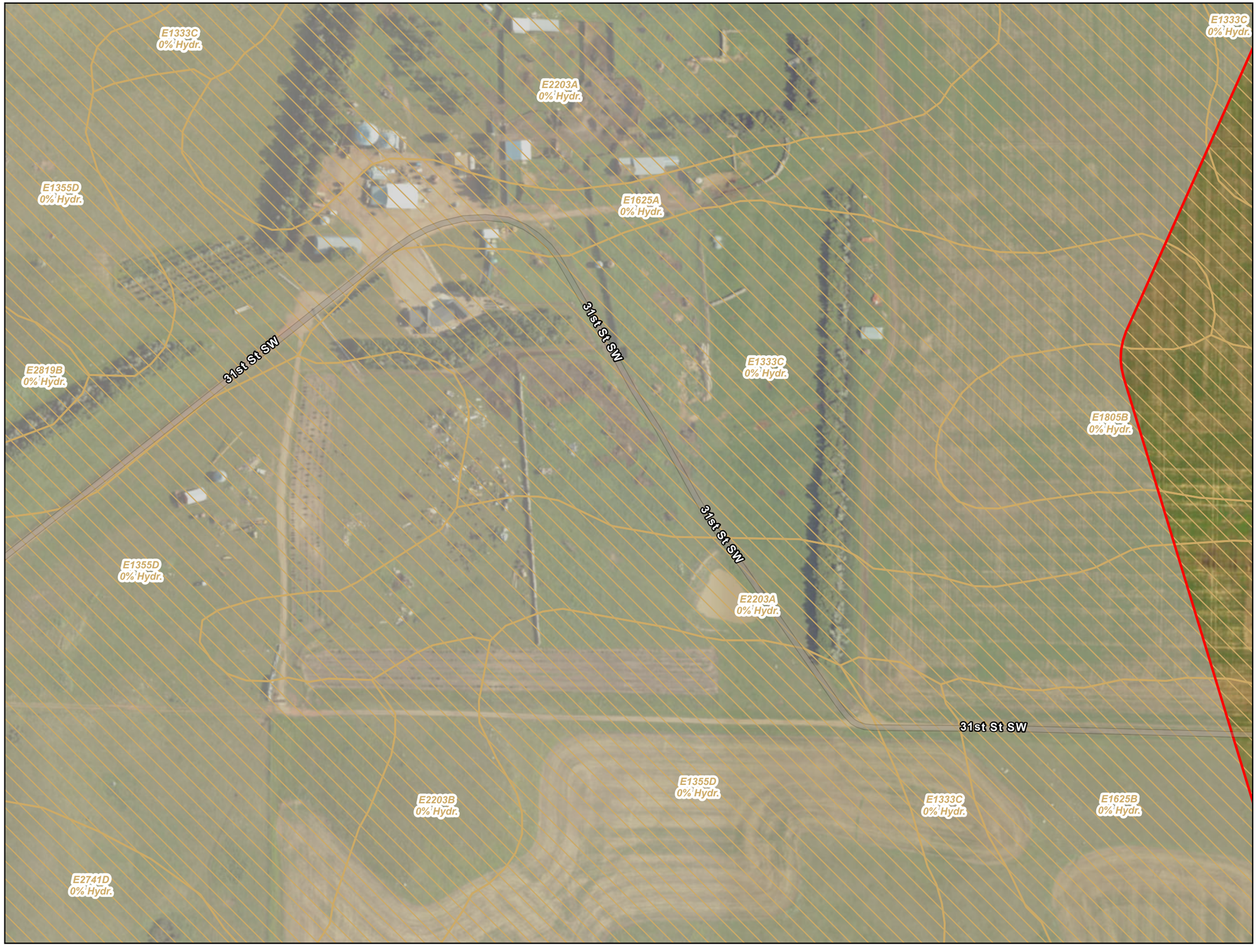


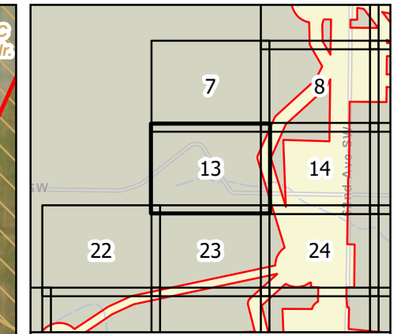


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
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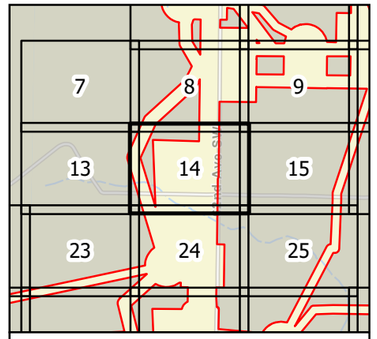


0 100 200 Feet

1 inch = 200 feet

N
W E
S

Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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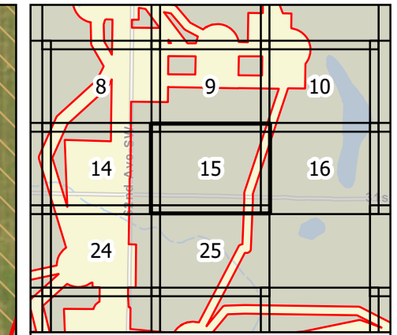


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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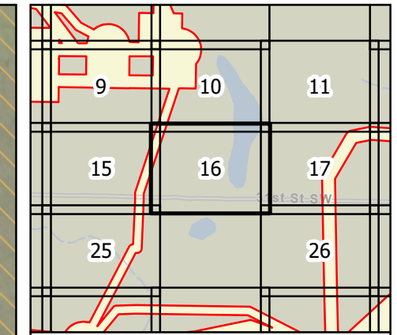


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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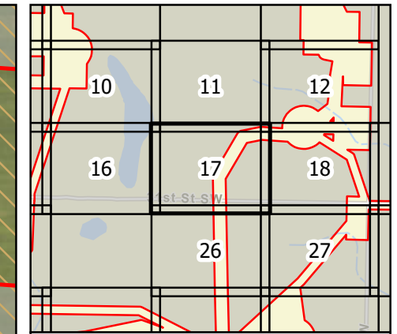


0 100 200 Feet

1 inch = 200 feet

N S E W

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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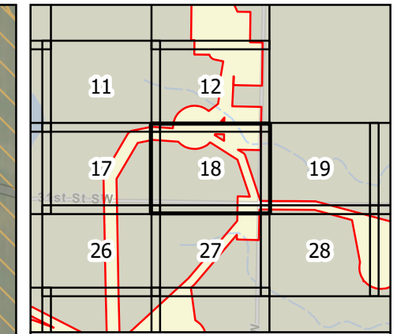


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1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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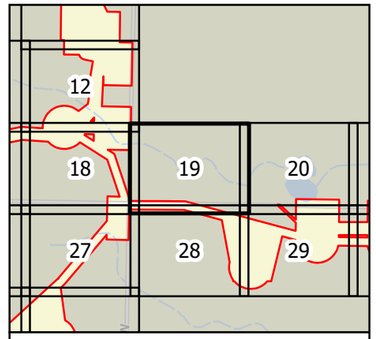


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1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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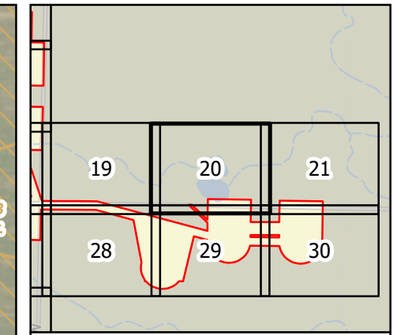


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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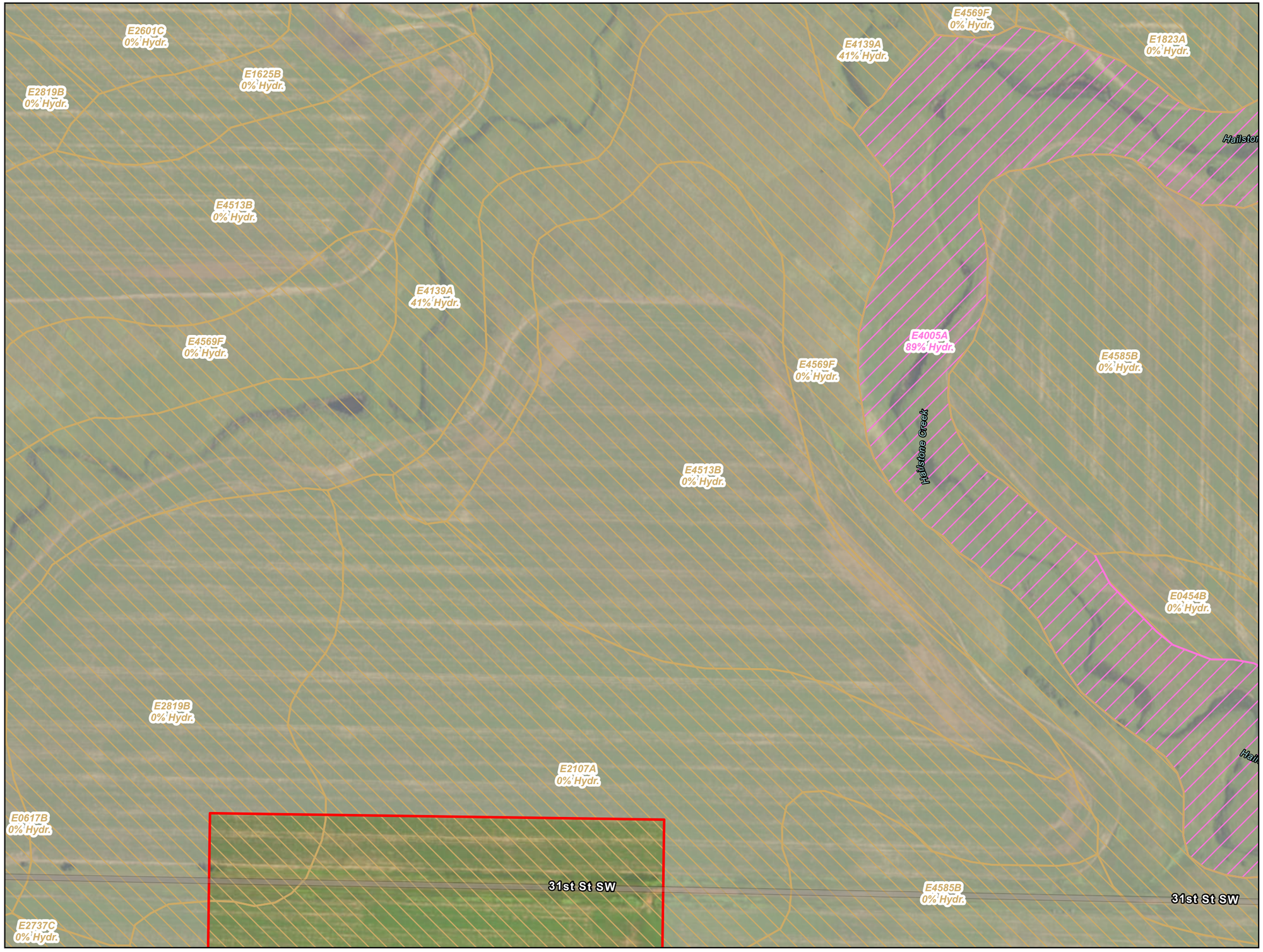


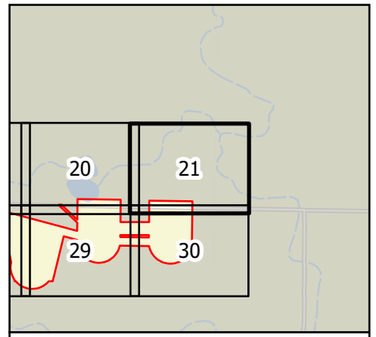


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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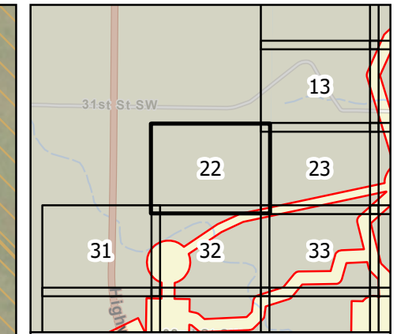


Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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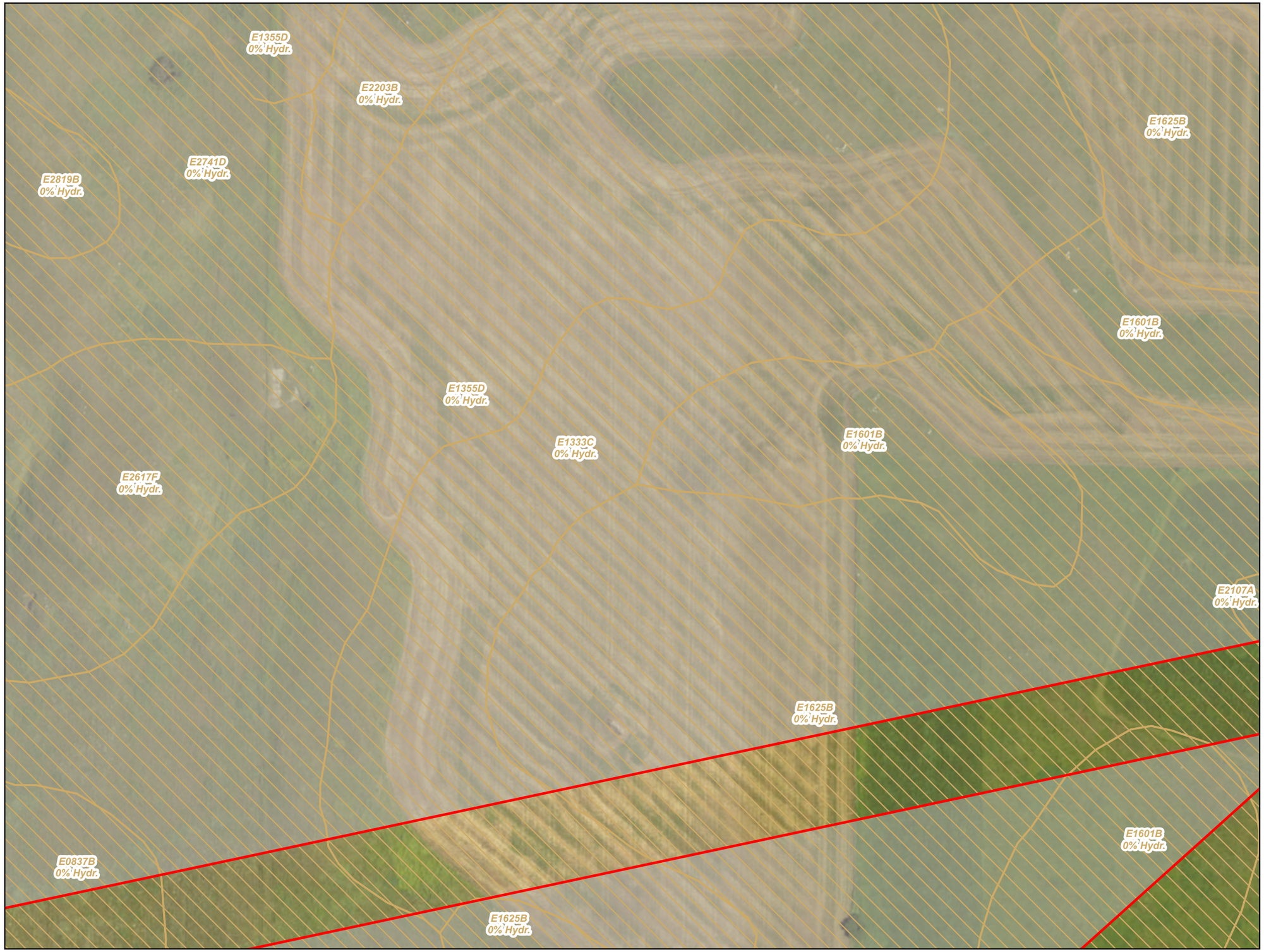


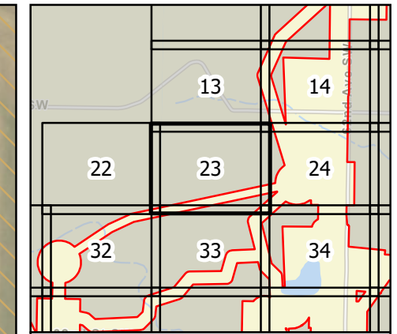


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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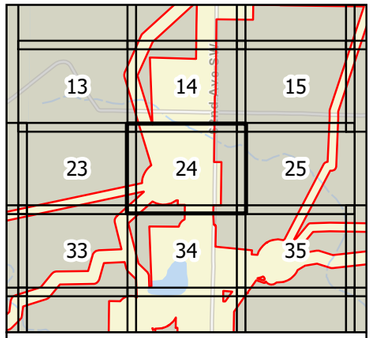


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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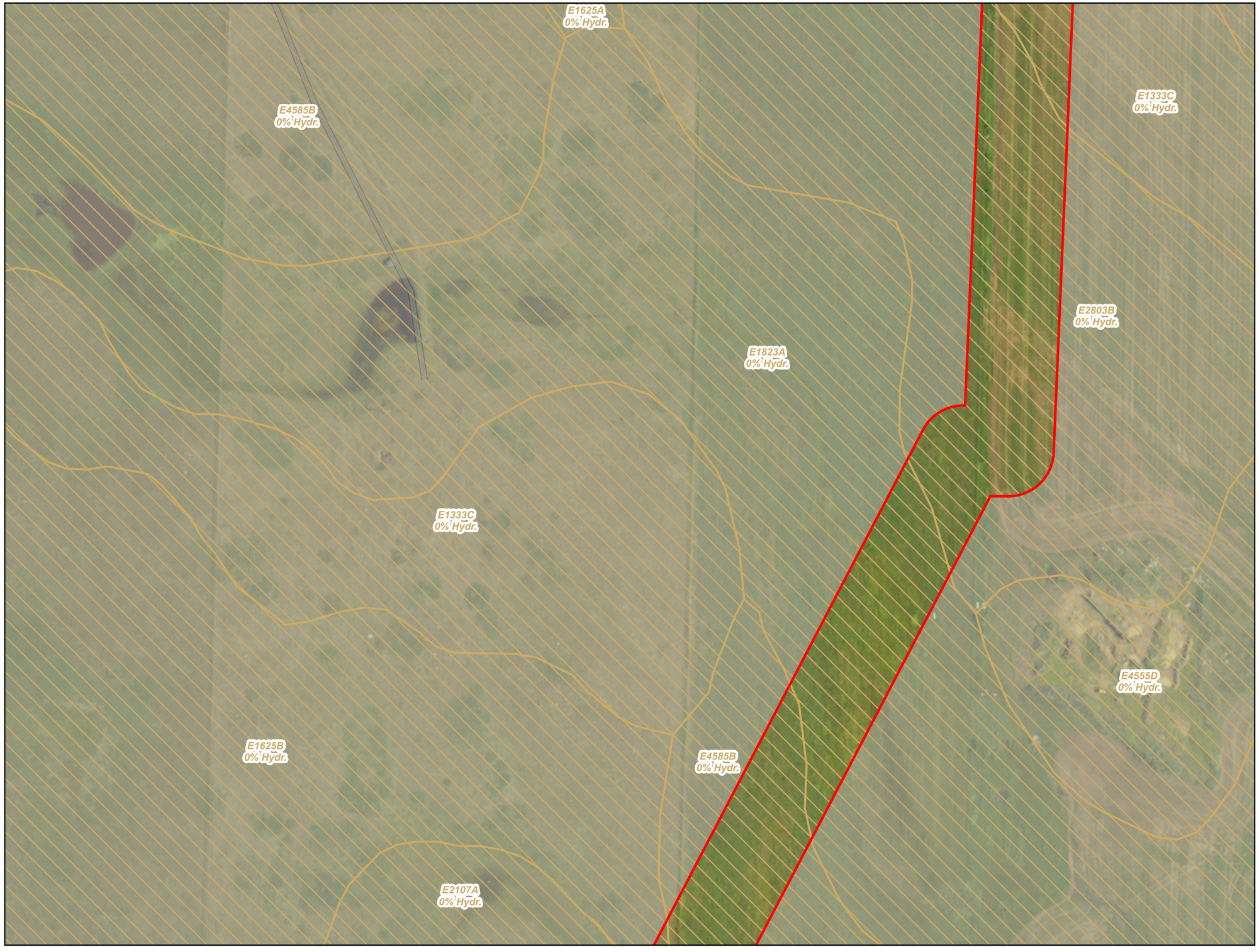


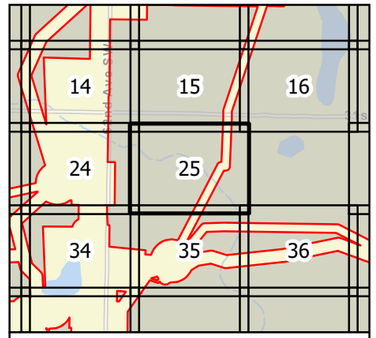


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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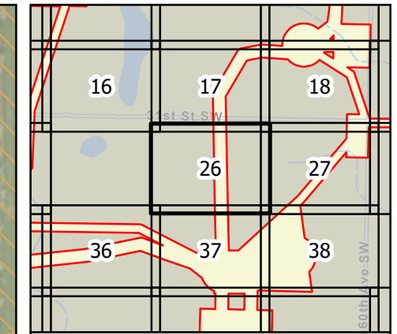


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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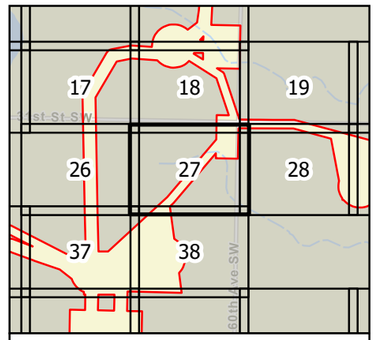


0 100 200 Feet

1 inch = 200 feet

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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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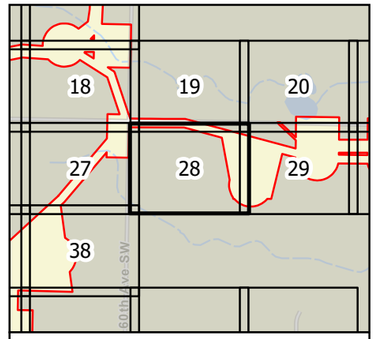


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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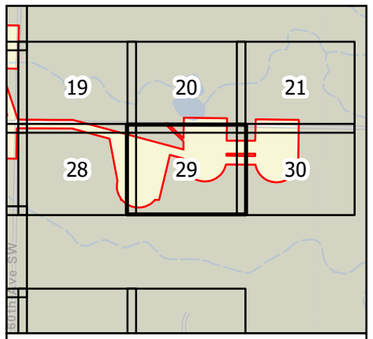


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N
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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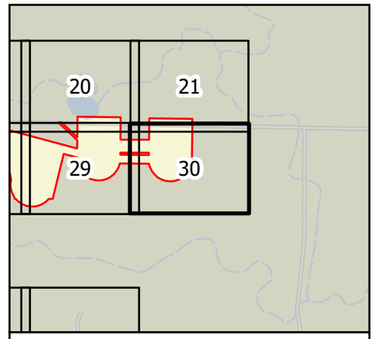


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N
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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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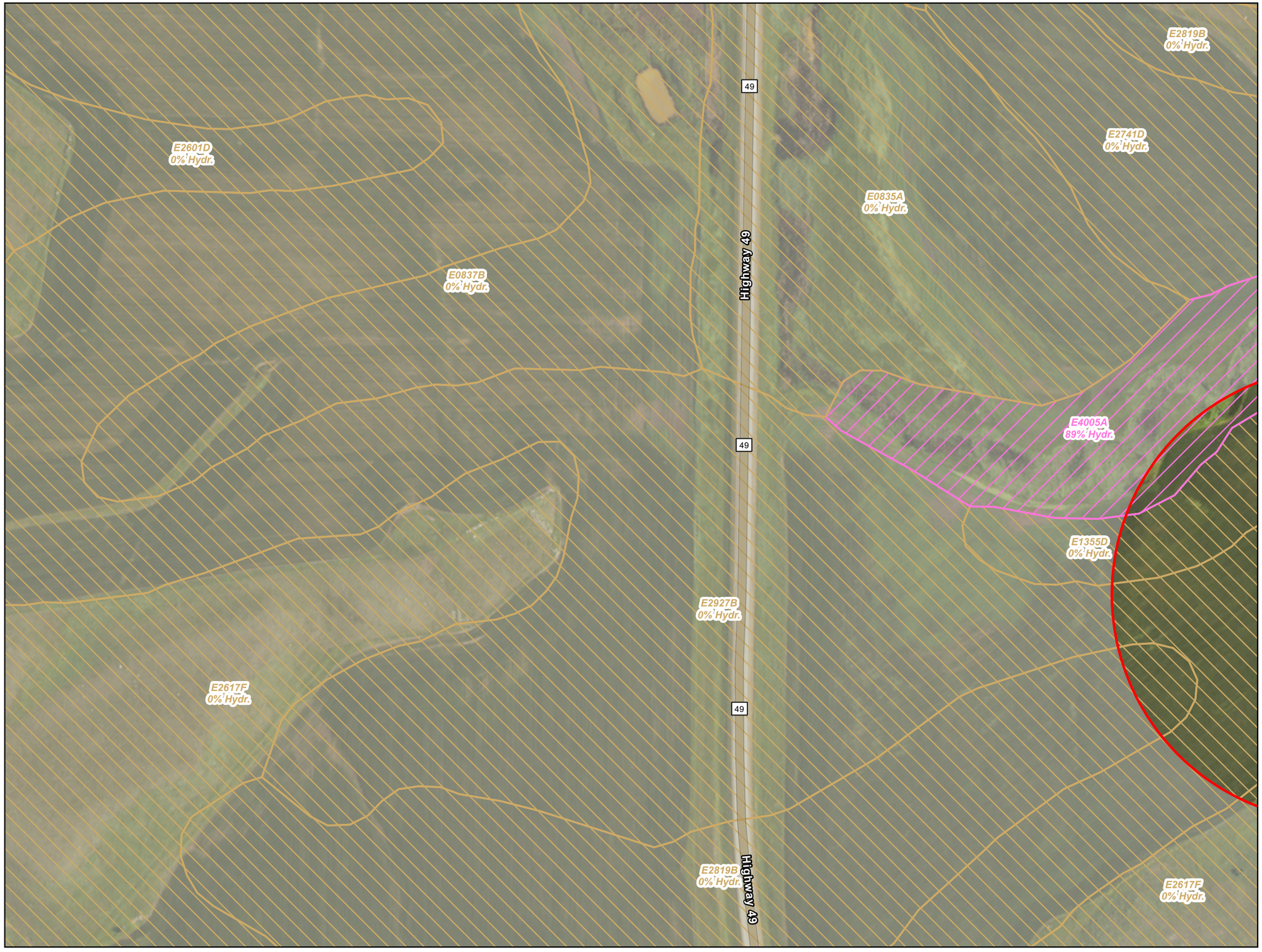


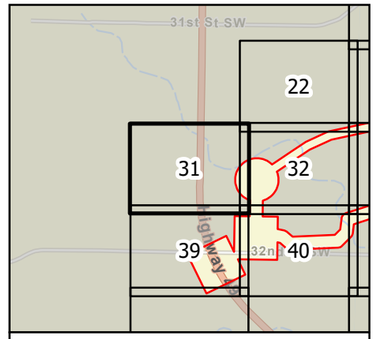


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N
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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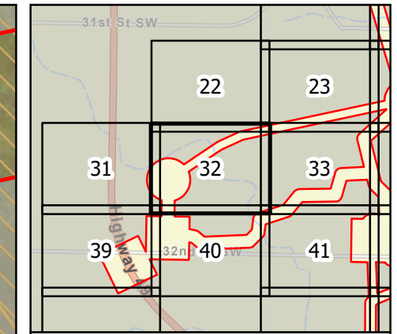


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1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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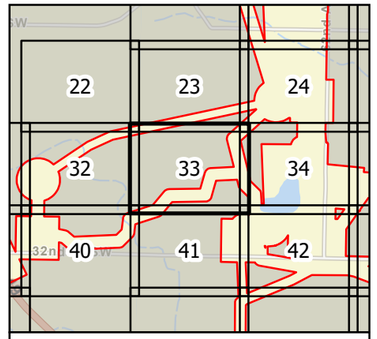


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1 inch = 200 feet

N
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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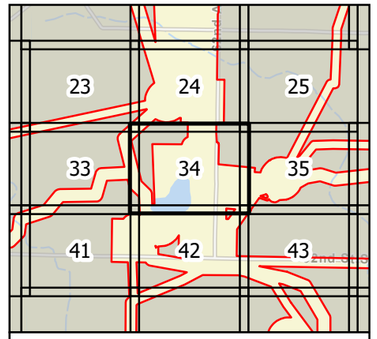


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N
W E
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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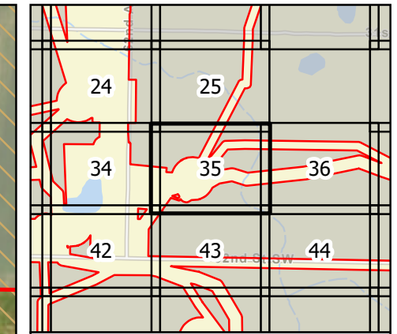


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1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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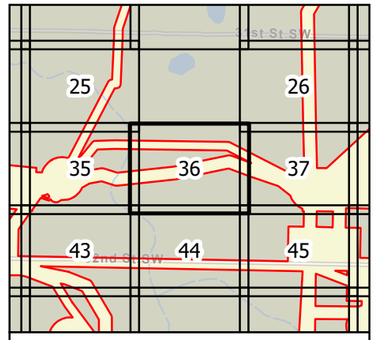


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1 inch = 200 feet

N
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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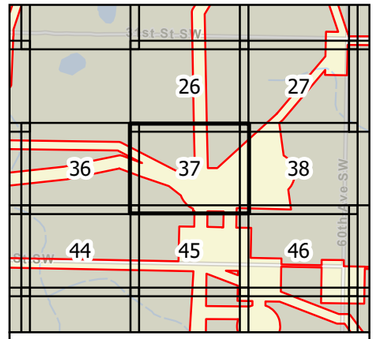


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N
W E
S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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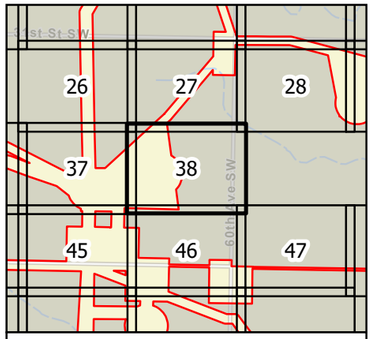


0 100 200 Feet

1 inch = 200 feet

N
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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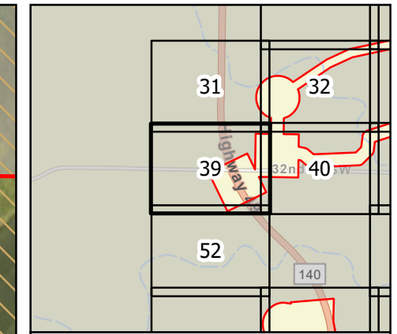


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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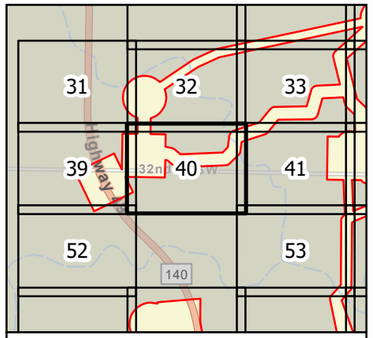


0 100 200 Feet

1 inch = 200 feet

N
W E
S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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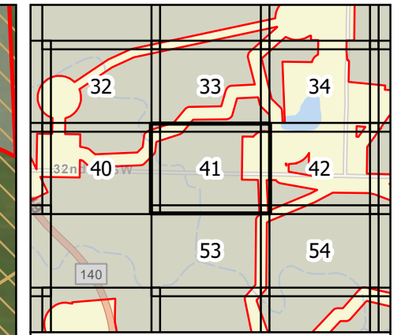


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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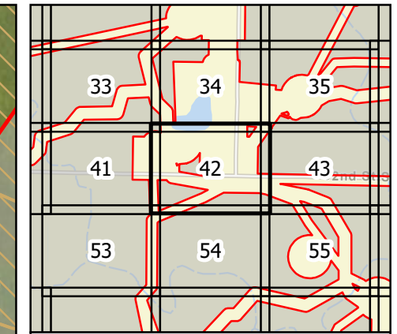


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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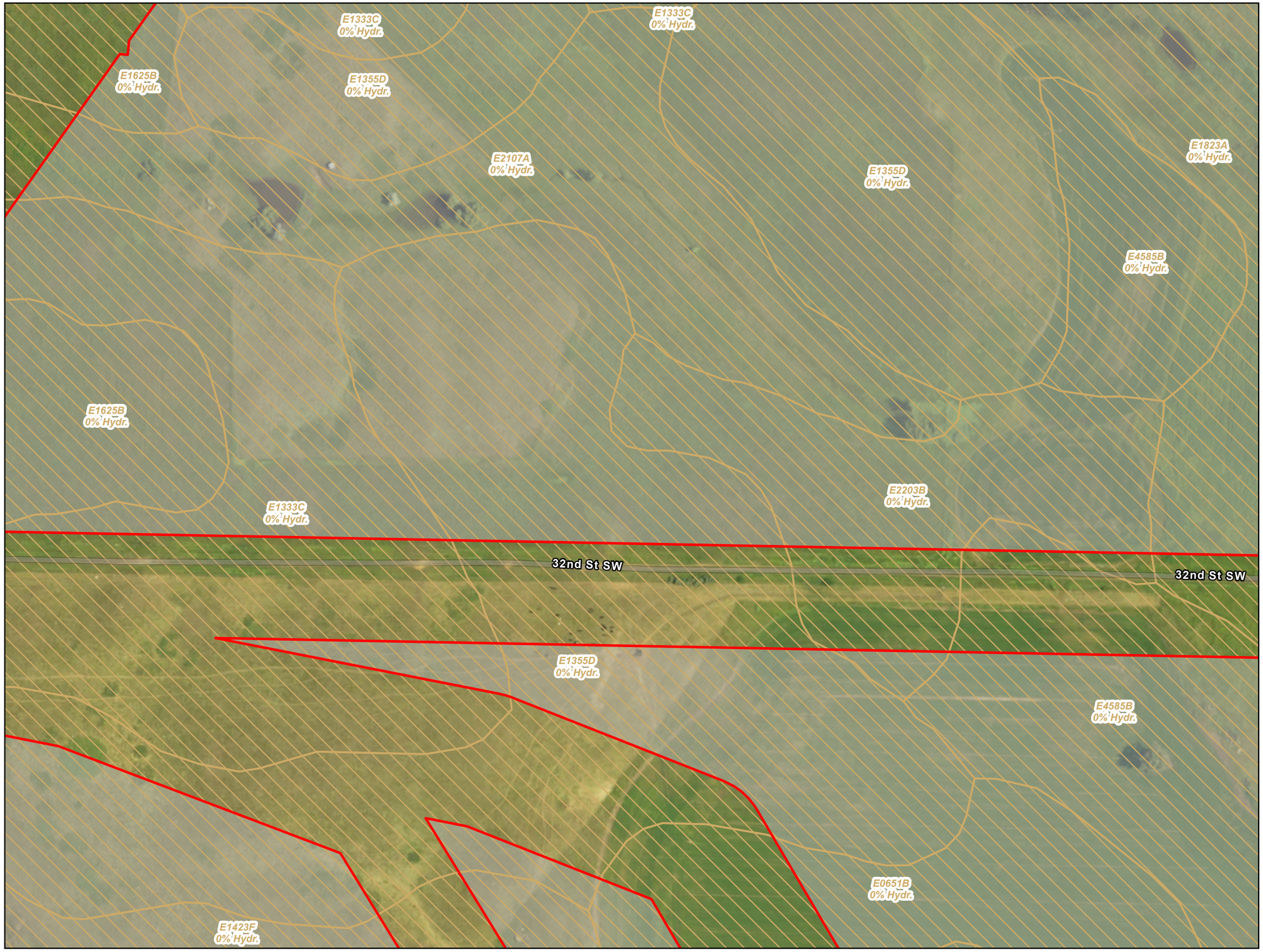


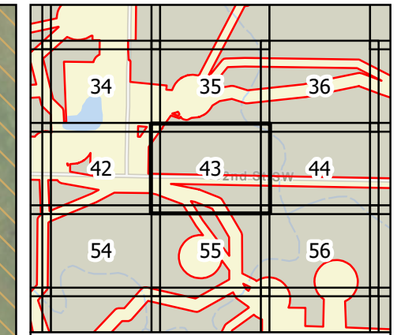


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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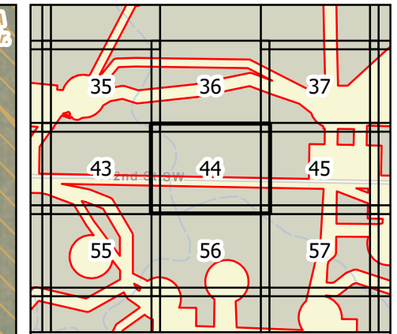


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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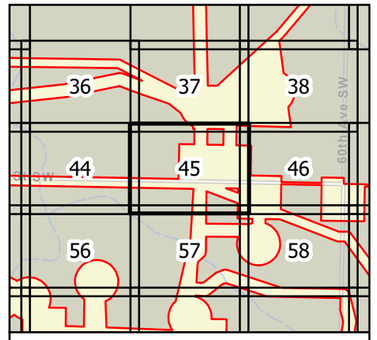


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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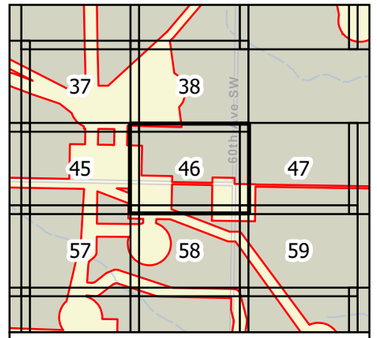


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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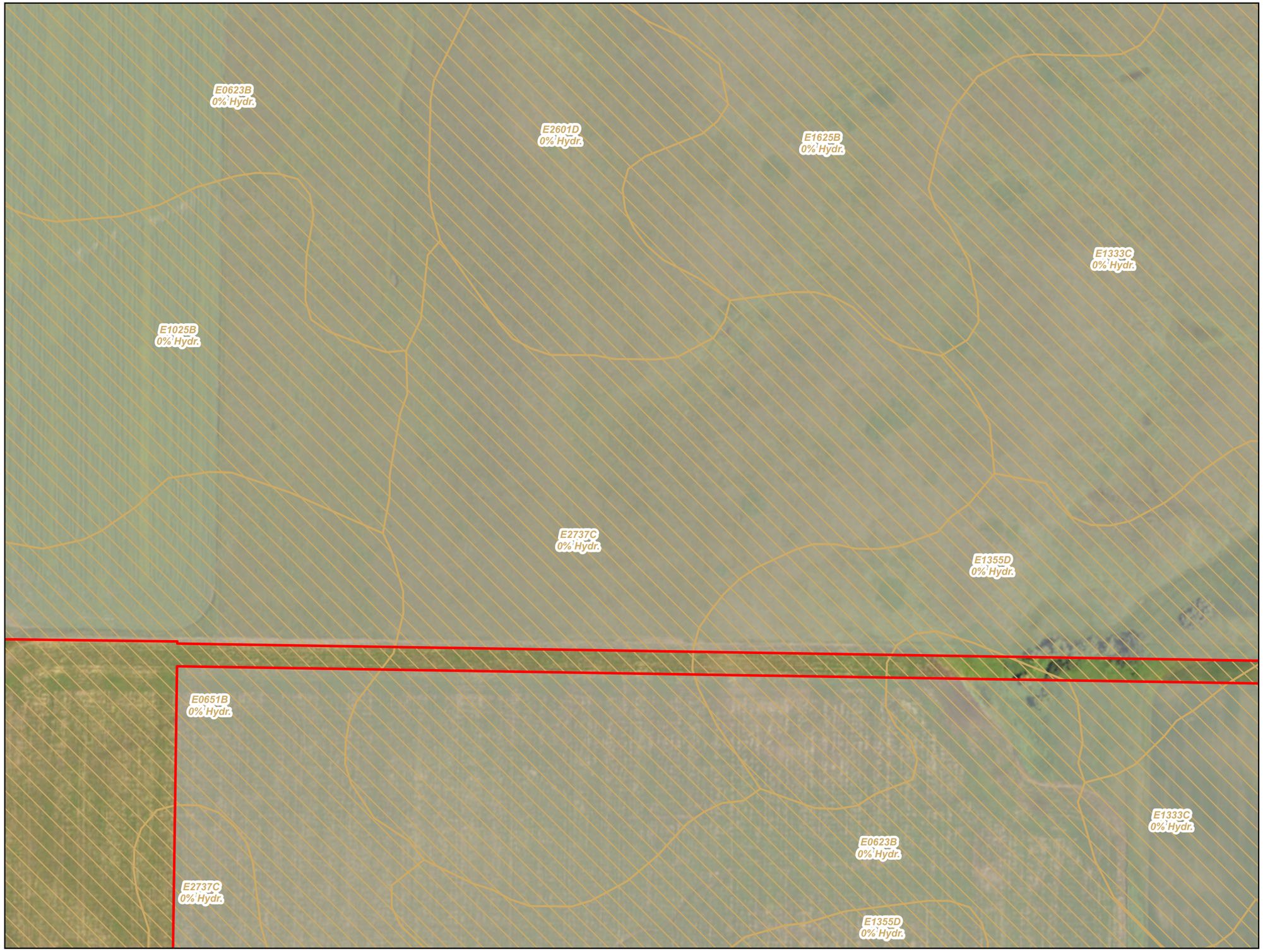


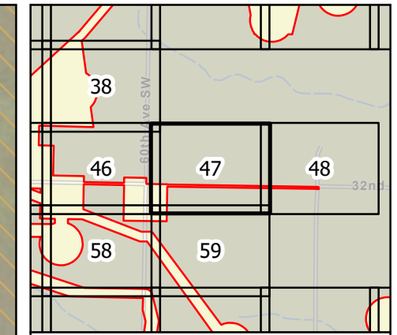


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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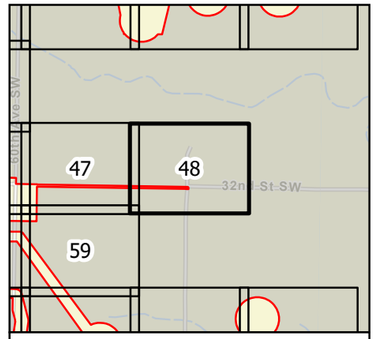


0 100 200 Feet

1 inch = 200 feet

N
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S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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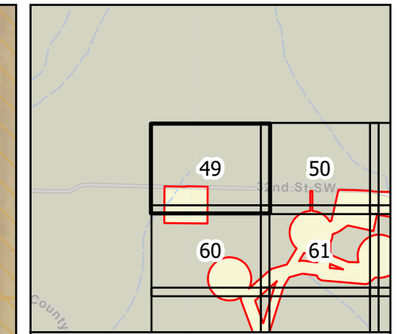


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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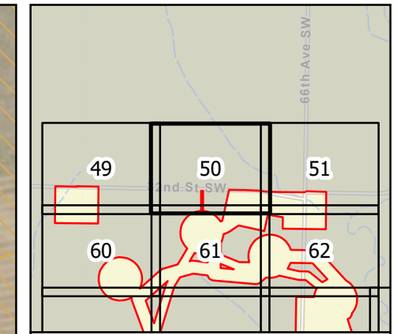


Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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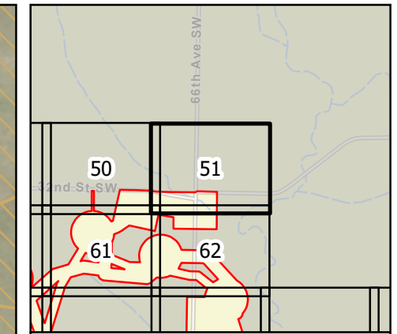


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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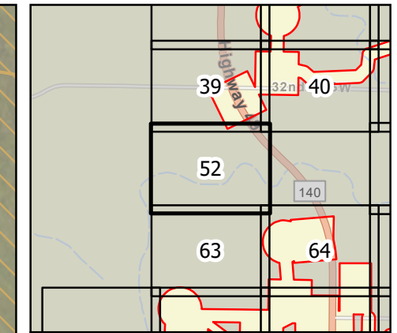


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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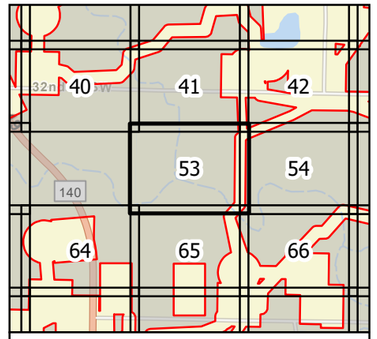


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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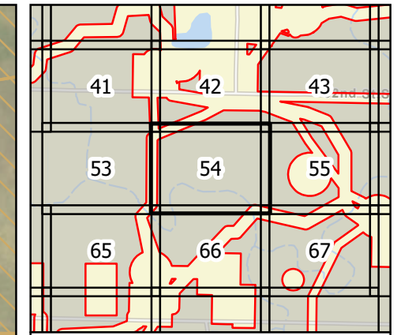


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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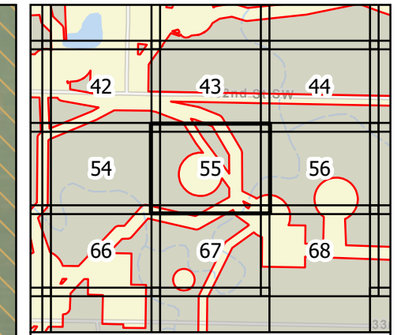


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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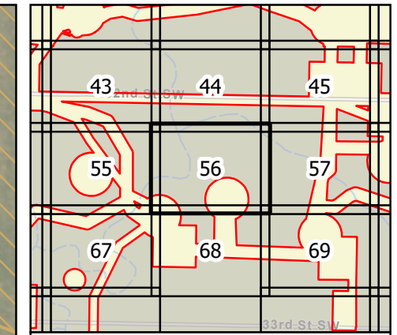


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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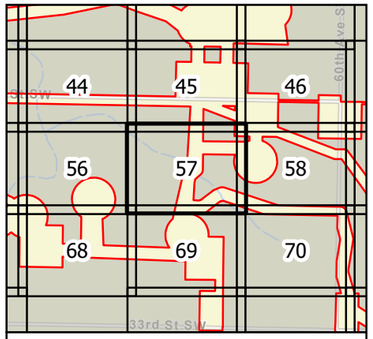


0 100 200 Feet

1 inch = 200 feet

N
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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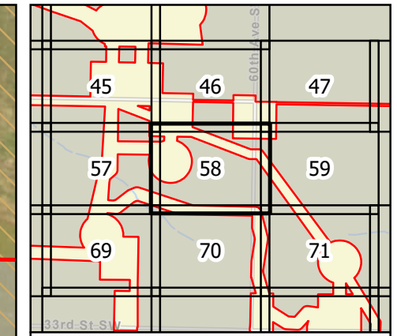


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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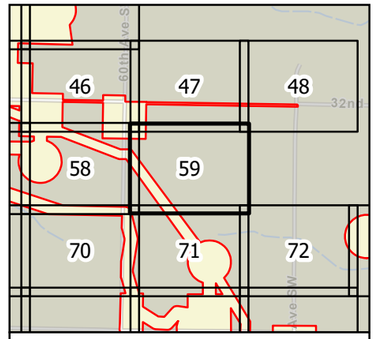


0 100 200 Feet

1 inch = 200 feet

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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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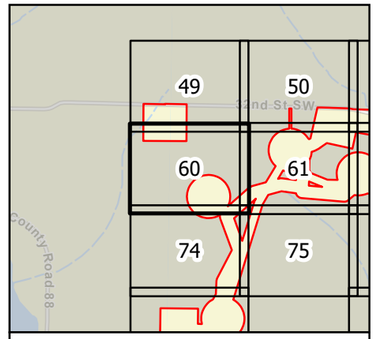


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N
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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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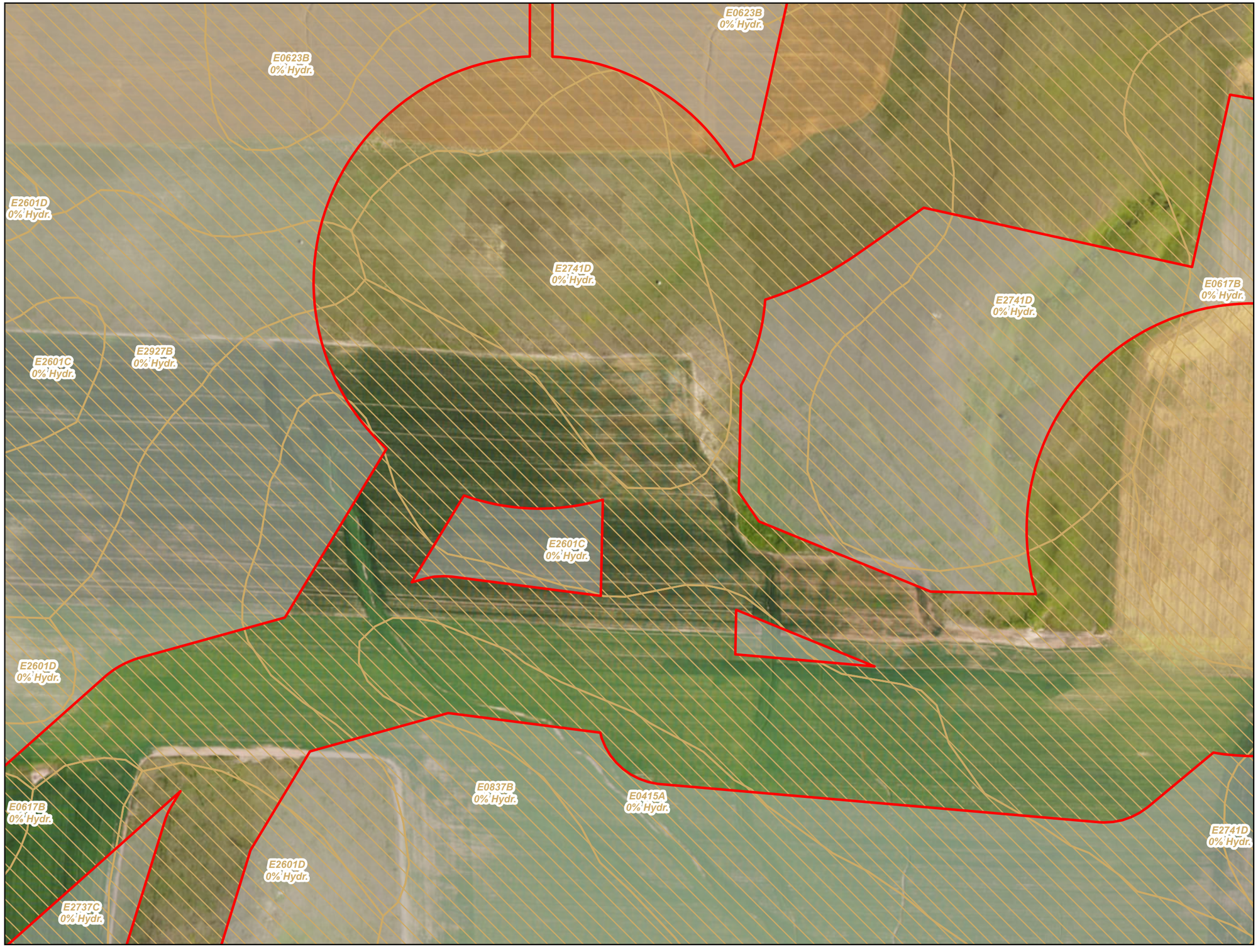


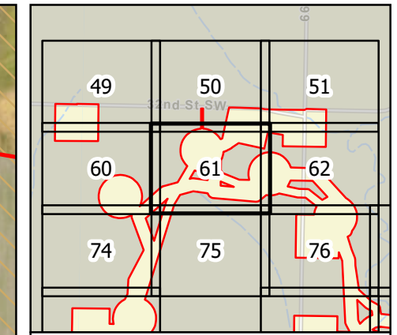


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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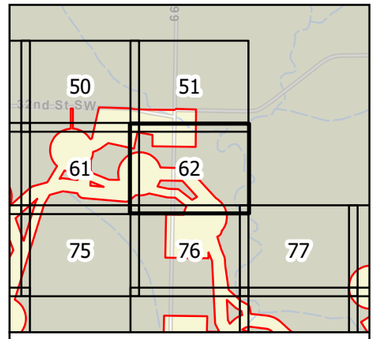


0 100 200 Feet

1 inch = 200 feet

N
W E
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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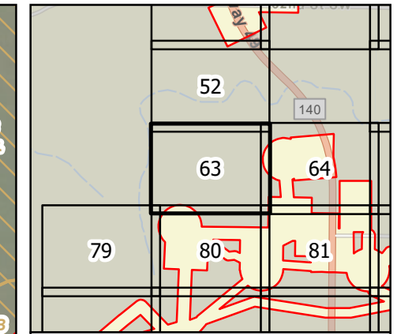


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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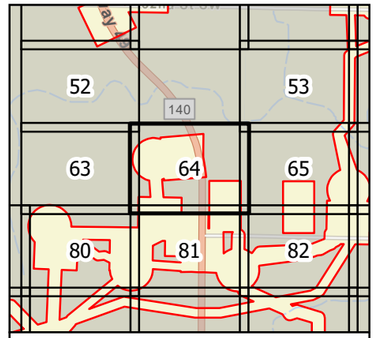


0 100 200 Feet

1 inch = 200 feet

N
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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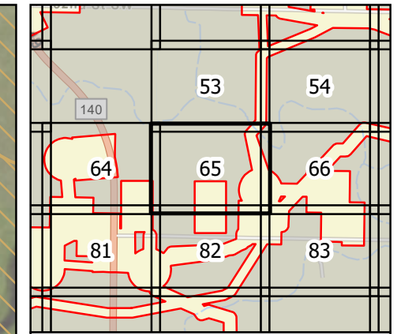


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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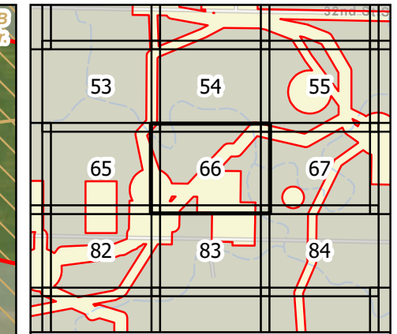


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1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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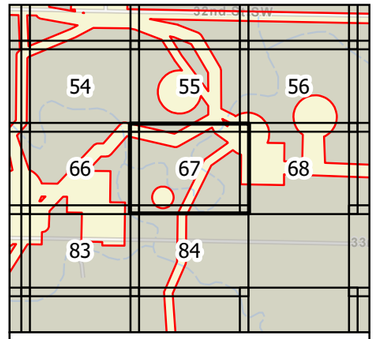


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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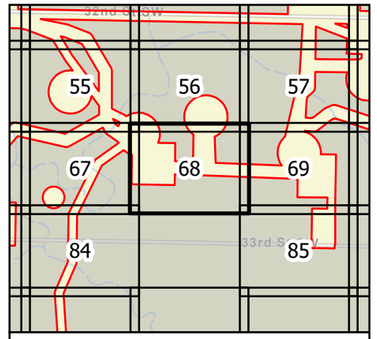


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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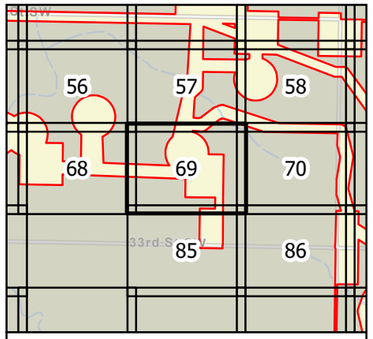


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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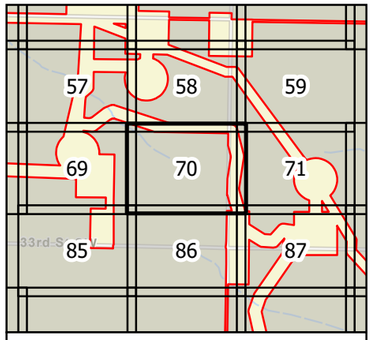


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1 inch = 200 feet

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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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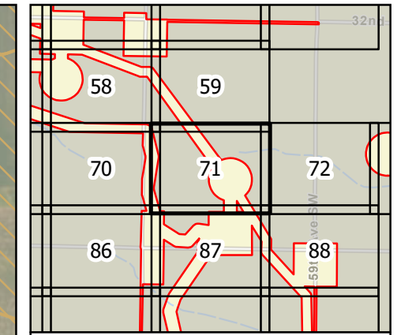


Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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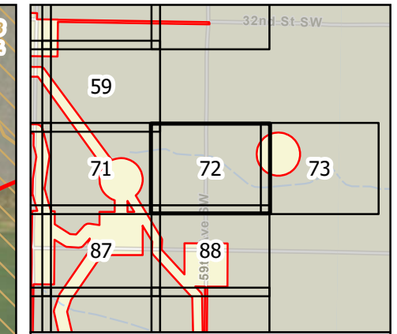


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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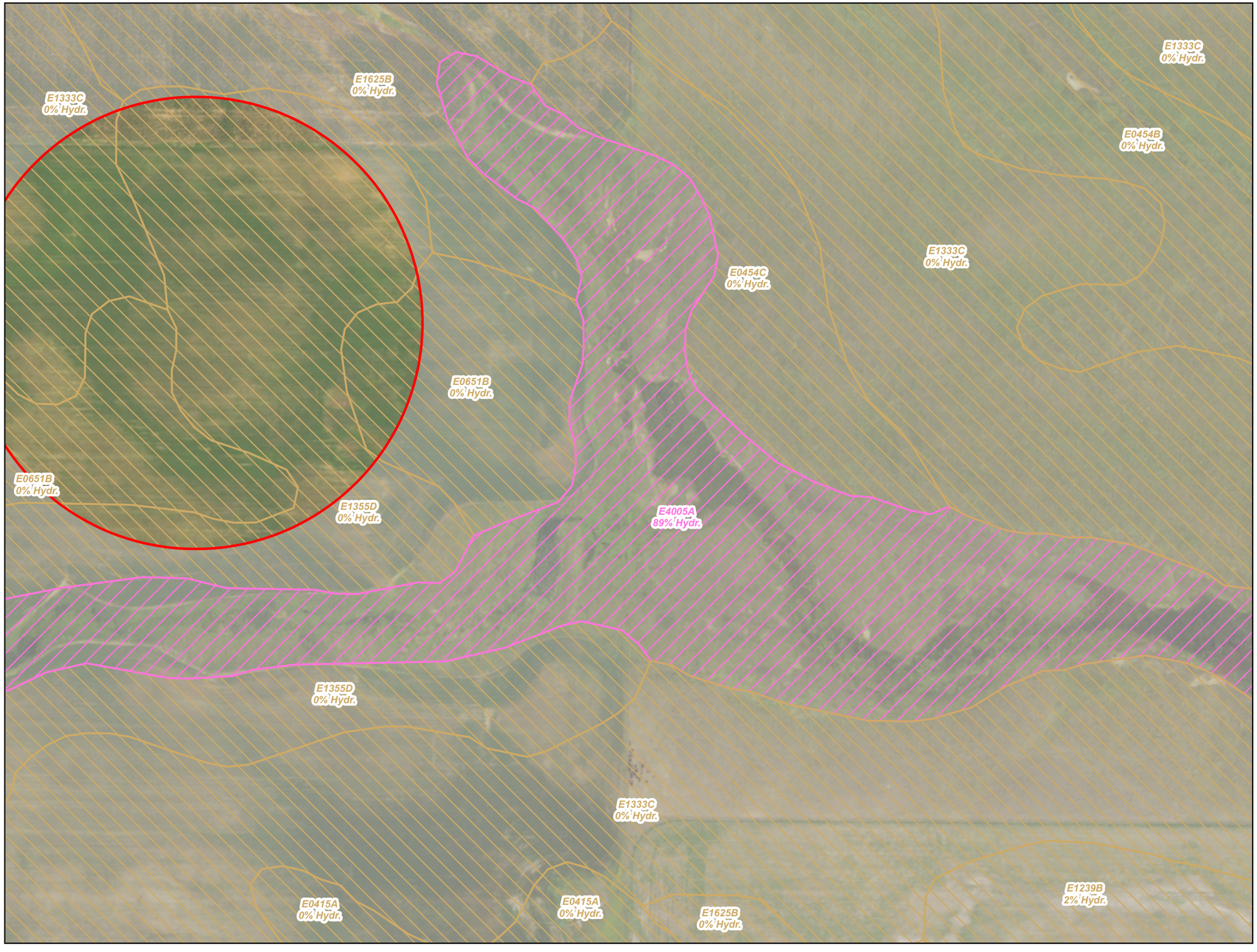


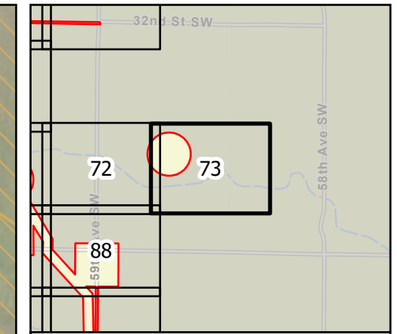


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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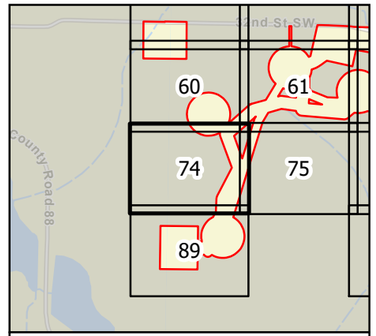


0 100 200 Feet

1 inch = 200 feet

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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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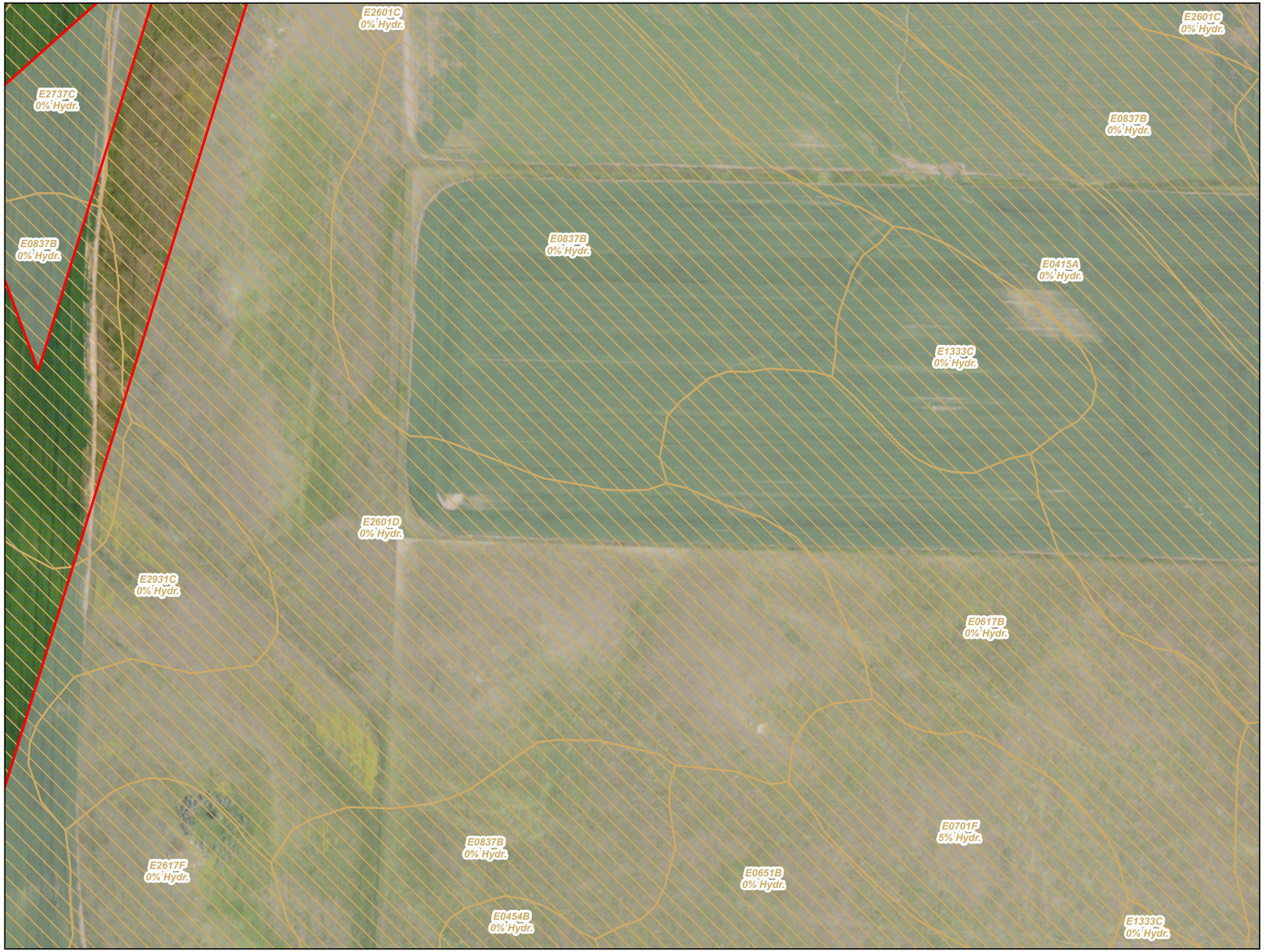


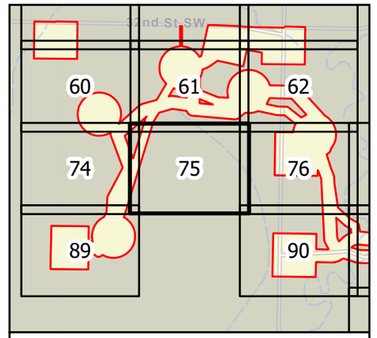


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N
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S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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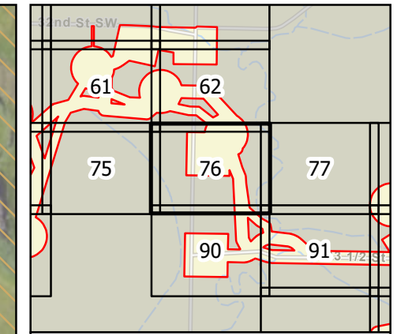


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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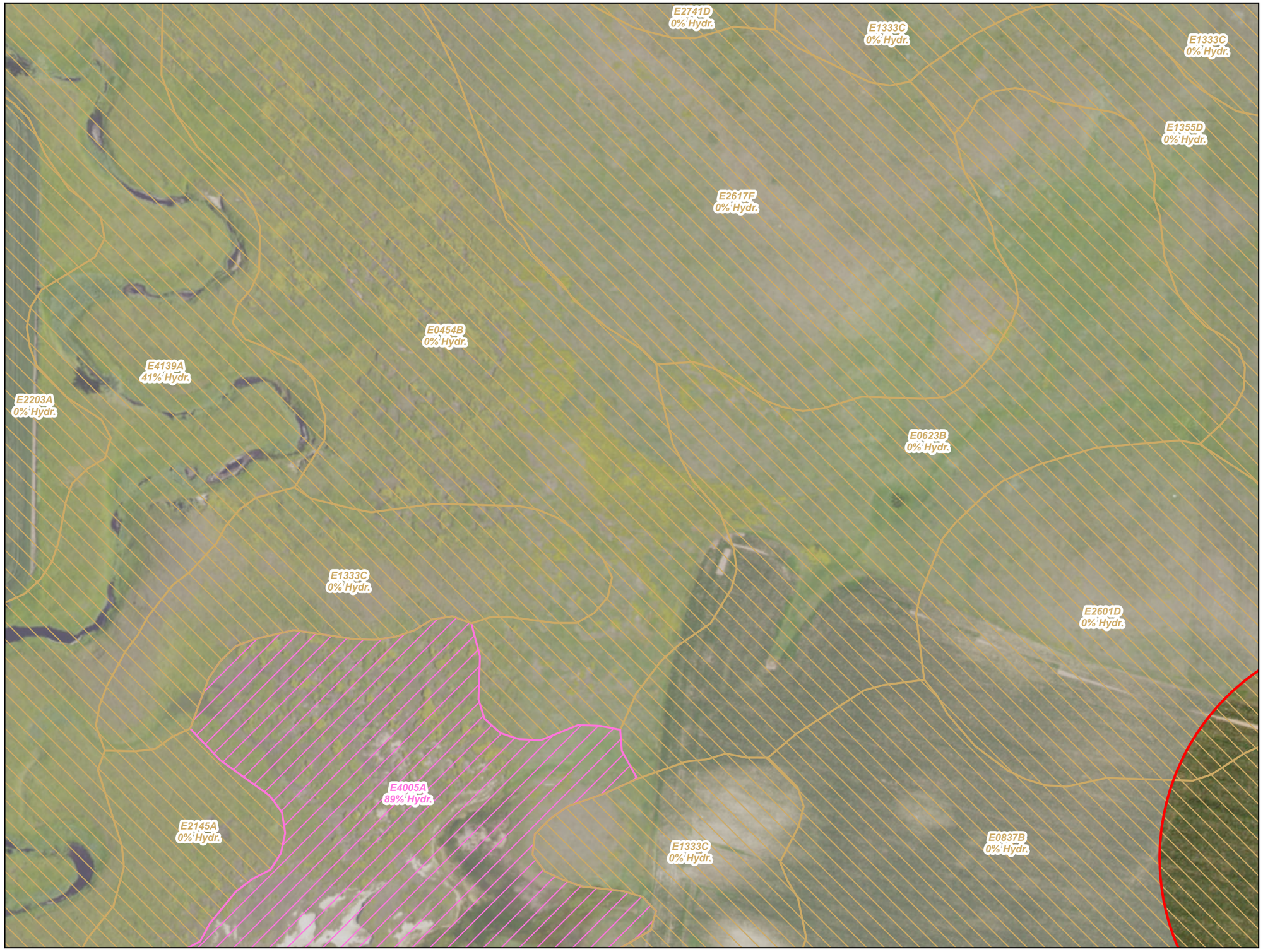


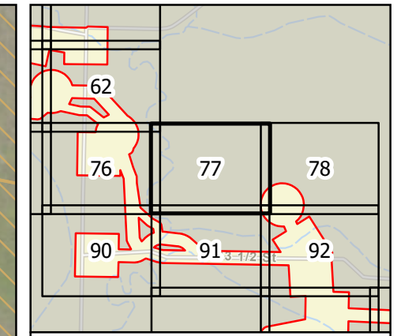


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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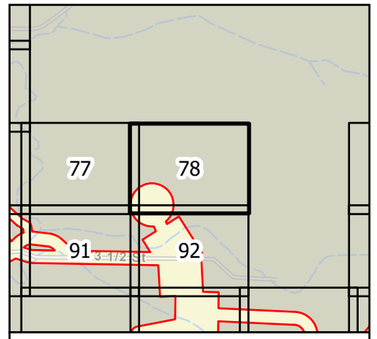


0 100 200 Feet

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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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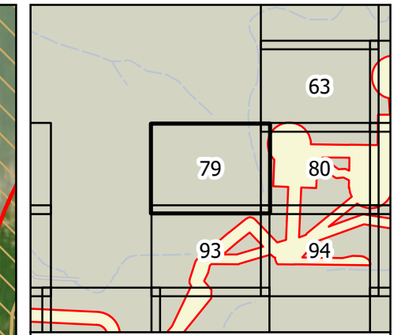


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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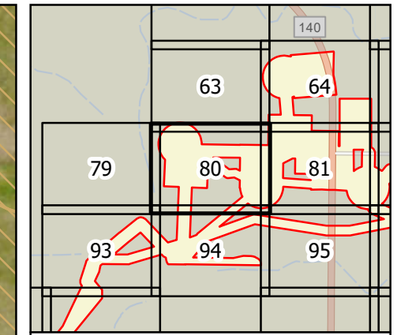


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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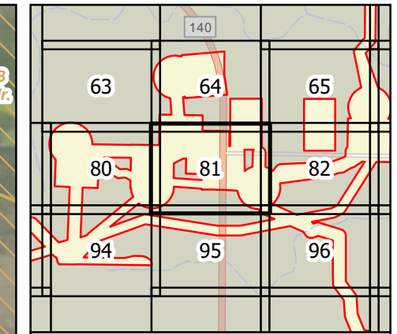


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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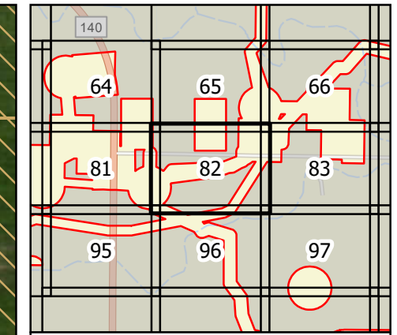


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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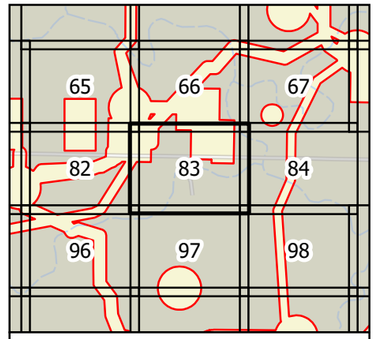


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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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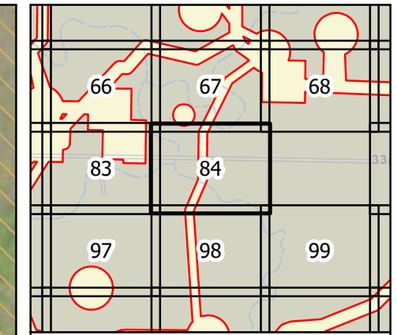


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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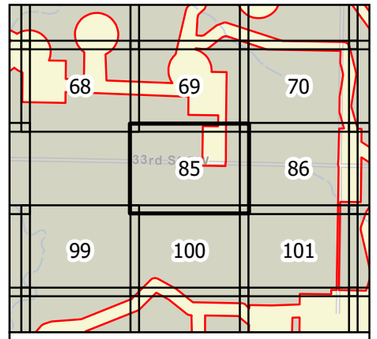


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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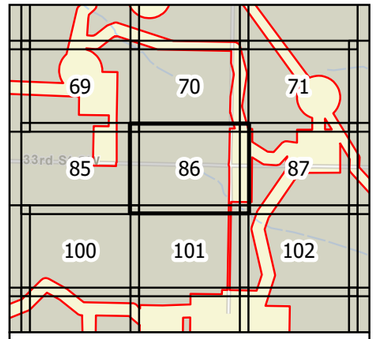


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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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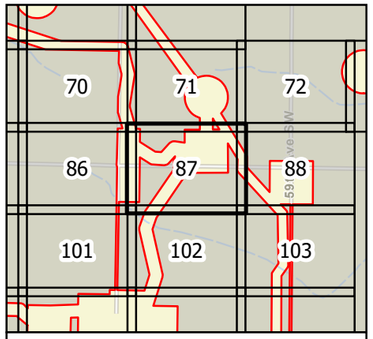


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- Hydric Soil
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**Figure 3**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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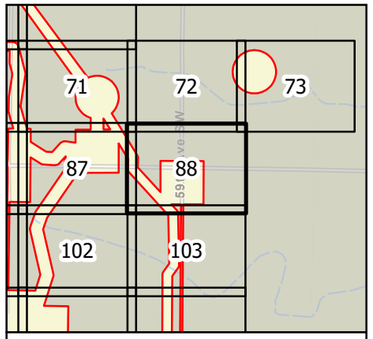


0 100 200 Feet

1 inch = 200 feet

N
W E
S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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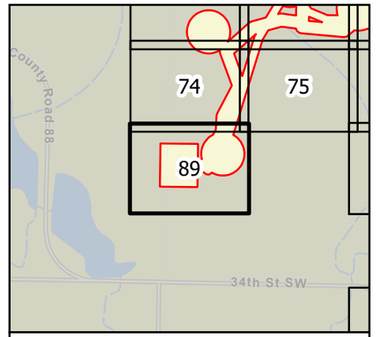


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N
W E
S

Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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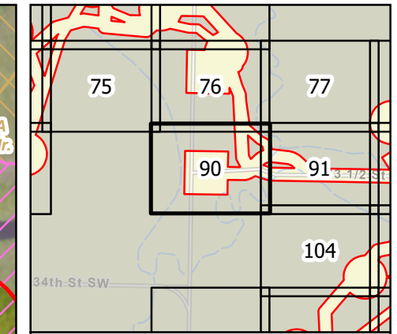


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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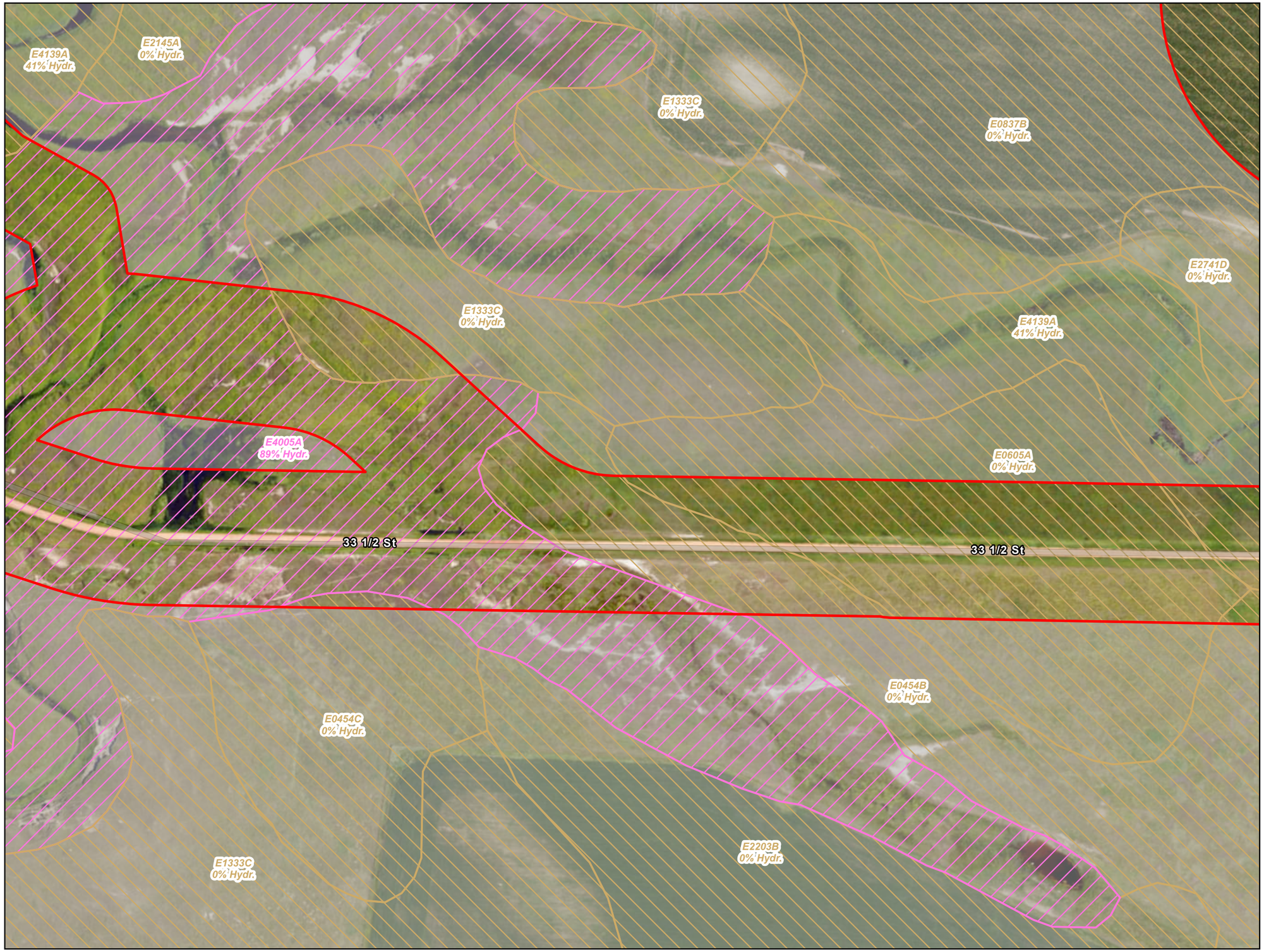


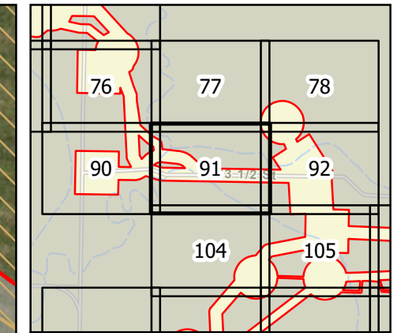


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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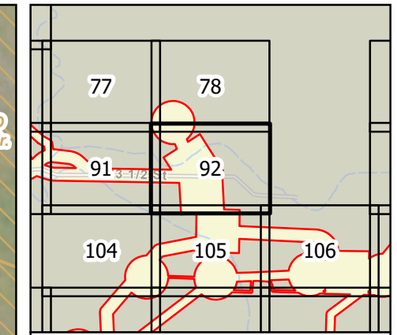


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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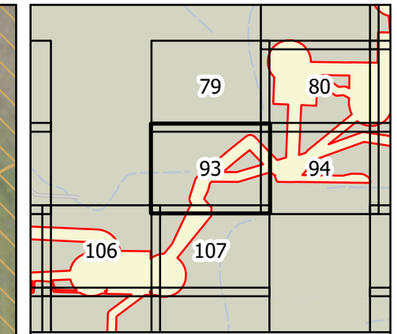


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Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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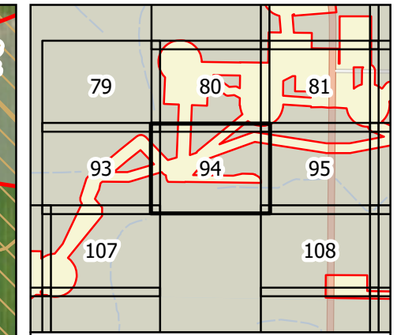


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Survey Area

Hydric Soil

Non-Hydric Soil

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**Minnesota Power**
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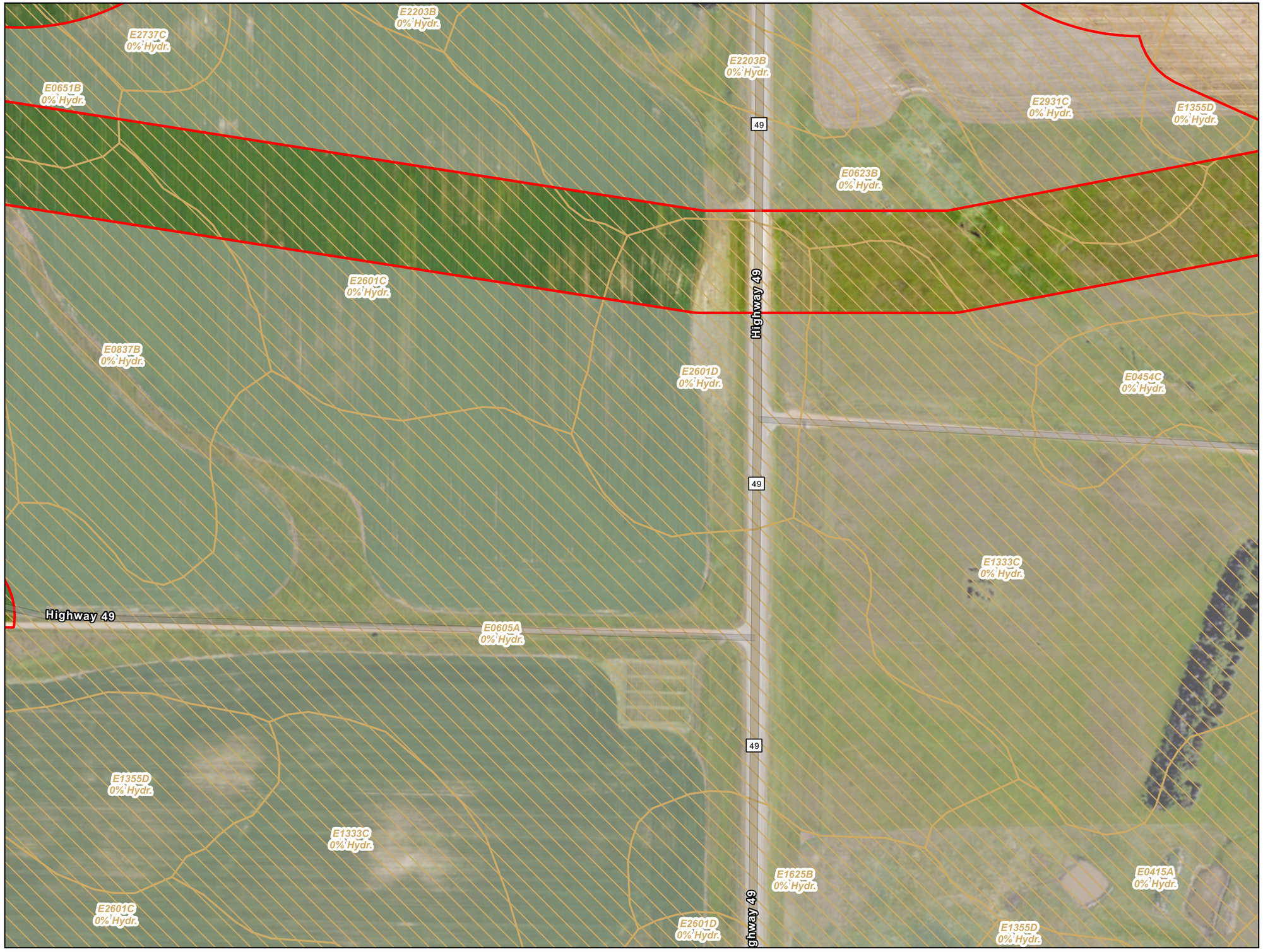


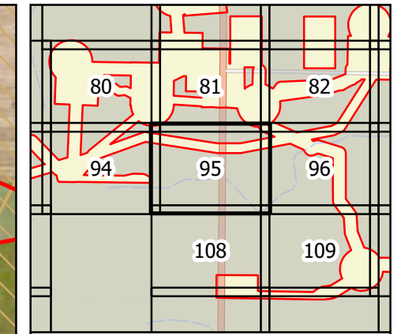


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Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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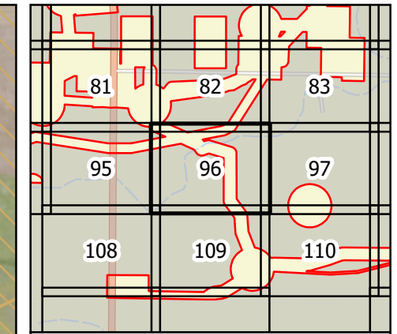


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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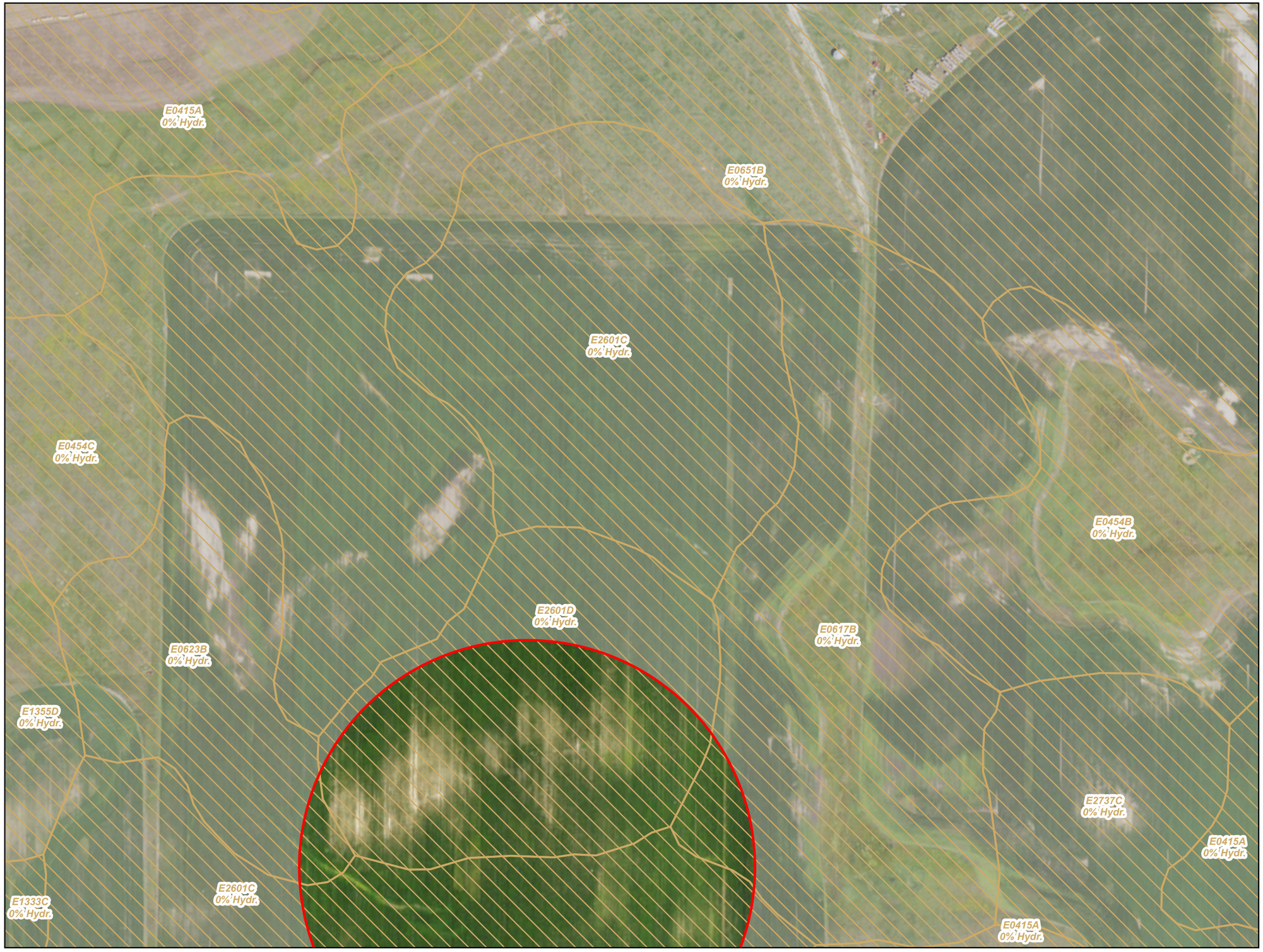


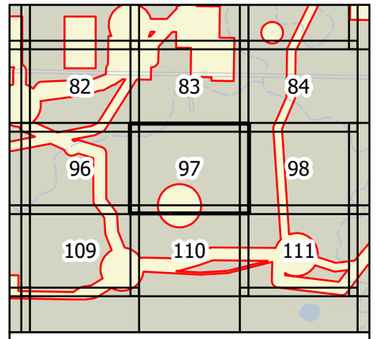


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- Hydric Soil
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**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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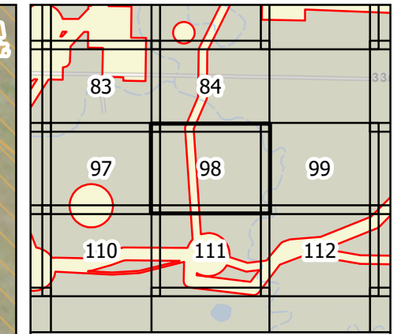


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
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**Mercer & Morton Counties,**
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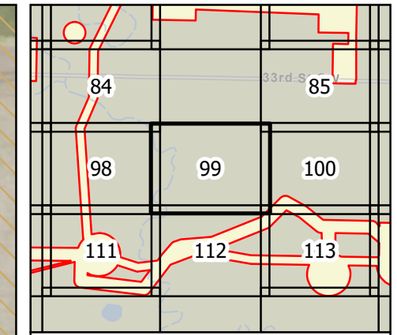


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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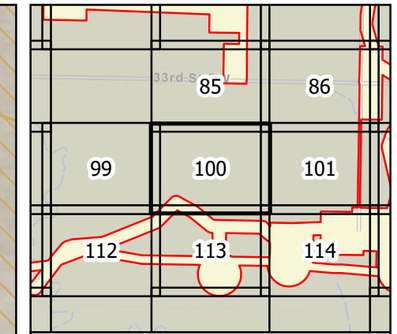


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
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**Longspur Wind Project**
**Minnesota Power**
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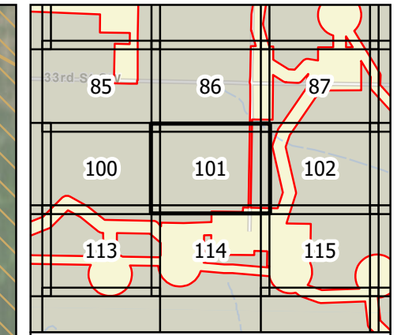


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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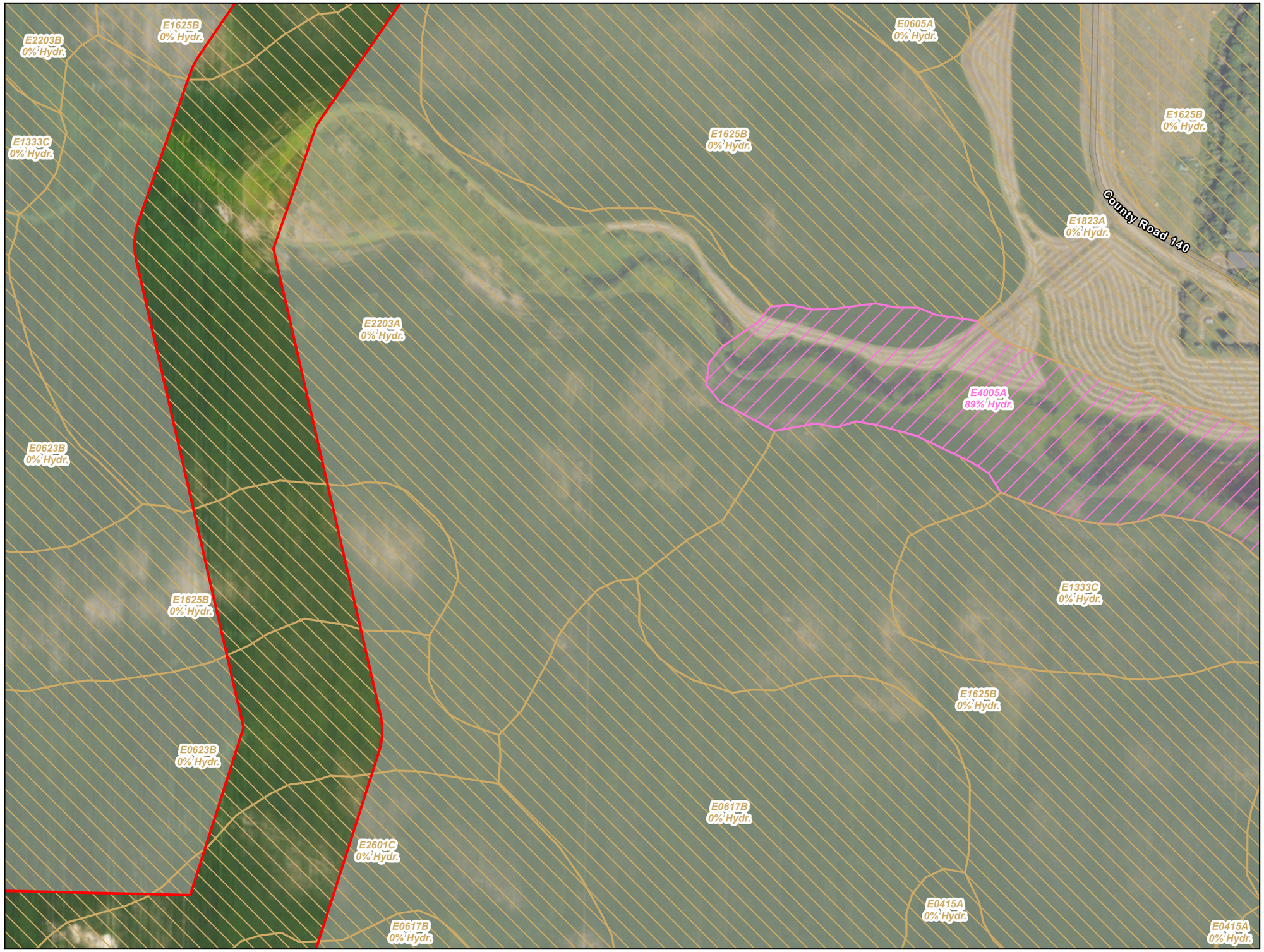


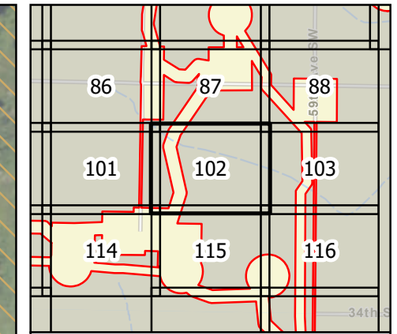


**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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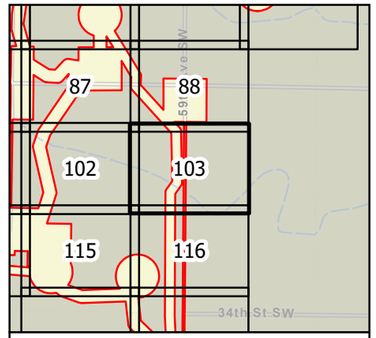


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N W E S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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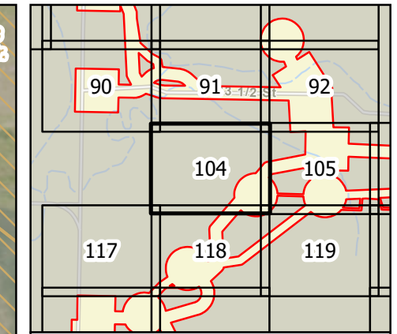


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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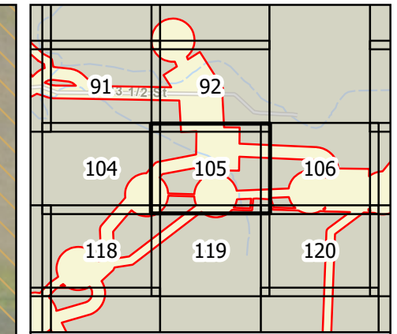


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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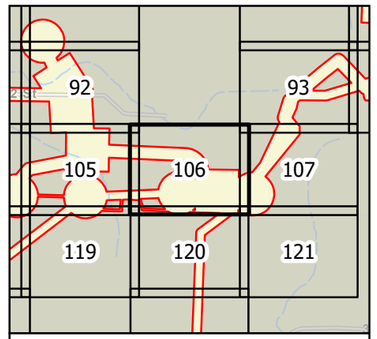


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Survey Area
Hydric Soil
Non-Hydric Soil

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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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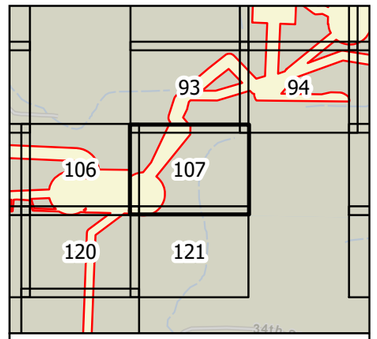


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Survey Area
Hydric Soil
Non-Hydric Soil

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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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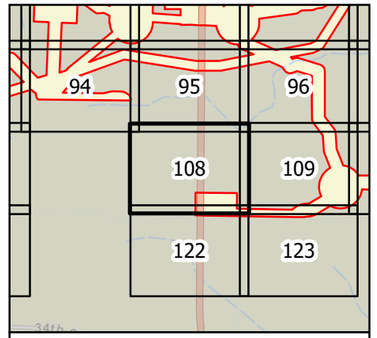


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
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**Longspur Wind Project**
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**Mercer & Morton Counties,**
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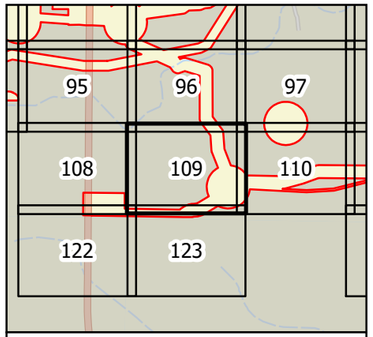


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Survey Area
Hydric Soil
Non-Hydric Soil

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**Mercer & Morton Counties,**
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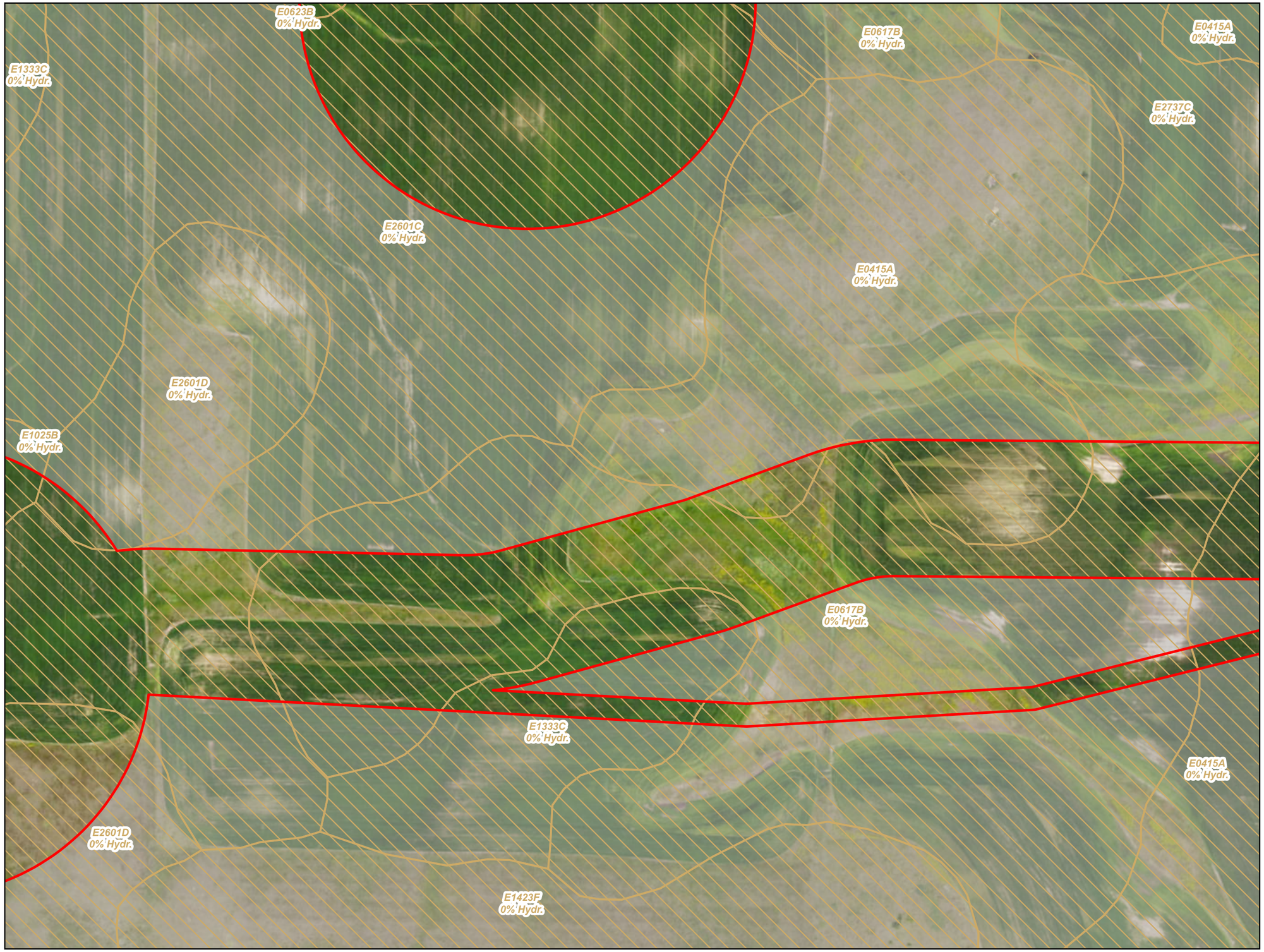


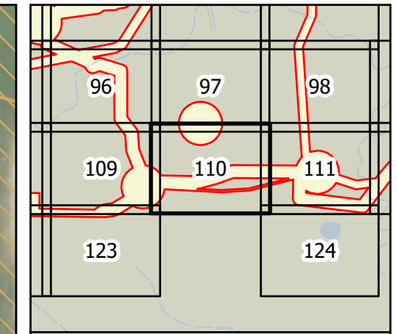


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Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
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**Longspur Wind Project**
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**Mercer & Morton Counties,**
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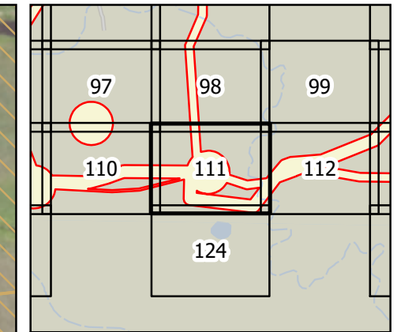


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Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
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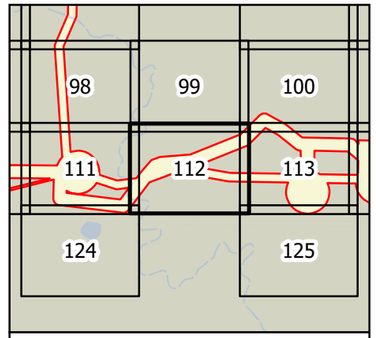


0 100 200 Feet

1 inch = 200 feet

N
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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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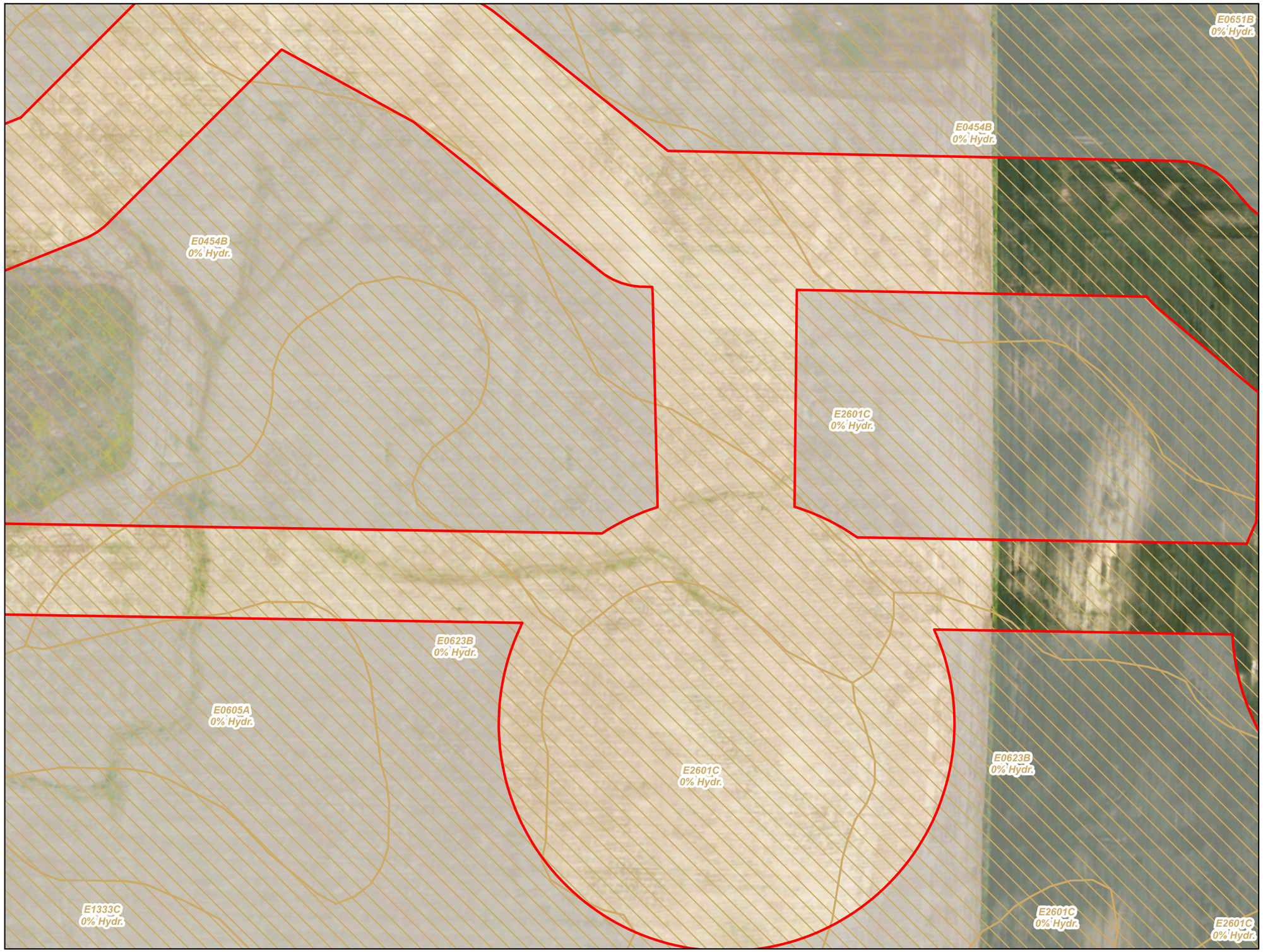


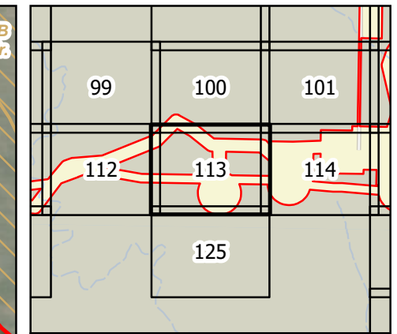


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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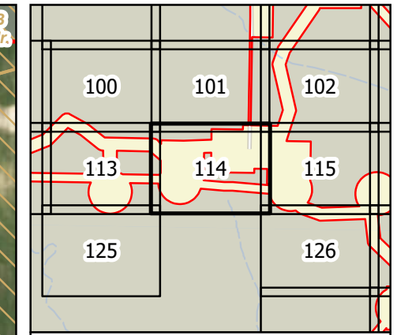


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
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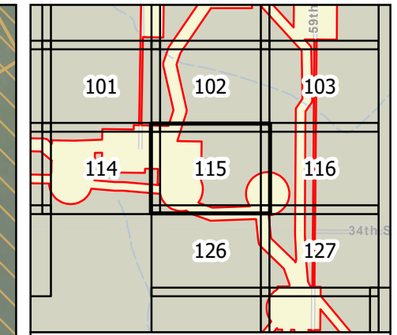


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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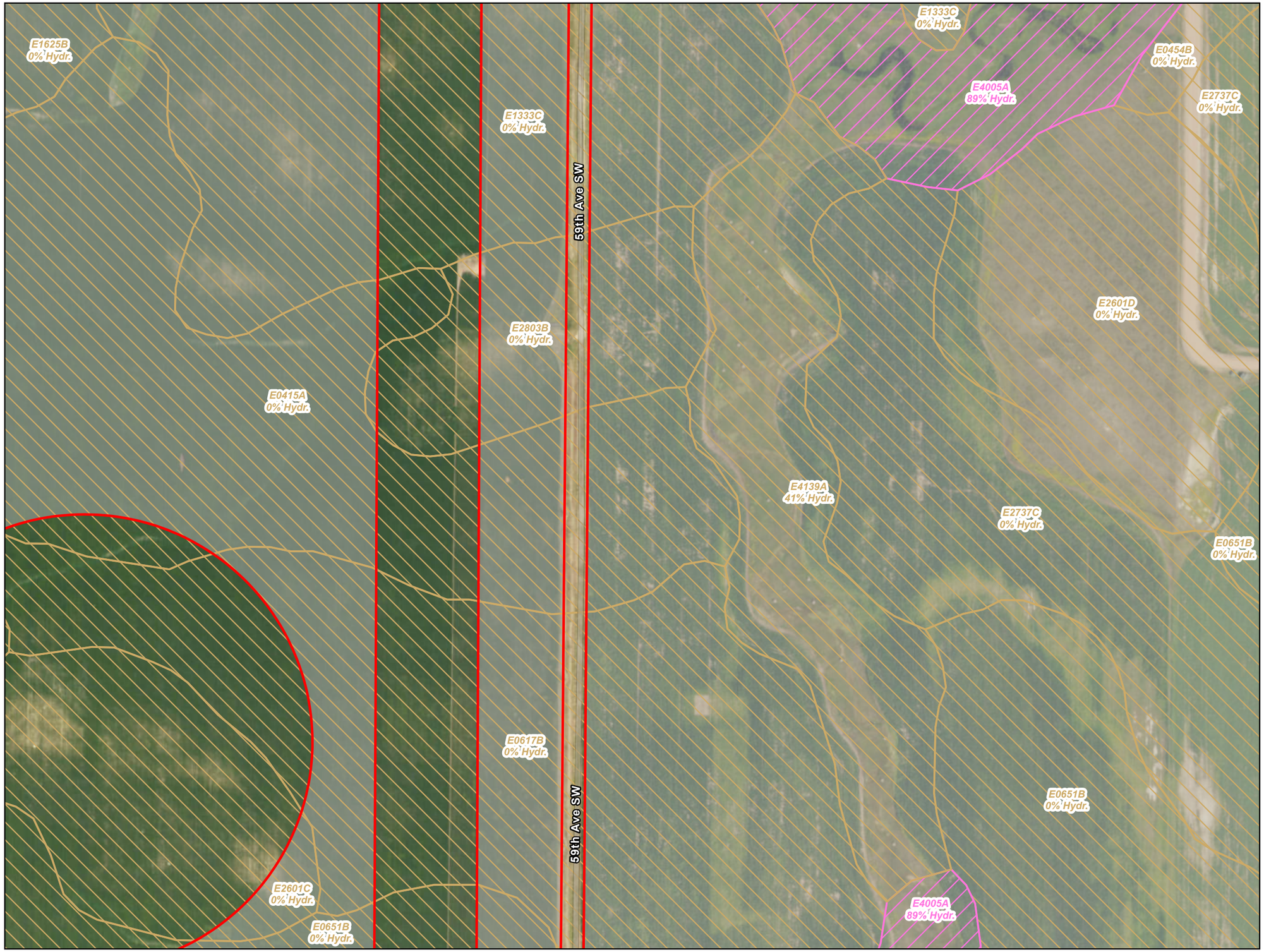


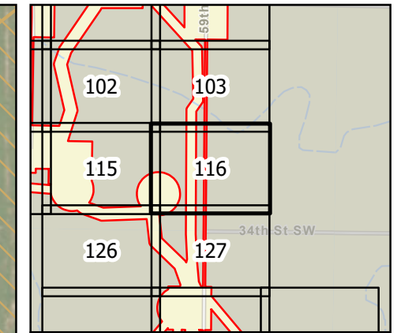


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Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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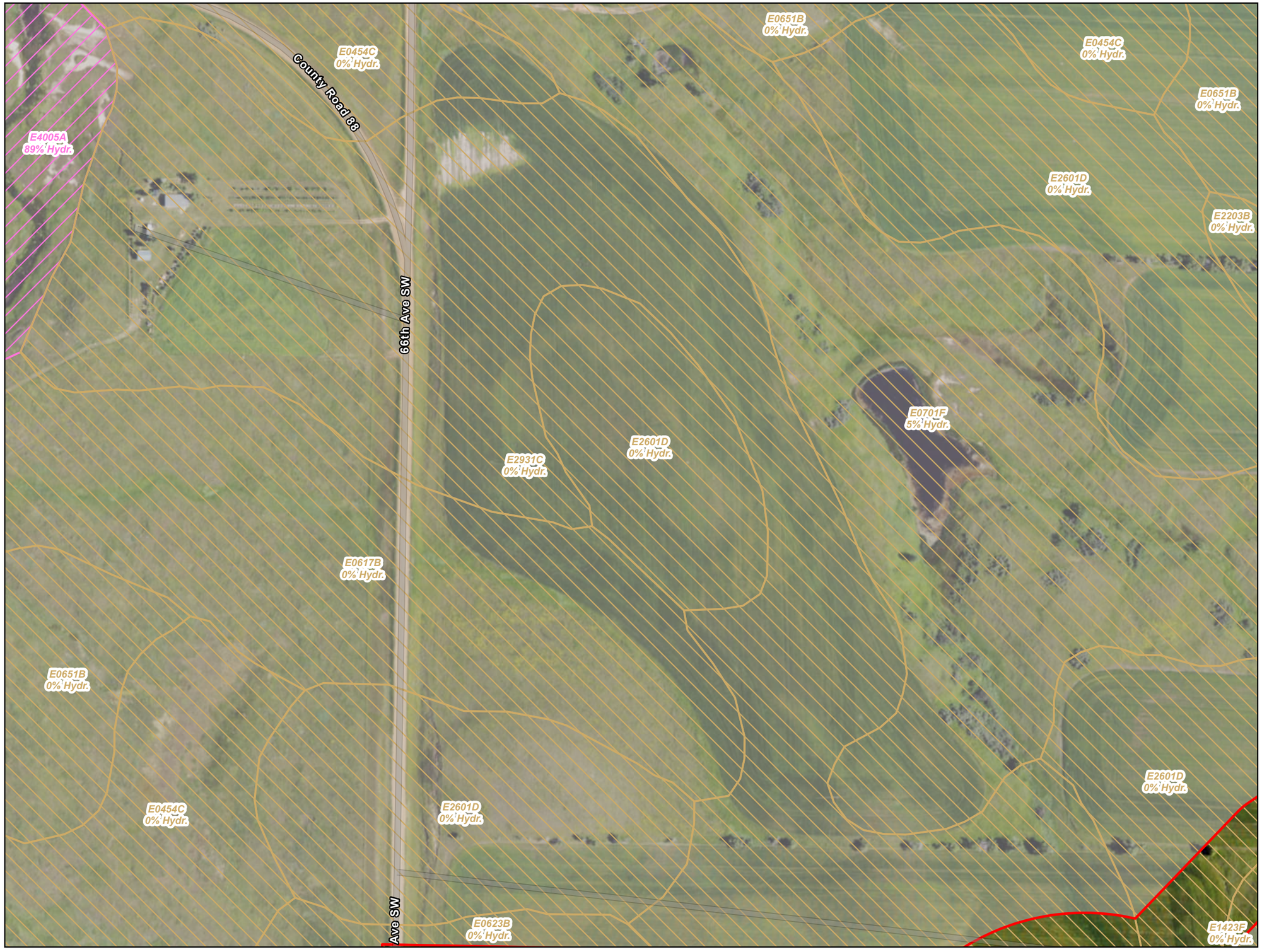


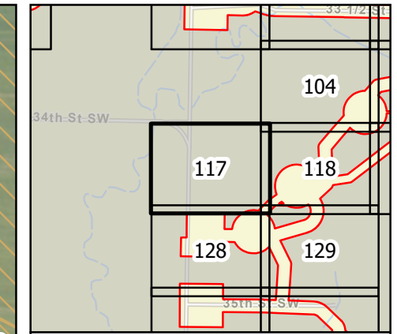


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Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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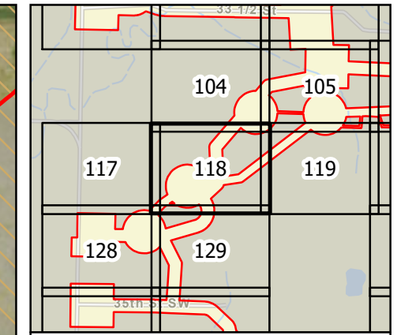


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
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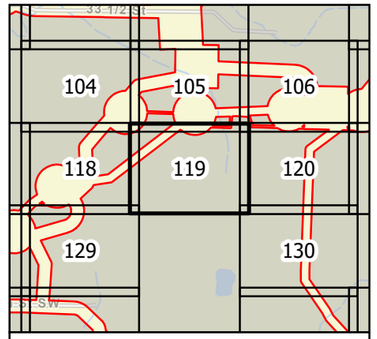


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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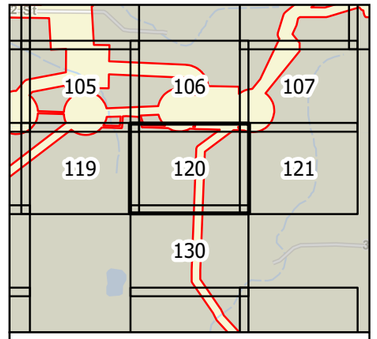


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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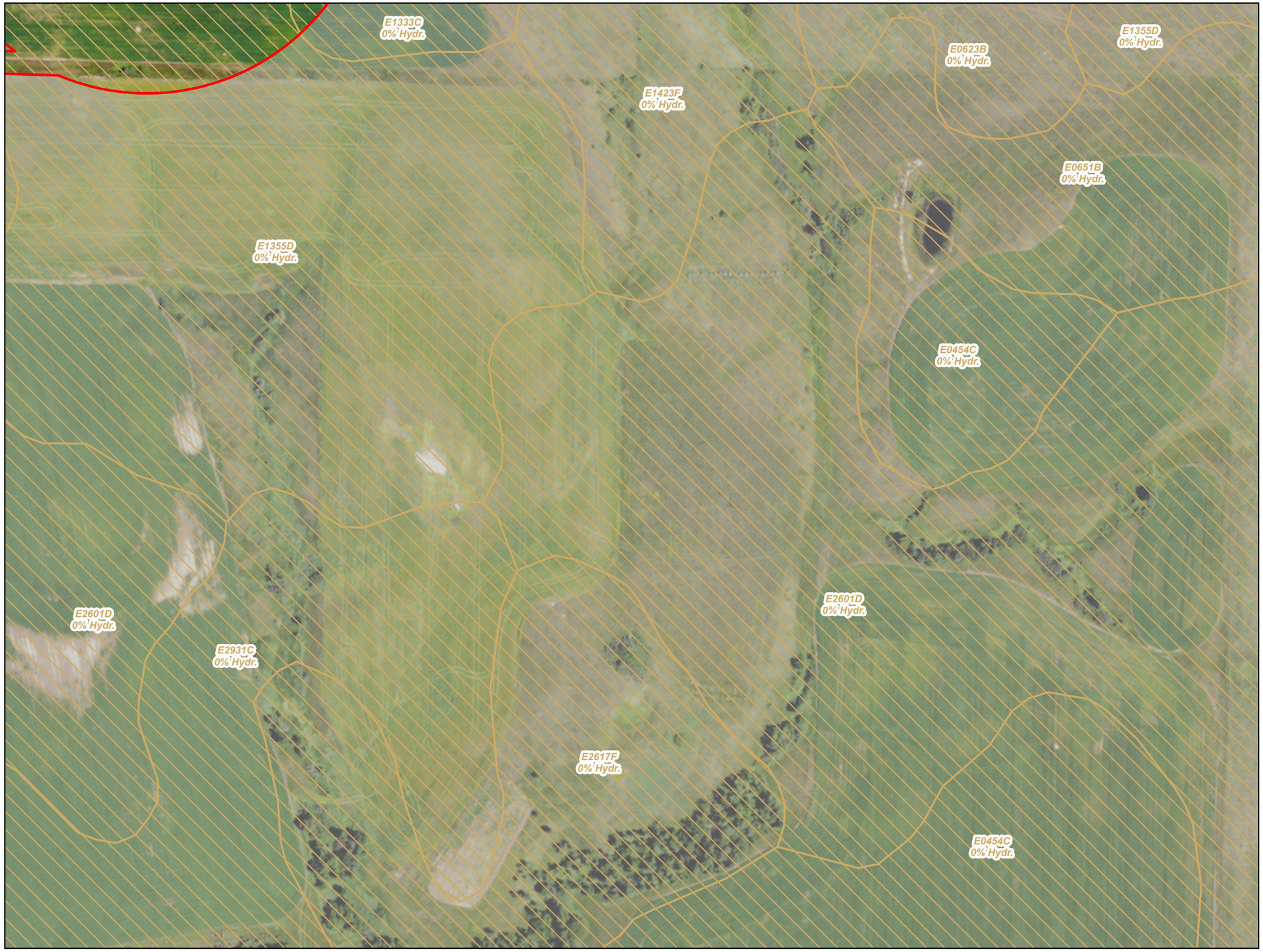


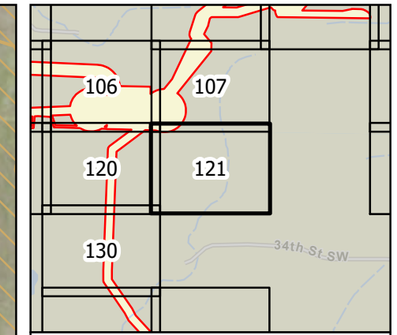


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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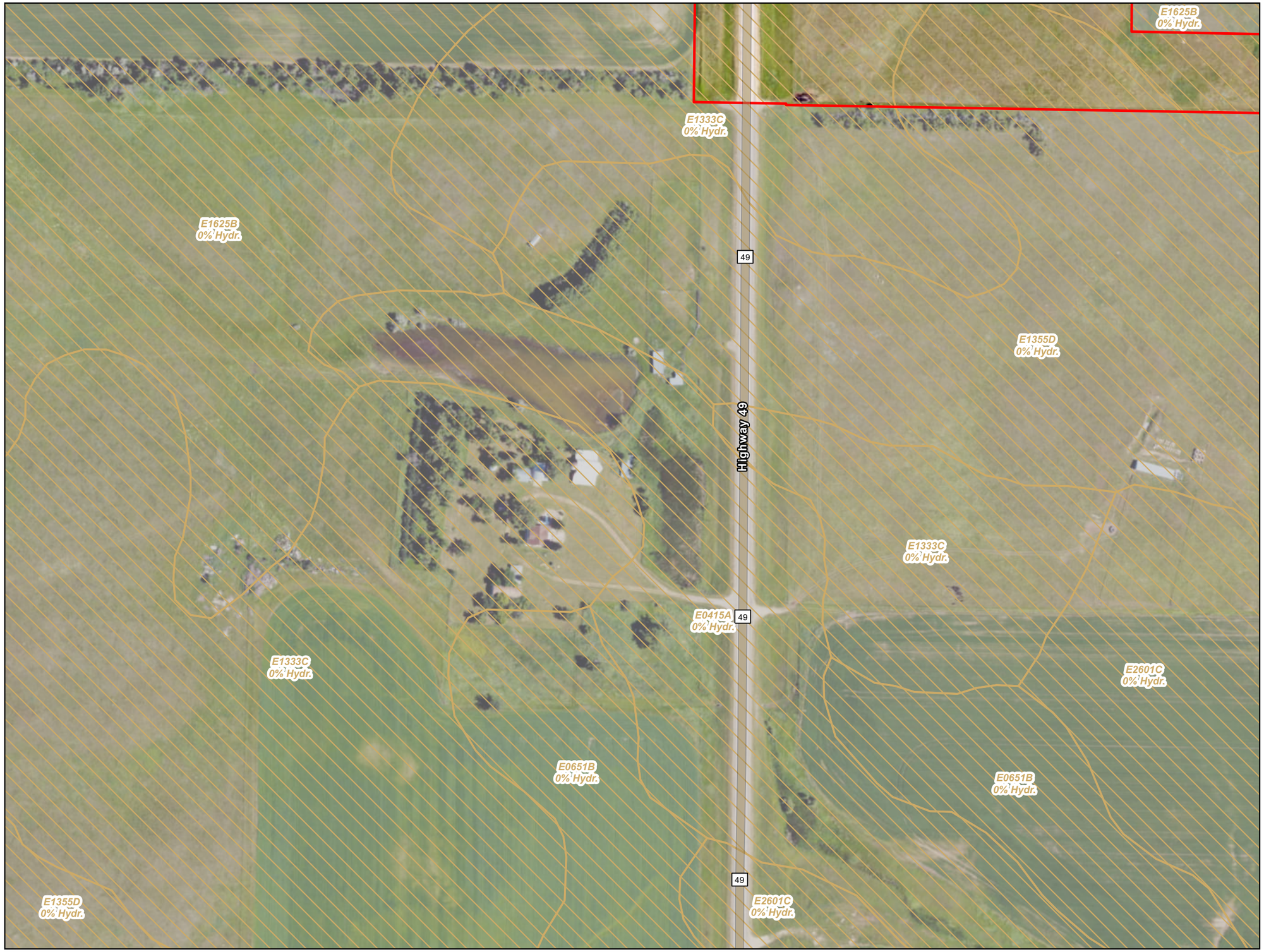


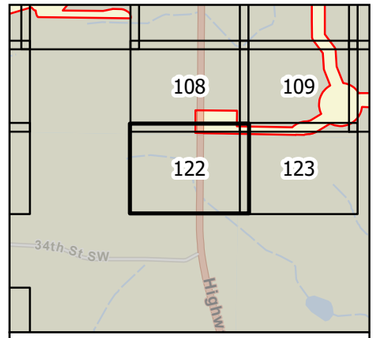


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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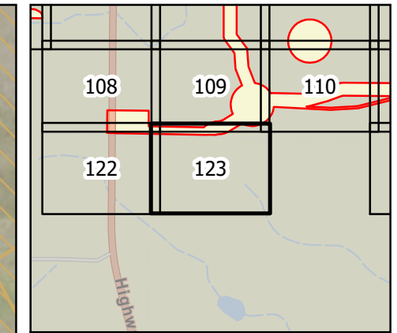


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
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**Mercer & Morton Counties,**
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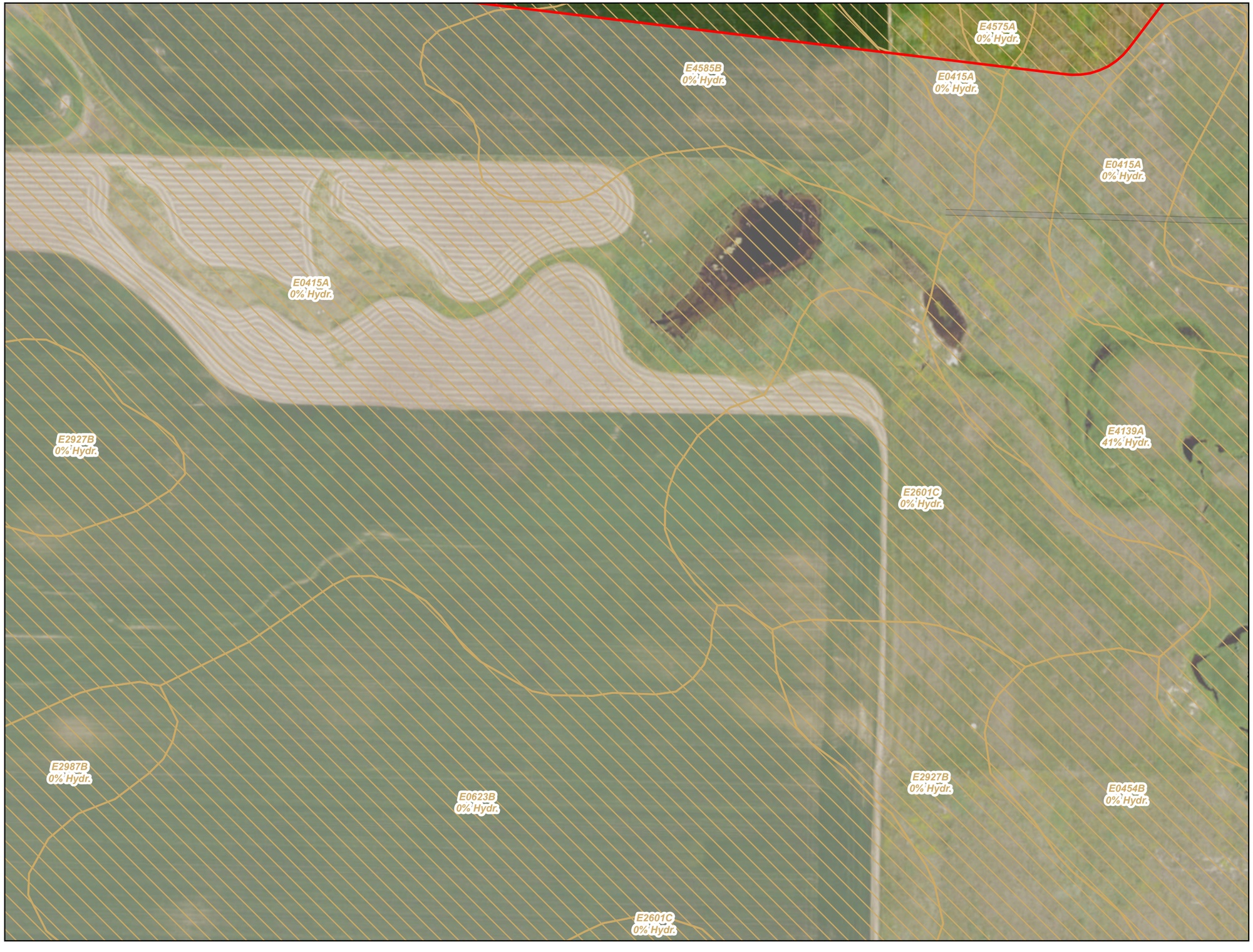


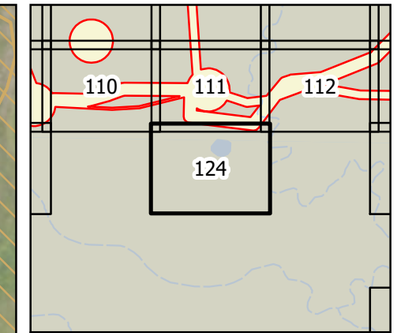


0 100 200 Feet

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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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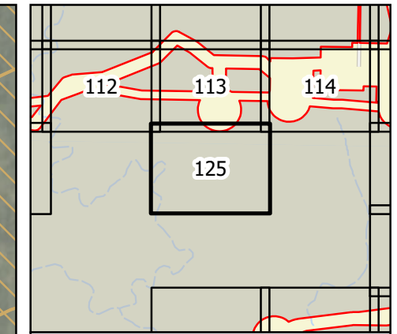


0 100 200 Feet

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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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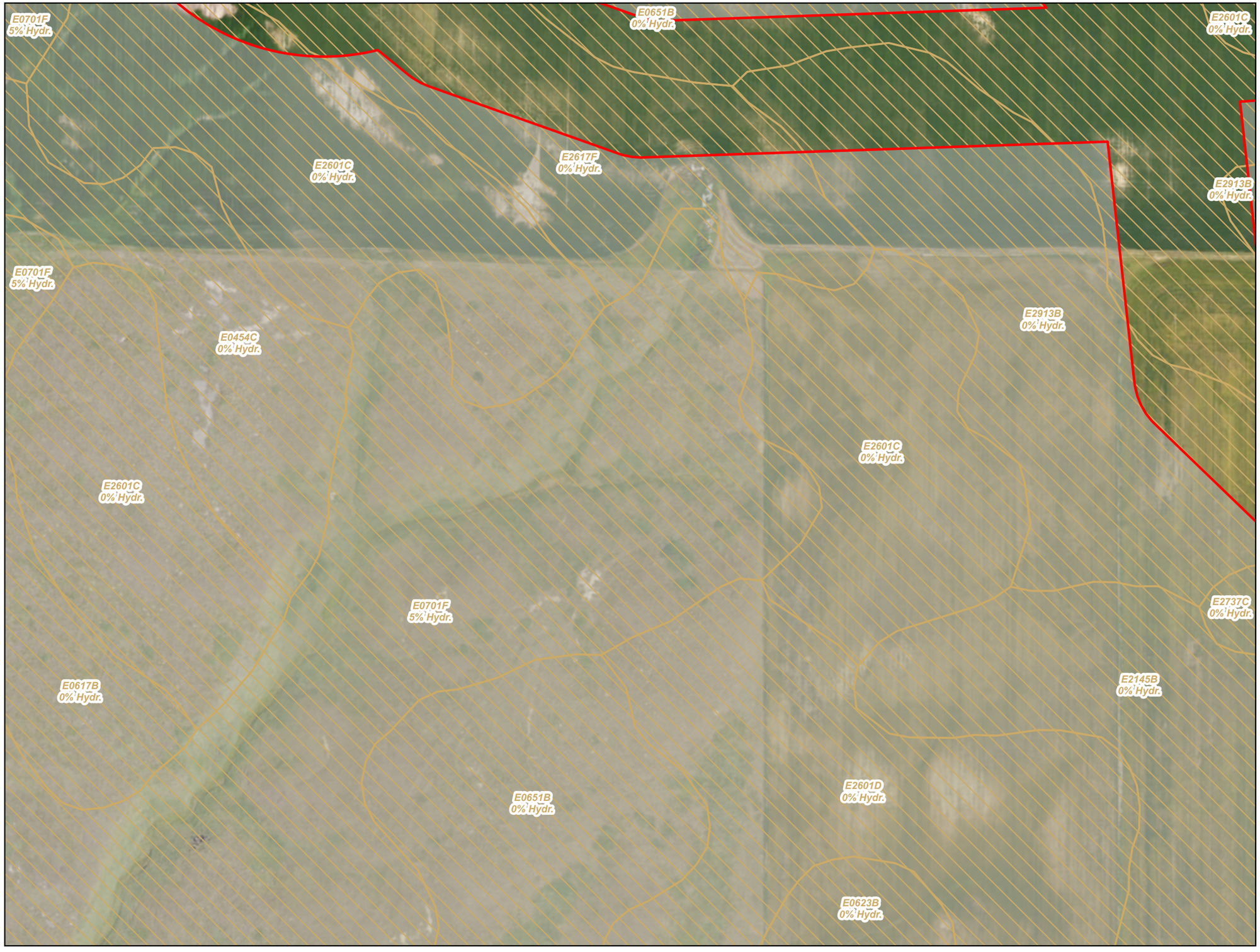


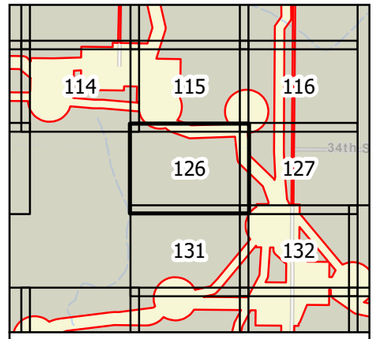


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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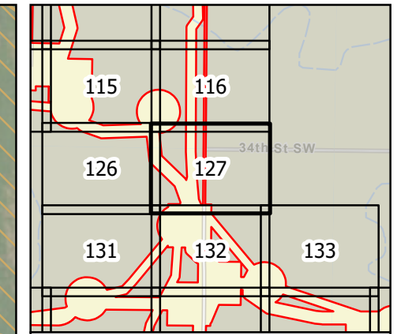


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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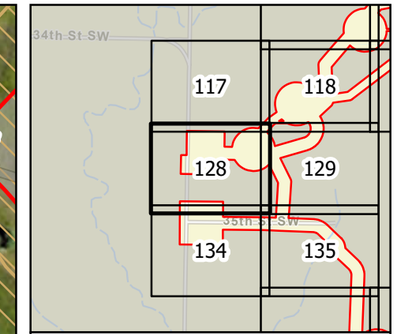


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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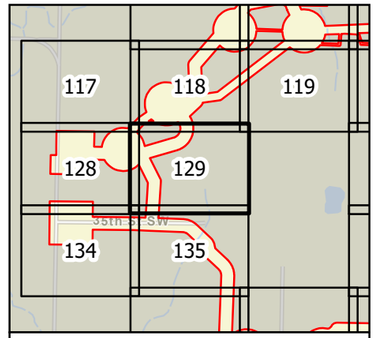


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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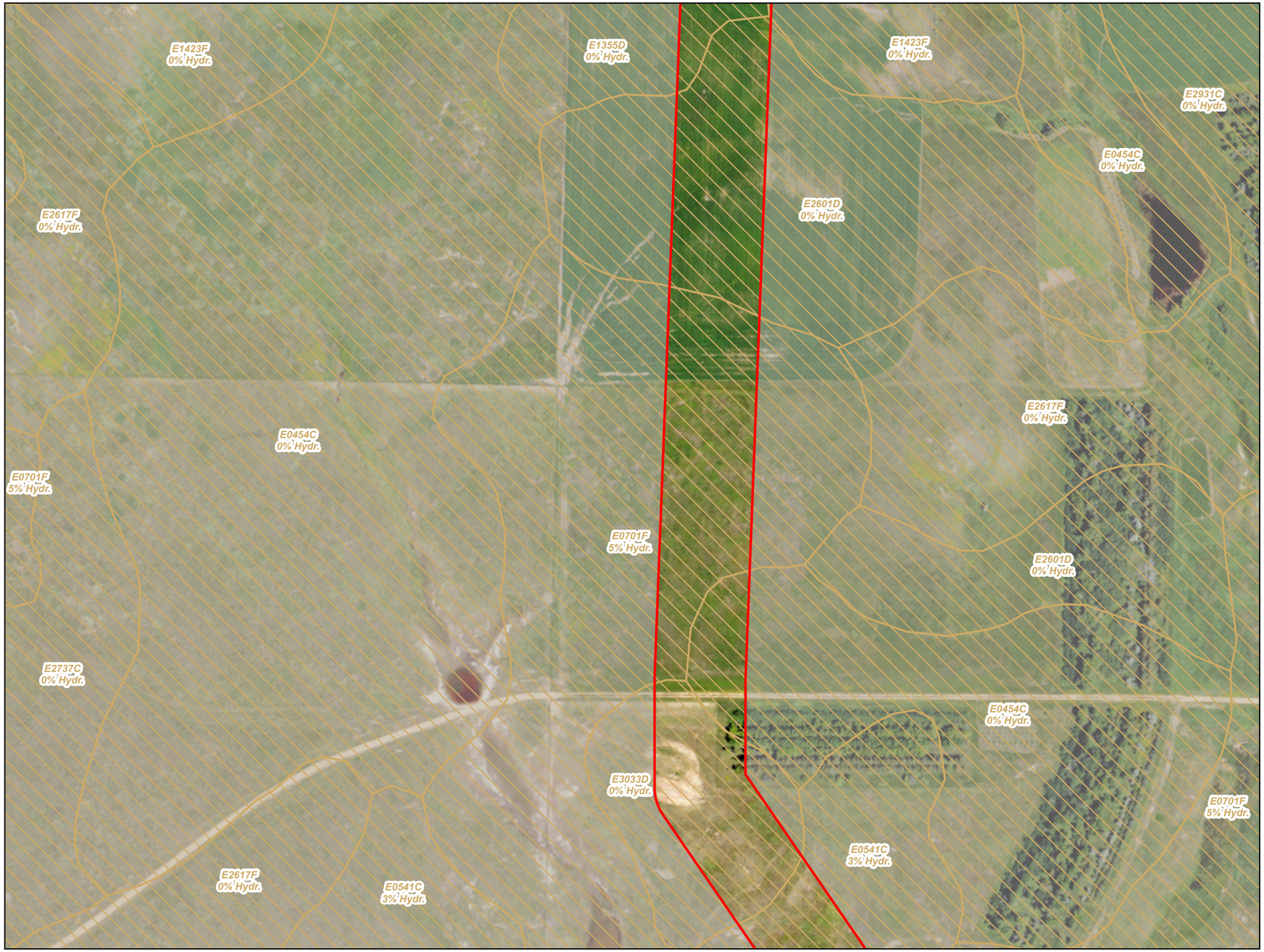


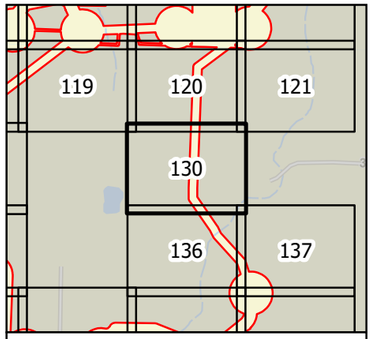


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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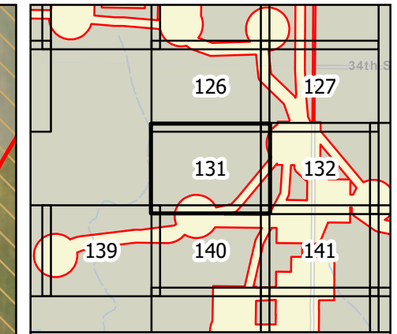


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
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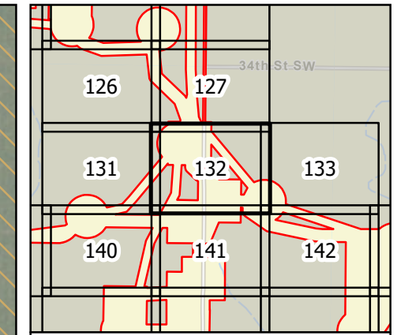


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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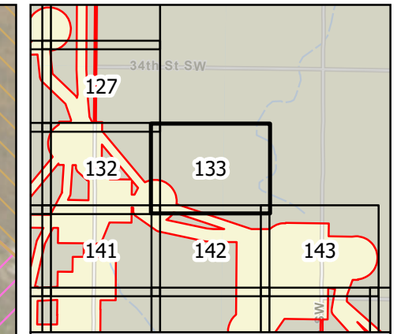


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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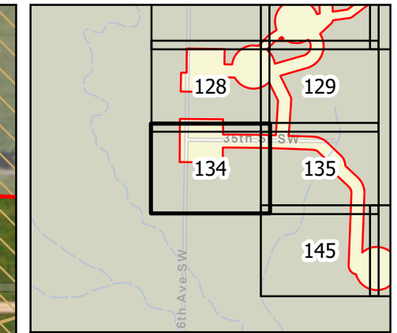


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Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
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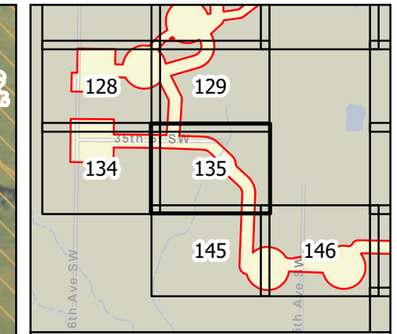


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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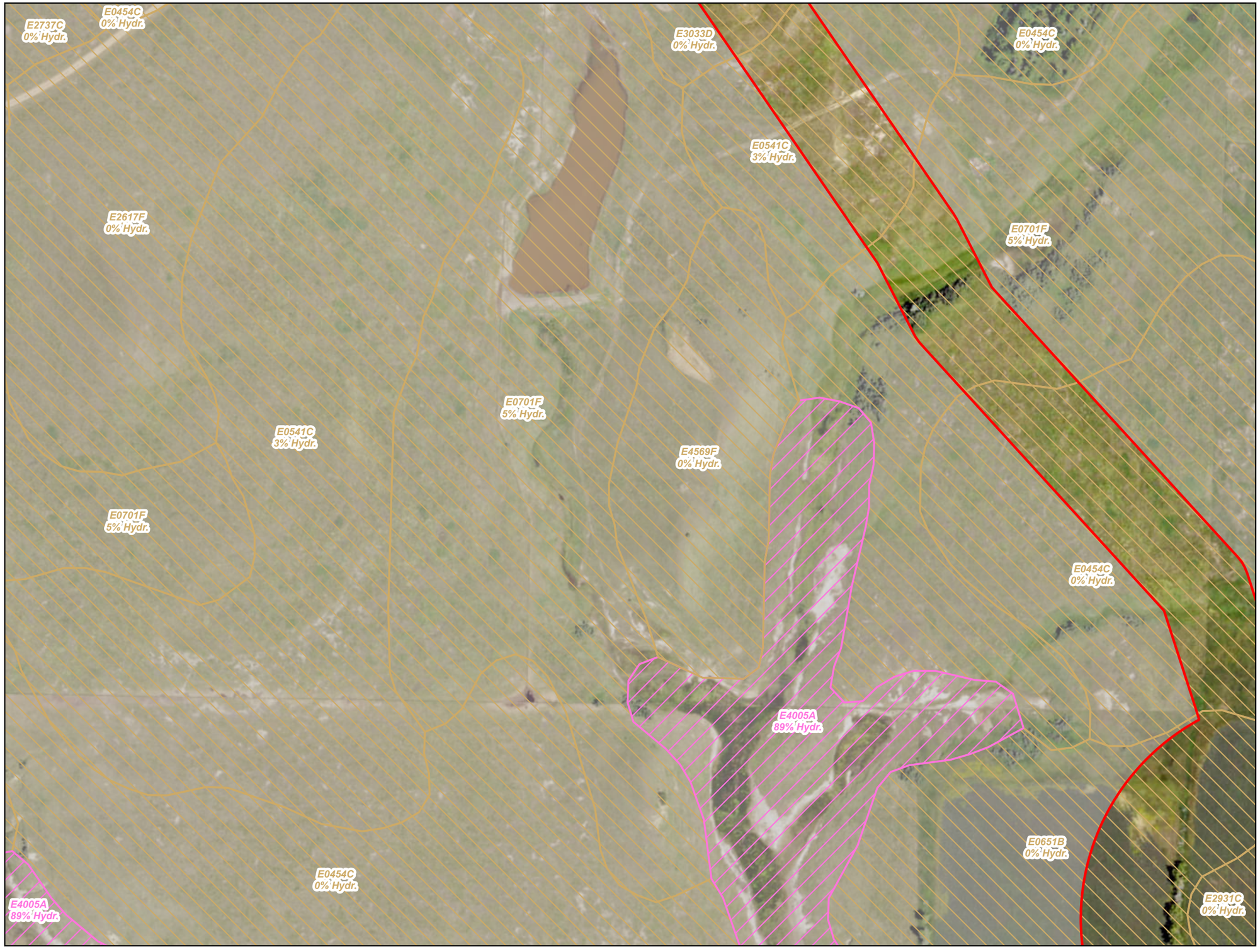


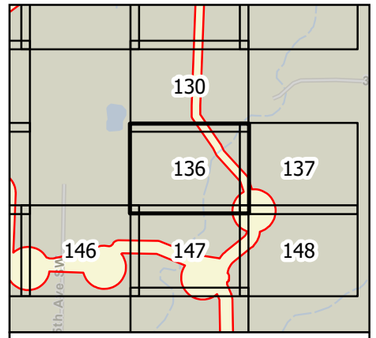


Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**

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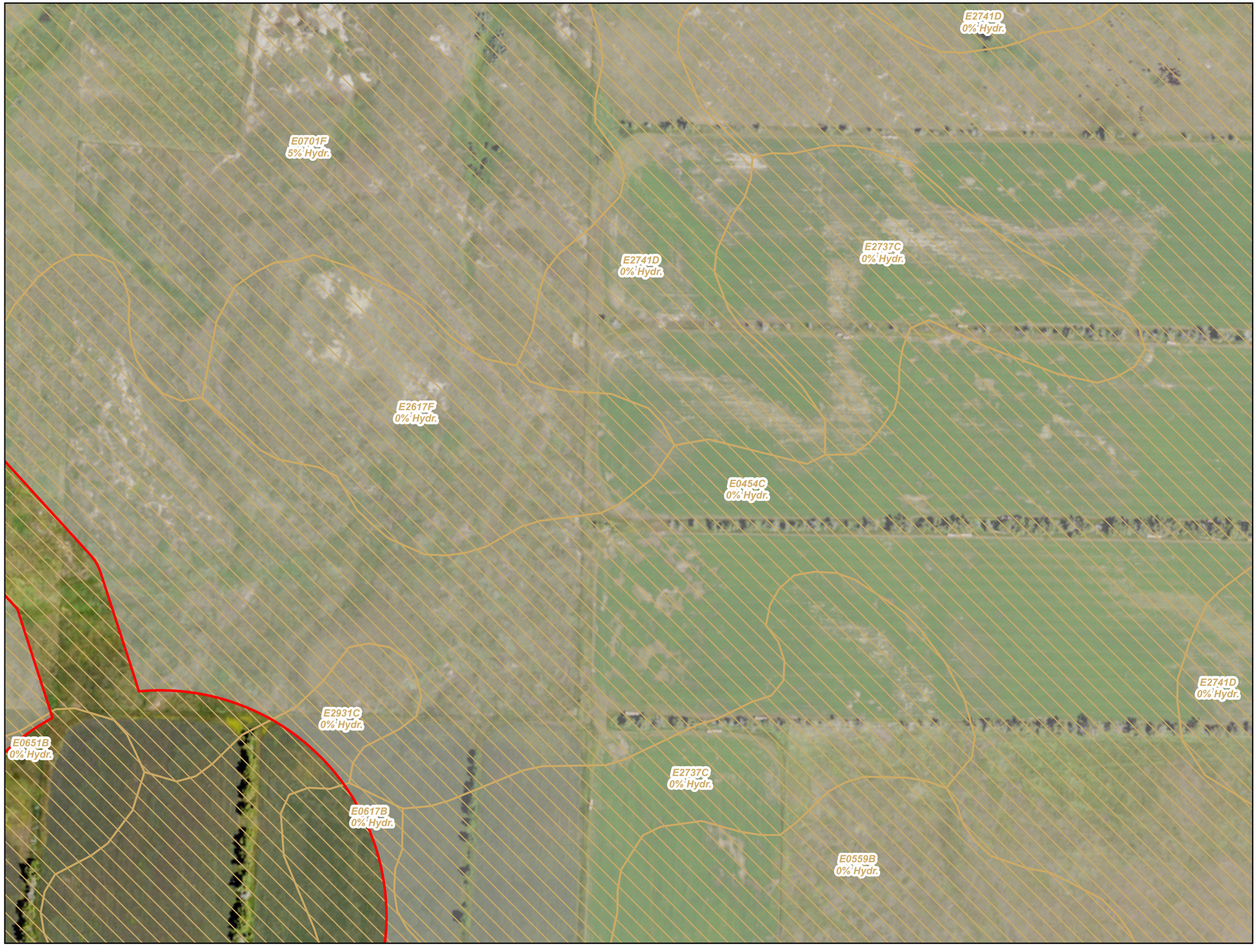


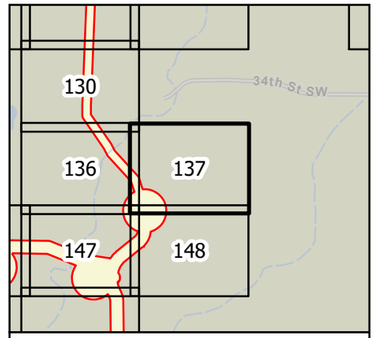


0 100 200 Feet

1 inch = 200 feet

N
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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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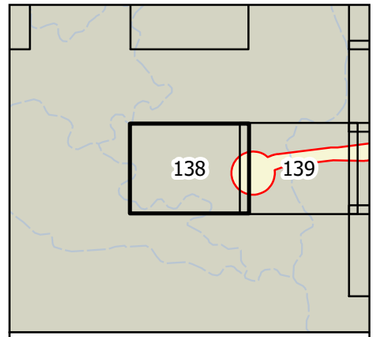


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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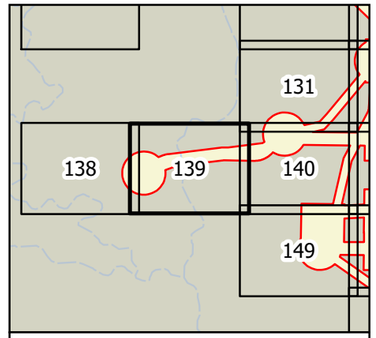


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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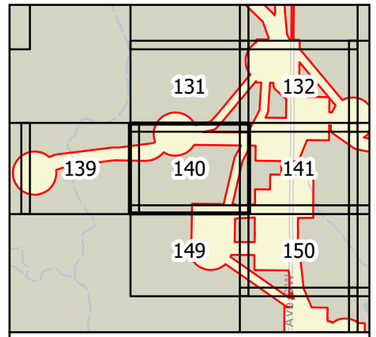


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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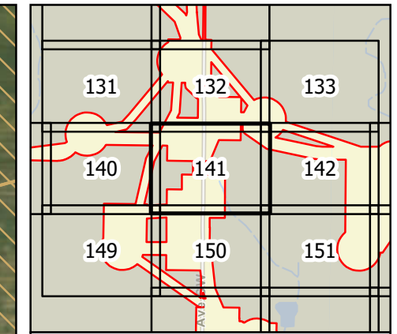


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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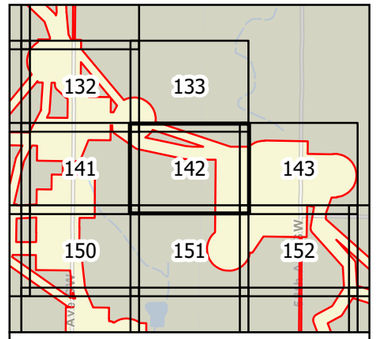


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1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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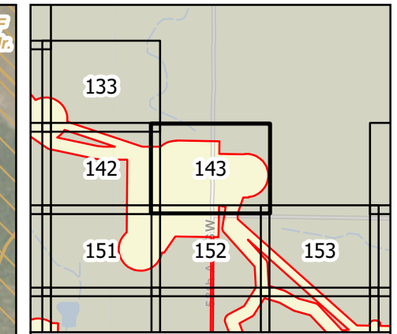


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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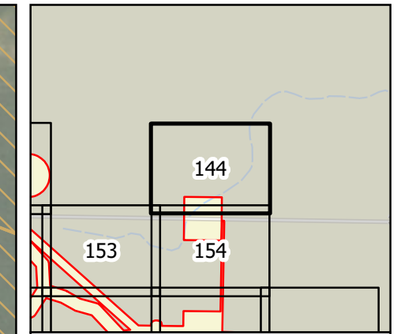


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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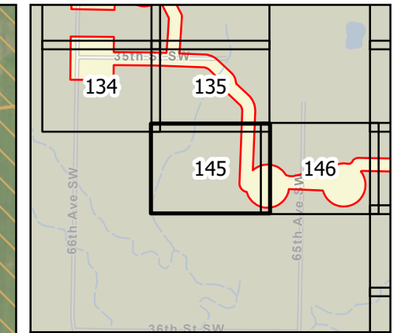


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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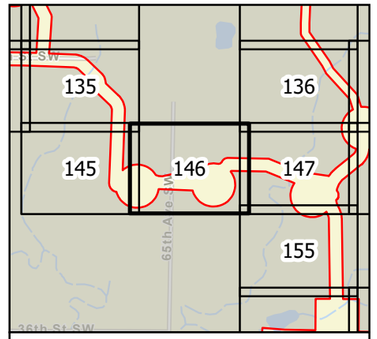


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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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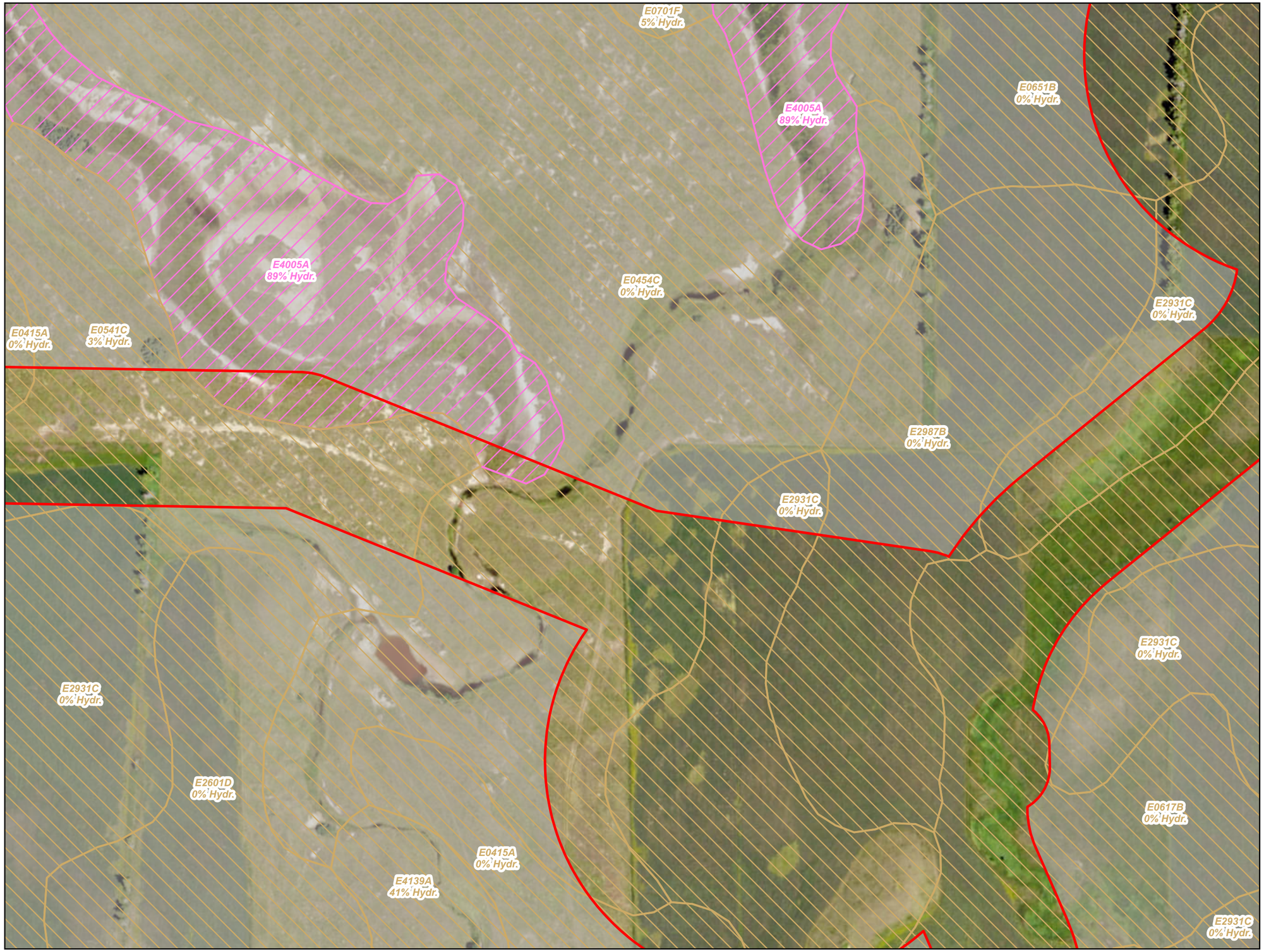


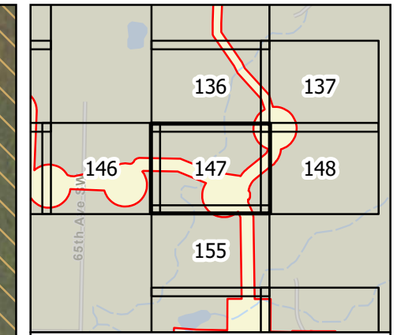


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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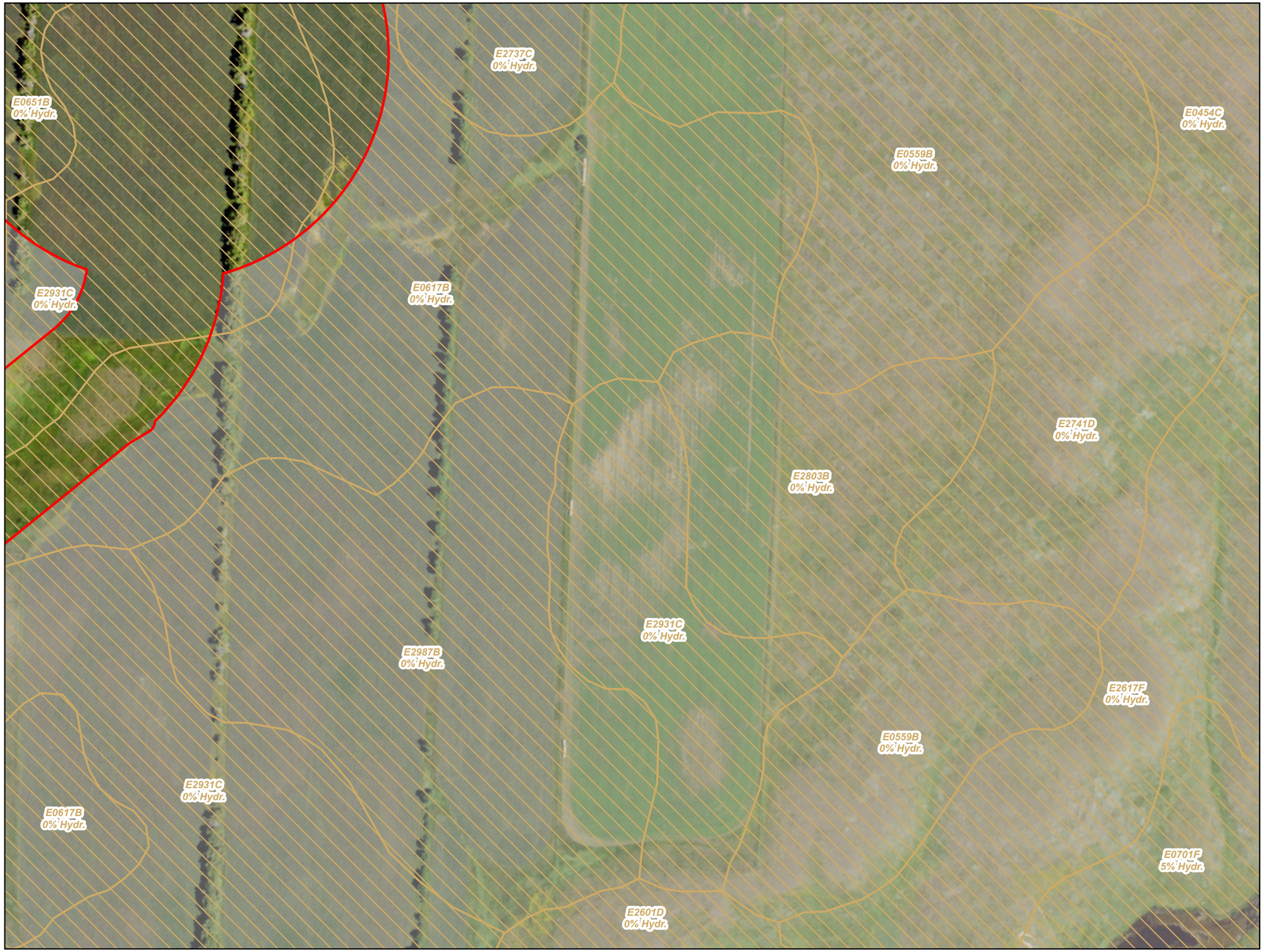


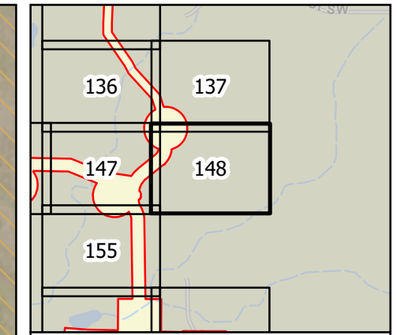


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1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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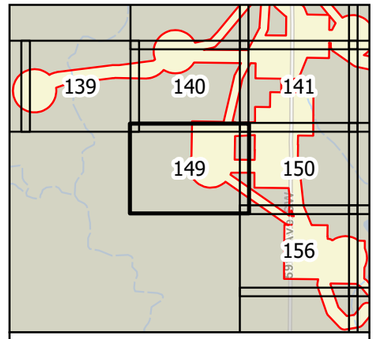


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1 inch = 200 feet

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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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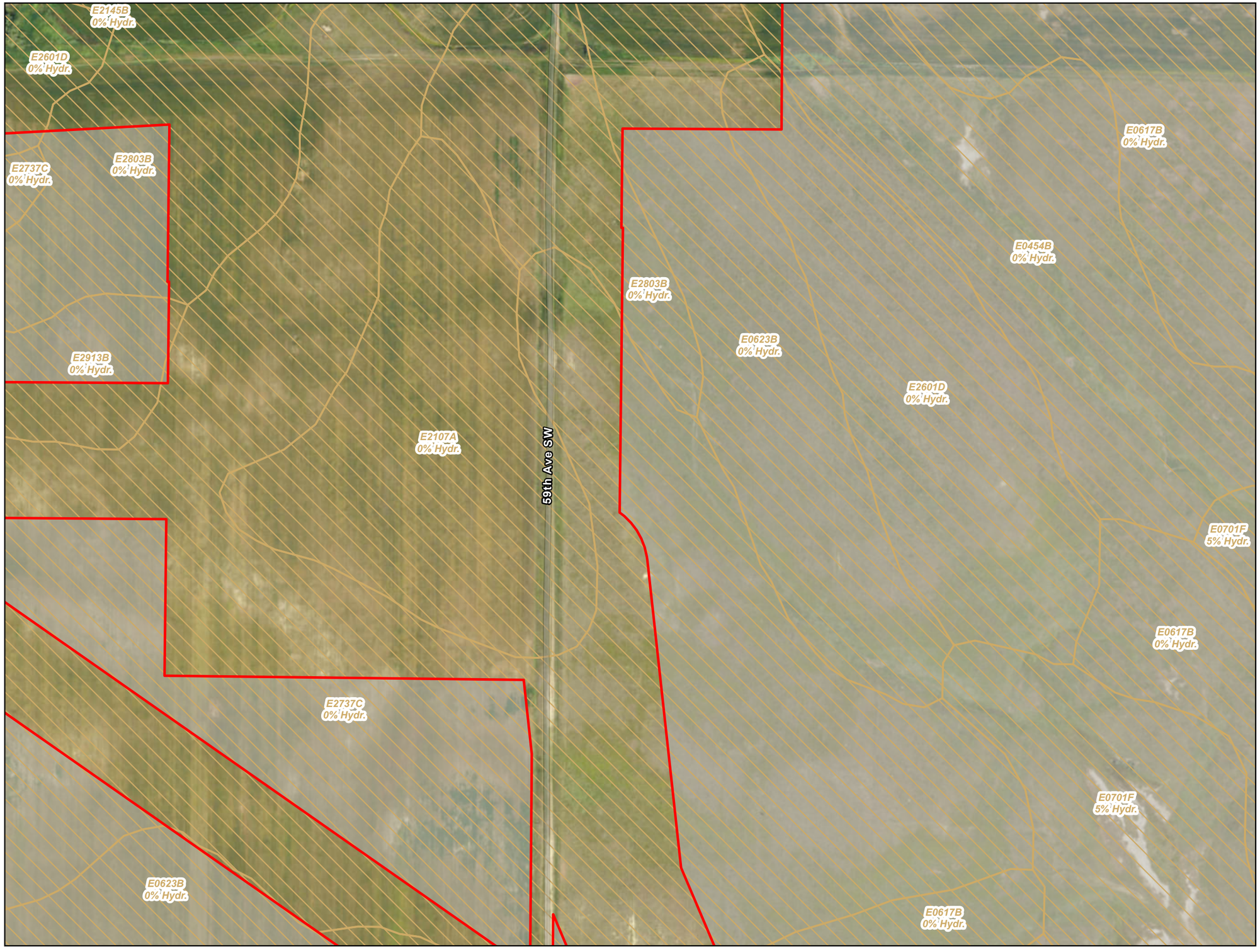


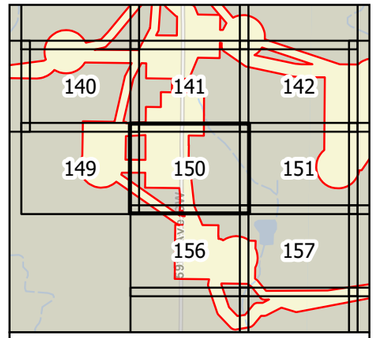


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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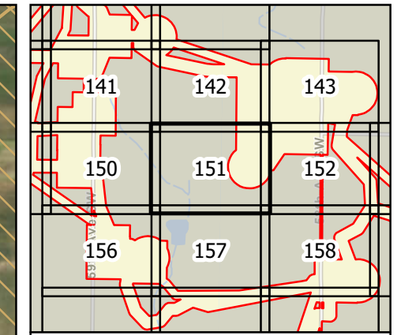


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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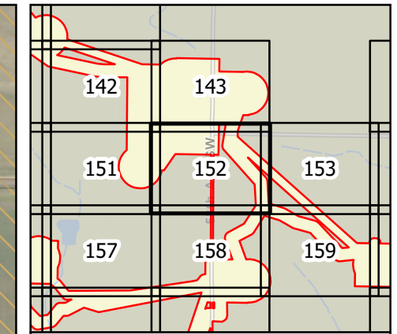


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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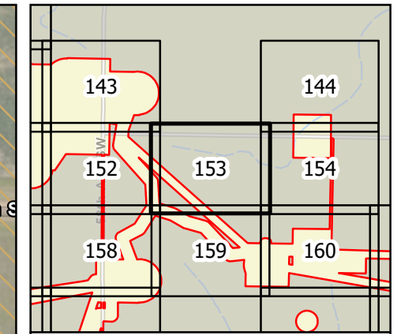


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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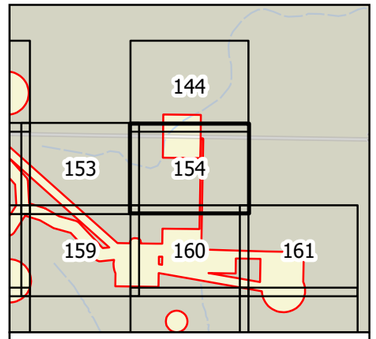


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Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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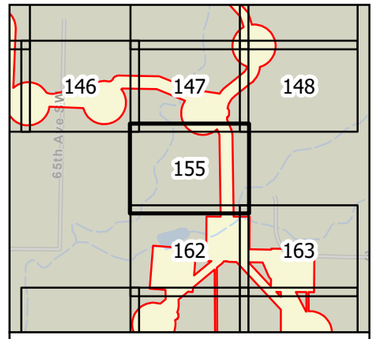


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- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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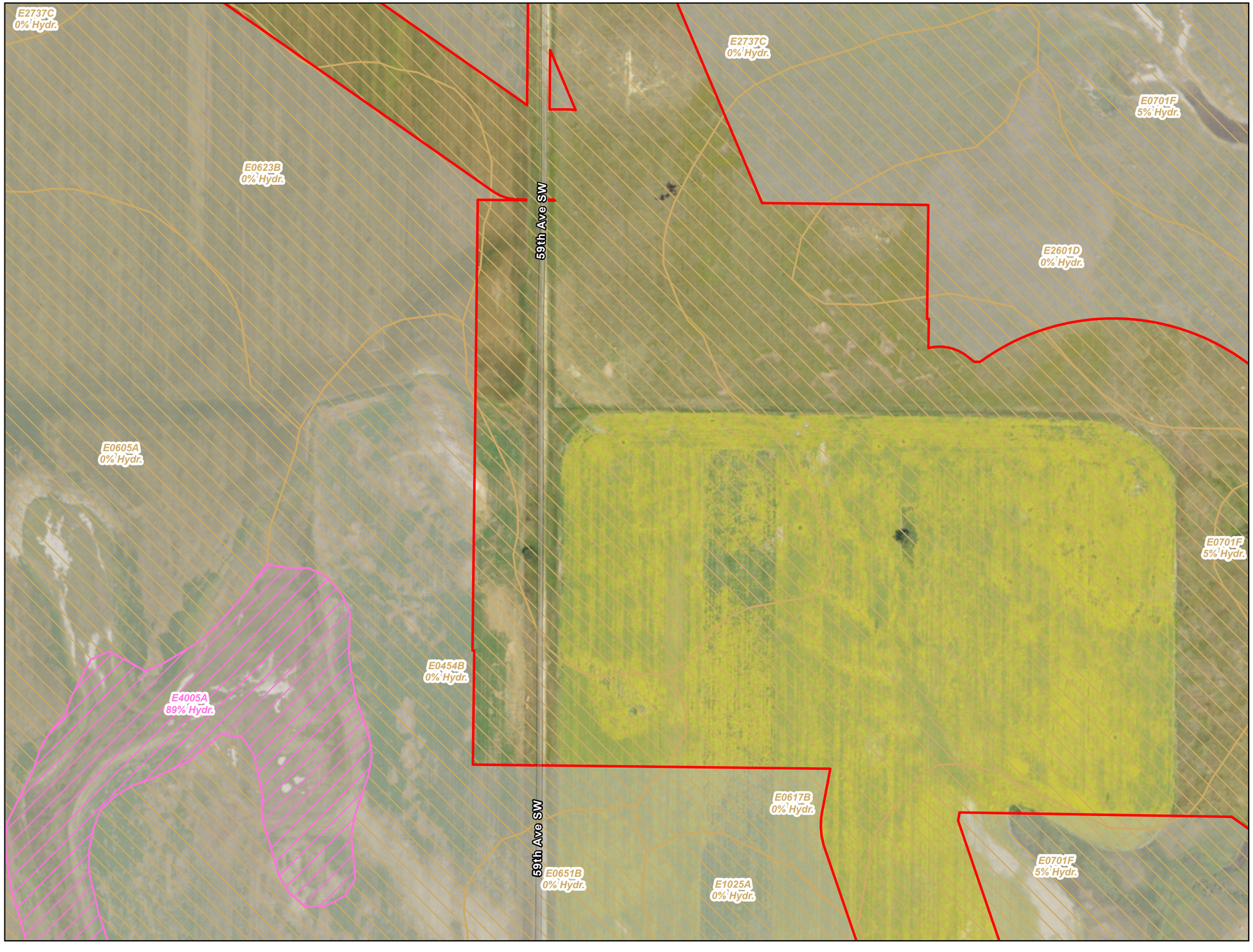


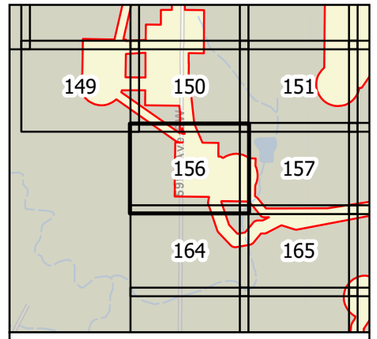


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- Hydric Soil
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**Figure 3**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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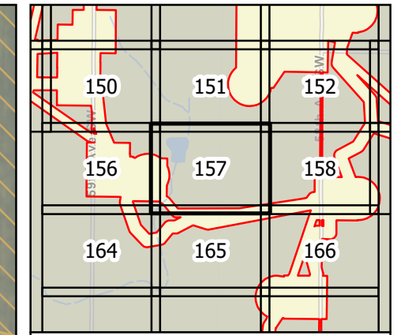


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N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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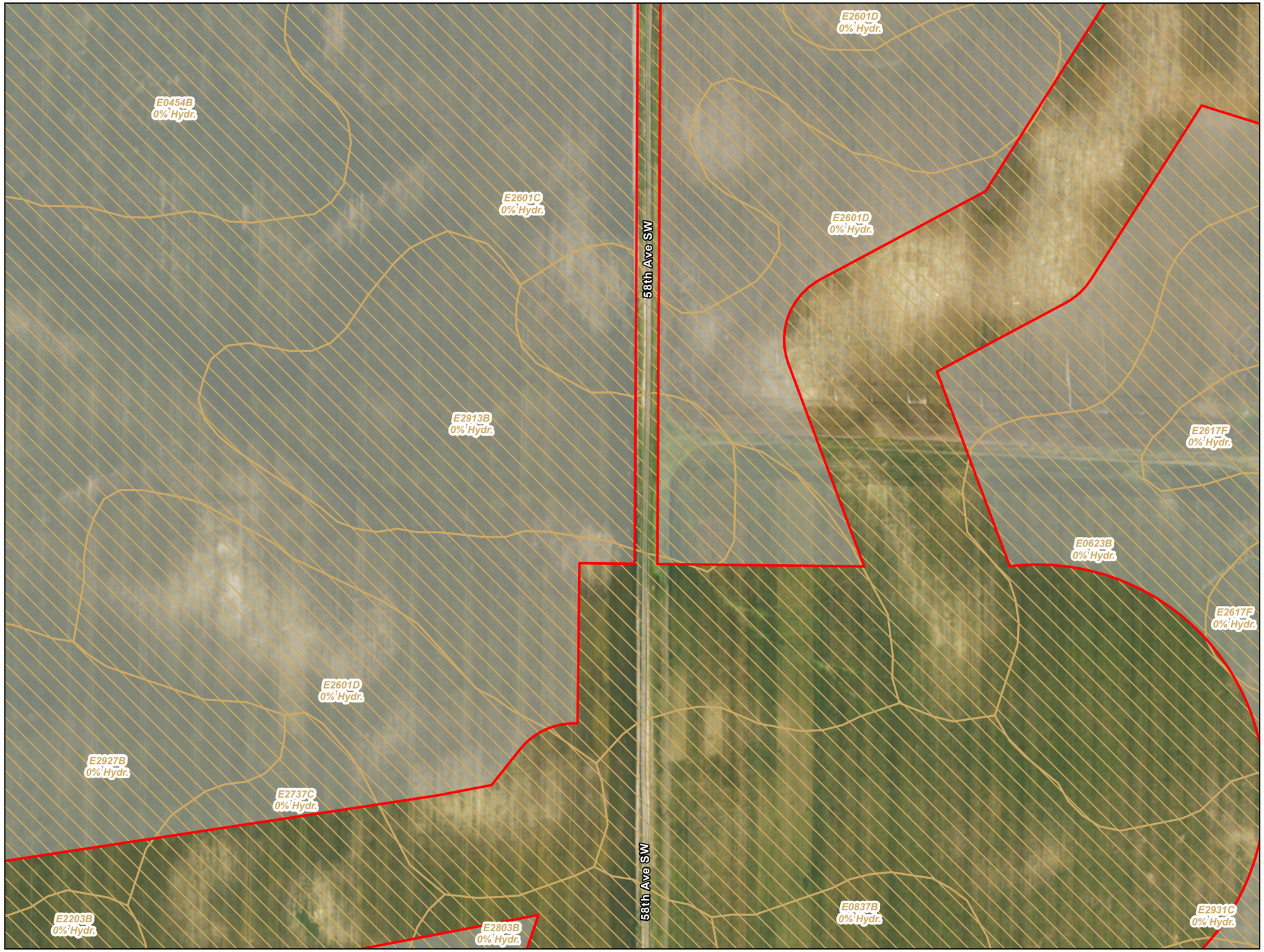


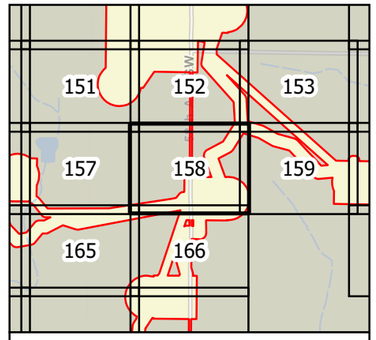


0 100 200 Feet

1 inch = 200 feet

N
W E
S

Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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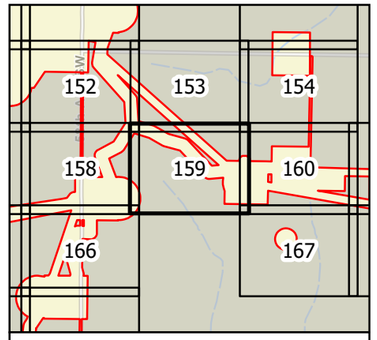


0 100 200 Feet

1 inch = 200 feet

N
W E
S

Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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Sources: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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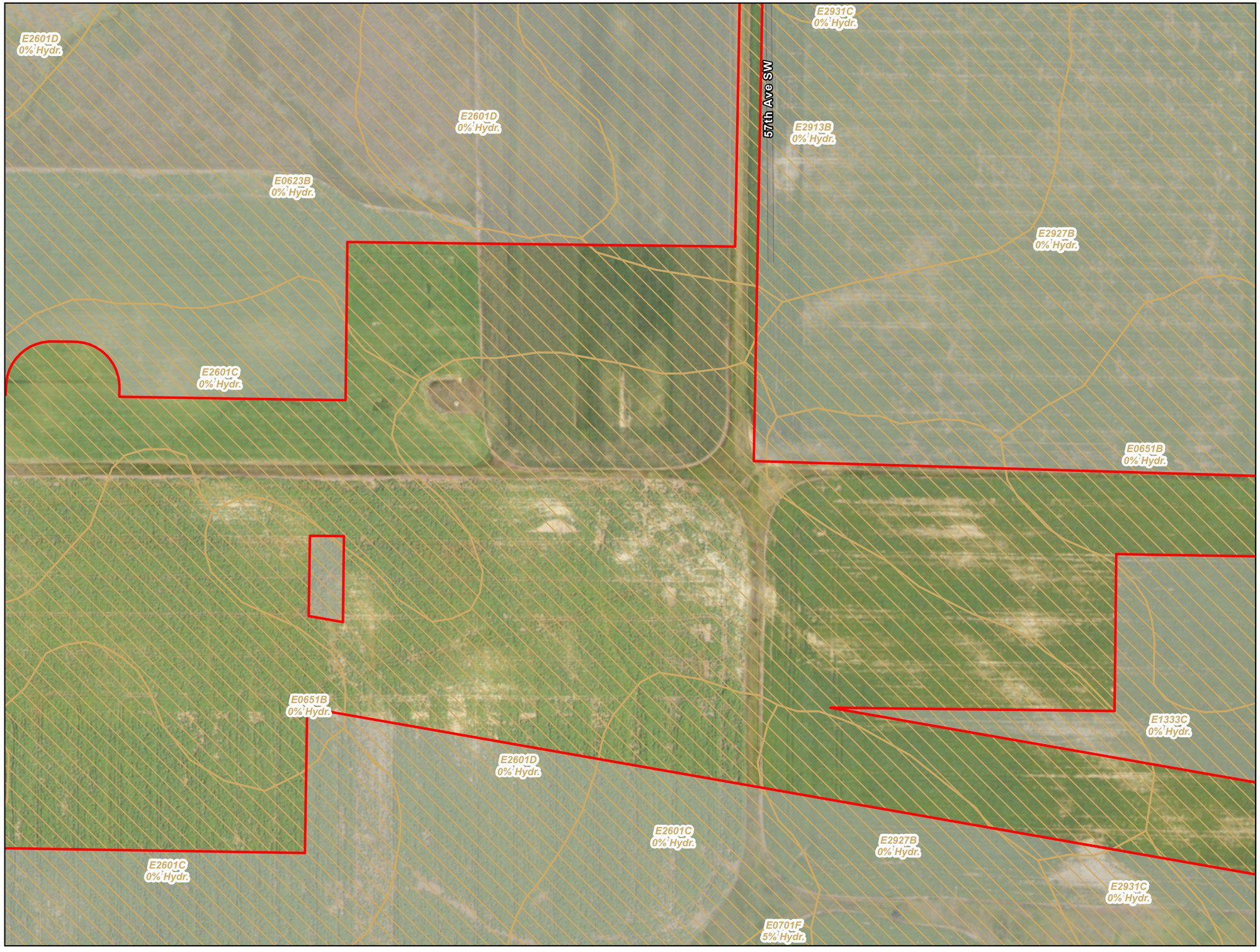


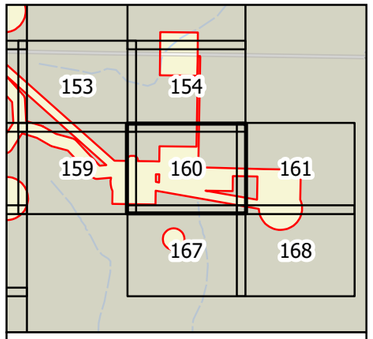


0 100 200 Feet

1 inch = 200 feet

N
W E
S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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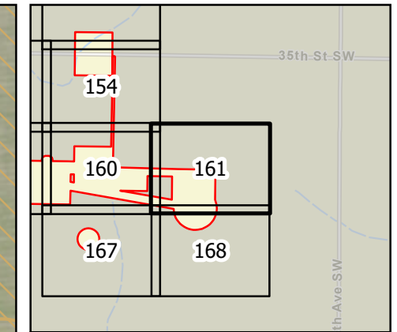


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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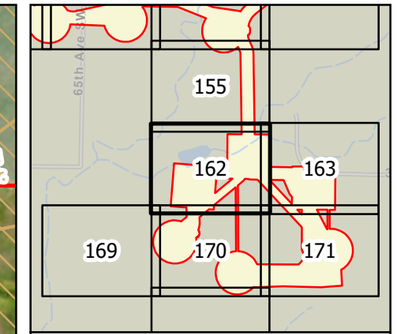


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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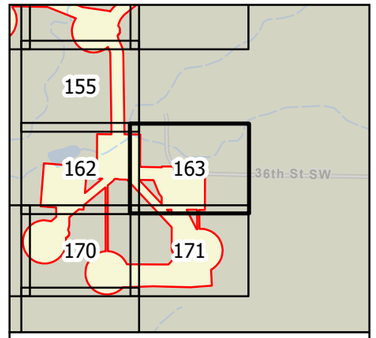


0 100 200 Feet

1 inch = 200 feet

N
W E
S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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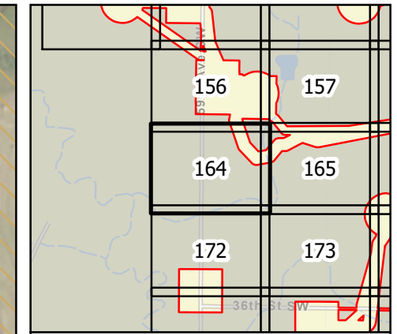


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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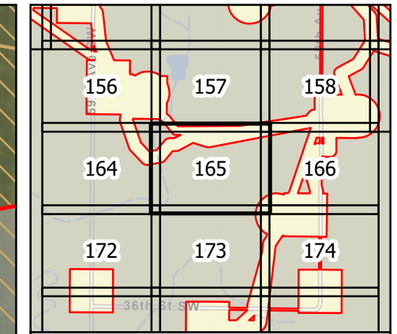


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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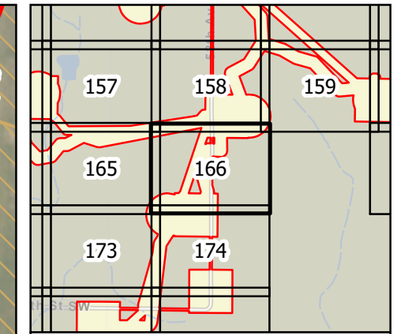


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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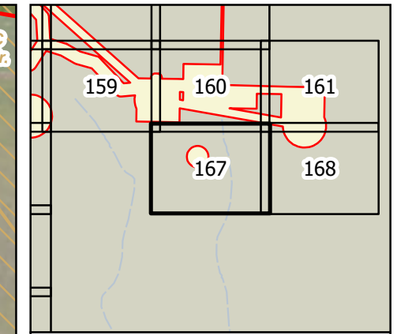


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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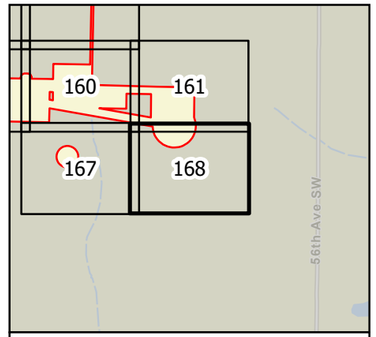


0 100 200 Feet

1 inch = 200 feet

N
W E
S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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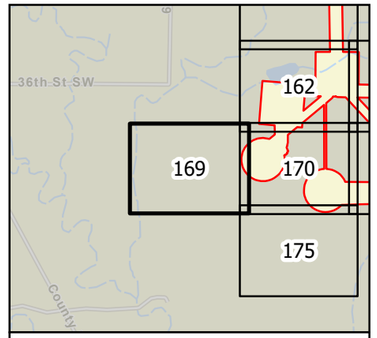


0 100 200 Feet

1 inch = 200 feet

N
W E
S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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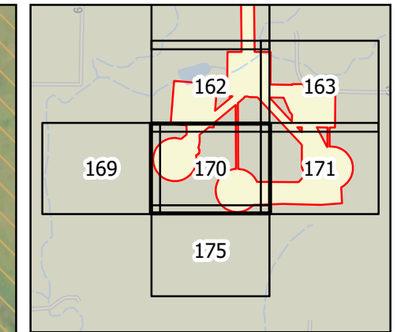


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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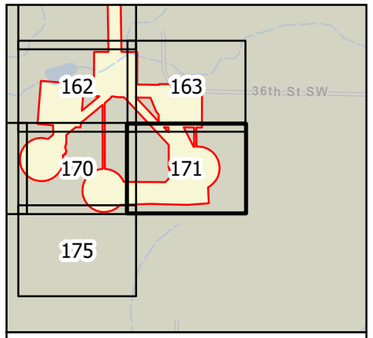


0 100 200 Feet

1 inch = 200 feet

N
W E
S

- Survey Area
- Hydric Soil
- Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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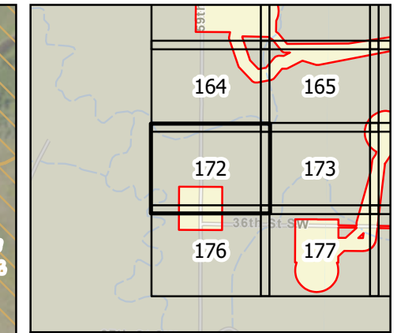


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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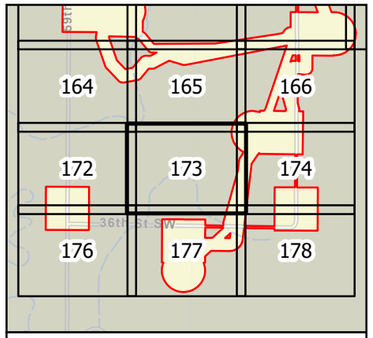


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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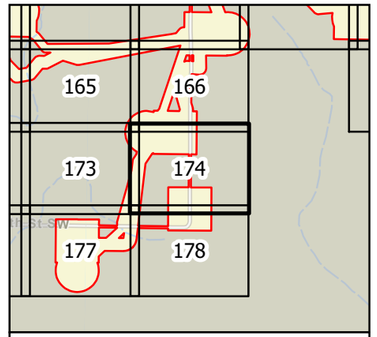


0 100 200 Feet

1 inch = 200 feet

N
W E
S

Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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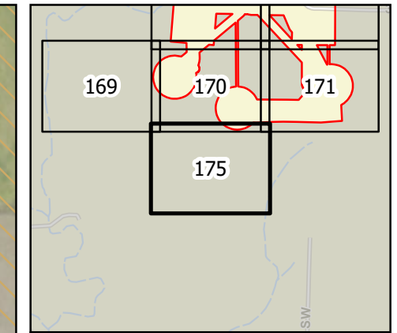


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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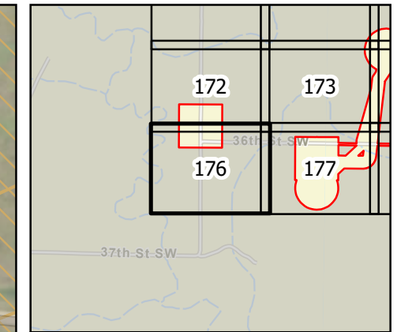


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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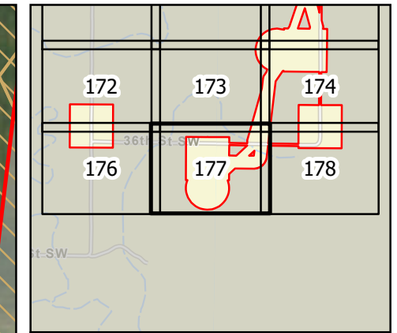


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Hydric Soil

Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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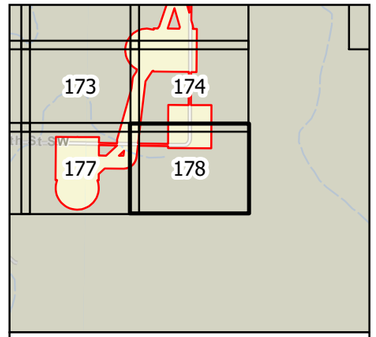


0 100 200 Feet

1 inch = 200 feet

N
W E
S

Survey Area
Hydric Soil
Non-Hydric Soil

**Figure 3**
**Soil Units (SSURGO)**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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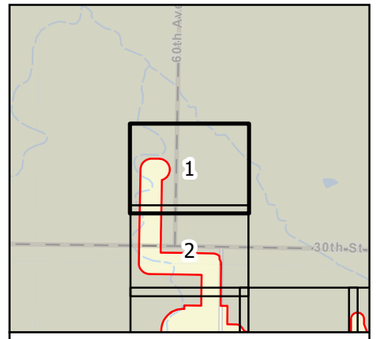
# Figure 4

# Hydrology




0 100 200 Feet

1 inch = 200 feet

N
W E
S

- Survey Area
- Wetland (NWI)
- Waterway (NHD)
- Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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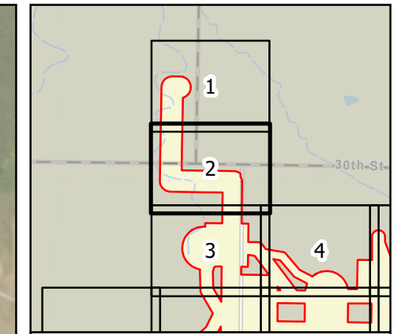


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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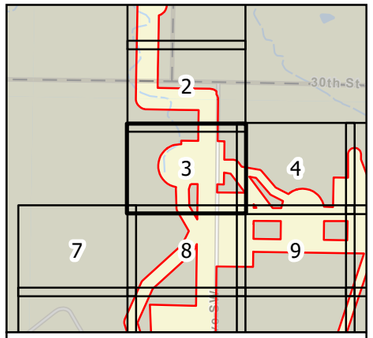


0 100 200 Feet

1 inch = 200 feet

N
W E
S

- Survey Area
- Wetland (NWI)
- Waterway (NHD)
- Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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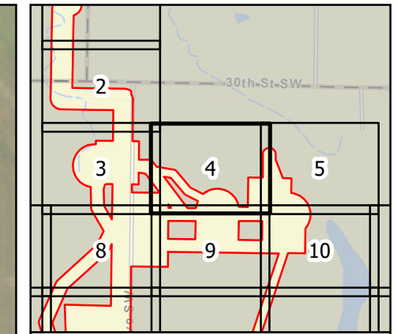


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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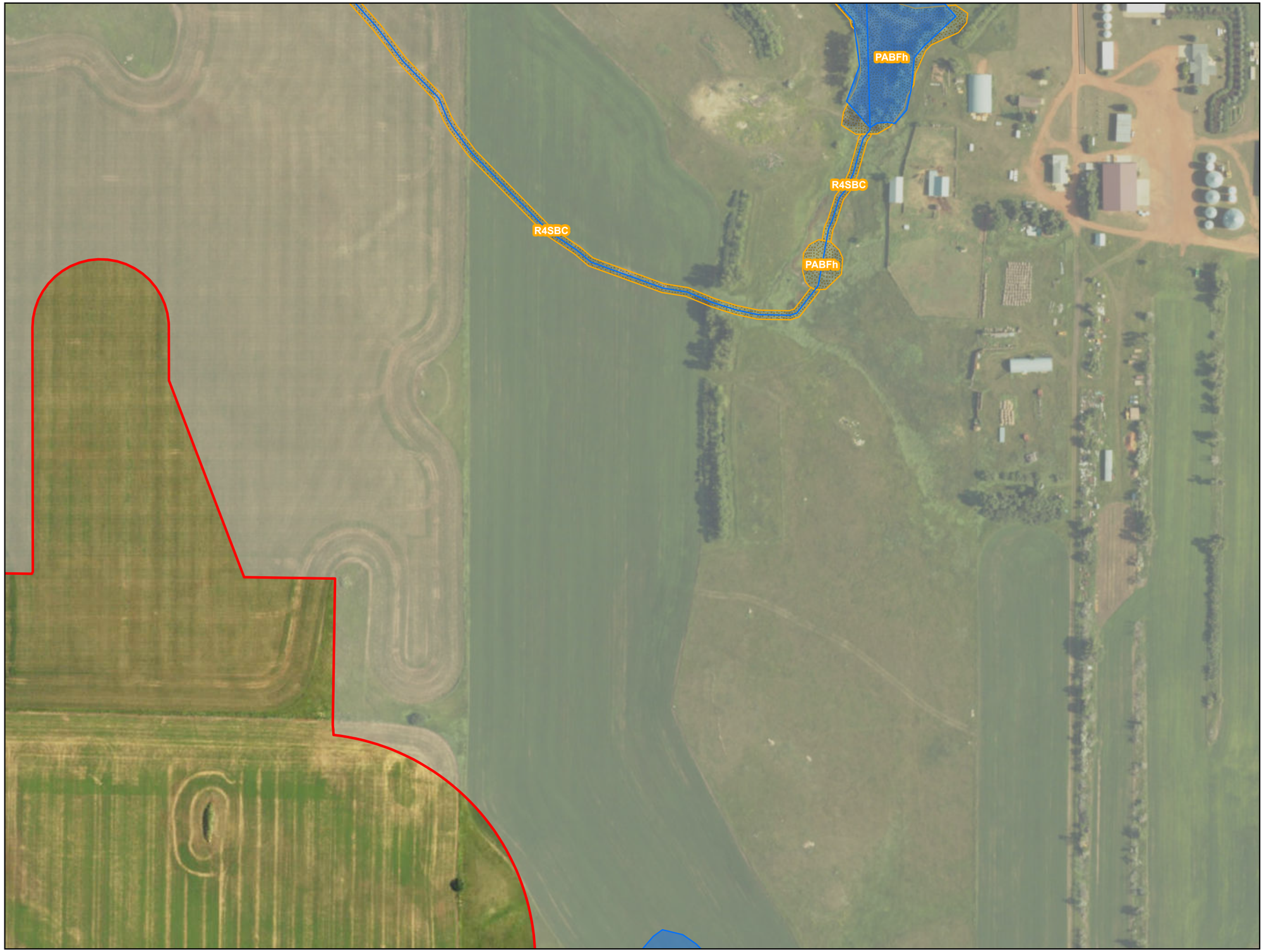


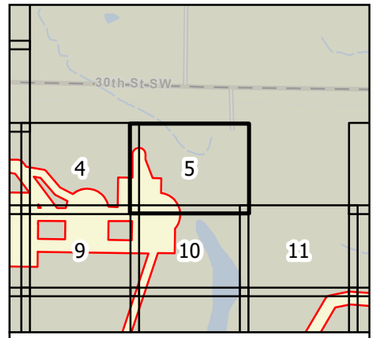


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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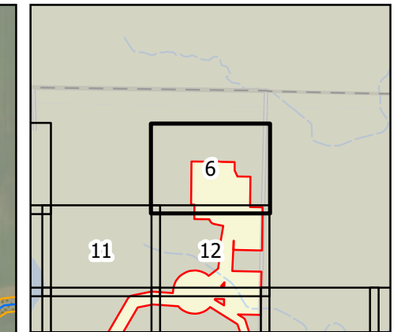


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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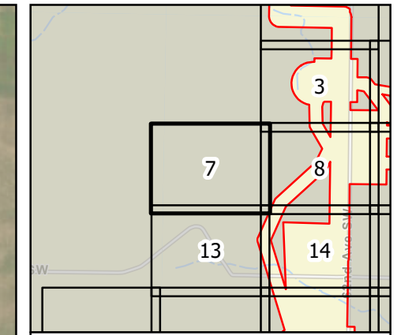


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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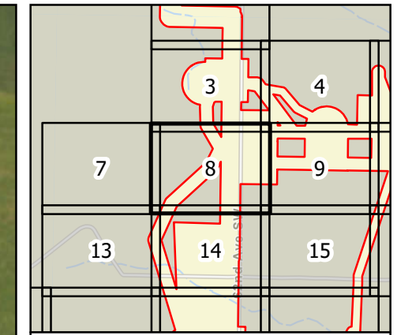


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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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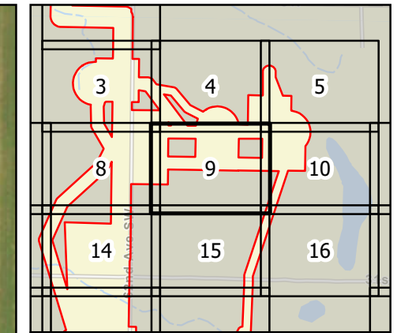


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Wetland (NWI)
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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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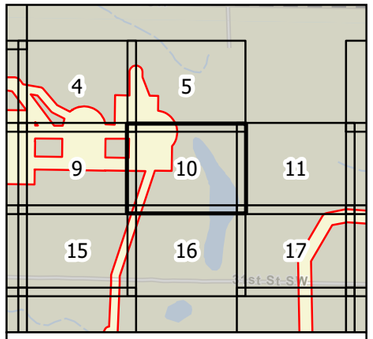


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- Wetland (NWI)
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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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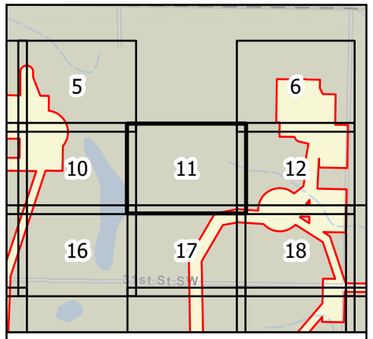


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Waterway (NHD)
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**Figure 4**
**Hydrology**
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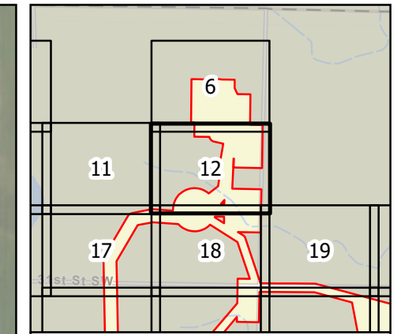


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Wetland (NWI)
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Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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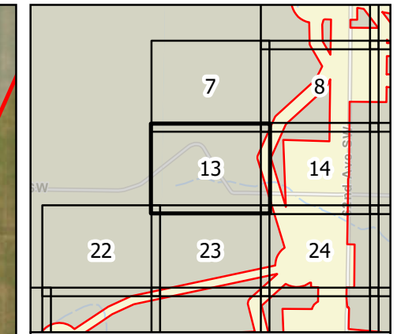


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N W E S

Survey Area
Wetland (NWI)
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**Figure 4**
**Hydrology**
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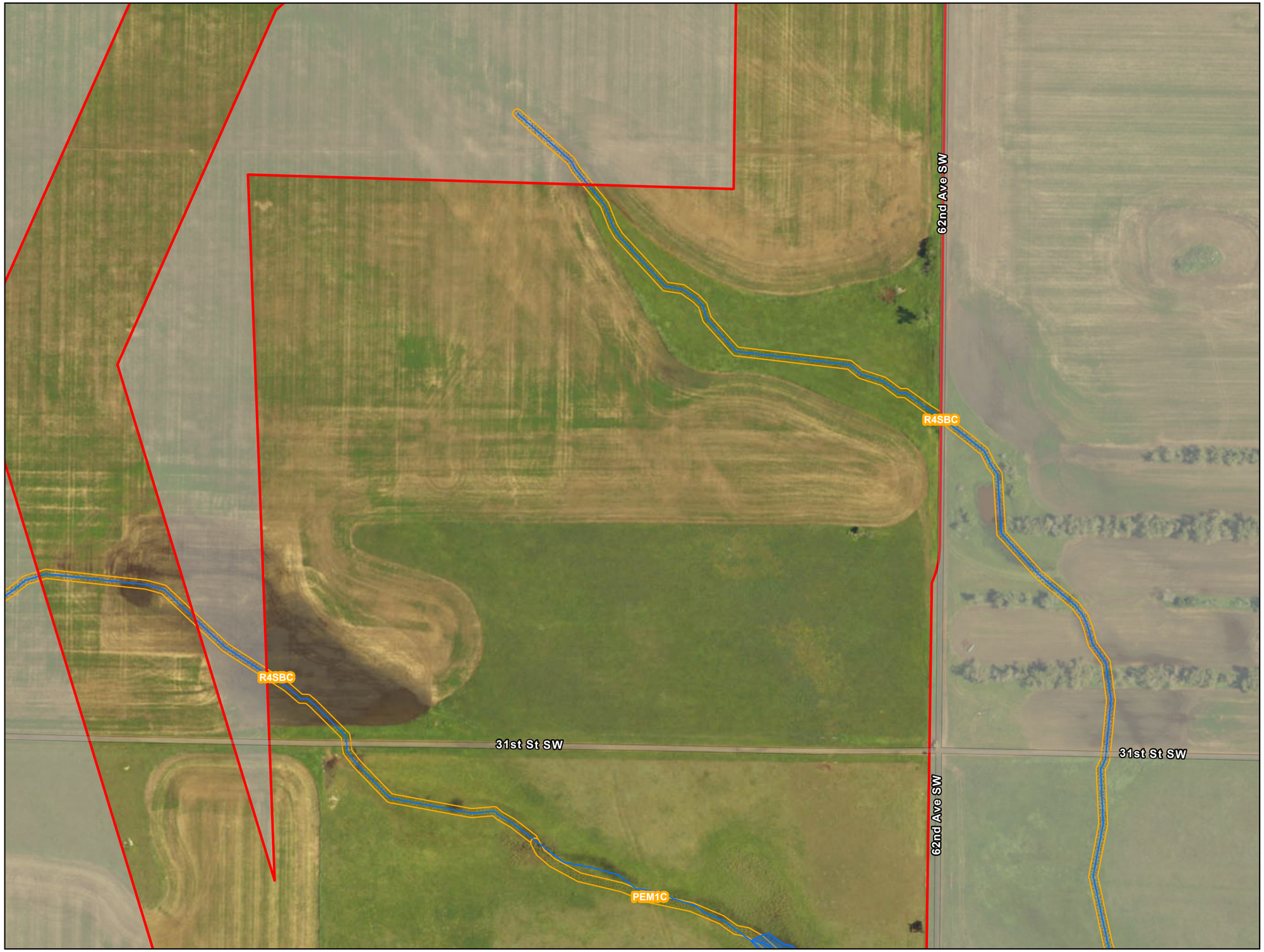


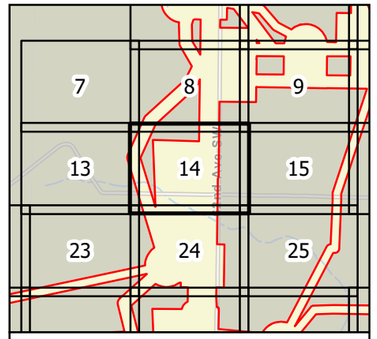


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
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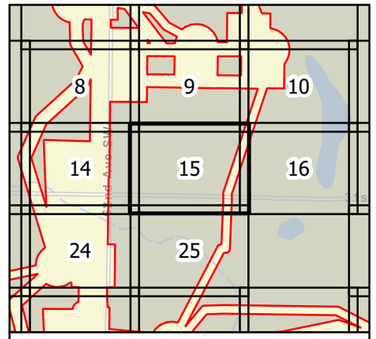


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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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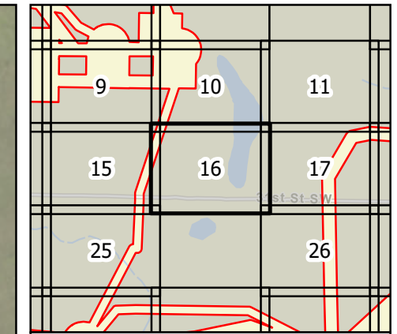


0 100 200 Feet

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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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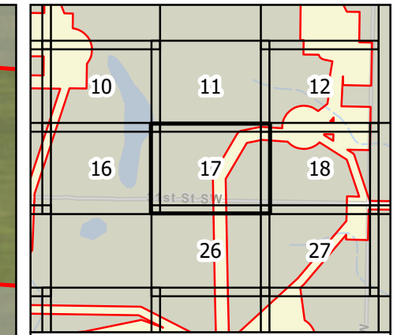


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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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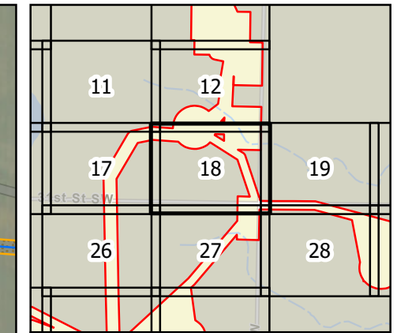


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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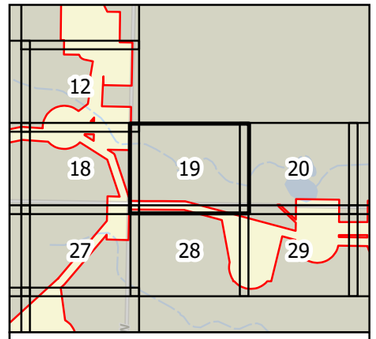


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- Survey Area
- Wetland (NWI)
- Waterway (NHD)
- Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
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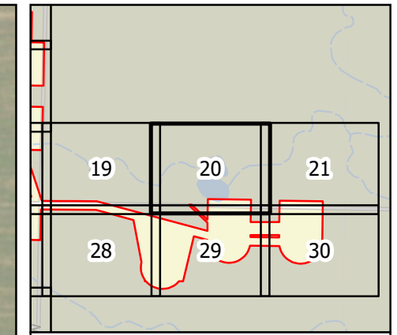


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
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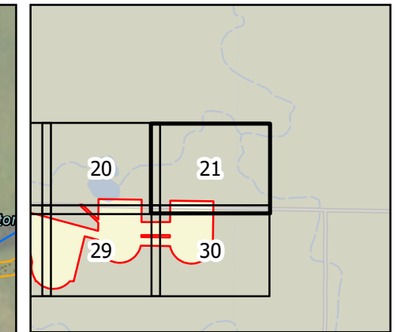


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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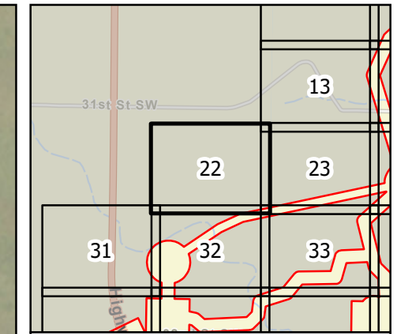


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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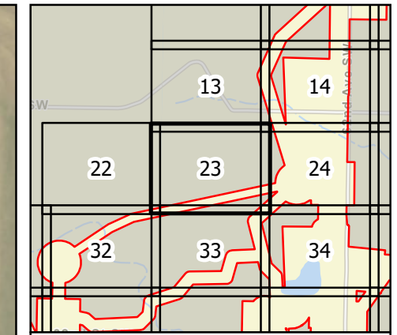


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**Figure 4**
**Hydrology**
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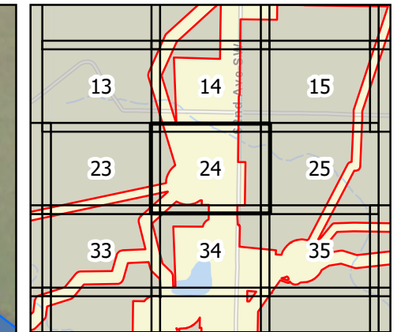


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**Figure 4**
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**Longspur Wind Project**
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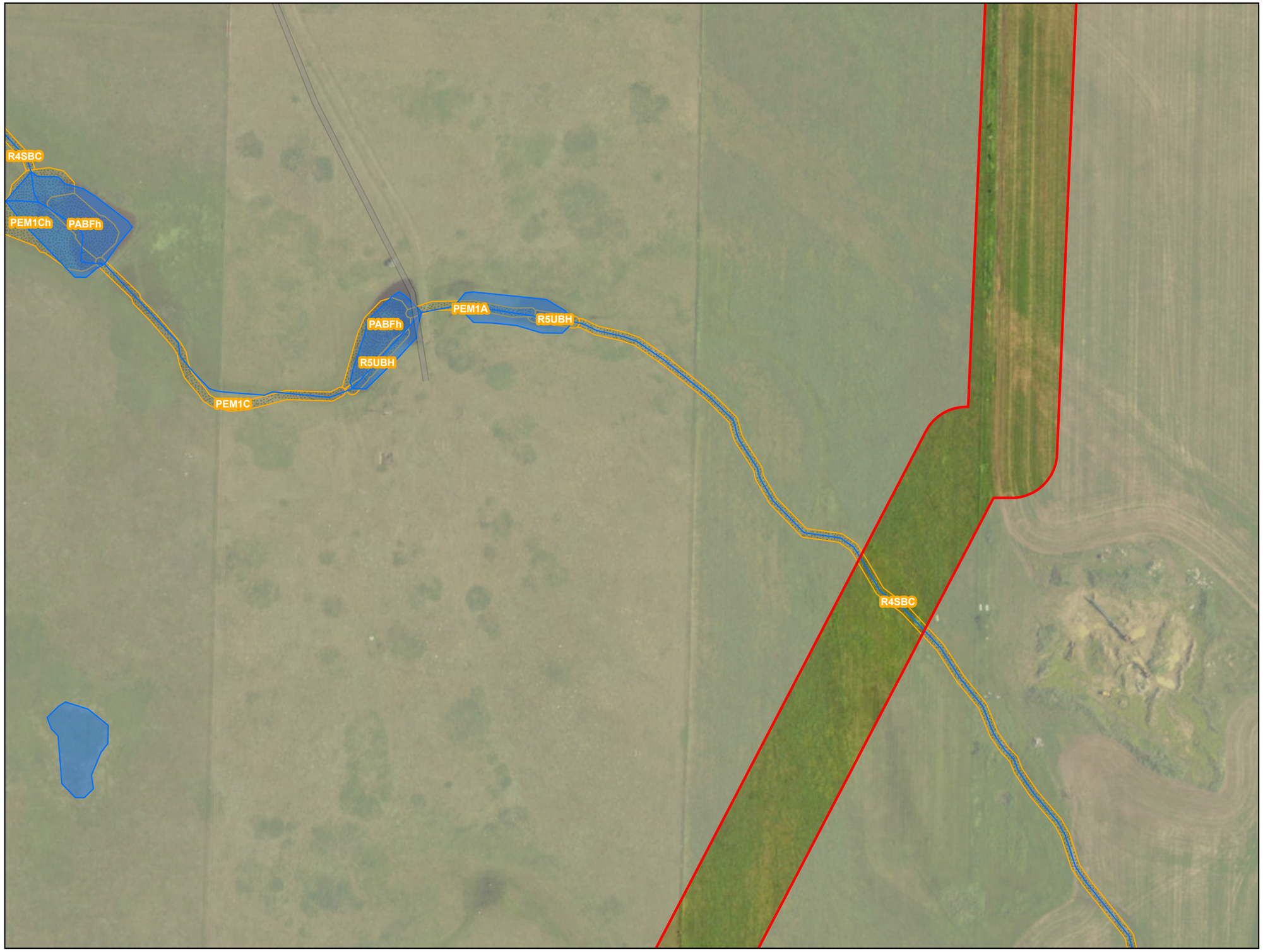


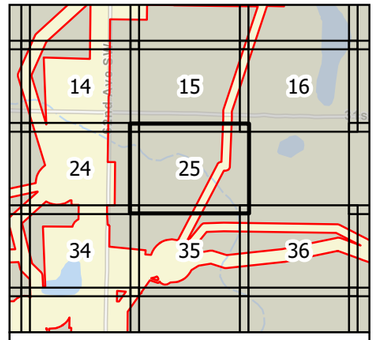


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
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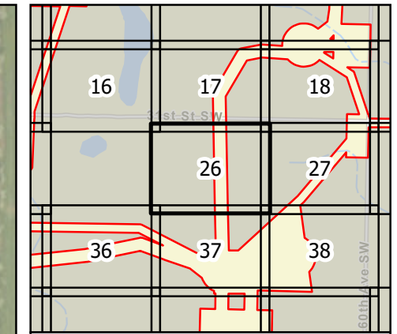


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
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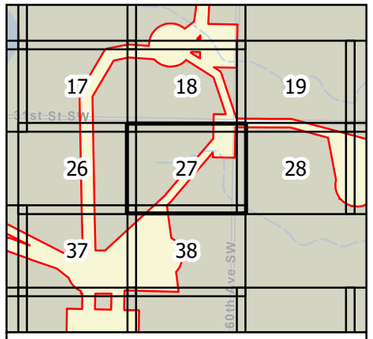


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**Figure 4**
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**Minnesota Power**
**Mercer & Morton Counties,**
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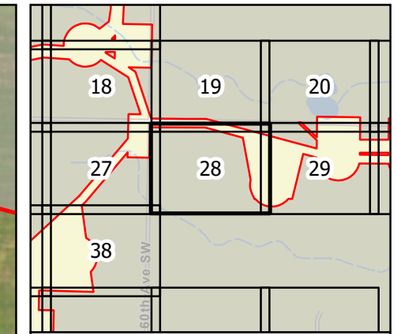


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**Figure 4**
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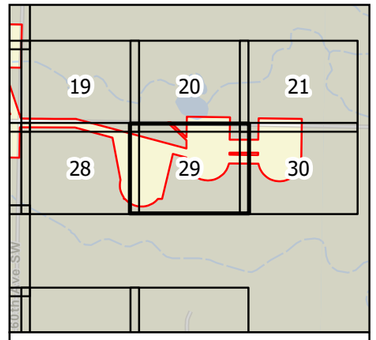


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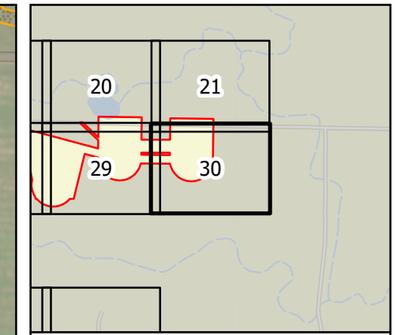


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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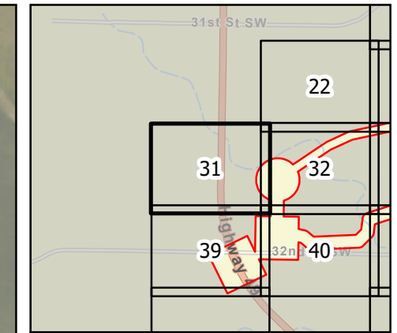


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Survey Area
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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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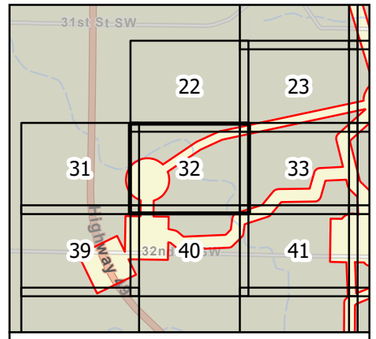


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- Wetland (NWI)
- Waterway (NHD)
- Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
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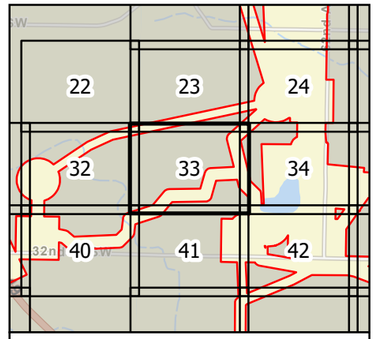


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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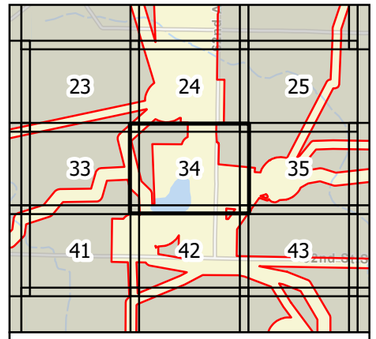


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**Figure 4**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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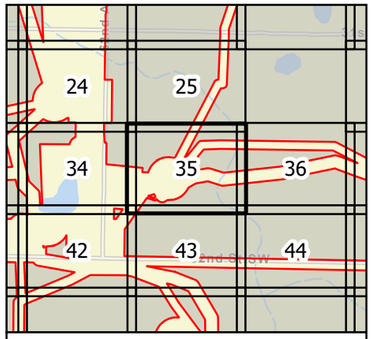


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**Figure 4**
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**Longspur Wind Project**
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**Mercer & Morton Counties,**
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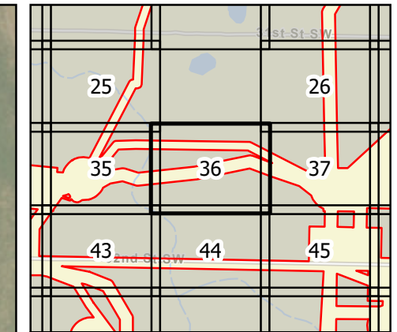


Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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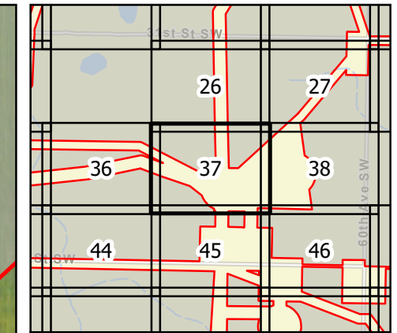


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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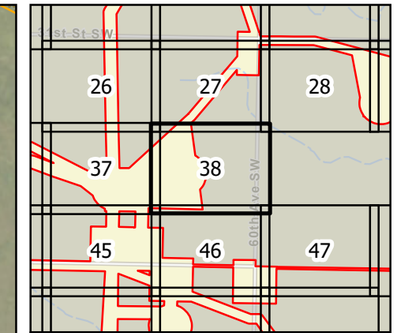


**Figure 4**
**Hydrology**
**Longspur Wind Project**
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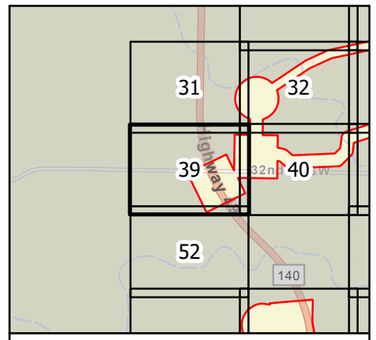


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**Figure 4**
**Hydrology**
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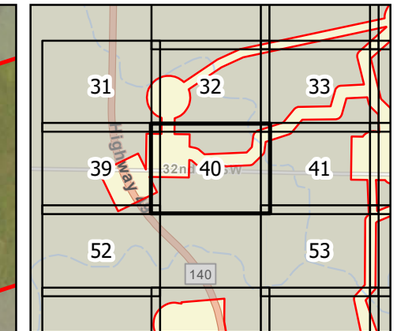


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N W E S

Survey Area
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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
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**Longspur Wind Project**
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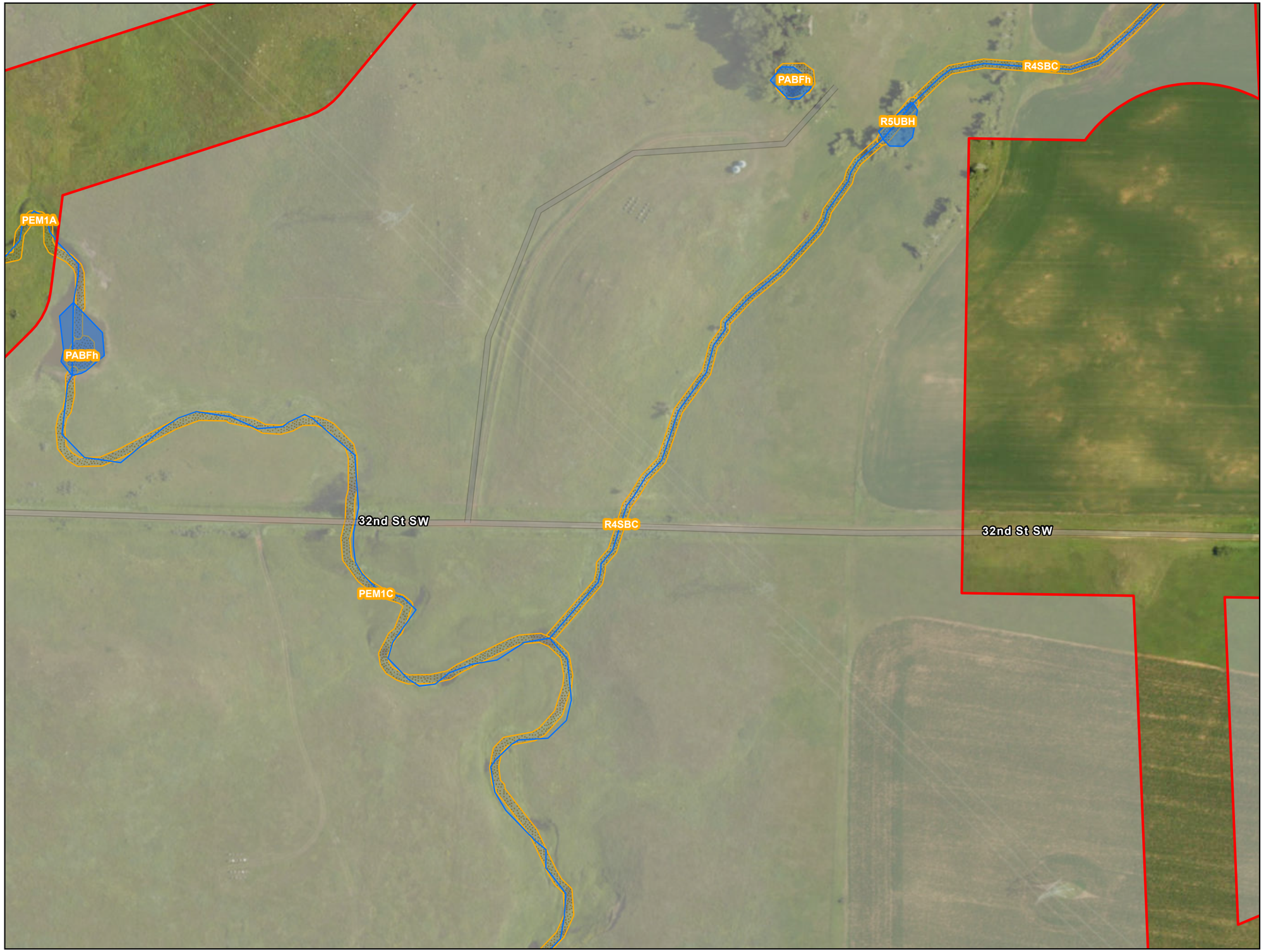


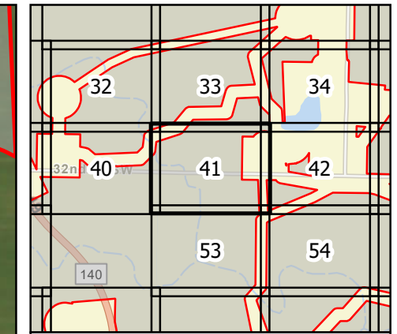


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
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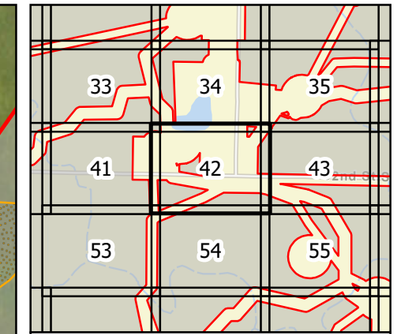


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Waterway (NHD)
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**Figure 4**
**Hydrology**
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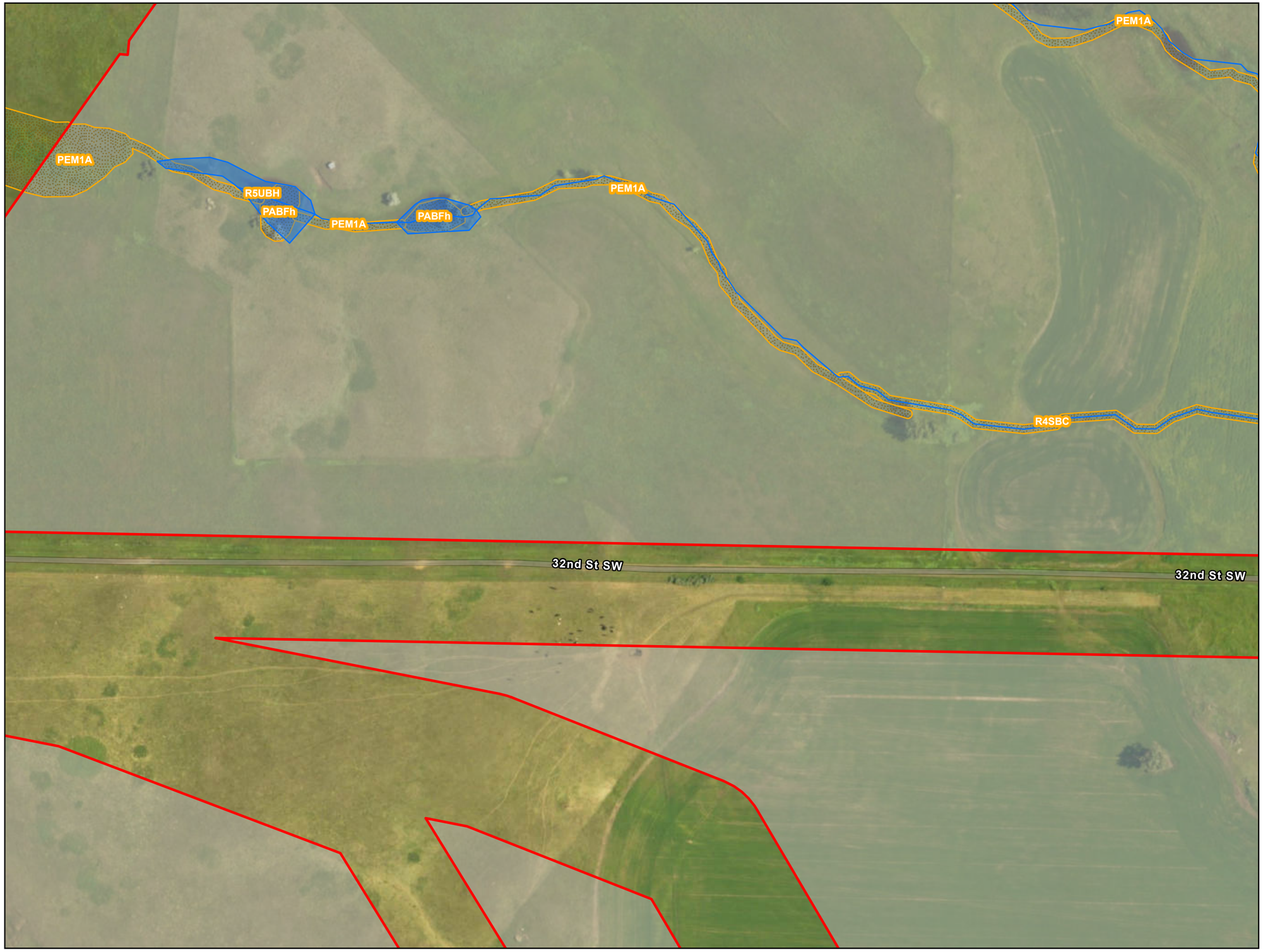


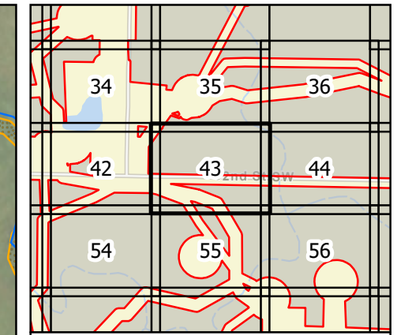


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Waterbody (NHD)

**Figure 4**
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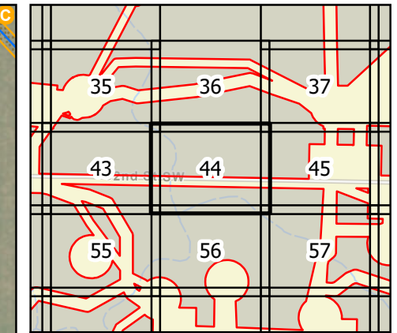


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Survey Area
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Waterbody (NHD)

**Figure 4**
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**Longspur Wind Project**
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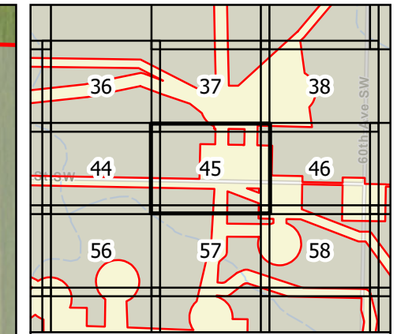


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Survey Area
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Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
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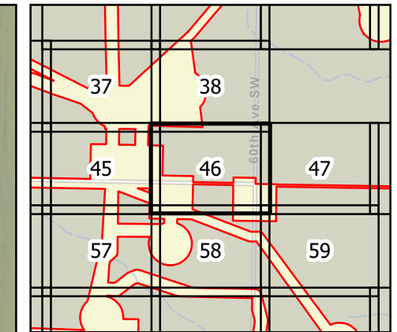


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**Figure 4**
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**Mercer & Morton Counties,**
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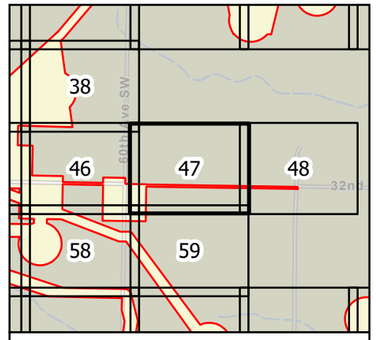


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
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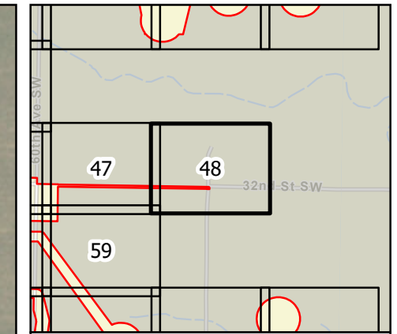


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**Figure 4**
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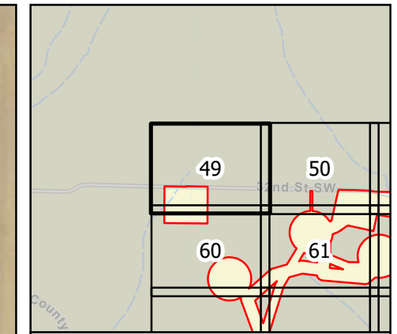


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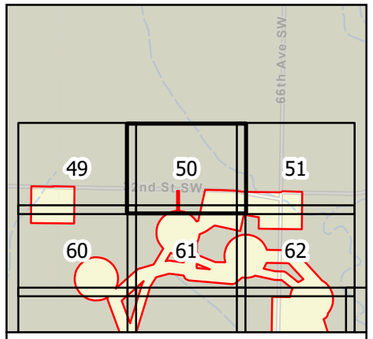


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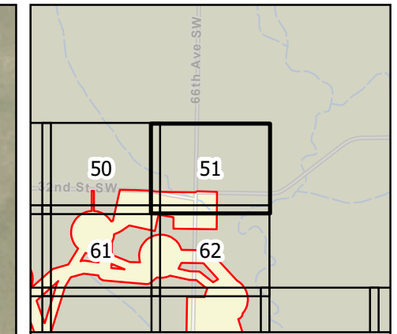


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**Figure 4**
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**Longspur Wind Project**
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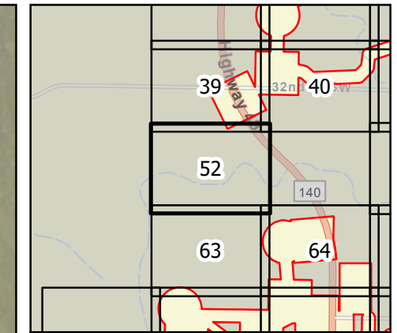


Survey Area
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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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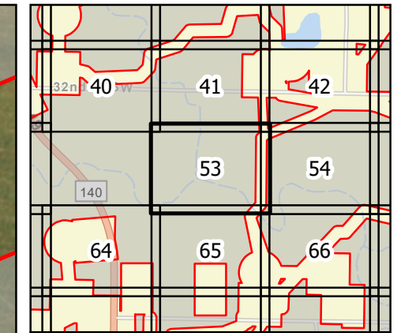


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**Figure 4**
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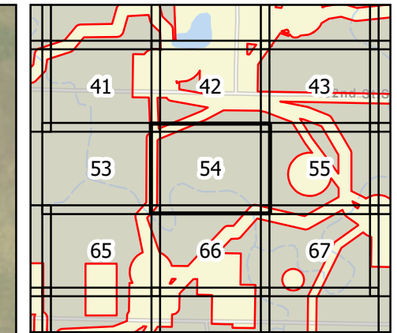


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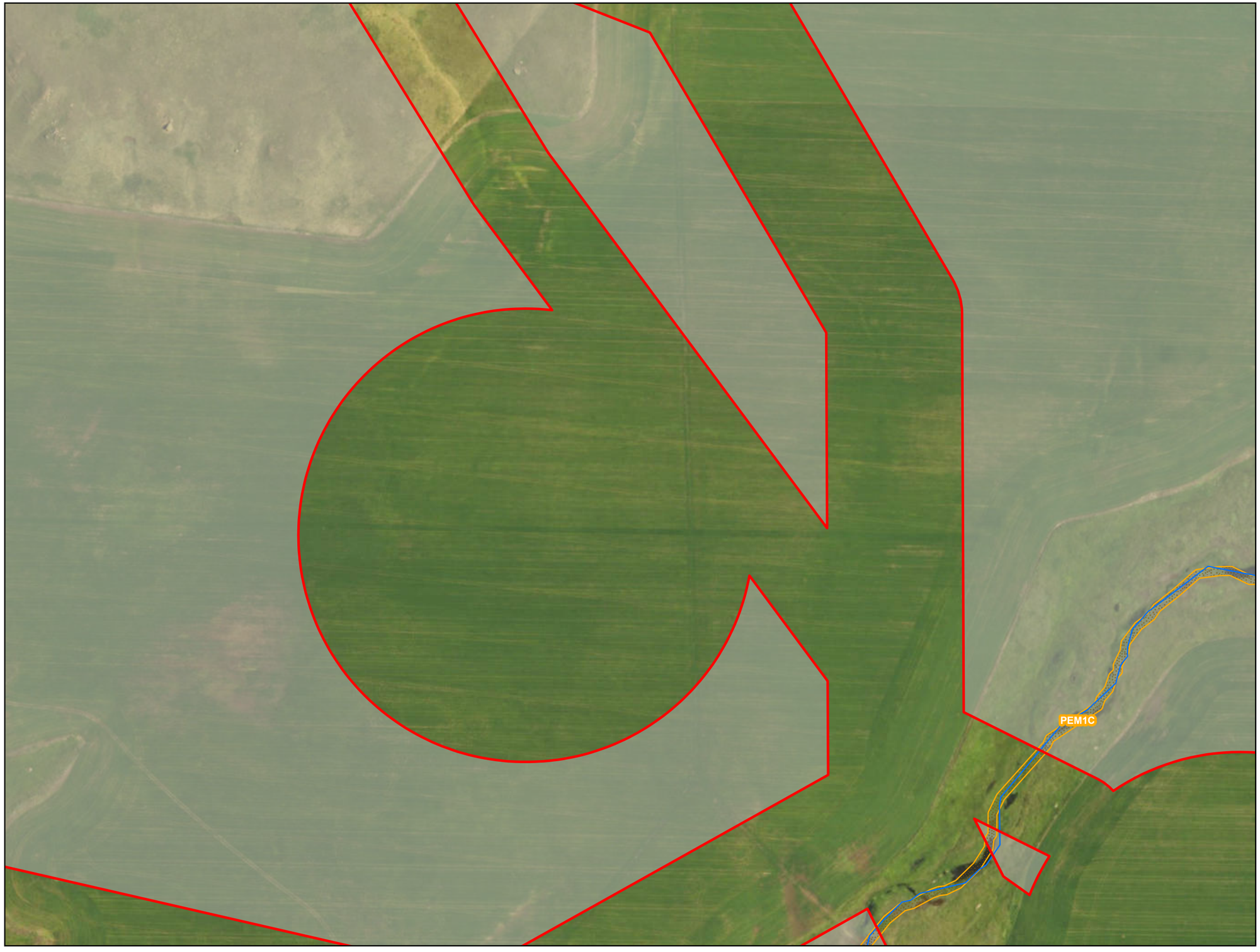


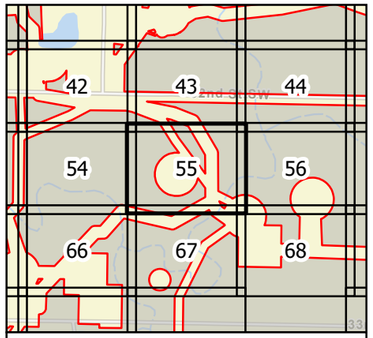


0 100 200 Feet

1 inch = 200 feet

N
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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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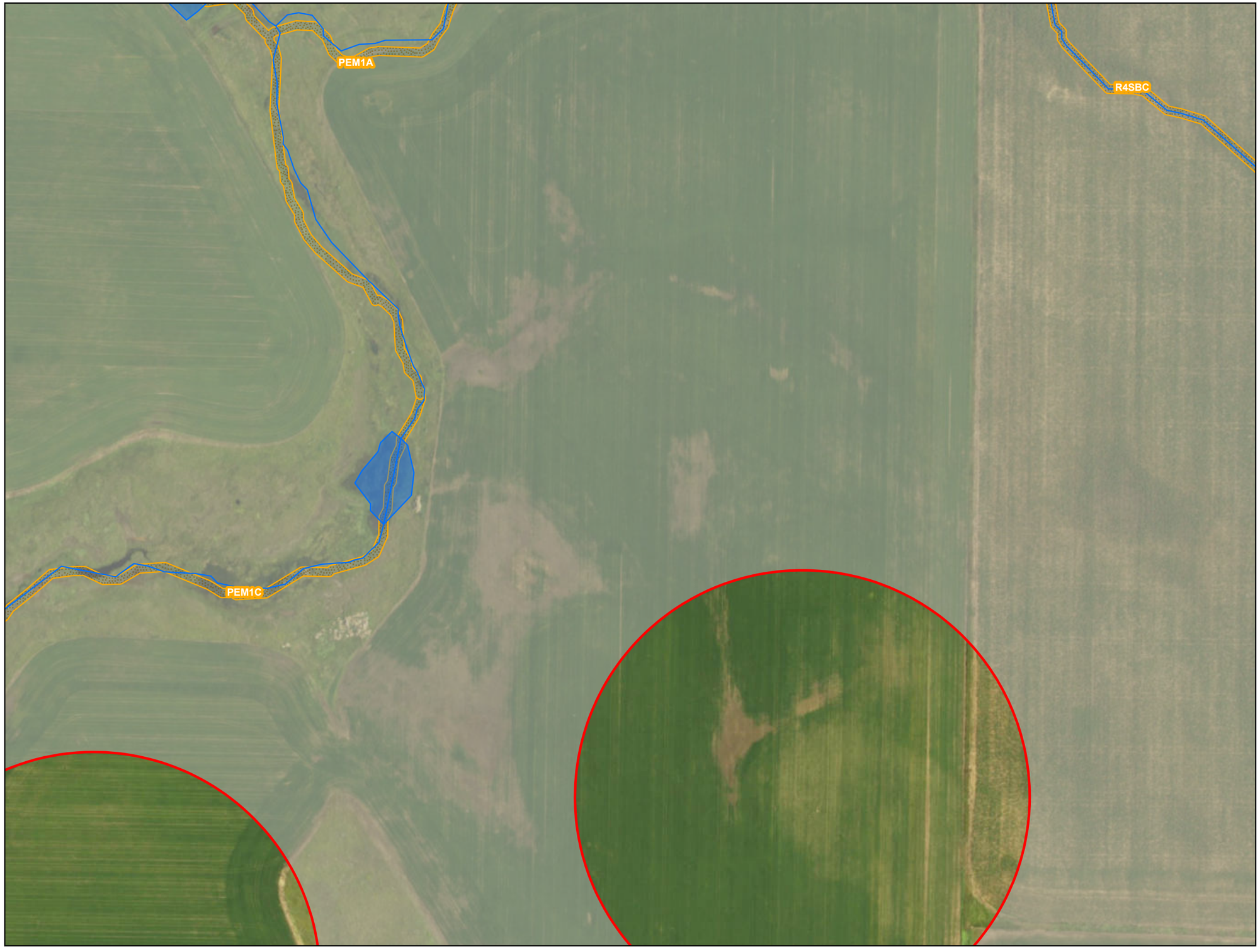


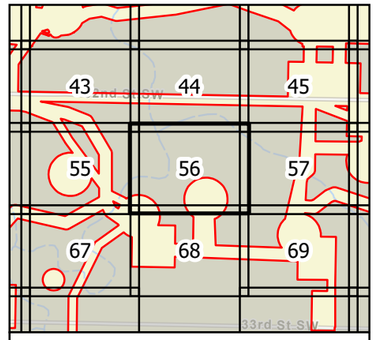


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- Survey Area
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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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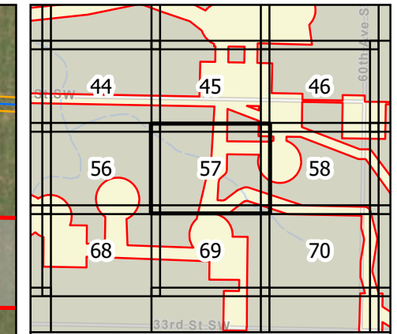


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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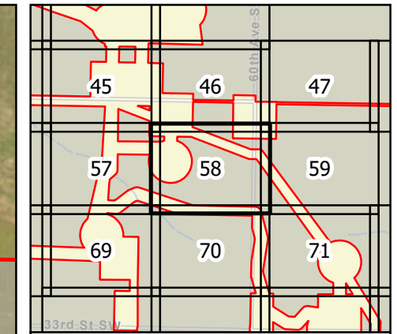


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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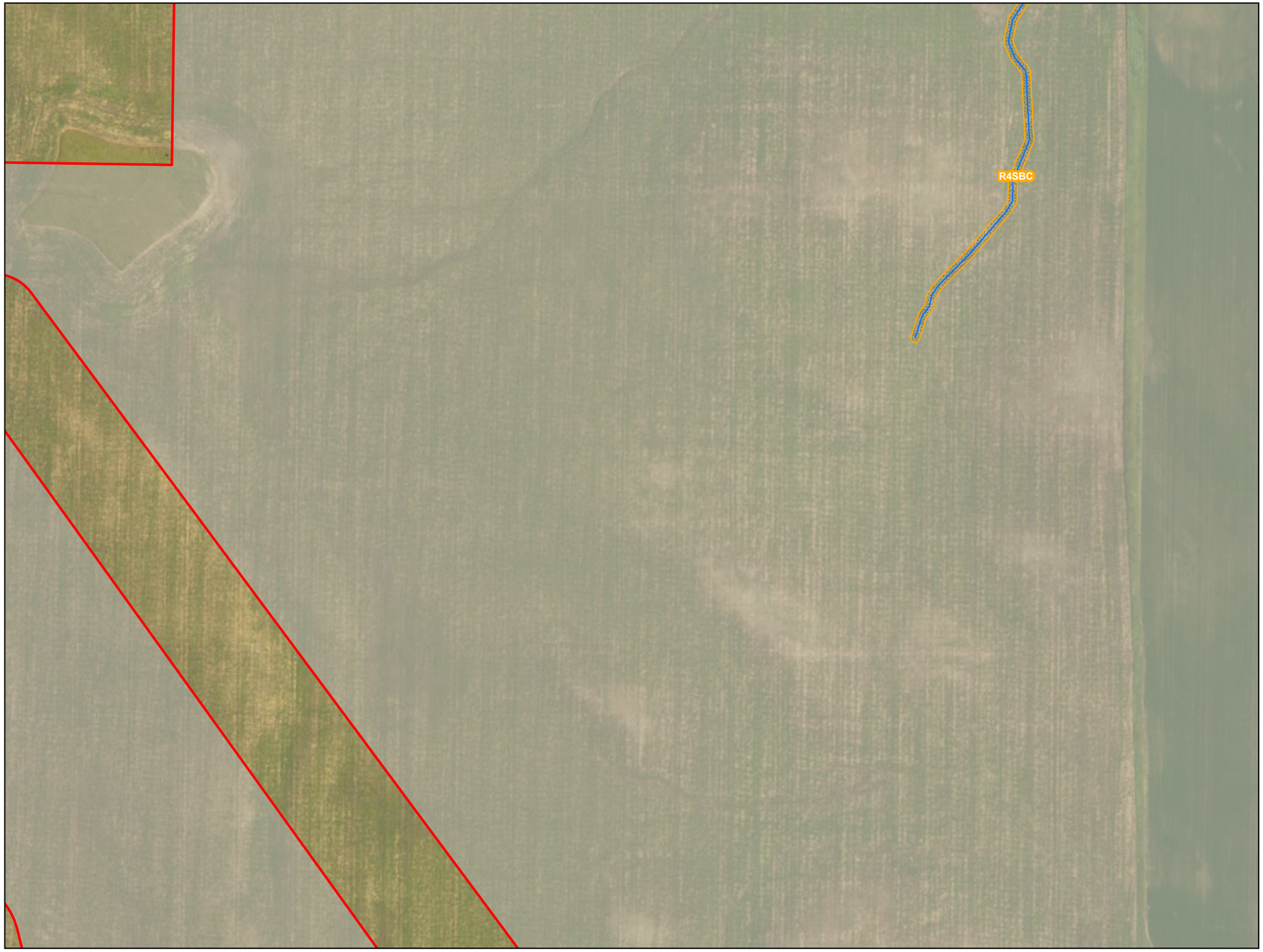


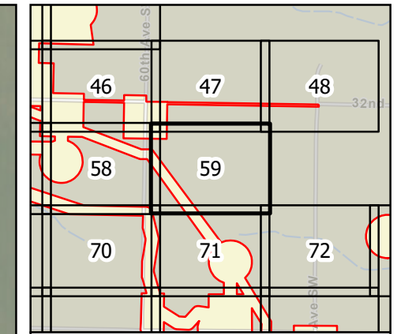


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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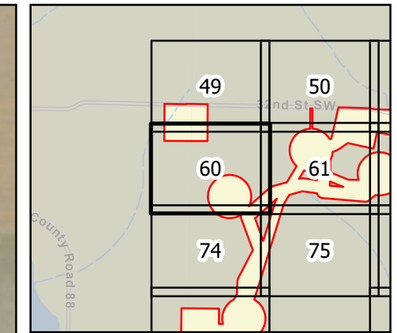


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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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**Mercer & Morton Counties,**
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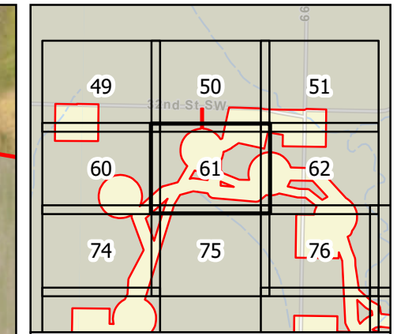


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Waterway (NHD)
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**Figure 4**
**Hydrology**
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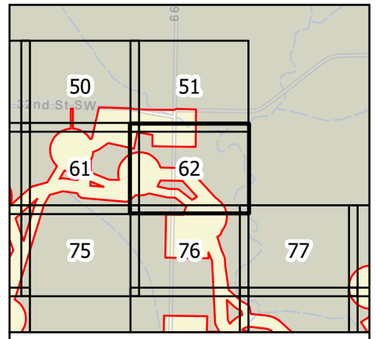


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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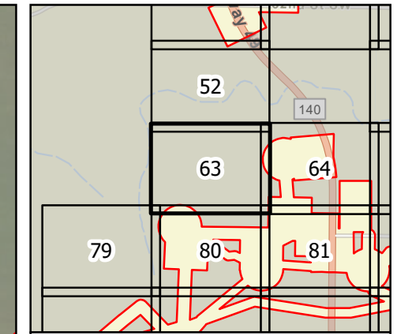


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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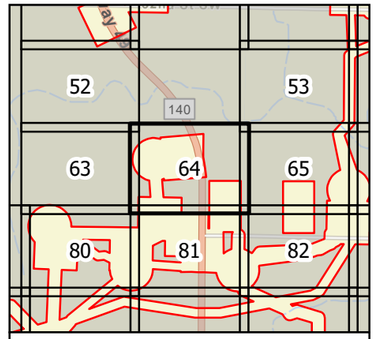


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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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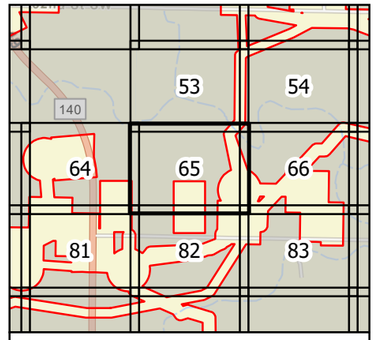


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Survey Area
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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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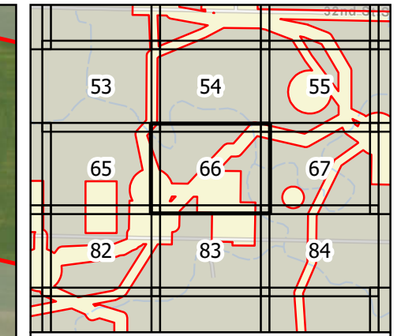


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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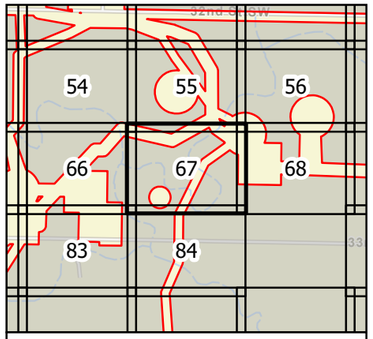


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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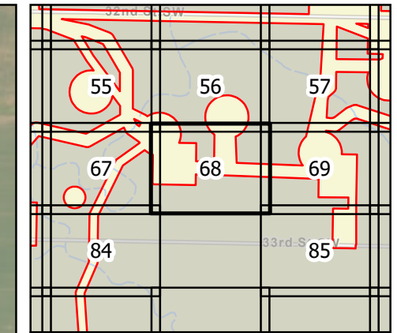


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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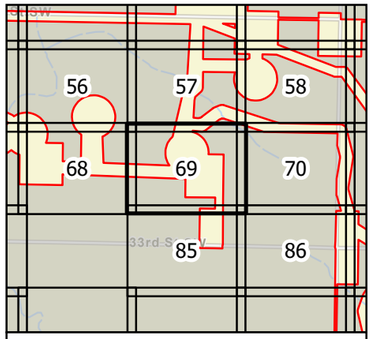


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- Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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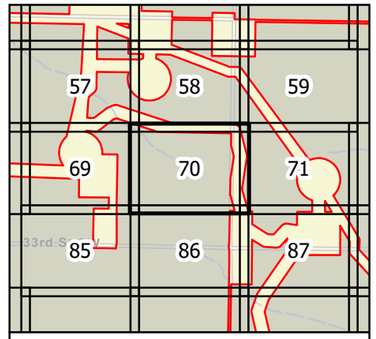


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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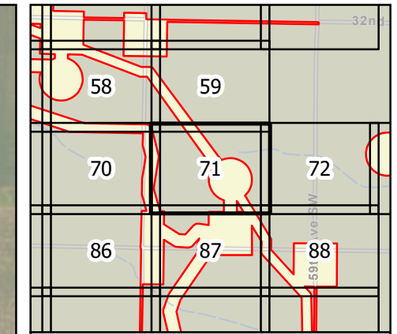


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
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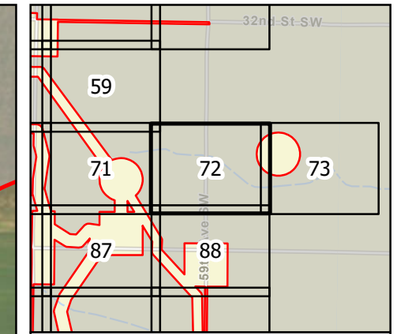


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N W E S

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Wetland (NWI)
Waterway (NHD)
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**Figure 4**
**Hydrology**
**Longspur Wind Project**
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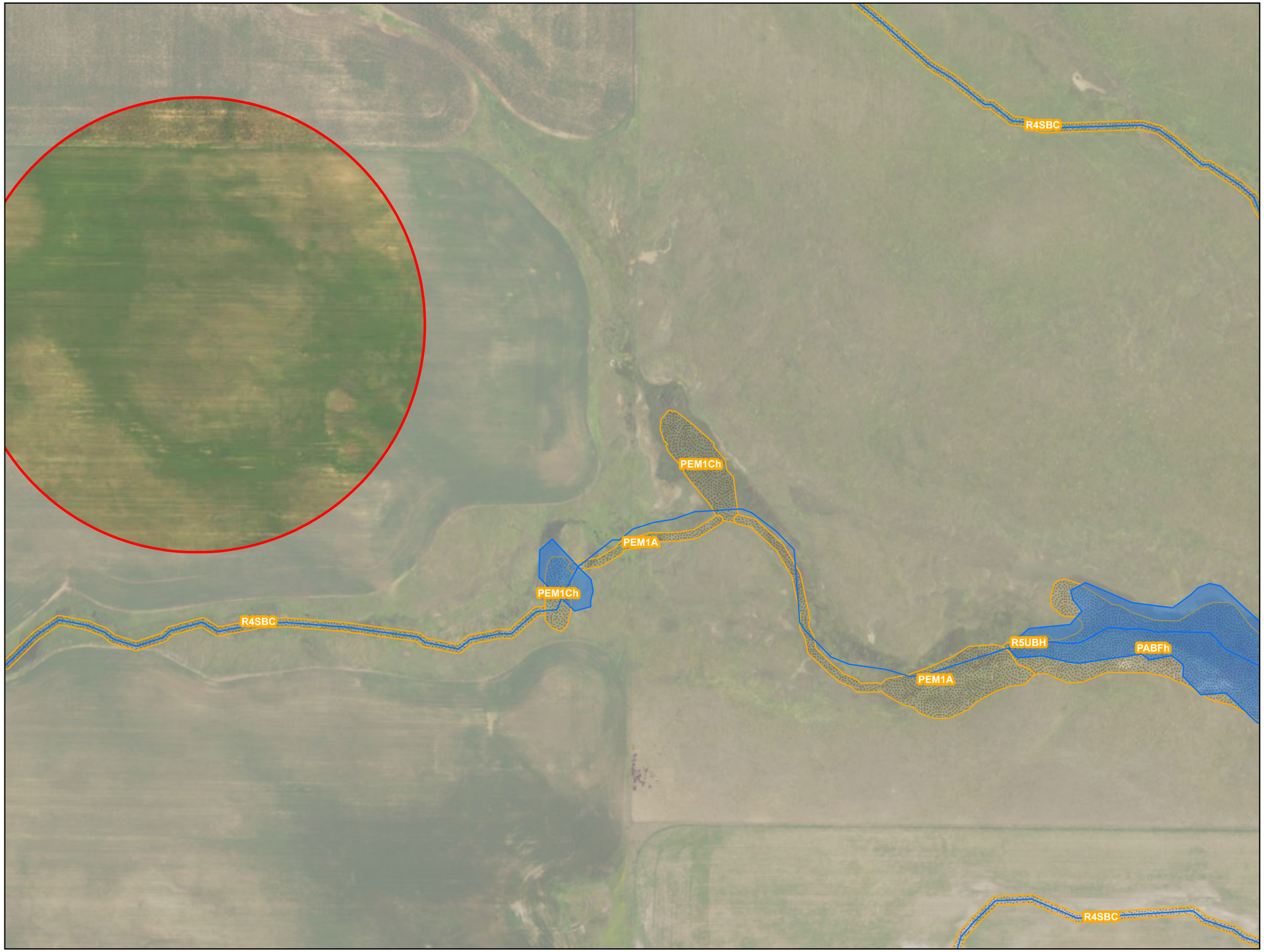


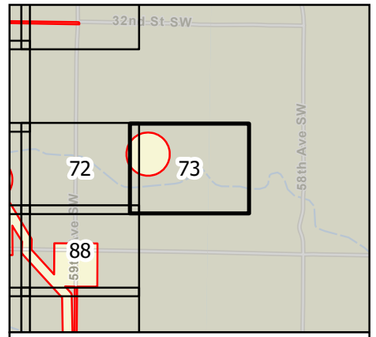


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**Figure 4**
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**Mercer & Morton Counties,**
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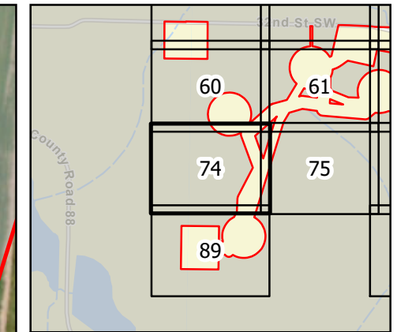


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
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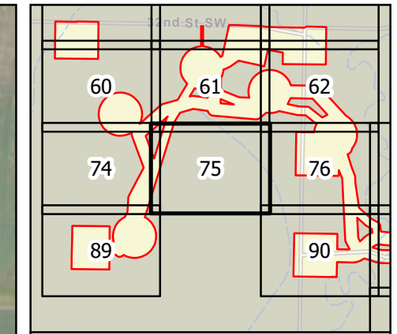


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**Figure 4**
**Hydrology**
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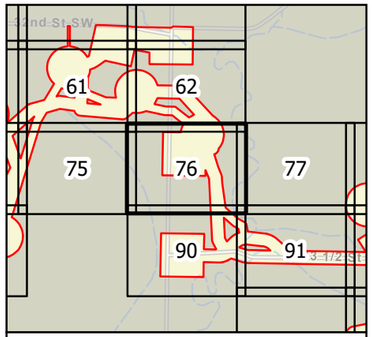


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**Figure 4**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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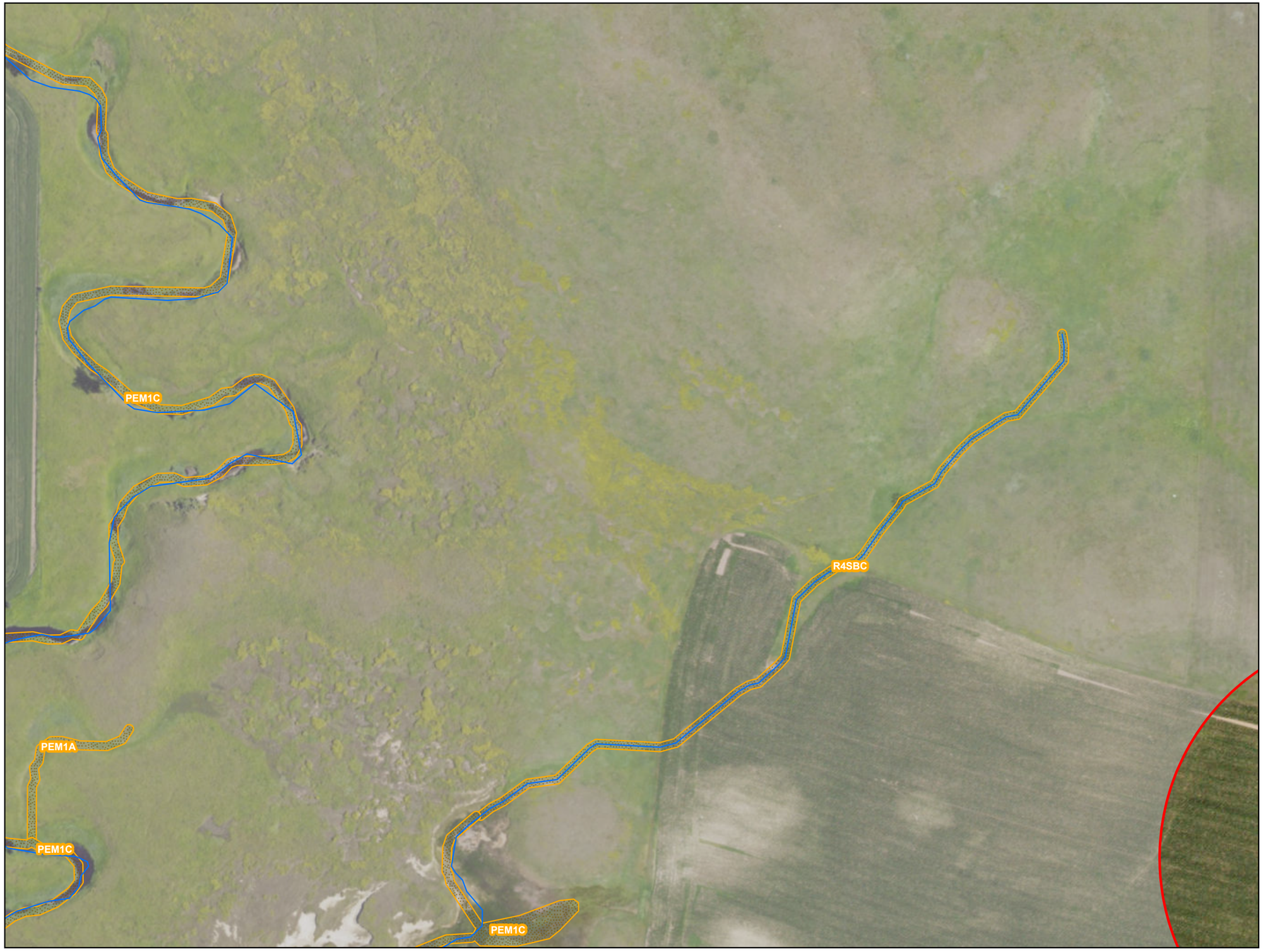


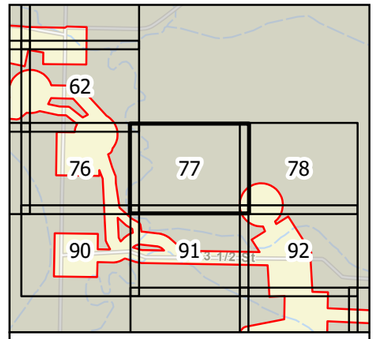


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**Figure 4**
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**Longspur Wind Project**
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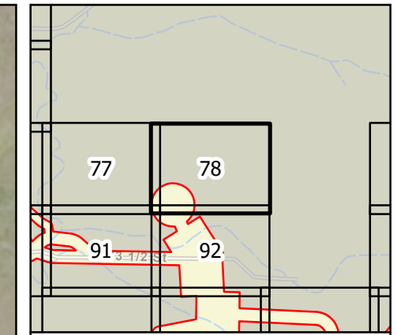


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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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**Minnesota Power**
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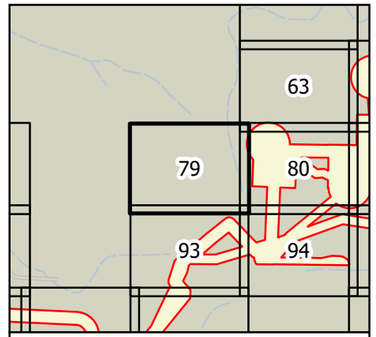


0 100 200 Feet

1 inch = 200 feet

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- Survey Area
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**Figure 4**
**Hydrology**
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**Minnesota Power**
**Mercer & Morton Counties,**
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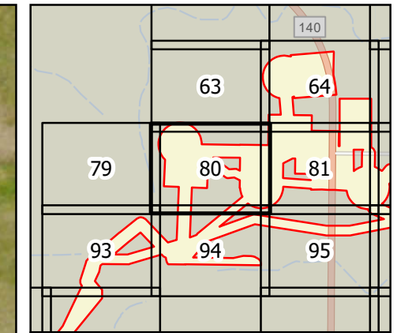


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N W E S

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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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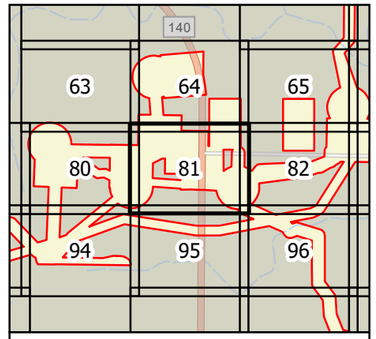


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**Figure 4**
**Hydrology**
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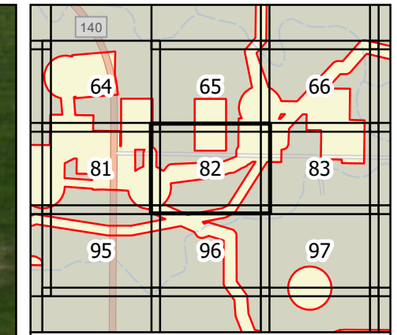


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Waterway (NHD)
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**Figure 4**
**Hydrology**
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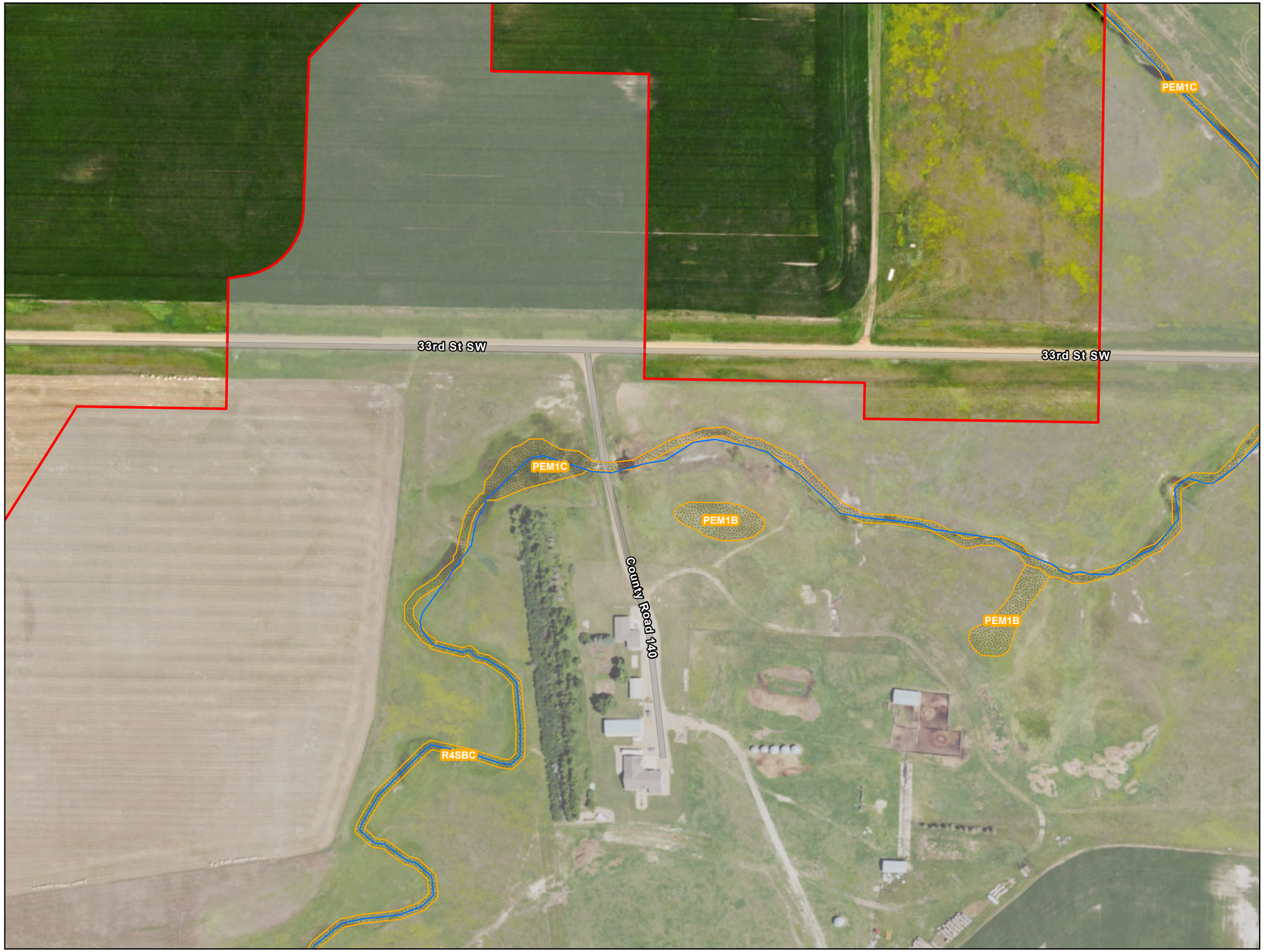


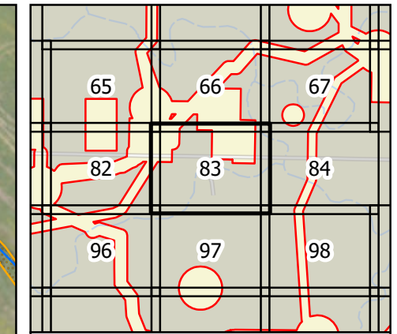


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**Figure 4**
**Hydrology**
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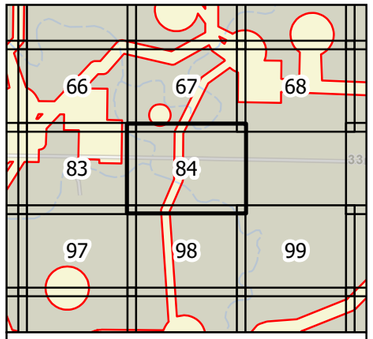


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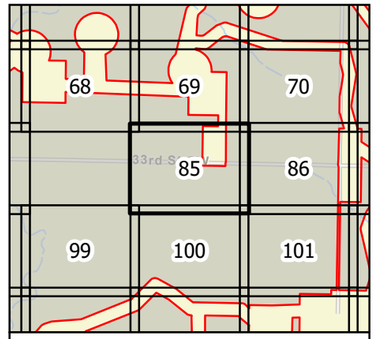


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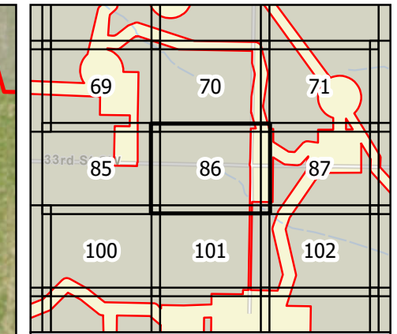


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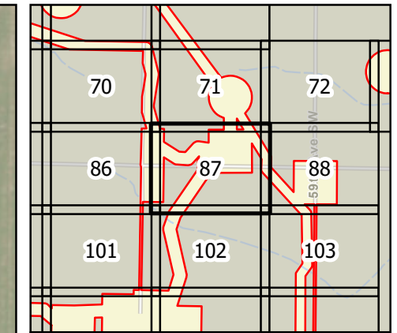


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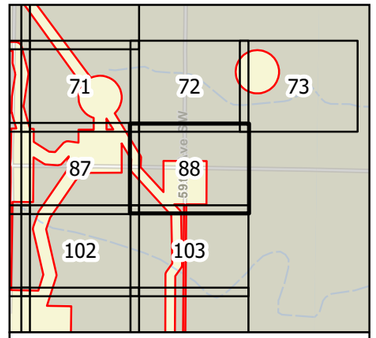


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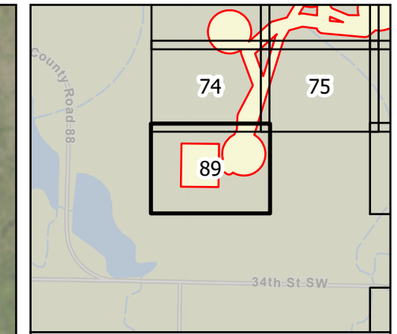


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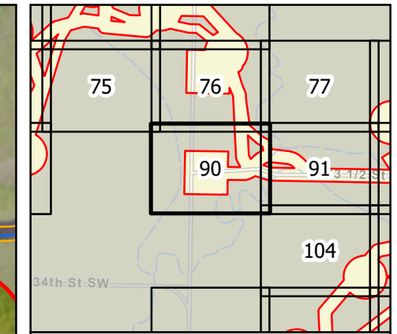


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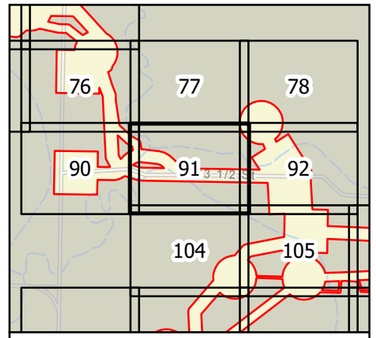


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**Mercer & Morton Counties,**
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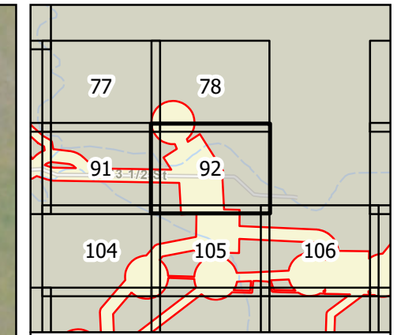


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Survey Area
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Waterway (NHD)
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**Figure 4**
**Hydrology**
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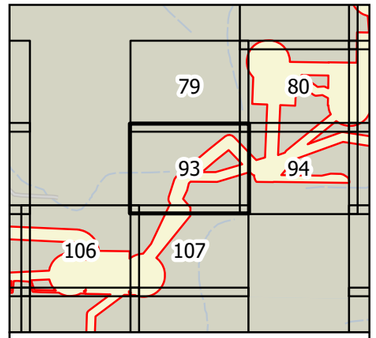


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Survey Area
Wetland (NWI)
Waterway (NHD)
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**Figure 4**
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**Minnesota Power**
**Mercer & Morton Counties,**
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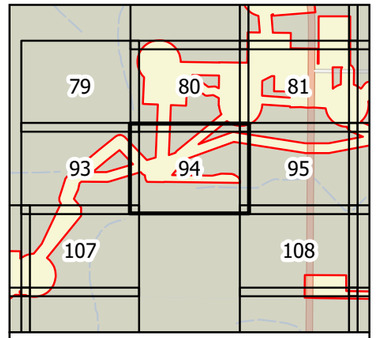


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**Figure 4**
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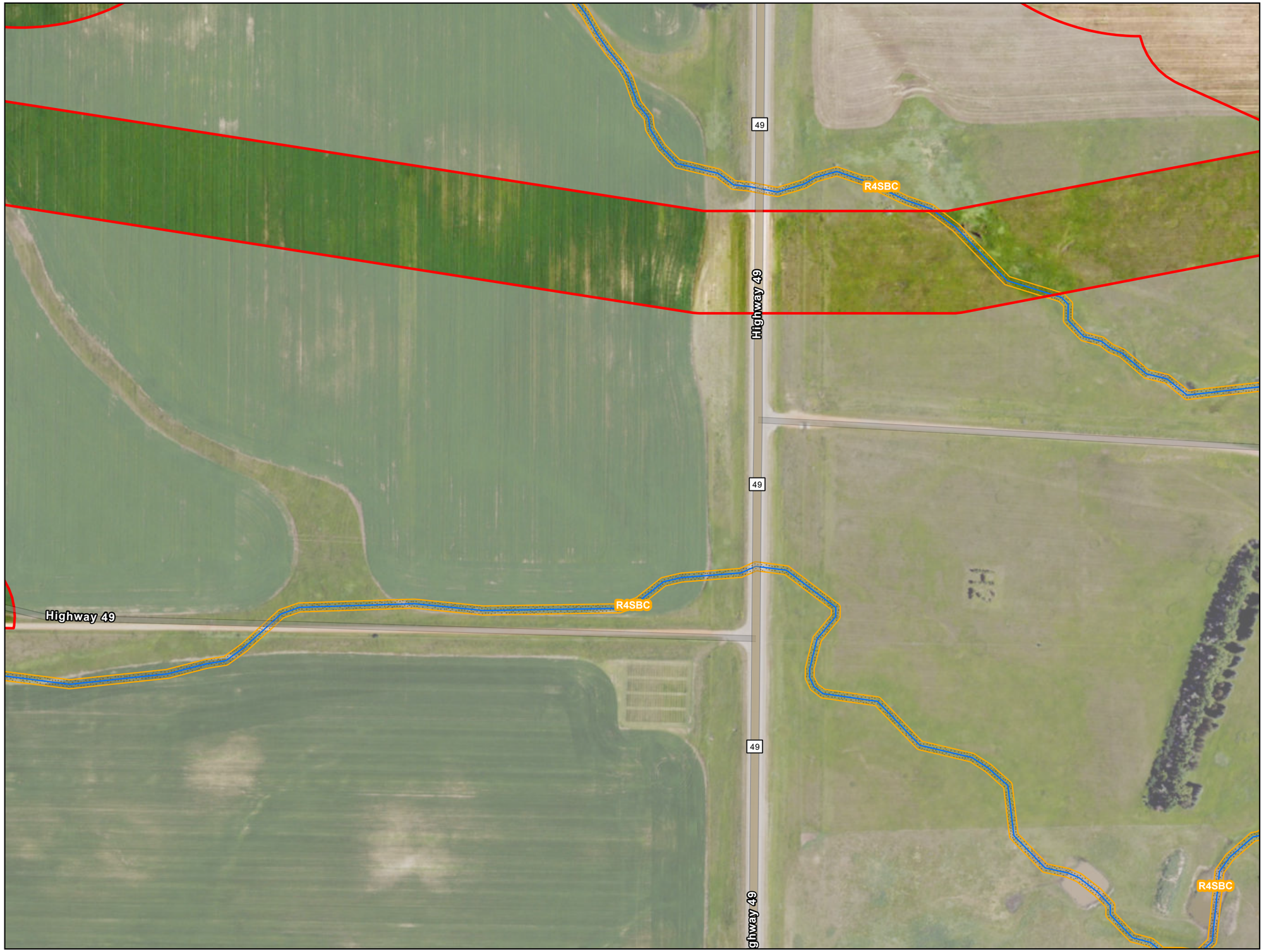


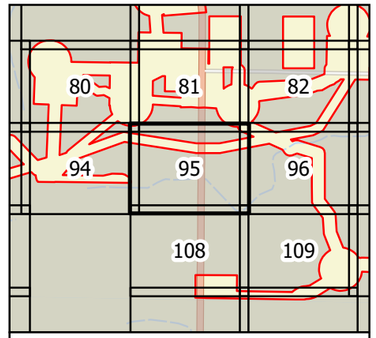


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**Hydrology**
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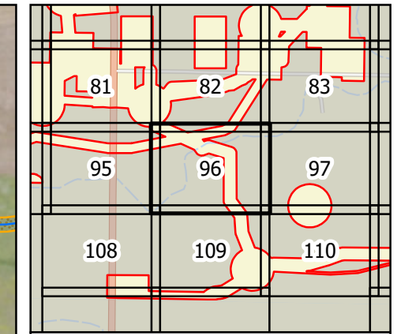


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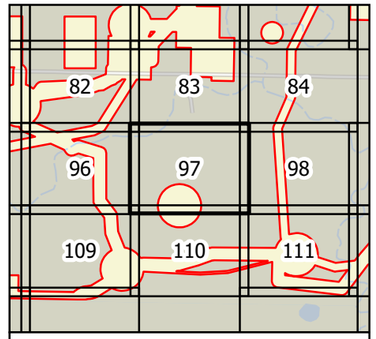


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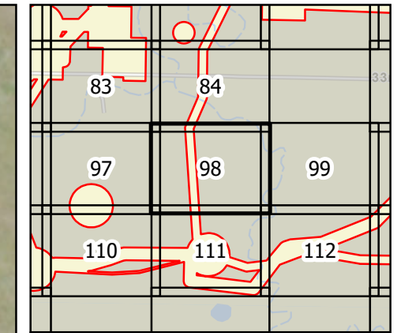


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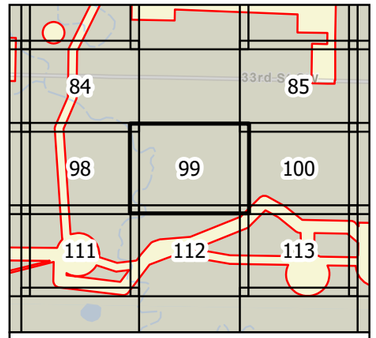


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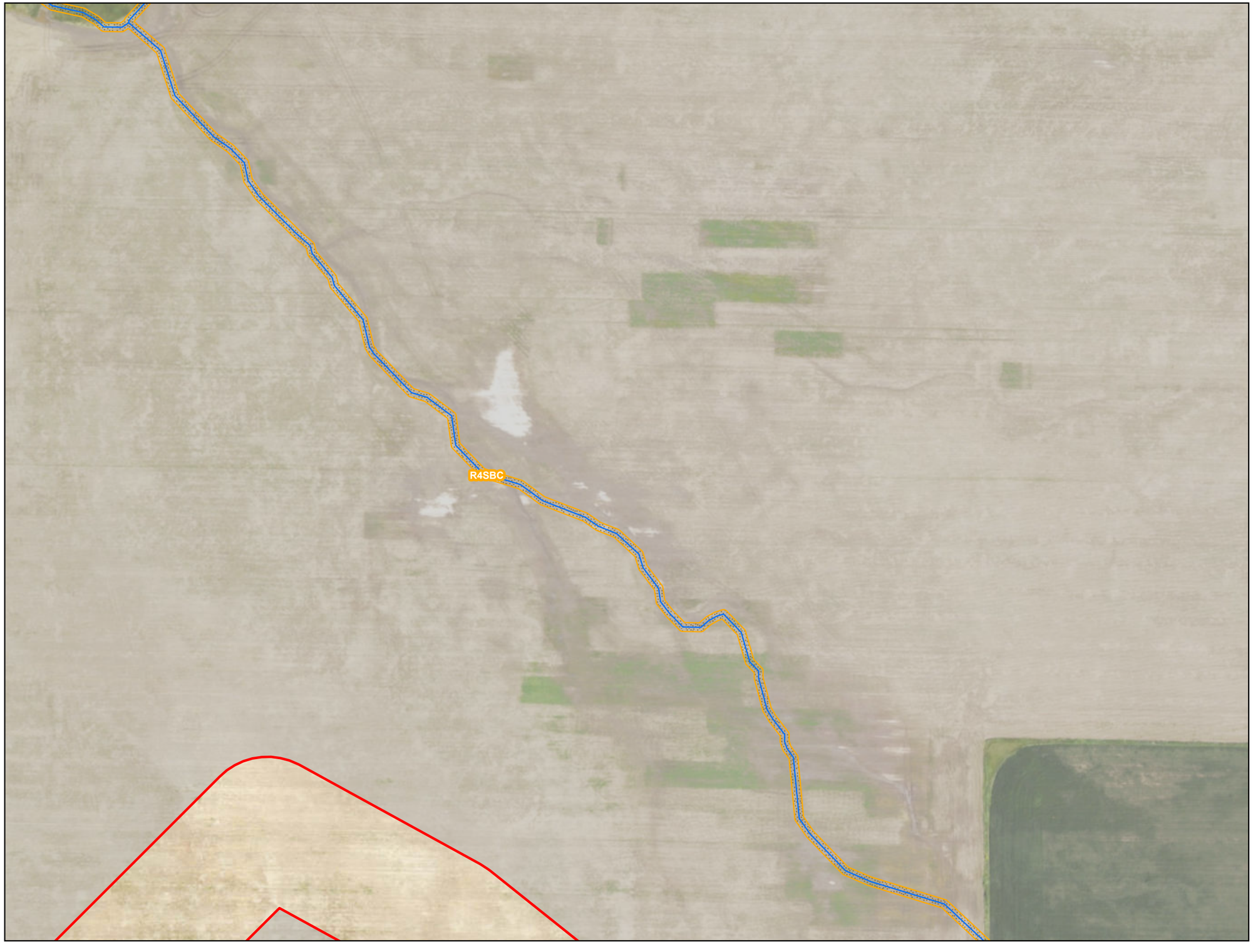


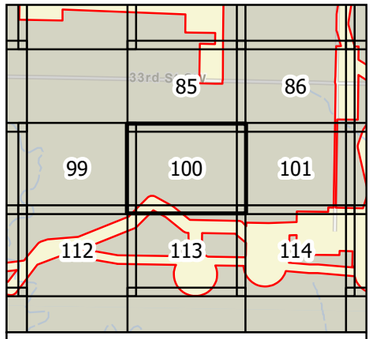


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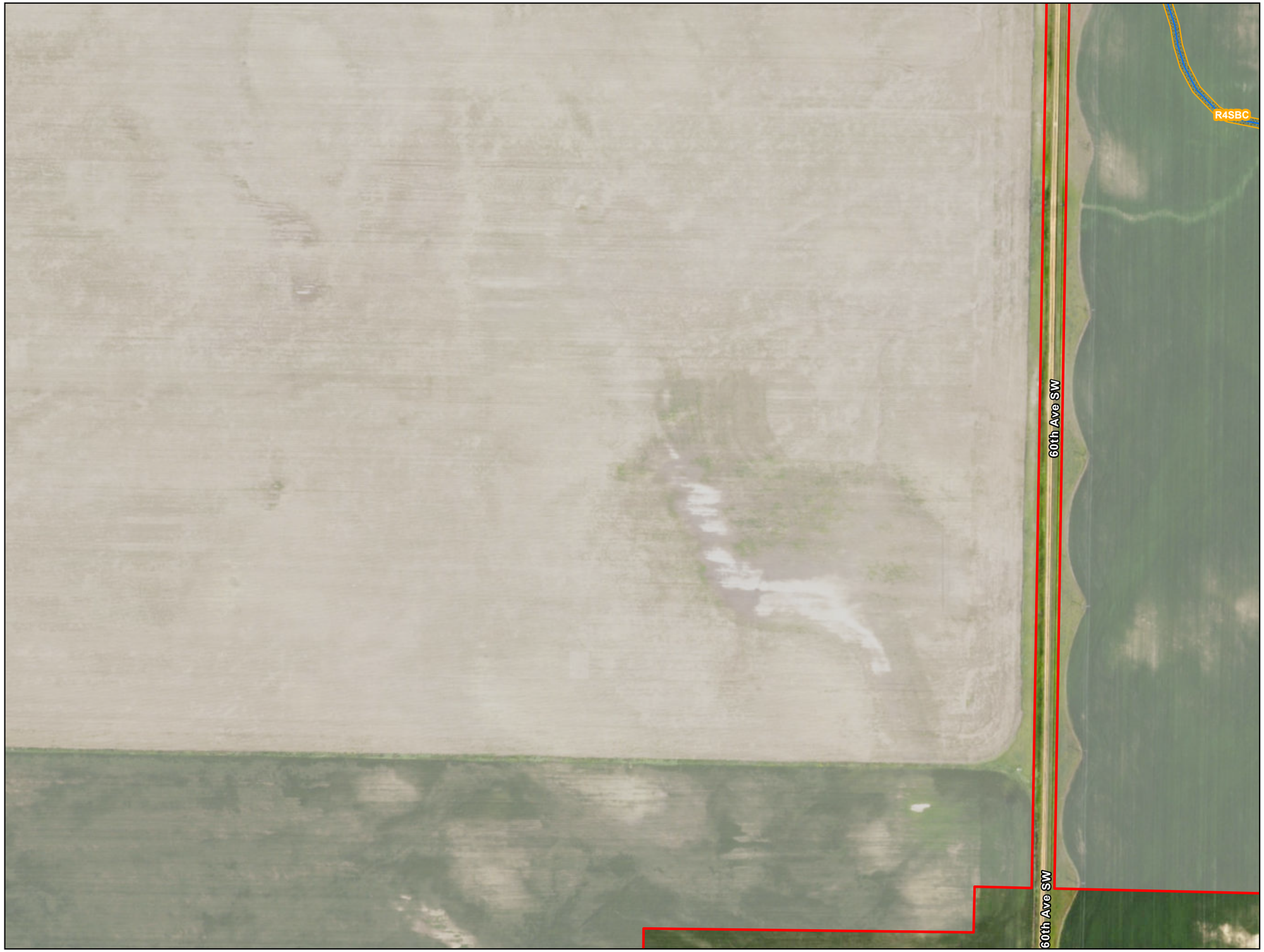


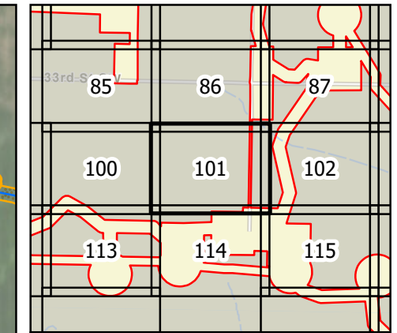


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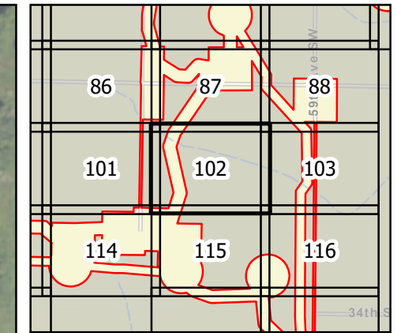


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Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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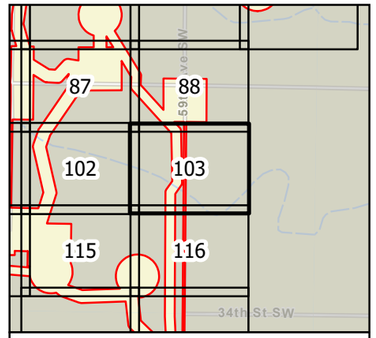


0 100 200 Feet

1 inch = 200 feet

N
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- Survey Area
- Wetland (NWI)
- Waterway (NHD)
- Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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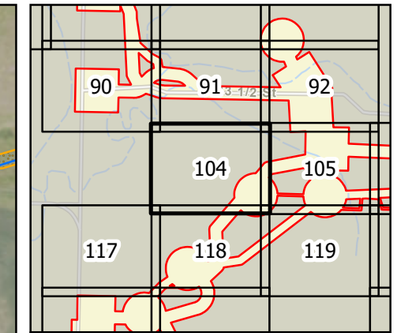


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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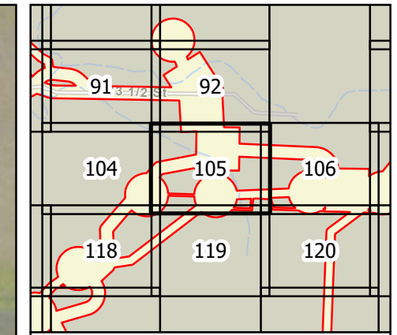


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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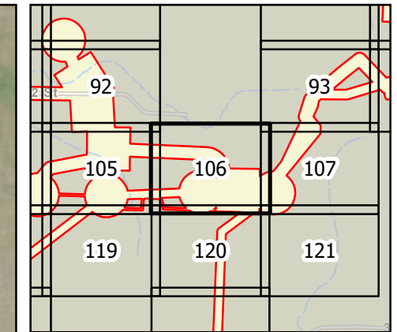


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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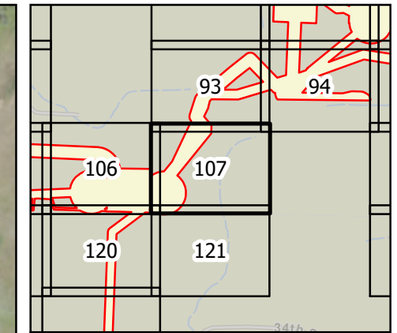


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Survey Area
Wetland (NWI)
Waterway (NHD)
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**Figure 4**
**Hydrology**
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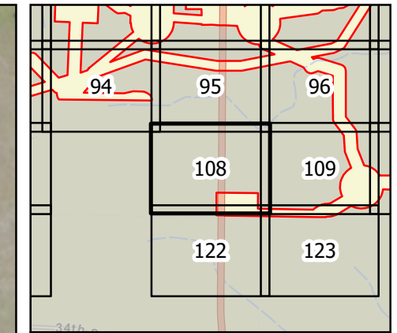


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**Figure 4**
**Hydrology**
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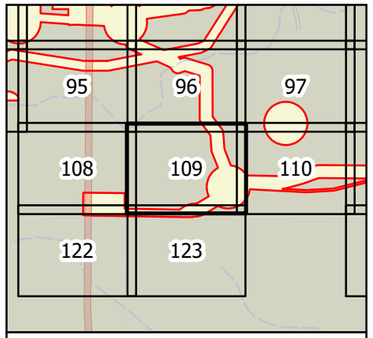


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**Figure 4**
**Hydrology**
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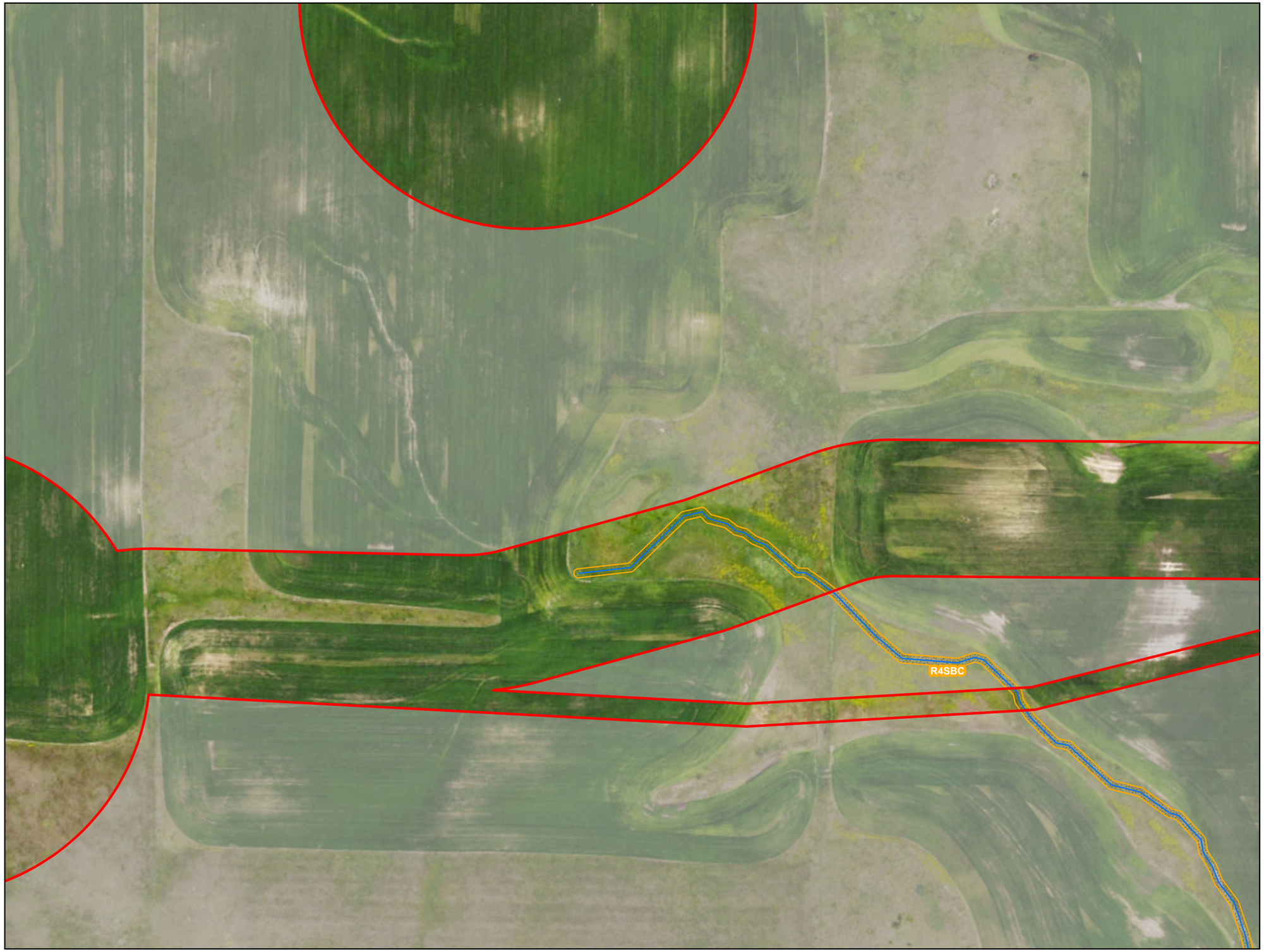


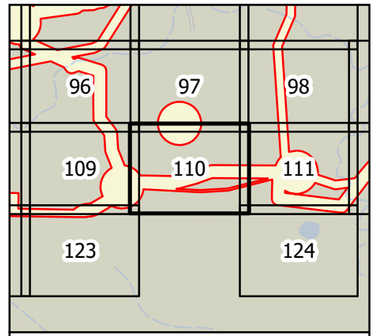


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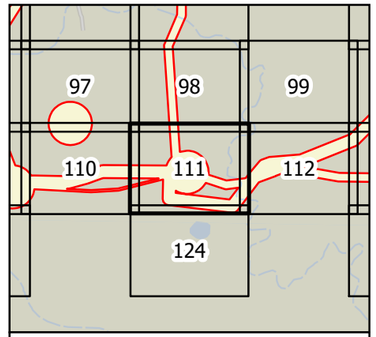


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**Figure 4**
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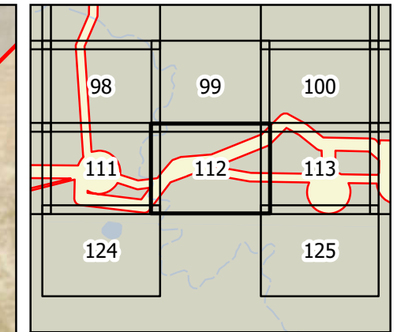


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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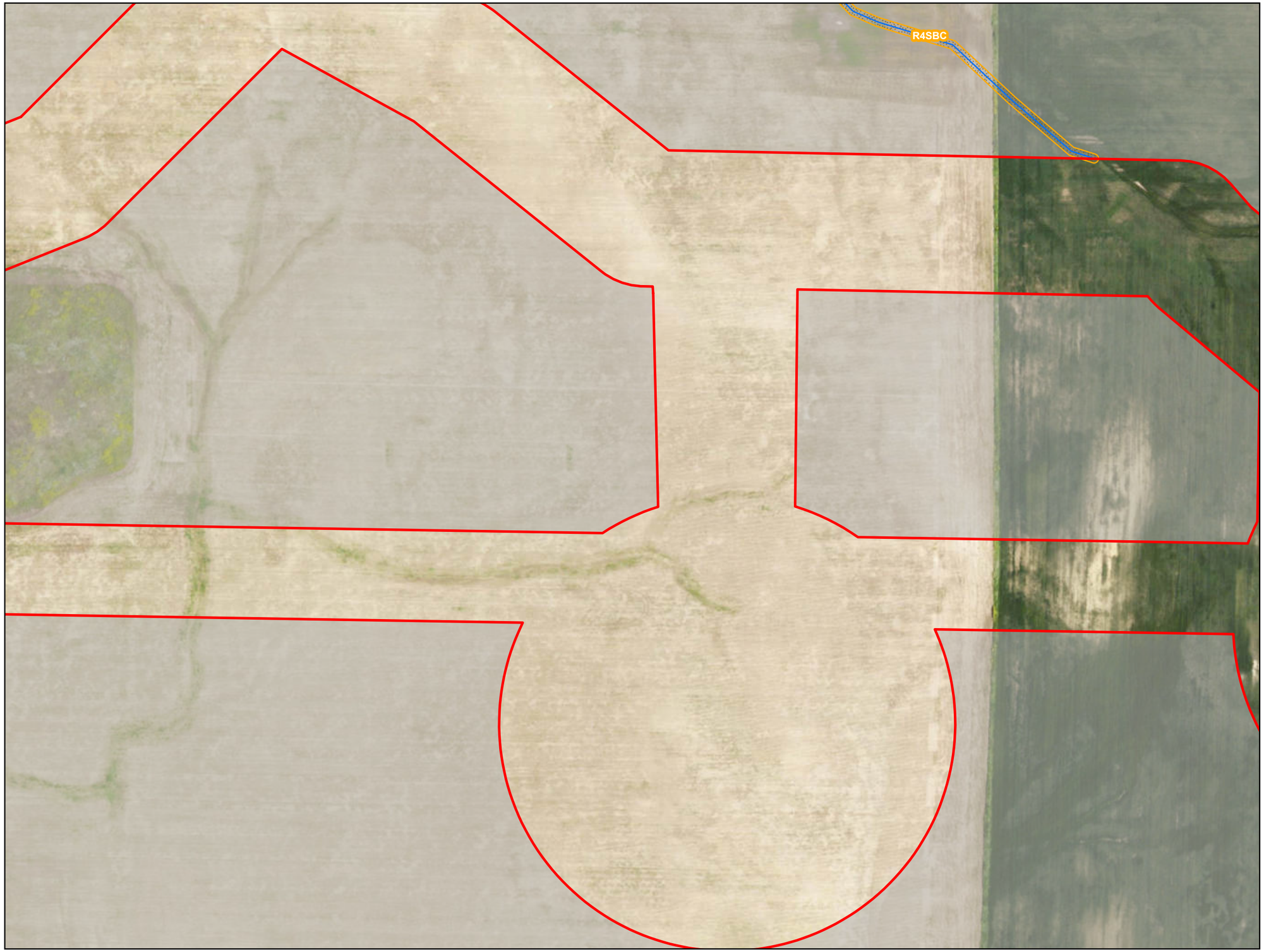


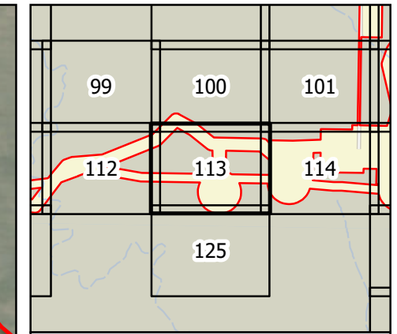


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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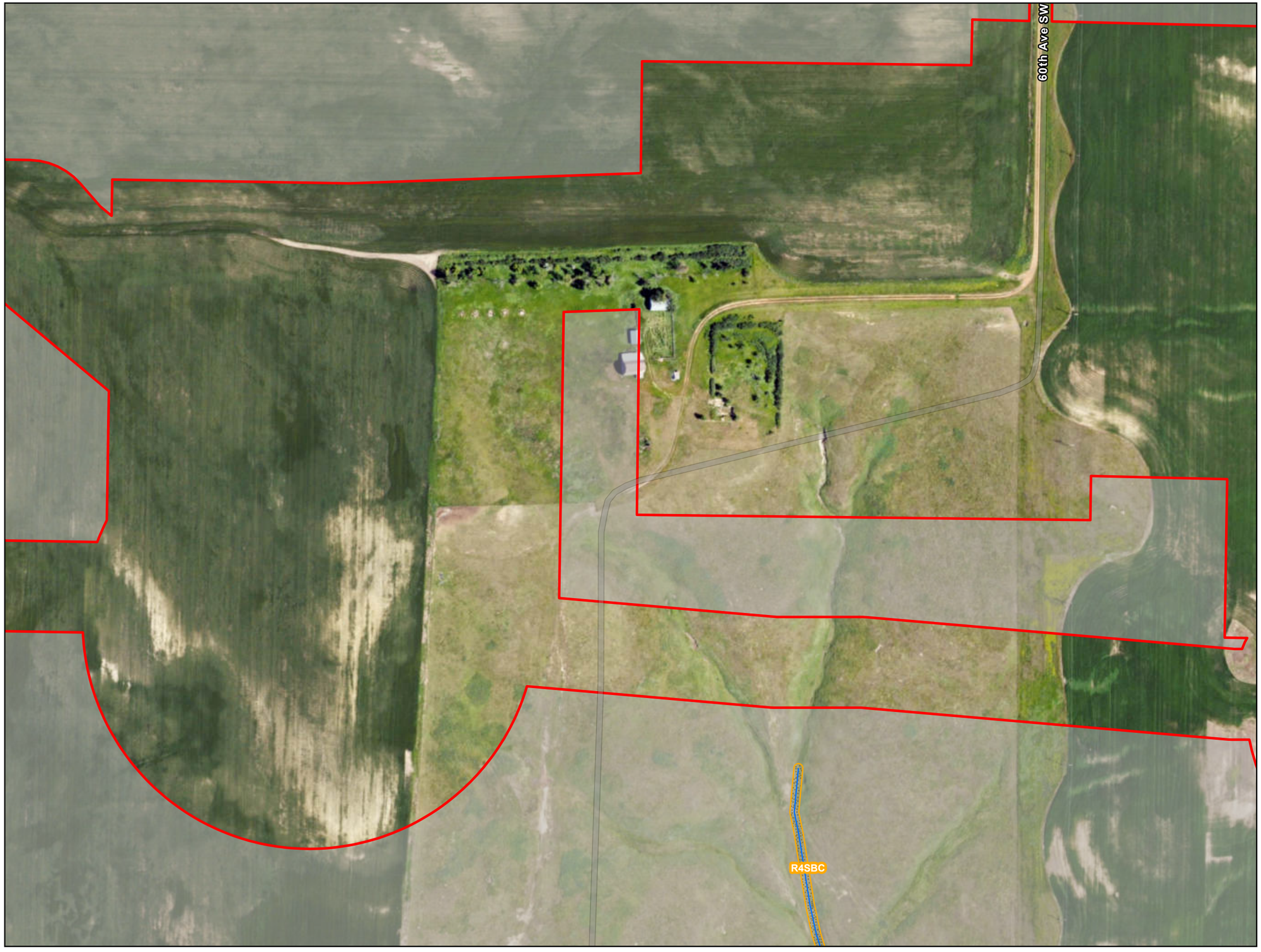


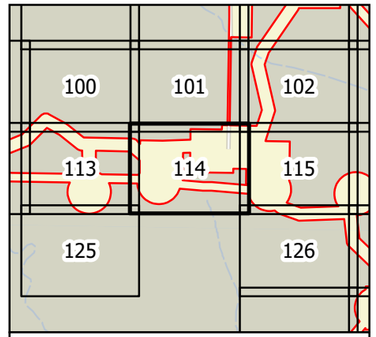


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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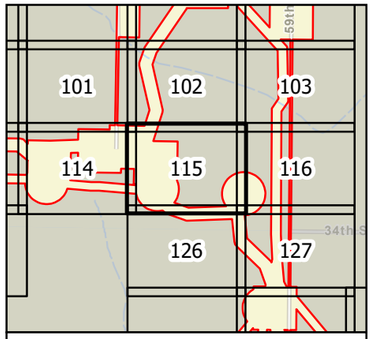


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**Figure 4**
**Hydrology**
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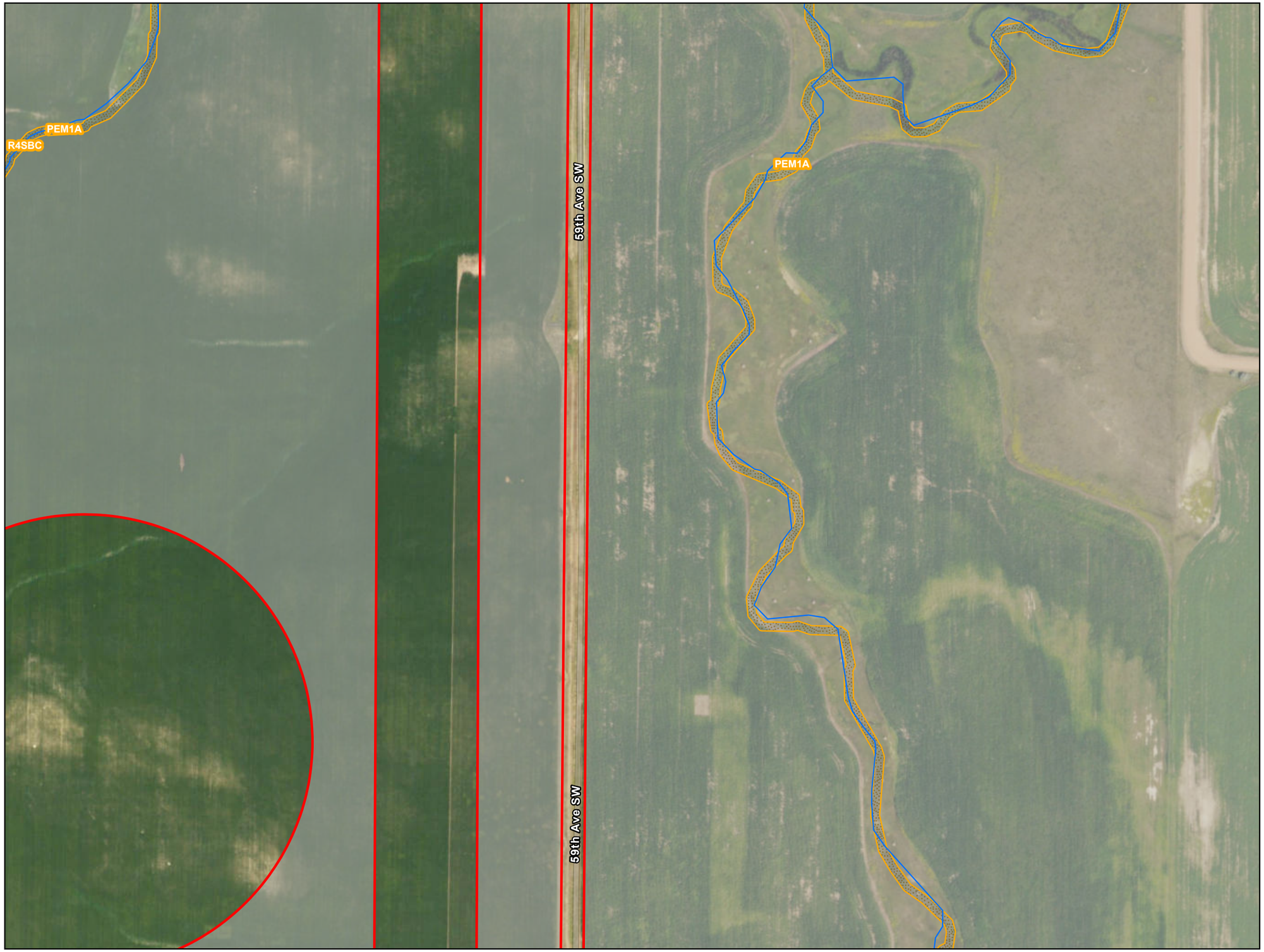


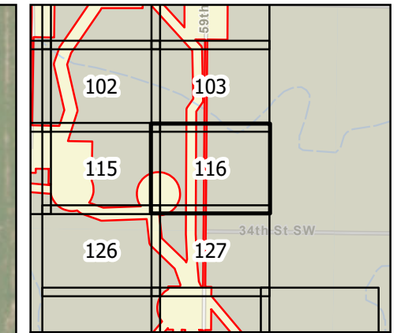


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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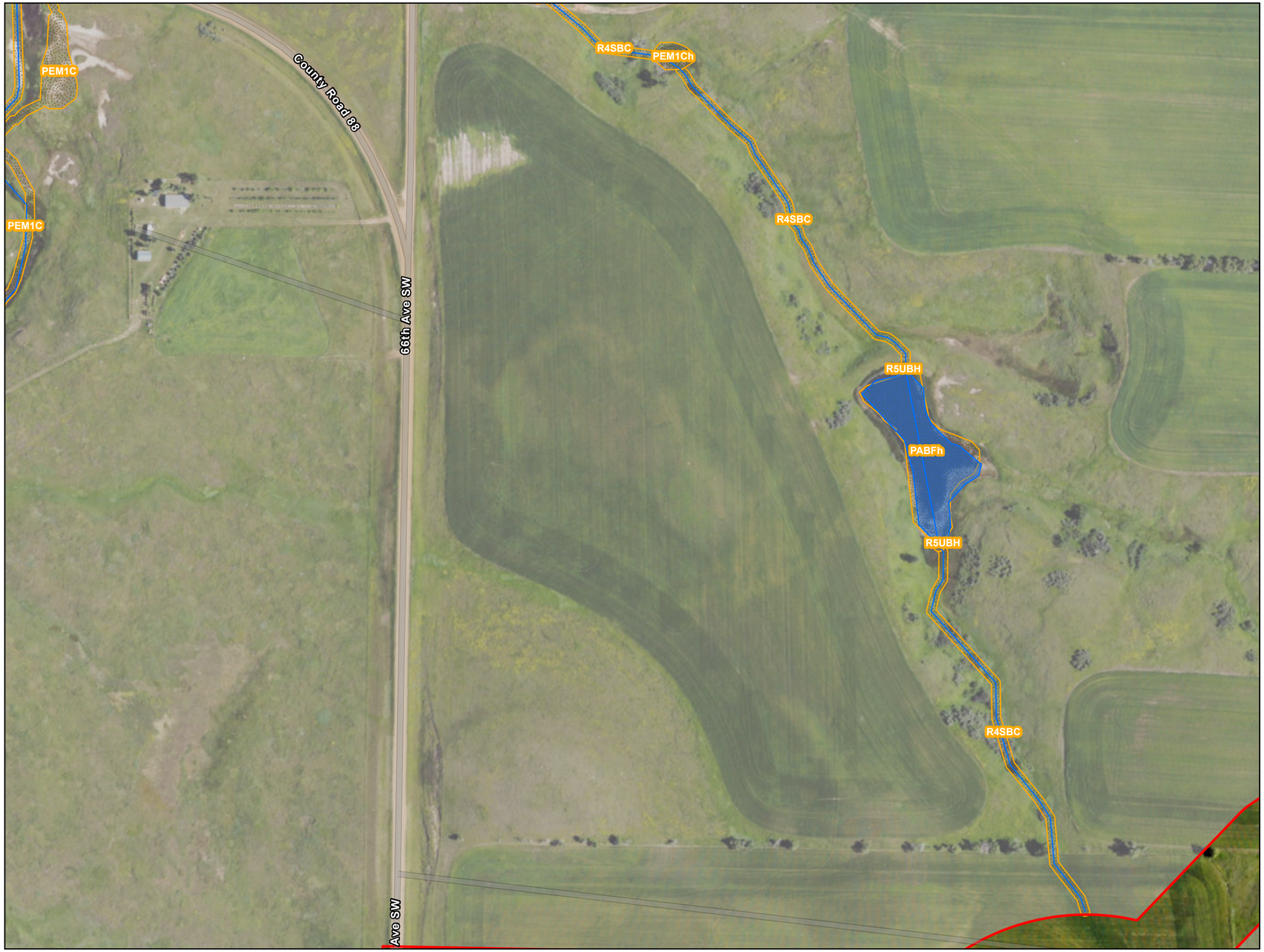


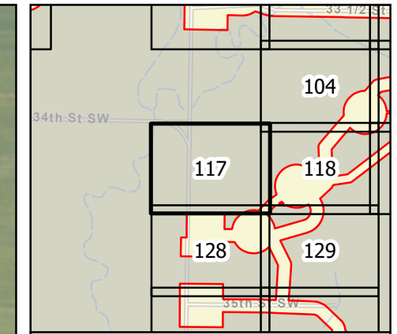


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N W E S

Survey Area

Wetland (NWI)

Waterway (NHD)

Waterbody (NHD)

**Figure 4**
**Hydrology**
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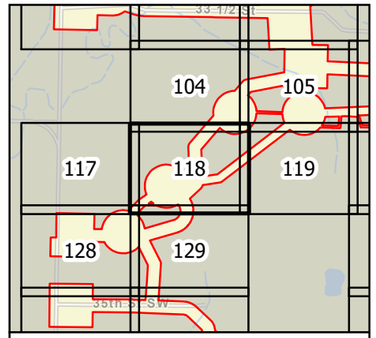


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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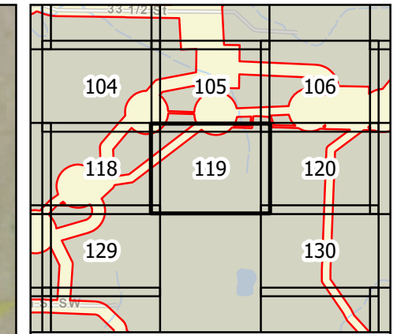


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**Figure 4**
**Hydrology**
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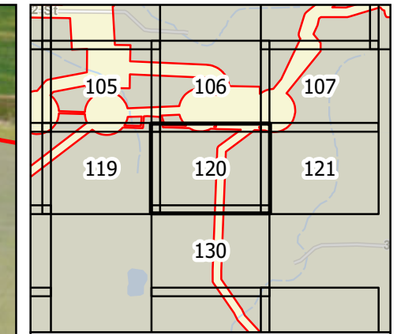


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**Figure 4**
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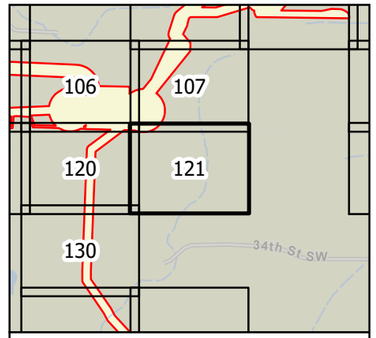


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**Mercer & Morton Counties,**
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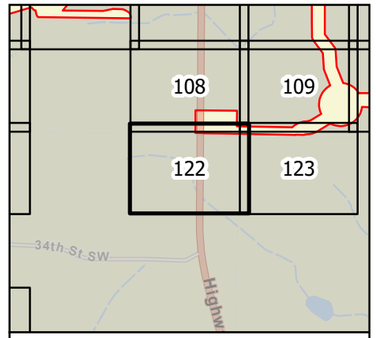


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**Figure 4**
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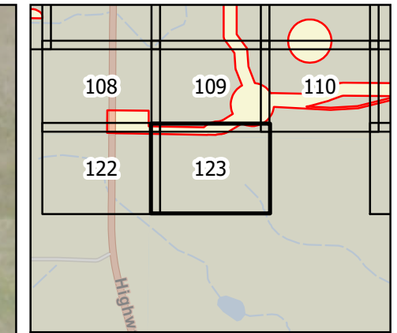


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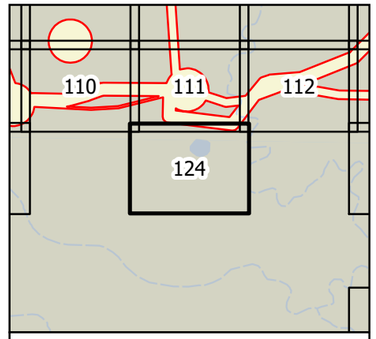


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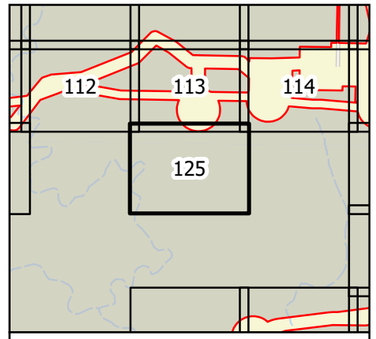


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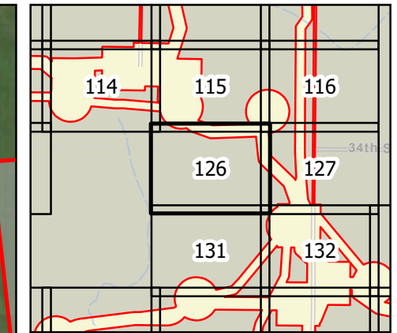


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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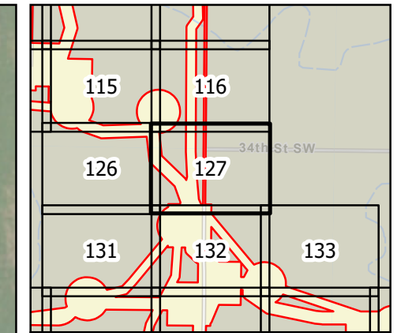


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N W E S

Survey Area

Wetland (NWI)

Waterway (NHD)

Waterbody (NHD)

**Figure 4**
**Hydrology**
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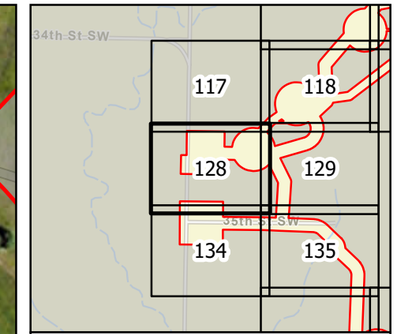


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N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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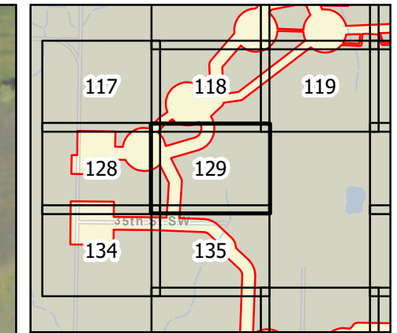


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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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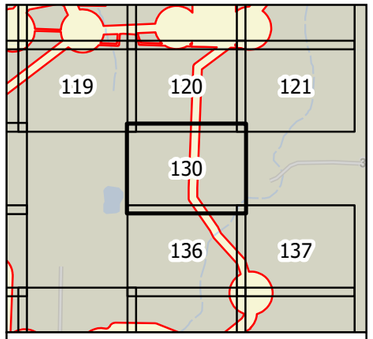


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- Survey Area
- Wetland (NWI)
- Waterway (NHD)
- Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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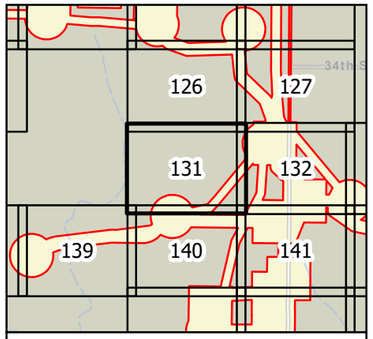


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Survey Area
Wetland (NWI)
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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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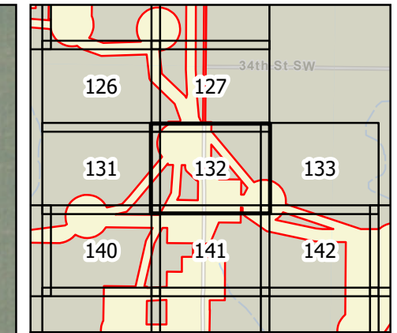


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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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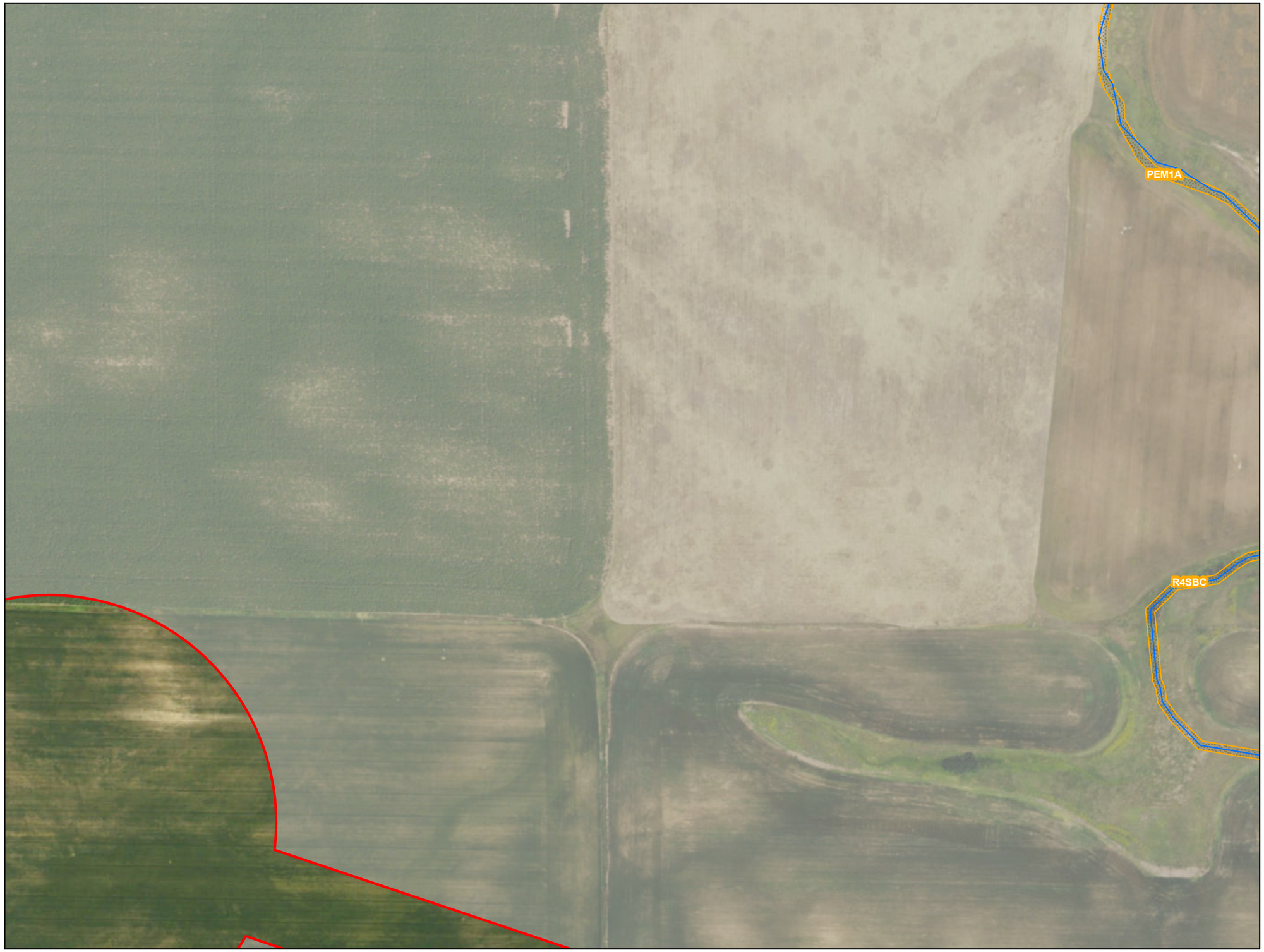


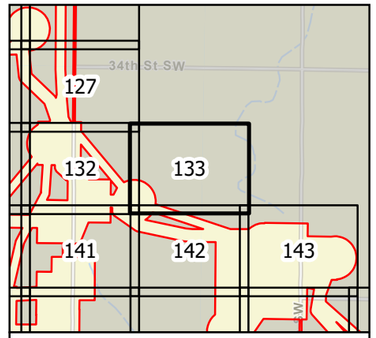


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**Figure 4**
**Hydrology**
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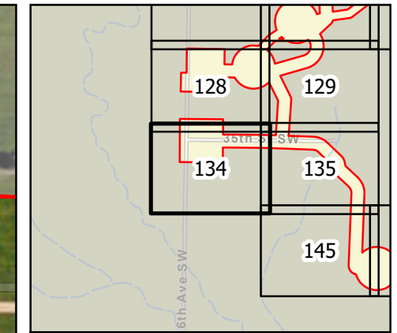


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Waterbody (NHD)

**Figure 4**
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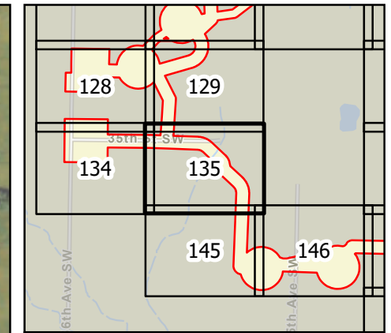


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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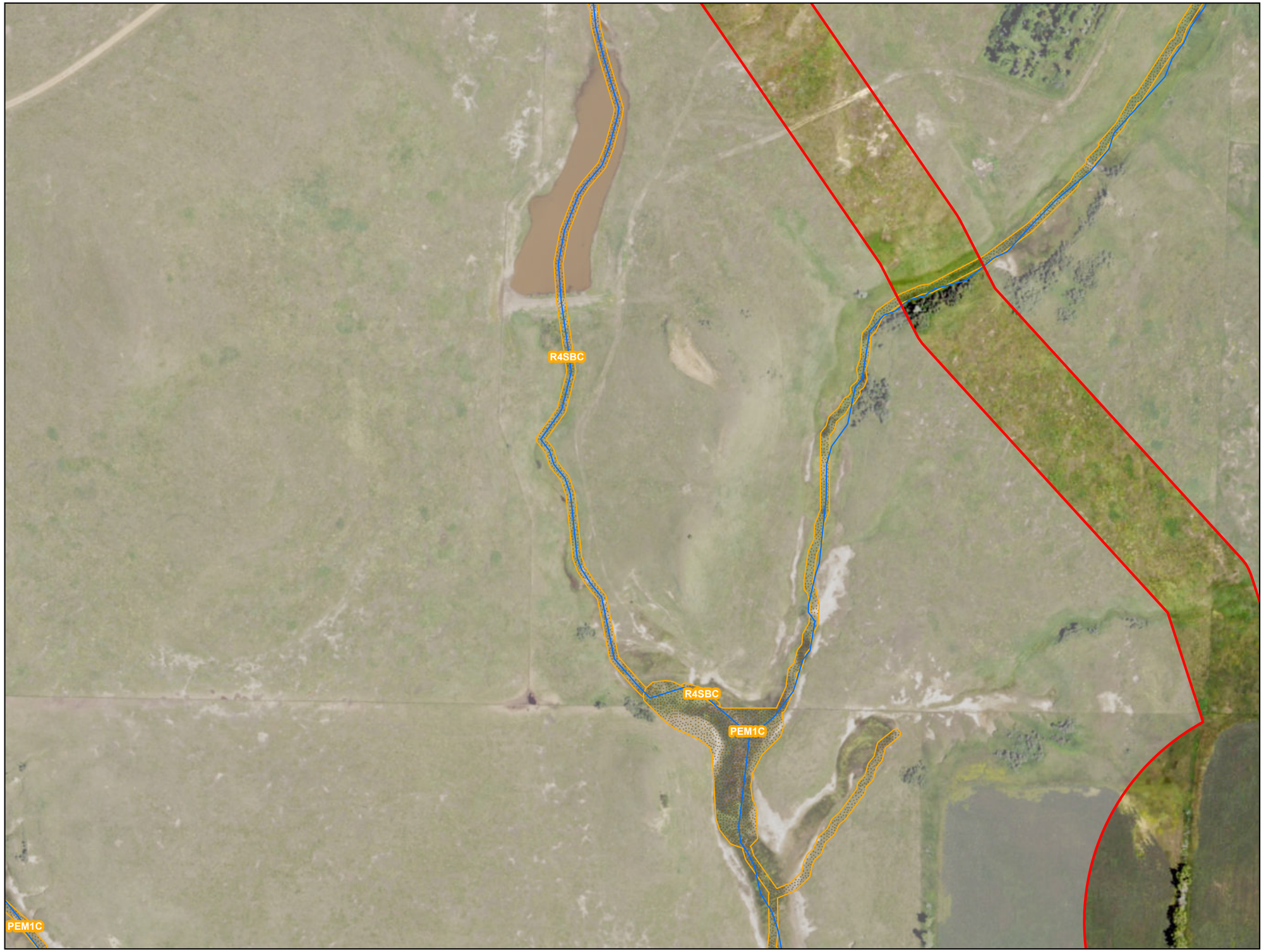


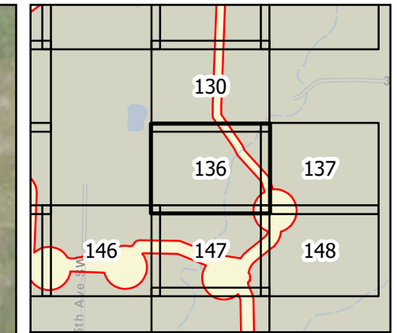


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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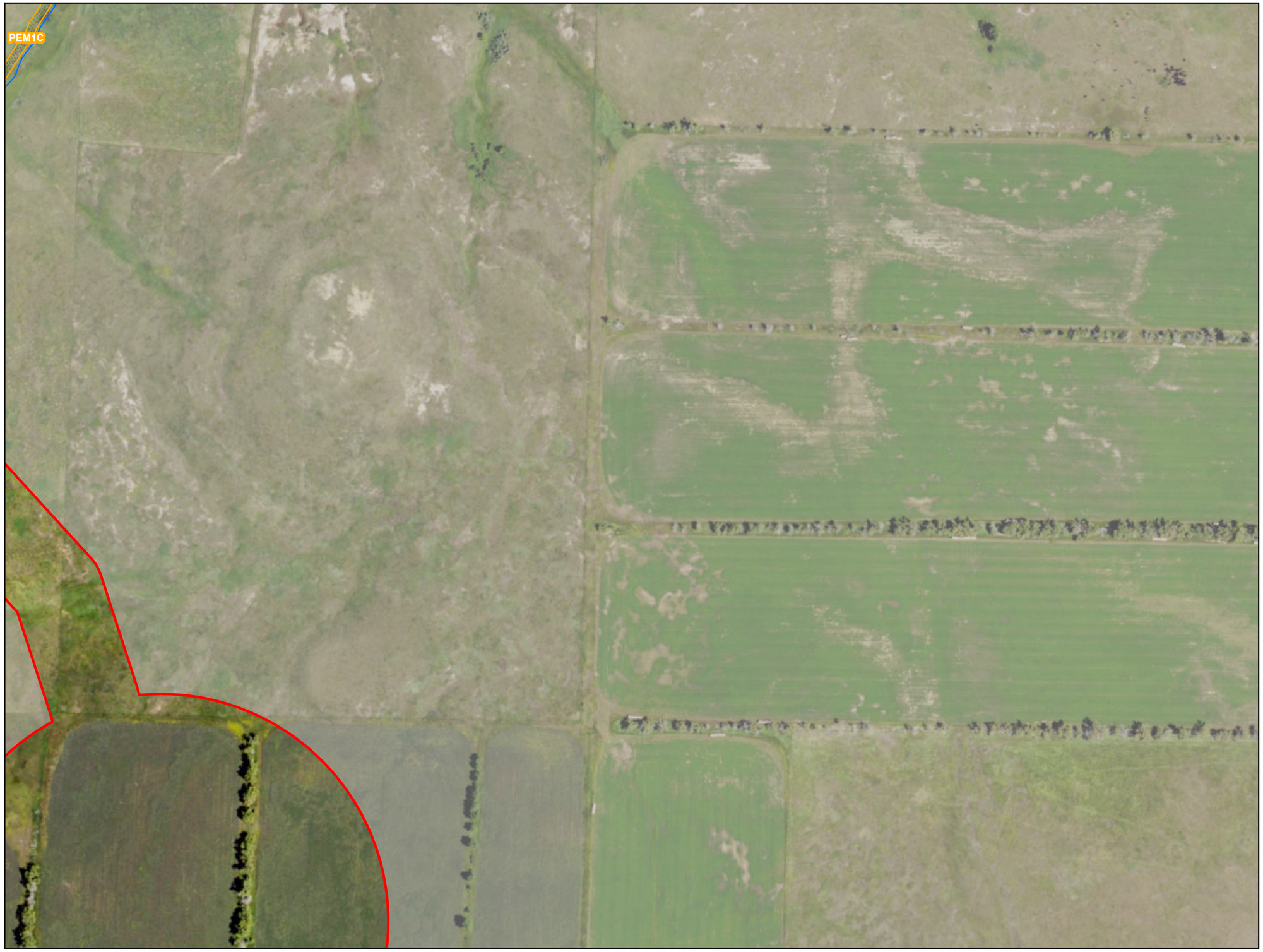


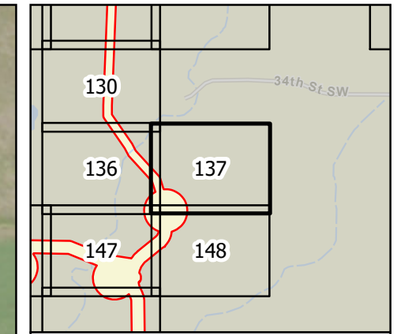


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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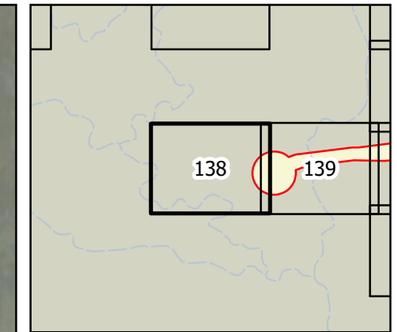


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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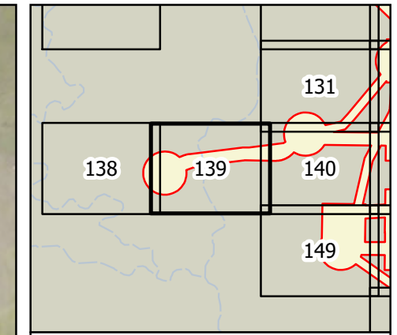


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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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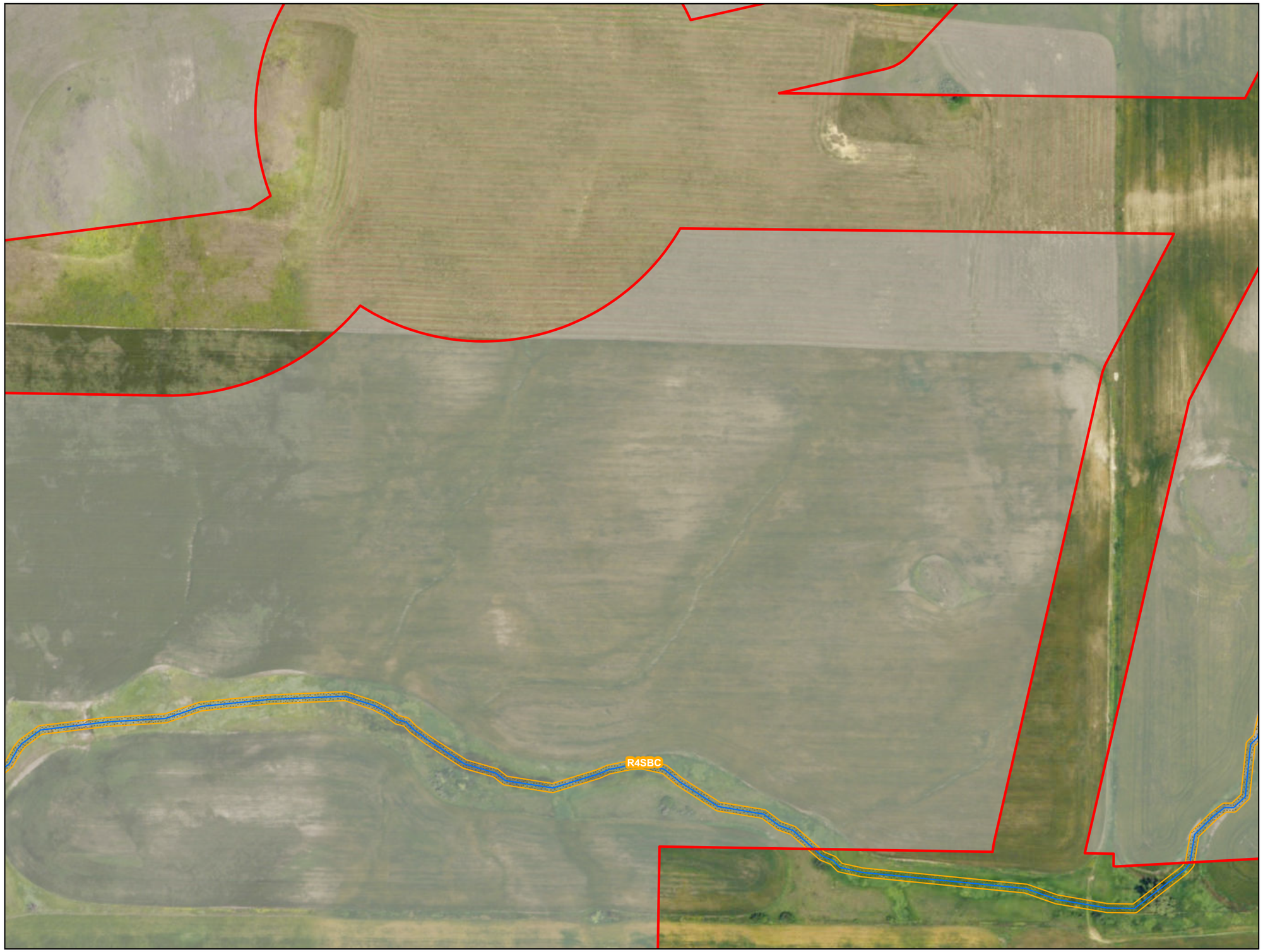


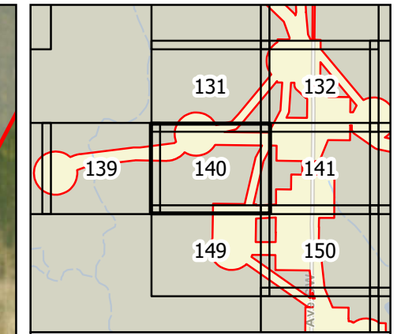


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Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
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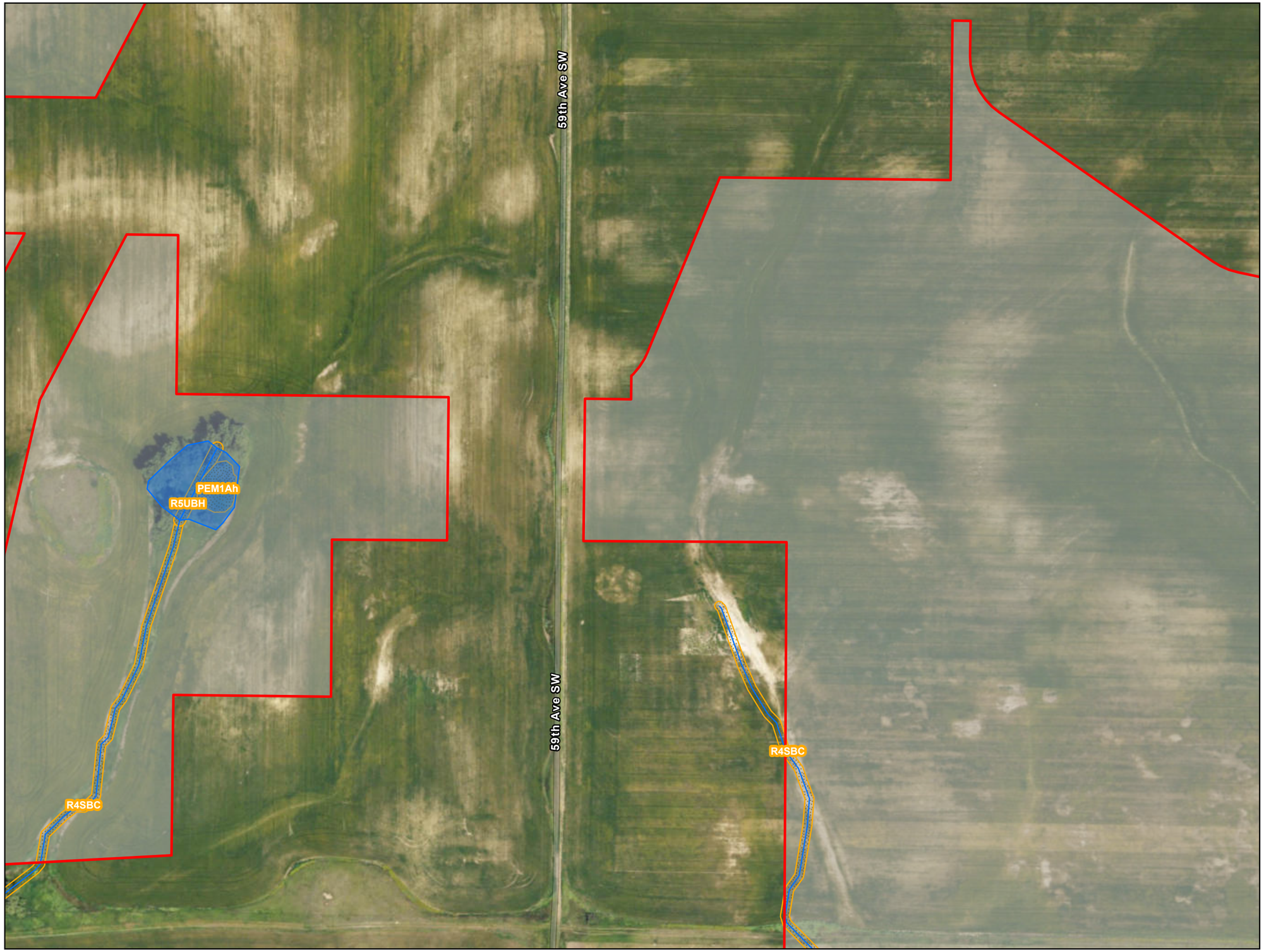


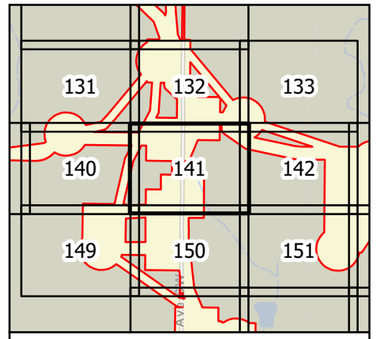


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**Figure 4**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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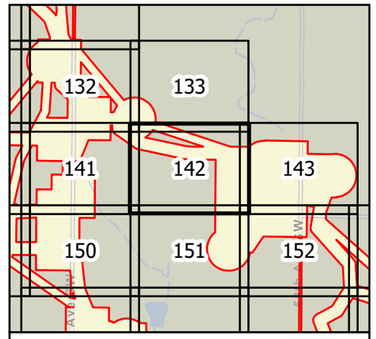


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**Figure 4**
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**Minnesota Power**
**Mercer & Morton Counties,**
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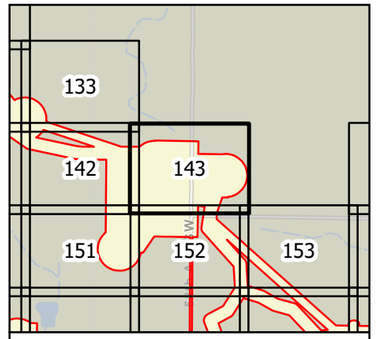


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**Figure 4**
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**Minnesota Power**
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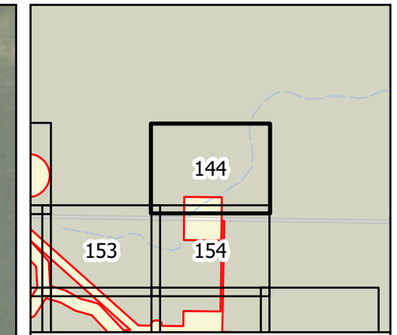


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**Figure 4**
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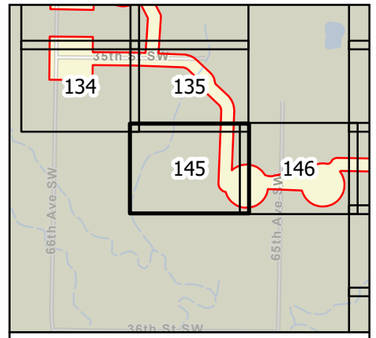


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**Mercer & Morton Counties,**
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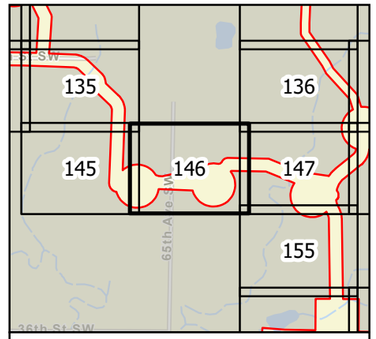


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**Figure 4**
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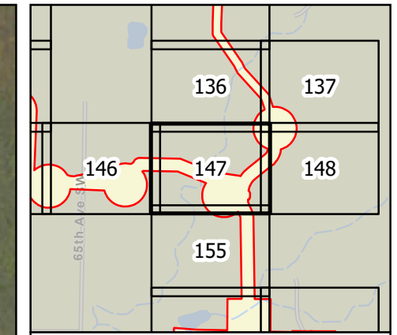


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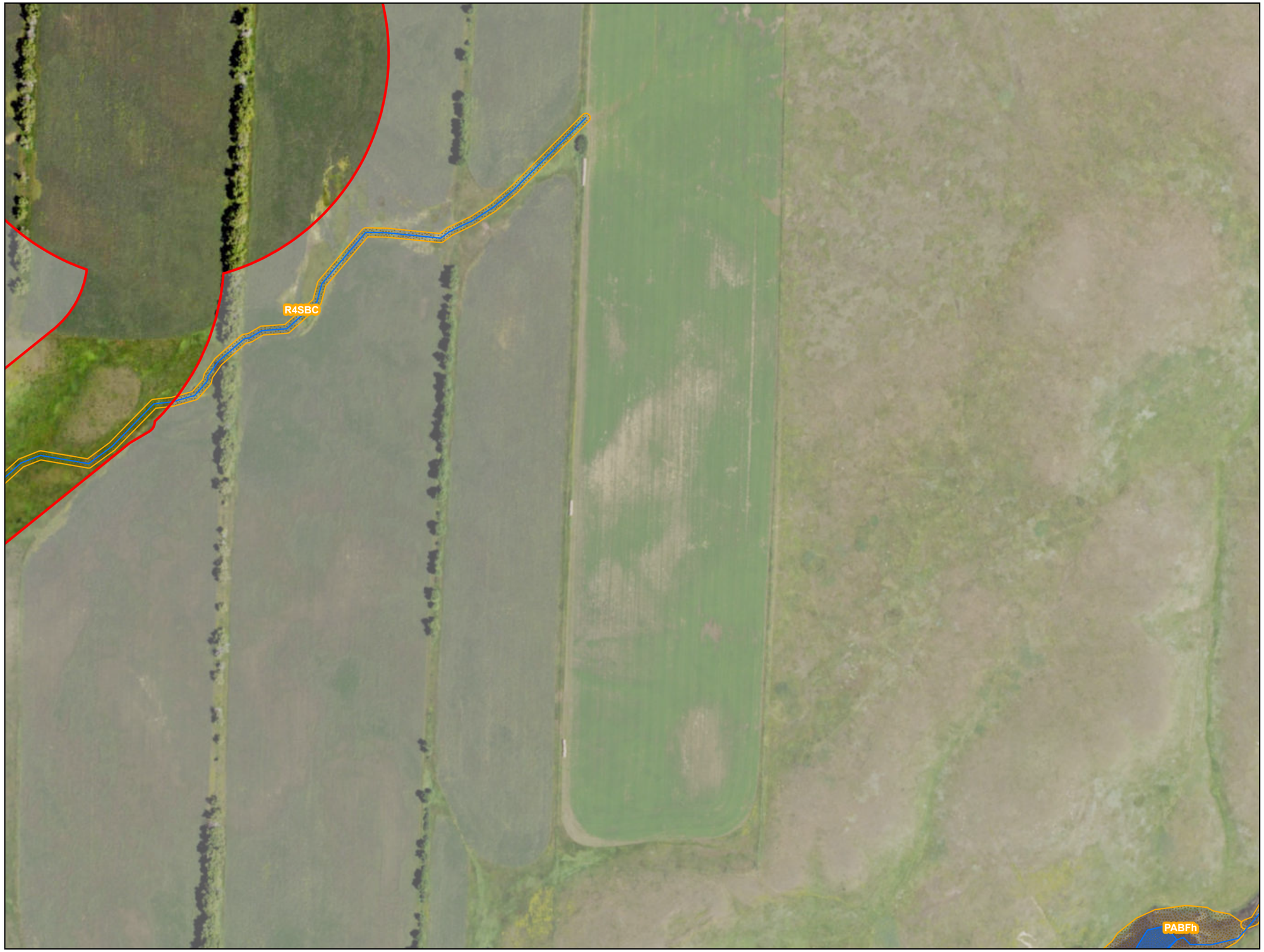


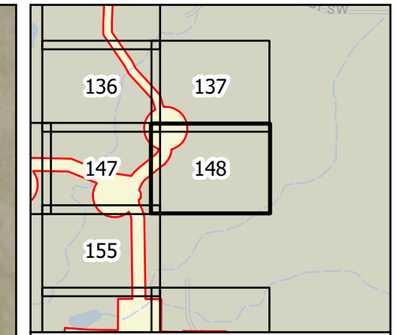


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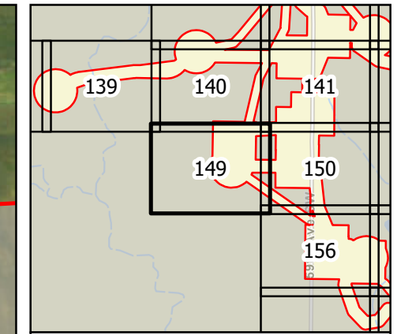


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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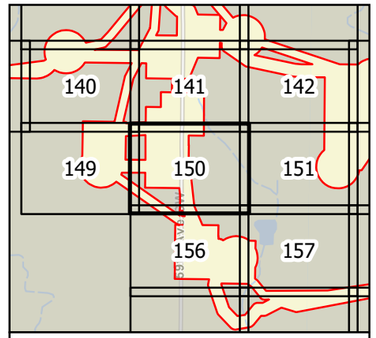


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N
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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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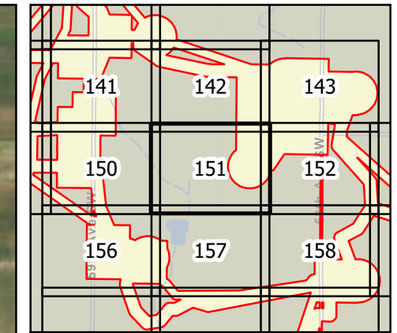


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Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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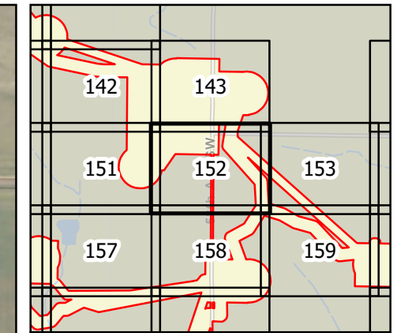


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
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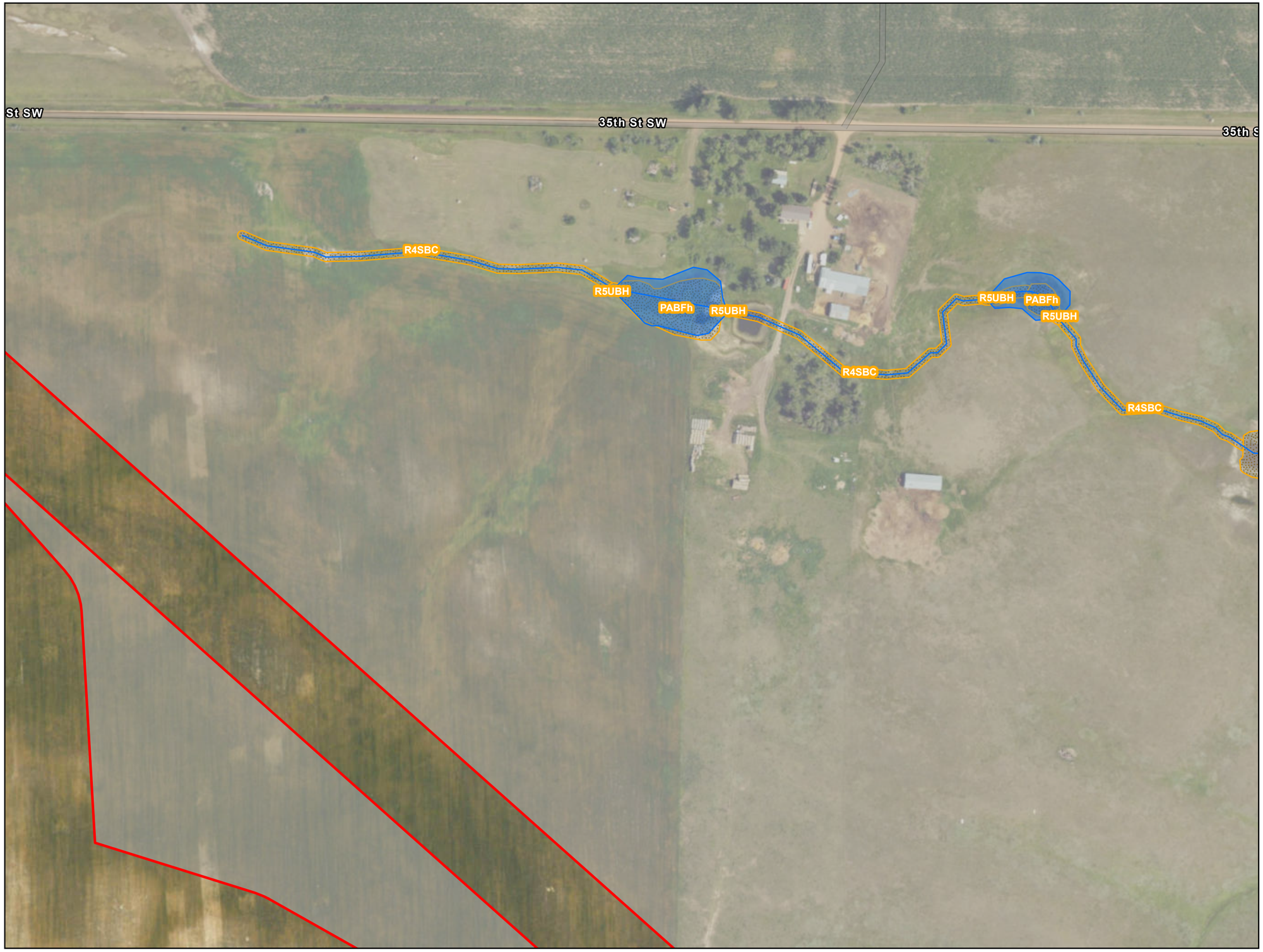


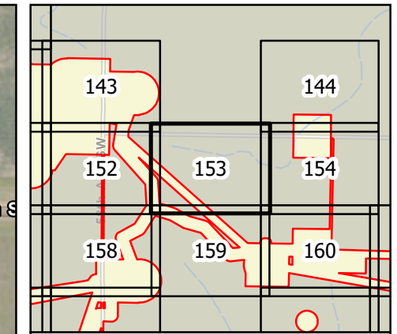


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Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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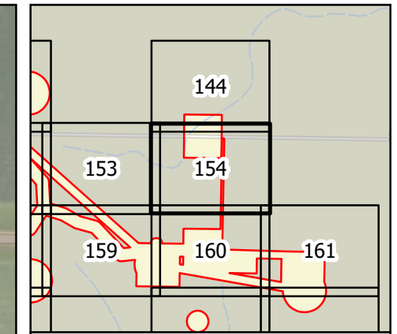


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Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
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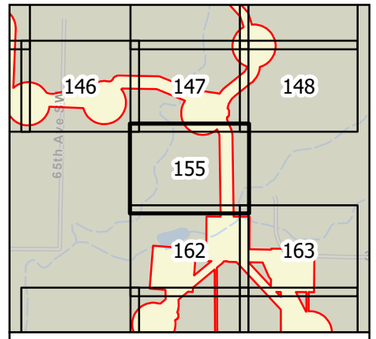


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**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
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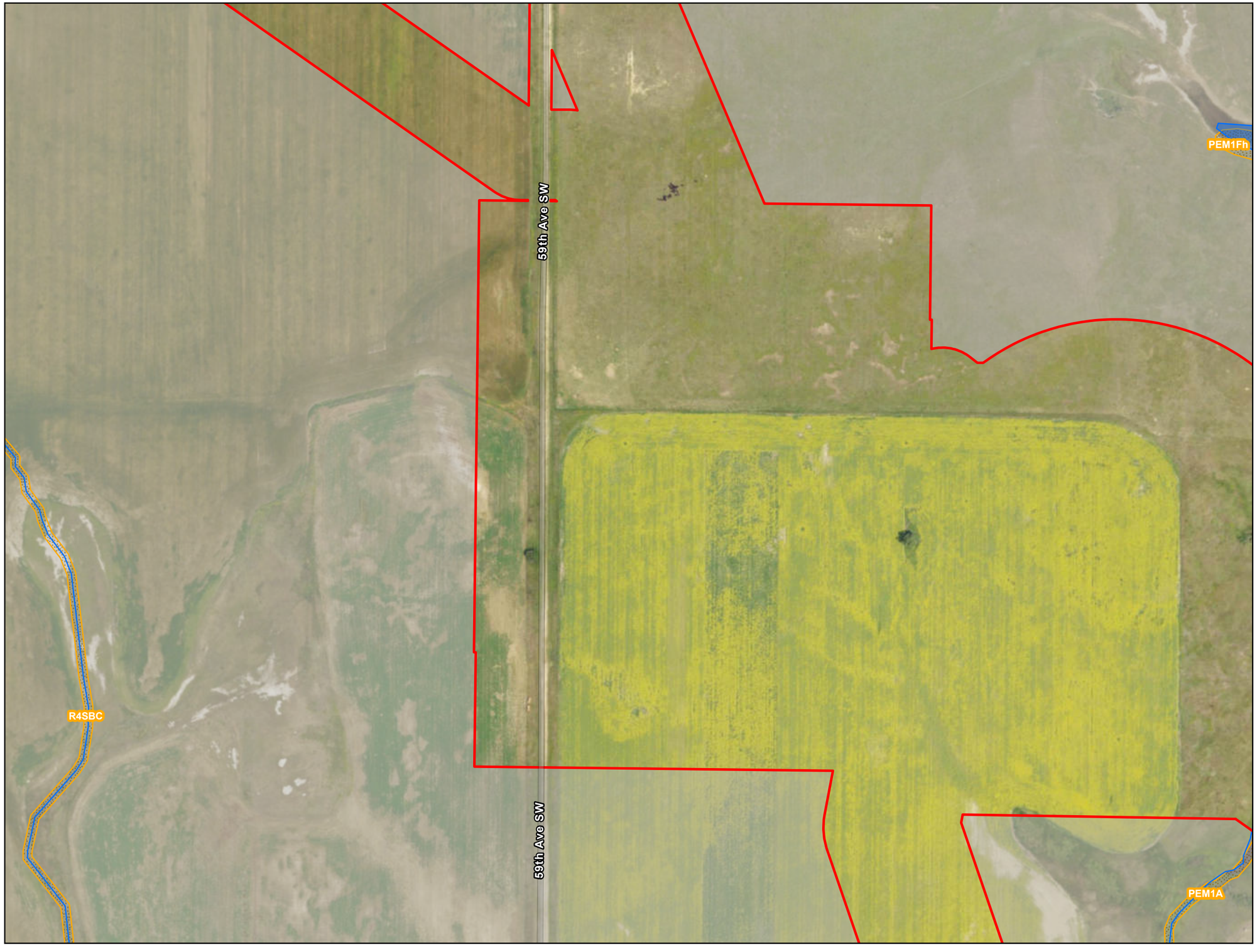


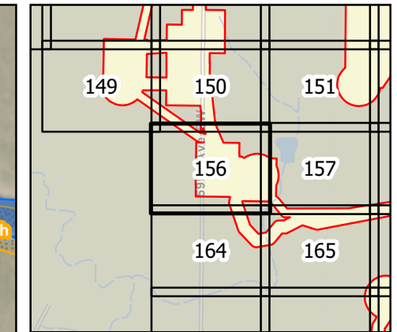


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Waterway (NHD)

Waterbody (NHD)

**Figure 4**
**Hydrology**
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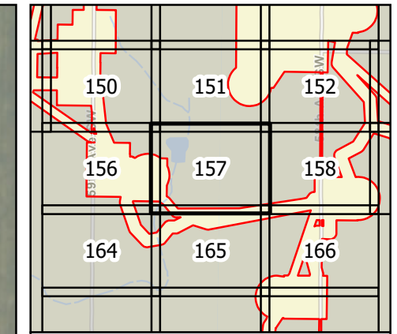


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**Figure 4**
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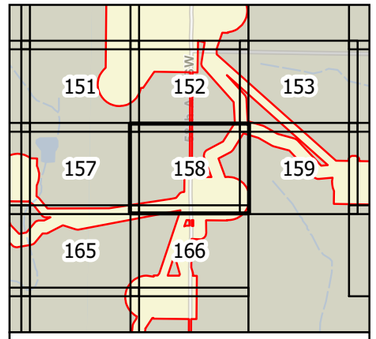


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**Figure 4**
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**Minnesota Power**
**Mercer & Morton Counties,**
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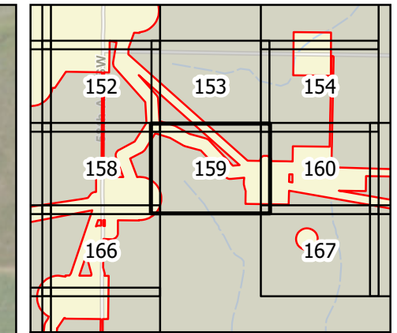


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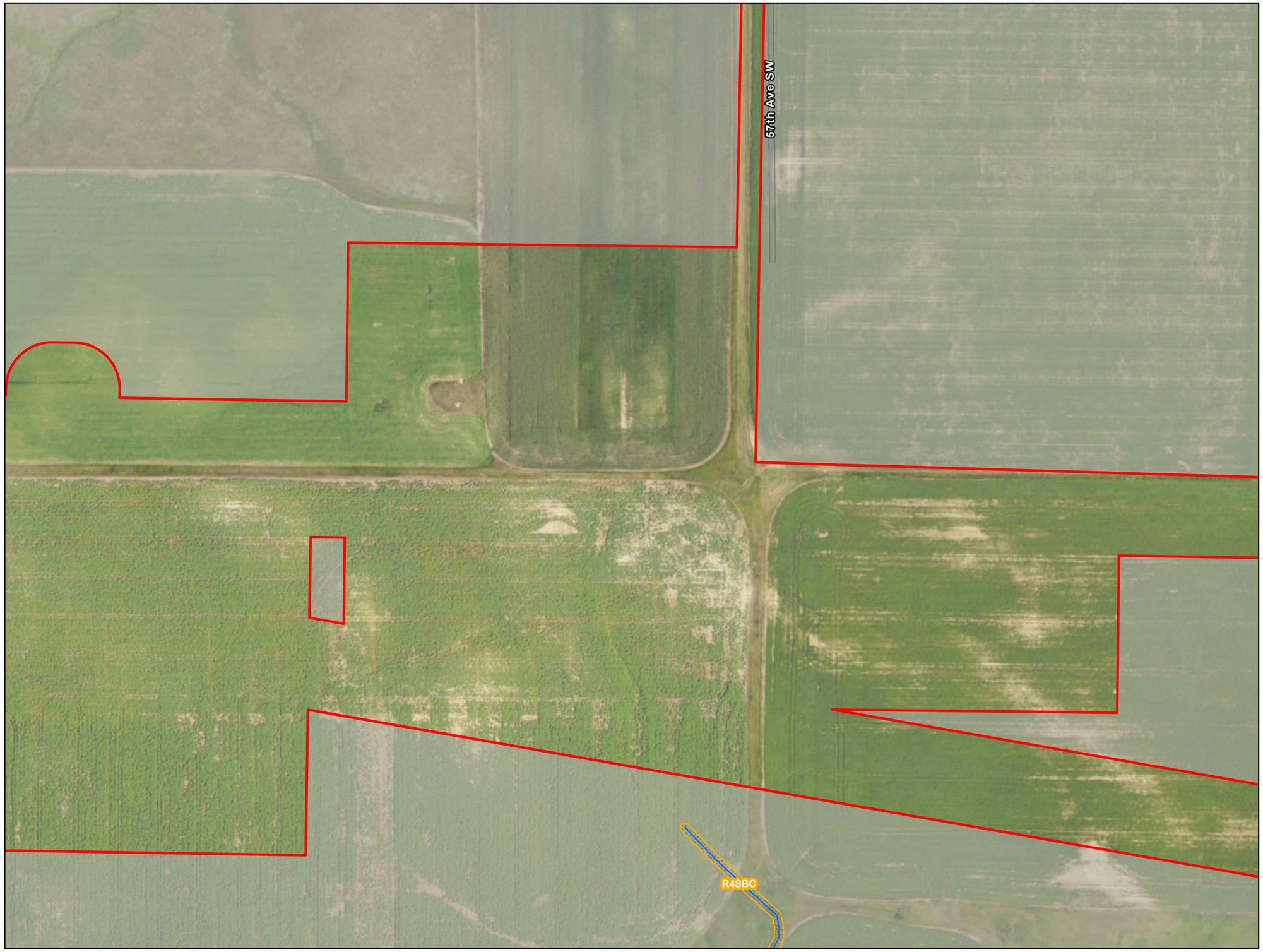


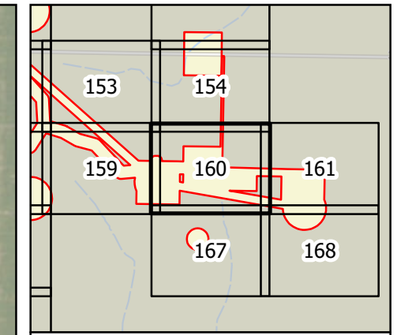


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**Figure 4**
**Hydrology**
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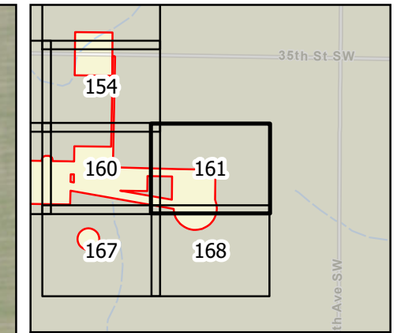


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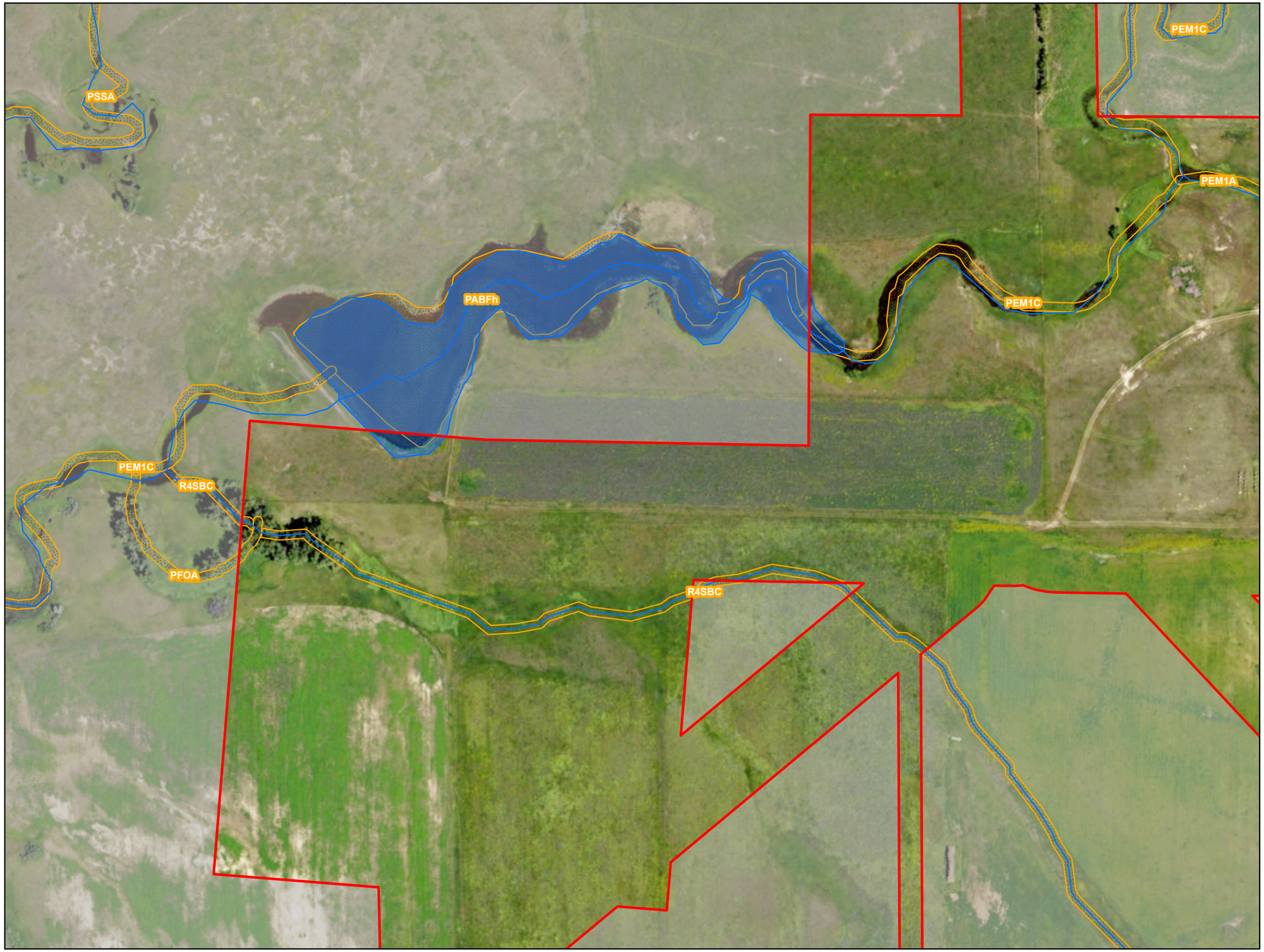


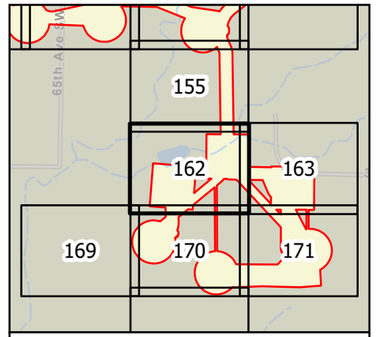


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**Longspur Wind Project**
**Minnesota Power**
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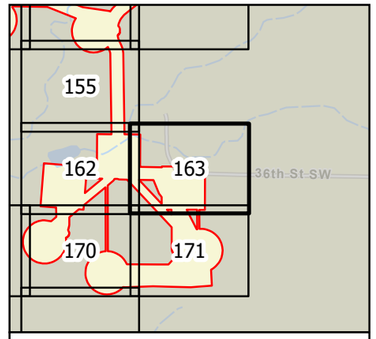


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**Mercer & Morton Counties,**
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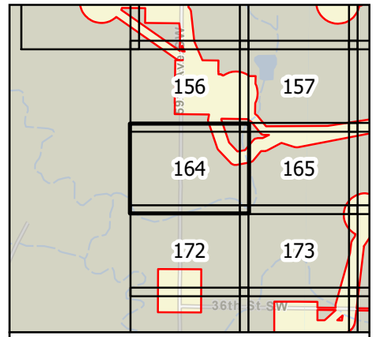


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**Minnesota Power**
**Mercer & Morton Counties,**
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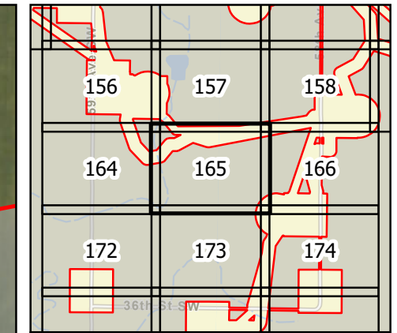


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**Figure 4**
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**Longspur Wind Project**
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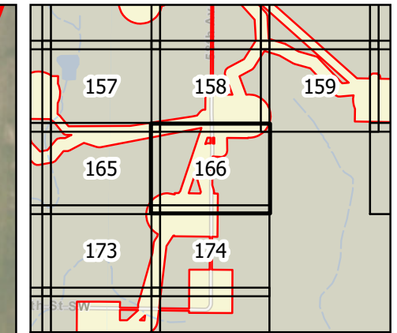


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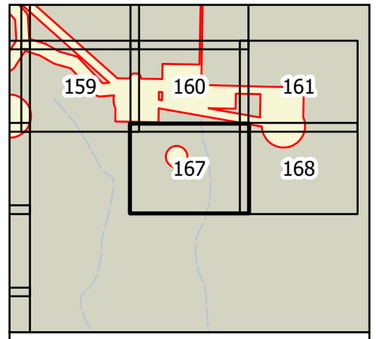


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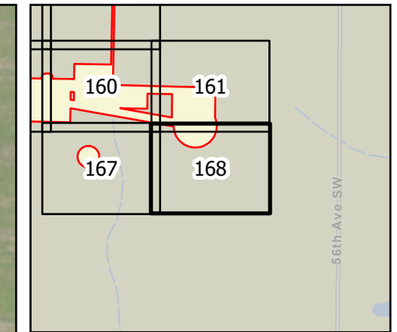


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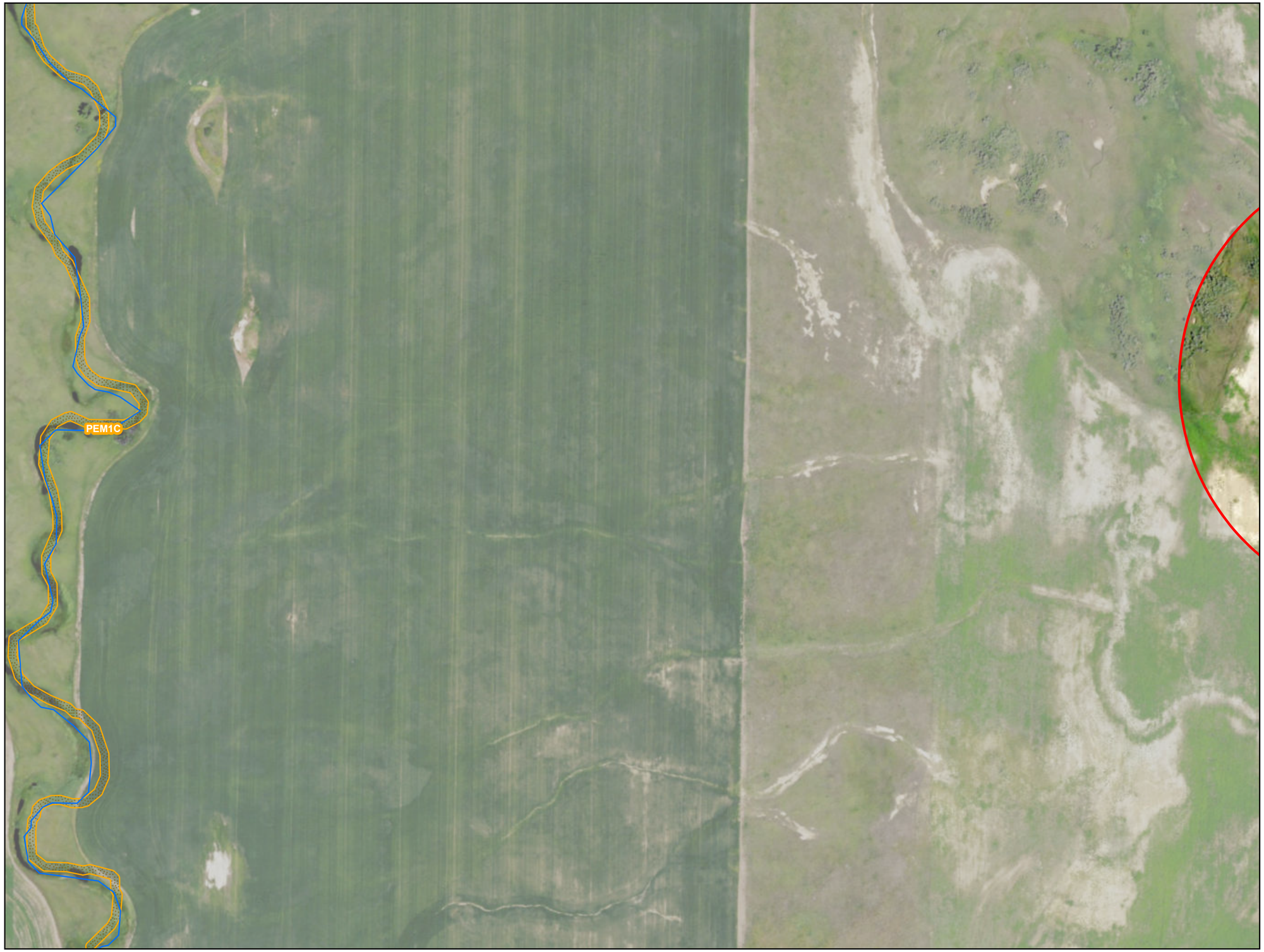


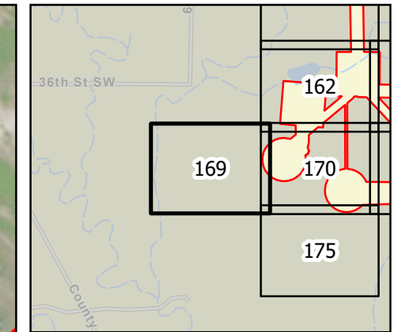


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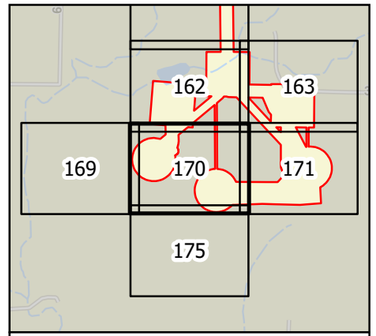


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**Mercer & Morton Counties,**
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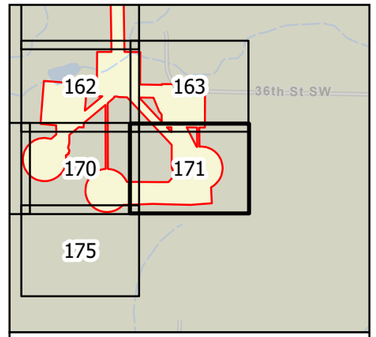


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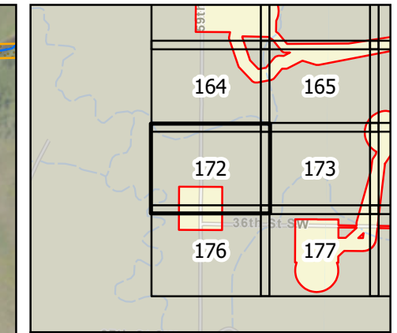


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**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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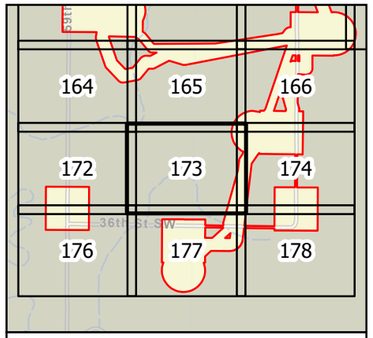


0 100 200 Feet

1 inch = 200 feet

N
W E
S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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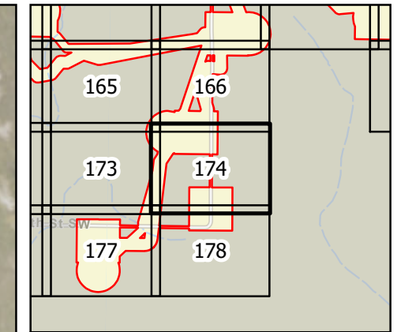


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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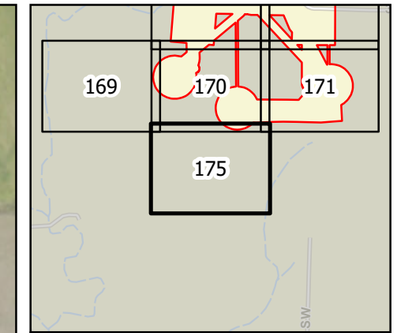


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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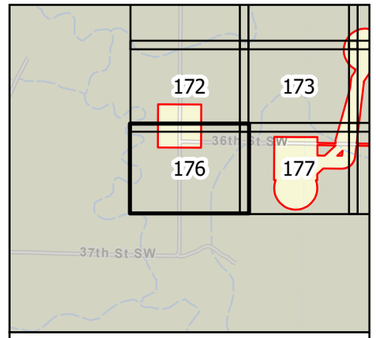


0 100 200 Feet

1 inch = 200 feet

N
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S

- Survey Area
- Wetland (NWI)
- Waterway (NHD)
- Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties, North Dakota**



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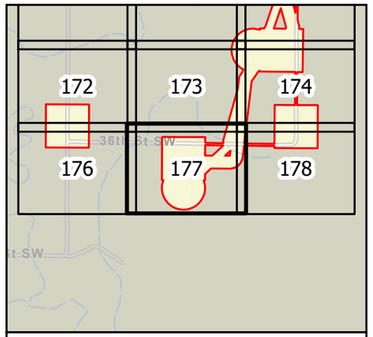


0 100 200 Feet

1 inch = 200 feet

N
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- Survey Area
- Wetland (NWI)
- Waterway (NHD)
- Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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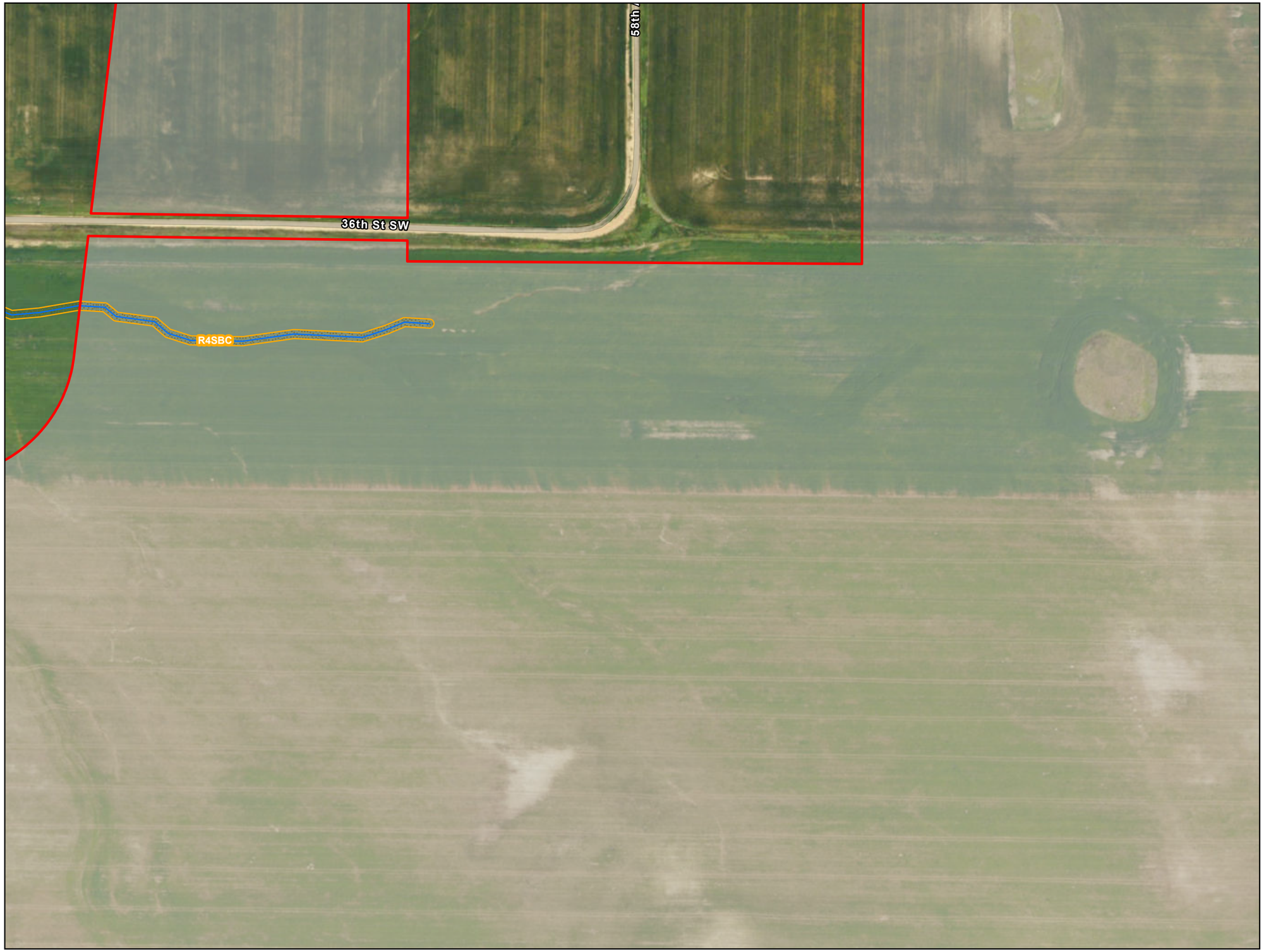


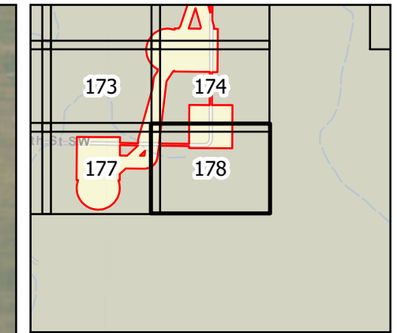


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Wetland (NWI)
Waterway (NHD)
Waterbody (NHD)

**Figure 4**
**Hydrology**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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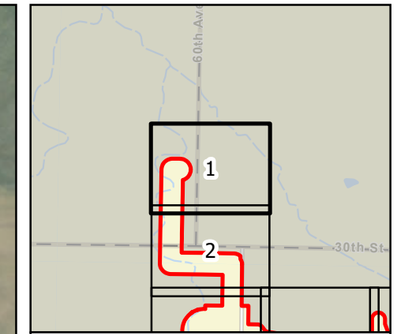
# Figure 5

# Wetland Delineation




0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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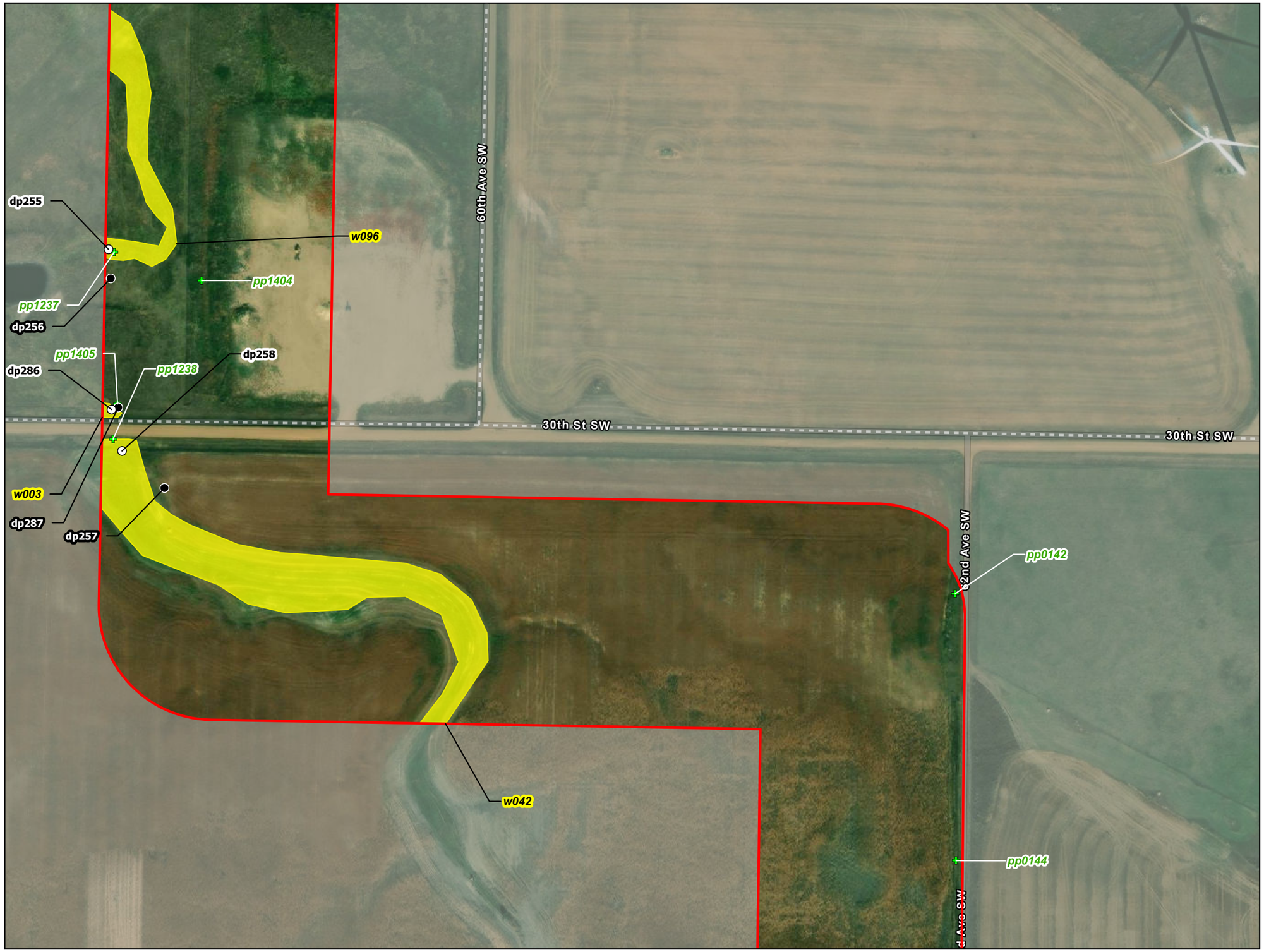


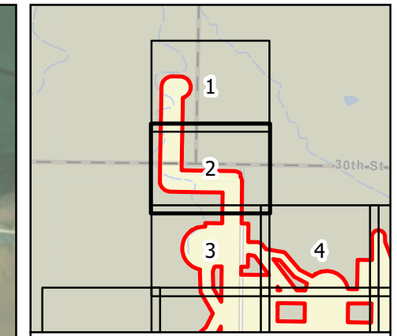


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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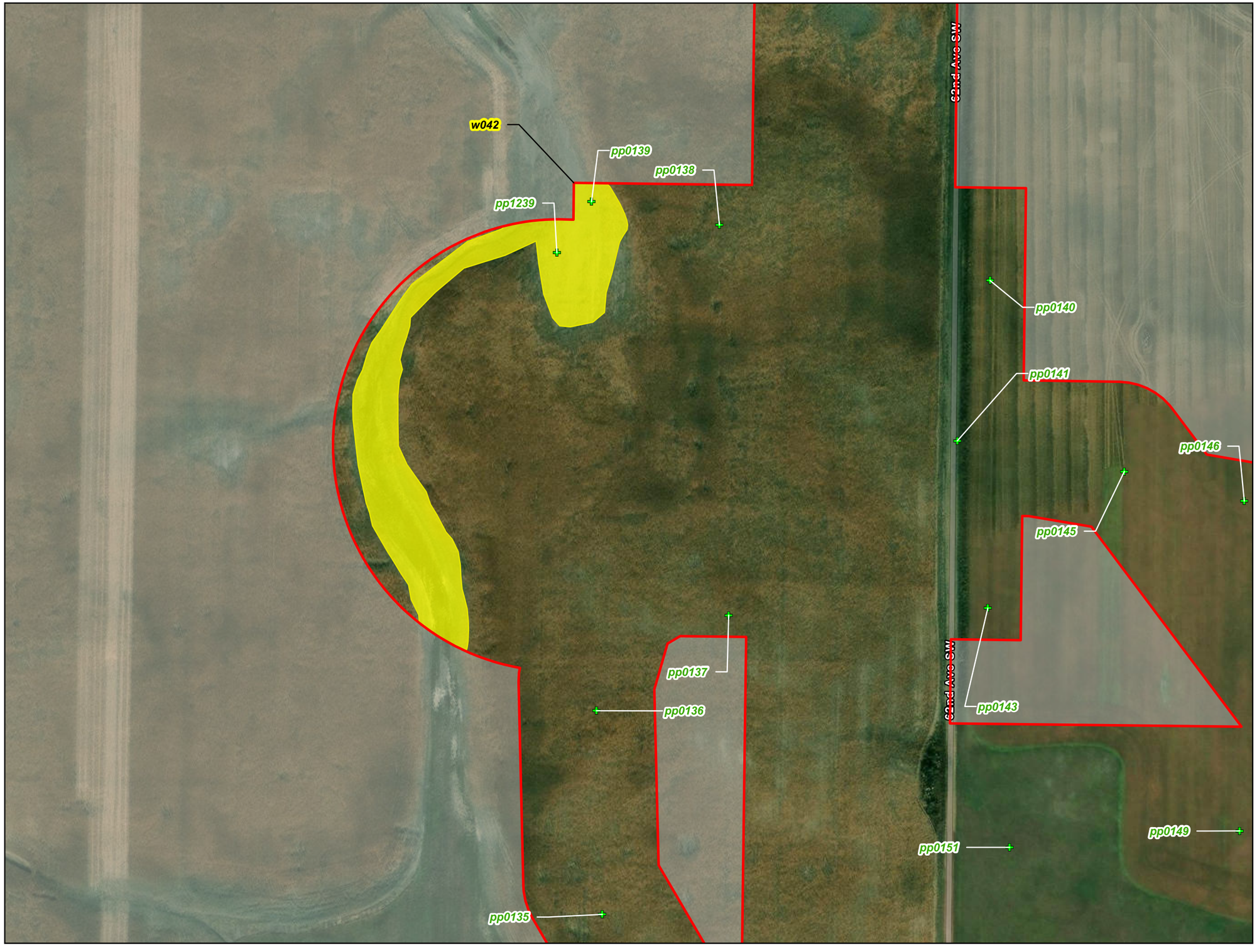


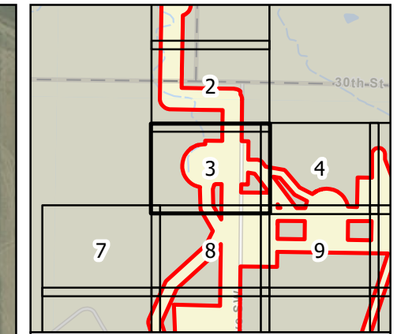


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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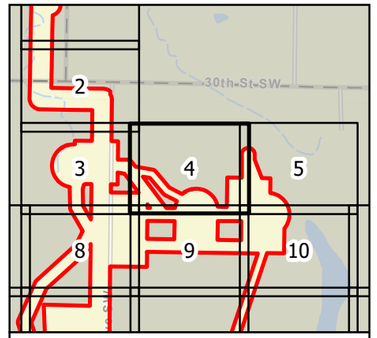


0 100 200 Feet

1 inch = 200 feet

N
W E
S

Survey Area
Photo Point
Upland Data Point
Wetland Data Point
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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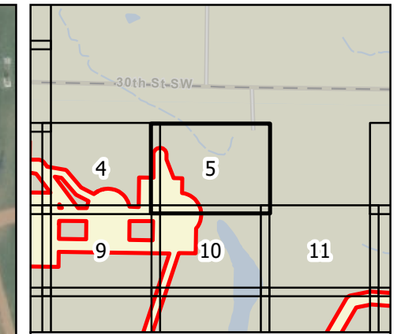


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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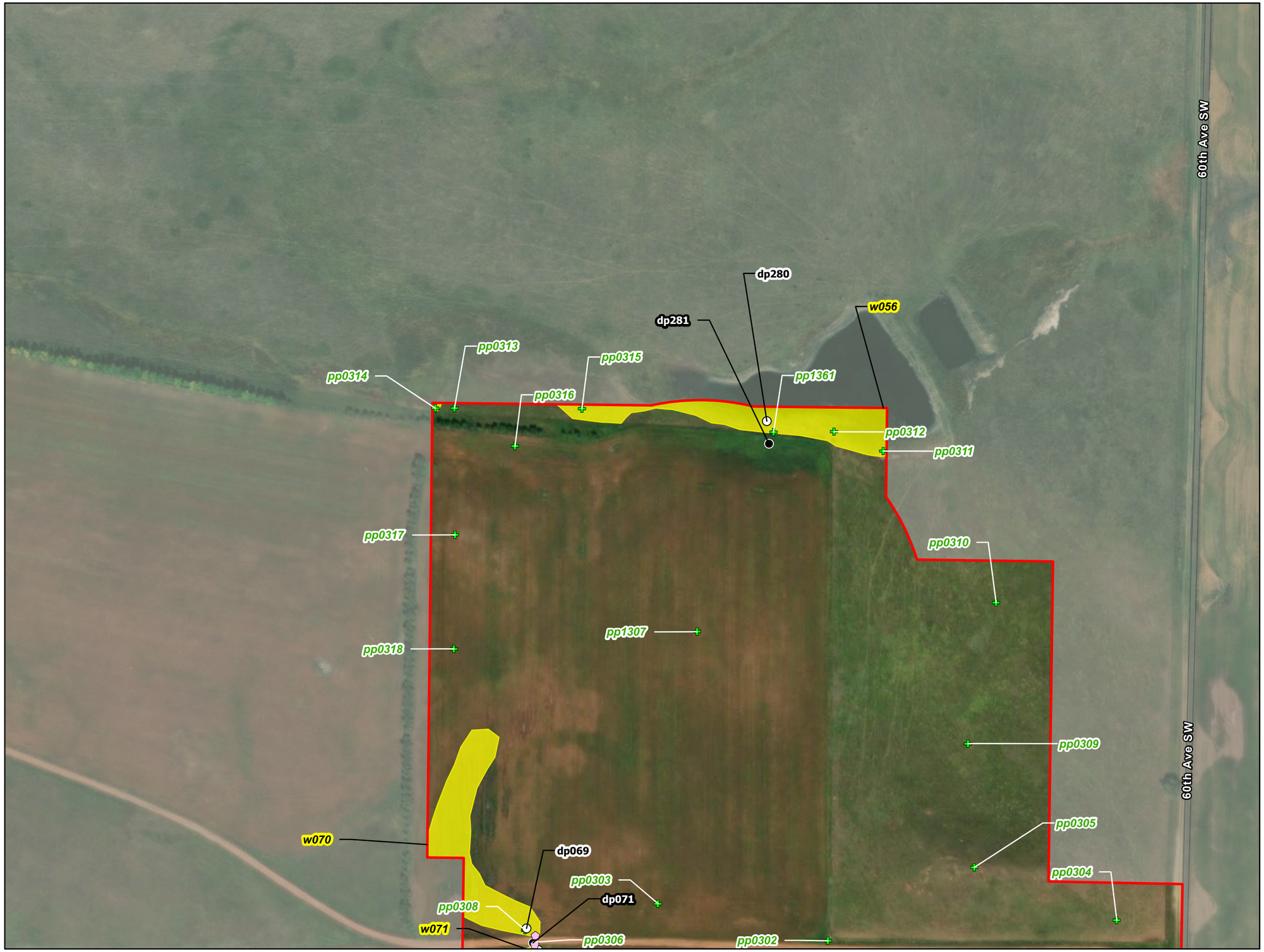


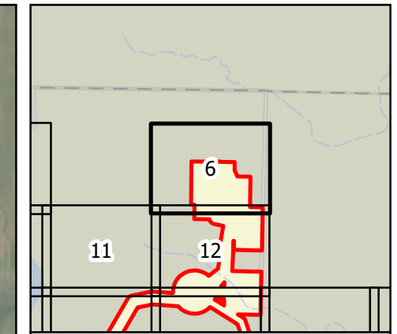


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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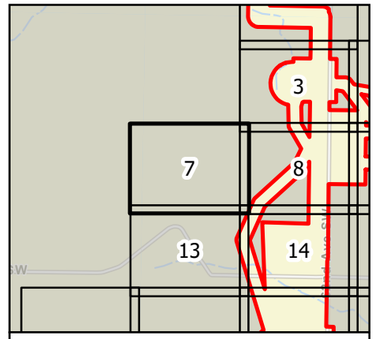


0 100 200 Feet

1 inch = 200 feet

N
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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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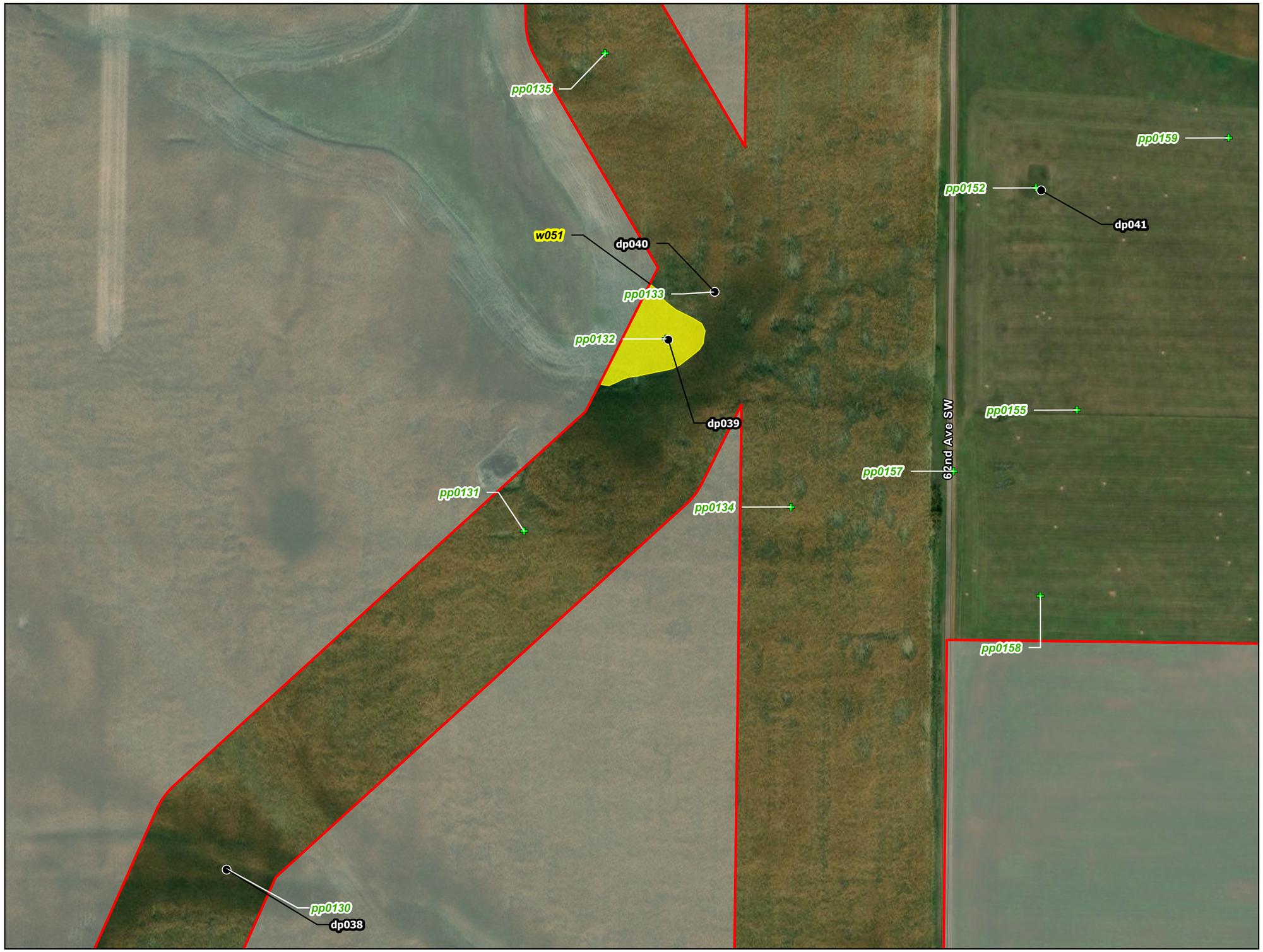


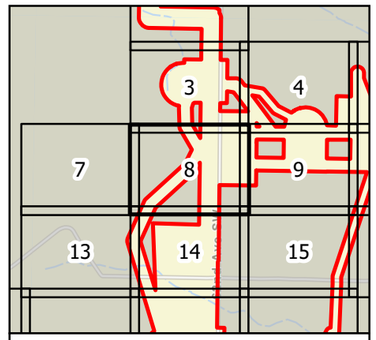


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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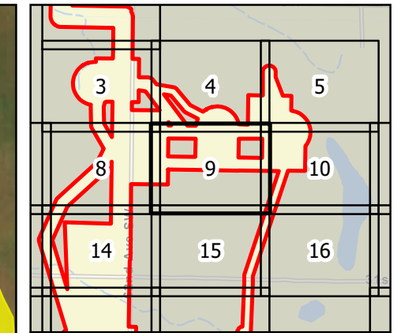


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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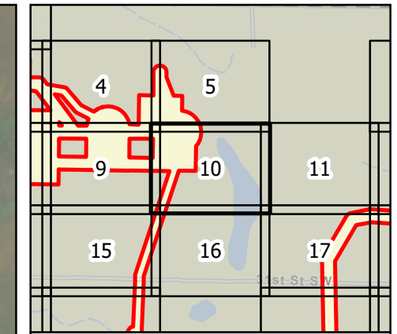


Survey Area

Photo Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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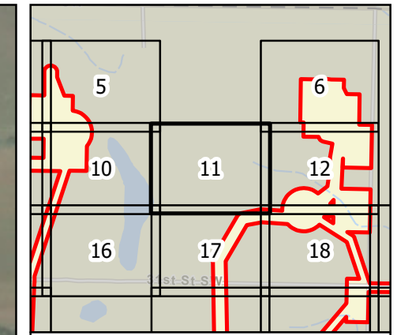


0 100 200 Feet

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N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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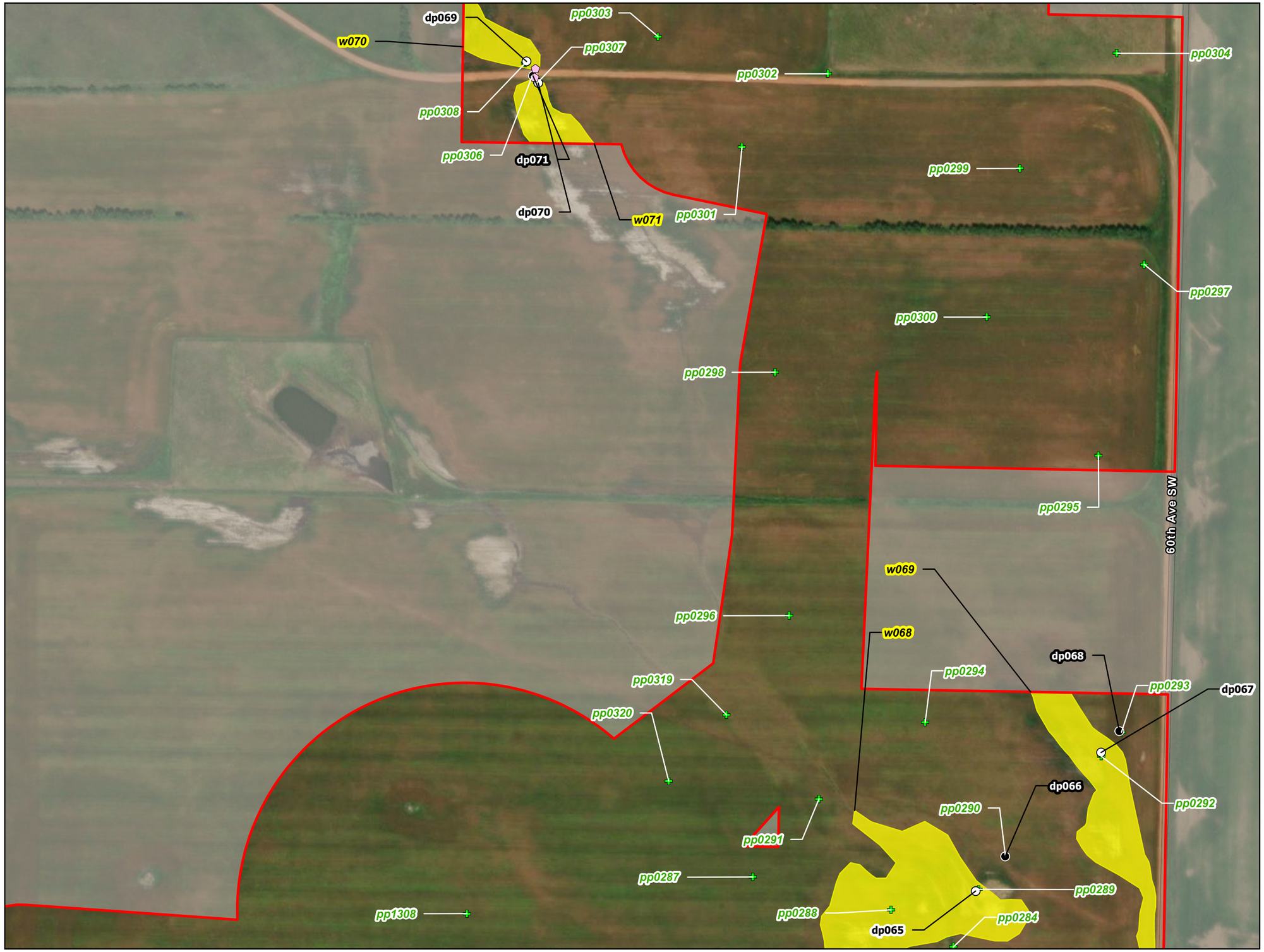


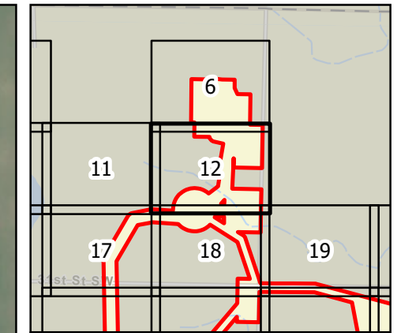


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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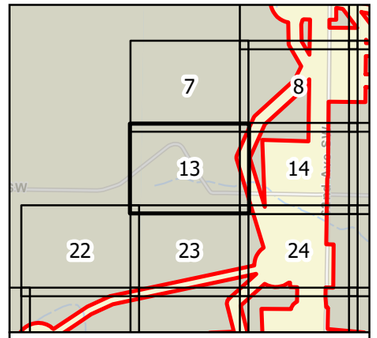


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1 inch = 200 feet

N
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Survey Area
Photo Point
Upland Data Point
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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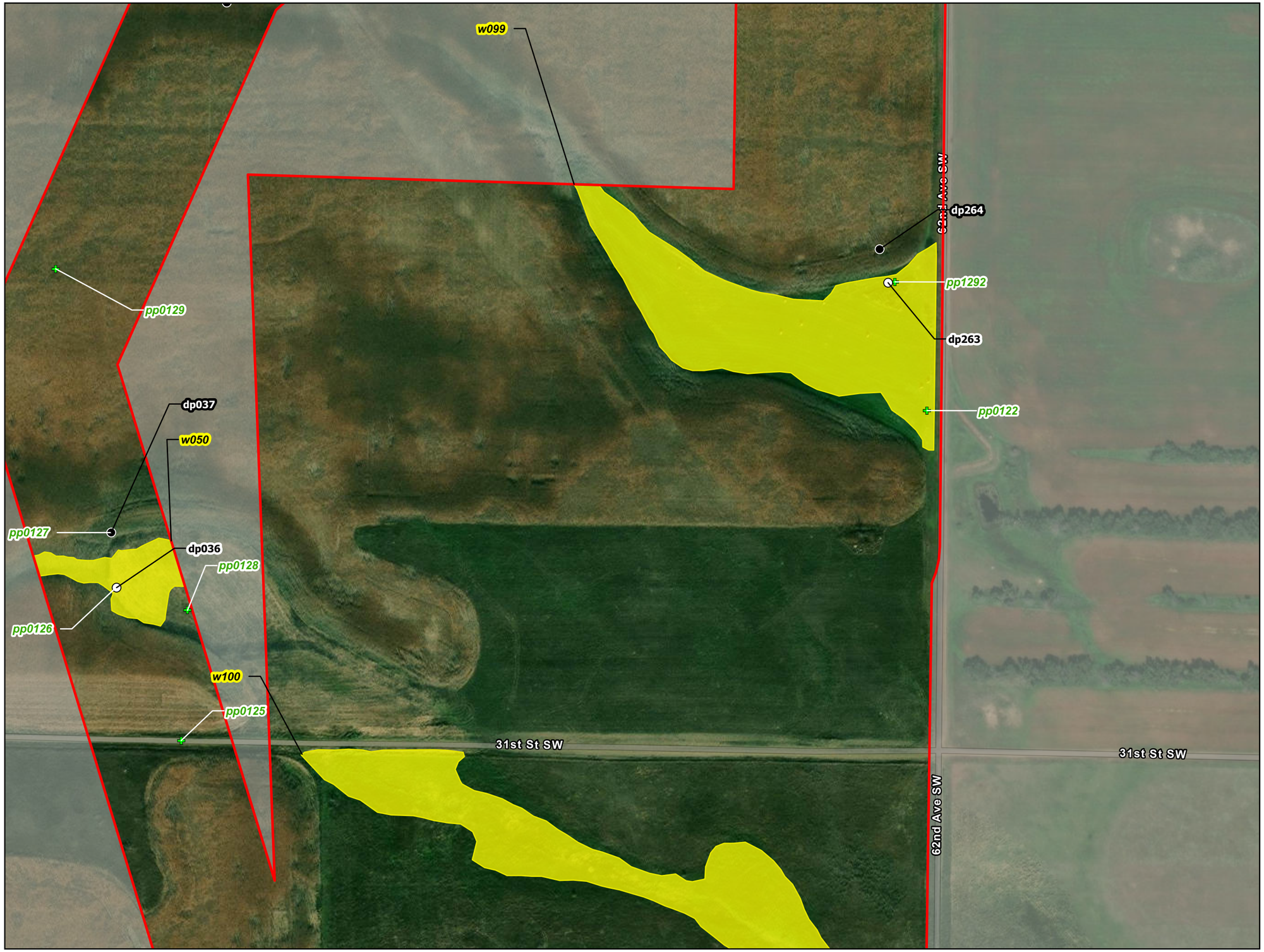


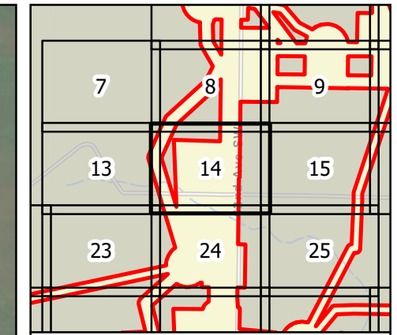


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Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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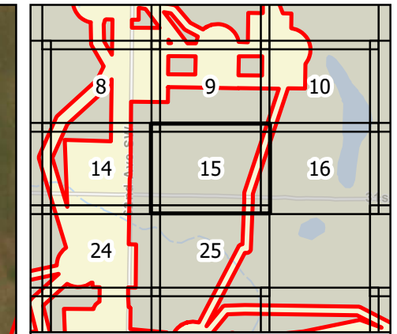


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N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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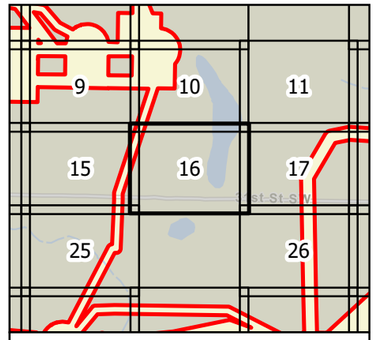


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N
W E
S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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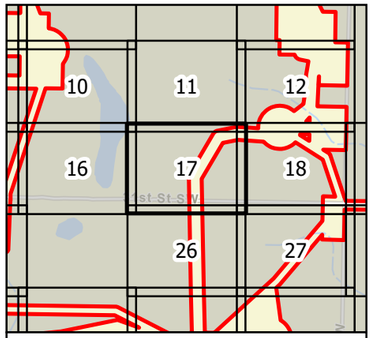


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N
W E
S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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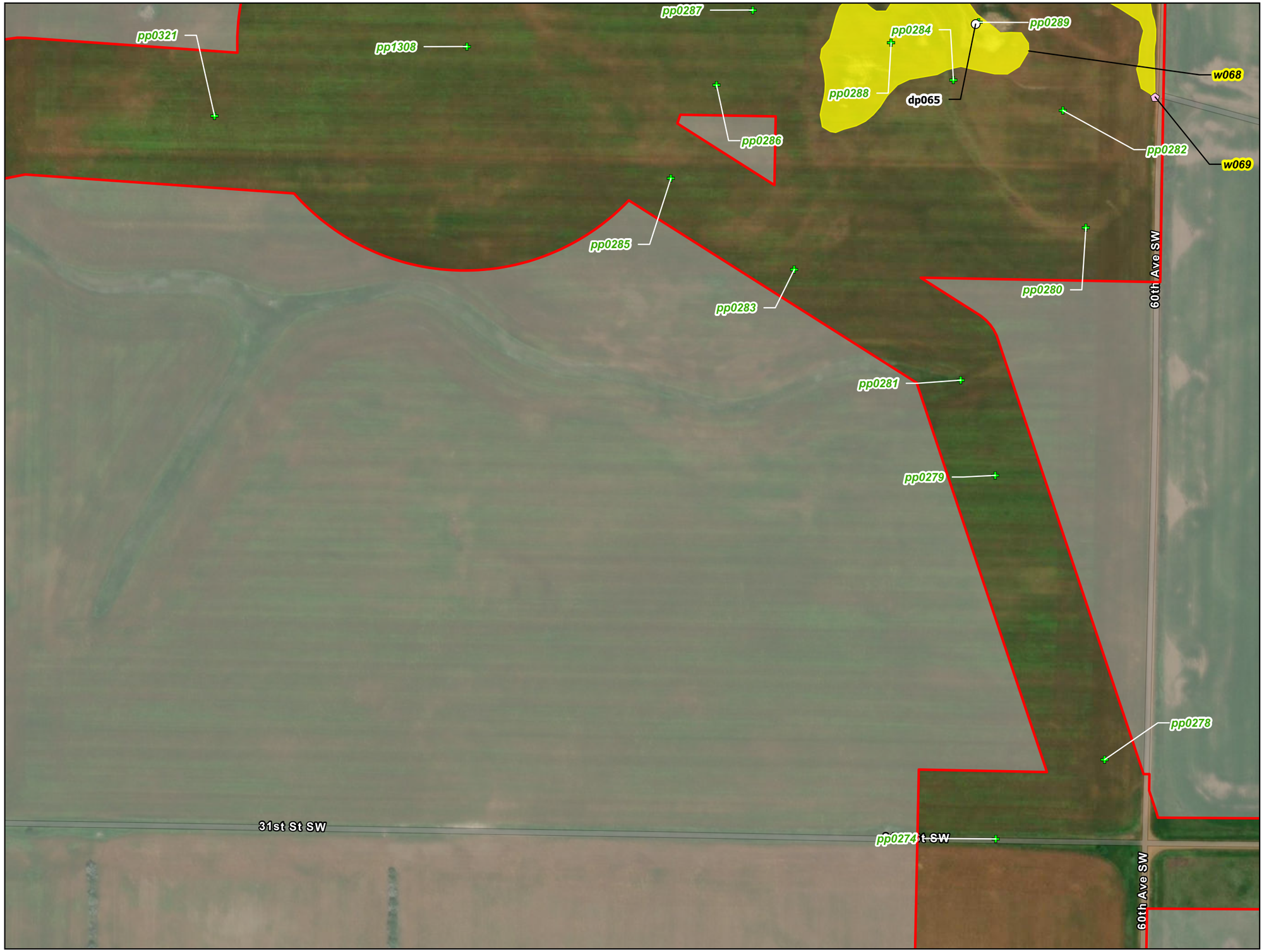


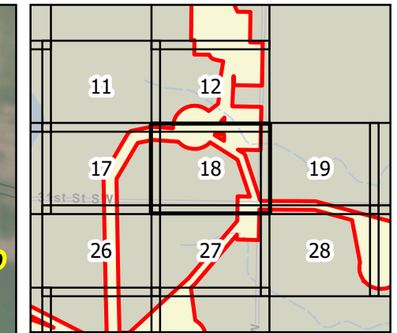


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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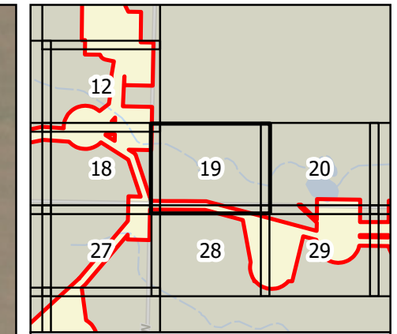


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N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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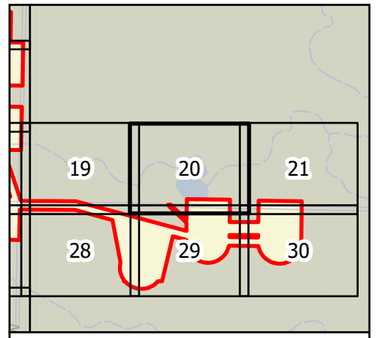


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Photo Point
Upland Data Point
Wetland Data Point
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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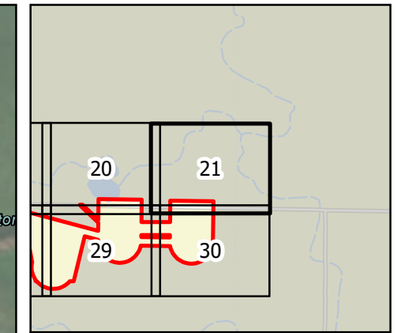


0 100 200 Feet

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N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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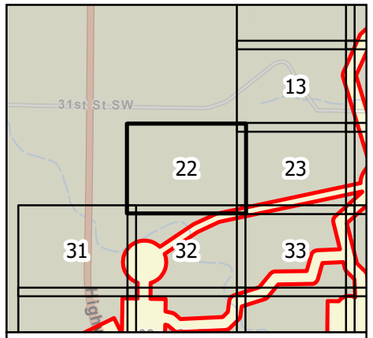


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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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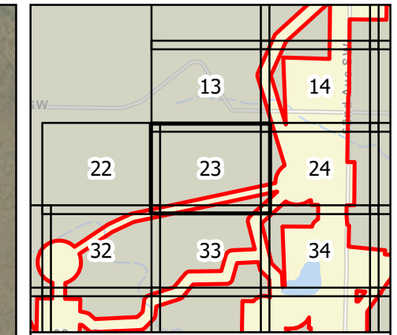


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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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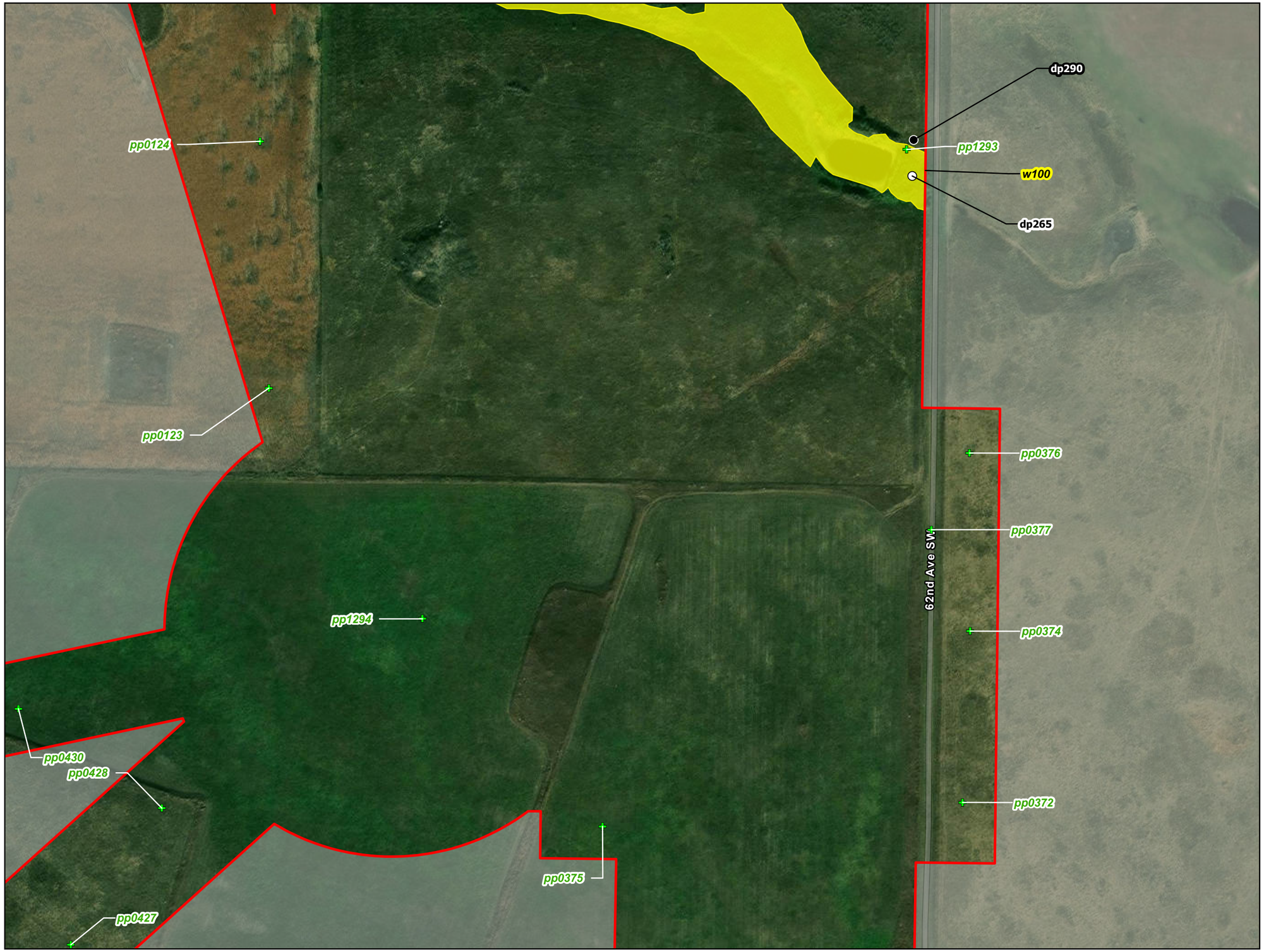


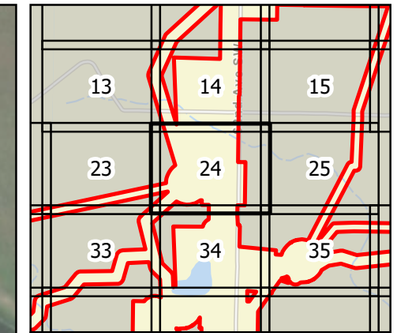


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N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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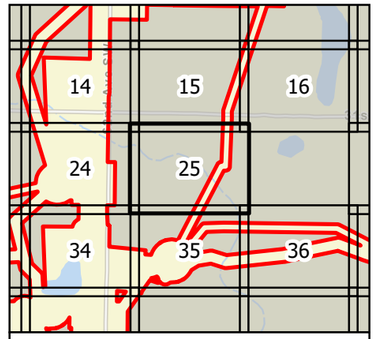


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1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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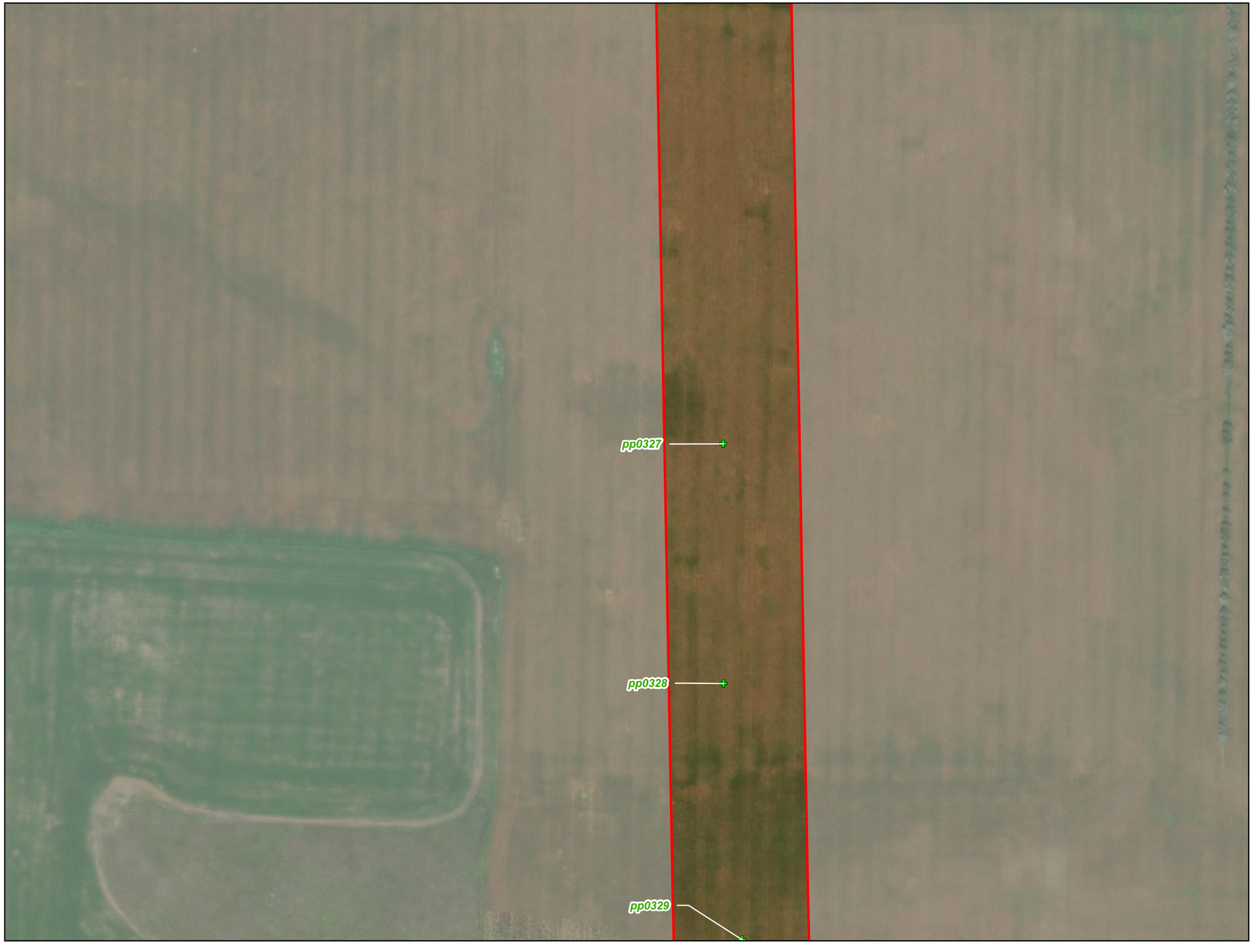


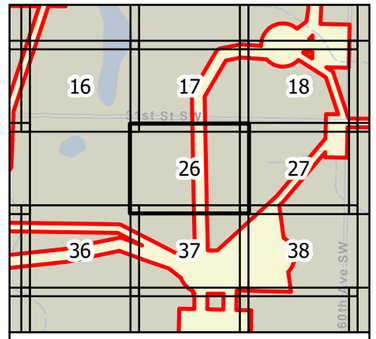


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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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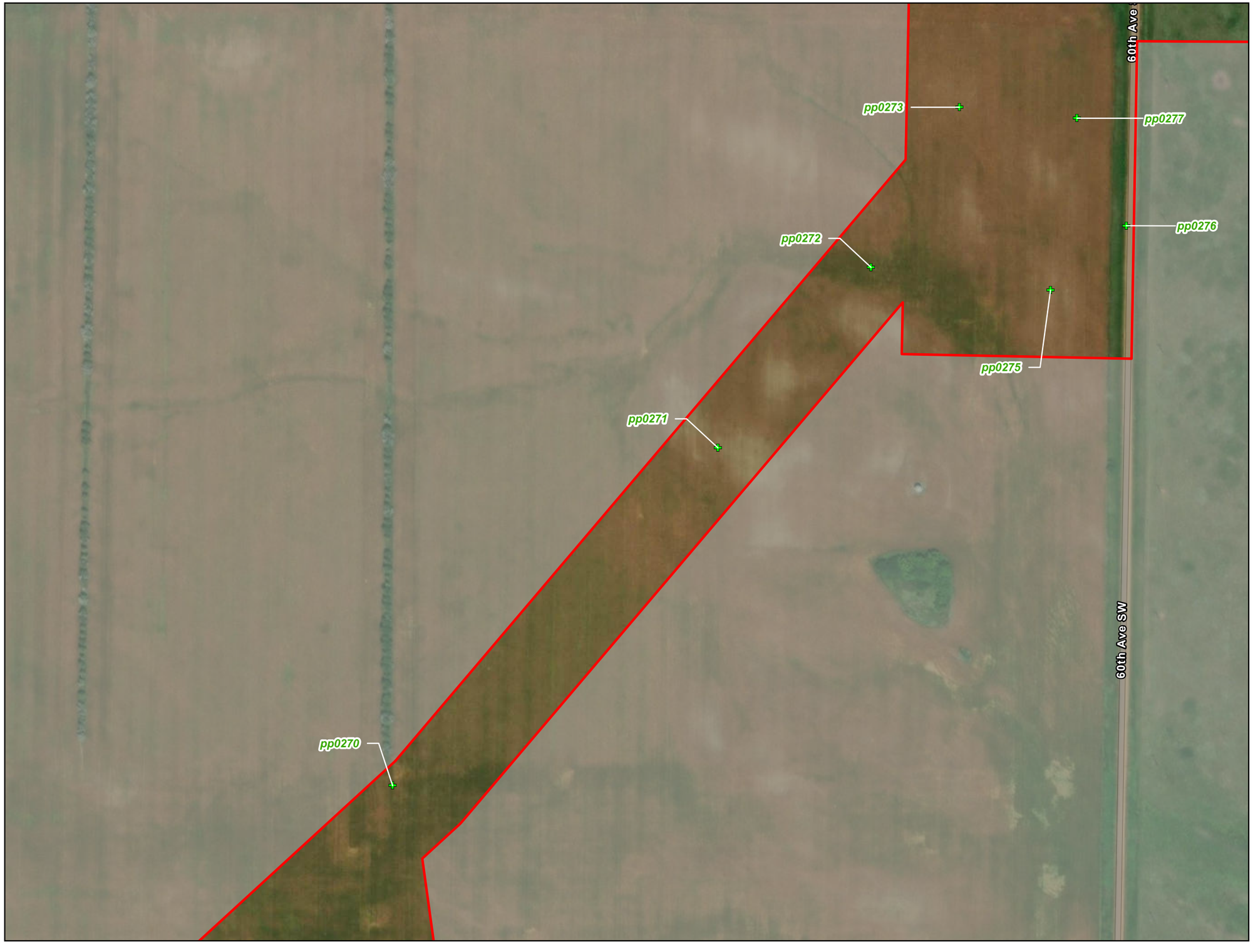


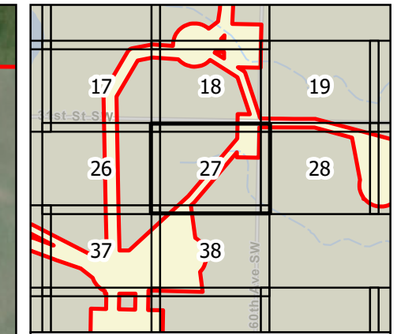


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1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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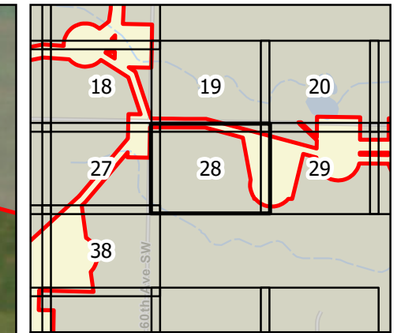


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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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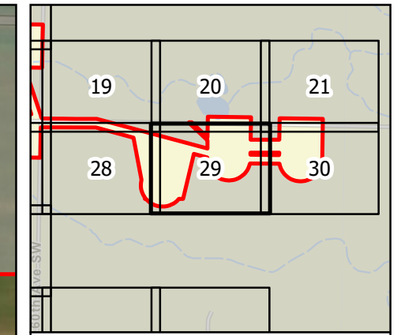


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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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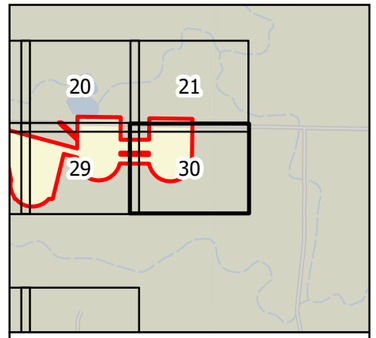


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1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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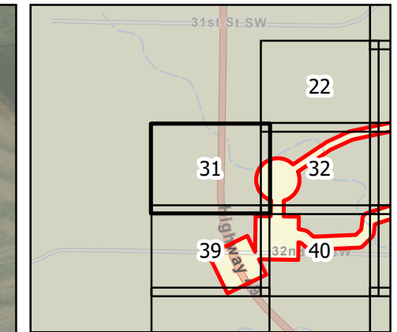


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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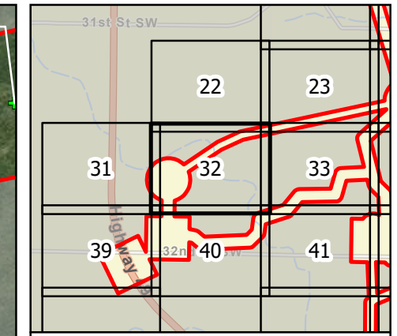


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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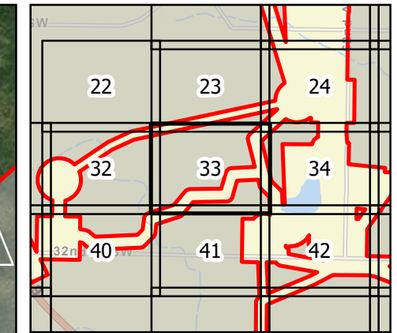


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N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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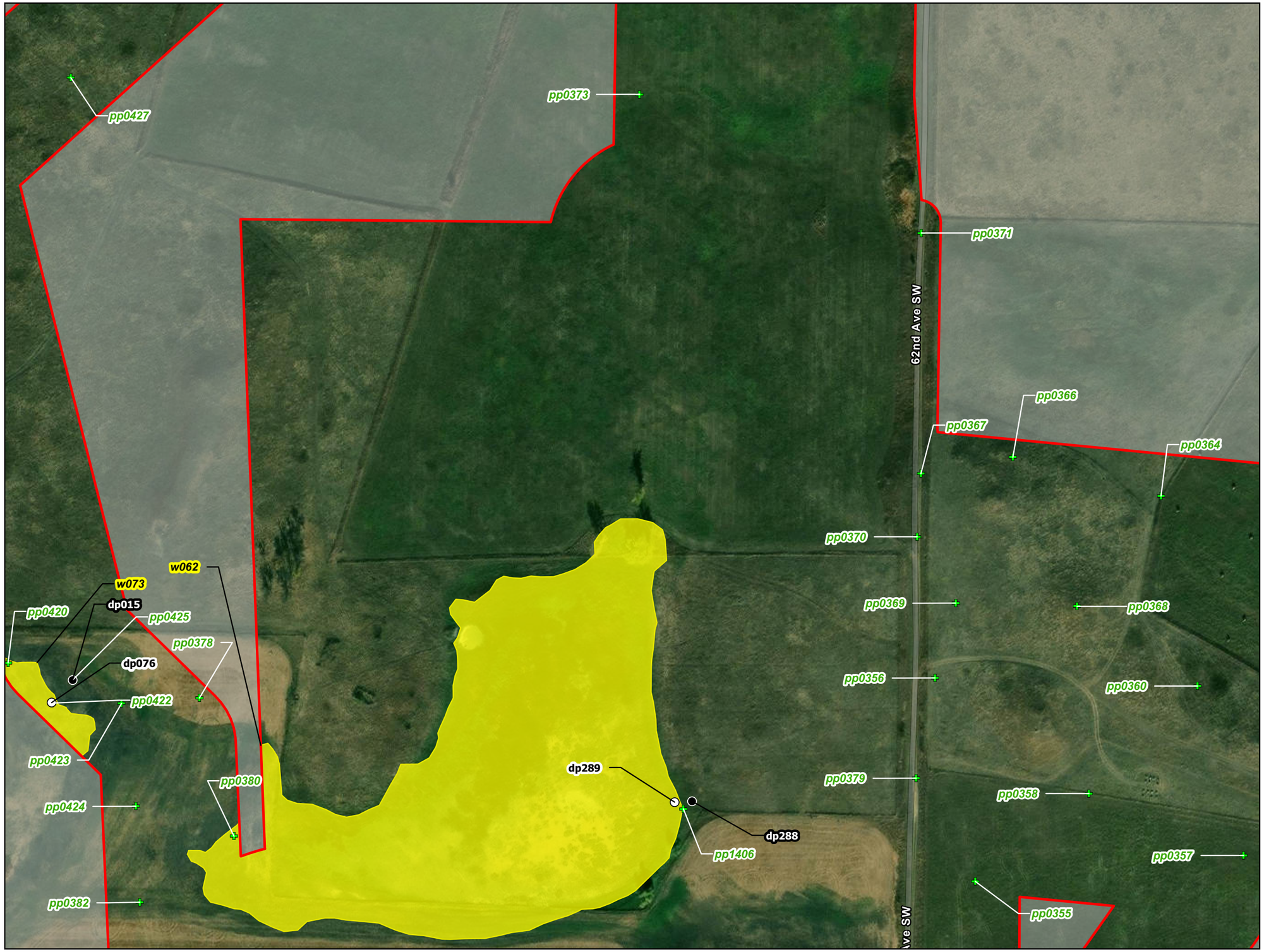


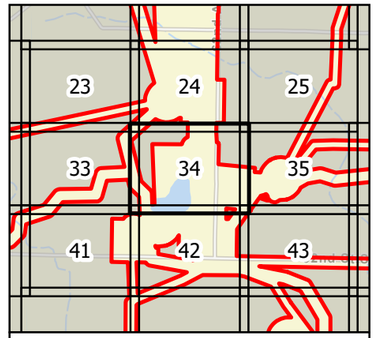


0 100 200 Feet

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Survey Area
Photo Point
Upland Data Point
Wetland Data Point
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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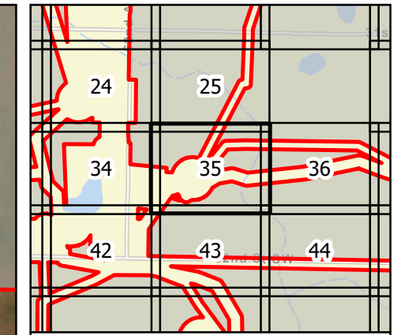


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N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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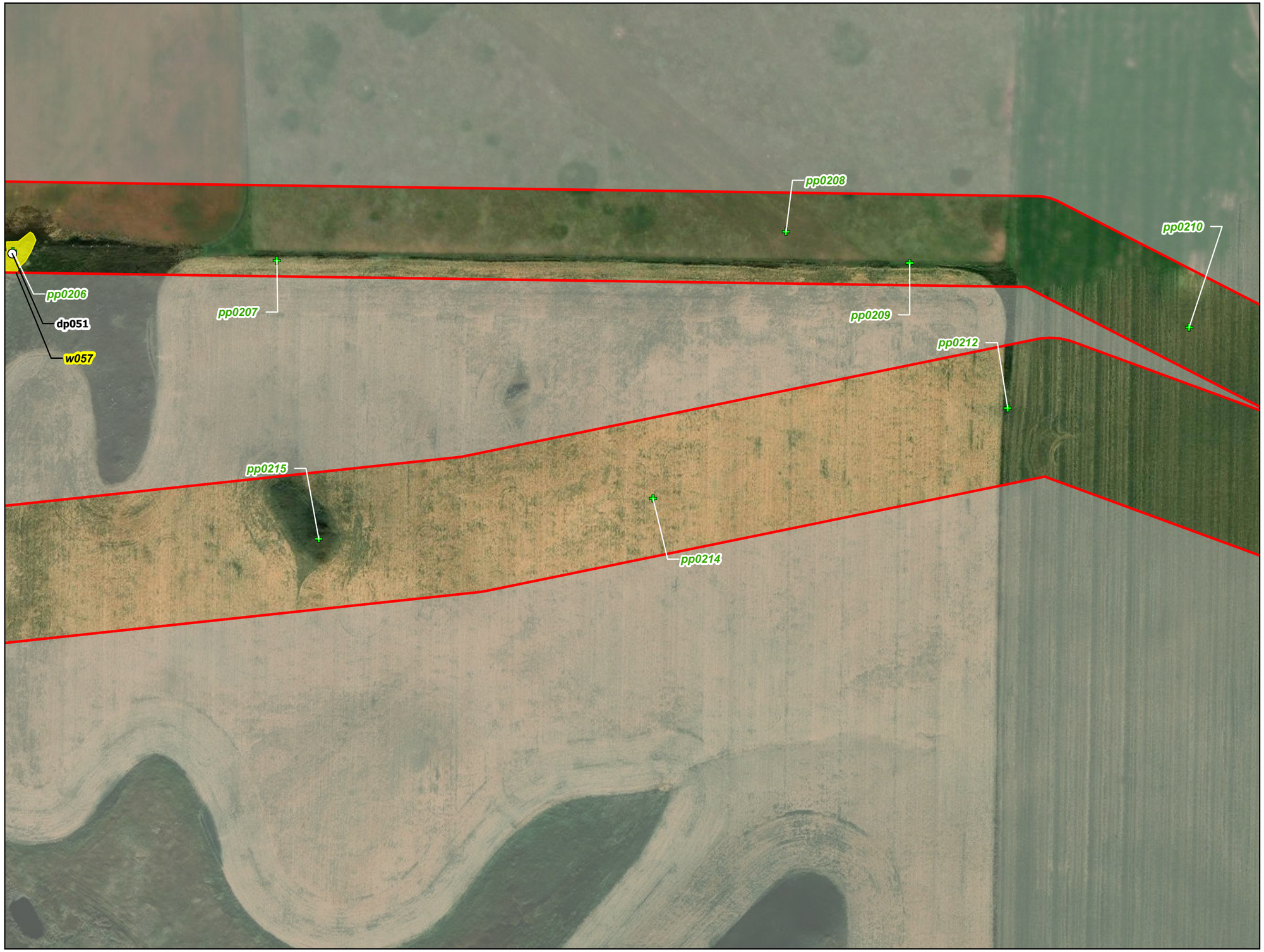


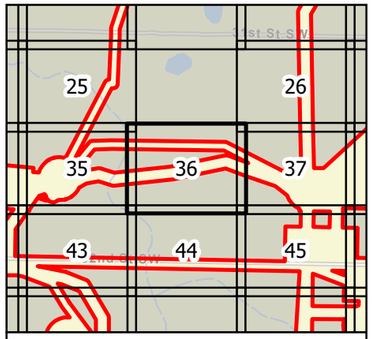


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- Survey Area
- Photo Point
- Wetland Data Point

Delineated Wetland

- PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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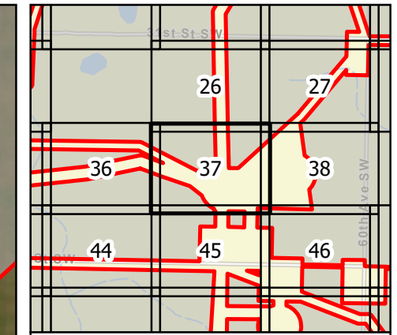


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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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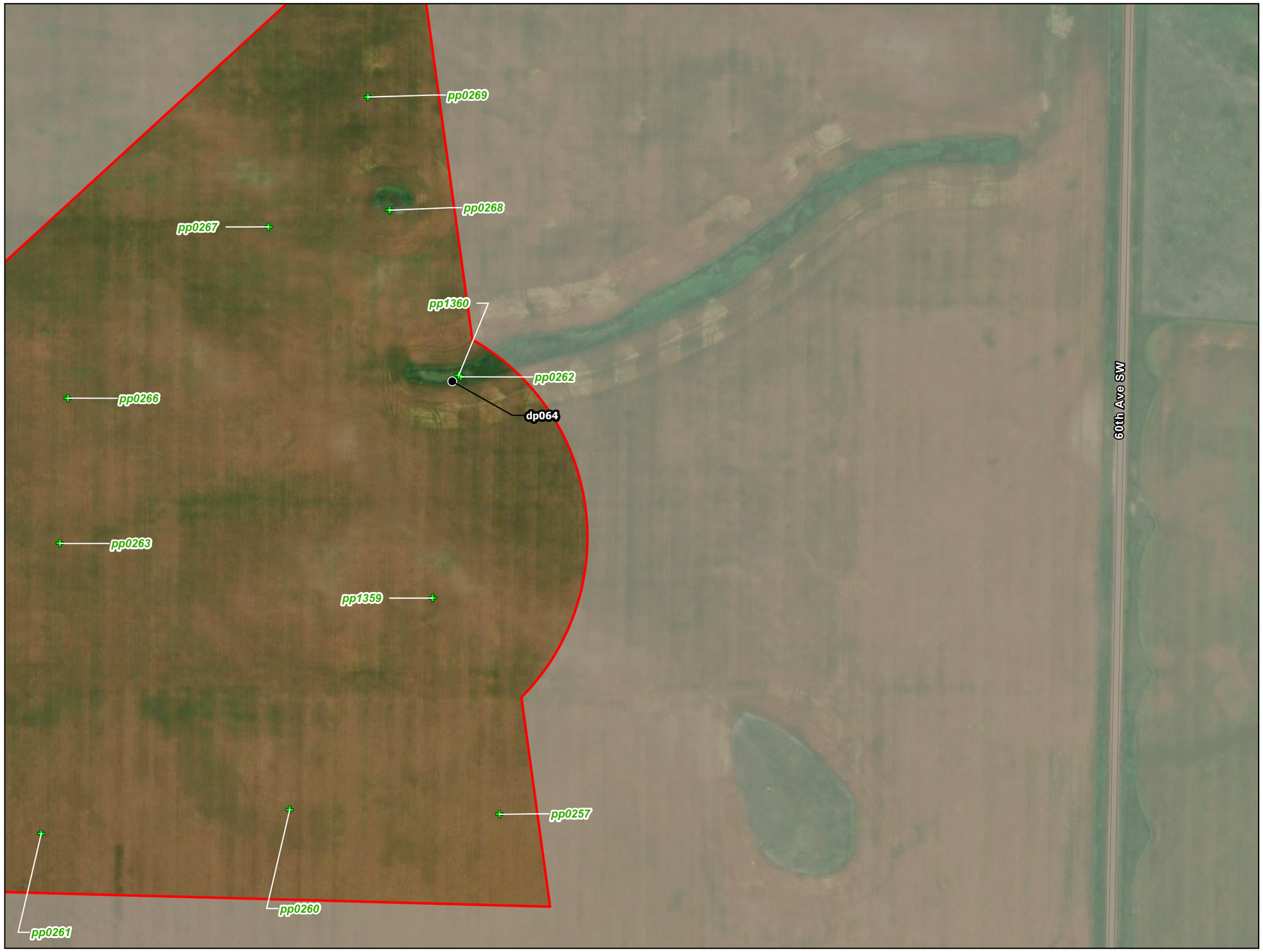


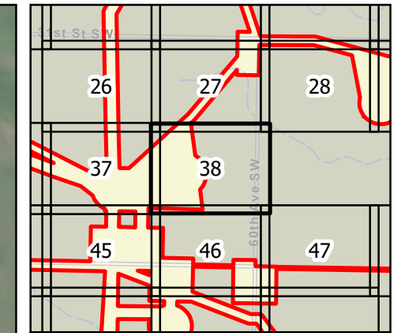


Survey Area
Photo Point
Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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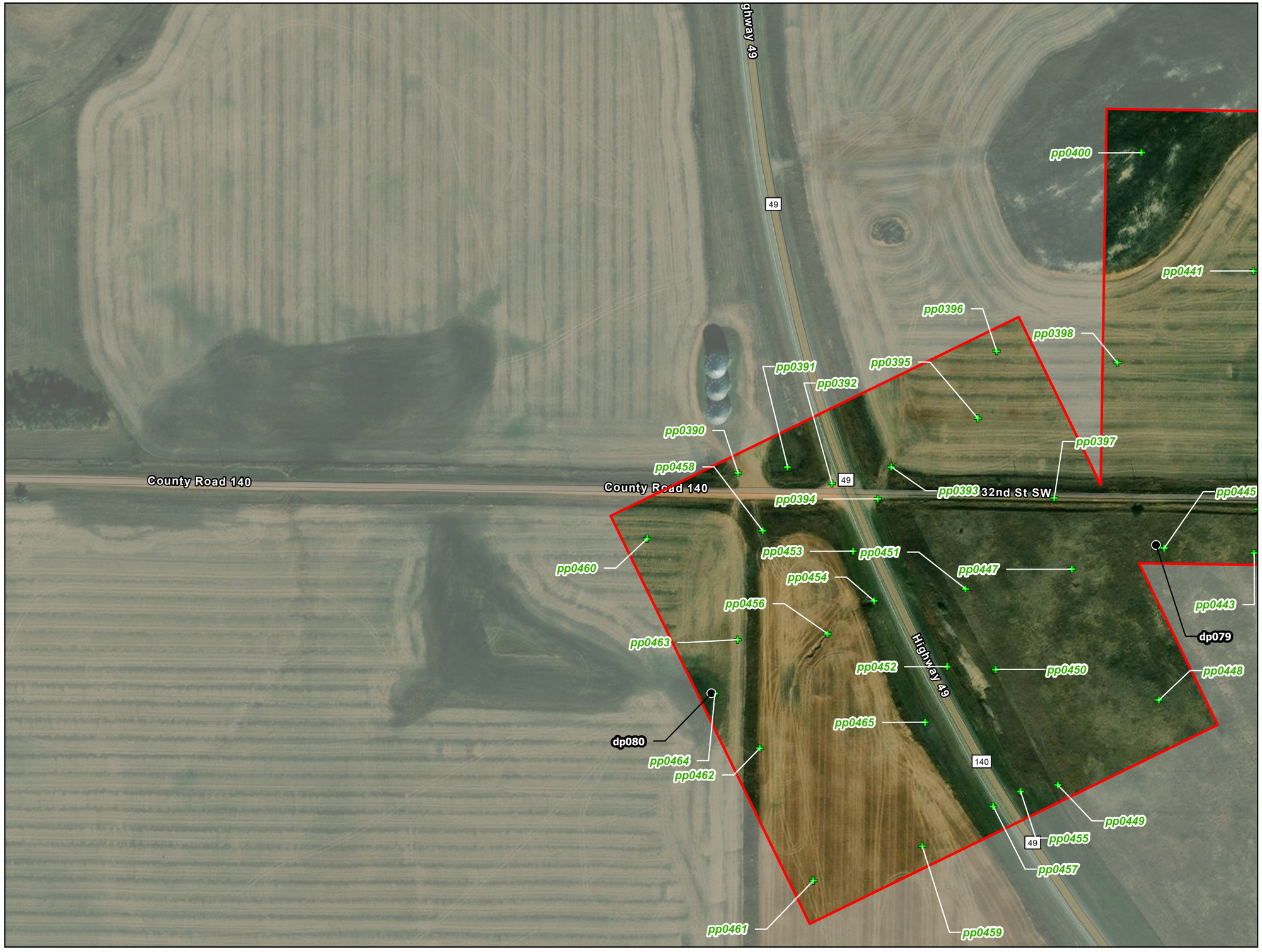


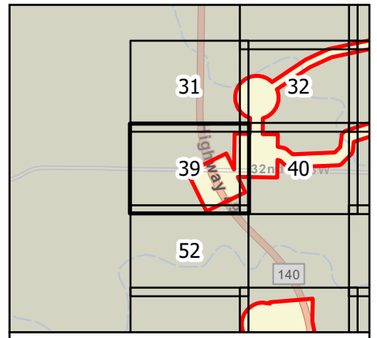


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1 inch = 200 feet

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- Survey Area
- Photo Point
- Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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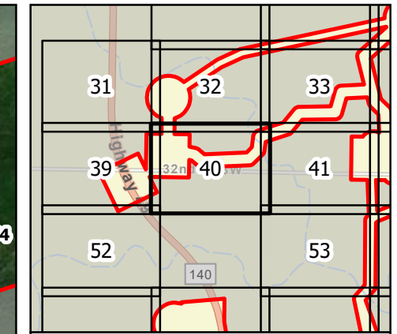


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N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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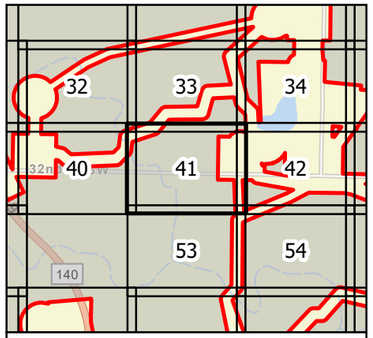


0 100 200 Feet

1 inch = 200 feet

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Survey Area
Photo Point
Upland Data Point
Wetland Data Point
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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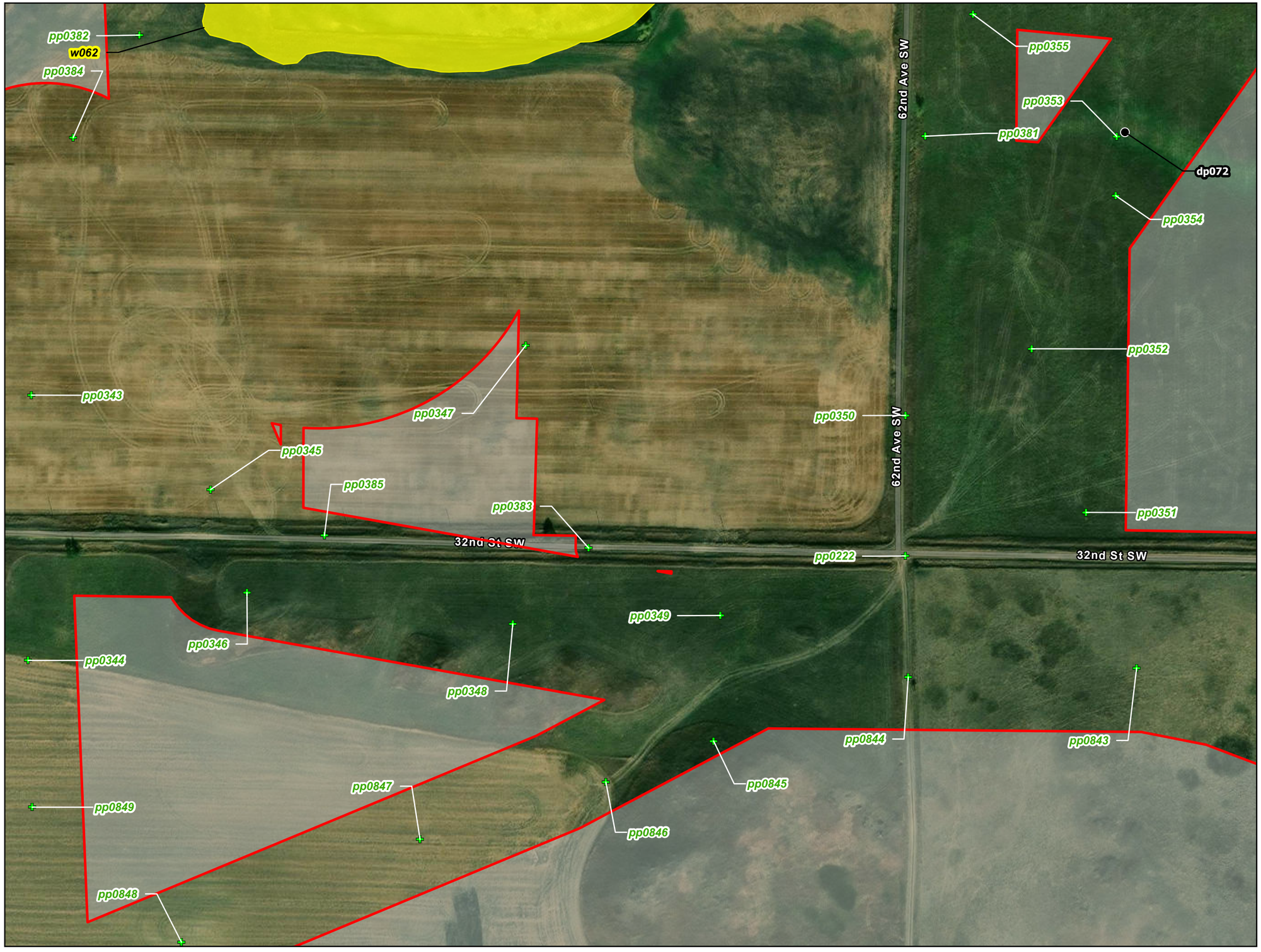


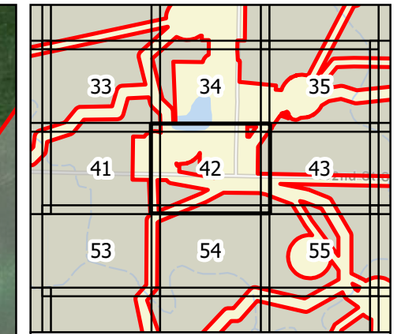


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

Upland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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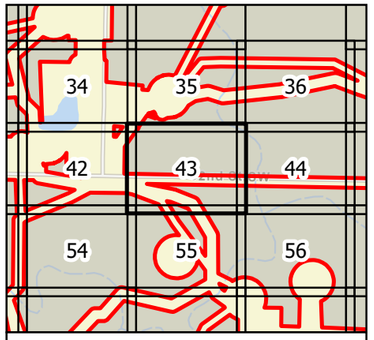


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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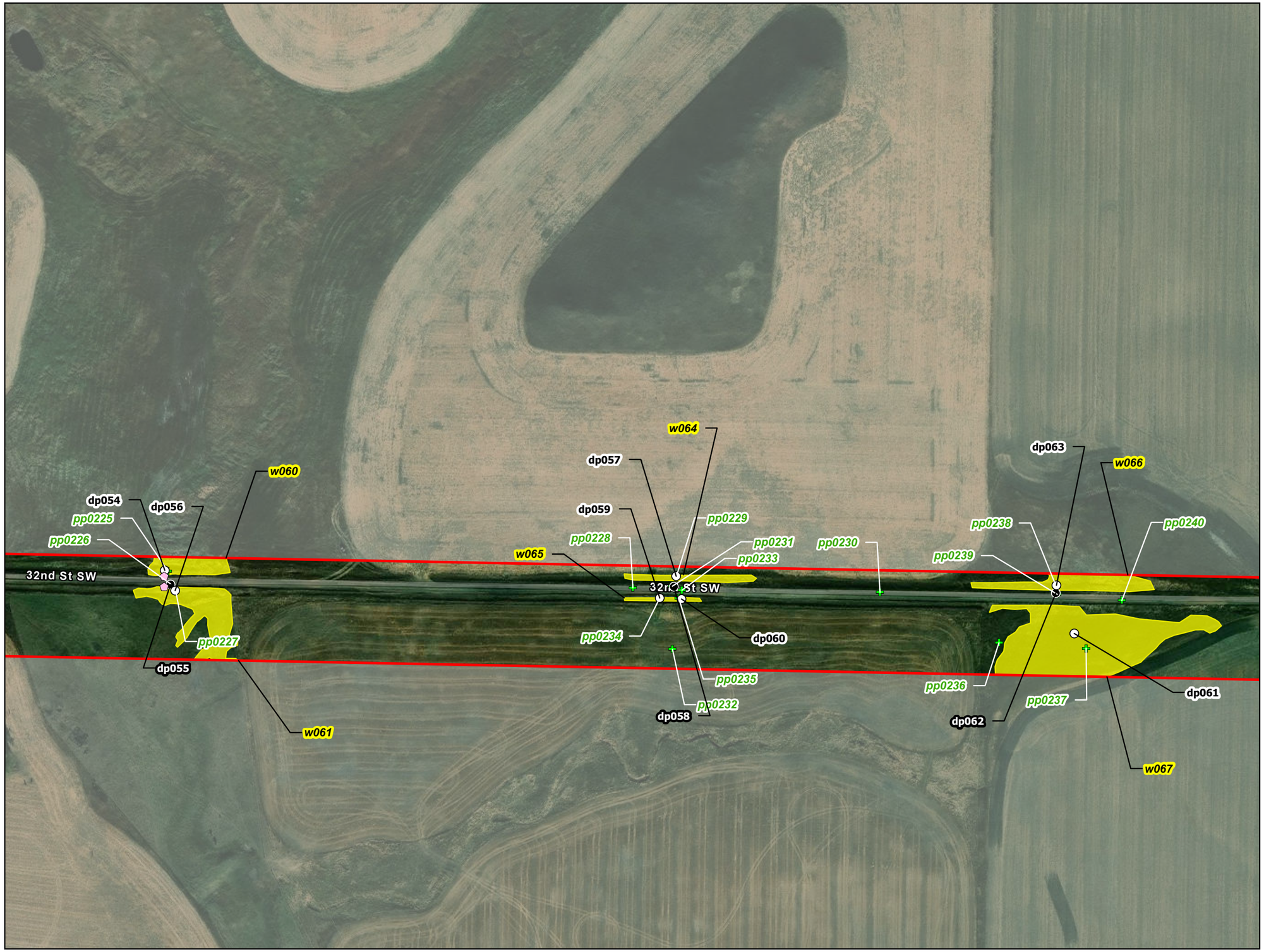


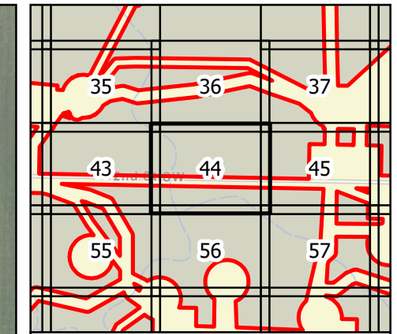


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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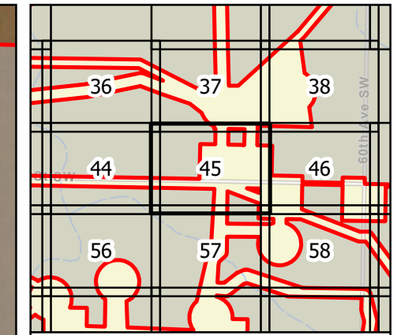


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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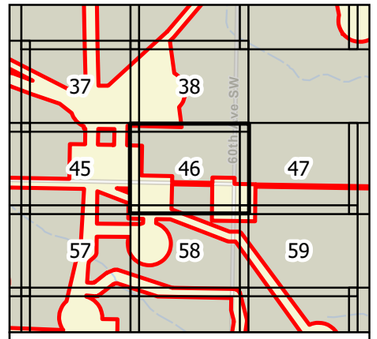


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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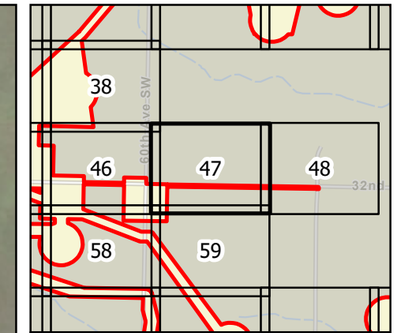


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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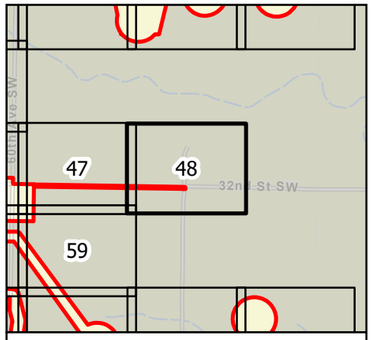


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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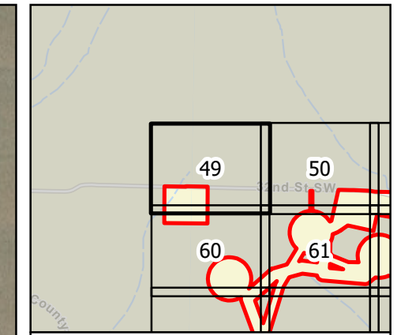


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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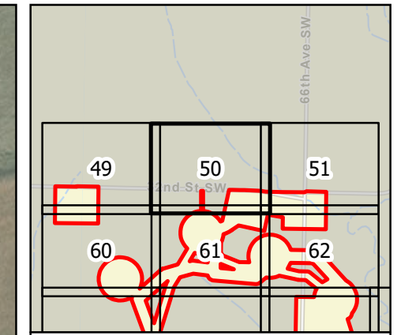


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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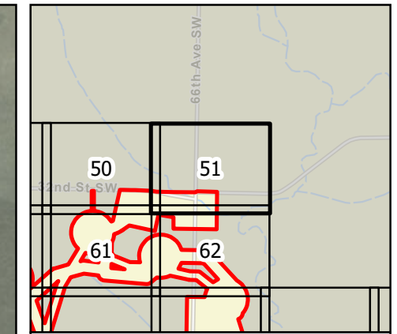


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Photo Point
Stream Point
Upland Data Point
Wetland Data Point
Delineated Waterway
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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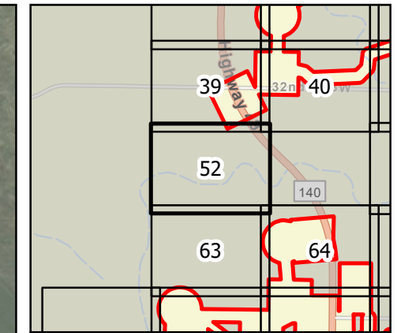


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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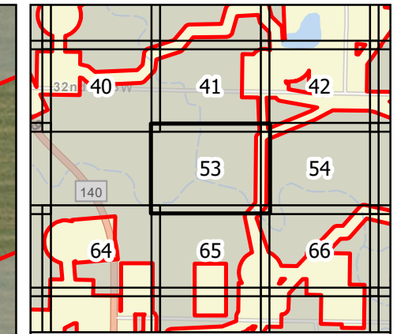


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Photo Point
Stream Point
Upland Data Point
Wetland Data Point
Delineated Waterway
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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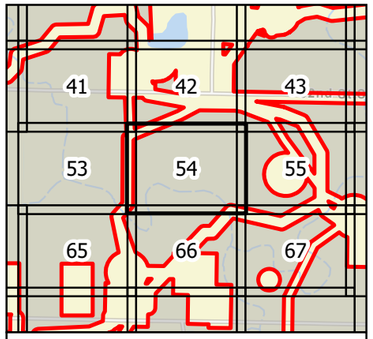


0 100 200 Feet

1 inch = 200 feet

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- Survey Area
- Photo Point
- Upland Data Point
- Wetland Data Point
- Delineated Waterway

Delineated Wetland

- PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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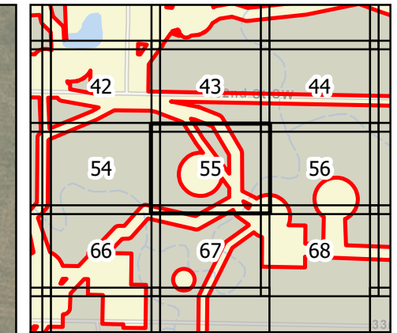


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Photo Point
Stream Point
Upland Data Point
Wetland Data Point
Delineated Waterway
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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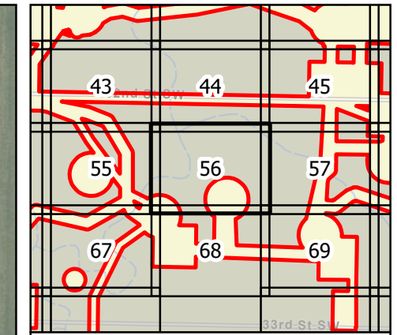


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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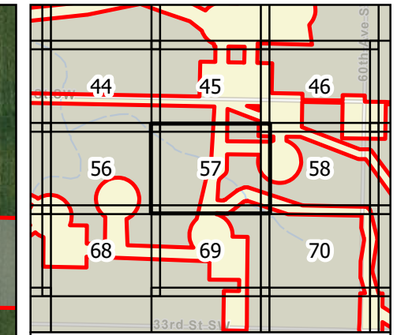


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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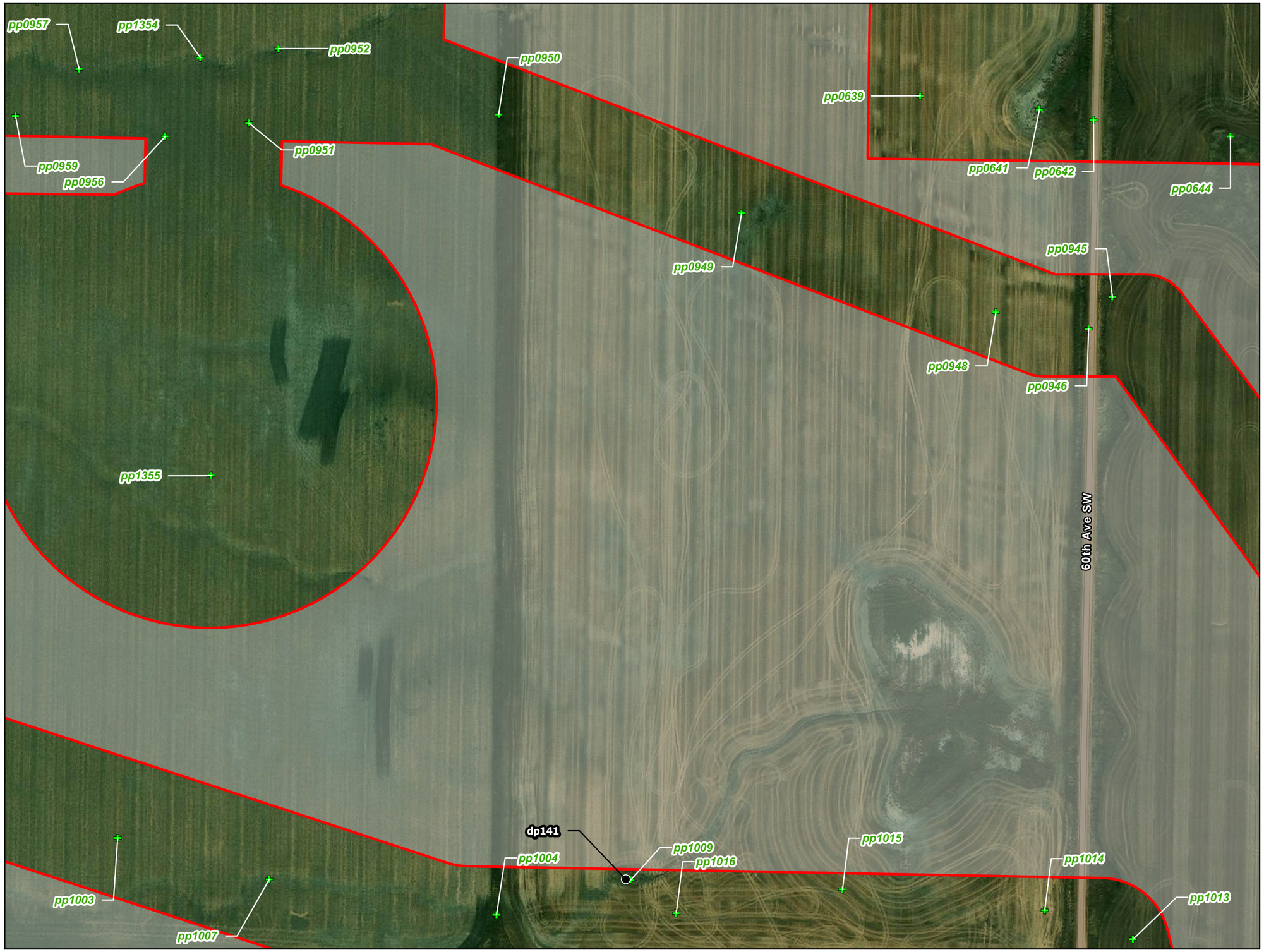


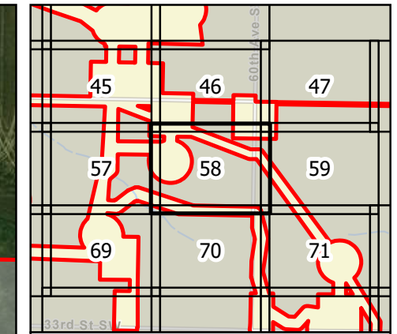


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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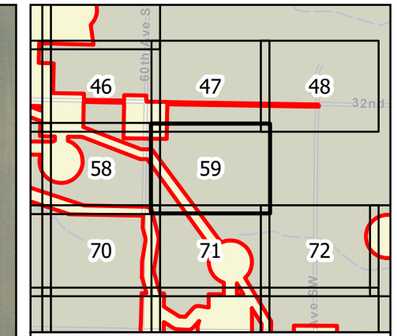


Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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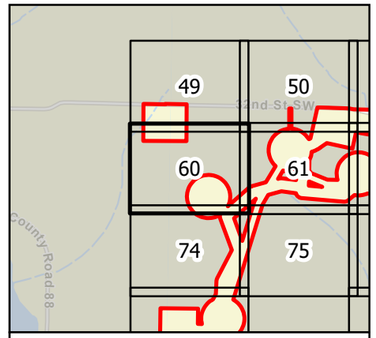


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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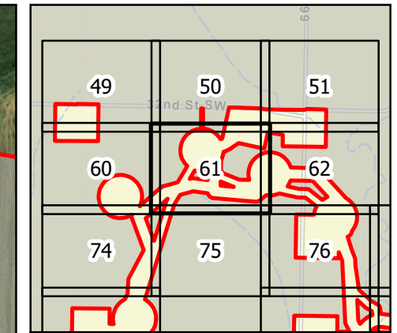


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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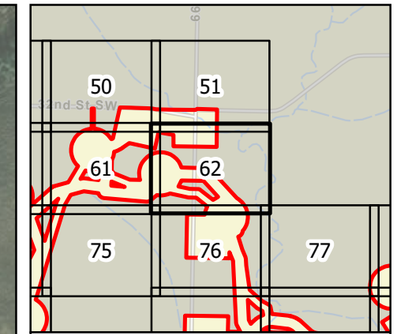


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Waterway

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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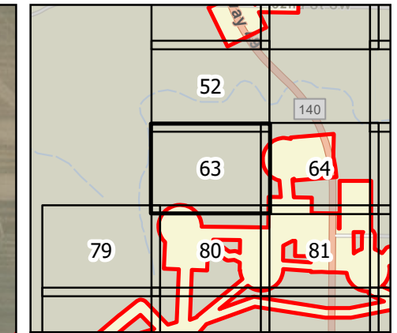


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1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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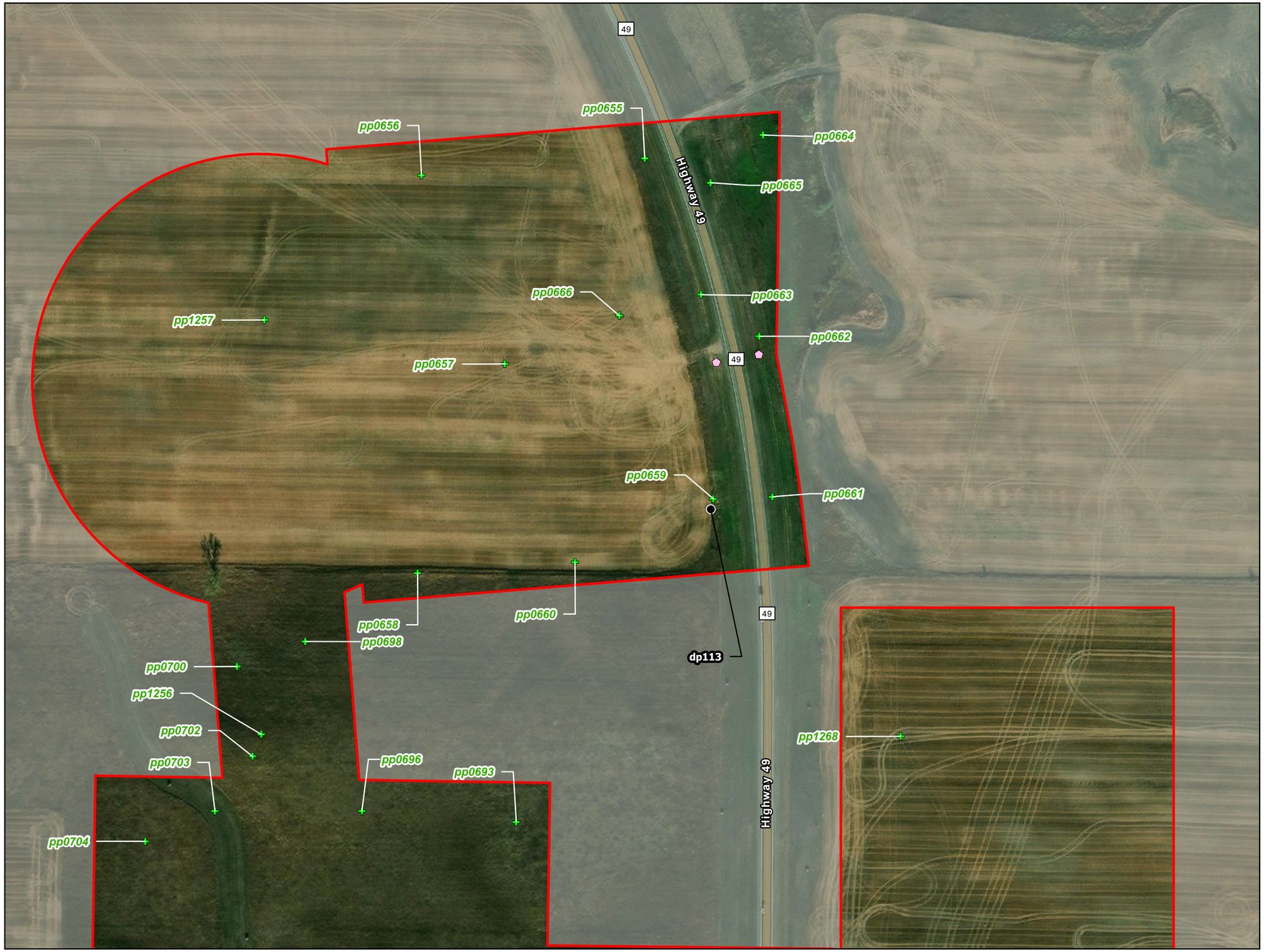


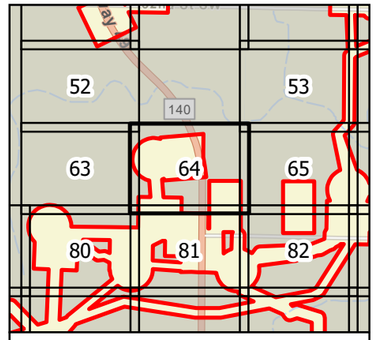


0 100 200 Feet

1 inch = 200 feet

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- Survey Area
- Culvert Point
- Photo Point
- Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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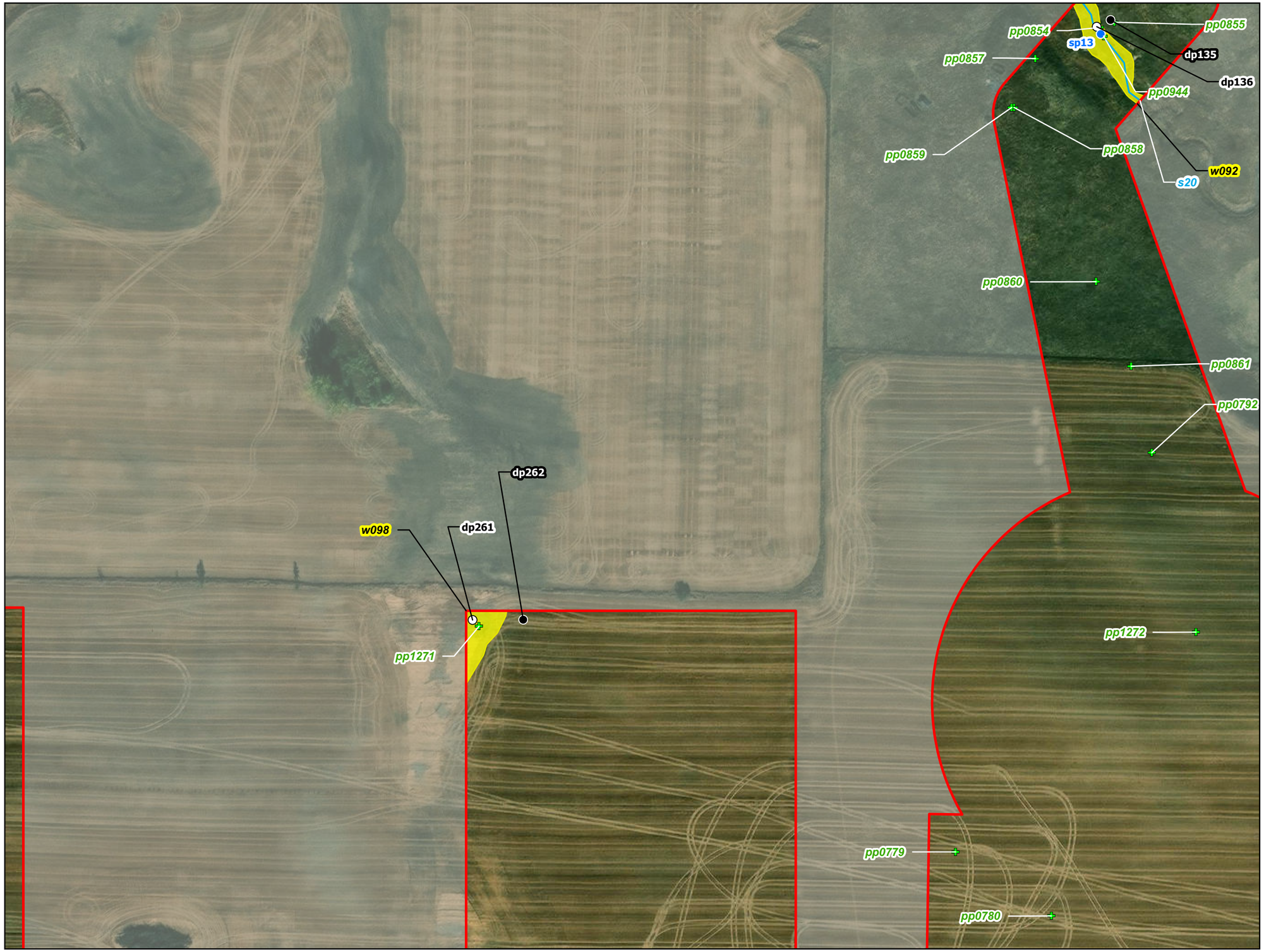


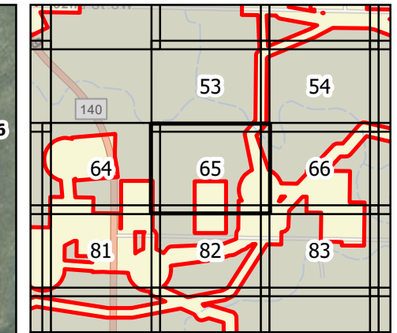


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Photo Point
Stream Point
Upland Data Point
Wetland Data Point
Delineated Waterway
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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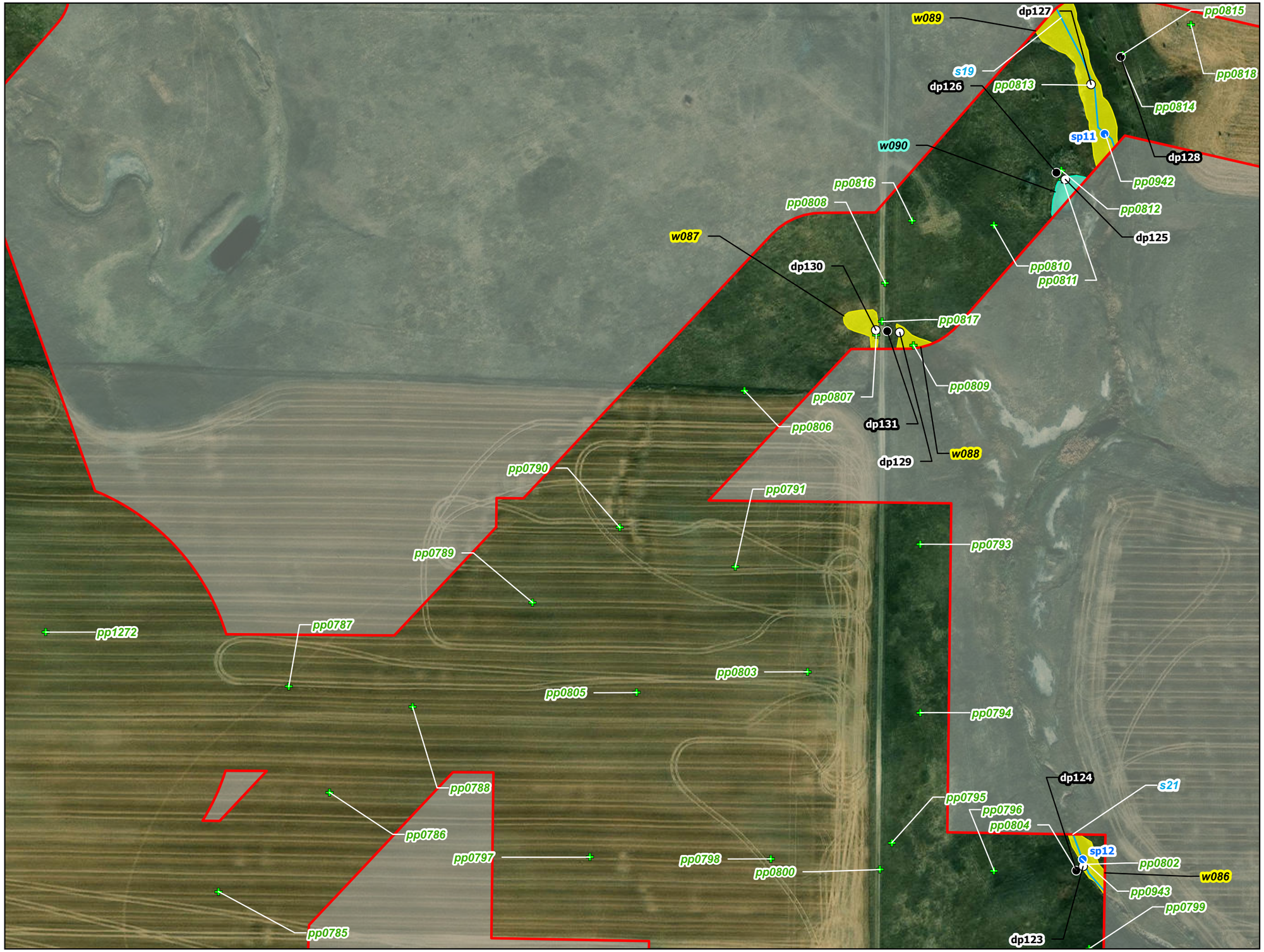


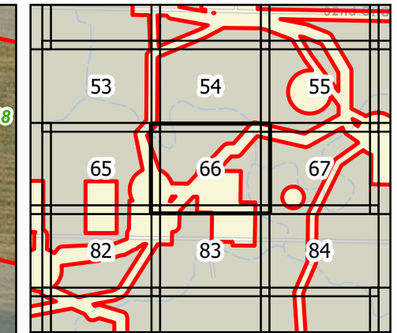


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Stream Point

Upland Data Point

Wetland Data Point

Delineated Waterway

Delineated Wetland

PEM

PUB

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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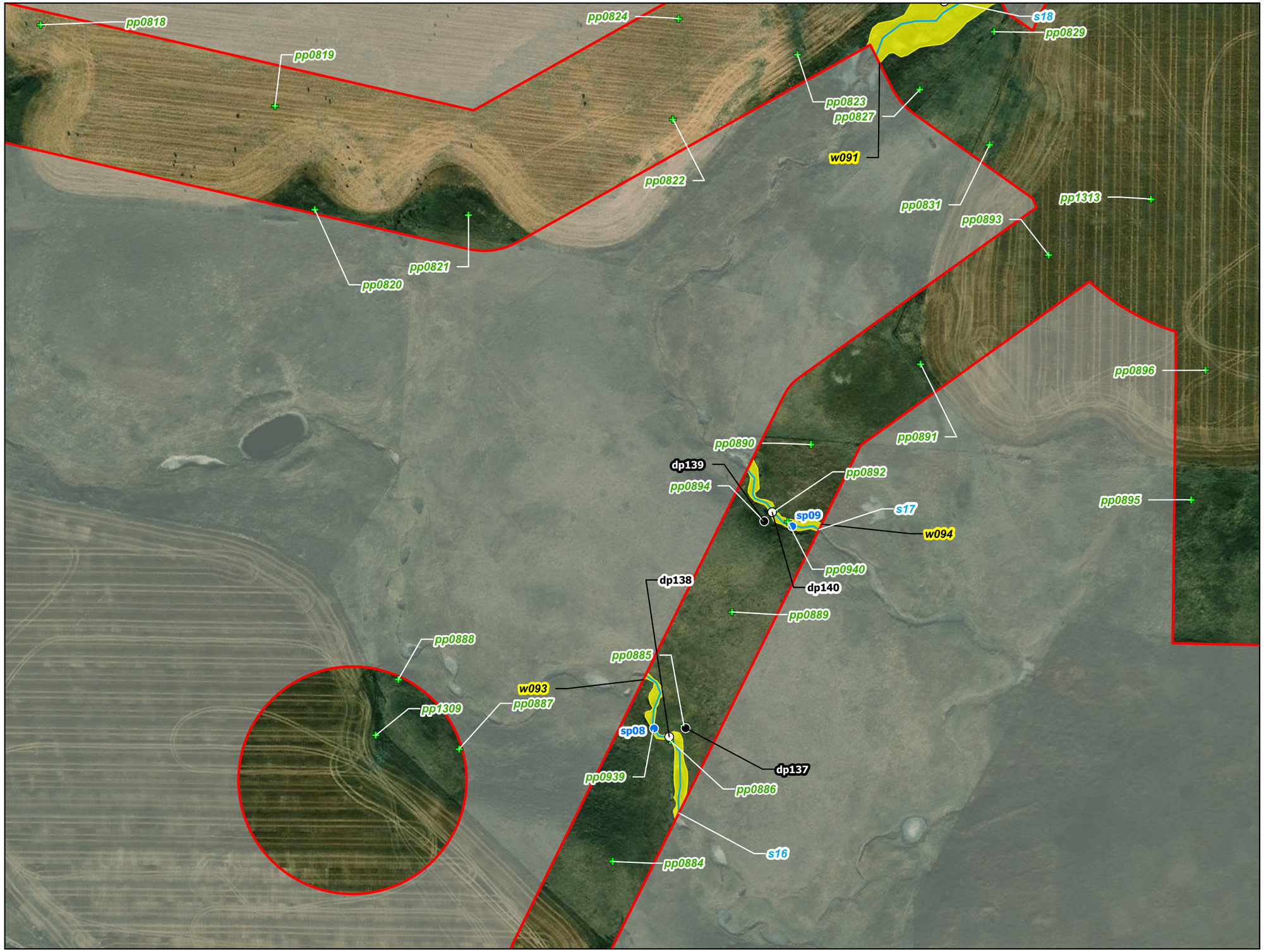


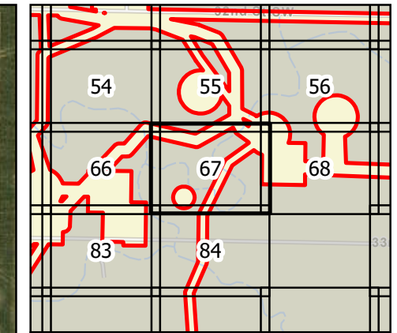


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Photo Point
Stream Point
Upland Data Point
Wetland Data Point
Delineated Waterway
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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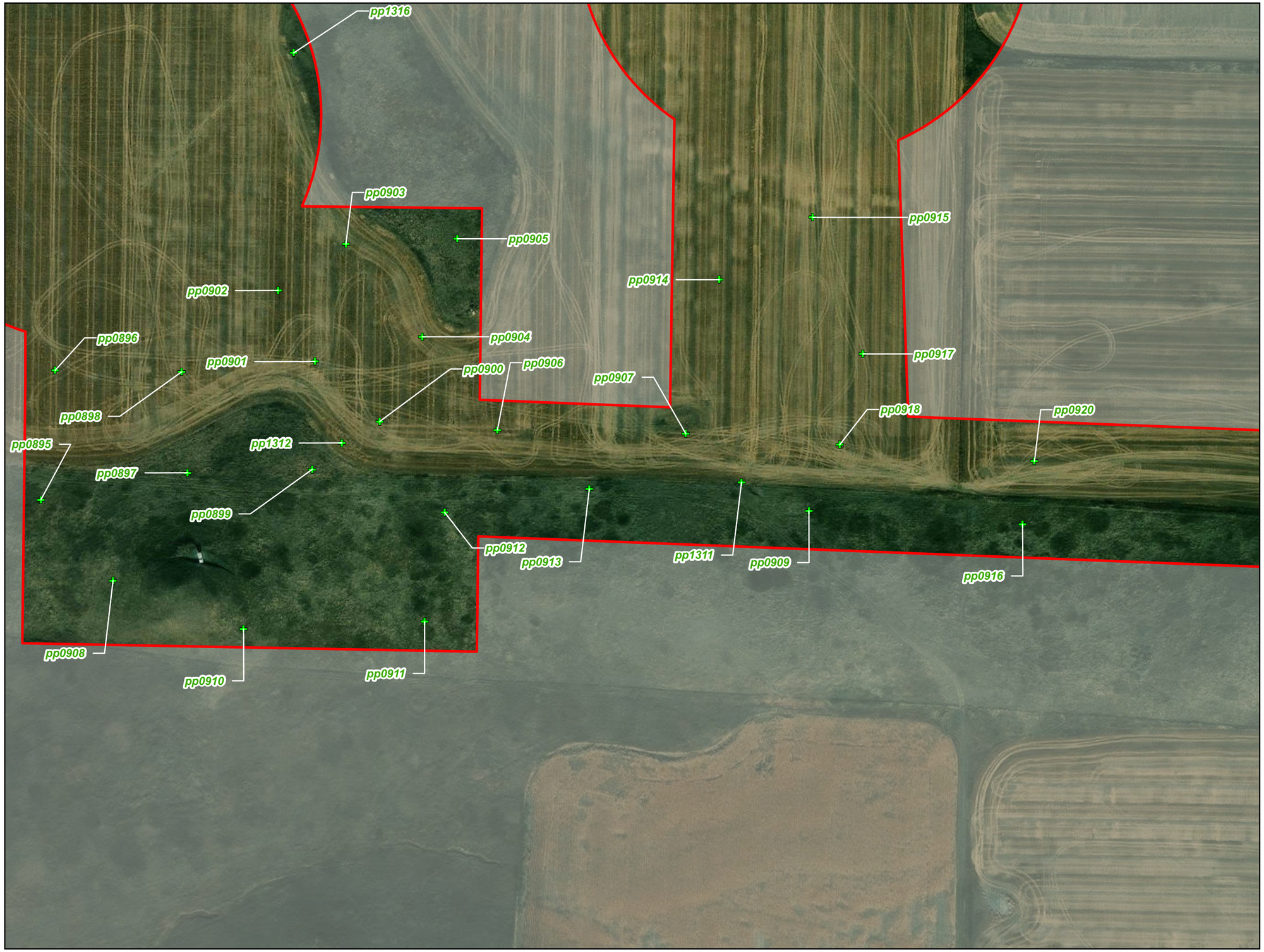


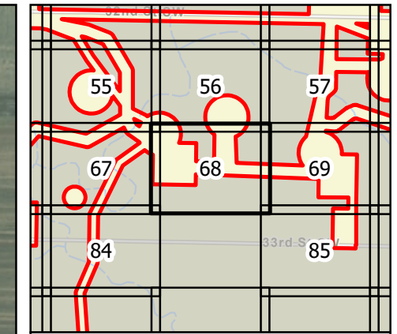


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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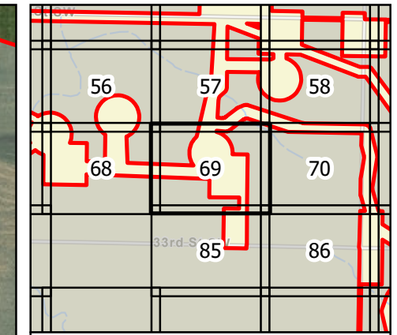


0 100 200 Feet

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N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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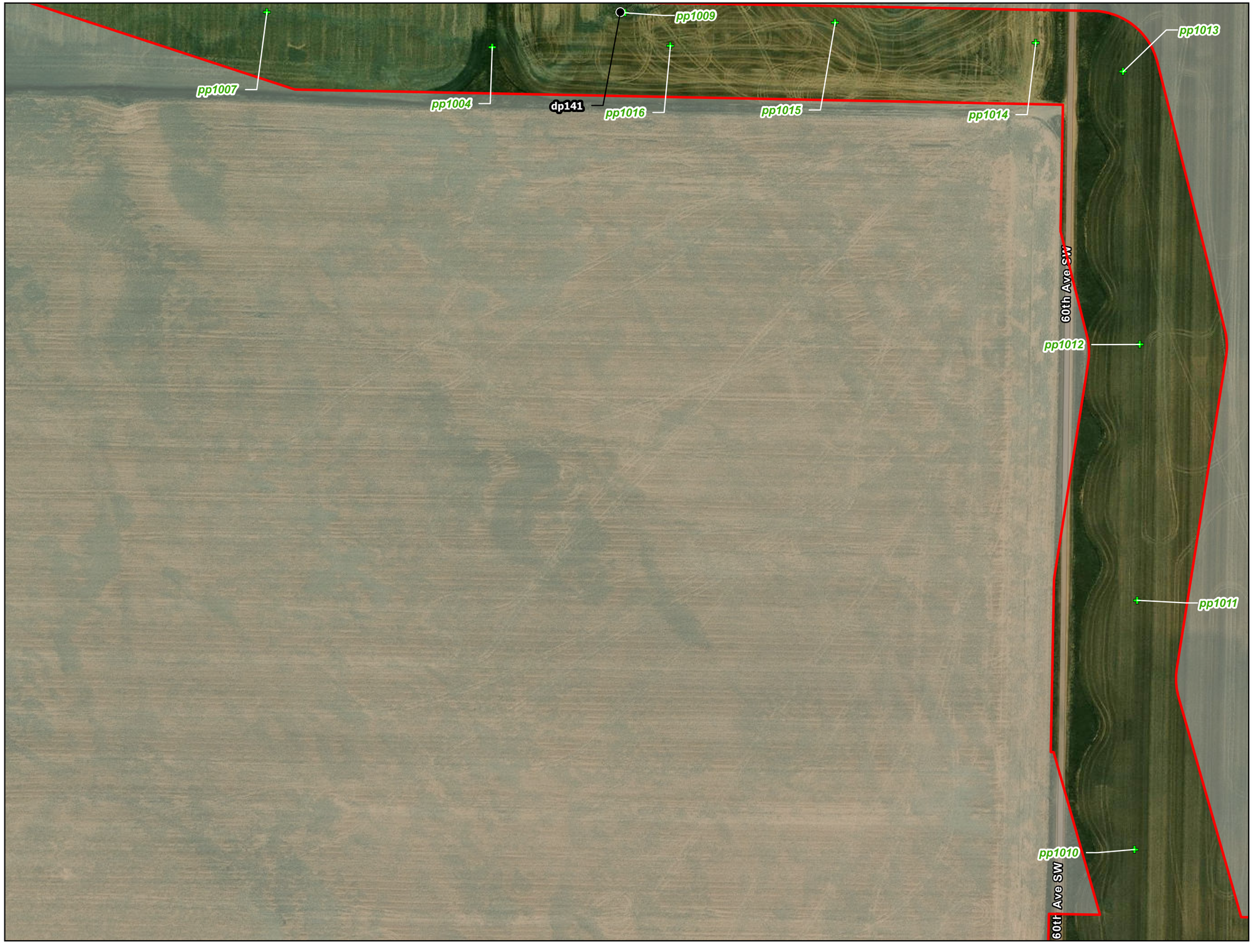


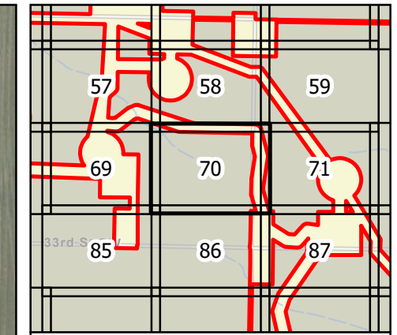


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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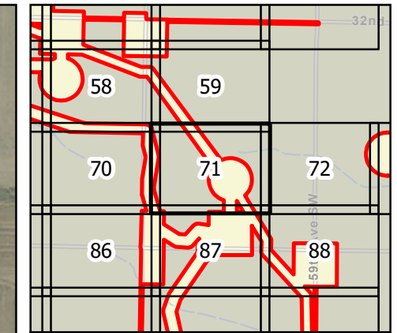


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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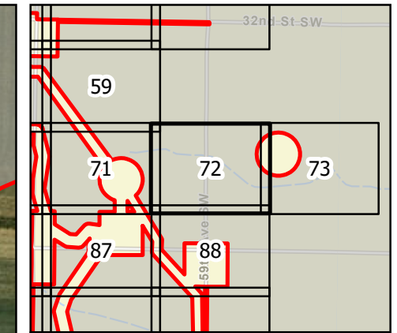


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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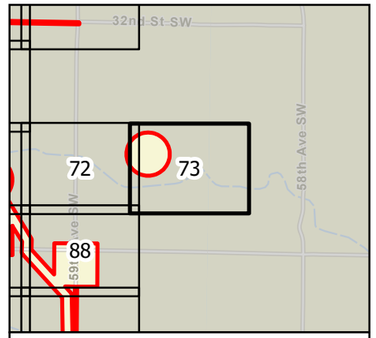


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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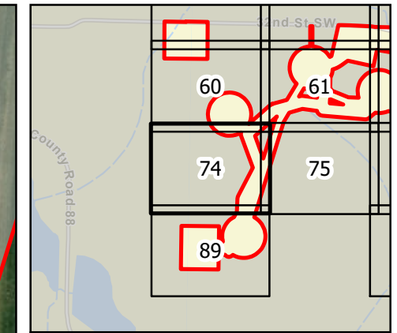


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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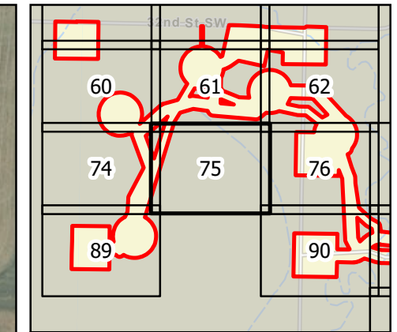


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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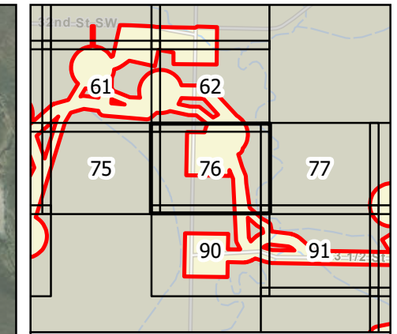


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Delineated Waterway

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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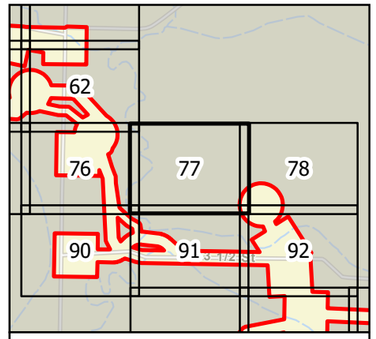


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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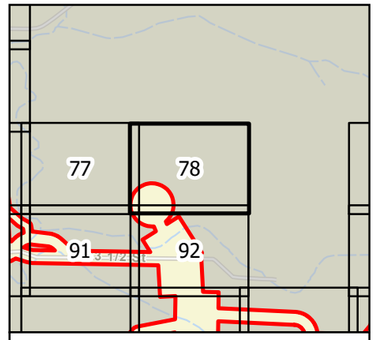


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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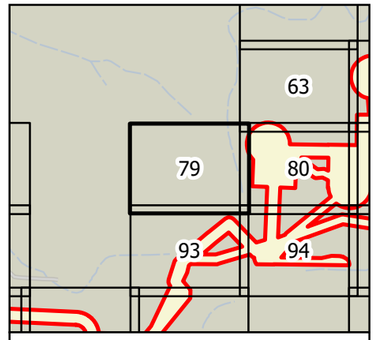


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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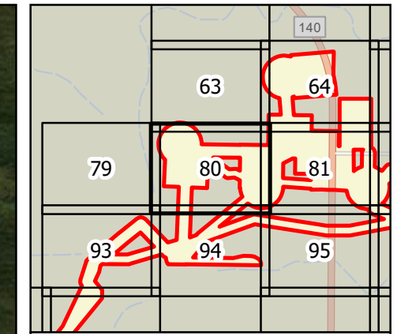


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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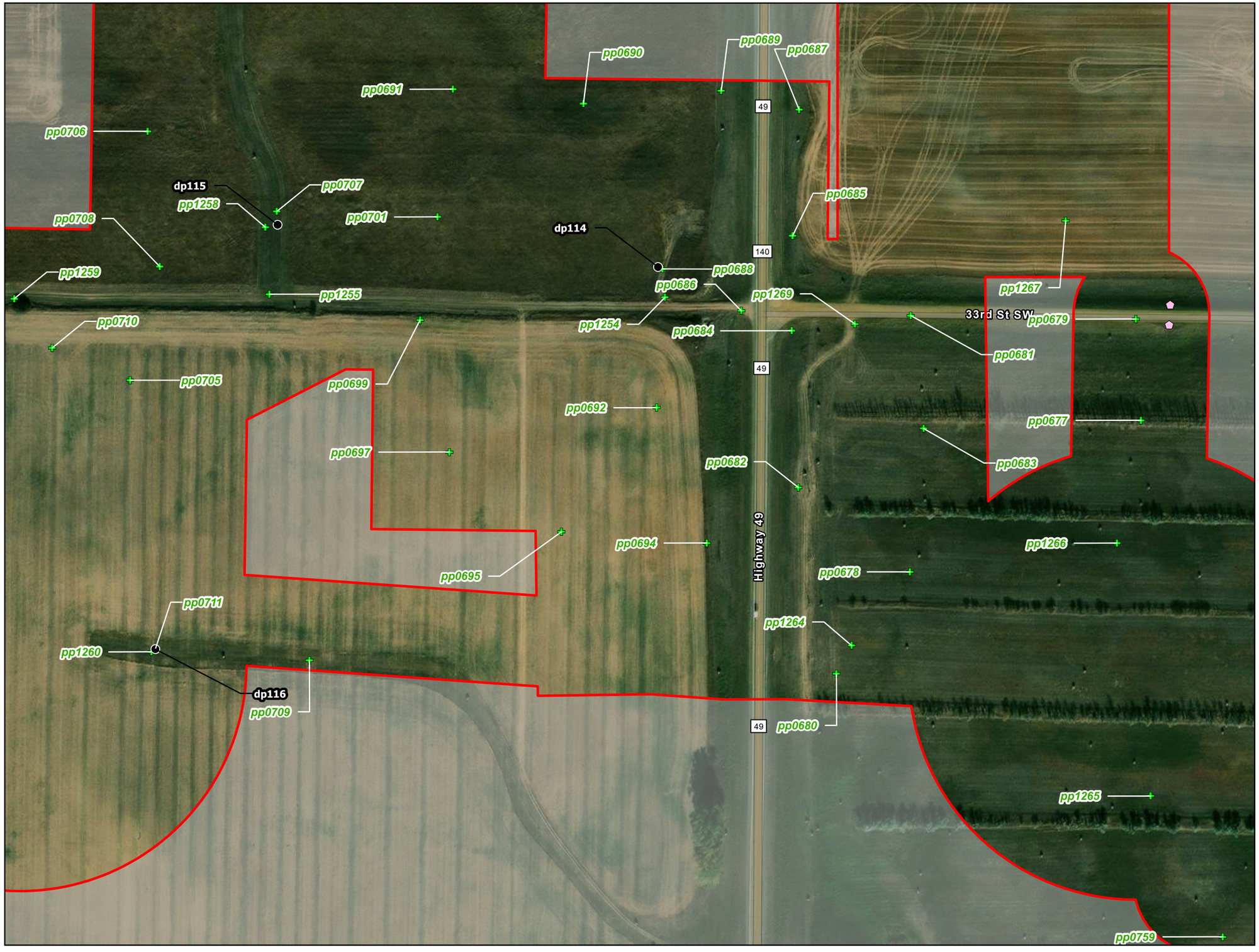


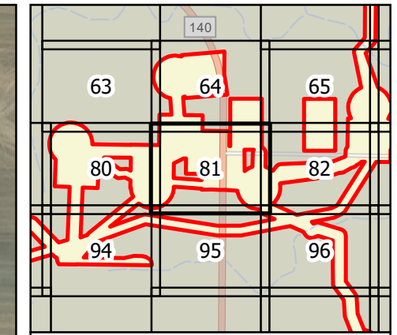


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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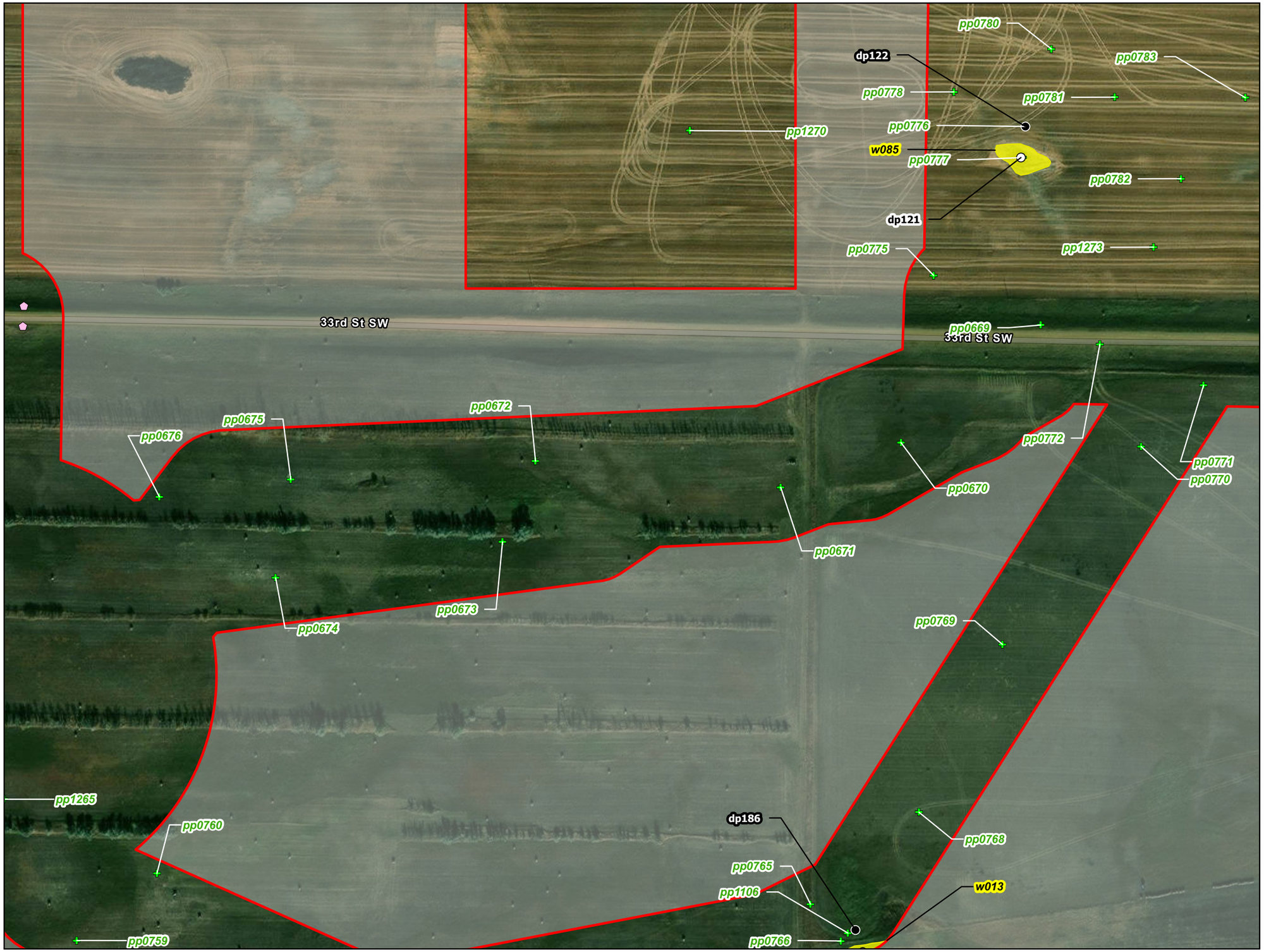


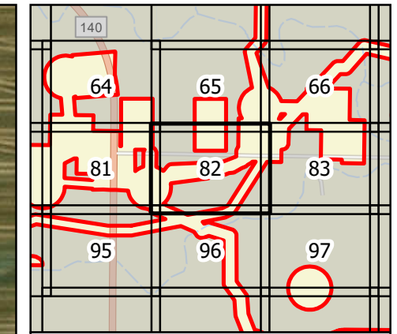


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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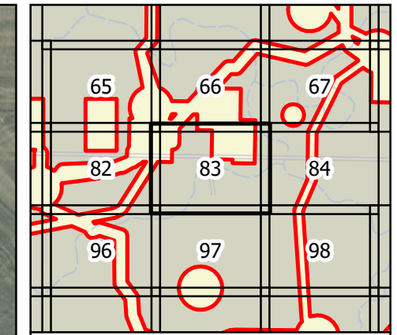


0 100 200 Feet

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N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Waterway

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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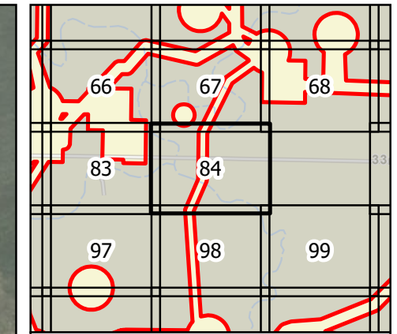


Survey Area
Photo Point
Stream Point
Upland Data Point
Wetland Data Point
Delineated Waterway
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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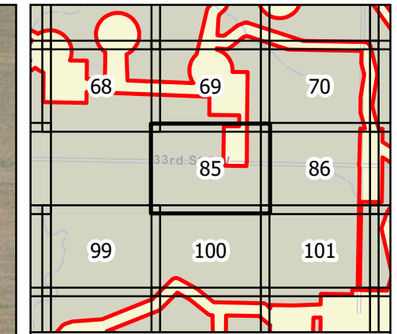


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N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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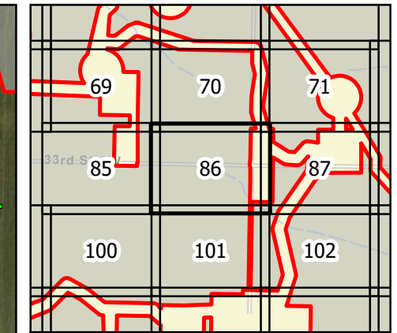


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N W E S

Survey Area

Culvert Point

Photo Point

Stream Point

Delineated Waterway

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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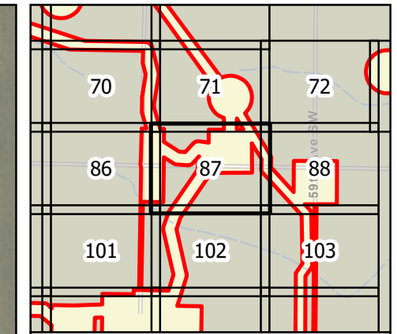


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1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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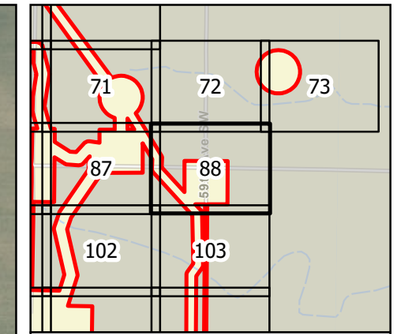


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N W E S

Survey Area

Culvert Point

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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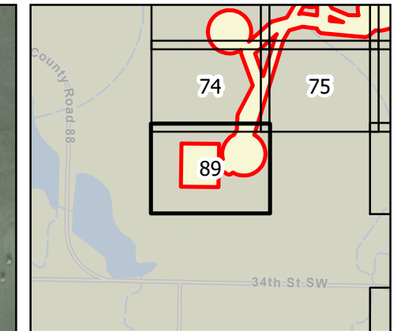


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N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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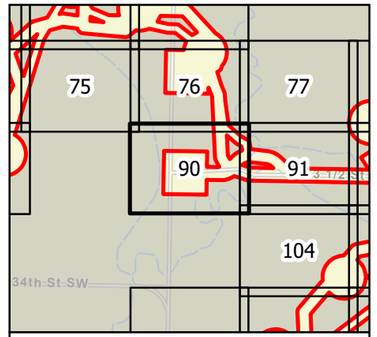


0 100 200 Feet

1 inch = 200 feet

N
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- Survey Area
- Culvert Point
- Photo Point
- Stream Point
- Upland Data Point
- Wetland Data Point
- Delineated Waterway

Delineated Wetland

- PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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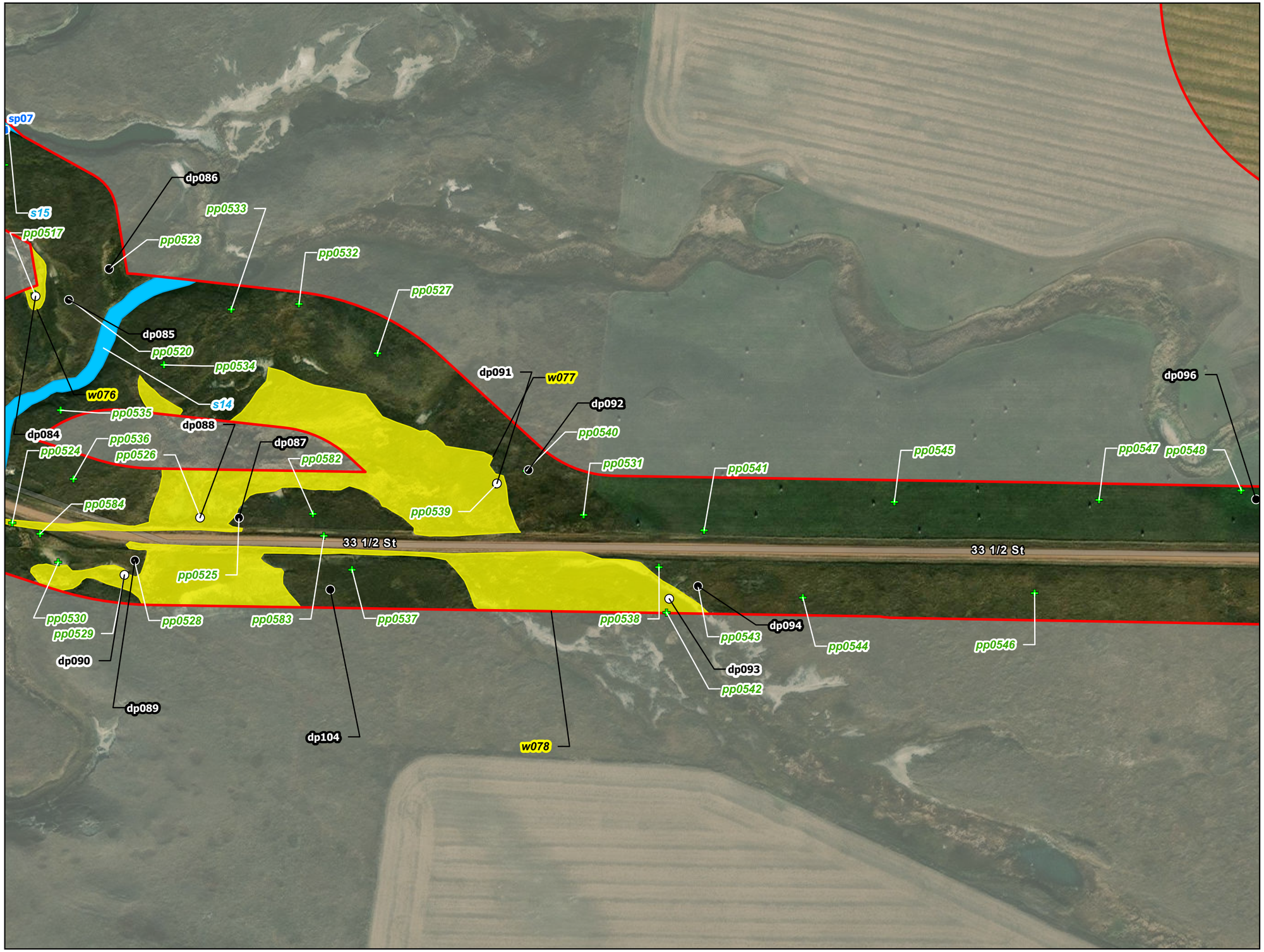


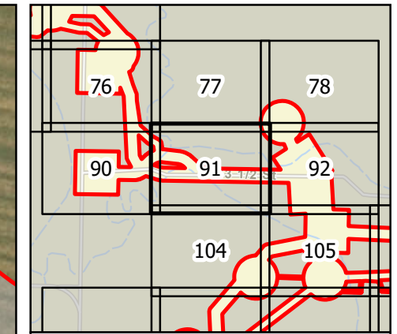


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Stream Point

Upland Data Point

Wetland Data Point

Delineated Waterway

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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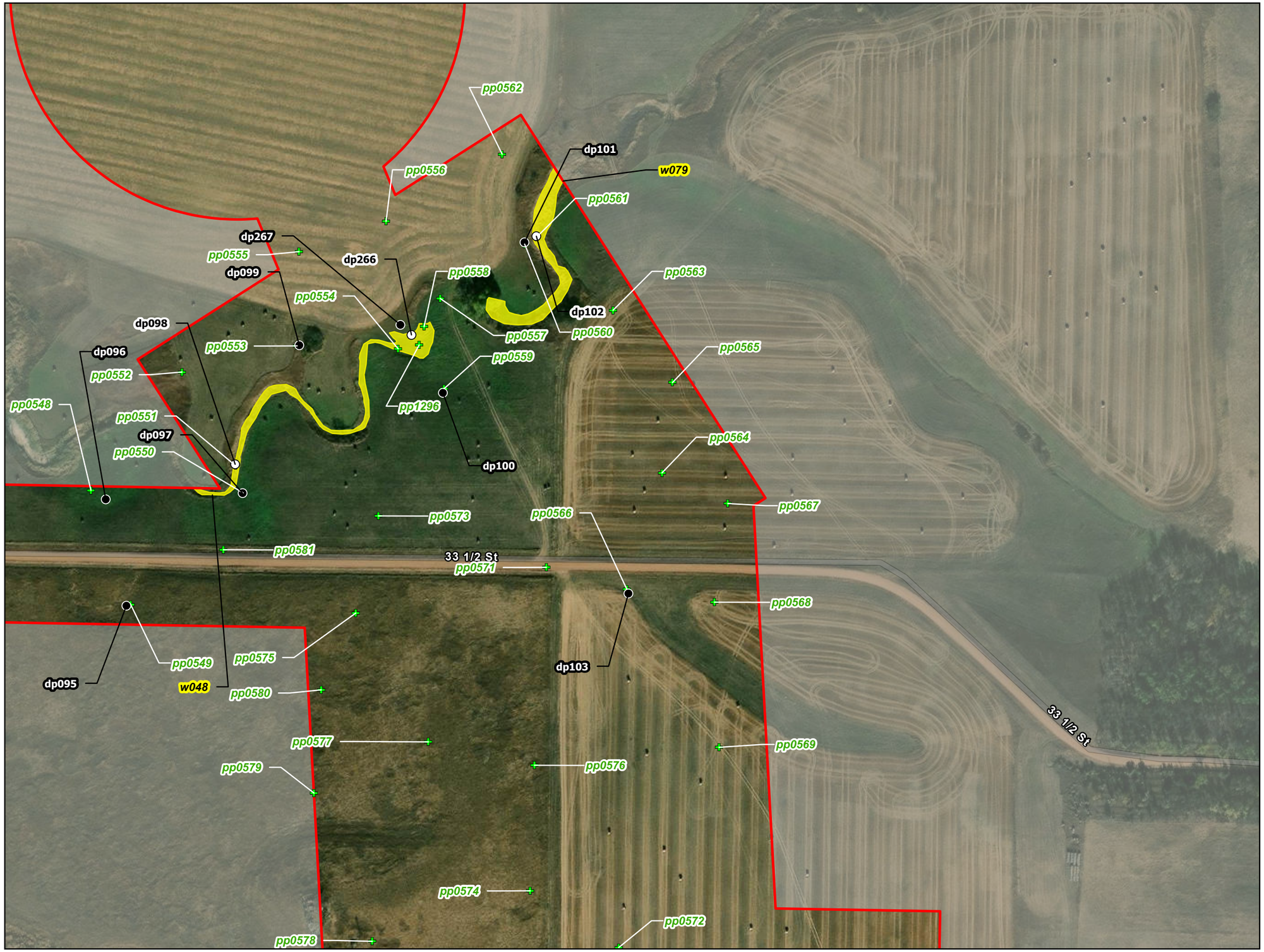


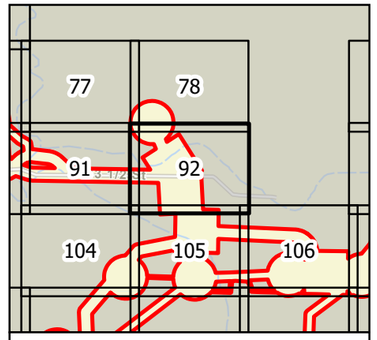


0 100 200 Feet

1 inch = 200 feet

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- Survey Area
- Photo Point
- Upland Data Point
- Wetland Data Point

Delineated Wetland

- PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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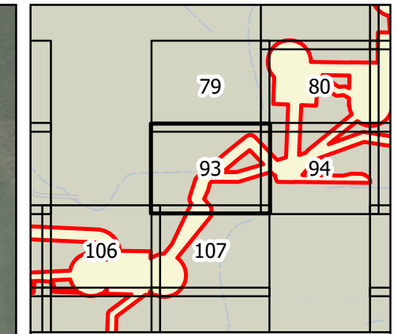


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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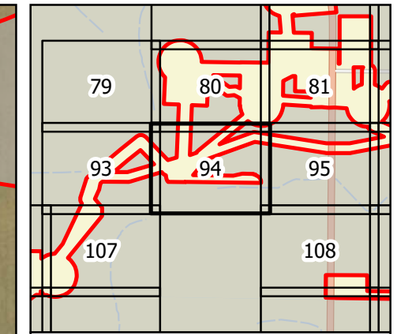


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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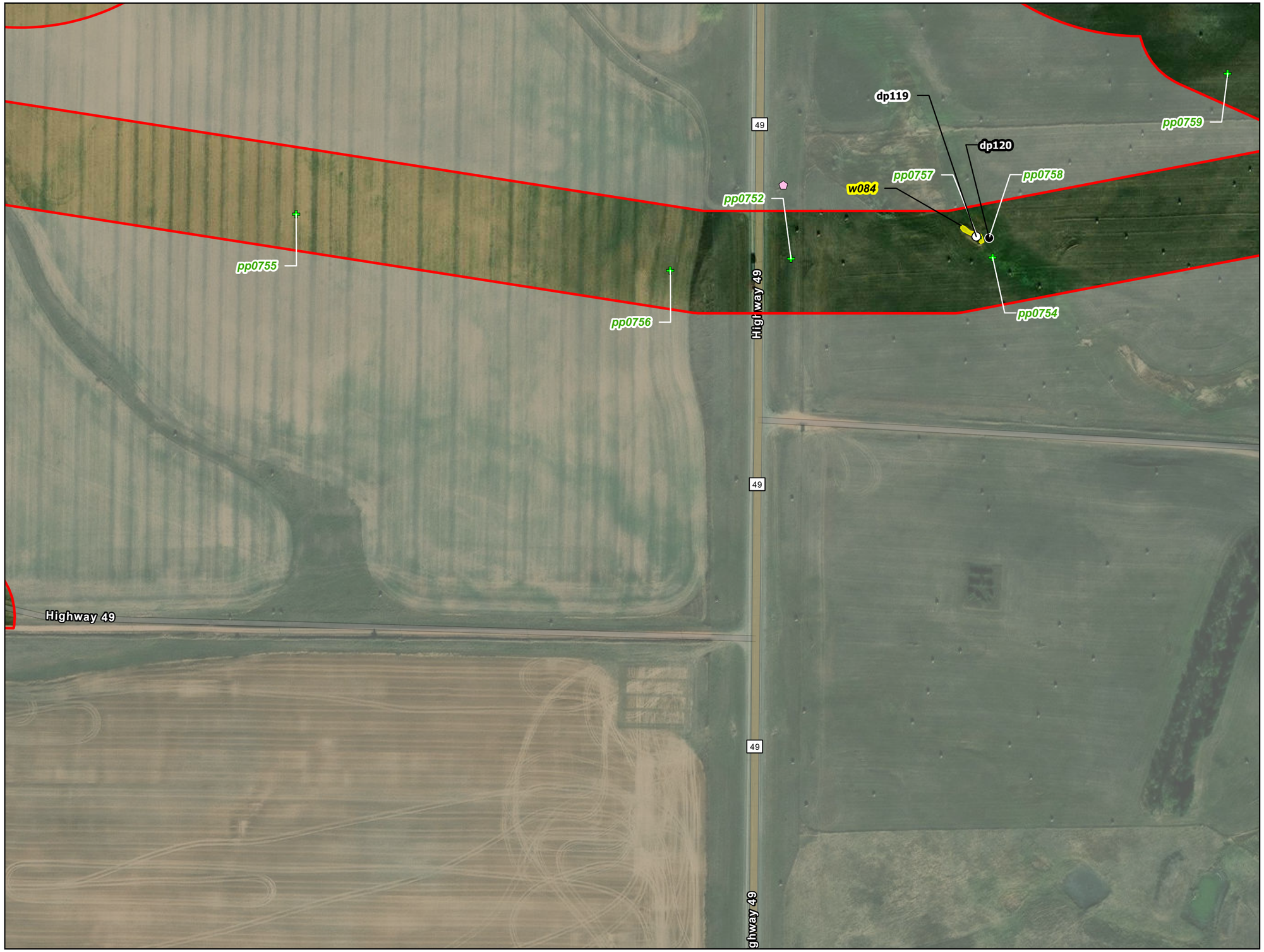


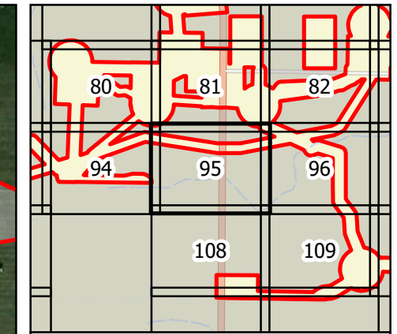


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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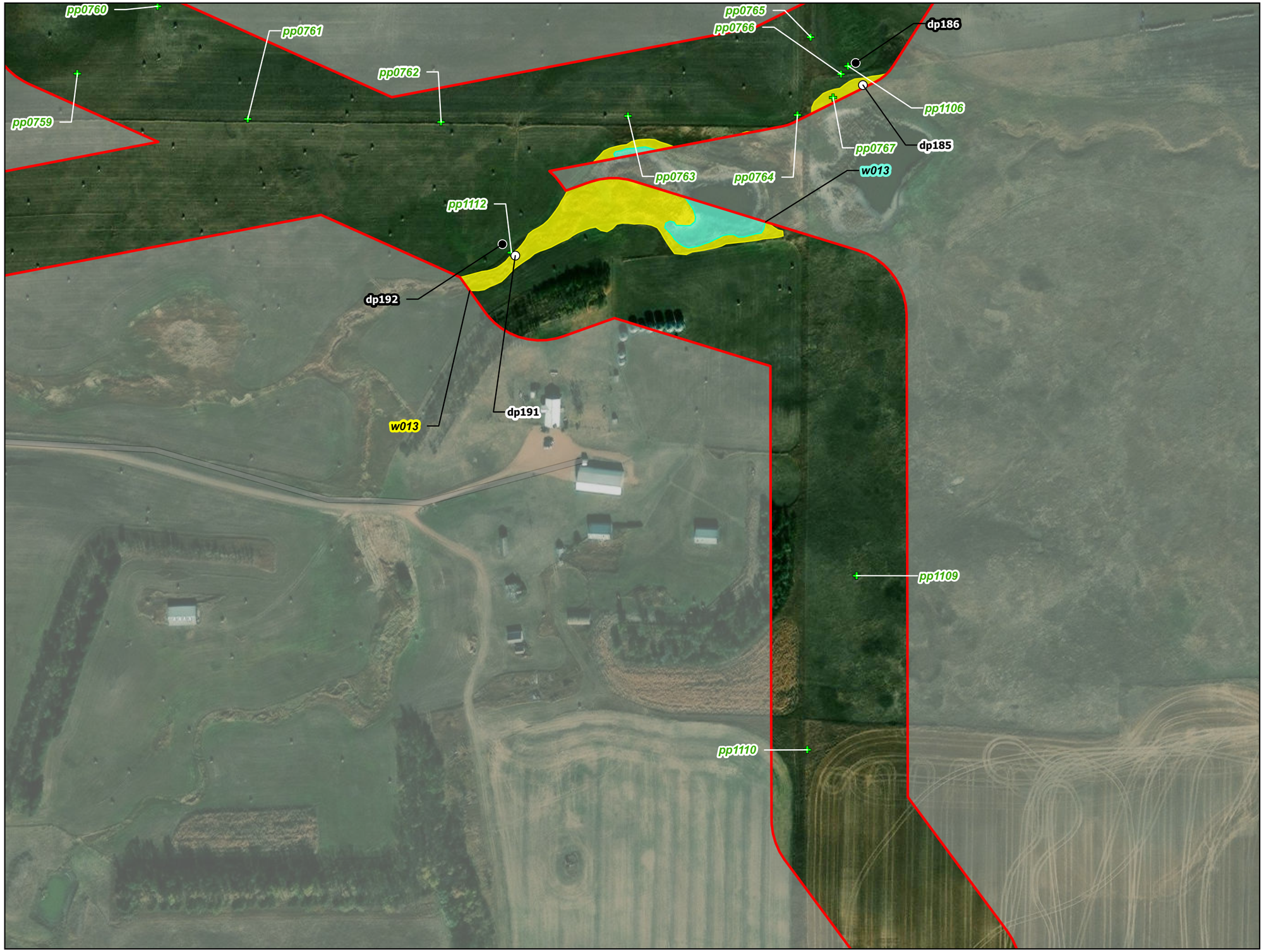


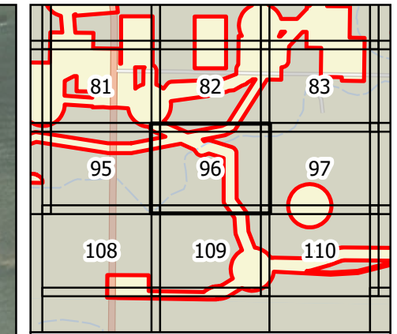


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

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**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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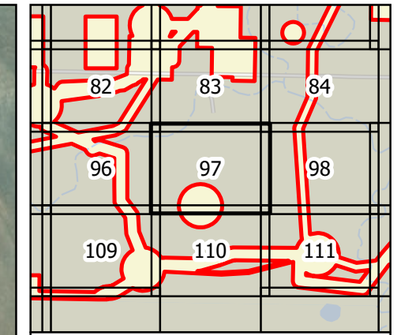


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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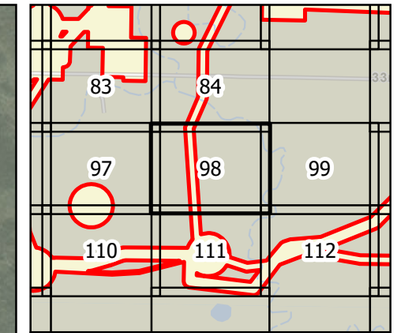


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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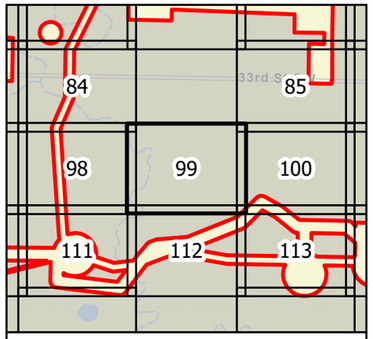


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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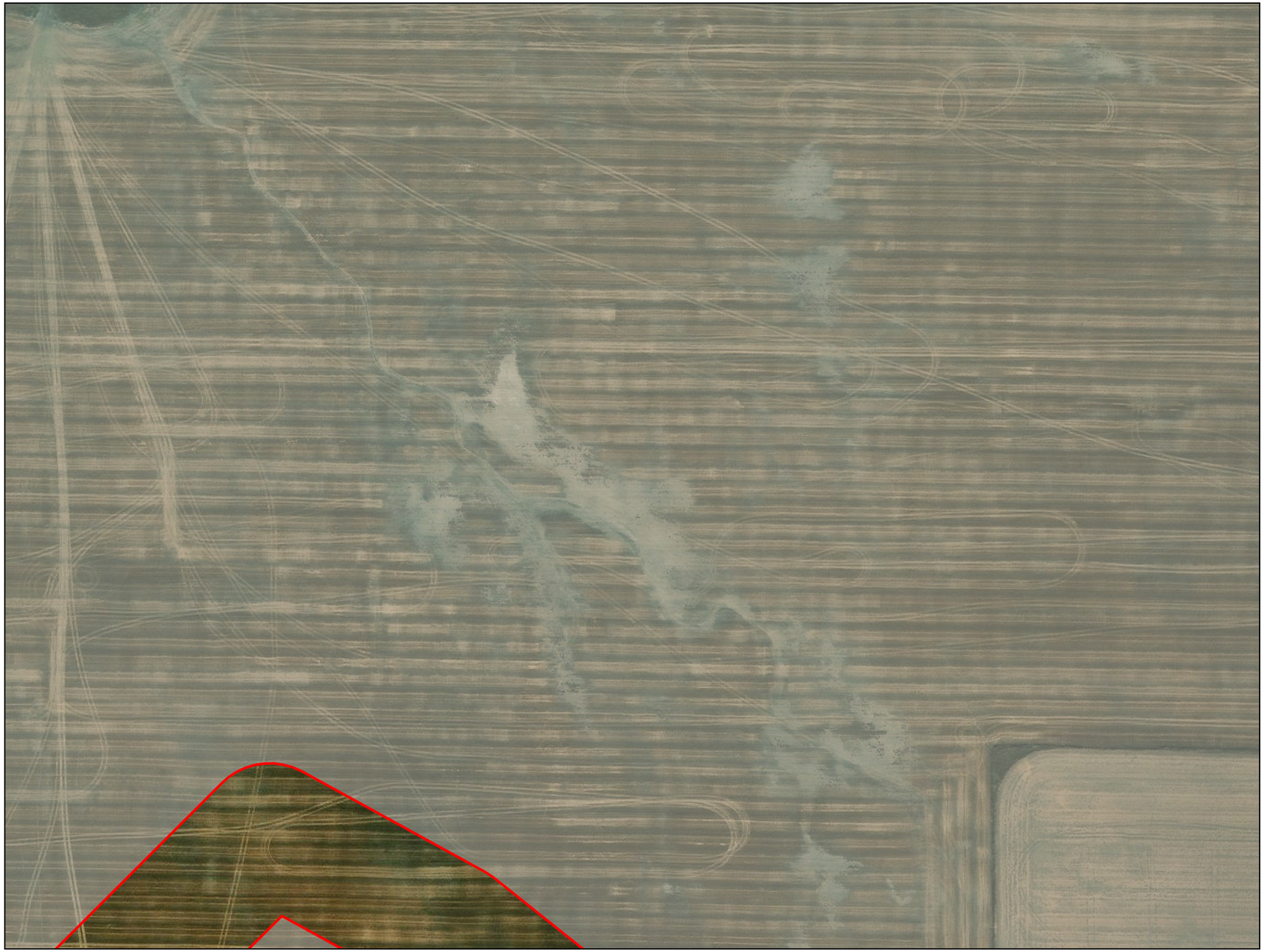

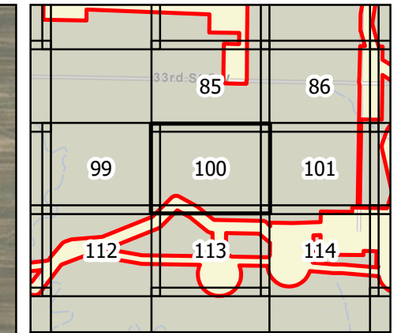


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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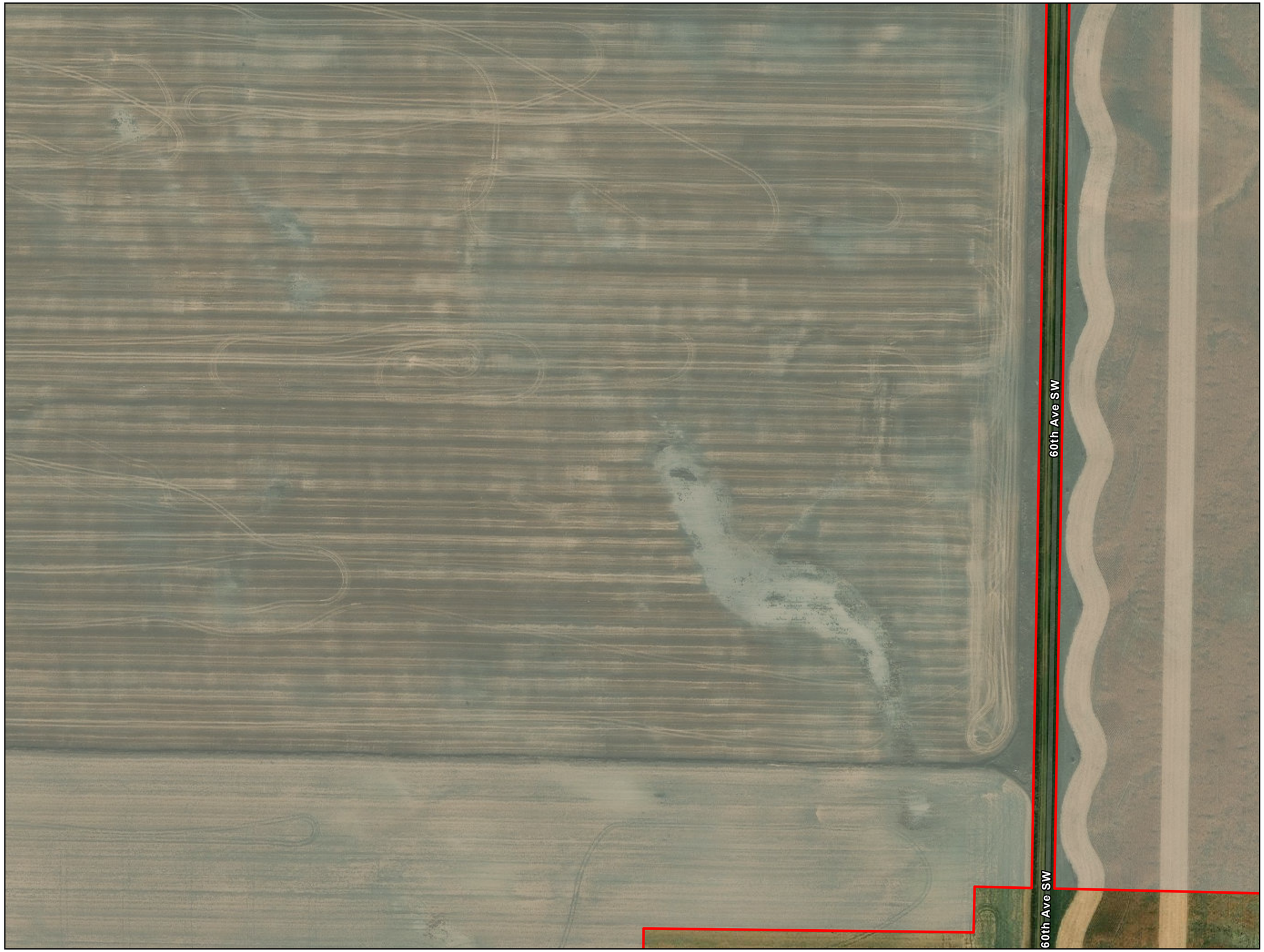


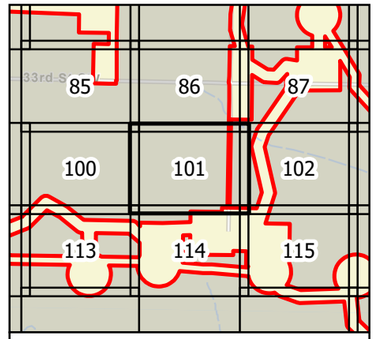


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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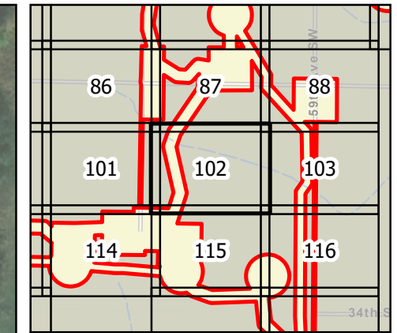


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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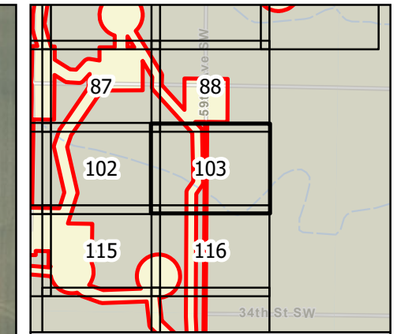


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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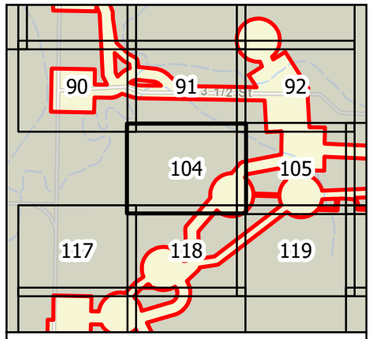


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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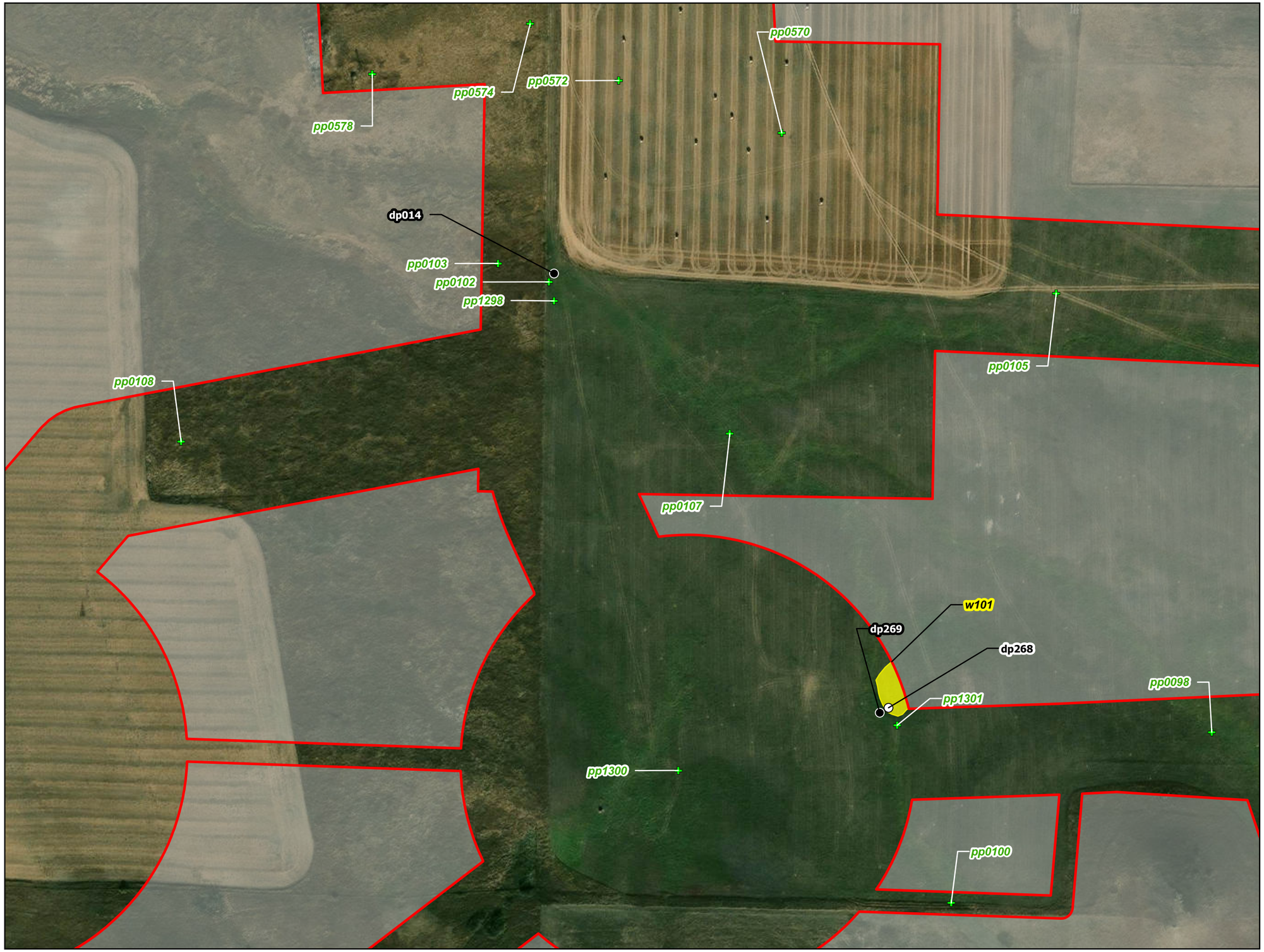


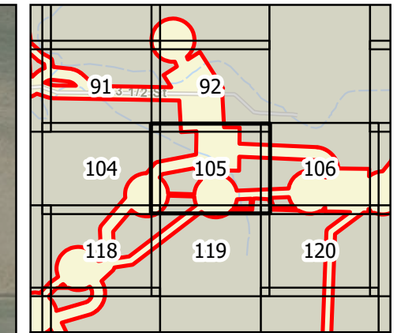


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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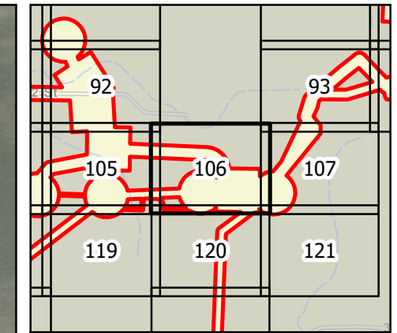


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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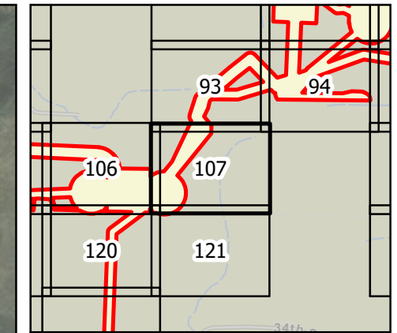


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N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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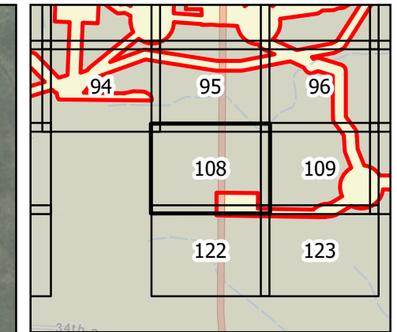


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1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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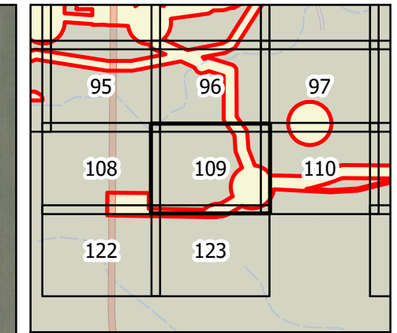


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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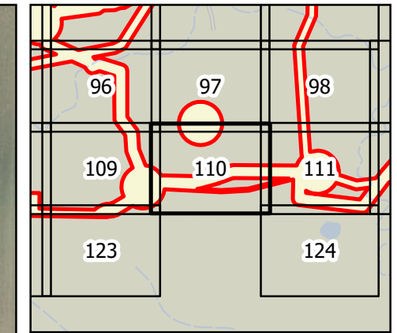


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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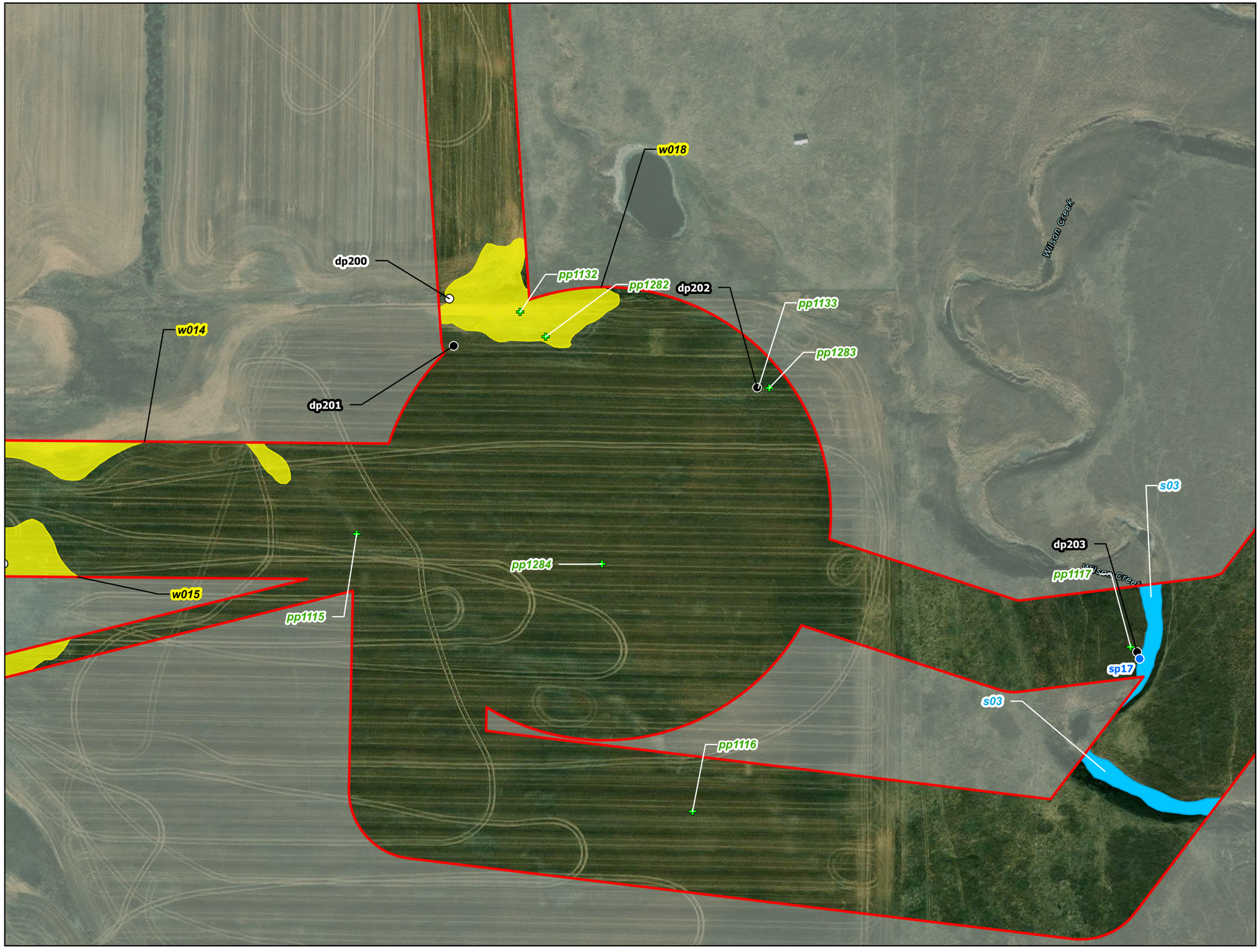


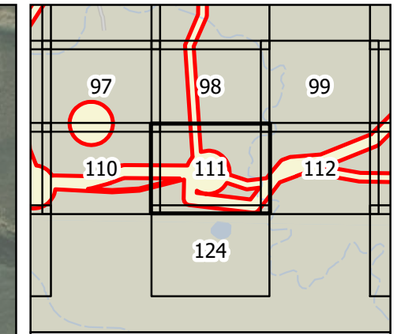


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Stream Point

Upland Data Point

Wetland Data Point

Delineated Waterway

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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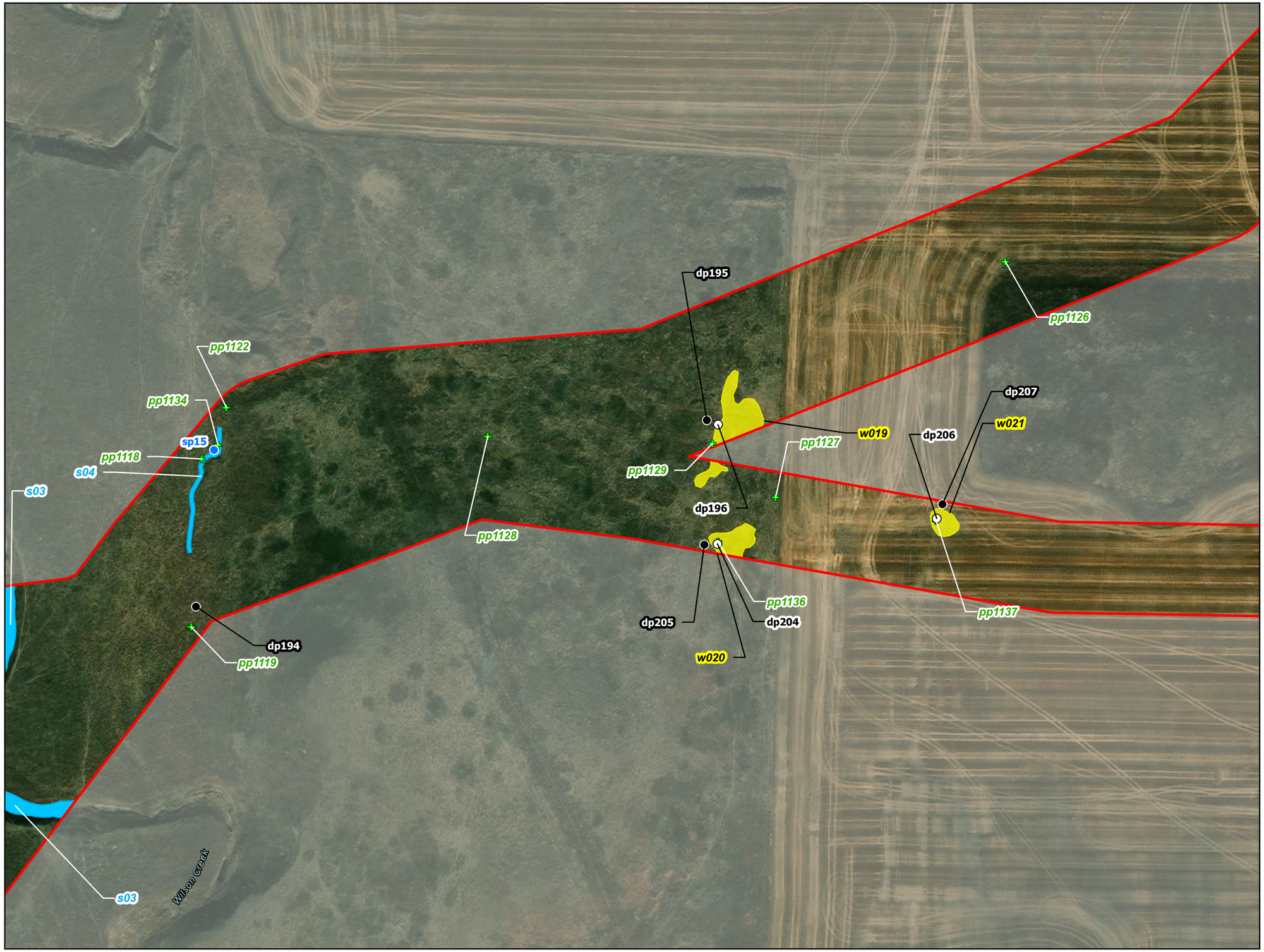


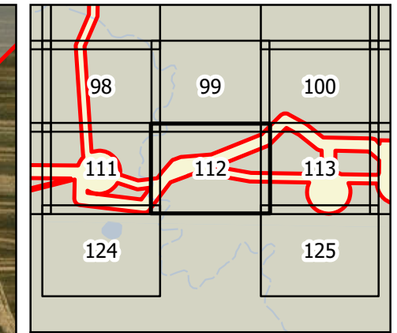


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Stream Point

Upland Data Point

Wetland Data Point

Delineated Waterway

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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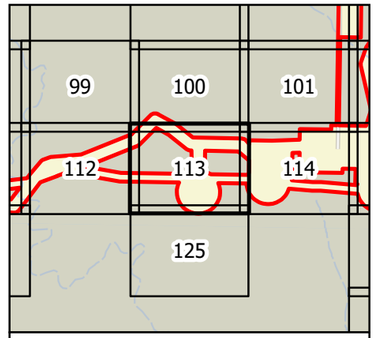


0 100 200 Feet

1 inch = 200 feet

N
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- Survey Area
- Photo Point
- Stream Point
- Delineated Waterway

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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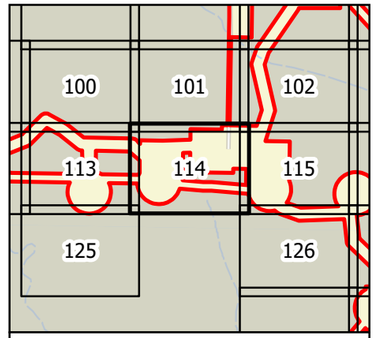


0 100 200 Feet

1 inch = 200 feet

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- Survey Area
- Photo Point
- Stream Point
- Upland Data Point
- Wetland Data Point
- Delineated Waterway

Delineated Wetland

- PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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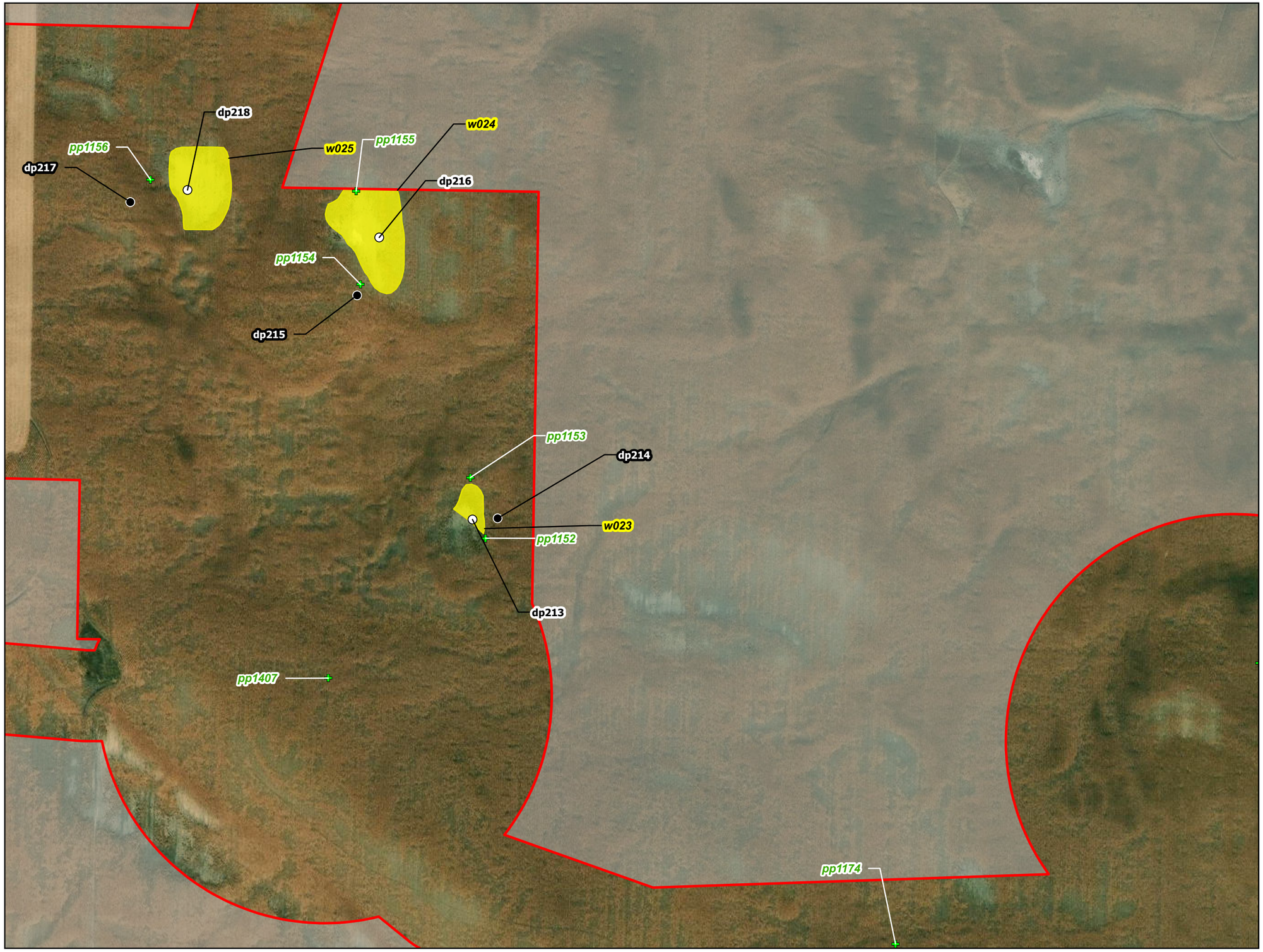


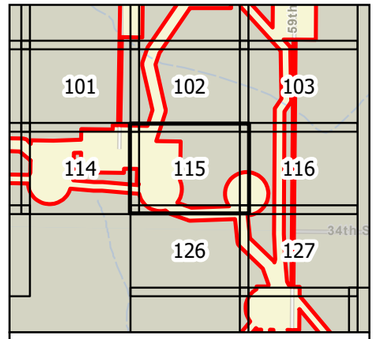


0 100 200 Feet

1 inch = 200 feet

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- Survey Area
- Photo Point
- Upland Data Point
- Wetland Data Point

Delineated Wetland

- PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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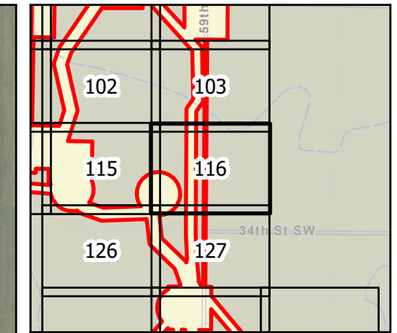


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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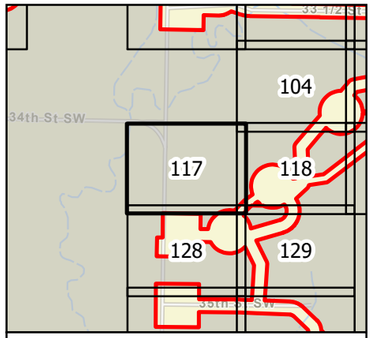


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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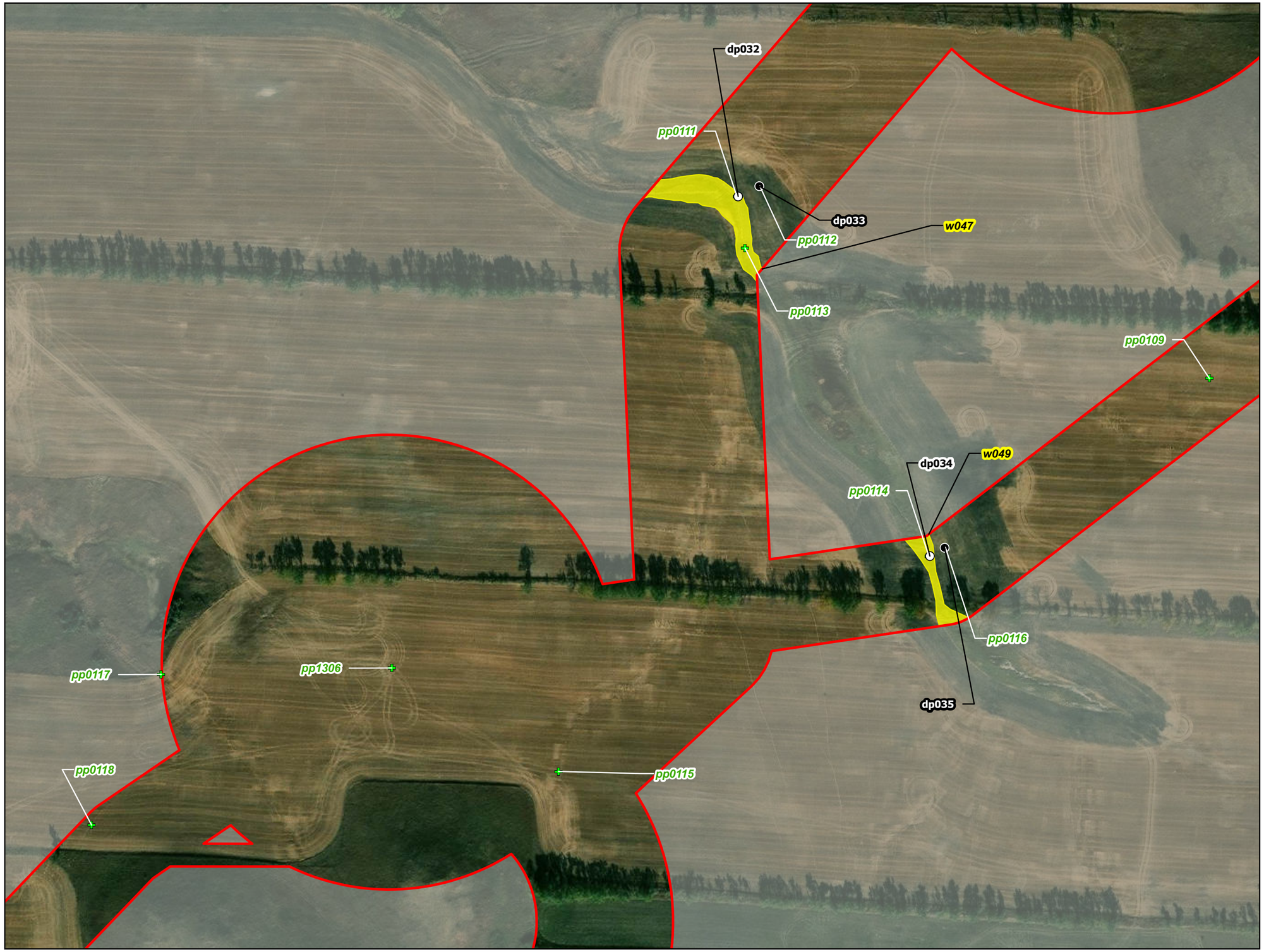


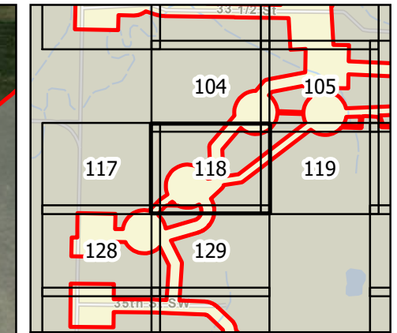


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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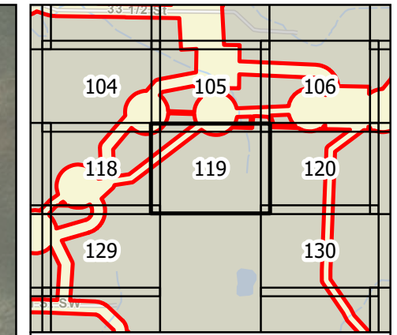


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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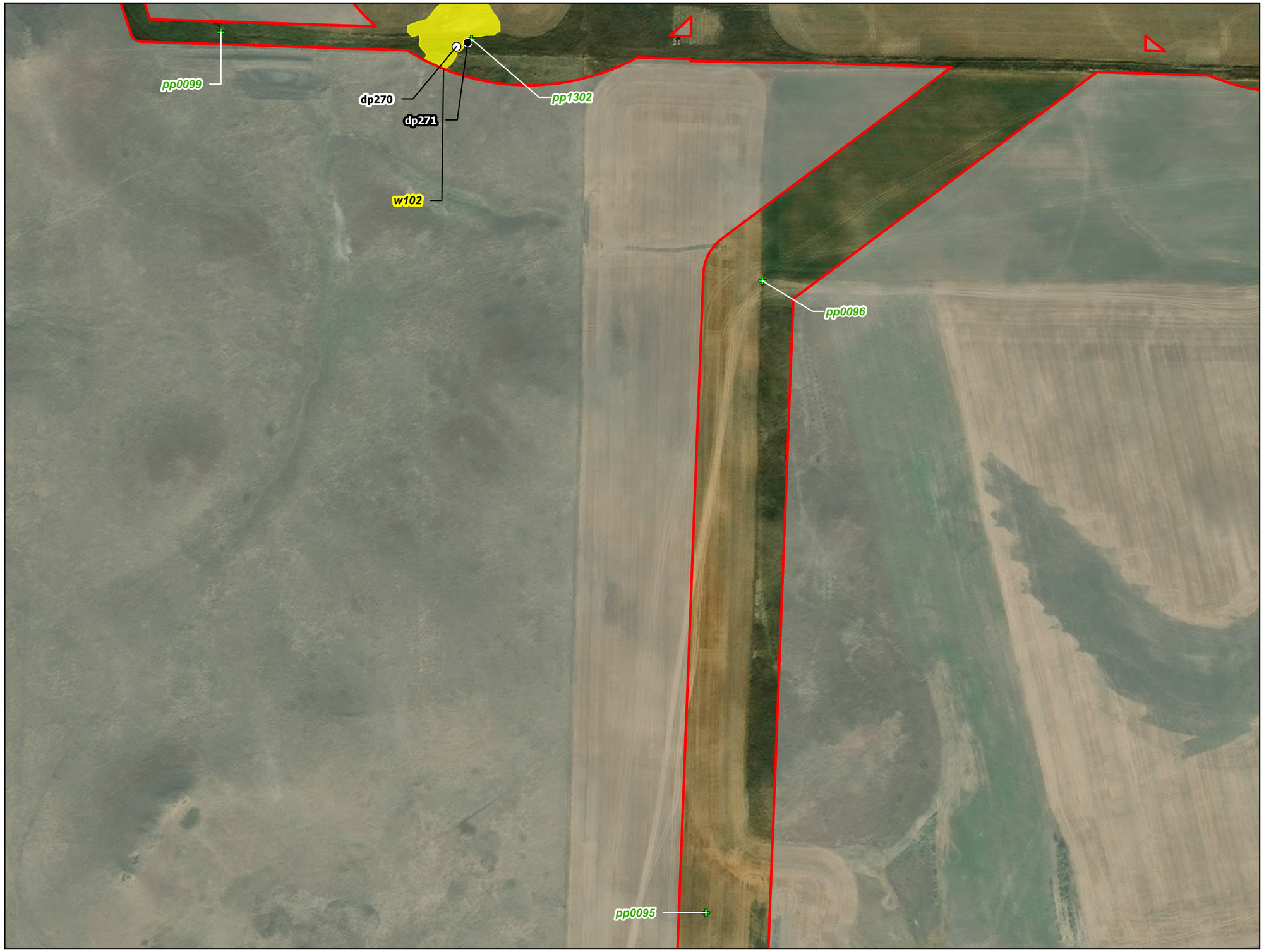


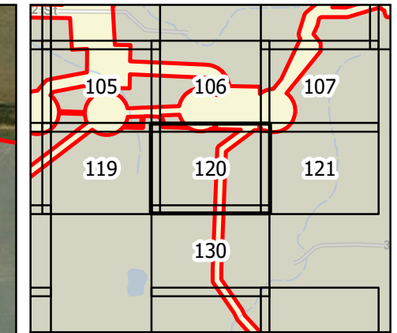


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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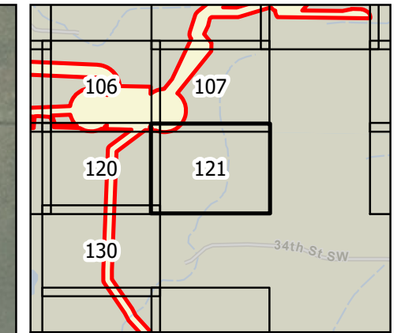


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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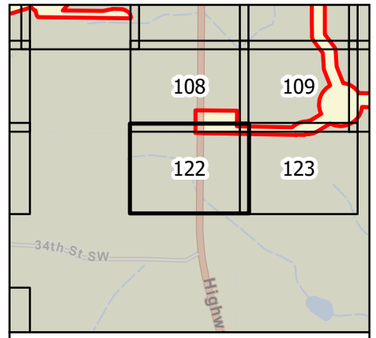


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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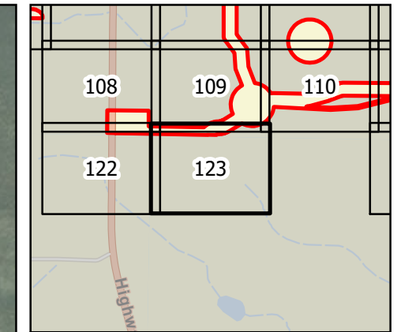


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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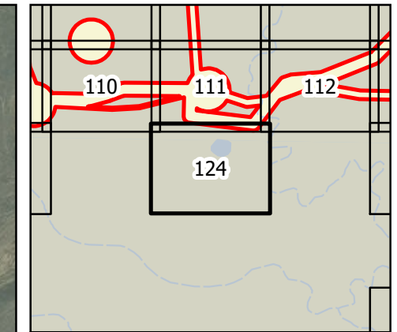


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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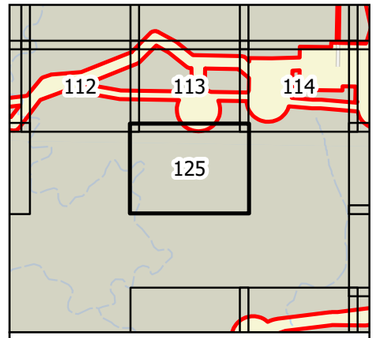


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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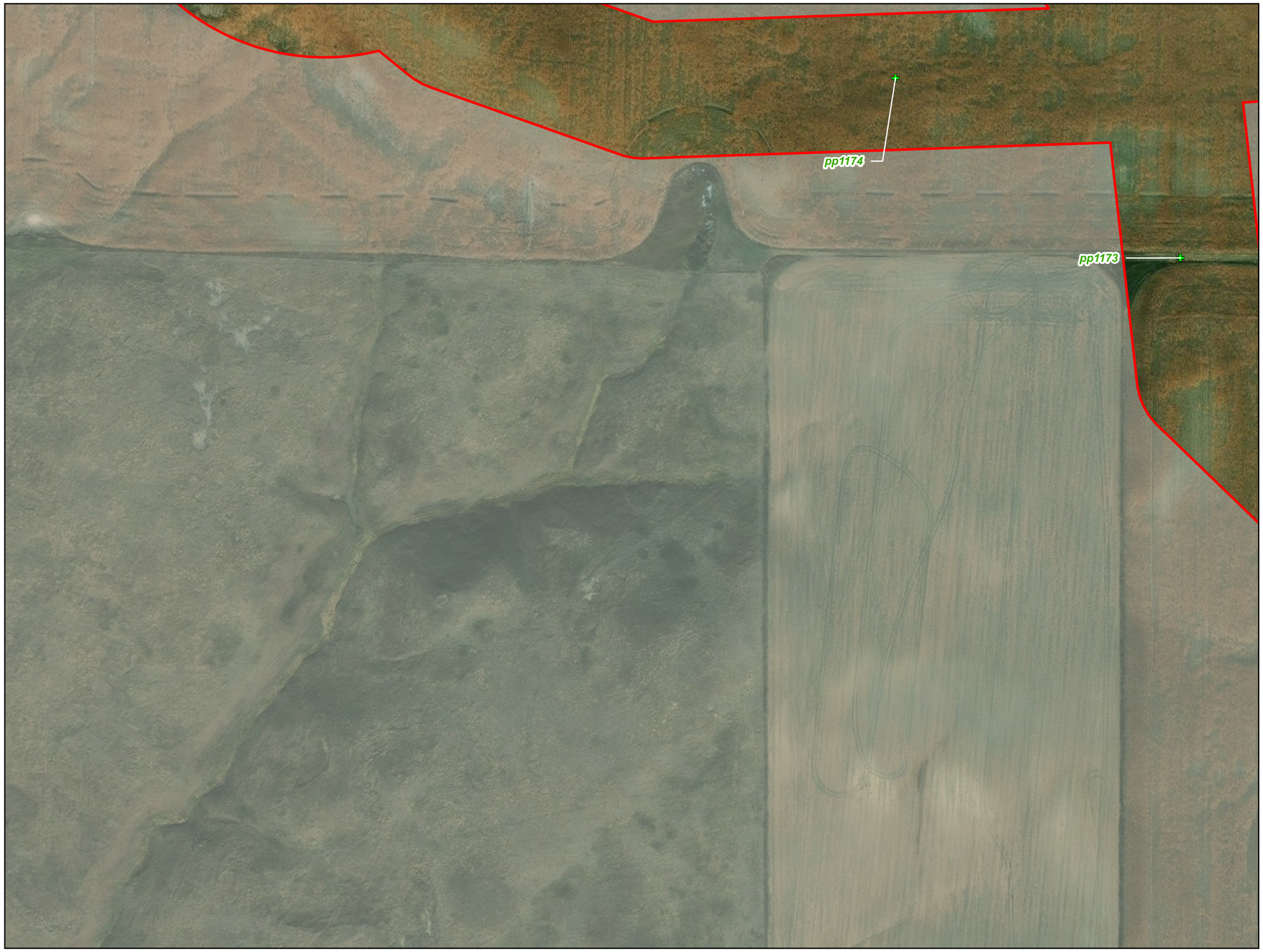


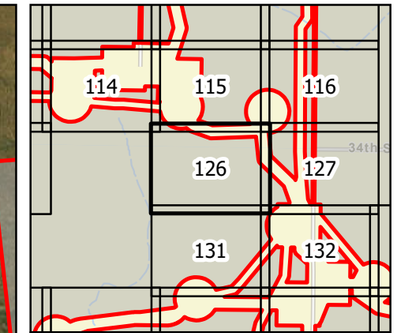


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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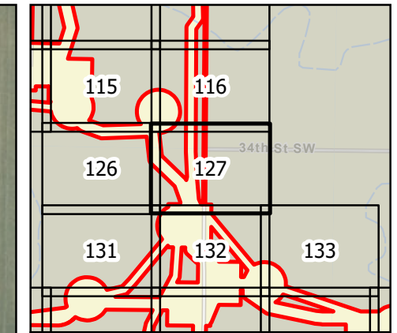


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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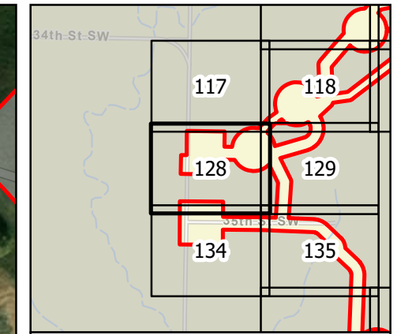


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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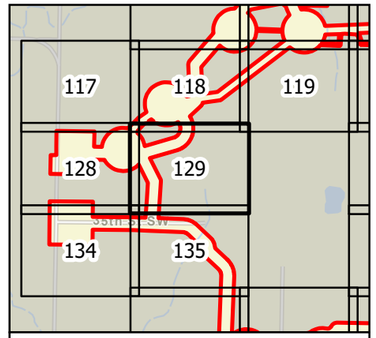


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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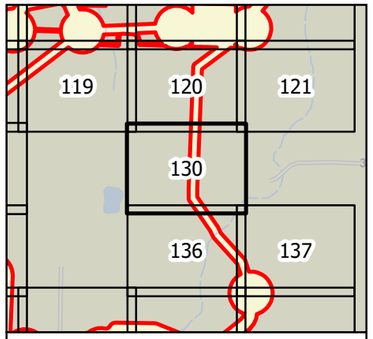


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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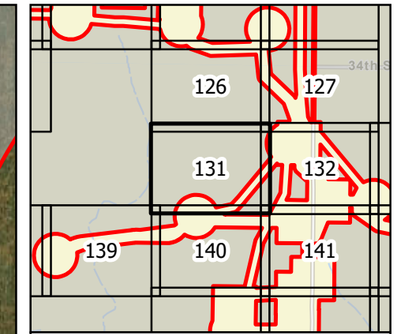


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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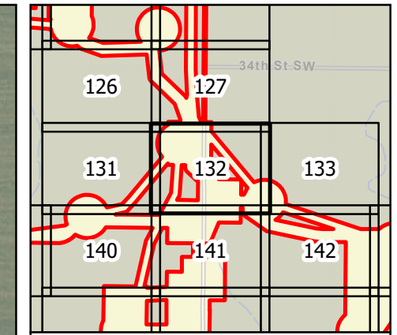


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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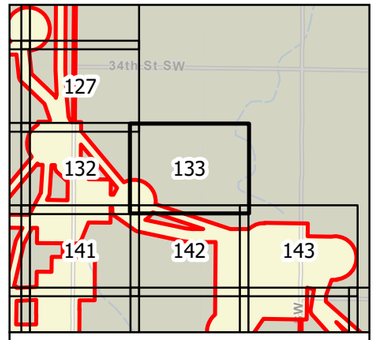


0 100 200 Feet

1 inch = 200 feet

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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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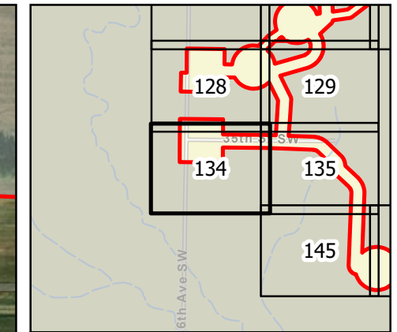


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Stream Point

Delineated Waterway

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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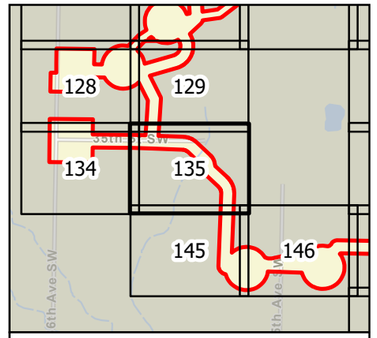


0 100 200 Feet

1 inch = 200 feet

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- Survey Area
- Photo Point
- Upland Data Point
- Wetland Data Point

Delineated Wetland

- PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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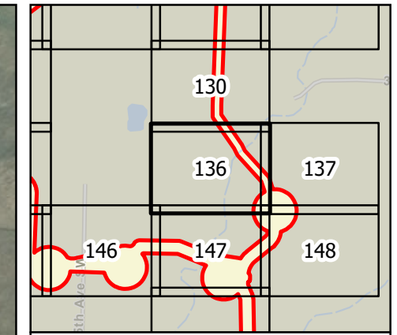


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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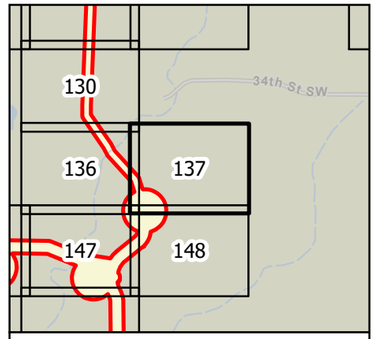


0 100 200 Feet

1 inch = 200 feet

N
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S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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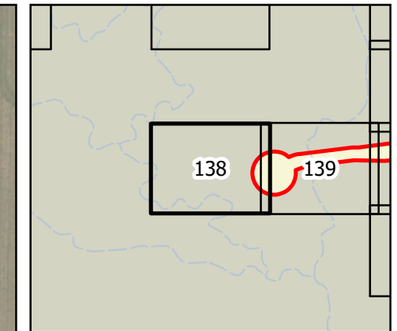


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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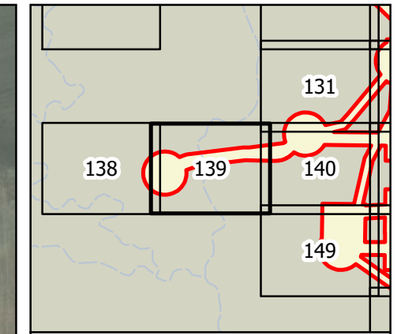


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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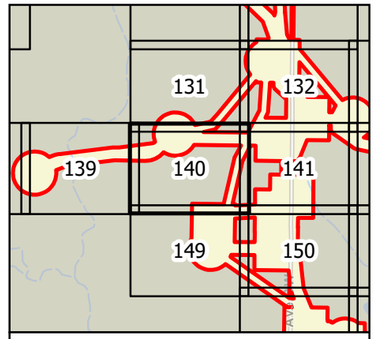


0 100 200 Feet

1 inch = 200 feet

N
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Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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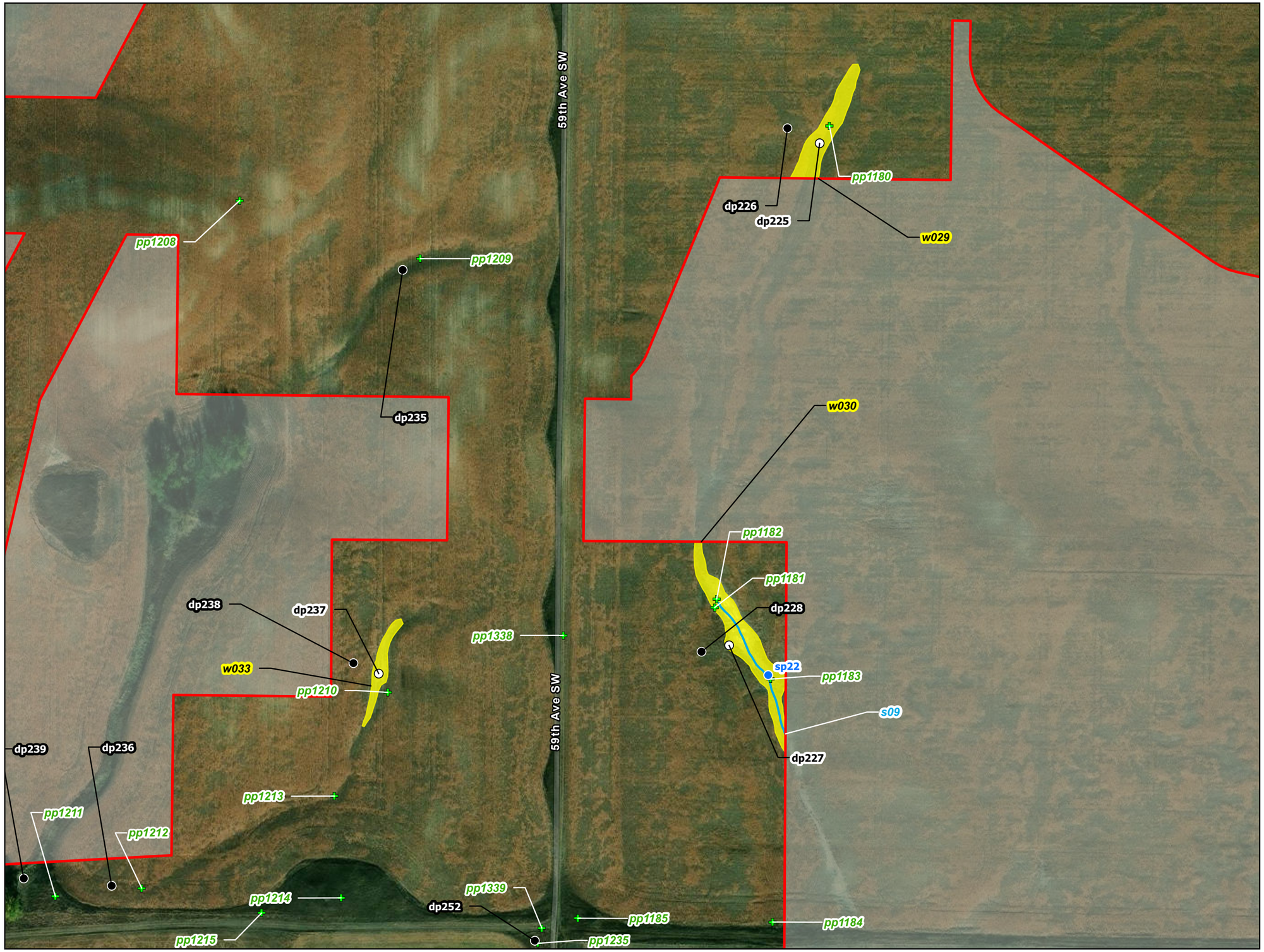


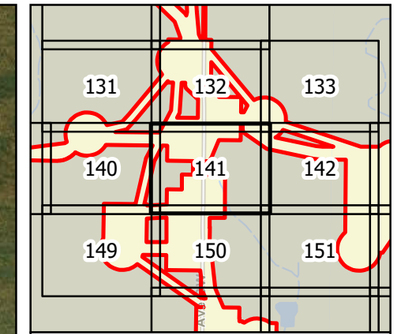


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Photo Point
Stream Point
Upland Data Point
Wetland Data Point
Delineated Waterway
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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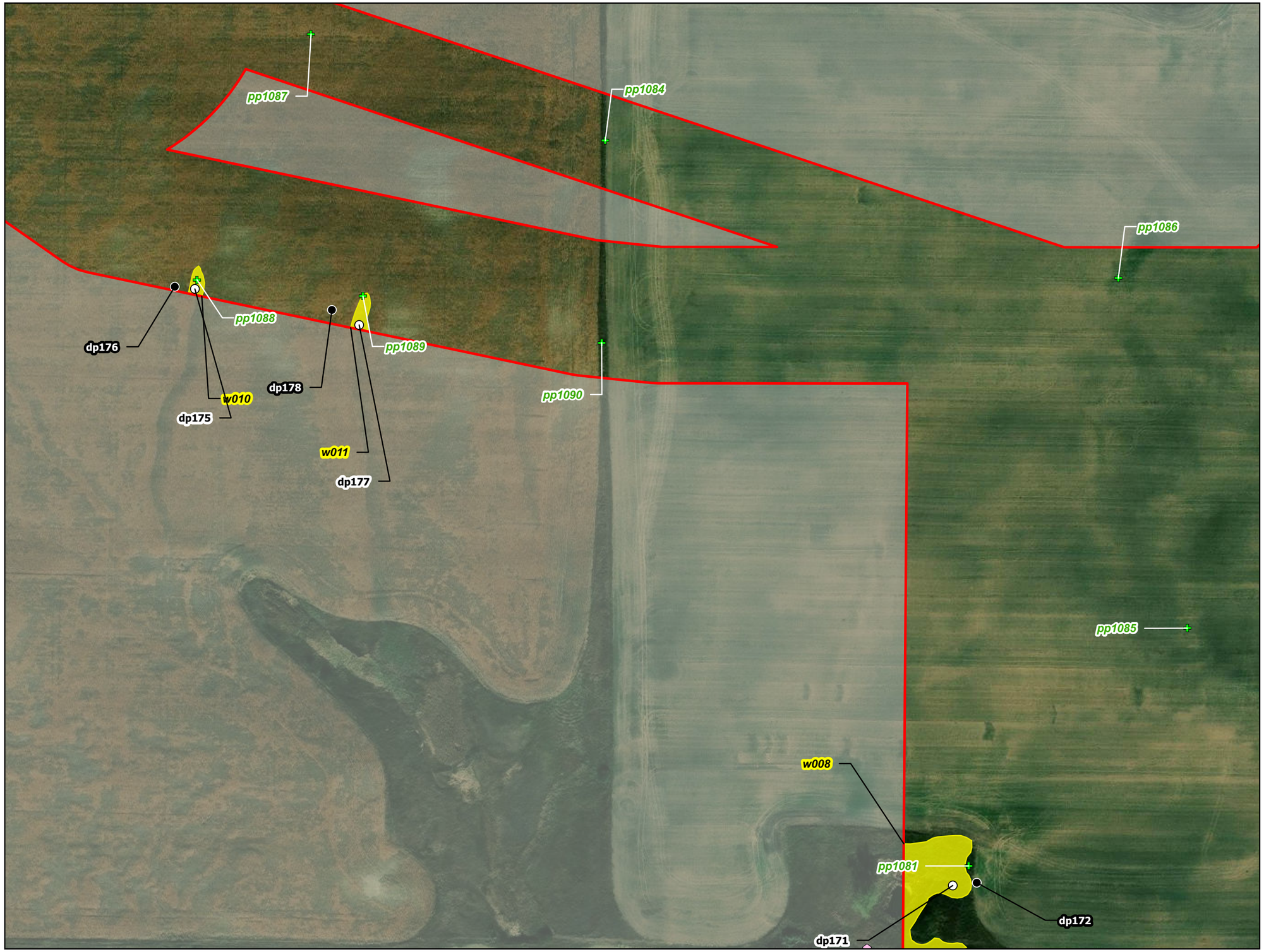


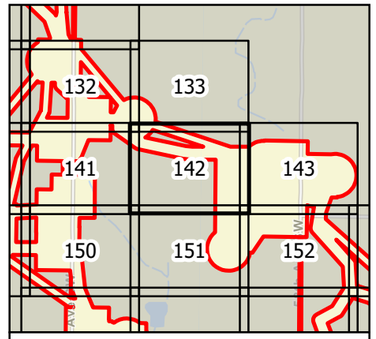


0 100 200 Feet

1 inch = 200 feet

N
W E
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- Survey Area
- Culvert Point
- Photo Point
- Upland Data Point
- Wetland Data Point

Delineated Wetland

- PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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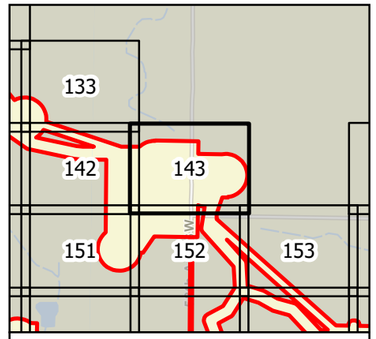


Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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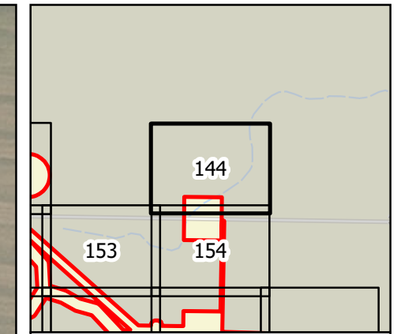


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area
Culvert Point
Photo Point
Upland Data Point
Wetland Data Point
Delineated Wetland
PEM
PUB

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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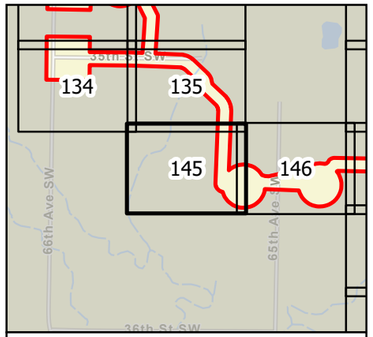


0 100 200 Feet

1 inch = 200 feet

N
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Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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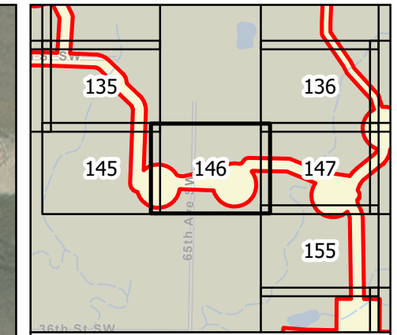


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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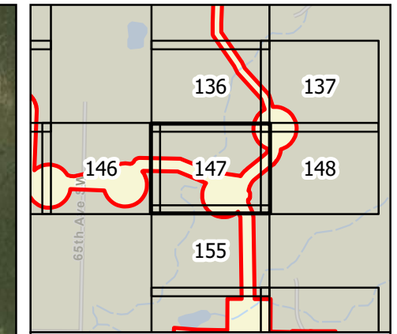


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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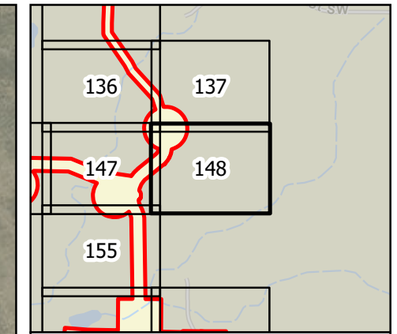


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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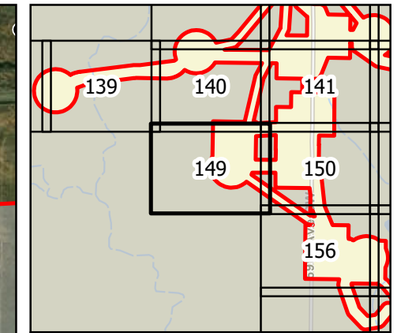


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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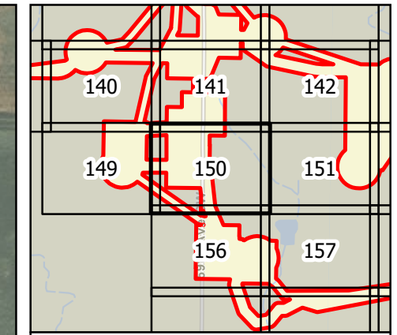


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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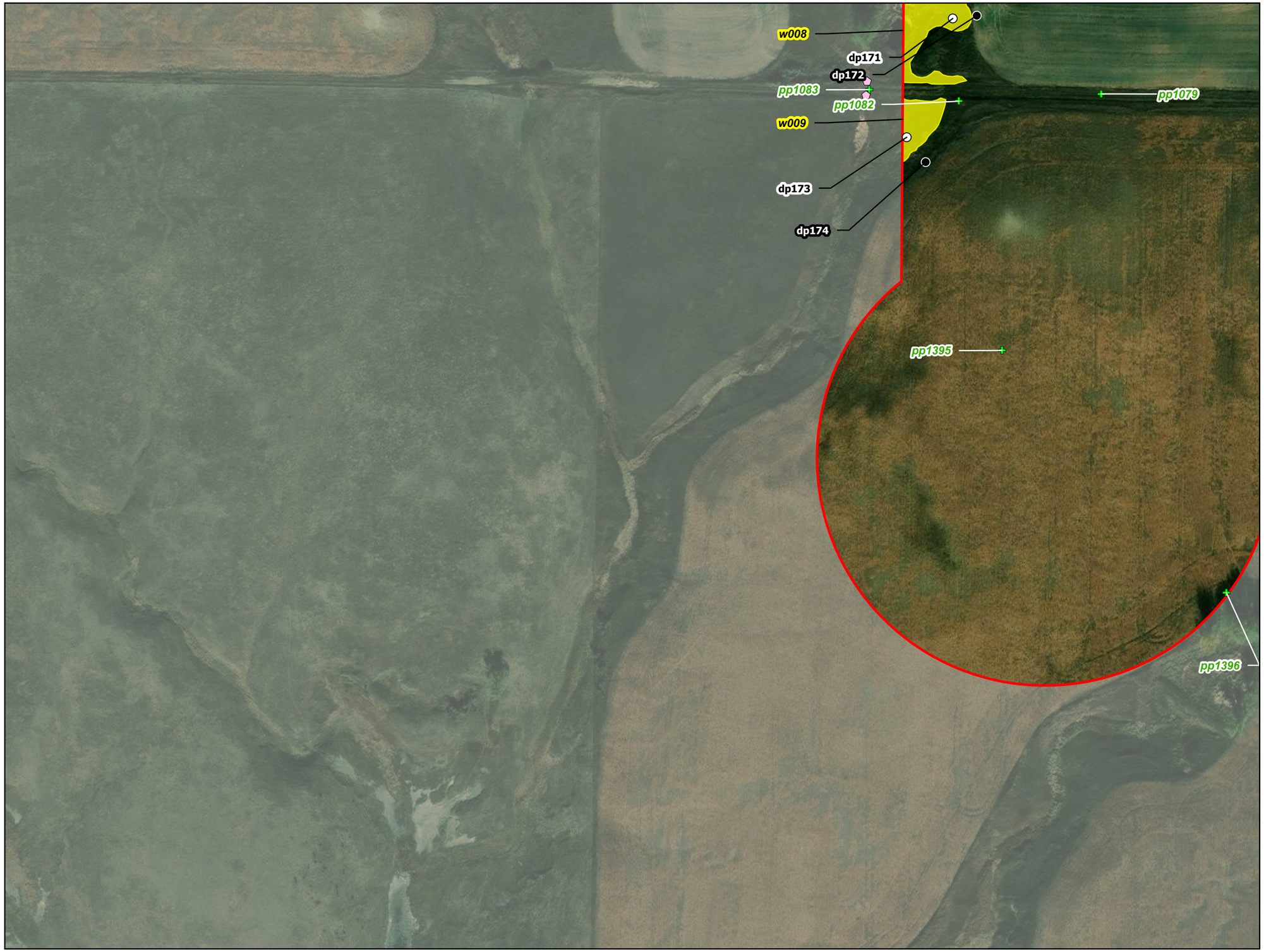


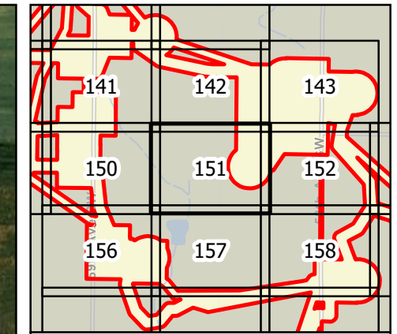


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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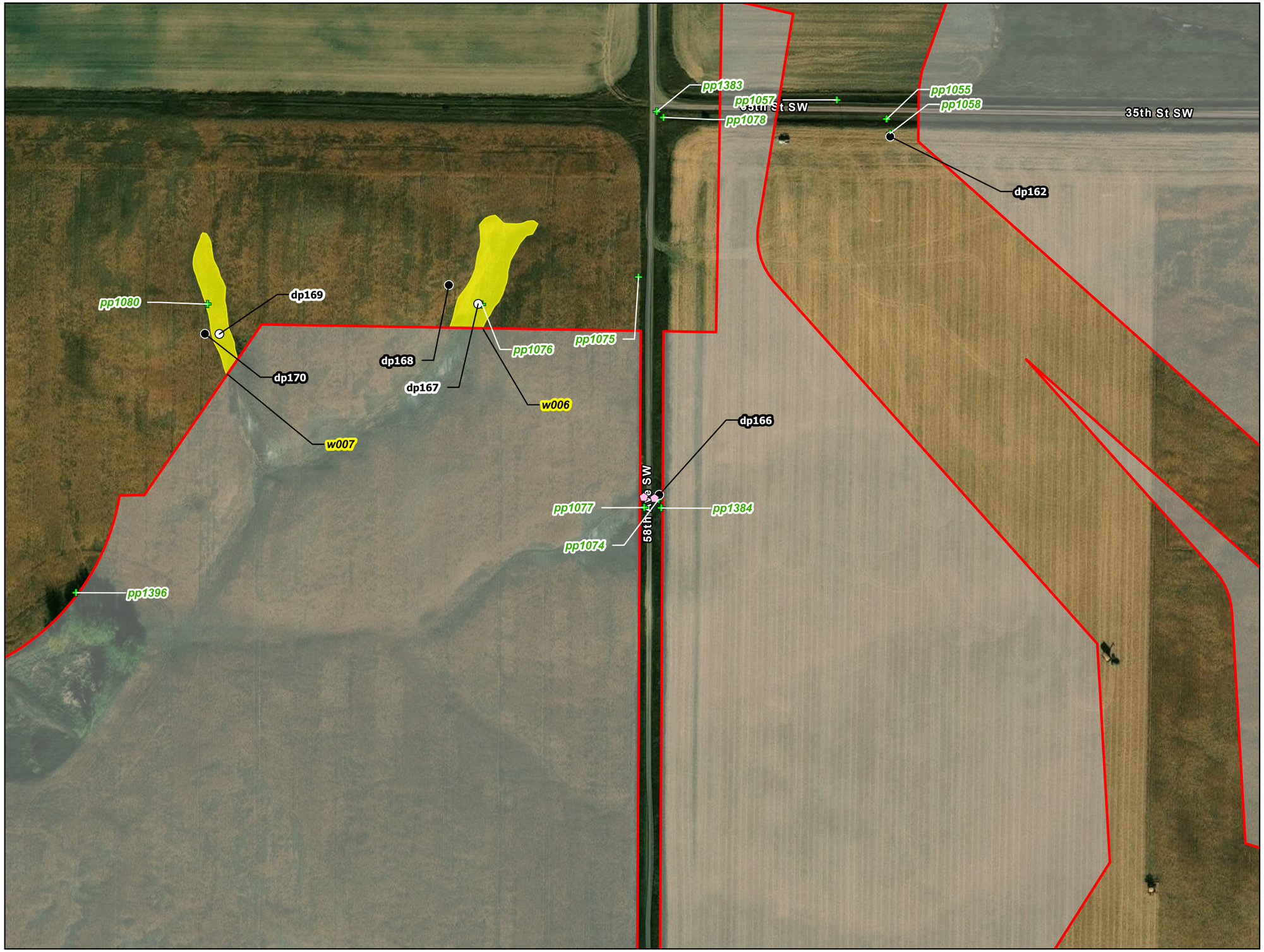


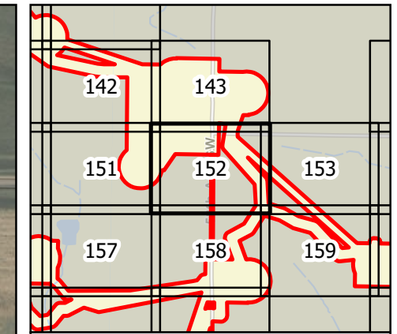


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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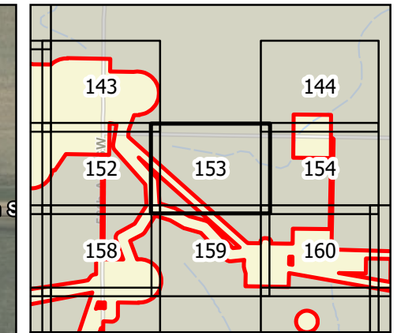


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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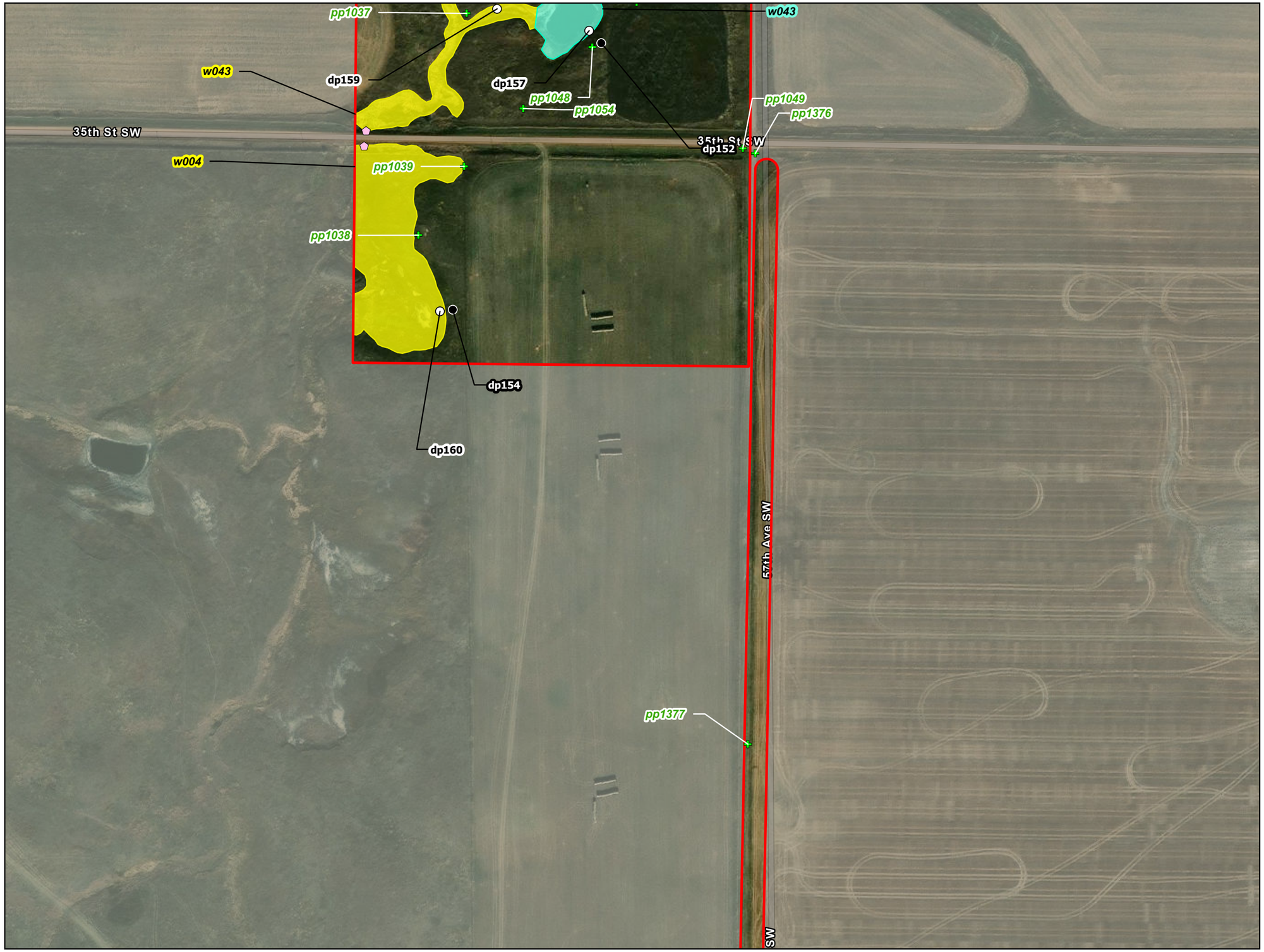


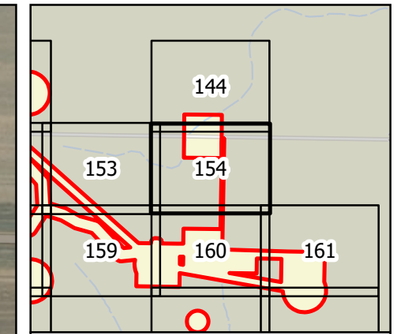


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Culvert Point

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

PUB

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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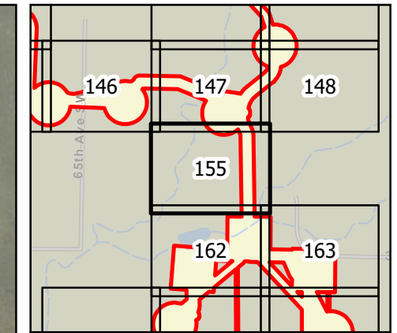


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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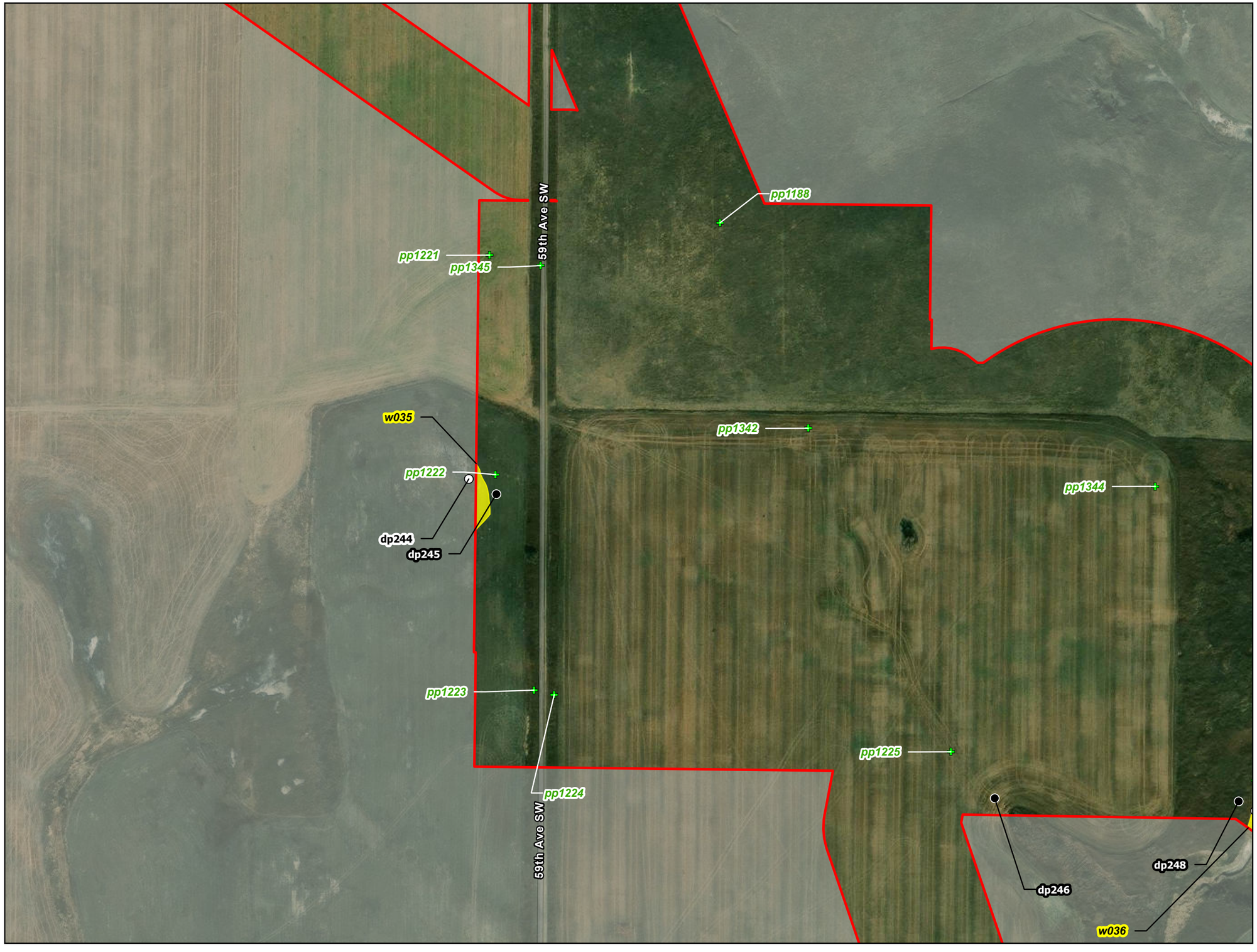


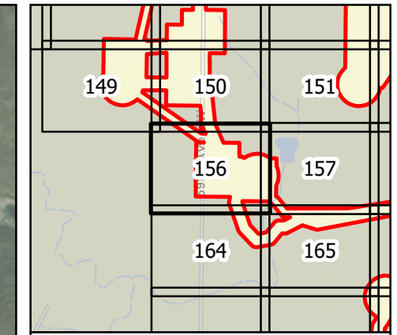


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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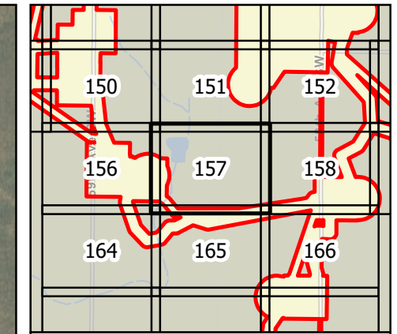


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**

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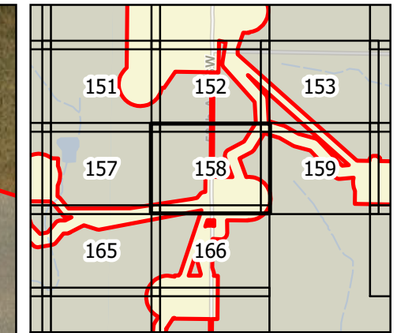


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
**North Dakota**



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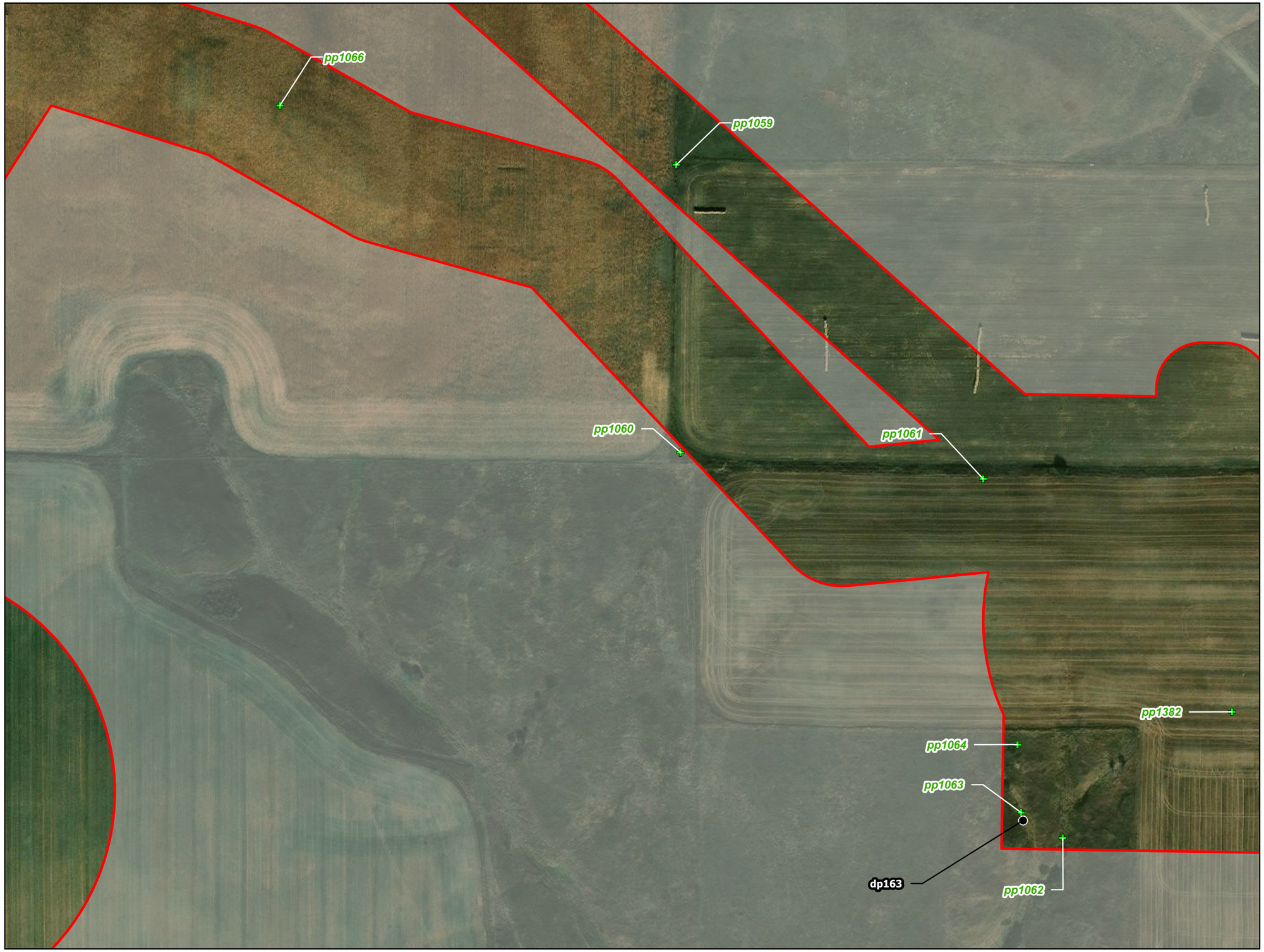


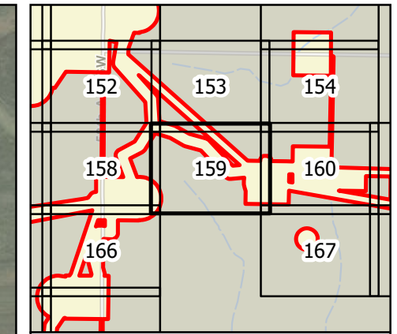


0 100 200 Feet

1 inch = 200 feet

N W E S

Survey Area

Photo Point

Upland Data Point

**Figure 5**
**Wetland Delineation**
**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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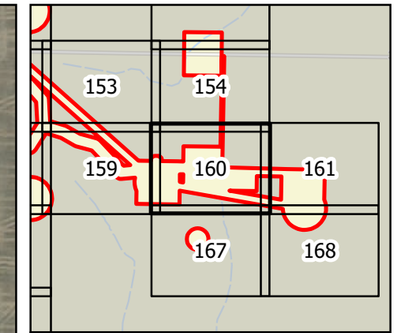


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Survey Area

Photo Point

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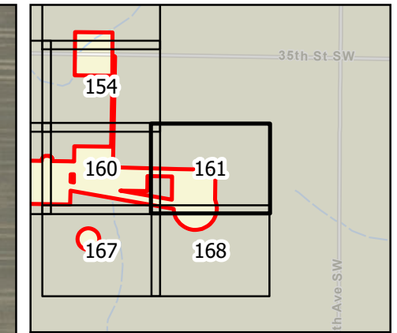


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Survey Area

Photo Point

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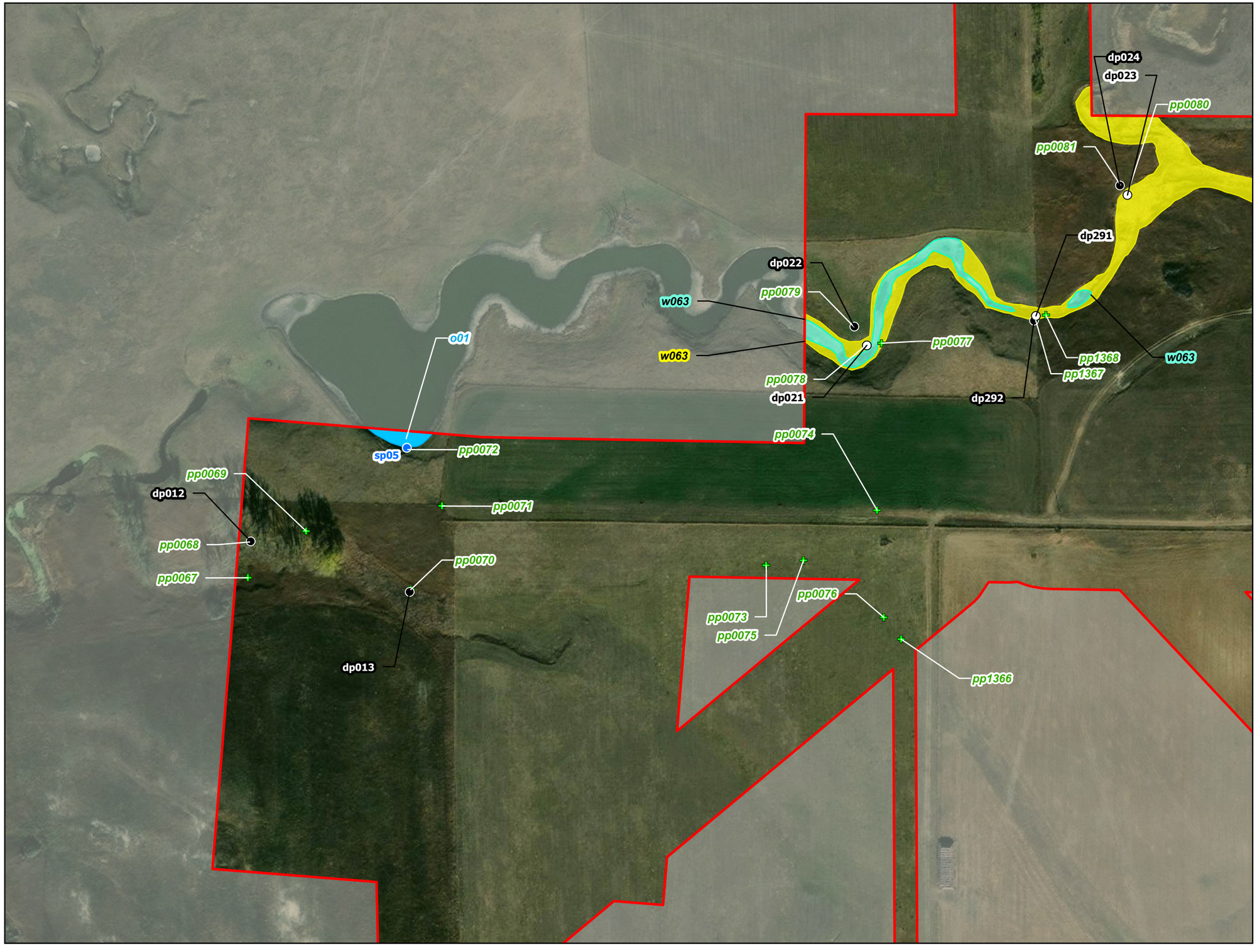


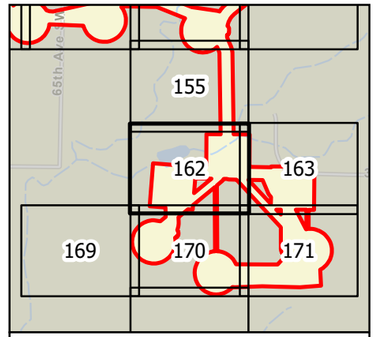


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1 inch = 200 feet

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- Survey Area
- Photo Point
- Stream Point
- Upland Data Point
- Wetland Data Point
- Delineated Waterway

Delineated Wetland

- PEM
- PUB

**Figure 5**
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**Mercer & Morton Counties,**
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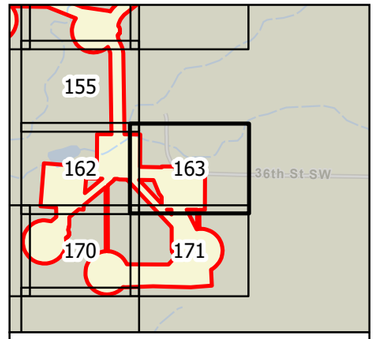


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Survey Area

Photo Point

Upland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
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**Mercer & Morton Counties,**
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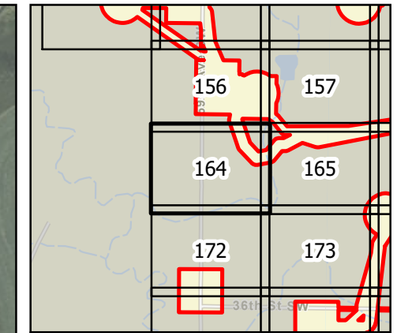


0 100 200 Feet

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N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
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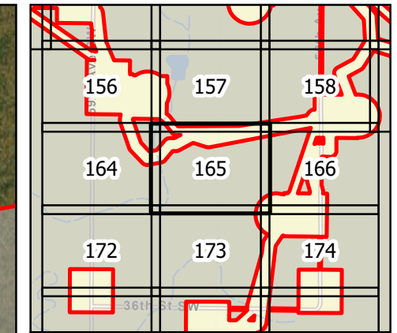


0 100 200 Feet

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N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
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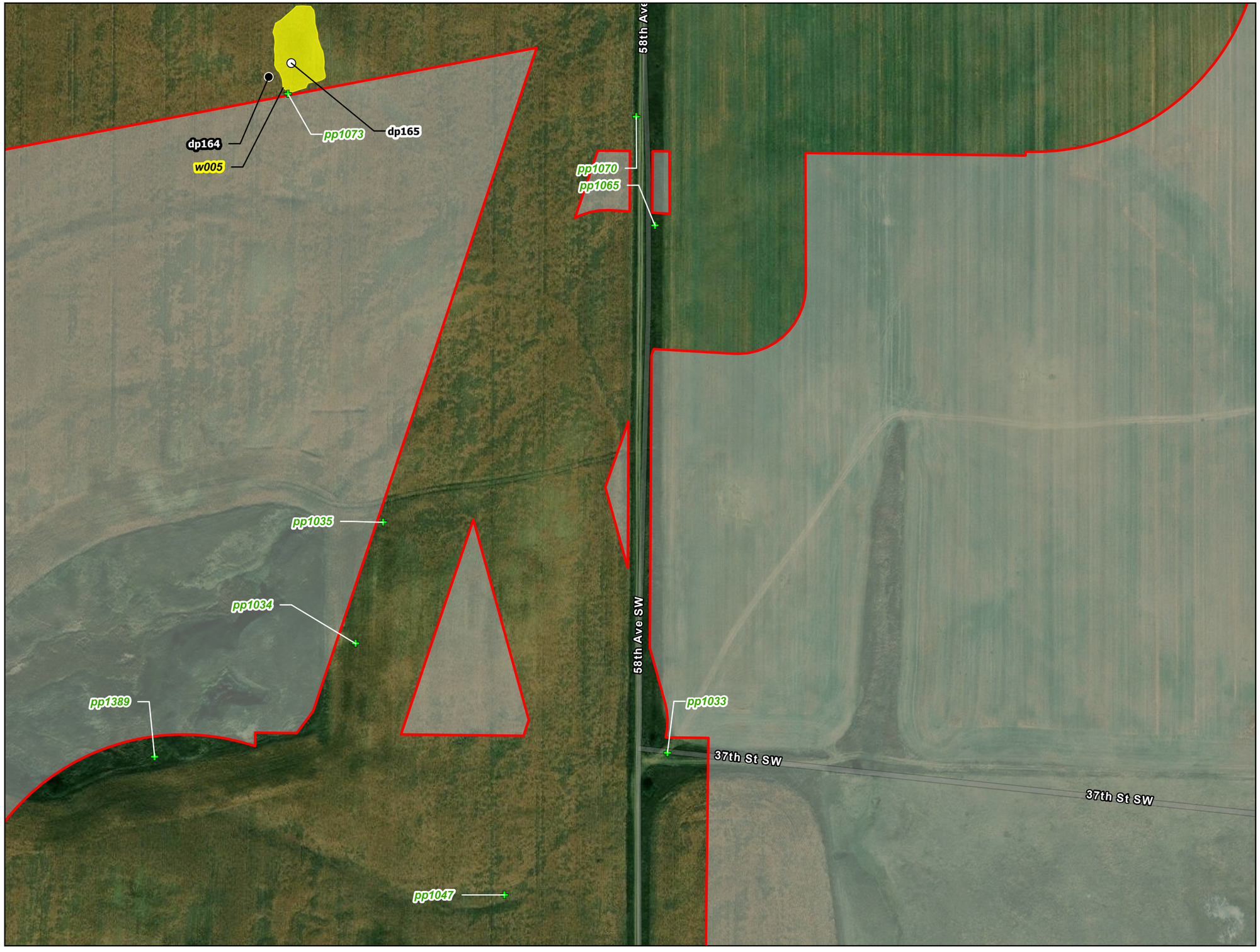


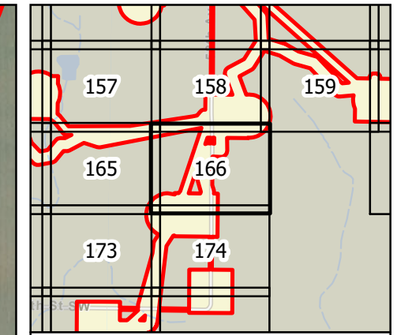


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N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
**Wetland Delineation**
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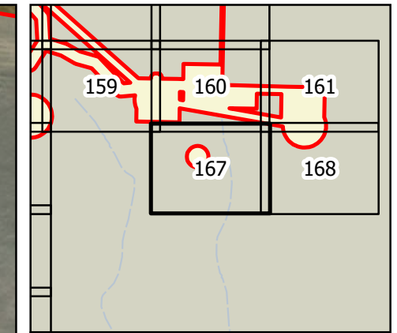


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N W E S

Survey Area

Photo Point

**Figure 5**
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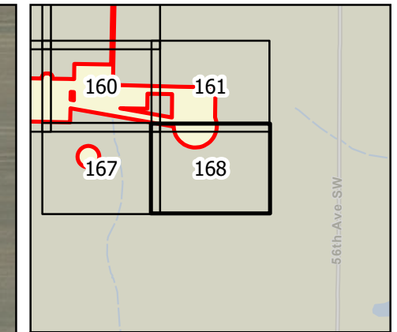


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N W E S

Survey Area

Photo Point

**Figure 5**
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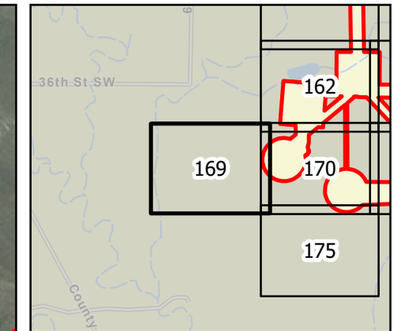


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**Figure 5**
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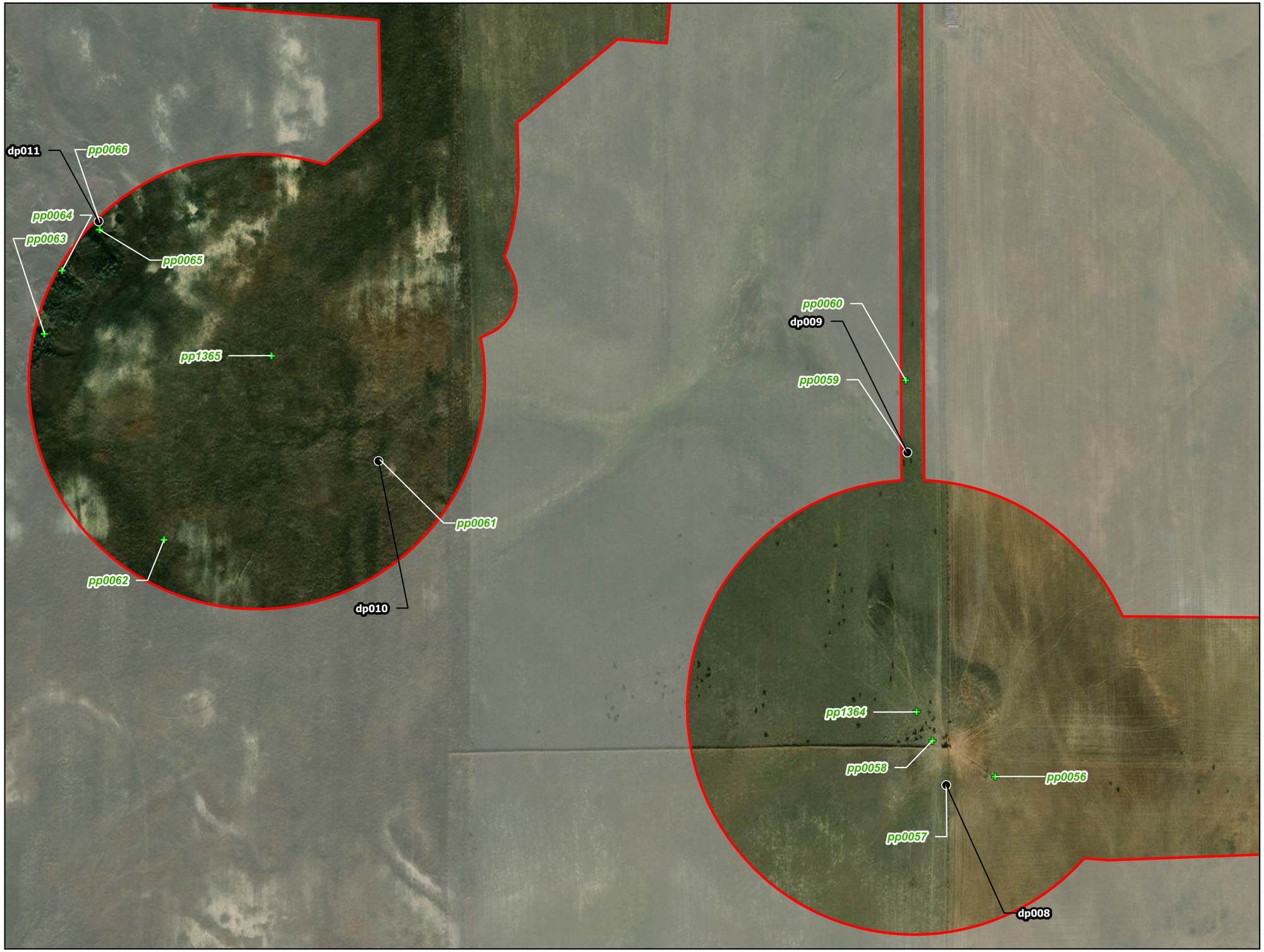


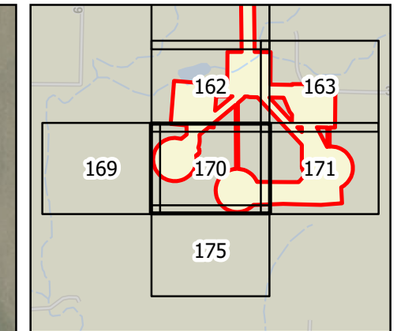


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N W E S

Survey Area

Photo Point

Upland Data Point

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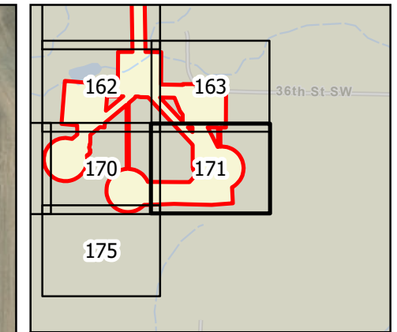


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N W E S

Survey Area

Photo Point

**Figure 5**
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**Longspur Wind Project**
**Minnesota Power**
**Mercer & Morton Counties,**
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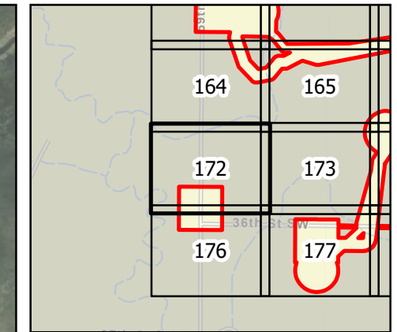


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N W E S

Survey Area

Photo Point

Upland Data Point

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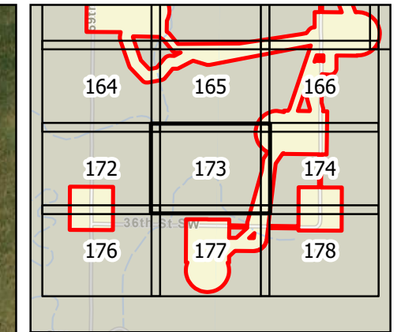


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N W E S

Survey Area

Photo Point

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**Figure 5**
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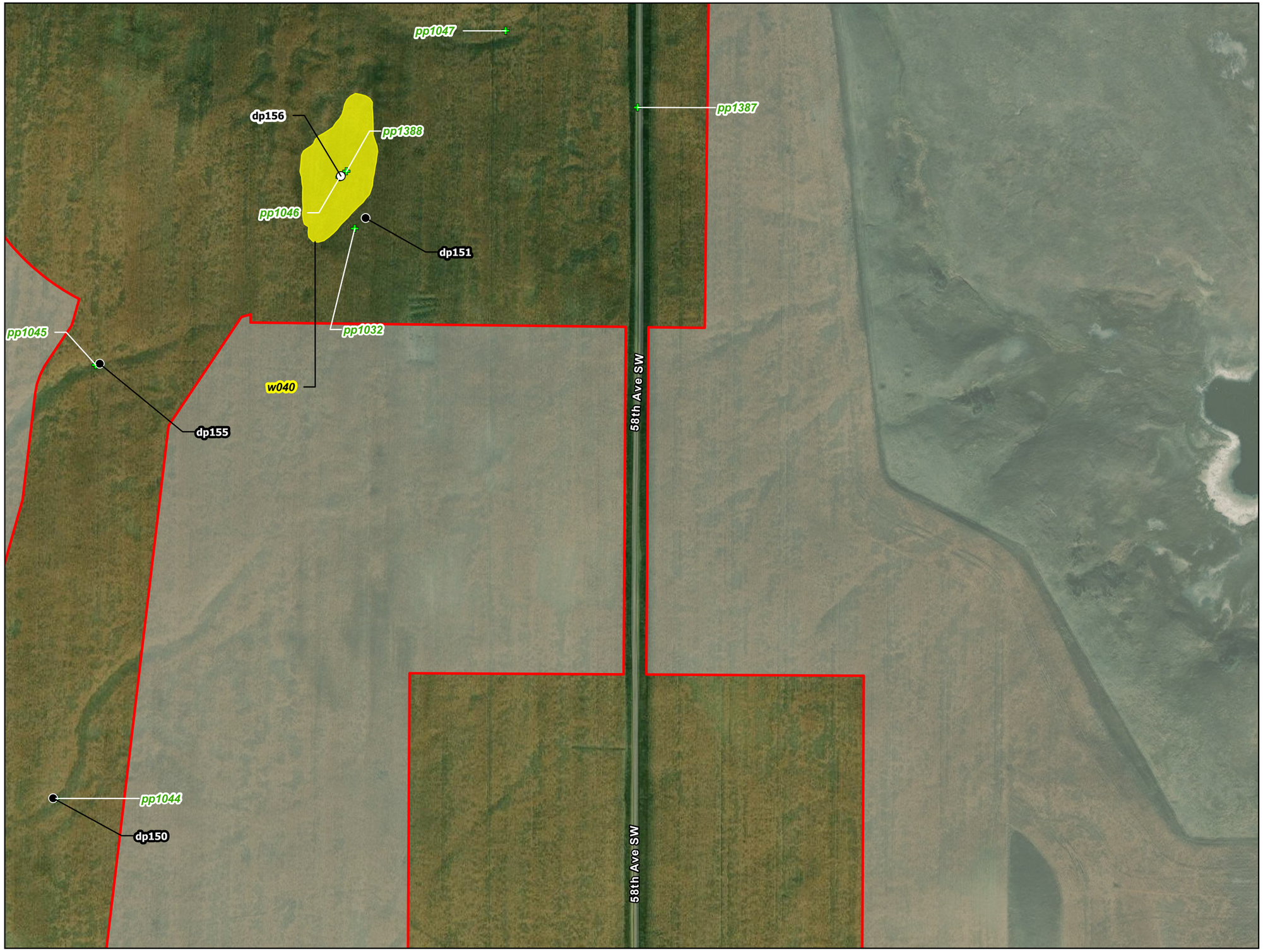


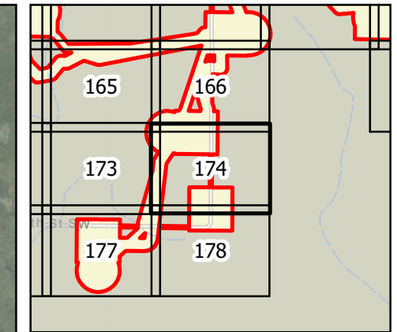


0 100 200 Feet

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N W E S

Survey Area

Photo Point

Upland Data Point

Wetland Data Point

Delineated Wetland

PEM

**Figure 5**
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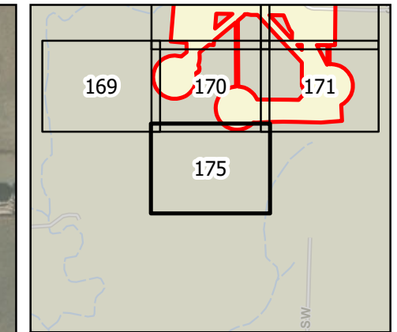


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N W E S

Survey Area

Photo Point

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**Mercer & Morton Counties,**
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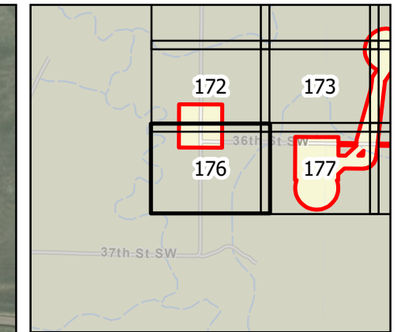


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N W E S

Survey Area

Photo Point

Upland Data Point

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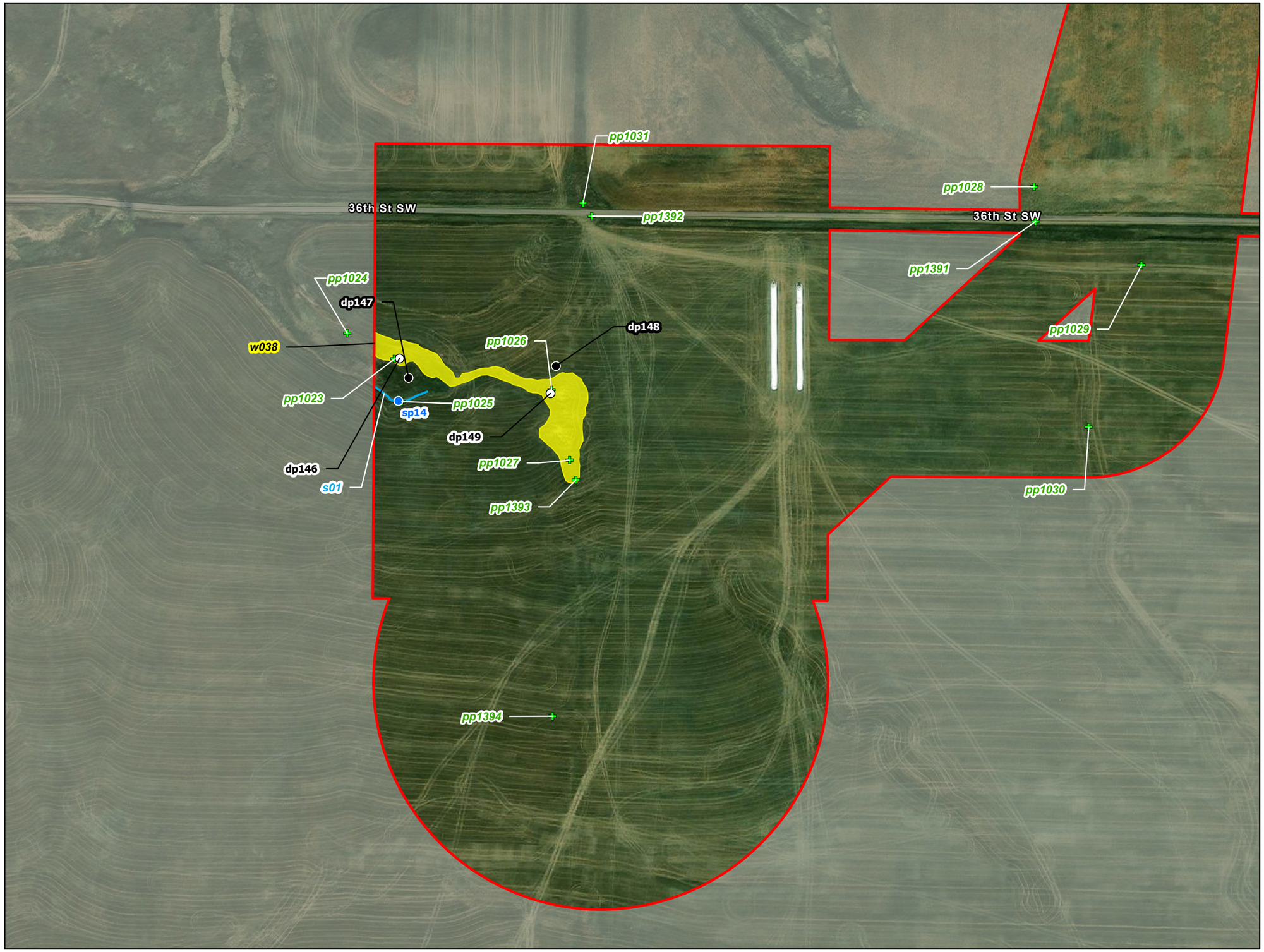


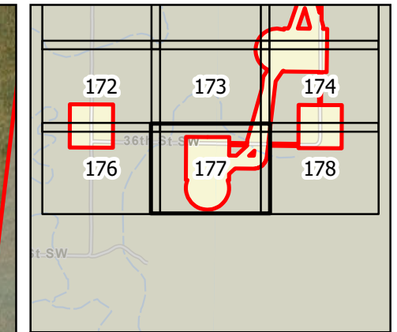


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N W E S

Survey Area
Photo Point
Stream Point
Upland Data Point
Wetland Data Point
Delineated Waterway
Delineated Wetland
PEM

**Figure 5**
**Wetland Delineation**
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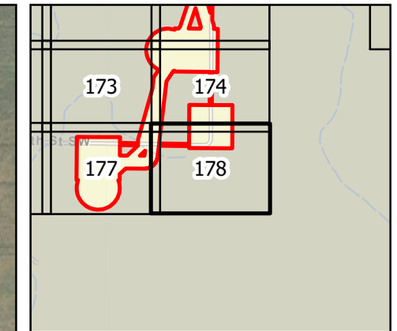


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N W E S

Survey Area

Photo Point

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**Minnesota Power**
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Studies and Assessments

B2. Comsearch Studies

# Wind Power GeoPlanner™

# Microwave Study

Longspur

Prepared on Behalf of
ALLETE

August 13, 2024

COMSEARCH
A CommScope Company

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**1. Introduction - 1 -**

**2. Project Overview - 1 -**

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# 1. Introduction

Microwave bands that may be affected by the installation of wind turbine facilities operate over a wide frequency range (900 MHz – 23 GHz). Comsearch has developed and maintains comprehensive technical databases containing information on licensed microwave networks throughout the United States. These systems are the telecommunication backbone of the country, providing long-distance and local telephone service, backhaul for cellular and personal communication service, data interconnects for mainframe computers and the Internet, network controls for utilities and railroads, and various video services. This report focuses on the potential impact of wind turbines on licensed, proposed and applied non-federal government microwave systems.

# 2. Project Overview

**Project Information**

**Name**: Longspur
**County**: Morton
**State**: North Dakota

**Number of Turbines**: TBD
**Blade Diameter:** TBD
**Tip Height**: 192 meters

*Figure 1: Area of Interest*

# 3. Fresnel Zone Analysis

## Methodology

Our obstruction analysis was performed using Comsearch's proprietary microwave database, which contains all non-government licensed, proposed and applied paths from 0.9 - 23 GHz[1]. First, we determined all microwave paths that intersect the area of interest[2] and listed them in Table 1. These paths and the area of interest that encompasses the planned turbine locations are shown in Figure 2.

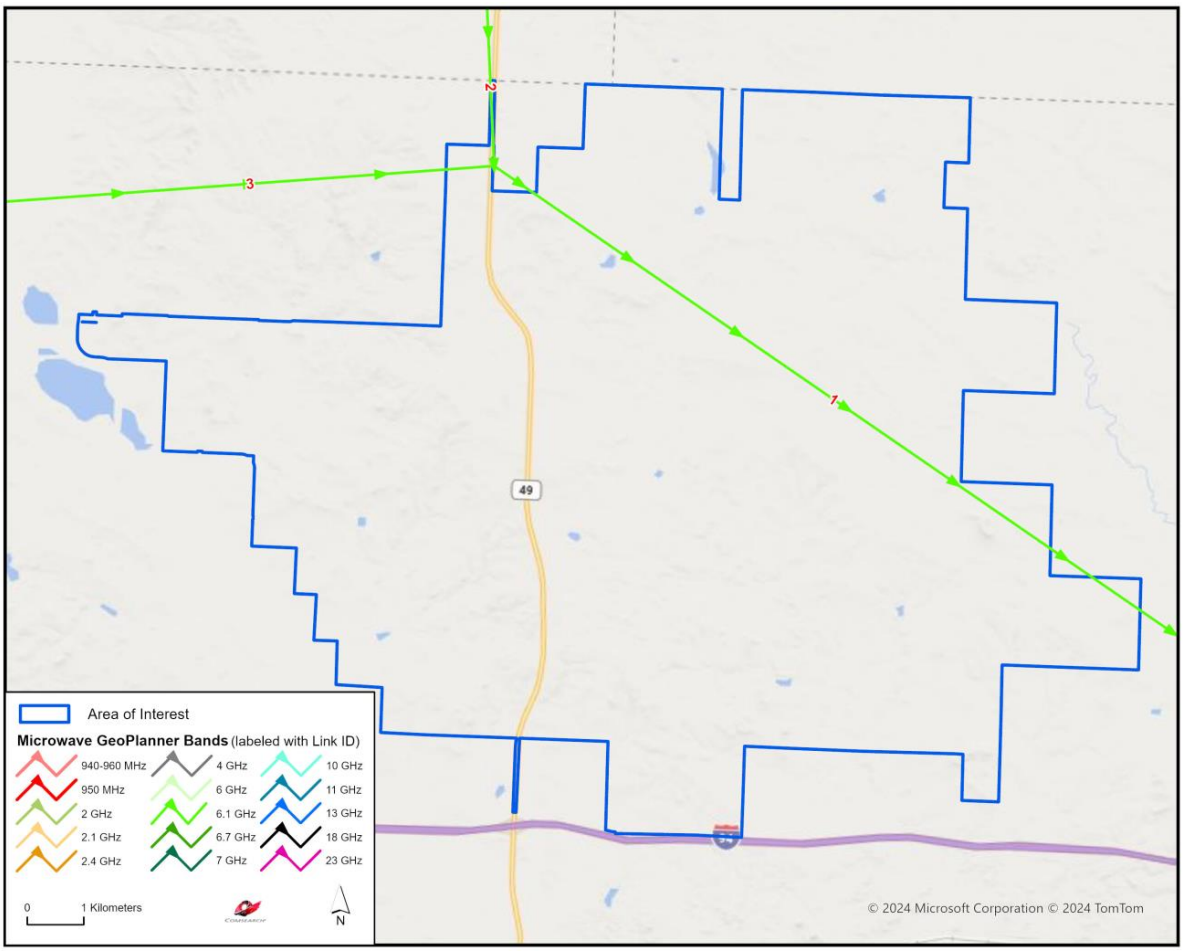



*Figure 2: Microwave Paths that Intersect the Area of Interest*

[1] Please note that this analysis does not include unlicensed microwave paths or federal government paths that are not registered with the FCC.

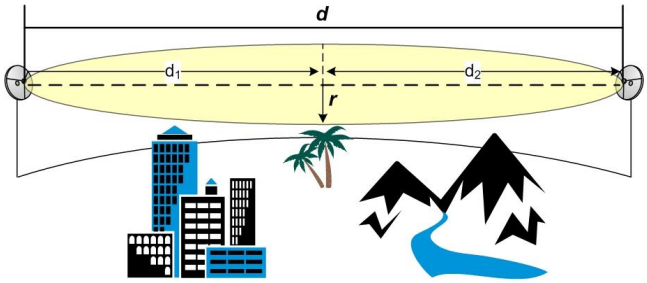
[2] We use FCC-licensed coordinates to determine which paths intersect the area of interest. It is possible that as-built coordinates may differ slightly from those on the FCC license.

| ID | Status | Callsign 1 | Callsign 2 | Band | Path Length (km) | Licensee |
|---|---|---|---|---|---|---|
| 1 | Licensed | WEH426 | WEH428 | 6.1 GHz | 34.89 | Basin Electric Power Cooperative |
| 2 | Licensed | WEH427P | WEH426 | 6.1 GHz | 44.83 | Basin Electric Power Cooperative |
| 3 | Licensed | WHJ617 | WEH426 | 6.1 GHz | 46.80 | Basin Electric Power Cooperative |

*Table 1: Summary of Microwave Paths that Intersect the Area of Interest*
*(See enclosed mw_geopl.xlsx for more information and*
*GP_dict_matrix_description.xls for detailed field descriptions)*

Next, we calculated a Fresnel Zone for each path based on the following formula:

$$r \cong 17.3\sqrt{\frac{n}{F_{GHz}}\left(\frac{d_1 d_2}{d_1 + d_2}\right)}$$




Where,

| | | |
|---|---|---|
| r | = | Fresnel Zone radius at a specific point in the microwave path, meters |
| n | = | Fresnel Zone number, 1 |
| $F_{GHz}$ | = | Frequency of microwave system, GHz |
| $d_1$ | = | Distance from antenna 1 to a specific point in the microwave path, kilometers |
| $d_2$ | = | Distance from antenna 2 to a specific point in the microwave path, kilometers |

The calculated Fresnel Zone shows the narrow area of signal swath and is calculated for each microwave path in the project area. In general, this is the area where the planned wind turbines should be avoided, if possible. Likewise, Comsearch recommends that an area directly in front of each microwave antenna should be avoided. This corresponds to the Consultation Zone which measures 1 kilometer along the main beam of the antenna and 24 ft (7.3 meters) wide. A depiction of the individual Fresnel and Consultation Zones is shown in Figure 3, and is also included in the shapefiles[3,4].

[3] The ESRI® shapefiles enclosed are in NAD 83 UTM Zone 14 projected coordinate system.

[4] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

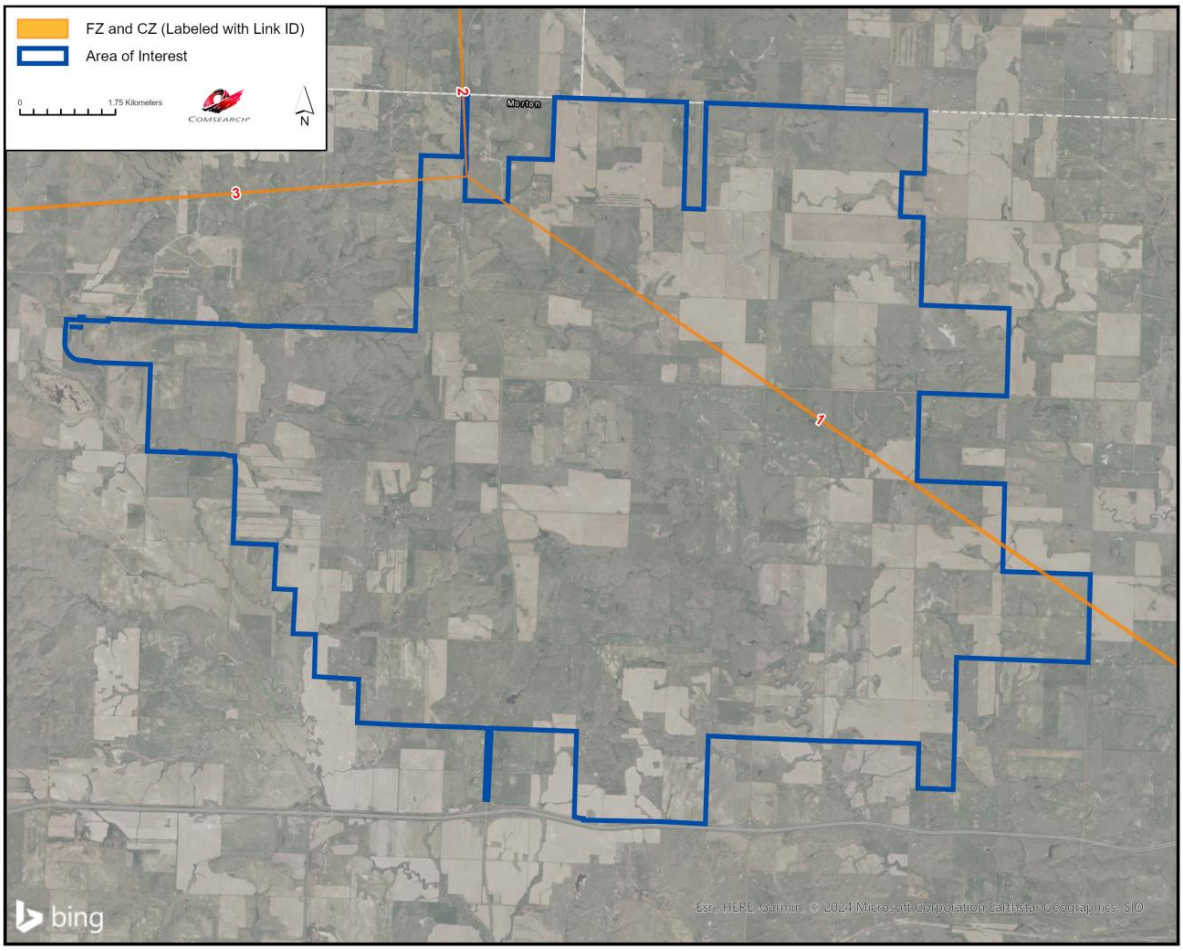



*Figure 3: Fresnel and Consultation Zones in the Area of Interest*

**Discussion of Potential Obstructions**

| Total Microwave Paths | Paths with Affected Fresnel Zones | Total Turbines | Turbines intersecting Fresnel Zones |
|---|---|---|---|
| 3 | N/A | N/A | N/A |

For this project, turbine locations were not provided; thus we could not determine if any potential obstructions exist between the planned wind turbines and the incumbent microwave paths. If the latitude and longitude values for turbine locations are provided, Comsearch can identify where a potential conflict might exist.

## 4. Conclusion

Our study identified three microwave paths intersecting the Longspur project area. The Fresnel and Consultation Zones for these microwave paths were calculated and mapped. We recommend that all turbines be sited in locations that will not encroach on these exclusion zones.

## 5. Contact

For questions or information regarding the Microwave Study, please contact:

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Company: Comsearch
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# Wind Power GeoPlanner™

# AM and FM Radio Report

## Longspur

Prepared on Behalf of
ALLETE

August 14, 2024

COMSEARCH
A CommScope Company

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# 1. Introduction

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the proposed Longspur Wind Project in Morton County, North Dakota

# 2. Summary of Results

**Project Information**

**Name**: Longspur
**County**: Morton
**State**: North Dakota

**Number of Turbines**: TBD
**Blade Diameter:** TBD
**Tip Height**: 192 meters

*Figure 1: Area of Interest*

**AM Radio Analysis**
Comsearch found no database records[1] for AM stations within approximately 30 kilometers of the project.

**FM Radio Analysis**
Comsearch found no database records[2] for FM stations within approximately 30 kilometers of the project.

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the AM/FM station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

[2] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the AM/FM station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

## 3. Impact Assessment

The exclusion distance for AM broadcast stations varies as a function of the antenna type and broadcast frequency. For directional antennas, the exclusion distance is calculated by taking the lesser of 10 wavelengths or 3 kilometers. For non-directional antennas, the exclusion distance is simply equal to 1 wavelength. Potential problems with AM broadcast coverage are only anticipated when AM broadcast stations are located within their respective exclusion distance limit from wind turbine towers. A search radius of 30 km found no AM station records. As there were no stations found within 3 kilometers of the project, which is the maximum possible exclusion distance based on a directional AM antenna broadcasting at 1000 KHz or less, the project should not impact the coverage of local AM stations.

The coverage of FM stations is generally not sensitive to interference due to wind turbines, especially when large objects (e.g., wind turbines) are located in the far field region of the radiating antenna to avoid the risk of distorting its radiation pattern. A search radius of 30 km found no FM station records. At this distance there should be adequate separation to avoid radiation pattern distortion.

## 4. Recommendations

Since no impact on licensed and operational AM or FM broadcast stations was identified in our analysis, no recommendations or mitigation techniques are required for this project.

## 5. Contact

For questions or information regarding the AM and FM Radio Report, please contact:


| | |
|---|---|
| Contact person: | David Meyer |
| Title: | Senior Manager |
| Company: | Comsearch |
| Address: | 21515 Ridgetop Circle, Suite 300, Sterling, VA 20166 |
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Studies and Assessments

B3. Sharp-tailed Grouse Lek Surveys (May 2024)

# Sharp-tailed Grouse Lek Surveys
# Longspur Wind Project
# Morton County, North Dakota

## Final Report

**Prepared for:**

**Minnesota Power**

30 West Superior Street
Duluth, Minnesota, 55802

**Prepared by:**

**Martin Piorkowski and Renea Wilson**

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**August 9, 2024**

WEST

*Confidential Business Information*

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| Renea Wilson | Field Coordinator/Report Writer |
| Chad LeBeau | Subject Matter Expert |
| Christine Kuykendall | Technical Editor |

## REPORT REFERENCE

Piorkowski, M. and R. Wilson. 2024. Sharp-tailed Grouse Lek Surveys, Longspur Wind Project, Morton County, North Dakota. Final Report. Prepared for Minnesota Power, Duluth, Minnesota. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. August 9, 2024.

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## INTRODUCTION

Minnesota Power is developing the Longspur Wind Project (Project) in Morton County, North Dakota. Minnesota Power contracted Western EcoSystems Technology, Inc. (WEST), to conduct sharp-tailed grouse (STGR; *Tympanuchus phasianellus*) lek surveys for the Project. The lek survey design was informed by the survey protocol described in North Dakota Game and Fish Department's (NDGFD's) *Management Plan and Conservation Strategies for Greater Sage-grouse in North Dakota* (Robinson 2014) and recommendations described in *Wind Energy Development in North Dakota: Best Management Practices* (NDGFD 2021).

The objectives of the STGR survey were to document the status of known leks, search for new lek locations, and estimate the maximum number of individuals present at each detected lek. This report describes the methods and results of the lek surveys conducted from April 3 – May 16, 2024.

## STUDY AREA

The Project area is in the Level III Northwestern Great Plains Ecoregion (US Environmental Protection Agency 2012). The Northwestern Great Plains Ecoregion covers northeastern Wyoming, eastern Montana, western North Dakota, western South Dakota, and northern Nebraska. This ecoregion consists of semiarid rolling plains, punctuated by buttes and badlands, and is mainly used as cultivated cropland or rangeland. Elevation ranges from 2,080–2,480 feet (634–756 meters). The Study Area includes the Project area and a 2.0-mi (3.2-km) buffer extending out from the Project area (Figure 1). The topography and land cover within the Study Area are similar to those described in the Project area.

The Project area encompasses approximately 35,258 acres (14,268 hectares) and is located 54 miles (mi; 87 kilometer [km]) west of Bismarck, North Dakota (Figure 1). The Project area is mainly composed of cultivated crops (52%), followed by herbaceous (37%), shrub/scrub (5%), hay/pasture (4%), and developed land cover (2%; Table 1, Figure 2; National Land Cover Database 2021). Other land cover types each represent less than 1% of the Project area (Table 1).

## METHODS

Following NDGFD guidance (NDGFD 2021), WEST conducted three rounds of ground-based lek surveys. Surveys were conducted from 30 minutes before sunrise until 1.5–2.0 hours after sunrise. Surveys were conducted on relatively calm mornings (winds less than 15 mi per hour [mph; 24 km per hour {kph}]) and on days with little or no precipitation.

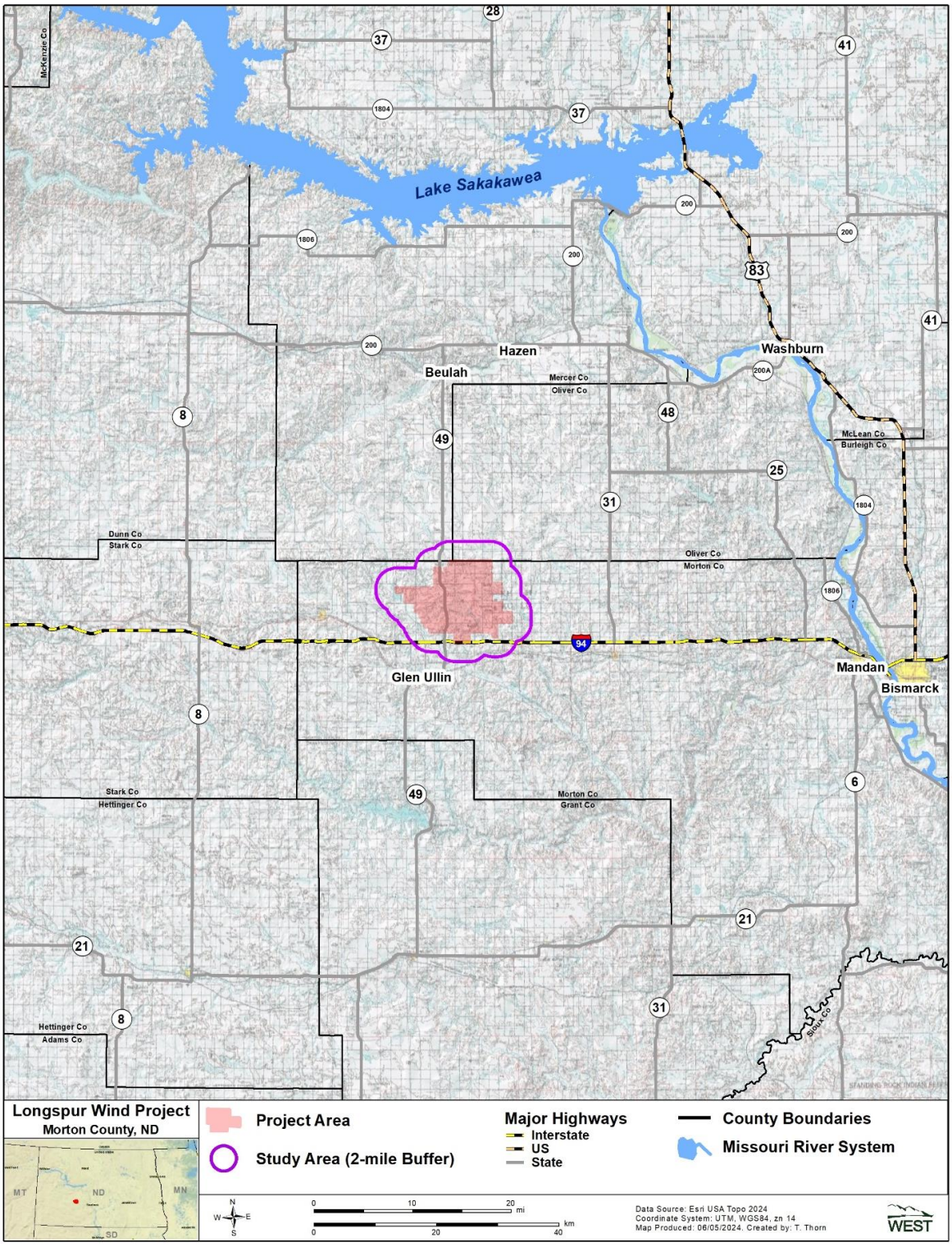


**Figure 1. Sharp-tailed grouse lek Study Area at the Longspur Wind Project in Morton County, North Dakota, 2024.**

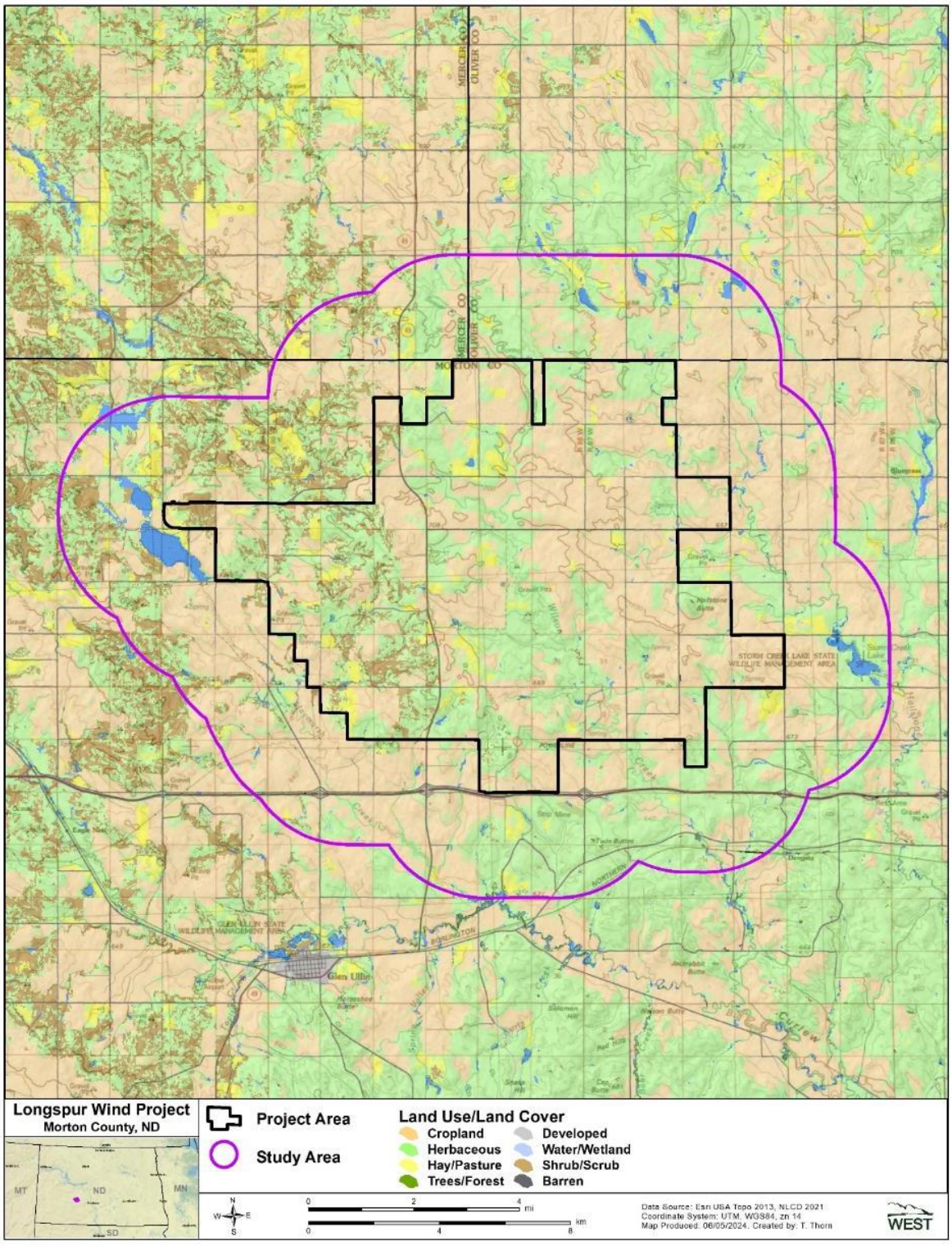


**Figure 2. Land cover at the Longspur Wind Project in Morton County, North Dakota.**

**Table 1. Land cover types, coverage, and percent composition within the Study Area[1] at the Longspur Wind Project in Morton County, North Dakota.**

| | Project Area | | 2.0-mile Buffer | |
|---|---|---|---|---|
| **Cover Type** | **Acres** | **Percent** | **Acres** | **Percent** |
| Cultivated crops | 18,317 | 52 | 25,969 | 47 |
| Herbaceous | 12,910 | 37 | 20,549 | 37 |
| Shrub/scrub | 1,716 | 5 | 3,605 | 7 |
| Hay/pasture | 1,345 | 4 | 2,108 | 4 |
| Developed | 794 | 2 | 1,826 | 3 |
| Water/wetland | 125 | <1 | 1,278 | 2 |
| Tree/forest | 49 | <1 | 127 | <1 |
| Barren land | 2 | <1 | 15 | <1 |
| **Total[2]** | **35,258** | **100** | **55,477** | **100** |

1. Study Area includes the Project area plus the 2.0-mile buffer.

2. Sums of values may not add to the total value shown, due to rounding.

Sources: National Land Cover Database 2021.

## Study Design

Searches for new leks consisted of driving publicly accessible roads and stopping to visually scan and listen in search of leks within the Study Area, as recommended by the NDGFD (2021). Surveys were conducted by trained field biologists, driving at slow speeds (25 mph [40 kph]) while looking and listening for STGR within the Study Area. Field biologists selected good vantage points, along publicly accessible roads and section line roads, based on considerations for safety, topography, and habitat type to stop and conduct surveys. Observation points were spaced approximately 0.5–1.0 mi (0.8–1.6 km) apart, and observers visually scanned and listened for displaying STGR for a minimum of five minutes at each point. The approximate location was recorded for active leks, and a count was conducted to estimate both the number and sex of STGR attending the lek.

## Data Collection Methods and Terminology

Data collection included the location, species, number of each sex, activity, and courtship behavior. Each STGR lek was assigned a unique identification number. Additional data collected for each survey included start and stop time, cloud cover, temperature, and precipitation. Previously known leks (Piorkowski and Brazeal 2020; ALLETE Clean Energy 2016, unpublished) were classified as active if any STGR were observed. Newly discovered leks were considered active if two or more displaying male STGR were observed. Displaying was characterized as inflation of air sacs and associated sounds, aggressive face-off behavior between males, and/or rapid foot stomping and tail vibration. Locations where two or more male STGR were observed, but were not displaying, were not considered active. However, these observations were noted on field maps for reference in subsequent rounds of survey.

### Data Management and Reporting

*Quality Assurance and Quality Control*

WEST implemented quality assurance and quality control measures at all stages of the survey, including in the field, during data entry and analysis, and report writing. All WEST field staff were trained in proper survey techniques prior to field surveys. Spatial data (i.e., lek location, field notes, etc.) was collected by tablet, and all other data was collected on paper datasheets. Data were reviewed before submission for data entry and after data were entered. If errors or anomalies were found, follow-up measures were implemented, including discussions and review of field data with biologists and/or the project manager. WEST used a rigorous review process. This review process included technical editing and content review, senior technical review, and a final review by the Project manager before delivery to Minnesota Power.

## RESULTS

Three surveys rounds were conducted from April 3 – May 16, 2024. There were 13 active leks detected during ground-based surveys, including six previously known leks and seven newly discovered leks within the Project area and 2.0-mi buffer (Table 2, Figure 3). Within the Project area, six active leks were observed, with the majority (four) located along the eastern edge of the Project area (Figure 3). The majority (11) of the active leks within the Study Area were located within grasslands. No activity was observed at historic Lek ID 5 (Table 2, Figure 3). The average number of STGR observed at active leks during the 2024 survey season was 6.8 individuals. No other observations STGR were recorded during surveys.

**Table 2. Sharp-tailed grouse lek survey results at the Longspur Wind Project in Morton County, North Dakota, 2024.**

| Lek ID | Year First Observed | Location | Number Observed[1] | | | | 2024 Status |
|---|---|---|---|---|---|---|---|
| | | | Male | Female | Unk | Total | |
| 1* | 2017 | 2-mile Buffer | 2 | – | 1 | 3 | Active |
| 2* | 2017 | 2-mile Buffer | 20 | – | 5 | 25 | Active |
| 3* | 2017 | 2-mile Buffer | – | – | 4 | 4 | Active |
| 4* | 2017 | Project Area | 4 | – | 4 | 8 | Active |
| 5* | 2017 | Project Area | – | – | - | - | Inactive |
| 6* | 2017 | Project Area | 2 | – | 1 | 3 | Active |
| 7* | 2020 | Project Area | 3 | – | 7 | 10 | Active |
| 8 | 2024 | 2-mile Buffer | 2 | – | – | 2 | Active |
| 9 | 2024 | Project Area | 4 | 2 | – | 6 | Active |
| 10 | 2024 | 2-mile Buffer | 10 | 4 | 3 | 17 | Active |
| 11 | 2024 | 2-mile Buffer | 3 | – | – | 3 | Active |
| 12 | 2024 | 2-mile Buffer | 2 | – | – | 2 | Active |
| 13 | 2024 | Project Area | 2 | – | – | 2 | Active |
| 14 | 2024 | Project Area | 3 | 1 | – | 4 | Active |

[1] Maximum number observed across all rounds.

*Historic active lek

ID = identification, Unk = unknown.



Longspur T-Line 000699

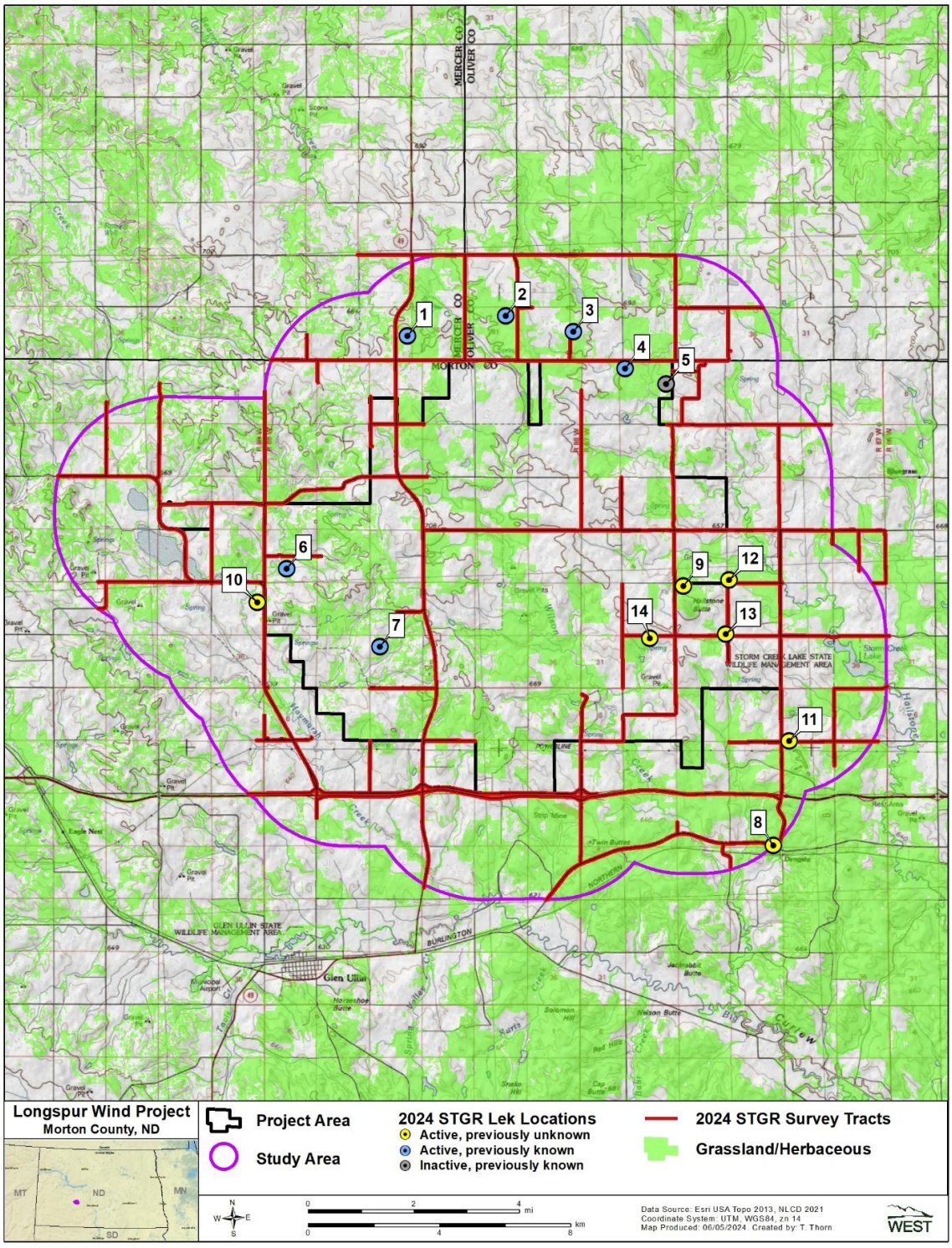


**Figure 3. Sharp-tailed grouse lek locations observed during ground-based surveys from April 3 – May 16, 2024 at the Longspur Wind Project in Morton County, North Dakota.**

## DISCUSSION

NDGFD provides survey recommendations for STGR in the *Wind Energy Development in North Dakota: Best Management Practices* (NDGFD 2021). Sharp-tailed grouse surveys were completed from April 3 – May 16, 2024. The timeframe for which NDGFD recommends lek surveys is from March 15 – May 15 (NDGFD 2021). Surveys were one day longer than the recommended timeframe due to rain delays prior to the completion of the third round of surveys. Additionally, surveys followed NDGFD guidance by conducting a survey approximately every 0.5 mi but were constrained to publicly accessible roads and section line roads. However, this left survey gaps primarily within the central portion of the Project area as shown in Figure 3. WEST suggest if lek surveys are completed in subsequent years, additional access may need to be granted or an alternative survey strategy may need to be discussed with NDGFD for more complete coverage of the Study Area.

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Studies and Assessments

B4. Sharp-tailed Grouse Lek Surveys (May 2025)

# Sharp-Tailed Grouse Lek Surveys
# Longspur Wind Project
# Morton County, North Dakota

## Final Report

**Prepared for:**

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**June 17, 2025**

WEST

*Confidential Business Information*

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| Renea Wilson | Report Writer |
| Terri Thorn | GIS Specialist |
| Jaelyn Moore | Technical Editor |

## REPORT REFERENCE

Wilson, R., and M. Piorkowski. 2025. Sharp-Tailed Grouse Lek Surveys, Longspur Wind Project, Morton County, North Dakota. Final Report. Prepared for Minnesota Power, Duluth, Minnesota. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. June 17, 2025.

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## INTRODUCTION

Minnesota Power is developing the Longspur Wind Project (Project) in Morton County, North Dakota (Project Area; Figure 1). Minnesota Power contracted Western EcoSystems Technology, Inc. (WEST), to conduct a second year of sharp-tailed grouse (*Tympanuchus phasianellus*; STGR) lek surveys throughout the Study Area (Figure 1). The Project Area was updated on October 7, 2024; however, to ensure consistency across survey years, 2025 surveys were conducted in the 2024 Study Area, which encompassed the larger 2024 project area and a two-mile buffer (Piorkowski and Wilson 2024). The lek survey design was informed by the survey protocol described in North Dakota Game and Fish Department's (NDGFD) *Management Plan and Conservation Strategies for Greater Sage-grouse in North Dakota* (Robinson 2014) and recommendations described in *Key Wind Energy Development in North Dakota: Best Management Practices* (NDGFD 2021).

The objectives of the STGR survey were to document the status of known leks, search for new lek locations, and estimate the maximum number of individuals present at each detected lek. This report describes the methods and results for the second year of lek surveys conducted from March 20 – May 7, 2025.

## STUDY AREA

The Study Area encompasses approximately 90,735 acres and is located 54 miles (mi) west of Bismarck, North Dakota (Figure 1). The Study Area is in the Level III Northwestern Great Plains Ecoregion (US Environmental Protection Agency 2012). This ecoregion consists of semiarid rolling plains, punctuated by buttes and badlands, and is mainly used as cultivated cropland or rangeland (USEPA 2013). Elevation within the Study Area ranges from 2,080–2,480 feet. The Study Area is mainly composed of croplands (49%), followed by herbaceous (37%), shrub/scrub (6%), hay/pasture (4%), and developed land cover (3%; Table 1, Figure 2; National Land Cover Database 2021). Other land cover types each represent less than 2% of the Study Area (Table 1). The 25,933-acre Project Area is located completely within the Study Area and is composed of similar land cover types to the Study Area, with slightly more cropland and less of each remaining land cover type (Table 1).

## METHODS

Following NDGFD guidance (NDGFD 2021), WEST conducted three rounds of ground-based lek surveys. Surveys were conducted from 30 minutes before sunrise until 1.5–2.0 hours after sunrise. Surveys were conducted on relatively calm mornings (winds less than 15 mi per hour [mph]) and on days with little or no precipitation.

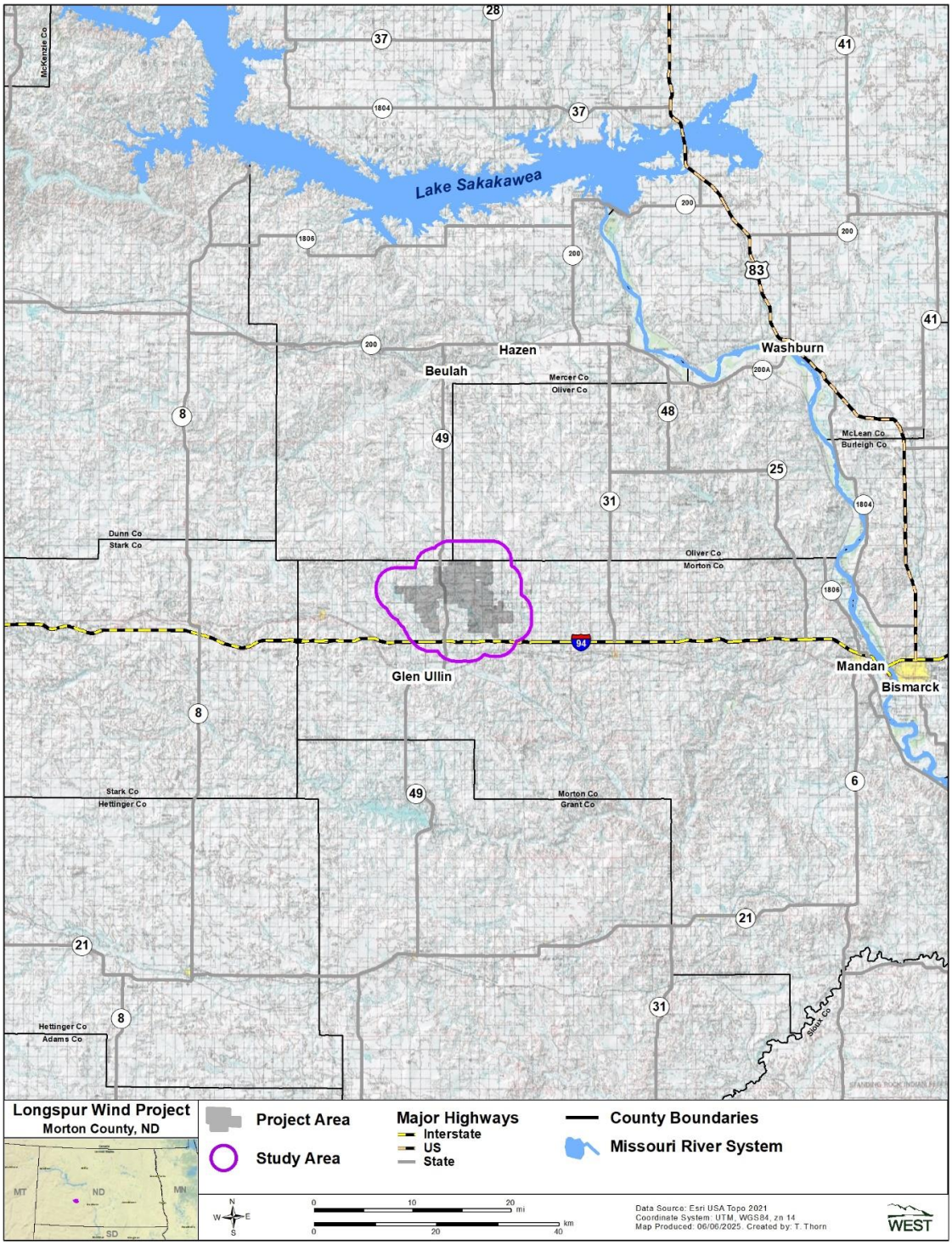


**Figure 1. Sharp-tailed grouse lek Study Area at the Longspur Wind Project in Morton County, North Dakota, 2025.**

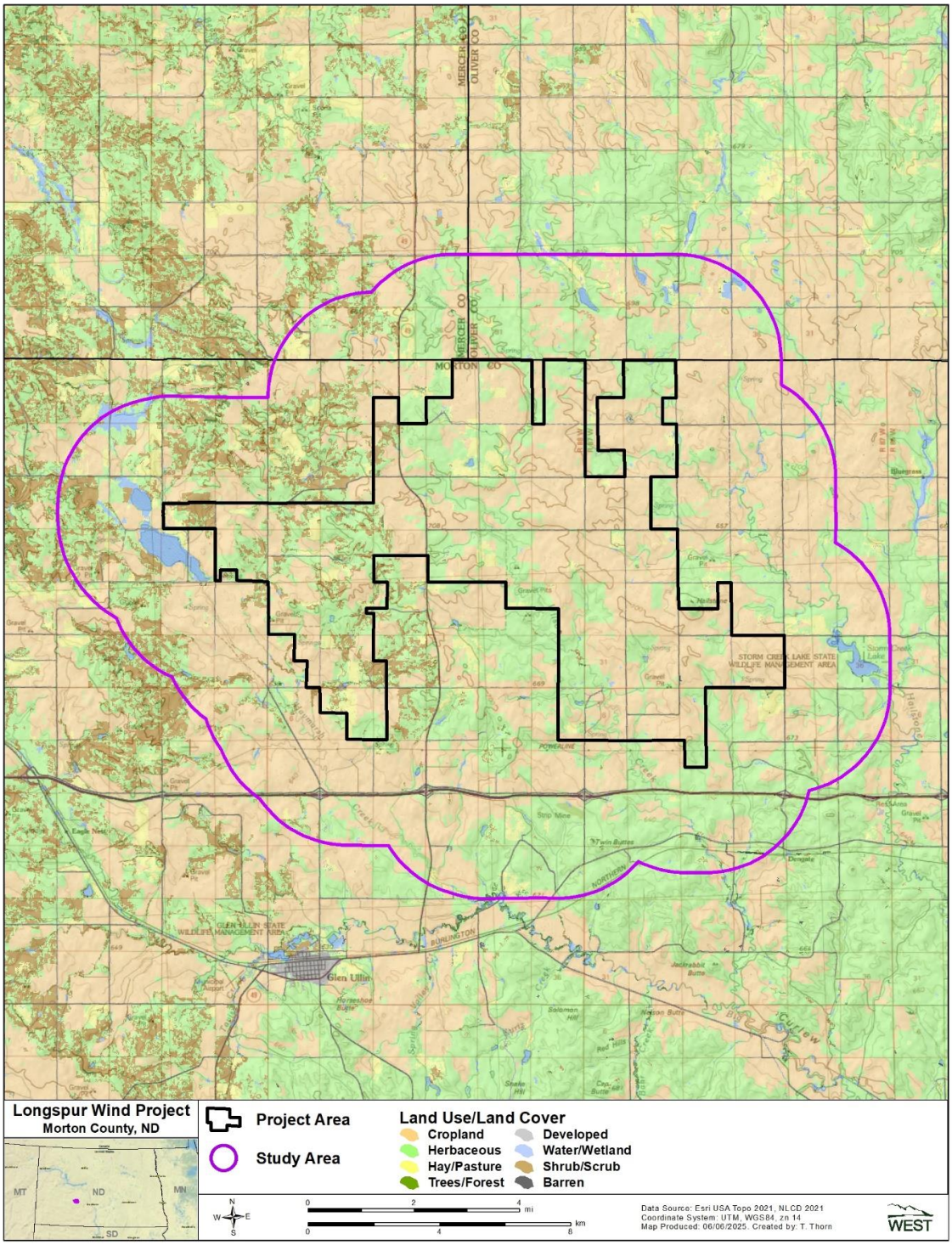


**Figure 2. Land cover at the Longspur Wind Project in Morton County, North Dakota, 2025.**

**Table 1. Summary of land cover types, coverage, and percent composition within the Study Area at the Longspur Wind Project in Morton County, North Dakota, 2025.**

| | Study Area[1] | | Project Area | |
|---|---|---|---|---|
| **Cover Type** | **Acres** | **Percent** | **Acres** | **Percent** |
| Cropland | 44,287 | 49 | 14,604 | 56 |
| Herbaceous | 33,459 | 37 | 8,371 | 32 |
| Shrub/scrub | 5,321 | 6 | 1,172 | 5 |
| Hay/pasture | 3,453 | 4 | 1,061 | 4 |
| Developed | 2,619 | 3 | 605 | 2 |
| Water/wetland | 1,403 | 2 | 90 | <1 |
| Tree/forest | 175 | <1 | 28 | <1 |
| Barren | 17 | <1 | 2 | <1 |
| **Total[2]** | **90,735** | **100** | **25,933** | **100** |

1. Study Area encompasses the 2024 Project Area plus a 2-mile buffer (Piorkowski and Wilson 2024).

2. Sums of values may not add to the total value shown, due to rounding.

Sources: Summarized from National Land Cover Database 2021.

## Study Design

Historical lek locations were requested from NDGFD prior to surveys; however, no lek locations were known to occur in the Study Area (S. Johnson, NDGFD, pers. comm., December 13, 2024). Additionally, previous lek surveys conducted at the Project were used for historical reference (ALLETE Clean Energy 2016, unpublished; Piorkowski and Brazeal 2020, Piorkowski and Wilson 2024). Searches for new leks consisted of slowly driving along publicly accessible roads (25 mph) within the Study Area and stopping to visually scan for leks and listen for their calls, as recommended by the NDGFD (2021). Observation points were spaced approximately 0.5 mi apart (Figure 3) with a good view of the surrounding landscape and surveyed for a minimum of five minutes. The approximate location of detected leks was recorded, and a count was conducted to estimate both the number and sex of STGR attending the lek.

## Data Collection Methods and Terminology

Data collection included the location, species, number of each sex, and courtship behavior. Each STGR lek was assigned a unique identification number. Additional data collected for each survey included start and stop time, cloud cover, temperature, precipitation, wind speed, and wind direction. Historical leks were classified as active if any STGR were observed. Newly discovered leks were considered active if two or more displaying male STGR were observed (Runia et al. 2021). Displaying was characterized as inflation of air sacs and associated sounds, aggressive face-off behavior between males, and/or rapid foot stomping and tail vibration. New locations where two or more male STGR were observed, but were not displaying, were not considered a lek. However, these observations were noted on field maps for reference in subsequent rounds of survey.

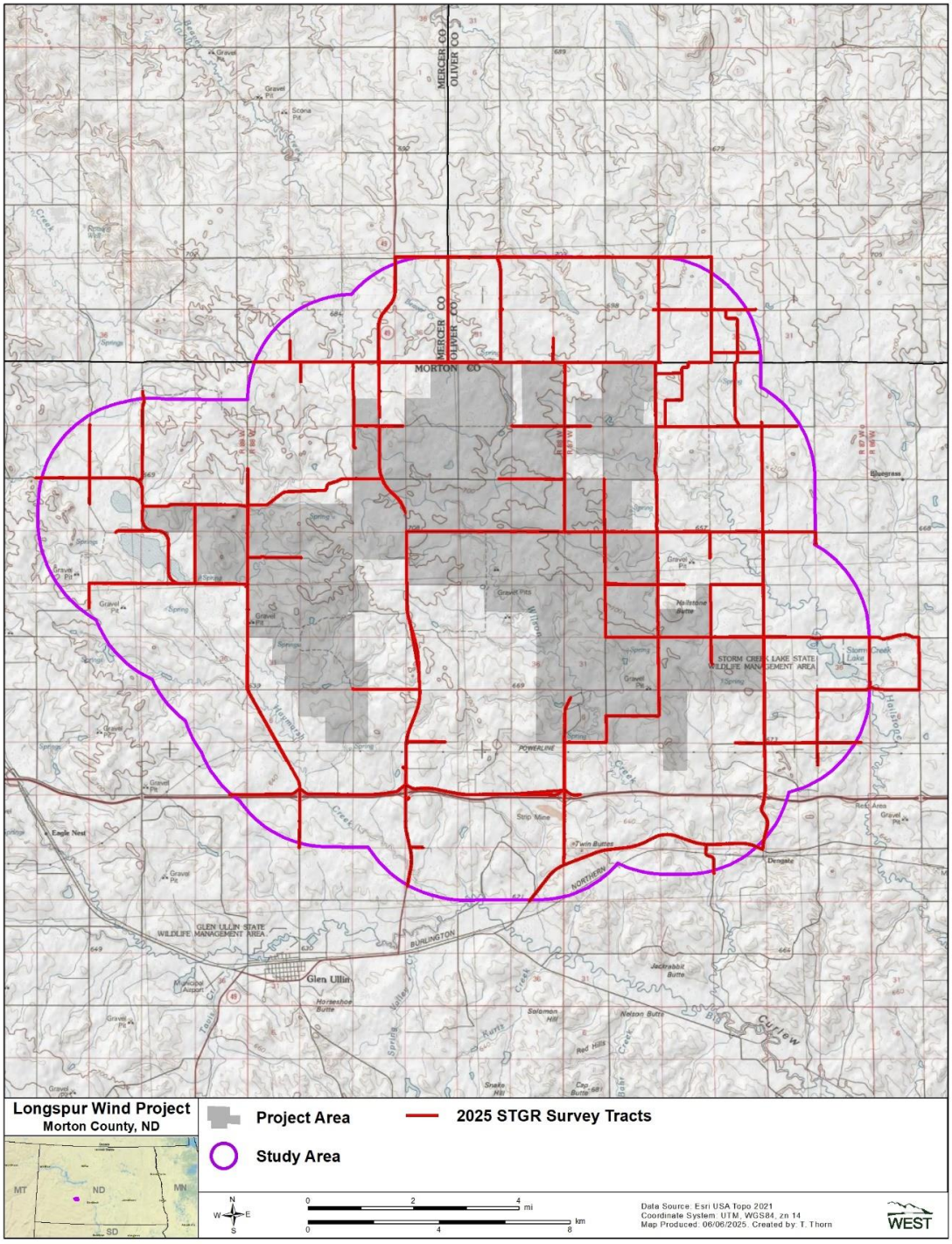


**Figure 3. Ground-based lek survey efforts within the Study Area at the Longspur Wind Project in Morton County, North Dakota, 2025.**

### Data Management and Reporting

WEST implemented quality assurance and quality control measures at all stages of the survey, including in the field, during data entry and analysis, and report writing. All WEST field staff were trained in proper survey techniques prior to field surveys. Spatial data (e.g., lek location and survey tracks) were collected by tablet, and all other data were collected on paper datasheets. Data were reviewed before submission for data entry and after data were entered. If errors or anomalies were found, follow-up measures were implemented, including discussions and review of field data with biologists and/or the project manager. WEST used a rigorous review process. This review process included technical editing and content review, senior technical review, and a final review by the project manager before delivery to Minnesota Power.

## RESULTS

Three surveys rounds were conducted from March 20 – May 7, 2025. Survey occurred during the following dates:

- Survey 1: March 20 – 26
- Survey 2: April 4 – 15
- Survey 3: April 29 – May 7

A total of twenty-two active leks were detected during ground-based surveys, including nine historical lek locations and 13 newly discovered leks (Table 2, Figure 4). Four active leks were located within the Project Area, and 18 were outside of the Project Area in the surrounding Study Area (Figure 4). No activity was observed at five previously known leks (Table 2, Figure 4).

The four active leks within the Project Area were documented in the southern half of the Project Area, with two located in NLCD grasslands (Figure 4). The majority (12) of the active leks outside of the Project Area but within the Study Area were located within NLCD grasslands (Figure 4). The average number of STGR observed at active leks during the 2025 survey season was approximately seven individuals.

**Table 2. Sharp-tailed grouse lek survey results within the Study Area at the Longspur Wind Project in Morton County, North Dakota, in 2025.**

| Lek ID | Year First Observed | Study Area[1] Location | Number Observed[2] | | | | 2025 Status |
|---|---|---|---|---|---|---|---|
| | | | Male | Female | Unk | Total | |
| 1* | 2017 | Study Area | 4 | – | 10 | 14 | Active |
| 2* | 2017 | Study Area | 7 | – | – | 7 | Active |
| 3* | 2017 | Study Area | – | – | 2 | 2 | Active |
| 4* | 2017 | Project Area | – | – | – | – | Inactive |
| 5* | 2017 | Project Area | – | – | – | – | Inactive |
| 6* | 2017 | Project Area | – | – | – | – | Inactive |
| 7* | 2020 | Study Area | 6 | 5 | 3 | 14 | Active |
| 8* | 2024 | Study Area | 3 | 1 | – | 4 | Active |
| 9* | 2024 | Study Area | – | – | 7 | 7 | Active |
| 10* | 2024 | Study Area | 2 | – | – | 2 | Active |
| 11* | 2024 | Study Area | – | – | – | – | Inactive |
| 12* | 2024 | Study Area | – | – | – | – | Inactive |
| 13* | 2024 | Project Area | 5 | – | – | 5 | Active |
| 14* | 2024 | Project Area | 3 | – | – | 3 | Active |
| 15 | 2025 | Project Area | 2 | – | 6 | 8 | Active |
| 16 | 2025 | Study Area | 4 | – | – | 4 | Active |
| 17 | 2025 | Study Area | 13 | – | 6 | 19 | Active |
| 18 | 2025 | Study Area | 3 | – | 3 | 6 | Active |
| 19 | 2025 | Study Area | 4 | – | – | 4 | Active |
| 20 | 2025 | Study Area | 6 | – | 8 | 14 | Active |
| 21 | 2025 | Project Area | 9 | 3 | 4 | 16 | Active |
| 22 | 2025 | Study Area | 2 | – | – | 2 | Active |
| 23 | 2025 | Study Area | 2 | – | 3 | 5 | Active |
| 24 | 2025 | Study Area | 2 | – | 1 | 3 | Active |
| 25 | 2025 | Study Area | 4 | – | 5 | 9 | Active |
| 26 | 2025 | Study Area | 2 | – | – | 2 | Active |
| 27 | 2025 | Study Area | 8 | – | – | 8 | Active |

1. Study Area designation includes all areas outside of the Project Area.

2. Maximum number observed across all rounds.

* Historical lek.

ID = identification, Unk = unknown.

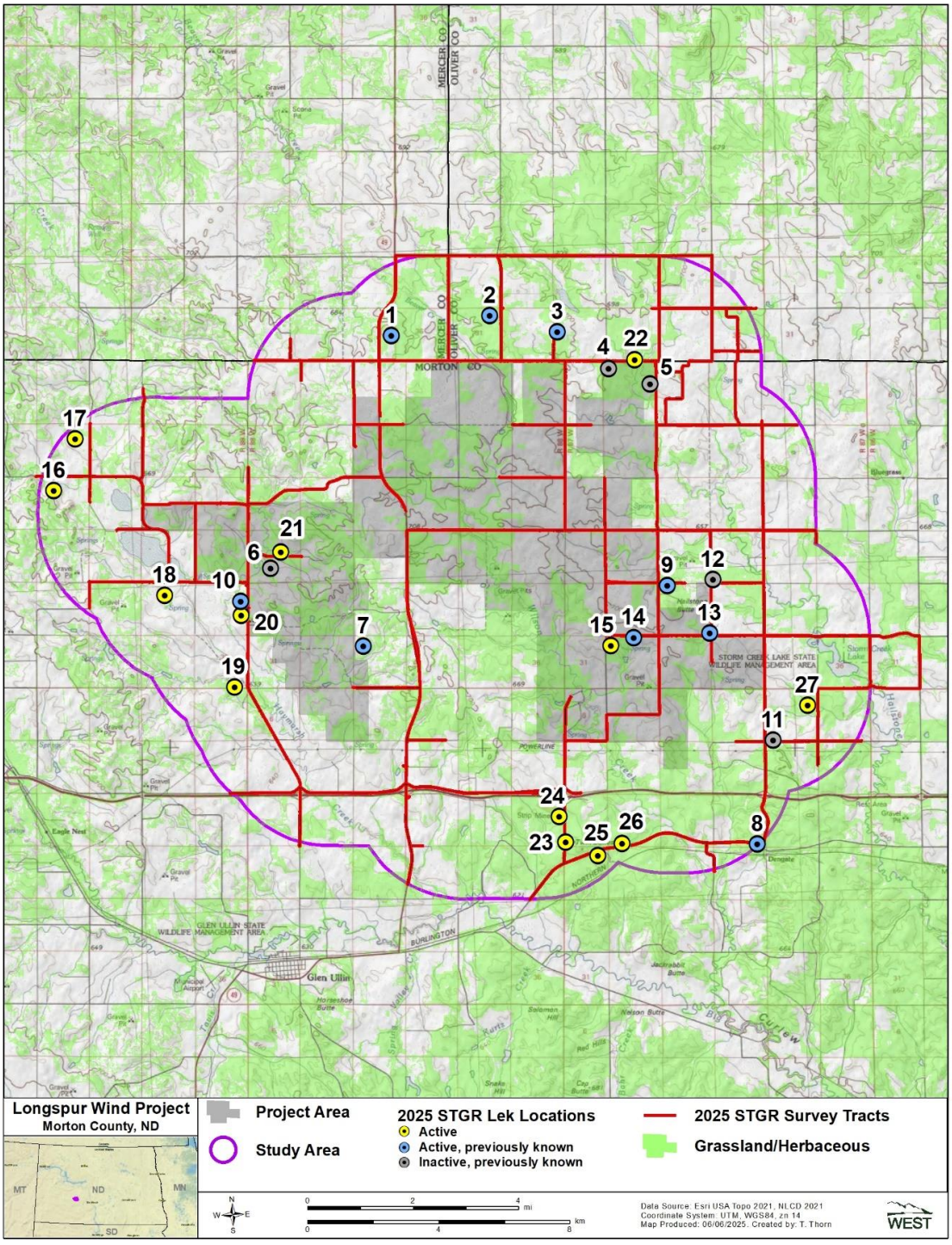


**Figure 4. Sharp-tailed grouse lek locations observed within the Study Area during ground-based surveys at the Longspur Wind Project in Morton County, North Dakota, from March 20 – May 7, 2025.**

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Studies and Assessments

B5. Eagle Nest Survey (2024)

ENVIRONMENTAL & STATISTICAL CONSULTANTS

4007 State Street, Suite 109 Bismarck, North Dakota 58503
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# TECHNICAL MEMORANDUM

**Date:** June 14, 2024

**To:** Drew Jenke, Minnesota Power | ALLETE Inc.

**From:** Martin Piorkowski and Andrew Burmester, Western Ecosystems Technology, Inc.

**Subject:** Longspur Wind Project – 2024 Eagle Nest Survey

## INTRODUCTION

At the request of ALLETE Inc., Western Ecosystems Technology, Inc. (WEST) conducted eagle nest surveys as part of its due diligence on wildlife and habitats. Survey design was informed by the US Fish and Wildlife Service's (USFWS's) *Land-based Wind Energy Guidelines* (2012), USFWS Eagle Conservation Plan Guidance: Module 1 – Land-based Wind Energy (v2; ECPG; 2013), and the North Dakota Game and Fish Department (NDGFD) Wind Energy Development: Best Management Practices (BMPs; NDGFD 2021). The Project is located approximately 54 miles (mi; 87 kilometers [km]) west of Bismarck, North Dakota, north of Interstate 94. The objective of the eagle nest surveys was to update previously collected information on eagle, large, or very large, nests during the 2024 eagle nesting season.

## STUDY AREA

The Project area encompasses 35,258 acres (14,268 hectares) within Morton County in central North Dakota, which is located within the Level III Northwestern Great Plains ecoregion (US Environmental Protection Agency 2013). The landscape is mainly composed of cultivated crops (52%) and herbaceous land cover (37%; Table 1). Shrub/scrub habitat is found to a lesser extent (5%) along with hay/pasture (4%) and developed land (2%). All remaining land cover types account for less than 1% of the Project area (National Land Cover Database 2021). The elevation within the Project area ranged from approximately 2,080 to 2,480 feet (ft; 634 to 756 meters [m]). The Study Area, which has similar land cover and topography, included a 2-mi (3.2-km) buffer extending out from the Project area.

**Table 1. Land cover types and percent composition of the Longspur Wind Project, Morton County, North Dakota.**

| Land cover type | Coverage (Acres) | Percent Composition |
|---|---|---|
| Cultivated Crops | 18,317 | 52 |
| Herbaceous | 12,910 | 37 |
| Shrub/Scrub | 1,716 | 5 |
| Hay/Pasture | 1,345 | 4 |
| Developed | 794 | 2 |
| Water/Wetland | 125 | <1 |
| Trees/Forest | 49 | <1 |
| Barren Land | 2 | <1 |
| **Total** | **35,258** | **100** |

Source: National Land Cover Database 2021.

Sums of values may not add to totals shown due to rounding.

## METHODS

One survey was conducted in April to align with the greatest potential of observing eagles tending to nests or incubating eggs before regional leaf-out of trees. Pre-flight planning included historically collected data (ALLETE 2016, Piorkowski and Brazeal 2020) and a review of aerial imagery and land cover data to develop a survey route and identify potential eagle nesting habitats within the Study Area (Figure 1). The survey was conducted using an R44 helicopter, operated by a pilot experienced in wildlife surveys and accompanied by two biologists experienced in conducting raptor nest surveys. The survey was conducted across the Study Area (Figure 1), focusing on likely eagle nesting habitat (e.g., large trees, rocky out croppings, and human structures such as power poles). Any eagle nest or large or very large stick structure with characteristics consistent with eagle nests were recorded.

The helicopter was flown at approximately 150–200 ft (46–61 m) above ground level at an air speed of approximately 50 mi per hour (80 km per hour). During the survey, the pilot positioned the helicopter to allow the biologists a thorough visual inspection of nest structures. The survey team took care to minimize disturbance to breeding eagles. When nests were located, the pilot reduced speed and adjusted the flight track such that one of the biologists could clearly see the nest to record data accurately. A survey track was recorded using a Global Positioning System-(GPS-) enabled tablet running Locus Map 4 Outdoor Navigation (Locus Map 2024) to ensure adequate coverage of the Study Area.

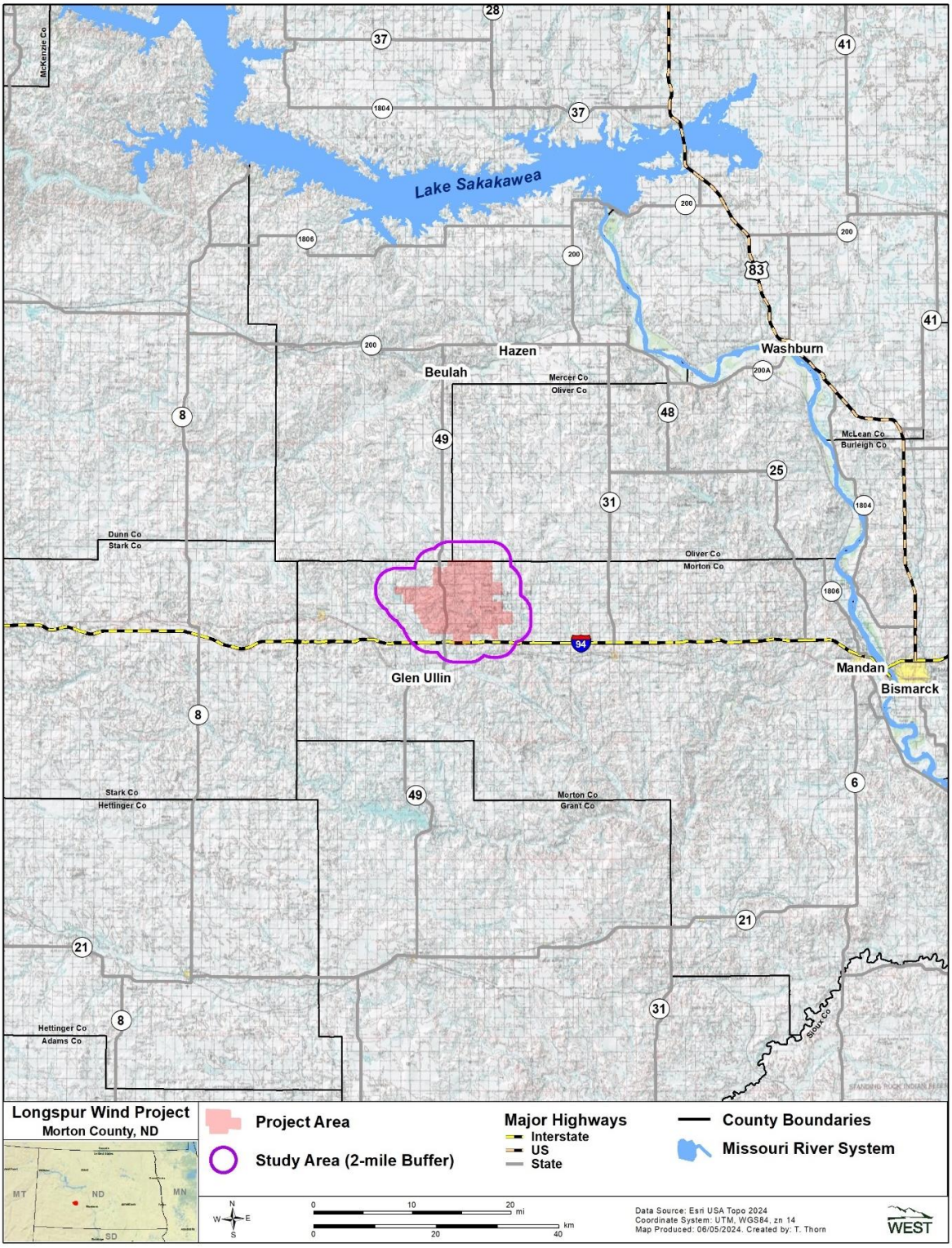


**Figure 1. Overview of the Project area and Study Area for the Longspur Wind Project, Morton County, North Dakota.**

Data was recorded for each nest based on guidelines from the USFWS's ECPG, adapted from terminology used in Postupalsky (1974). A unique identifier was given to all eagle nests found during the survey. Data for each nest recorded included: nest location (GPS coordinates), nest status (i.e., occupied, active, inactive), nest condition (i.e., good, fair, poor), number of adults and nestlings present, nest substrate (e.g., tree, powerline, cliff), and nest height. Photos were taken of each eagle nest observed to verify nest status. For nest status, a nest was recorded as active if eggs or young were observed or if eagle behavior indicated eggs have been laid in the nest. This can be determined by the presence of an adult observed in an incubating or brooding position or signs an adult is tending to young. Nests which did not show any of the above characteristics were recorded as inactive.

## RESULTS

The survey was conducted on April 25, 2024. Biologists detected two eagle nests (one new and one historic) within the 2-mi buffer of the Project area (Figure 2, Table 2). Nest 1 was a new nest found during the survey and was determined to be active with one adult bald eagle (*Haliaeetus leucocephalus*) observed sitting in the nest in an incubating position and a second adult perched in an adjacent tree (Photo 1). Nest 2, a historic nest, was determined to be active, with one adult bald eagle observed sitting in the nest in an incubating position (Photo 2). No other large or very large stick nests were observed within the Study Area.

**Table 2. Large stick nests located during the 2024 eagle nest survey at the Longspur Wind Project, Morton County, North Dakota.**

| Nest Identification | Species | Status | Substrate | Condition |
|---|---|---|---|---|
| 1 | bald eagle | active | deciduous tree | good |
| 2[a] | bald eagle | active | deciduous tree | good |

[a] Historic nest.

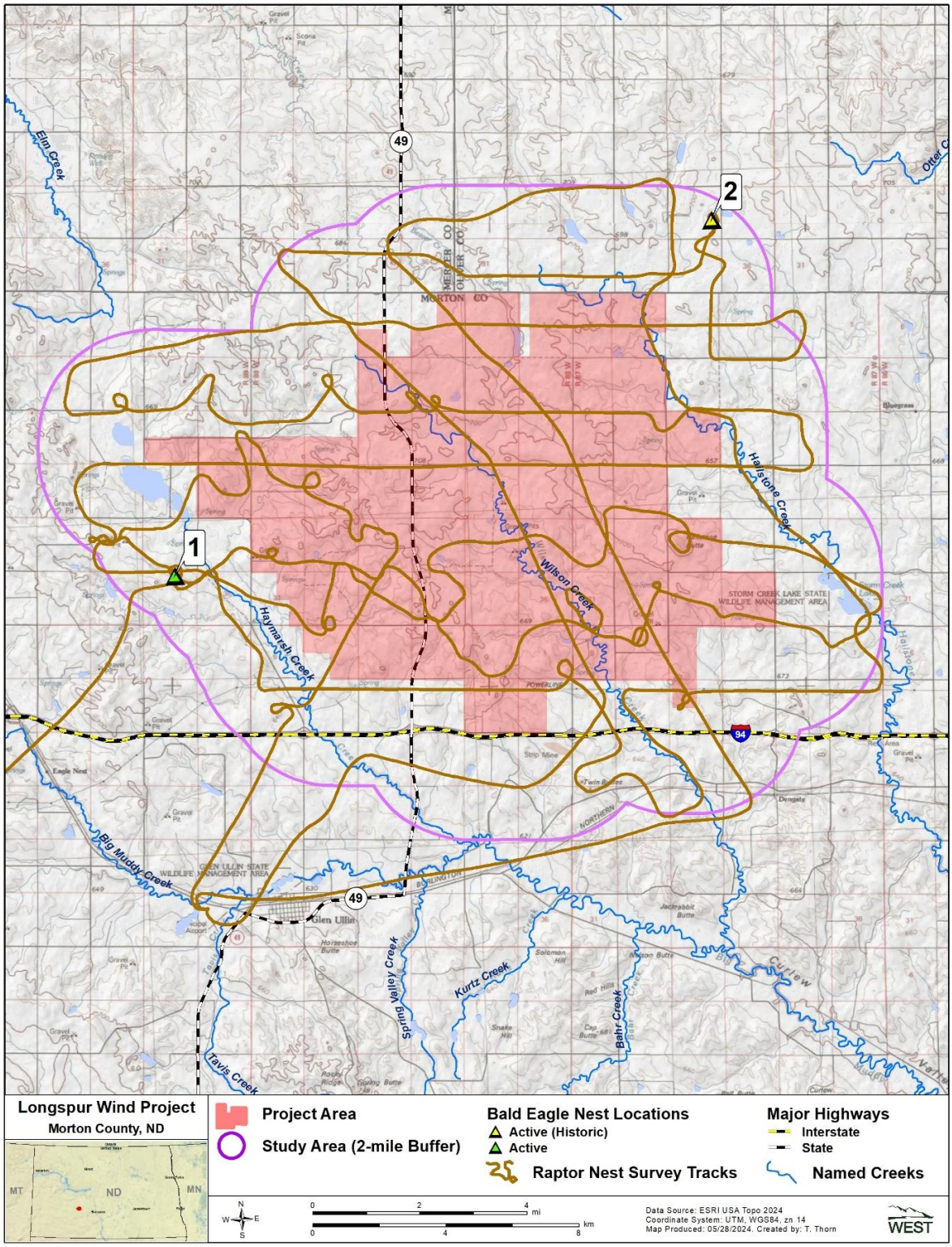


**Figure 2. Results of the 2024 eagle nest surveys and survey tracks recorded at the Longspur Wind Project, Morton County, North Dakota.**

**Photo 1. Bald eagle nest 1 within the Study Area of the Longspur Wind Project, Morton County, North Dakota, 2024.**

**Photo 2. Bald eagle nest 2 within the Study Area of the Longspur Wind Project, Morton County, North Dakota, 2024.**

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Studies and Assessments

B6. Eagle Nest Survey (2025)

# 2025 Eagle and Raptor Nest Surveys
# Longspur Wind Project
# Morton County, North Dakota

## Final Report

**Prepared for:**

**Minnesota Power**

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**Prepared by:**

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**September 5, 2025**

WEST

*Confidential Business Information*

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## REPORT REFERENCE

Piorkowski, M., N. O'Neil, and A. Burmester. 2025. 2025 Eagle and Raptor Nest Surveys, Longspur Wind Project, Morton County, North Dakota. Final Report. Prepared for Minnesota Power, Duluth, Minnesota. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. September 5, 2025.

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Appendix A. Bald Eagle Nest Photographs Recorded during the Raptor Nest Survey at the Longspur Wind Project Study Area in Morton, Mercer, and Oliver Counties, North Dakota, from February 2 – June 18, 2025

Appendix B. Non-eagle Raptor Nests Recorded during the Raptor Nest Survey at the Longspur Wind Project Study Area in Morton, Mercer, and Oliver Counties, North Dakota, from February 2 – June 18, 2025

## INTRODUCTION

Minnesota Power is developing the Longspur Wind Project (Project) in Morton County, North Dakota. Minnesota Power contracted Western EcoSystems Technology, Inc. (WEST), to conduct eagle and raptor nest surveys within the Project Area (as updated October 7, 2024; Figure 1) and 2-mile (mi) buffer surrounding the Project Area (collectively referred to as the Study Area; Figure 1). Recommendations from the US Fish and Wildlife Service (USFWS) *Land-Based Wind Energy Guidelines* (WEG; 2012), *Eagle Conservation Plan Guidance* (ECPG; 2013), and the USFWS *Region 6 Recommended Protocol for Conducting Pre-Construction Eagle Nest Surveys at Wind Energy Projects* (Protocol; 2021) were followed.

The objectives of the eagle and raptor nest surveys were to provide information on the 2025 nesting activity of eagles and other raptor species within the Study Area and update previously collected nest information from eagle nest surveys conducted in 2024. Results of these surveys provide baseline information on the nesting status of all raptor species at the Project.

## STUDY AREA

The Project Area encompasses 25,933 acres in southwestern North Dakota, approximately four mi north of Glen Ullin in Morton County (Figure 1). The Project is within the Northwestern Plains Level III and the Missouri Plateau Level IV ecoregions, which encompass much of western North Dakota (US Environmental Protection Agency 2012, 2013). This ecoregion consists of semi-arid rolling plains punctuated by buttes and badlands. The primary land uses include cultivated crops and livestock grazing. According to the National Land Cover Database (NLCD; 2021), the dominant land cover type with the Project Area is cultivated crops (56.3%), followed by herbaceous (32.3%). Other land cover types include shrub/scrub (4.5%), hay/pasture (4.1%), and developed (2.3%; NLCD 2021; Table 1). Each remaining land cover type comprises less than 1.0% of the Project Area (Table 1).

The Study Area is located in Morton, Mercer, and Oliver counties, North Dakota, and encompasses approximately 86,610 acres (Figure 1). Small waterways and scattered natural and man-made wetlands are present in the Study Area (USFWS National Wetlands Inventory 2024). Land cover types within the entire Study Area are similar to the Project Area, with cultivated crop and grassland/herbaceous comprising the majority (49.1% and 36.2%, respectively). The remaining land cover types included shrub/scrub (6.1%), hay/pasture (3.9%), developed (2.9%), and wetland/open water (1.6%), with the remaining land cover types comprising less than 1% of the Study Area (Table 1).

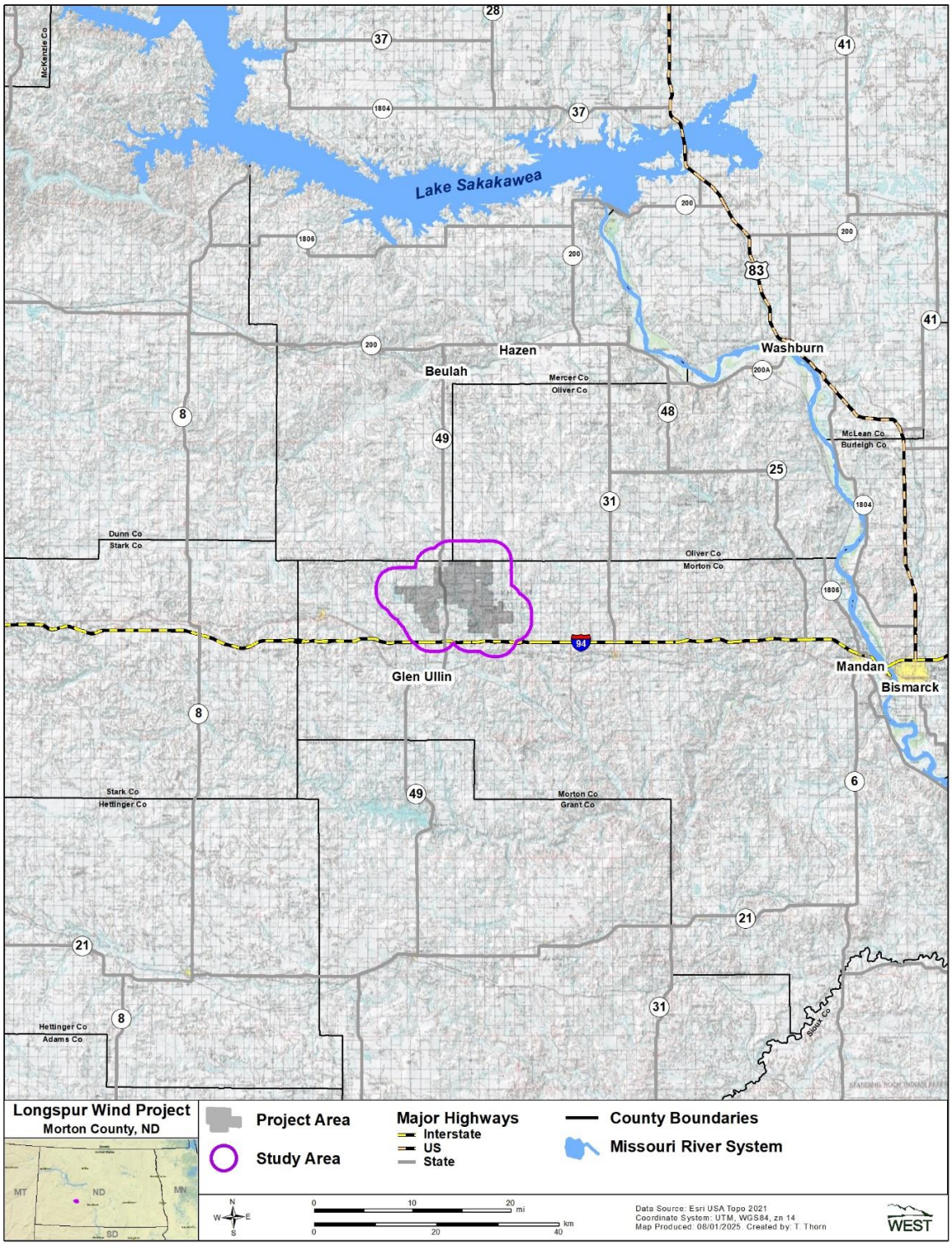


**Figure 1. Location of the Longspur Wind Project and Study areas in Morton, Mercer, and Oliver counties, North Dakota.**

**Table 1. Land cover types, coverage, and percent composition within the Project and Study areas at the Longspur Wind Project in Morton, Mercer, and Oliver counties, North Dakota.**

| | Project Area | | Study Area[1] | |
|---|---|---|---|---|
| **Land Cover Type** | **Acres** | **Percent (%)** | **Acres** | **Percent (%)** |
| Cultivated Crops | 14,604 | 56.3 | 42,568 | 49.1 |
| Grassland/Herbaceous | 8,371 | 32.3 | 31,343 | 36.2 |
| Shrub/Scrub | 1,172 | 4.5 | 5,318 | 6.1 |
| Hay/Pasture | 1,061 | 4.1 | 3,356 | 3.9 |
| Developed[2] | 605 | 2.3 | 2,487 | 2.9 |
| Wetland/Open Water | 90 | 0.3 | 1,372 | 1.6 |
| Forest | 28 | 0.1 | 150 | 0.2 |
| Barren Land | 2 | < 0.1 | 16 | <0.1 |
| **Total[3]** | **25,933** | **100** | **86,610** | **100** |

1. Study Area is inclusive of the Project Area.

2. Developed land cover type includes open space, low intensity, medium intensity, and high intensity.

3. Sums of values may not add to total value shown due to rounding.

Sources: National Land Cover Database 2021.

## METHODS

WEST conducted aerial and ground surveys for raptor nests within the Study Area, with an emphasis on bald (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) nests. WEST defines raptors as medium- to large-sized birds of prey and included the following types: *Accipiter* spp., *Buteo* spp., eagles, *Falco* spp., northern harrier (*Circus hudsonius*), and owls. Prior to surveys, a data request was sent to the North Dakota Game and Fish Department (NDGFD; S. Johnson, NDGFD, pers comm. December 6, 2025), for all known historical eagle nests within the Study Area. Additionally, WEST used previous survey efforts to inform searches for known eagle nests within the Study Area during the 2025 surveys (ALLETE 2016, Piorkowski and Brazeal 2020, Piorkowski and Burmester 2024)

Raptor nest surveys conducted between February 2 and June 18, 2025, followed the eagle nest survey schedule outlined in the USFWS Region 6 recommendations (USFWS 2021; Table 2). According to the Region 6 recommendations, the first four visits were to determine nest occupancy, while Visit 5 and Visit 6 were conducted for only active eagle nests to collect success and productivity information. A summary of the recommended visitation schedule in Table 2 and was generally followed during the study.

**Table 2. Survey Schedule for Eagle and Other Raptor Nests at the Longspur Wind Project, North Dakota.**

| Survey | Method | Date Range | Objective |
|---|---|---|---|
| 1 | Ground | January 1 to the end of the 3rd week in February | Check historical, known eagle nests for occupancy; each eagle nest with no evidence of occupancy should be observed until occupancy is confirmed, or for at least 4 hours |
| 2 | Aerial | Last week of February through the 3rd week of March | Check occupancy of known nests and search for new eagle and raptor nests |
| 3 | Ground | Last week of March through the end of April | Check status of occupied eagle nests; including new eagle nests or large stick nests found during Survey 2; each eagle nest with no evidence of occupancy should be observed until occupancy is confirmed, or for at least 4 hours |
| 4 | Aerial | Third week of April to the end of May | Check occupancy of known nests and search for new eagle and raptor nests |
| 5 | Ground | Beginning of June to the end of the first week of July | Check nest success and productivity of occupied eagle nests |
| 6 | Ground | Second week of July through the end of August | Check nest success and productivity of occupied eagle nests |

### Aerial Surveys

Aerial surveys 2 and 4 allowed for a thorough visual inspection of potentially suitable nesting habitats within the Study Area. Pre-flight planning included a review of aerial imagery and land cover data to identify potential eagle and other raptor nesting habitats within the Study Area and develop a survey route. Potential nesting habitats for eagles and other raptors included riparian corridors and forested areas, large trees, or rocky outcrops, and anthropogenic structures such as power poles. Additionally, biologists checked all previously identified eagle nests within the Study Area (i.e., two eagle nests; Piorkowski and Burmester 2024).

Two experienced WEST biologists conducted aerial raptor nest surveys from a Robinson R-44 Raven II helicopter, with one experienced biologist focused on searching for nest structures and a second biologist recording nest data in addition to searching for nests. The first aerial survey (Survey 2) was conducted prior to deciduous tree leaf out to aid in the detection of nests and ensure the search effort coincided with the period when eagles were likely incubating eggs or tending young, based on chronology for nesting eagles in the region (Pagel et al. 2010, USFWS 2013). This survey was scheduled when other local raptor species were likely nesting (e.g., *Buteo* spp. and owls); however, late-nesting species may not yet have been present. A second aerial survey (Survey 4) was conducted later in the breeding season to account for those raptors that initiate nesting later in the season and to recheck and confirm the status of nests recorded during Survey 2. The same methods used during the first aerial survey were repeated during the second aerial survey.

The helicopter was flown at approximately 150–200 feet (ft) above ground level at an air speed of approximately 50 mi per hour. When nests were located, the pilot reduced speed and adjusted

the flight track such that one of the biologists could clearly see the nest to record data accurately. The pilot approached the nest slowly from the raptor's field of view and maintained the greatest possible distance (no closer than 492 ft) at which the nest status could be documented if raptors were present on the nest. The airspace was occupied for the minimum possible duration, no longer than 15–30 seconds (Pagel et al. 2010, USFWS 2013). To ensure adequate coverage of the Study Area, the survey flight path was recorded using a Global Positioning System- (GPS-) enabled tablet running Locus Map 4 software (Locus Map 2025).

To determine the status of a nest, the biologists evaluated behavior of adults on or near the nest and the presence of eggs, young, whitewash, or fresh building materials. Species, nest type, nest status, nest condition, and nest substrate were recorded at each nest location, to the extent possible.

**Ground-based Surveys**

The ground-based survey methods were focused on observation points in order to view eagle and large stick nests with the potential to be eagle nests. A review of previously recorded eagle nest locations was conducted (Piorkowski and Burmester 2024) prior to surveys. Pre-survey planning included a desktop review of aerial imagery and land cover data to create field maps of possible observation points for eagle nests and large stick nests (recorded during aerial surveys that could be potential eagle nests) on publicly accessible areas, and/or lands where access needed to be or had been obtained.

One experienced biologist conducted ground-based surveys of known or potential eagle nests according to the recommendations in the Protocol. Eagle and very large stick-nests were observed from public roads continuously for four hours or until occupancy could be documented. To determine the status of a nest, the biologist evaluated behavior of adults on or near the nest, and the presence of young, whitewash, or fresh building materials. Data were recorded for each nest to the extent possible. If no activity was observed during the first four-hour survey, the nest was monitored again at least 30 days later for another four hours or until occupancy was confirmed, following ECPG recommendations (USFWS 2013). The biologist took care to minimize disturbance to breeding eagles and other raptors by maintaining a minimum distance of 0.5 mi from all active nest sites, using binoculars and a spotting scope to aid observation. Ground-based surveys and aerial surveys followed the same data collection methods.

**Data Collection Methods and Terminology**

Each nest was assigned a unique nest identification (ID) number. Additionally, location was recorded with a GPS, and attribute data including species, condition, size, whether the nest was potentially suitable for eagle use, status, and substrate were documented. Below are detailed descriptions of nest attributes and applicable definitions and terms. Representative photographs of eagle nests were taken when possible (Appendix A).

*Species* – A species was assigned to each nest, when possible.

*Nest condition* – Nest condition was categorized using descriptions ranging from poor to good, which provided a relative sense of when a nest or nest site may have been last used.

- poor: a nest that appeared dilapidated (e.g., in disrepair, sloughing, or sagging heavily) and required major repair to be suitable for successful nesting
- fair: a nest with a defined bowl and minor sagging that may require some repair to be used
- good: a nest with a well-defined bowl with no sagging or sloughing that was considered suitable for nesting
- unknown: nest condition was unknown (e.g., the nest structure could not be adequately viewed due to access issues)

*Nest size*

- Very large nests were greater than 3.0 ft in diameter (Katzner et al. 2020, Buehler 2022).
    - bald eagle nests typically ranged from 4.9–5.9 ft in diameter and 2.3–3.9 ft high
    - golden eagle nests typically ranged from 3.0–5.0 ft in diameter and 2.0–3.0 ft high
- Large nests ranged from 2.0–3.0 ft in diameter and were usually characteristic of nests built and/or used by non-eagle raptors; however, some large nests could potentially support eagles.
- Medium nests range from 1.0–2.0 ft in diameter.
- Small nests were usually less than 1.0 foot in diameter.

*Potential Eagle Nest Characterization* – Along with nest size, other characteristics included structure, location relative to landscape features, and building materials, which can all be important in distinguishing between nests of eagles and non-eagle raptors (e.g., *Buteo* spp., owls). Each nest was ultimately categorized as either a potential eagle nest or a non-eagle raptor nest. Eagle nests may be used by other raptors, such as great horned owls or ferruginous hawks.

The bald eagle nest shape conforms to the shape of the tree the nest was built in (Stalmaster 1987) and nests were typically located high in the tree canopy, which offers good flight access (Buehler 2022). The bald eagle usually nests in large trees near bodies of water that contain sufficient foraging opportunities (Isaacs and Anthony 2011, Buehler 2022).

Golden eagle nests are comprised of a few large, several medium, and an abundant number of small sticks (Watson 2010; Katzner et al. 2020). Golden eagles typically nest along cliffs, in large live trees, and on anthropogenic structures, such as nesting platforms that can bear the weight of an eagle nest (Katzner et al. 2020).

*Nest status* – Nest status was categorized using definitions originally proposed by Postupalsky (1974) and these definitions follow those of the ECPG.

- occupied: nests were classified as occupied if any of the following were observed at the nest structure: 1) an adult in an incubating position; 2) eggs; 3) nestlings or fledglings; 4) presence of an adult (or sub-adults); 5) a newly constructed or refurbished stick-nest in the area where territorial behavior of a raptor had been observed earlier in the breeding season; or 6) a recently repaired nest with fresh sticks (clean breaks) or fresh boughs on top, and/or droppings and/or molted feathers on the nest rim or underneath
    - occupied active: nest had eggs, nestlings, and/or an adult in incubating/brooding position at the time of the survey
    - occupied inactive: nest had evidence of recent tending of the nest or presence by an adult, but there were no eggs, nestlings, or adult in incubating/brooding position
- inactive: during a given visit, a nest has no evidence of tending and no eggs, nestlings, or adults present. This term only applies when enough information could be gathered to discern status during a visit (i.e., an aerial survey or four hours of ground-based monitoring). Inactive is not a final status for a breeding season (*see unoccupied and undetermined inactive*).
- unoccupied: a nest classified as inactive for at least three visits for eagles (at least 30 days apart) and two visits for non-eagle raptor nests within the current nesting season
- undetermined inactive: a final nest status for nests that were inactive, but not enough data or evidence were gathered to determine whether the nest was occupied or unoccupied (e.g., the nest was only visited once during the season)
- unknown: status could not be determined because sufficient monitoring was not conducted to assess status, or the presence of the nest could not be confirmed based on access or visibility
- missing: the nest was no longer present or could not be found

*Nest substrate* – Nest substrate included trees, cliffs and rock outcrops, and anthropogenic structures (e.g., power line poles and nest platforms).

*Nesting success* – Nesting success was calculated if subsequent nest surveys were completed to confidently determine nest fate(s). For one pair, nesting success was defined as at least one young fledging from the nest, or at least one nestling reaching the minimum acceptable age for assuming fledging would occur. For golden eagles, nest success was assumed when at least one nestling survives to at least 56 days of age. For bald eagles, nest success was assumed when at least one nestling survives to at least 67 days of age (Steenhof and Newton 2007, USFWS 2013). For multiple breeding pairs of a given species, nesting success was the proportion of occupied active nests resulting in at least one young fledging or reaching the minimum acceptable age for determining nesting success.

*Productivity* – defined as the average number of young that reached fledging age (or minimum age for success, as described above) per occupied active nest within a given study area for a particular breeding period.

### Data Management

*Data Compilation and Storage*

WEST data-entry staff were trained in proper data entry procedures, which included an independent review of the field data. System controls were implemented to ensure correct data were entered; however, if any errors were identified in later stages of analysis, the errors were traced back to the raw data where appropriate changes and measures were implemented. Data were entered into a PostgreSQL (PostgreSQL Global Development Group, Berkeley, California) database and underwent a quality assurance and quality control (QA/QC) process.

*Quality Assurance and Quality Control*

WEST implemented QA/QC measures at all stages of the surveys, including in the field, during data entry and analysis, and report writing. All WEST field staff were trained in proper survey techniques and all data collected were recorded in a tablet and on paper datasheets. Data were reviewed before and after the data were submitted for data entry. If errors or anomalies were found, follow-up measures were implemented including discussions and review of field data with the field coordinator and/or the Project Manager.

*Reporting and Review Process*

WEST's reporting and review process included technical editing and content review, senior technical review, and a final review by the Project Manager before delivery to the client.

## RESULTS

One historical bald eagle nest was provided by NDGF, while a second was observed during 2024 surveys (Piorkowski and Burmester 2024). Aerial searches for nests provided complete coverage of suitable habitat in the Study Area (Figure 2). Raptor nest surveys were conducted on the following dates in 2025:

- Survey 1 (ground): February 2
- Survey 2 (aerial): March 9
- Survey 3 (ground): April 8
- Survey 4 (aerial): May 17
- Survey 5 (ground): June 18
- Survey 6 (ground): N/A

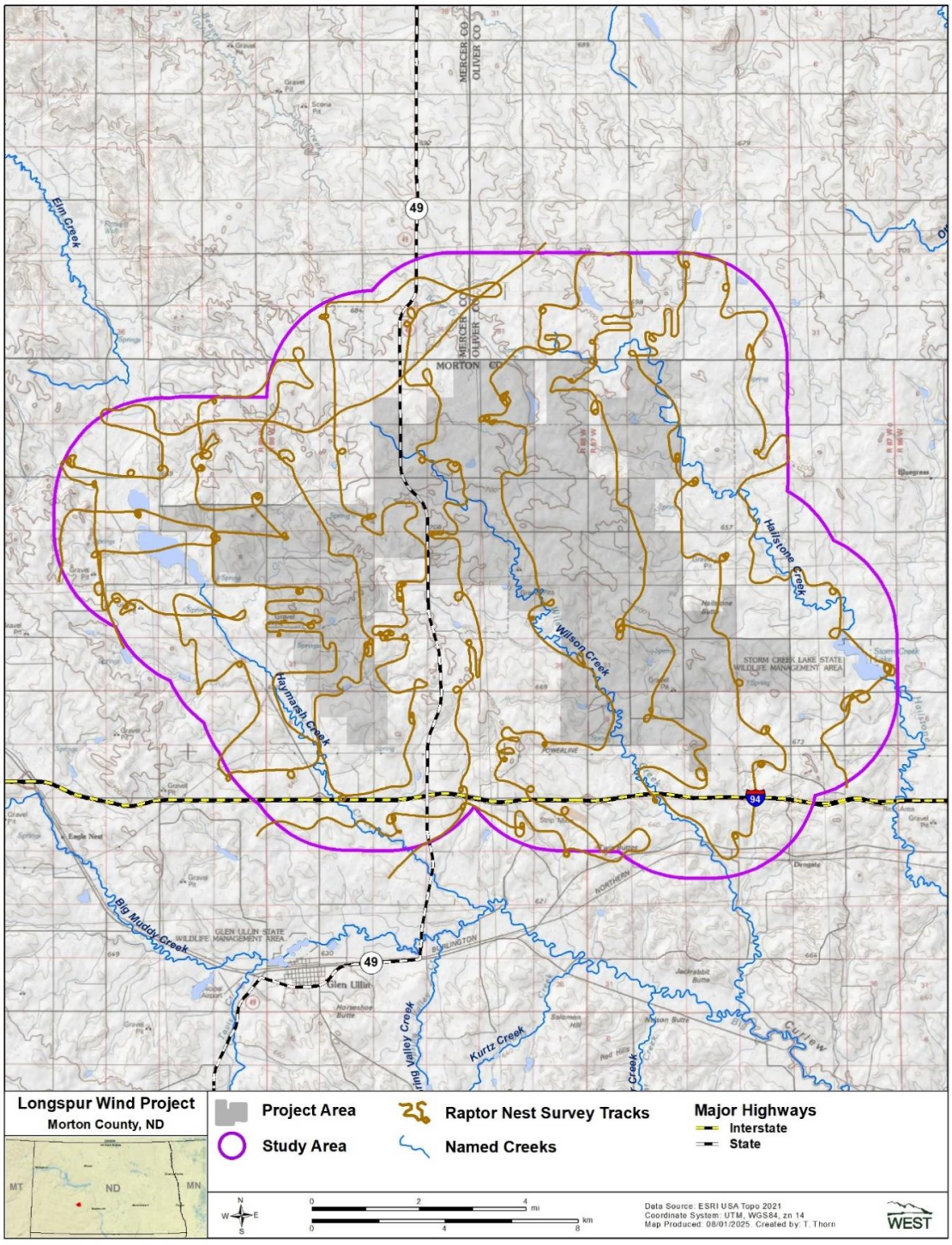


**Figure 2. Survey flight path recorded during the aerial raptor nest surveys within the Longspur Wind Project Study Area in Morton, Mercer, and Oliver counties, North Dakota, from February – June 2025.**

## Eagle Nests

The two historical bald eagle nests (Nest 1 and 2) were documented during surveys, and no new eagle nests were found (Table 3). Nest 1 was determined to be occupied and active on Survey 3 due to an adult observed in the nest (adult observed in incubating position). During Survey 4, Nest 1 had one adult bald eagle located at the nest but no evidence of eggs or nestlings present (Table 3) and was considered a failed nesting attempt. Nest 2 was determined to be occupied and active on Survey 3 with one adult bald eagle seen in the nest in an incubating position. On Survey 4, Nest 2 was recorded as active as one adult and one nestling was observed in the nest. The nesting was estimated to be 21 days old during Survey 4. Nest 2 was determined to have failed by Visit 5, when no sign of the nestling or adults were observed after four hours of observation (Table 3). The previously observed nestling would have been approximately 52 days old during this survey, which does not meet the definition of a successful nest (i.e., at least 67 days old). Nest success was determined to be zero for both bald eagle nests.

**Table 3. Bald eagle nests documented in the Longspur Wind Project Study Area in Morton, Mercer, and Oliver counties, North Dakota, from February – June 2025.**

| Nest ID | Nest Status | Location | Nest Condition | Substrate | Comments |
|---|---|---|---|---|---|
| 1 | Occupied active – Failed | Study Area | Good | Deciduous Tree | Two bald eagles seen with new materials in nest; no eggs or nestlings seen during surveys |
| 2 | Occupied active – Failed | Study Area | Good | Deciduous Tree | Two bald eagles seen at nest; One nesting seen on May 17; no eagles seen on June 18 after a 4-hour survey. |

ID = identification.

See *Nest status* and *Nest condition* sections for definitions.

## Non-Eagle Nests

One hundred two non-eagle raptor nests were documented within the Study Area across all surveys (Table 4). Thirty-three nests were documented within the Project Area and 69 were documented outside the Project Area, but within the Study Area (Table 4; Figure 3). Of the 33 nests found within the Project Area, 15 were determined to be occupied and active: eight red-tailed hawk nests, five Swainson's hawk nests, and two great horned owl nests. Three Swainson's hawk nests were determined to be occupied but inactive. Fifteen unknown non-eagle nests were determined to be unoccupied (Table 4, Figure 3). Of the 69 non-eagle raptor nests documented outside the Project Area but within the Study Area, 42 were determined to be occupied and active: 22 red-tailed hawk nests, 14 great horned owl nests, and six Swainson's hawk nests. Five nests were determined to be occupied but inactive: one red-tailed hawk nest, two Swainson's hawk nests, and two unknown non-eagle nests. Twenty-two unknown non-eagle nests were determined to be unoccupied (Table 4, Figure 3; Appendix B).

**Table 4. Species and status of non-eagle raptor nests documented in the Longspur Wind Project Study Area in Morton, Mercer, and Oliver counties, North Dakota, from February – June 2025.**

| | Project Area | | | Buffer | | | |
|---|---|---|---|---|---|---|---|
| **Species** | **Occupied Active** | **Occupied Inactive** | **Unoccupied** | **Occupied Active** | **Occupied Inactive** | **Unoccupied** | **Total** |
| Red-tailed hawk | 8 | – | – | 22 | 1 | – | 31 |
| Great horned owl | 2 | – | – | 14 | – | – | 16 |
| Swainson's hawk | 5 | 3 | – | 6 | 2 | – | 16 |
| Unknown raptor | – | – | – | – | 2 | – | 2 |
| No species documented | – | – | 15 | – | – | 22 | 37 |
| **Total** | **15** | **3** | **15** | **42** | **5** | **22** | **102** |

See *Nest Status* section for definitions.

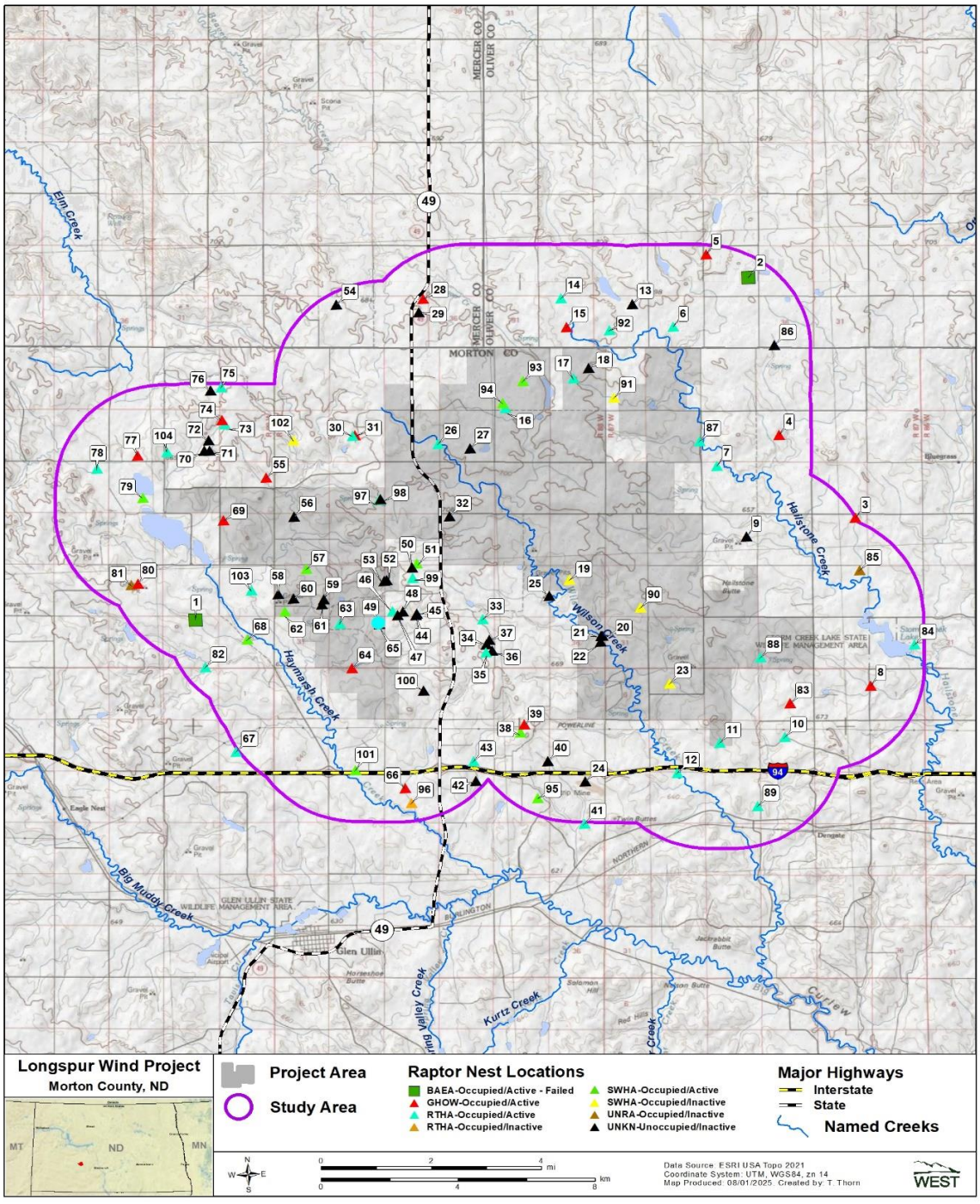


**Figure 3. Location of raptor nests documented during the Longspur Wind Project raptor nest survey in Morton, Mercer, and Oliver counties, North Dakota, from February 2 – June 18, 2025.**

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**Appendix A. Bald Eagle Nest Photographs Recorded during the Raptor Nest Survey at the Longspur Wind Project Study Area in Morton, Mercer, and Oliver Counties, North Dakota, from February 2 – June 18, 2025**

**Appendix A1. Bald eagle Nest ID 1 with new material within the Study Area of the Longspur Wind Project, North Dakota.**

**Appendix A2. Adult bald eagle sitting in an incubating position during Survey 3 at Nest ID 2 within the Study Area of the Longspur Wind Project, North Dakota.**

**Appendix B. Non-eagle Raptor Nests Recorded during the Raptor Nest Survey at the Longspur Wind Project Study Area in Morton, Mercer, and Oliver Counties, North Dakota, from February 2 – June 18, 2025**

**Appendix B. Non-Eagle Raptor nests recorded during 2025 raptor nest surveys at the Longspur Wind Project Study Area in Mercer, Morton and Oliver counties, North Dakota.**

| Nest ID | Species | Substrate | Nest Status | Nest Condition |
|---|---|---|---|---|
| 3 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 4 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 5 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 6 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 7 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 8 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 9 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 10 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 11 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 12 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 13 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 14 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 15 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 16 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 17 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 18 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 19 | Swainson's hawk | Deciduous tree | Occupied/Inactive | Good |
| 20 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 21 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 22 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 23 | Swainson's hawk | Deciduous tree | Occupied/Inactive | Good |
| 24 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 25 | No species recorded | Deciduous tree | Unoccupied | Poor |
| 26 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 27 | No species recorded | Deciduous tree | Unoccupied | Poor |
| 28 | Great horned owl | Coniferous tree | Occupied/Active | Good |
| 29 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 30 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 31 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 32 | No species recorded | Deciduous tree | Unoccupied | Poor |
| 33 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 34 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 35 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 36 | No species recorded | Deciduous tree | Unoccupied | Poor |
| 37 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 38 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 39 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 40 | No species recorded | Deciduous tree | Unoccupied | Good |
| 41 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 42 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 43 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 44 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 45 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 46 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 47 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 48 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 49 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 50 | No species recorded | Deciduous tree | Unoccupied | Poor |
| 51 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 52 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 53 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 54 | No species recorded | Deciduous tree | Unoccupied | Fair |

**Appendix B. Non-Eagle Raptor nests recorded during 2025 raptor nest surveys at the Longspur Wind Project Study Area in Mercer, Morton and Oliver counties, North Dakota.**

| Nest ID | Species | Substrate | Nest Status | Nest Condition |
|---|---|---|---|---|
| 55 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 56 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 57 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 58 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 59 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 60 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 61 | No species recorded | Deciduous tree | Unoccupied | Poor |
| 62 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 63 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 64 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 65 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 66 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 67 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 68 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 69 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 70 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 71 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 72 | No species recorded | Deciduous tree | Unoccupied | Poor |
| 73 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 74 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 75 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 76 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 77 | great horned owl | Deciduous tree | Occupied/Active | Good |
| 78 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 79 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 80 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 81 | Unidentified raptor | Deciduous tree | Occupied/Inactive | Good |
| 82 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 83 | Great horned owl | Deciduous tree | Occupied/Active | Good |
| 84 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 85 | Unidentified raptor | Deciduous tree | Occupied/Inactive | Good |
| 86 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 87 | Red-tailed hawk | Deciduous tree | Unoccupied | Good |
| 88 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 89 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 90 | Swainson's hawk | Deciduous tree | Occupied/Inactive | Good |
| 91 | Swainson's hawk | Deciduous tree | Occupied/Inactive | Good |
| 92 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 93 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 94 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 95 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 96 | Red-tailed hawk | Deciduous tree | Occupied/Inactive | Good |
| 97 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 98 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 99 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 100 | No species recorded | Deciduous tree | Unoccupied | Fair |
| 101 | Swainson's hawk | Deciduous tree | Occupied/Active | Good |
| 102 | Swainson's hawk | Shrub | Occupied/Inactive | Good |
| 103 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |
| 104 | Red-tailed hawk | Deciduous tree | Occupied/Active | Good |

ID = identification.

See *Nest status* and *Nest condition* sections for definitions.

Studies and Assessments

B7. Whooping Crane Habitat Review

# Whooping Crane Habitat Assessment
# Longspur Wind Project
# Morton County, North Dakota

## Final Report

**Prepared for:**

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*Confidential Business Information*

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Appendix A. Predictor Variables Considered in the Development of Whooping Crane Niemuth Model

# 1 INTRODUCTION

Minnesota Power is developing the Longspur Wind Project (Project) in Morton County, North Dakota. Minnesota Power contracted Western EcoSystems Technology, Inc. (WEST), to conduct a whooping crane (*Grus americana*) stopover habitat assessment for the 25,933-acre Project Area (Figure 1). The objective of this assessment was to quantify the land use types and topography within the Project Area and assess the potential for whooping crane use as suitable stopover habitat.

Whooping cranes are endemic to North America and one of North America's largest birds, driven almost to extinction in the 1940s by hunting and habitat loss (US Fish and Wildlife Service [USFWS] 2013, 2024b; Urbanek and Lewis 2020). The only self-sustaining wild population of whooping cranes breeds in Wood Buffalo National Park in Canada and typically winters in the coastal marshes of Texas including in the Aransas National Wildlife Refuge (Urbanek and Lewis 2020). Surveys by the USFWS of the Aransas-Wood Buffalo (ARWB) population estimated 546 individuals during the 2022–2023 winter census (Butler et al. 2023). The ARWB population migrates between wintering and breeding habitat in the spring and fall, with 95% of whooping crane sightings occurring within a 183-mile (mi) wide corridor (Pearse et al. 2018).

During migration, whooping cranes stopover at resting and feeding locations, where they are typically found in shallow wetlands and marshes, edges and sandbars of shallow rivers, and agricultural fields near a water source (Baasch et al. 2019, Montana Fish, Wildlife and Parks [MFWP] 2024). During migratory stopovers, whooping cranes forage in wetlands and cultivated agricultural lands on invertebrates, small vertebrates, berries, and grains (Urbanek and Lewis 2020, Caven et al. 2021). Whooping cranes typically roost in shallow-water wetlands (Urbanek and Lewis 2020, MFWP 2024, NatureServe 2024, USFWS 2024b).

# 2 PROJECT AREA

The Project Area provided by Minnesota Power on October 10, 2024, encompasses approximately 25,933 acres (ac) and is located approximately five mi north of the city of Glen Ullin (Figure 1). The Project lies within the Level III Northwestern Great Plains ecoregion (US Environmental Protection Agency [USEPA] 2013). This ecoregion, historically dominated by grasslands, has been extensively converted for agricultural use (e.g., row crops and livestock grazing; USEPA 2012). Elevation within the Project Area ranges from approximately 2,080 to 2,480 feet. Topography within the Project Area is gently rolling to flat. The Project Area is located inside the ARWB population migration corridor within the portion containing 50% of whooping crane sightings and occurrences (Figure 1).

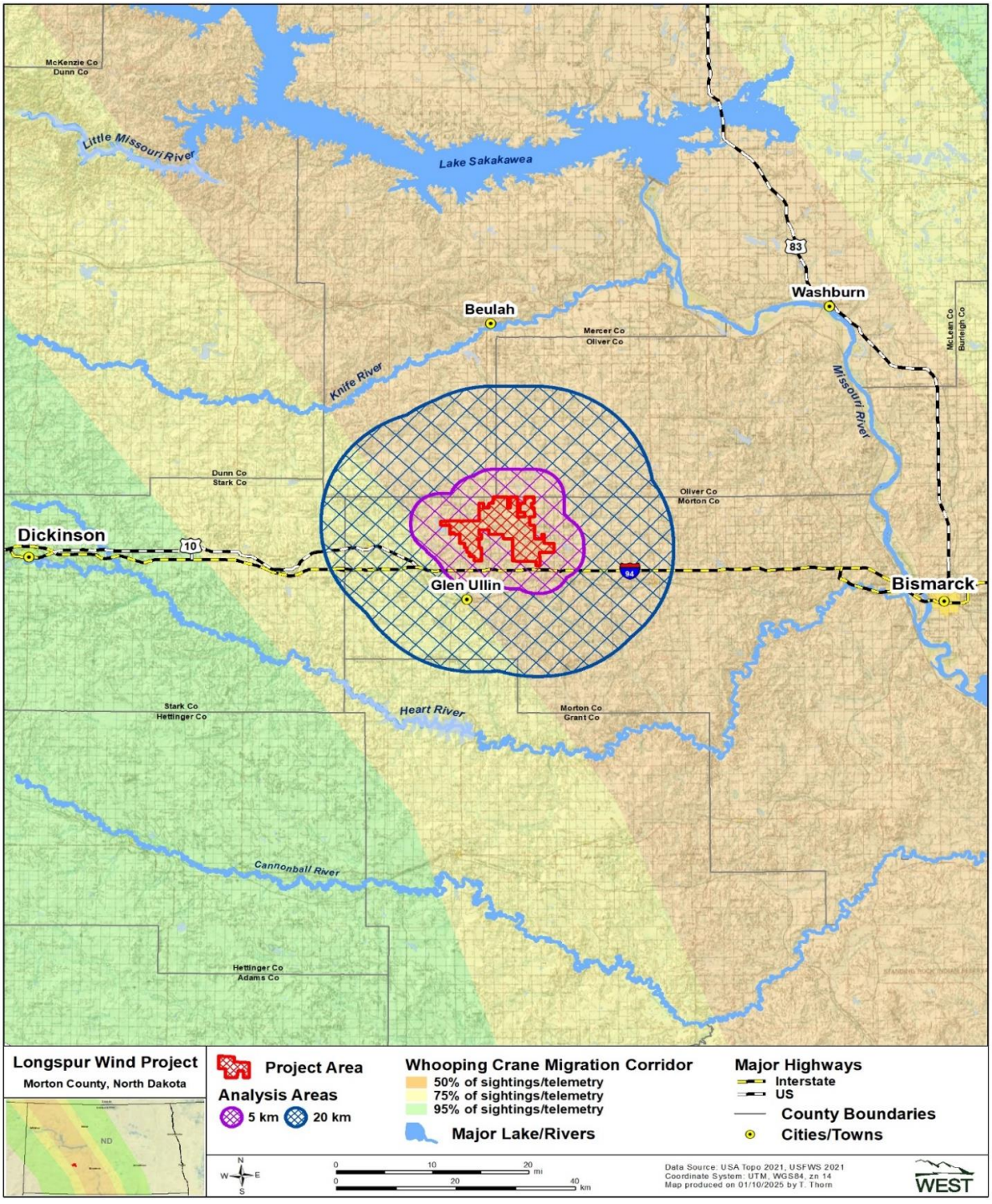


**Figure 1 Location of the Longspur Wind Project in relation to the Whooping Crane Migration Corridor, North Dakota.**

# 3 METHODS

For this analysis, WEST used the Relative Probability of Occurrence Model (hereafter Niemuth Model) and the Decile Model, developed specifically for North and South Dakota (Niemuth et al. 2018), for assessing potentially suitable whooping crane stopover habitat within the Project Area and separately for 5-kilometer (km) and 20-km analysis areas (Figure 1). The Niemuth Model and the Decile Model are preferred by the USFWS North Dakota Ecological Service Field Office (H. Edens, USFWS, pers. comm. 12/4/2024) to assess whooping crane stopover habitat use and are consistent with the North Dakota Game and Fish Department (NDGFD) preferred approach (NDGFD 2021). These two models were used independently to analyze wetland habitat suitability. WEST also used historical data provided by the USFWS (2024a) and Pearse et al (2020) to reference confirmed whooping crane sightings and marked telemetry locations from whooping cranes equipped with transmitters within the Project Area and associated 5-km and 20-km analysis areas.

## 3.1 Relative Probability of Occurrence Model

The Niemuth Model provides a numerically continuous (0–1.0) prediction of the relative probability of habitat use by whooping cranes. The model considered 12 predictor variables (Appendix A) that were analyzed and validated using Global Positioning System location data from whooping cranes equipped with radio-telemetry transmitters (Niemuth et al. 2018). This model was used to analyze the probability of whooping crane occurrence within the Project Area and associated 5-km and 20-km analysis areas.

## 3.2 Decile Model

The Decile Model divides the Niemuth Model into 10 equal areas referred to as deciles, to aid in conservation planning. A decile value of 1 indicates the highest probability of whooping crane occurrence and a value of 10 indicates the lowest probability of occurrence. This value system provides succinct thresholds, which allows land parcels to be identified and ranked for whooping crane conservation (Niemuth et al. 2018). The Decile Model was used to calculate acreages within each ranked decile within the separate Project Area and 5-km and 20-km analysis areas.

# 4 RESULTS

The most recently available data (USFWS 2024a, Pearse et al. 2020) indicate no whooping crane observations or telemetry locations have been documented within the Project Area. Three observations of whooping cranes and six telemetry locations have been observed within the 5-km Analysis Area, and three observations of whooping cranes and two telemetry locations have been observed within the 20-km Analysis Area (Figure 2). The entirety of the Project Area and majority of the 5-km and 20-km analysis areas are located within the portion of the migration corridor that contains 50% of the whooping crane sightings. The southwestern areas of the 5-km and 20-km

analysis areas include the portion of the migration corridor that contains 75% of the whooping crane sightings (Figure 2).

### 4.1 Relative Probability of Occurrence Model

Ninety-nine percent of the Project Area's relative probability ranges from 0–0.05 (Table 1), with the actual range being 0.0025–0.0602 on a scale of 0–1.0. Therefore, it is expected that habitat within the Project Area would have a maximum of approximately 6% probability of occurrence by whooping cranes during migration. Ninety-five percent of the 5-km Analysis Area and 98% of the 20-km Analysis Area are in the 0–0.05 relative probability of occurrence range (Table 1), with the actual ranges being 0.0015–0.0809 for the 5-km Analysis Area and 0.005–0.1294 for the 20-km Analysis Area. Therefore, it is expected that habitats within the 5-km and 20-km analysis areas will have a maximum of 8% and 12% probability (respectively) of occurrence by whooping cranes during migration (Table 1, Figure 2).

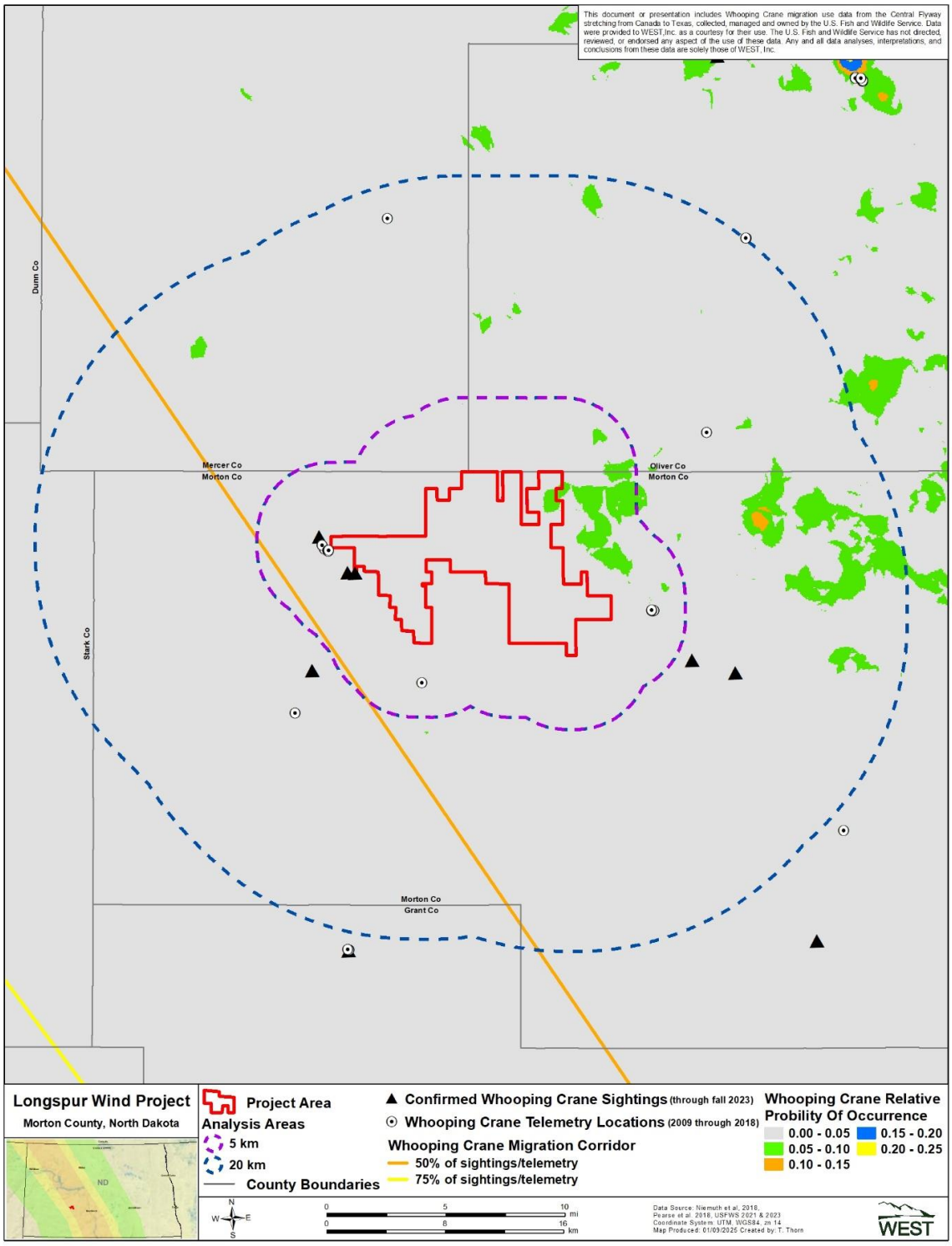


**Figure 2. Relative probability of occurrence within the Project Area, 5-kilometer (km) Analysis Area, and 20-km Analysis Area of the Longspur Wind Project Area, Morton County, North Dakota.**

**Table 1. Acreage and percentage of each relative probability range within the Project Area, 5-km, and 20-km analysis areas of the Longspur Wind Project, Morton County, North Dakota.**

| Relative Probability Range | Project Area | | 5-km Analysis Arear | | 20-km Analysis Area | |
|---|---|---|---|---|---|---|
| | Acres | Percent | Acres | Percent | Acres | Percent[1] |
| 0–0.05 | 25,545 | 99 | 90,844 | 95 | 470,716 | 98 |
| 0.05–0.10 | 388 | 1 | 4,667 | 5 | 11,299 | 2 |
| 0.10–0.15 | – | – | – | – | 316 | < 1 |
| **Total** | **25,933** | **100** | **95,511** | **100** | **482,331** | **100** |

[1] Sums may not add to 100% due to rounding

km = kilometer.

## 4.2 Decile Model

Five decile values (2–6) are represented within the Project Area of which four (Deciles 2, 3, 4, and 5) represent greater than 99% of the Project Area (Table 2). Decile 4 is the most common decile within the Project Area (50%), followed by Decile 3 (35%), Decile 5 (9%), Decile 2 (6%), and Decile 6 (less than 1%). With more area assessed for each analysis area (Project Area, 5-km Analysis Area, and 20-km Analysis Area, respectively [Figure 3]), acreages of each decile represented also increased. However, Deciles 3 and 4 combined made up the majority of acreage in all three analyses (Table 2). The probability of whooping crane occurrence decreases from east to west in the Project Area and both analysis areas (Figure 3).

**Table 2. Acres and percentage for each Decile value within the Project Area, 5-km, and 20-km analysis areas of the Longspur Wind Project, Morton County, North Dakota.**

| Decile | Project Area | | 5-km Analysis Area | | 20-km Analysis Area | |
|---|---|---|---|---|---|---|
| | Acres | Percent[1] | Acres | Percent | Acres | Percent |
| 1 | 0 | 0 | 763 | 1 | 2,681 | 1 |
| 2 | 1,582 | 6 | 15,355 | 16 | 50,956 | 11 |
| 3 | 8,972 | 35 | 25,646 | 27 | 145,637 | 30 |
| 4 | 12,862 | 50 | 33,316 | 35 | 141,360 | 29 |
| 5 | 2,428 | 9 | 18,577 | 19 | 101,046 | 21 |
| 6 | 88 | <1 | 1,855 | 2 | 38,169 | 8 |
| 7 | – | – | – | – | 2,474 | 1 |
| 8 | – | – | – | – | 8 | <1 |
| **Total[1]** | **25,933** | **100** | **95,511** | **100** | **482,331** | **100** |

[1.] Sums may not add to 100% due to rounding.

km = kilometer.

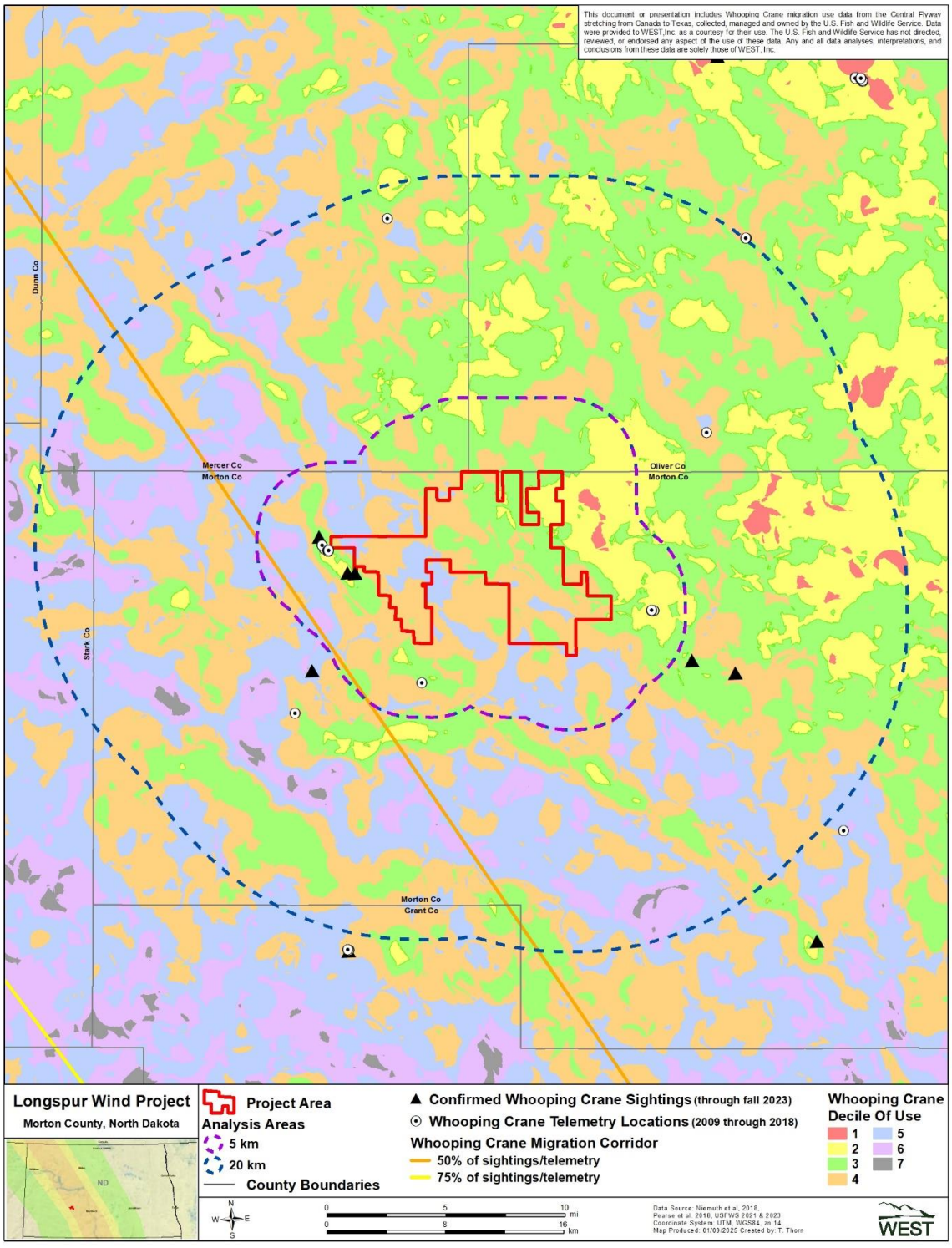


**Figure 3. Decile of probability of whooping crane occurrence within the Project Area, 5-kilometer (km) Analysis Area, and 20-km Analysis Area of the Longspur Wind Project, Morton County, North Dakota.**

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# Appendix A. Predictor Variables Considered in the Development of Whooping Crane Niemuth Model

**Appendix A. Predictor variables considered in the development of models relating sightings and occurrences of whooping cranes in North Dakota and South Dakota to geographic location, landscape-level habitat characteristics, and factors influencing detection (recreated from Niemuth et al. [2018]).**

| Predictor Variable | Definition | Justification |
|---|---|---|
| Distance to Centerline | Distance (km]) from centerline of whooping crane (*Grus americana*) migration corridor calculated from data | Whooping cranes generally follow a narrow migration corridor (Howe 1989, Tacha et al. 2010) |
| Wetland Area | Proportion of area within the buffer[1] comprised of all temporary, seasonal, semipermanent, permanent, and lacustrine wetlands as identified by the National Wetlands Inventory (NWI; Wilen and Bates 1995) | Whooping cranes use wetlands for roosting and foraging (Howe 1989, Johns et al. 1997, Austin and Richert 2005) |
| Wetland Variety | Number of different wetland water regimes (temporary, seasonal, semipermanent, permanent or lake, riverine) as identified by the NWI (Wilen and Bates 1995) processed to basins (Cowardin et al. 1995) within buffer[1] | Seasonal shifts in wetland use and presence of multiple wetlands in the vicinity of whooping crane stopover sites (Howe 1989, Johns et al. 1997, Austin and Richert 2005) suggest that wetland complexes might be important to whooping cranes |
| Wetland Number | Number of wetland basins as identified by the NWI (Wilen and Bates 1995) processed to basins (Cowardin et al. 1995) within buffer[1] | Wetlands used for roosting are generally large (Johns et al. 1997), but most prairie potholes and stock ponds are small (Kantrud et al. 1989); this variable evaluated whether multiple small wetlands of a given area were as attractive to whooping cranes as fewer large wetlands of the same area |
| Perennial Cover | Proportion of buffer comprised of grassland, hay fields, and shrubs as identified by the 2001 National Land Cover Database (NLCD; Homer et al. 2007) cover classes 71, 81, and 52 | Perennial cover is common at or adjacent to roosting and feeding sites (Howe 1989, Johns et al. 1997, Austin and Richert 2005) |
| Cropland | Proportion of buffer comprised of cultivated crops as identified by the 2001 NLCD (Homer et al. 2007) cover class 82 | Whooping cranes use agricultural fields for foraging (Howe 1989, Johns et al. 1997, Austin and Richert 2005) |
| Forest | Proportion of buffer comprised of forest cover as identified by the 2001 NLCD (Homer et al. 2007) cover classes 41, 42, and 43 | Whooping cranes use sites with few trees (Johns et al. 1997, Austin and Richert 2005) |
| Distance to Increased Survey Effort | Distance (km) from 24 areas of known intensive whooping crane observation effort, including district offices of wildlife management agencies and wildlife refuges and fish hatcheries with permanent staff | Disproportionate numbers of whooping crane sightings are in proximity to refuges or other sites with knowledgeable observers (Howe 1989, Tacha et al. 2010) |
| Human Population Density | Number of people per 2.6 km, derived from US Census Bureau data (Seirup and Yetman 2006) | Human observers are necessary to detect and report whooping cranes; sightings are biased toward urban centers (Howe 1989) |

**Appendix A. Predictor variables considered in the development of models relating sightings and occurrences of whooping cranes in North Dakota and South Dakota to geographic location, landscape-level habitat characteristics, and factors influencing detection (recreated from Niemuth et al. [2018]).**

| Predictor Variable | Definition | Justification |
|---|---|---|
| Roads | Length (km) of roads (maintained gravel or better) identified by topologically integrated geographic encoding and referencing data (US Census Bureau 2011) within each buffer[1] | Whooping cranes avoid roads (Johns et al. 1997, Belaire et al. 2014), but roads may enable increased detection of whooping cranes |
| Terrain Roughness | Standard deviation of cells within buffer of digital elevation model with 30-m spatial resolution | Whooping cranes use wetlands with shallow shoreline slopes (Johns et al. 1997, Austin and Richert 2005); detection of whooping cranes may be influenced by topographic variation |
| Whooping Crane Population Size | Number of birds estimated to be in the Aransas–Wood Buffalo flock each year | Number of whooping cranes detected annually increased as population size increased during the analysis period |

[1] Characteristics within buffers were calculated using circular moving windows with radii of 800, 1,200, and 1,600 m.

km = kilometer, m = meter.

Studies and Assessments

B8. Northern Long-Eared Bat Desktop Habitat Assessment (2025)

# Northern Long-eared Bat Desktop Habitat Assessment for the Longspur Wind Project in Morton County, North Dakota

## Final Report

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## REPORT REFERENCE

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# INTRODUCTION

Minnesota Power is developing the Longspur Wind Project (Project) in Morton County, North Dakota (Figure 1). Based on the Tier 2 Site Characterization Study (O'Neil and Piorkowski 2025) and an agency meeting conducted on December 4, 2024, Minnesota Power contracted Western EcoSystems Technology, Inc. (WEST), to conduct a desktop bat habitat assessment for the federally endangered northern long-eared bat (NLEB; *Myotis septentrionalis*) for the proposed Project. The NLEB was reclassified as endangered under the Endangered Species Act of 1973, effective March 31, 2023 (87 Federal Register 73488 [FR; 2022], 88 FR 4908 [2023]). The desktop assessment was completed in accordance with the US Fish and Wildlife Service's (USFWS's) *Range-Wide Indiana Bat and Northern Long-eared Bat Survey Guidelines* (Guidelines; 2024). The Guidelines for NLEB surveys recommend a desktop habitat assessment as part of the Phase 1 Initial Project Screening. The objective of this desktop assessment was to identify potentially suitable summer NLEB habitat within the proposed Project Area provided by Minnesota Power October 10, 2024 (Figure 1), to inform level of effort for presence/probable absence (P/A) surveys and general Project planning.

The Project is located in south-western North Dakota, approximately four miles (mi) north of Glen Ullin in Morton County (Figure 1). From a desktop review of the NLCD (2021), cultivated crops (56.3%) and grassland/herbaceous (32.3%) were identified as the primary land cover types within the Project Area, followed by a comparatively small proportion of shrub/scrub (4.5%), hay/pasture (4.1%), and developed land (2.3%). Twenty-nine acres (0.1%) of the Project Area is considered forest from NLCD (Table 1).

**Table 1. Land cover types, coverage, and percent composition within the Longspur Wind Project Area in Morton County, North Dakota.**

| Cover Type | Acres | Percent |
|---|---|---|
| Cultivated Crops | 14,604 | 56.3 |
| Grassland/Herbaceous | 8,371 | 32.3 |
| Shrub/Scrub | 1,172 | 4.5 |
| Hay/Pasture | 1,061 | 4.1 |
| Developed | 605 | 2.3 |
| Wetland/Open Water | 91 | 0.4 |
| Forest | 29 | 0.1 |
| Barren | 2 | <0.1 |
| **Total[1]** | **25,933** | **100** |

[1.] Sums of values may not add to total value shown, due to rounding.
Source: National Land Cover Database 2021.

### Northern Long-eared Bat Background

NLEBs prefer summer maternity habitat located in intact, interior forests with late successional characteristics (Carter and Feldhamer 2005, Timpone et al. 2010). Although the NLEB tends to favor intact forests, this species can also use relatively small forest patches connected by shelterbelts (Henderson and Broders 2008). NLEBs generally use roosts with a higher percentage

(usually 56−84%) of canopy cover and typically greater density of understory than other similar bat species (Carter and Feldhamer 2005, Lacki and Schwierjohann 2001, Timpone et al. 2010). NLEBs also tend to stay relatively close to forest features while foraging (Henderson and Broders 2008), generally preferring to forage in upland, mature forests above or below the canopy, but also using forest clearings, riparian forests, forested ponds, and forested flyways (Amelon and Burhans 2006, Foster and Kurta 1999). Based on a synthesis of ecological studies, the USFWS defines suitable NLEB roost trees as trees with a diameter at breast height of 3.0 inches (7.6 centimeters) or greater, with exfoliating bark, cracks, crevices, or cavities. Individual trees and shelterbelts can be considered suitable habitat if they exhibit the characteristics of a potential roost tree and are within 1,000 feet (ft; 305 meters) of other forested habitat (USFWS 2024a).

## METHODS

The purpose of this assessment was to identify potentially suitable summer habitat for NLEB within the Project Area and a 1,000-ft buffer (collectively, Assessment Area; Figure 1). For the purposes of this assessment, NLEB potentially suitable summer habitat was defined as forest patches 5.0 acres (ac; 2.0 hectares [ha]) or greater in size and any forested areas within 1,000 ft of these patches (Western Area Power Administration 2024). Linear forest features, isolated trees, smaller forest stands (i.e., less than five ac in size), and loose assemblages of trees with variable amounts of canopy closure and shelterbelts located more than 1,000 ft from potentially suitable forested habitat were considered unsuitable habitat.

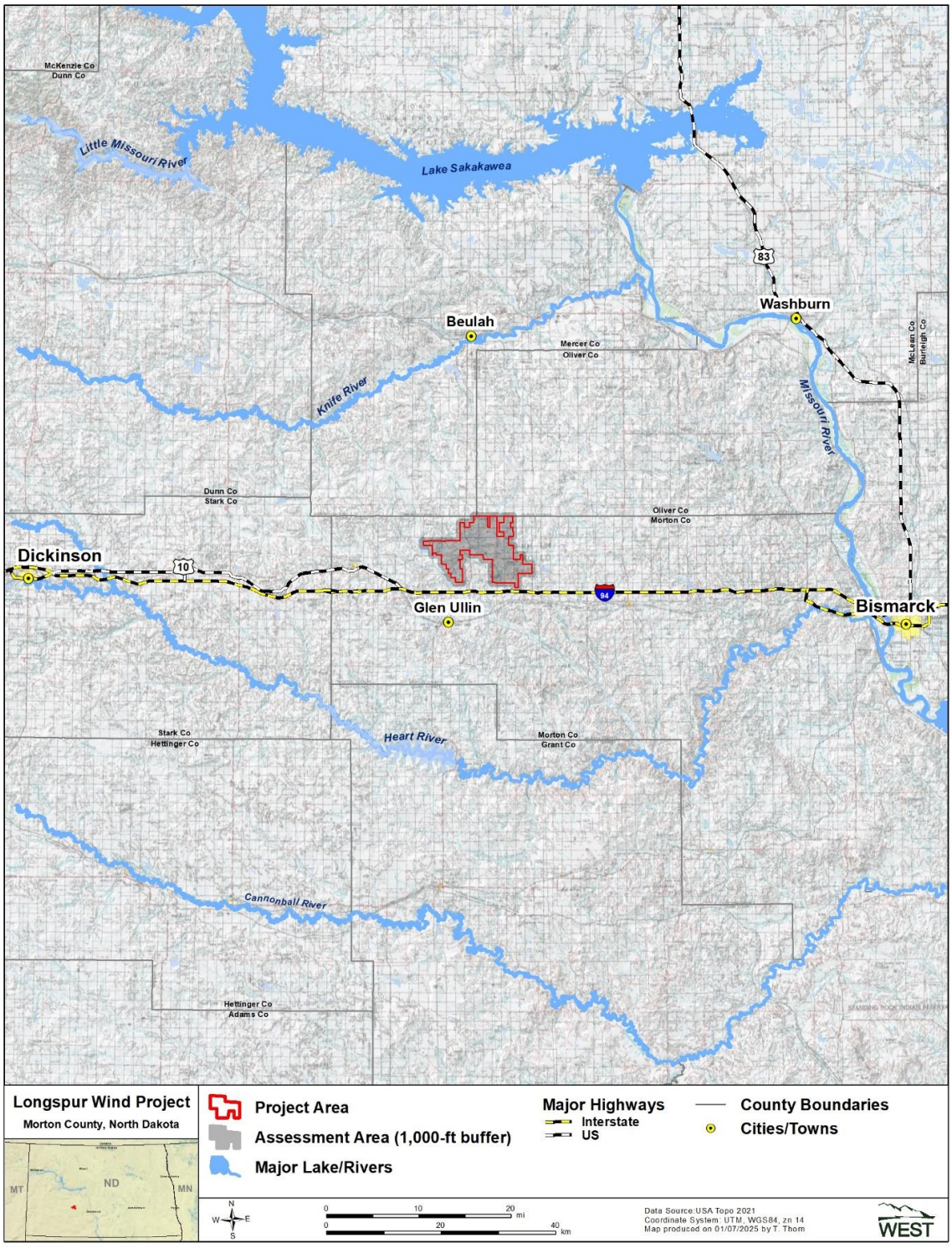


**Figure 1. Location of the Longspur Wind Project Assessment Area in Morton, Mercer, and Oliver counties, North Dakota.**

WEST completed the desktop assessment by reviewing the US Department of Agriculture National Resources Conservation Service Geospatial Data Gateway (2023) to manually digitize forested areas and associated forest shelterbelts and tree lines within the Assessment Area. All forest patches 5.0 ac or greater in size were digitized and considered potentially suitable summer NLEB habitat. A 1,000-ft buffer (hereafter Connected Habitat Buffer [CHB]) was applied to all digitized forest patches, and tree patches less than 5.0 ac that intersected the CHB were included as potentially suitable summer habitat (Figure 2). All resulting digitized forested habitats were visually assessed for biological accuracy by a permitted bat biologist to ensure that any missing forest habitat was incorporated and forest patch boundaries were adjusted, if necessary. The number of acres of potentially suitable summer habitat for the NLEB was calculated for the overall Assessment Area, and the Project Area, and 1,000-ft buffer individually.

## RESULTS

The desktop assessment delineated two areas totaling 21.0 ac (8.5 ha) of potentially suitable NLEB summer habitat. Of this, 13.0 ac (5.3 ha) occurred within the Project Area and 8.0 ac (3.2 ha) occurred outside the Project Area (Figure 2).

## CONCLUSION

Potentially suitable NLEB summer habitat was identified within the western portion of the Project Area (13.0 ac; Figure 2). Following the USFWS's Guidelines (2024), one detector site would be recommended for NLEB P/A surveys since the suitable summer habitat within the Project Area is less than 123 ac.

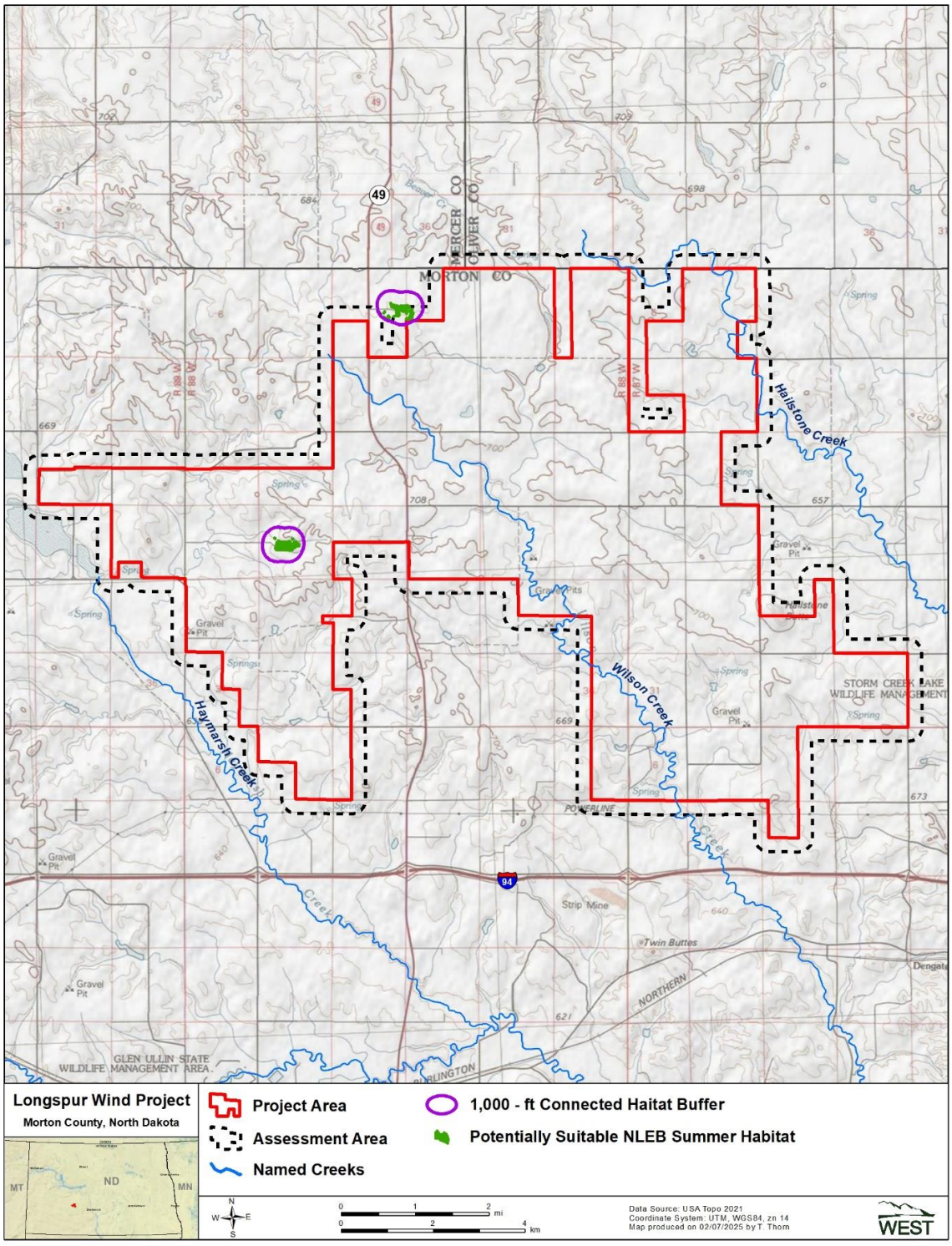


**Figure 2. Potentially suitable northern long-eared bat summer habitat identified within the Longspur Wind Project Assessment Area in Morton, Mercer, and Oliver counties, North Dakota.**

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Studies and Assessments

B9. Northern Long-Eared Bat Presence Absence Survey (2025)

# Bat Summer Presence/Probable Absence Surveys
# Longspur Wind Project
# Morton County, North Dakota

## Final Report
## July 12 – July 17, 2025

**Prepared for:**

**Minnesota Power**

30 West Superior Street
Duluth, Minnesota 55802

**Prepared by:**

**Western EcoSystems Technology, Inc.**

4007 State Street, Suite 109
Bismarck, North Dakota 58503

**November 6, 2025**

*Confidential Business Information*

# EXECUTIVE SUMMARY

Minnesota Power is considering the development of the Longspur Wind Project (Project) in Morton County, North Dakota. Minnesota Power contracted Western EcoSystems Technology, Inc. (WEST), to conduct presence/probable absence mist-net surveys to determine if the federally listed, endangered northern long-eared bat (NLEB) occurred in the Project area during the 2025 summer maternity season.

The Project is approximately 25,933 acres (ac) and, using a desktop analysis of wooded habitat, WEST determined there to be 13 ac of potential suitable habitat for NLEB in the Project area. To meet US Fish and Wildlife Service (USFWS) recommendations, WEST surveyed one net site. A study plan for the surveys was provided to the USFWS on May 7, 2025, and site-specific authorization was provided on June 3, 2025.

WEST conducted mist-net surveys from July 12 – 17, 2025, following methods described in the USFWS *2024 Range-Wide Indiana Bat and Northern Long-eared Bat Survey Guidelines*. No bats (including federally threatened or endangered species) were captured during this study.

## STUDY PARTICIPANTS

| | |
|---|---|
| Elizabeth Baumgartner | Senior Manager, Reviewer |
| Martin Piorkowski | Project Manager |
| Kristina Hammond | Senior Bat Review |
| Andrew Burmester | Field Coordinator, Reviewer |
| Zeinab Haidar | Permitted Bat Biologist, Mist-net Crew Lead |
| Ciara Parenzin | Bat Biologist, Mist-net Technician |
| Renea Wilson | Report Writer |
| Terri Thorn | GIS Specialist |
| Addison Allen | Bat Project Coordinator |
| Kelsey Beck | Technical Editor |

## REPORT REFERENCE

Western EcoSystems Technology, Inc. (WEST). 2025. Bat Summer Presence/Probable Absence Surveys, Longspur Wind Project, Morton County, North Dakota. Final Report. July 12 – July 17, 2025. Prepared for Minnesota Power, Duluth, Minnesota. Prepared by WEST, Bismarck, North Dakota. November 6, 2025.

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Appendix D. Mist-net Survey Datasheets for the Longspur Wind Project, Morton County, North Dakota.

# INTRODUCTION

Minnesota Power is considering the development of the Longspur Wind Project (Project) in Morton County, North Dakota (Figure 1). Minnesota Power requested that Western EcoSystems Technology, Inc. (WEST), conduct presence/probable absence mist-net surveys to determine if the federally endangered northern long-eared bat (*Myotis septentrionalis*; NLEB) occurred in the Project area during the 2025 summer maternity season. Mist-net surveys were conducted following methods described in the US Fish and Wildlife Service (USFWS) *2024 Range-Wide Indiana Bat and Northern Long-eared Bat Survey Guidelines* (Guidelines; USFWS 2024). This report summarizes the results of surveys conducted from July 12 – 17, 2025.

A study plan for the surveys was provided to the USFWS on May 7, 2025, and site-specific authorization was provided on June 3, 2025 (L. Toso, USFWS North Dakota Field Office, pers. comm.; Appendix A).

# METHODS

### Habitat and Survey Effort

The Project area encompasses approximately 25,933 acres (ac), 13 ac of which was determined to be potentially suitable habitat using a combination of manually digitized forest areas and land use/land cover data (Figure 2; O'Neil and Piorkowski 2025). For non-linear projects, the USFWS Guidelines recommend one net site per 123 ac of suitable bat habitat within a project and surveyed for a minimum of 10 net-nights. A net site consists of multiple net-sets (defined as two poles with one to three stacked mist-nets with no gaps) at least 30 meters (m) apart, but within a 10 minutes' walk. A net-night was one net-set deployed for a minimum of five hours after sunset. Therefore, WEST conducted mist-net surveys at one net site (Figure 2), for 12 net-nights. Mist-net surveys were conducted over four non-consecutive calendar nights, with 2–4 net-sets deployed per night, to meet the minimum survey effort for the Project.

### Mist-net Surveys

Mist-net surveys were conducted by individuals holding the proper state and federal endangered species recovery permits (ESPER1745522-1 [Z. Haidar]). Following the USFWS approved study plan (Appendix A), mist-netting occurred from July 12 – 17, 2025, to achieve the minimum 10 valid net-nights as described in the approved study plan. Net-sets were located in suitable habitat for NLEB and micro-sited in the field based on the best location available to improve capture probability of NLEBs (Appendix B and C).

Standard 2-ply, 50-denier, nylon mist-nets with a mesh size of 38 millimeters (mm) were used at all net-sets and placed in suitable NLEB habitat. Each net-set was positioned perpendicularly across flight corridors to fill the corridor from side-to-side and extended from ground-level up to the overhanging canopy, when possible. The net site and associated net-sets were located completely within the Project Boundary (Figure 2).

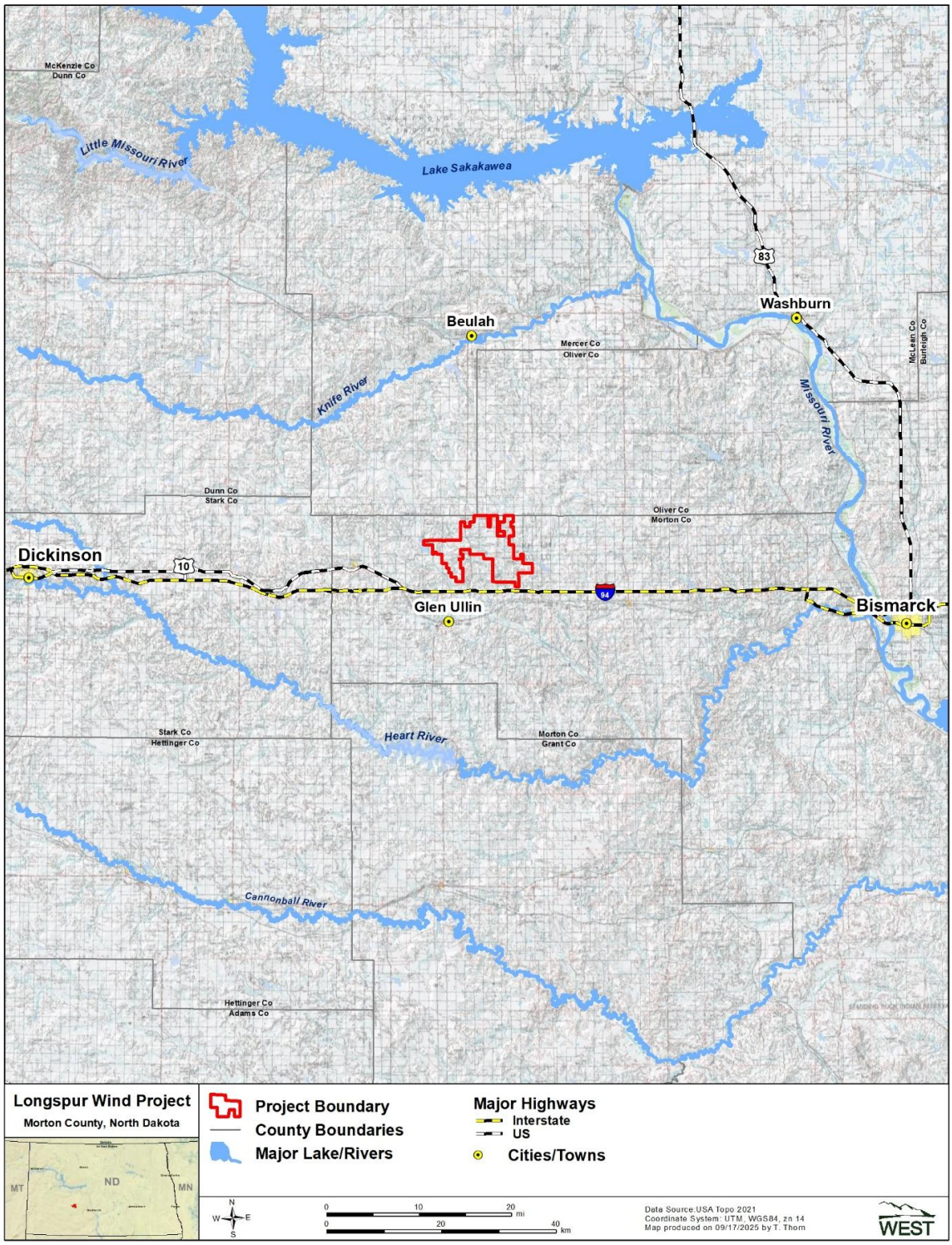


**Figure 1. Location of the Longspur Wind Project, Morton County, North Dakota.**

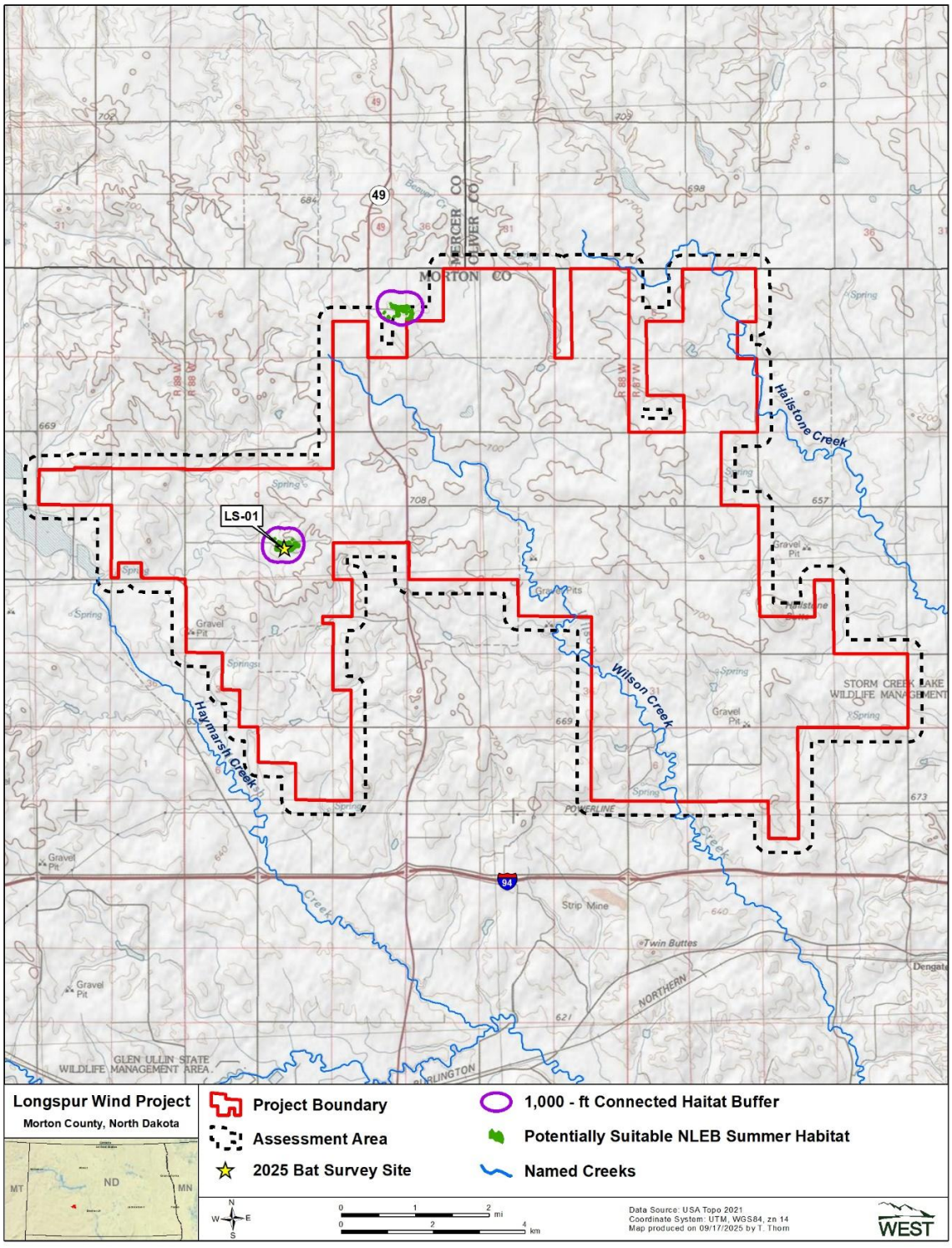


**Figure 2. Forested habitat, connected northern long-eared bat (NLEB) habitat buffers, and survey location within the Longspur Wind Project, Morton County, North Dakota.**

Biologists recorded the date, start and end time of surveys, site description, net-set dimensions, and weather data (e.g., temperature, cloud cover, wind speed, precipitation, and moon phase) at the net site. All net-set coordinates were recorded using a hand-held Global Positioning System-enabled tablet running Locus Pro software (Locus Map 2024).

For all captured bats, biologists identified each to species and recorded information on sex, age, reproductive condition, body mass (grams [g]), forearm length (mm), time of capture, net captured in, and capture status (recapture or new capture). Biologists recorded a Reichard Index score (0–3) to assess captured bats' exposure to white-nose syndrome (WNS; Reichard 2009). The USFWS WNS decontamination protocols were followed to prevent cross-contamination of captured bats with *Pseudogymnoascus destructans*, the fungus that causes WNS (WNS Disease Management Group 2024). Additionally, all field personnel used COVID-specific personal protective equipment and methods as described within USFWS guidelines and within individual USFWS permits. Biologists measured, processed, and released all non-target species, such as eastern red bats (*Lasiurus borealis*) and hoary bats (*L. cinereus*), within 15 min of capture. If NLEB were captured, they were held no more than 30 minutes to process and obtain any genetic material needed to confirm visual identification. All species of bats captured were photo-documented with voucher photographs. If captured, photos were taken of all NLEB and the first 10 individuals of little brown bat (*M. lucifugus*) captured at the site. The USFWS standardized permit reporting spreadsheets will be completed for all mist-net data and submitted to the USFWS per permit conditions.

## RESULTS

### Mist-net Surveys

Mist-netting occurred from July 12 – 17, with 2–4 net-sets deployed per night, for a total of 12 net-nights. However, surveys on the night of July 14 were considered invalid due to persistent lightning. Therefore, a total of 10 valid net-nights were completed, meeting the minimum level of effort required for the Project.

No bats (including federally threatened or endangered species) were captured during the survey period. These results indicated that NLEB were likely absent from the Project area. Net-set locations and descriptions are provided in Table 1. Appendices B, C, and D contain the following: map of net-set locations (Appendix B), photographs of net-sets (Appendix C), and field survey datasheets (Appendix D).

**Table 1. Net-set locations and descriptions at the Longspur Wind Project, Morton County, North Dakota, from July 12 – 17, 2025.**

| | | Coordinates* | | |
|---|---|---|---|---|
| Net Site ID | Net-Set | Latitude | Longitude | Net-Set Description |
| LS-01 | A | 46.926376 | -101.814394 | Forested corridor |
| | B | 46.926421 | -101.815526 | Forested corridor |
| | C | 46.926475 | -101.816620 | Forested corridor |
| | D | 46.926674 | -101.817274 | Forested corridor |
| | E | 46.926171 | -101.815054 | Forested corridor |
| | F | 46.927158 | -101.818114 | Forested corridor |

* Latitude and longitudes are converted from collected Universal Transverse Mercator (UTM) coordinates in Zone 14, North American Datum 1983 (see Appendix D).

ID = identification.

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**Appendix A. Site-specific Authorization for the Longspur Wind Project, Morton County, North Dakota.**

**U.S. Fish and Wildlife Service**

# Study Plan Form for Bat Surveys and Monitoring (v. 2.4)

**PROJECT & SURVEY INFORMATION**

Project Name: Longspur Wind Project

Proposed Survey Start Date: 2025

Project Proponent's Name (e.g., client/company/institution): Minnesota Power

Project Location: State(s): North Dakota

County(s): Morton County

Latitude: 46.942576°

Longitude: -101.756689°

REQUIRED: Attach shapefiles and/or Google Earth® KMZ files
(mapping must show project boundaries, impacted forest habitat (if known) and all proposed survey sites)
Files are attached: Yes ☑ No ☐
File link/URL (if applicable): See attachments

Project Summary. In the space provided below, please provide a description of the proposed action, including any activities that will permanently or temporarily alter the current environment and existing habitat features.

Minnesota Power contracted Western Ecosystems Technology, Inc. (WEST) to conduct Tier 3 surveys to support the Longspur Wind Project in Morton County, North Dakota. The Project Area is 25,933 acres and has a targeted commercial operation date of Spring 2026. The Project is within the range of the federally endangered northern long-eared bat (NLEB; M. septentrionalis). There are approximately 13 acres of potentially suitable roosting and/ or foraging forest habitat for NLEB within the Project Area. The objective of the proposed bat surveys is to determine presence/probable absence of NLEB during the summer maternity period.

**CONTACT INFORMATION**

Project Manager/Primary Point of Contact (POC): Martin Piorkowski

Phone: 307-365-3361

Field Survey Crew Leader (if different from POC): Cailene Bovee

Cell Phone: 847-902-9630

Institution/Company Name: Western EcoSystems Technology Inc

Mailing Address: 415 W. 17th Street, Suite 200, Cheyenne, WY 82001

POC Email Address: mpiorkowski@west-inc.com

USFWS Sec. 10(a)(1)(A) Permit No.(s) (if applicable):

State Permit No.(s) (if applicable): ND Scientific Collection Permit #s: 20913; 20827; 20828; 20823; 20826; 20954; 20950; 21212

Have project proponents been informed that abiding by protective time-of-year restrictions (where available) may be sufficient to avoid take of federally listed bats and (in some cases) may negate the need for a bat survey? Yes ☑ No ☐

Have project proponents been informed that the Service does not require presence/probable absence surveys for federally listed species and that presence can be assumed in a project area containing suitable habitat? Yes ☑ No ☐

Will this survey be conducted on private or public lands? *(Check both if applicable)*: Private ☑ Public ☐

Has permission of all necessary landowners/managing agencies been obtained? Yes☐ No☑
If no, explain: Survey site has been identified and the developer is in the process of contacting landowners for access

Does this project have a federal nexus[1]? Yes☐ No☑ Unsure☐

If yes, explain: _____

IPaC[2] Consultation Code (if applicable): N/A

Purpose of Survey: Official P/A Survey☑ Research☐ Monitoring☐
Educational Outreach/Training☐ Other: _____

Survey Target Species: Indiana bat (IBAT)☐ Northern long-eared bat (NLEB)■
Tricolored bat (TCB)☐ Other: _____

Has a Phase-1 Habitat Assessment* of the project area been conducted? Yes☑ No☐
If yes, how was the habitat assessment conducted? Field☐ Desktop☑ Combo☐
*(*if available, attach a written report)*

Is suitable habitat[3] present (or assumed present) for all "target" species? Yes☑ No☐

If no, explain: _____

Does this project fall within the outer-tier[4] of any "target" species known home range? Yes☐ No☐ Unsure☑

If yes, which species: _____

Project Configuration

Is this project **linear** (>1 km in total length)? Yes☐ No☑ Combo☐ Unsure☐

If yes, how many 1-km sections containing suitable IBAT/NLEB habitat will be impacted? _____

Is this project **non-linear**? Yes☑ No☐ Combo☐ Unsure☐

If yes, how many acres of suitable IBAT/NLEB habitat is in the overall project area? 13

If yes, how many acres of suitable IBAT/NLEB habitat will be directly impacted/cleared? uncertain at this time

## PROPOSED METHODS & SURVEY LEVEL OF EFFORT

Identify which method (acoustics, mist-netting, combination) proposed to be used: mist-netting

Has availability of high-quality sites for target species been assessed via ground-truthing to meet the required LOE?

Yes☐ ☑ No *(If No, justify method selection)*:

WEST completed the desktop habitat assessment. The survey site was selected via desktop review by experienced and permitted bat biologists. The mist-net site will be ground-truthed by a permitted bat biologist prior to net deployment. We welcome evaluation and input from USFWS biologists.

[1] A project or action that is authorized, funded, and/or permitted by a federal agency.
[2] https://ipac.ecosphere.fws.gov/
[3] See Appendix A of the Bat Survey Guidelines regarding suitable habitat definitions.
[4] See Appendix G of the Bat Survey Guidelines regarding what constitutes "out-tier" of a known range.

## ACOUSTICS

Total number of detector sites proposed to be surveyed: NA  Number of detector nights/site: NA

Total number of detector nights for entire survey: NA

Total proposed number of calendar nights to complete the entire survey: NA

Detector(s) (Brand, Model): NA  Microphone(s): directional ☐ omnidirectional ☐

Recording Format: Full Spectrum ☐ Zero-Crossing ☐

FWS-Approved[5] Acoustic Bat ID Software: **KaPro**: vers.___ Classifier, NA vers. ____ **BCID** vers._____
**SonoBat**: vers. _____ Classifier _____ Other:_____

**Species to be included for automatic software ID classification analysis:**

EPFU ☐ CORA ☐ COTO ☐ LABO ☐ LACI ☐ LANO ☐ LASE ☐ TABR ☐ MYCI ☐ MYEV ☐ MYGR ☐ MYLU ☐
MYLE ☐ MYSE ☐ MYSO ☐ MYTH ☐ MYVO ☐ NYHU ☐ PESU ☐ Others:_____

Will qualitative analysis (i.e., manual vetting) be used? Yes ☐ No ☐ Unsure ☐

Name(s) of qualified biologist(s) conducting qualitative/manual identifications (attach resume or link with qualifications):

_____

## MIST-NETTING

Total number of net sites to be surveyed: 1  Total number of net nights/site: 10

Total number of net nights for entire survey (No. of sites X No. of net nights/site): 10

Total proposed number of calendar nights to complete the entire survey: 6 (pending no weather delays)

A) Maximum number of net set-ups that will be operated/checked (10-min interval) on a given calendar night at a given survey site: 4
B) Minimum Number of personnel present to operate/check X (see A) net set-ups on a given site: 2
C) Proposed Staffing Rate (A divided by B): 2

Staffing Rate

Number of Section 10-permitted biologists per net site (or state-permitted in USFWS R5): 1

Do you propose to band bats? Yes ☐ No ☑

If yes, please answer the following:

What species will be banded? COTO ☐ MYGR ☐ MYLU ☐ MYSE ☑ MYSO ☐ PESU ☐
Others:_____ All captured bats:_____
If banding *Myotis* sp. or PESU, specify band size: _____
Describe your proposed bands (color and letter-numbers) and banding scheme: no bands will be used. Bats (MYSE) will be temporarily marked with a non-toxic s
Will banding pliers be used? Yes ☐ No ☑

Will any biological samples be collected from captured bats (e.g., guano, hair, swab, wing punch)? Yes ☑ No ☐

If yes, explain: Opportunistic guano samples will be collected from MYSE. Bats will be handled in accordance with federal permits. Guano will only be collected from holding bags that the bats happened to drop while being held for processing.

Name of institution or facility to conduct DNA analysis: NAU Bat Ecology and Genetics Lab

[5] https://www.fws.gov/media/automated-acoustic-bat-id-software-programs

## RADIO-TRACKING

Will any bats be radio-tagged and tracked? Yes☑ No☐

If yes, please answer following:

Which species will be radio-tagged? MYSE

Name of USFWS Section 10 permitted biologist(s) who will apply transmitter(s): Anyone under the list of Section 10 permittees listed above

Make/model and approximate weight of transmitter(s) to be used: LoTek PicoPip AG337 0.31g, Holohil LB-2X 0.27g

Manufacturer date and estimated life-span of transmitters to be used: 2021 or newer; up to 20 days (LoTek); up to 15 days (Holohil)

Frequency range (MHz) of transmitters (e.g., 150.xxx or 172.xxx): 172.xxx

If radio-tracking multiple targeted bats/species, what criteria will be used in selecting which bats will be tracked?
Transmitters will only be attached to adult female or juvenile MYSE of sufficient weight.

Will all radio-tagged bats be tracked (min. of 4-hrs. search effort/day) to their diurnal roosts for the minimum recommended period of 7 days? Yes☑ No☐

If no, explain: _____

Will night-time foraging data/telemetry be collected? Yes☐ No☑

Glue used for attaching transmitters: Type: Silicone-based Surgi Name: Uro-Bond III 5000

Manufacturer Urocare Products, In Other: Torbot

## EMERGENCE SURVEYS

After diurnal roost sites of radio-tagged bats are identified, will emergence surveys be conducted at each identified roost (assuming landowner permission is obtained)? Yes☑ No☐

If yes, how many emergence surveys/roost? 2 per identified MYSE roost

Have you identified a small number (e.g., ≤10) of potentially suitable roost trees* that you propose to conduct emergence surveys for? Yes☐ No☑

*(*If yes, provide photographs of each tree documenting that all of the tree can be observed by the surveyor along with coordinates (lat/long and/or KML/shapefile) of all trees to be surveyed.)*

## POTENTIAL HIBERNACULA SURVEYS

Are you aware of any known hibernacula used by the target species within the project area itself or nearby?

Yes☐ No☑ Unknown☐

If yes or unknown, list sites or explain: _____

Has your desktop analysis identified any natural or man-made features that could be used as a hibernaculum by any of the target bat species? Yes☐ No☑ Unknown☐

If yes, underground features (e.g., caves, mines, tunnels, bunkers, cisterns) present: Yes☐ No☐

If yes, above-ground features* (e.g., crawl spaces) present: Yes☐ No☐

If unknown, explain: _____

Are you requesting approval of a field survey for potential hibernacula at this time? Yes*☐ No☑

*(*If yes, attach a separate narrative explaining how the project area(s) will be surveyed for potential hibernacula.)*

Are you submitting the results of a Phase 1 Habitat Assessment of potentially suitable hibernacula identified from field surveys? Yes*☐ No☑

*(*If yes, provide a Phase 1 Habitat Assessment Data Sheet for each potential hibernaculum/portal(s)[6] identified to be surveyed.)*

[6] If multiple cave entrances/portals, please list all locations.

**BRIDGE & CULVERT ASSESSMENTS**

Will any bridges or culverts be surveyed for bat presence? Yes ☐ No ☑

If yes, please answer the following:

Structure type(s) (check all that apply): Bridge ☐ Culvert ☐ Other ☐
If "other", explain: _____

Survey methodology for structure(s) (check all that apply):
Visual inspection ☐ Guano collection ☐ Emergence survey ☐ Acoustics* ☐
Mist-net* ☐ Harp-trap* ☐ Other _____
*(*Due to site-specific conditions of structures, coordination with the local USFWS Field Office and appropriate state agency(ies) is necessary before proceeding with these survey methodologies)*

Will guano be collected and analyzed to confirm species ID? Yes ☐ No ☐
If "yes", name of institution/entity performing analysis: _____

Acknowledgment that USFWS bats & transportation structures virtual training materials[10] have been viewed: Yes ☐

**ADDITIONAL SURVEY INFORMATION**

Will the proposed bat survey deviate from the current version of the USFWS Survey Guidelines?[7] Yes ☐ No ☑

If yes, provide justification for any departures or modifications to the guidelines (if applicable) below:

I hereby acknowledge that the information being provided to the Service is accurate and complete as of today's date.

Signature: Martin Piorkowski Date: 6/1/2025

[7] Proposed surveys deviating from the current Range-wide Bat Survey Guidelines will only be accepted with a thoroughly described justification; coordinate with your local USFWS Field Office (https://www.fws.gov/our-facilities) for acceptable modifications.

********FOR U.S. FISH AND WILDLIFE SERVICE USE ONLY**********

# United States Department of the Interior

## Fish and Wildlife Service

General Ecological Services Field Office
Address
Phone

## SITE-SPECIFIC AUTHORIZATION - BAT SURVEYS

Our Field Office has reviewed your study plan and found it to contain sufficient information for our approval. When signed, this statement serves as your site-specific authorization to conduct the proposed activities at the specified locations included in the attached Study Plan Form and supporting files and must be carried with your federal permit when conducting work for this project. All activities must be carried out with strict adherence to permit conditions and authorizations specified in your federal permit as well as your state permit(s) (if needed). The section 10(a)(1)(A) permit authorizing the activities (if applicable) must remain with the surveyor at all times. For proposed activities on private lands, this authorization is not valid without explicit private landowner permission.

In addition to the final survey report, please use the appropriate U.S. Fish and Wildlife Service (USFWS) bat survey data spreadsheet, available on the Range-wide Bat Survey Guidelines website[8], for reporting live capture and acoustic survey results. To mitigate the risk of viral transmission between bats and humans (e.g., SARS-CoV-2), USFWS requests anyone directly handling or working in close proximity to bats follow current guidelines prepared by the CDC[9] and IUCN Bat Specialist Group[10] in addition to the following the standard WNS decontamination protocols[11].

If the work expands beyond the scope of your original study plan or if there are adverse effects to bats that were not anticipated, cease all survey and/or research activities, and contact this office prior to continuing. Additionally, if a federally listed bat is captured, this USFWS Field Office must be notified within 48 hours .

**Field Office POC**: ND - Hanna Edens / SD - Silka Kempema
**email:** hanna_edens@fws.gov / silka_kempema@fws.gov **phone:**_____

**Authorized as Proposed** ■

**Authorized with Conditions** **(see below)**

**Not Authorized**. *(see comments)*

**Signature:** LUKE TOSO Digitally signed by LUKE TOSO Date: 2025.06.03 10:00:10 -07'00' **Date:**_____

[8] https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines
[9] https://www.cdc.gov/healthypets/covid-19/wildlife.html
[10] https://www.iucnbsg.org/uploads/6/5/0/9/6509077/amp_recommendations_for_researchers_final.pdf
[11] https://whitenosesyndrome.org/mmedia-education/national-wns-decontamination-protocol-u-s

**Appendix B. Map of Net-Set Locations at the Longspur Wind Project, Morton County, North Dakota.**

**Appendix B. Net-set locations (A–F) at net site LS-01 for the Longspur Wind Project, Morton County, North Dakota.**

**Appendix C. Photographs of Net-Sets at the Longspur Wind Project, Morton County, North Dakota.**

**Appendix C1. Net-set LS-01-A, surveyed July 12 – 13, 2025, at the Longspur Wind Project, Morton County, North Dakota.**

**Appendix C2. Net-set LS-01-B, surveyed July 12 – 13, 2025, at the Longspur Wind Project, Morton County, North Dakota.**

**Appendix C3. Net-set LS-01-C, surveyed July 12 – 13, 2025, at the Longspur Wind Project, Morton County, North Dakota.**

**Appendix C4. Net-set LS-01-D, surveyed July 12 – 13, 2025, at the Longspur Wind Project, Morton County, North Dakota.**

**Appendix C5. Net-set LS-01-E, surveyed July 14 and 17, 2025, at the Longspur Wind Project, Morton County, North Dakota.**

**Appendix C6. Net-set LS-01-F, surveyed July 14 and 17, 2025, at the Longspur Wind Project, Morton County, North Dakota.**

**Appendix D. Mist-net Survey Datasheets for the Longspur Wind Project, Morton County, North Dakota.**

## Site Description and Weather Data Form

### Location Information

| Site ID: | Project: | State: |
|---|---|---|
| LS-01 | Longspur | North Dakota |
| | Datum: NAD 83 | County: Morton |

### Net Locations – Take pictures of each net set and distinguishing characteristics

| Net ID (A,B,...) | Net Size (e.g. 3x9) | UTM Zone | Easting | Northing | Net Nights Used (1,2,...) | Canopy Cover (%) |
|---|---|---|---|---|---|---|
| A | 3 x 12 | 14 | 285746 | 5200828 | 1, 2 | 40 |
| B | 3 x 6 | 14 | 285660 | 5200836 | 1, 2 | 50 |
| C | 3 x 9 | 14 | 285577 | 5200845 | 1, 2 | 50 |
| D | 3 x 9 | 14 | 285528 | 5200869 | 1, 2 | 80 |
| E | 3 x 18 | 14 | 285695 | 5200807 | 3 | 40 |
| F | 3 x 12 | 14 | 285466 | 5200925 | 3 | 0 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

### Site Sketch

Should be drawn in a top-down view using map to assist with accuracy. Include all streams, roads, trails, and structures. Note all net locations using Net ID.

| Net Night | Date (yyyy-mm-dd) | Biologists Present | Total Nets Open (#) | Sunset Time (24 Hour) | Moonrise Time | Moonset Time | [1] Moon Phase | Start Time | Start Temp (°F) | Start Wind Speed (mph) | Start Sky Code | Stop Time | Stop Temp | Stop Wind Speed | Stop Sky Code | Precip. During Survey (Yes/No) | Precip. Duration (min) | Night Complete (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2025-07-12 | Z. Haidar, C. Parenzin | 4 | 2140 | 2311 | 0744 | G | 2140 | 75 | 1 | 1 | 0240 | 56 | 7 | 0 | No | 0 | Yes |
| 2 | 2025-07-13 | Z. Haidar, C. Parenzin | 4 | 2140 | 2331 | 0901 | G | 2140 | 77 | 5 | 1 | 0245 | 62 | 5 | 1 | No | 0 | Yes |
| 3 | 2025-07-14 | Z. Haidar, C. Parenzin | 2 | 2139 | 2349 | 1018 | G | 2138 | 70 | 9 | 2 | 2215 | 67 | 20 | 2 | No | 0 | No |
| 4 | 2025-07-17 | Z. Haidar, C. Parenzin | 2 | 2136 | 0023 | 1411 | H | 2135 | 68 | 2 | 1 | 0235 | 62 | 5 | 4 | Yes | 15 | Yes |
| 5 | | | | | | | | | | | | | | | | | | |

### Habitat Information

| [2] Primary Habitat Surveyed: | Dominant Canopy Species: | Estimated Canopy Tree Age (DBH): | Additional Comments: |
|---|---|---|---|
| Upland Forest | Acer negundo<br>Populus angustifolia | Early-successional (0-12 cm) | Lightning on 7/14 |
| **Forest Type:** Mixed | **Preferred Roost Trees Present:** Unknown snag(s) with exfol. bark | | |

[1] *New (N), Crescent (C), Half (H), Gibbous (G), Full (F)* [2] *Bridge, Bottomland Forest, Cave Entrance, Creek/Riparian, Field Edge, Mine Portal, Open Field, Pond, Structure, Upland Forest, or Other (Briefly Describe)*

## Bat Capture Data Form



**Project:** Longspur **State:** North Dakota **Survey Comments:**

**Site ID:** LS-01 **County:** Morton

**Date:** 2025-07-12 **Net Night:** 1

**Biologist(s):** Z. Haidar, C. Parenzin **Night Complete:** (Yes) No

| # | Species (4 Letter Code) | Time (24 Hour) | Sex (M, F, U) | Age (A, J, U) | A Repro. Status | Reichard Score (0 - 3) | Right Forearm (mm) | Weight (g) | Ear Length* (mm) | Net ID (A, B,...) | Capture Height In Net (m) | Recapture (Yes / No) | B Band # | C Original Transmitter Frequency | Drifted Transmitter Frequency | D Bat ID (Site-Species #) | E Photos (None, Face, Calcar, Toes) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | No bats | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | |
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| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | |

[A] Male: (N) - non-reproductive, (TD) - testes-descended, (U) - unknown. Female: (N) - non-reproductive, (L) - lactating, (P) - pregnant, (PL) - post-lactating, (U) - unknown.
[B] Band RIGHT forearm on males, LEFT on females AND include letters.
[C] Original frequency: pre-assigned by manufacturer; Drifted frequency: final frequency prior to bat release.
[D] Bat ID: write Site ID – Species Code (with the sequential number of individuals of species captured; e.g. MN5-MYSO2). Only Myotis and target species are given a Bat ID.
[E] Take photos of 1) ***ALL*** MYSO/MYSE/MYLE/MYGR captured, 2) First several MYLU from each site, 3) One representative photo of each species captured.

* (U) – unknown is used exclusively when a bat escapes before the determination can be made.

*Ear Length – Western Region only

## Bat Capture Data Form



**Project:** Longspur **State:** North Dakota **Survey Comments:**

**Site ID:** LS-01 **County:** Morton

**Date:** 2025-07-13 **Net Night:** 2

**Biologist(s):** Z. Haidar, C. Parenzin **Night Complete:** (Yes) No

| # | Species 4 Letter Code | Time (24 Hour) | Sex (M, F, U) | Age (A, J, U) | A Repro. Status | Reichard Score (0 - 3) | Right Forearm (mm) | Weight (g) | Ear Length* (mm) | Net ID (A, B,...) | Capture Height In Net (m) | Recapture (Yes / No) | B Band # | C Original Transmitter Frequency | Drifted Transmitter Frequency | D Bat ID (Site-Species #) | E Photos (None, Face, Calcar, Toes) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | No bats | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | |
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| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | |

[A] Male: (N) - non-reproductive, (TD) - testes-descended, (U) - unknown. Female: (N) - non-reproductive, (L) - lactating, (P) - pregnant, (PL) - post-lactating, (U) - unknown.
[B] Band RIGHT forearm on males, LEFT on females AND include letters.
[C] Original frequency: pre-assigned by manufacturer; Drifted frequency: final frequency prior to bat release.
[D] Bat ID: write Site ID – Species Code (with the sequential number of individuals of species captured; e.g. MN5-MYSO2). Only Myotis and target species are given a Bat ID.
[E] Take photos of 1) ***ALL*** MYSO/MYSE/MYLE/MYGR captured, 2) First several MYLU from each site, 3) One representative photo of each species captured.

* (U) – unknown is used exclusively when a bat escapes before the determination can be made.

*Ear Length – Western Region only

# Bat Capture Data Form



**Project:** Longspur **State:** North Dakota **Survey Comments:**

**Site ID:** LS-01 **County:** Morton

**Date:** 2025-07-14 **Net Night:** 3

**Biologist(s):** Z. Haidar, C. Parenzin **Night Complete:** Yes (No)

| # | Species (4 Letter Code) | Time (24 Hour) | Sex (M, F, U) | Age (A, J, U) | [A] Repro. Status | Reichard Score (0 - 3) | Right Forearm (mm) | Weight (g) | Ear Length* (mm) | Net ID (A, B,...) | Capture Height In Net (m) | Recapture (Yes / No) | [B] Band # | [C] Original Transmitter Frequency | Drifted Transmitter Frequency | [D] Bat ID (Site-Species #) | [E] Photos (None, Face, Calcar, Toes) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | No bats | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | |
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[A] Male: (N) - non-reproductive, (TD) - testes-descended, (U) - unknown. Female: (N) - non-reproductive, (L) - lactating, (P) - pregnant, (PL) - post-lactating, (U) - unknown.
[B] Band RIGHT forearm on males, LEFT on females AND include letters.
[C] Original frequency: pre-assigned by manufacturer; Drifted frequency: final frequency prior to bat release.
[D] Bat ID: write Site ID – Species Code (with the sequential number of individuals of species captured; e.g. MN5-MYSO2). Only Myotis and target species are given a Bat ID.
[E] Take photos of 1) *ALL* MYSO/MYSE/MYLE/MYGR captured, 2) First several MYLU from each site, 3) One representative photo of each species captured.

* (U) – unknown is used exclusively when a bat escapes before the determination can be made.

*Ear Length – Western Region only

# Bat Capture Data Form



**Project:** Longspur **State:** North Dakota

**Site ID:** LS-01 **County:** Morton

**Date:** 2025-07-17 **Net Night:** 4

**Biologist(s):** Z. Haidar, C. Parenzin **Night Complete:** (Yes) No

**Survey Comments:**
It began a light rain 20 minutes before closing and heavy rain 10 minutes before closing

| # | Species (4 Letter Code) | Time (24 Hour) | Sex (M, F, U) | Age (A, J, U) | [A] Repro. Status | Reichard Score (0 - 3) | Right Forearm (mm) | Weight (g) | Ear Length* (mm) | Net ID (A, B,...) | Capture Height In Net (m) | Recapture (Yes / No) | [B] Band # | [C] Original Transmitter Frequency | Drifted Transmitter Frequency | [D] Bat ID (Site-Species #) | [E] Photos (None, Face, Calcar, Toes) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | No bats | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | |
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| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | |

[A] Male: (N) - non-reproductive, (TD) - testes-descended, (U) - unknown. Female: (N) - non-reproductive, (L) - lactating, (P) - pregnant, (PL) - post-lactating, (U) - unknown.
[B] Band RIGHT forearm on males, LEFT on females AND include letters.
[C] Original frequency: pre-assigned by manufacturer; Drifted frequency: final frequency prior to bat release.
[D] Bat ID: write Site ID – Species Code (with the sequential number of individuals of species captured; e.g. MN5-MYSO2). Only Myotis and target species are given a Bat ID.
[E] Take photos of 1) *ALL* MYSO/MYSE/MYLE/MYGR captured, 2) First several MYLU from each site, 3) One representative photo of each species captured.

* (U) – unknown is used exclusively when a bat escapes before the determination can be made.

*Ear Length – Western Region only

Studies and Assessments

B10. Dakota Skipper Habitat Survey (2025)

# Dakota Skipper Habitat Survey
# Longspur Wind Project
# Morton County, North Dakota

## Final Report
## October 2025

**Prepared for:**

**Minnesota Power**

30 West Superior Street
Duluth, Minnesota 55802

**Prepared by:**

**Western EcoSystems Technology, Inc.**

4007 State Street, Suite 109
Bismarck, North Dakota 58503

**December 2, 2025**

WEST

*Confidential Business Information*

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## REPORT REFERENCE

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Appendix A. Representative Photographs Taken During the Dakota Skipper Habitat Survey Conducted for the Longspur Wind Project Area in Morton County, North Dakota, August 4 – October 2, 2025.

## INTRODUCTION

Minnesota Power is developing the Longspur Wind Project (Project) in Morton County, North Dakota (Figure 1). The Project Area (as updated October 7, 2024; Figure 1) is located within the known primary range of Dakota skippers (*Hesperia dacotae*; DASK; North Dakota Game and Fish Department [NDGFD] 2024). Minnesota Power contracted Western EcoSystems Technology, Inc. (WEST), to complete a DASK grassland habitat survey to inform Project planning. The survey included a desktop review and field surveys with the overall goal to determine whether suitable DASK larval habitat occurs within grassland areas under consideration for Project development (i.e., construction corridors). The determination for the presence of suitable DASK habitat followed current US Fish and Wildlife Service (USFWS) guidance and survey protocols in the *2024 Dakota Skipper (Hesperia dacotae) Survey Protocol* (Survey Guidance; USFWS 2024). Specific objectives of this effort were to identify, delineate, and map potential habitat (reproductive and/or nectar habitats) for DASK, hereafter DASK habitat.

The DASK, federally listed in 2014 as threatened under the Endangered Species Act of 1973 as amended (USFWS 2014) and classified as a Species of Conservation Priority Level II in North Dakota (Dyke et al. 2015), is known or believed to occur in Morton, Mercer, and Oliver counties intersected by the Study Area (USFWS 2023, 2024b; NDGFD 2024; see *Methods* for definition). Recovery efforts for the species are directed at tracts of native (untilled) prairie supporting an adequate abundance of the requisite native forbs and grasses and encompass conservation efforts focused on management of grasslands for native prairie vegetation, research on prescribed burn and livestock grazing practices, and protection of remaining tracts of undisturbed (unbroken) prairie habitats (USFWS 2018, 2021, 2025).

## PROJECT AREA

The Project Area encompasses 25,933 acres (ac) in southwestern North Dakota, approximately four miles north of Glen Ullin in Morton County along with a generation tie (gen-tie) line that extends north of the Project Area 0.3 miles into Mercer County (Figure 1). The Project is within the Northwestern Great Plains Level III and the Missouri Plateau Level IV ecoregions, which encompass much of western North Dakota (US Environmental Protection Agency [USEPA] 2012, 2013). This ecoregion consists of semi-arid rolling plains punctuated by buttes and badlands. The primary land uses include cultivated crops and livestock grazing. The Missouri Plateau ecoregion's rolling to somewhat flat topography was mostly unaffected by glaciation, with natural vegetation primarily consisting of semiarid grasses, including western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula*), blue grama (*Bouteloua gracilis*), and buffalograss (*B. dactyloides*; Bryce et al. 1998). Although large areas of the Missouri Plateau ecoregion have been converted to agricultural crop production (i.e., common wheat [*Triticum aestivum*], alfalfa [*Medicago sativa*], corn [*Zea mays*], and soybeans [*Glycine max*]), areas of unbroken native grasslands remain, which are typically used for livestock grazing (USEPA 2012, 2013; US Department of Agriculture [USDA] National Agricultural Statistics Service 2024).

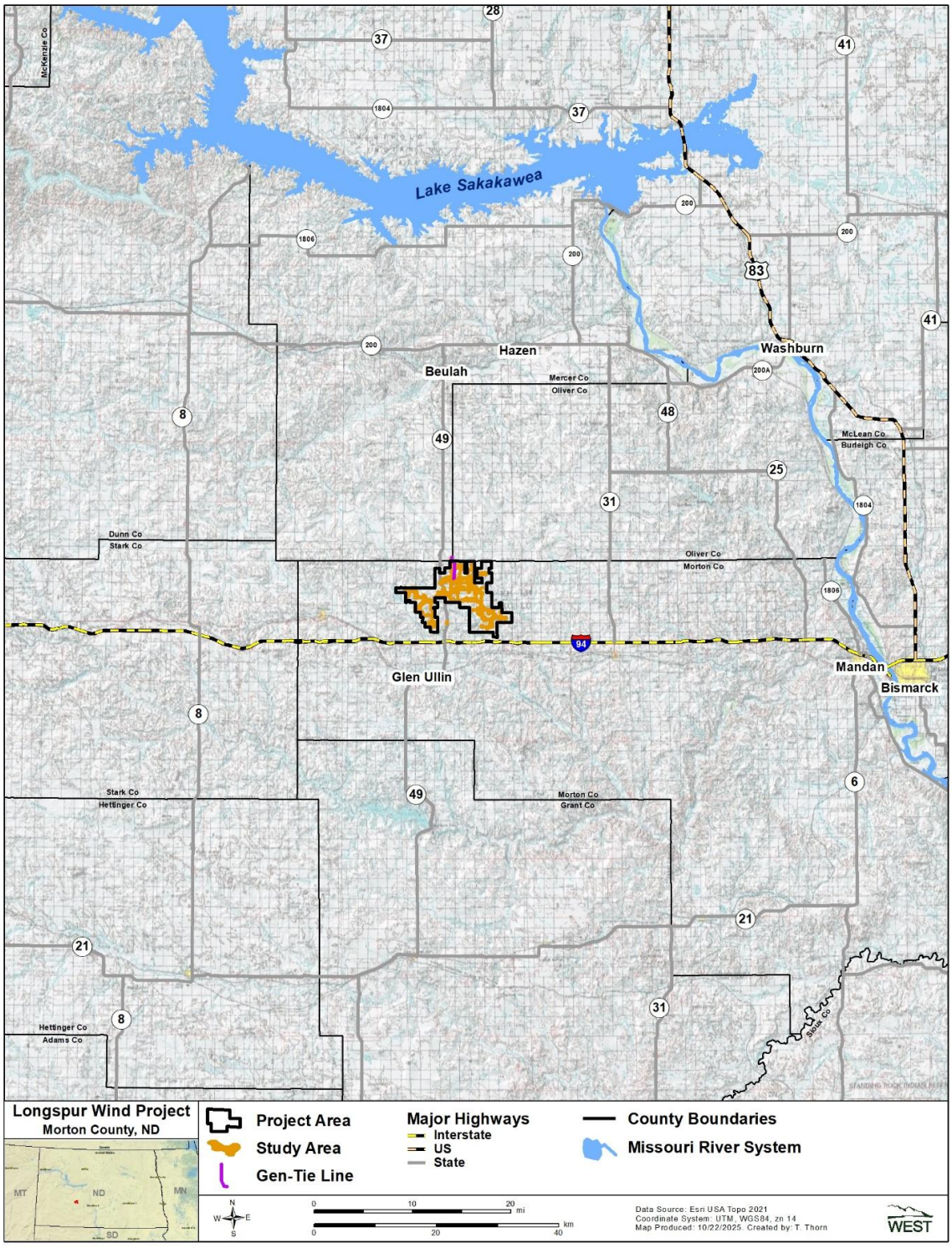


**Figure 1. Location of the Longspur Wind Project Area and Dakota Skipper Habitat Study Area in Morton, Mercer, and Oliver counties, North Dakota.**

# METHODS

All potential unbroken grassland parcels (polygons) with the potential to be directly or indirectly affected by the construction and/or operation of the Project were included in the potential habitat survey effort. WEST relied upon the results of a previous grassland assessment (Piorkowski et al. 2024) and the September 17, 2025, proposed infrastructure site plan (Site Plan) provided by Minnesota Power, to inform the 2025 DASK habitat survey design. The Study Area for this effort was defined by a 250-meter buffer around the Site Plan that encompasses all temporary and permanent construction impacts following the Survey Guidance (USFWS 2024). This includes both the Project Area and the associated gen-tie line for the Project and their 250 m buffers in Morton, Mercer, and Oliver counties. The Dakota skipper Survey Area includes unbroken grasslands or grasslands within the 50% potential habitat from the Barnes et al. (2023) DASK model (Barnes Model) within the Study Area (Figure 2). Desktop and field methods used for this survey are described below.

## Desktop Review

Before conducting the 2025 field surveys, WEST reviewed results from earlier field surveys that identified unbroken grasslands (Piorkowski et al. 2024), compiled Barnes Model outputs for parcels within the 50% potential habitat, and noted gaps in geospatial grassland data and information essential to DASK habitat and life history requirements. WEST also completed a desktop review for any spatial gaps of existing land cover features within the Study Area using current aerial imagery (USDA Farm Production and Conservation Business Center 2024), existing land cover data (National Land Cover Database 2021), Cropland Data Layers (USDA National Agricultural Statistics Service 2024), and NDGFD's native prairie layer (2017). This compilation and review, conducted using ArcGIS 10.7 (Environmental Systems Research Institute, Redlands, California), resulted in a digital data layer of polygons delineating unbroken grassland cover as potential DASK habitat to guide field survey efforts (Survey Area).

## Field Surveys

Pedestrian botanical field surveys were conducted within unbroken grasslands (where access was granted) to evaluate potential DASK habitat identified during the desktop review within the Survey Area. DASK habitat surveys were completed in accordance with the Survey Guidance (USFWS 2024).

Three qualified WEST DASK biologists completed habitat surveys by walking/meandering transects following topographic contours and habitat transitions through each of the accessible unbroken grassland polygons within the Survey Area (Figure 2). For those unbroken grasslands where access was not granted or located outside of the Project Area, visual inspections were conducted, to the extent possible, from multiple locations surrounding each parcel along publicly accessible roads to identify grassland features and plant species composition associated with DASK habitat (i.e., signs of previous disturbance and presence of requisite plant species typical of suitable DASK habitat).

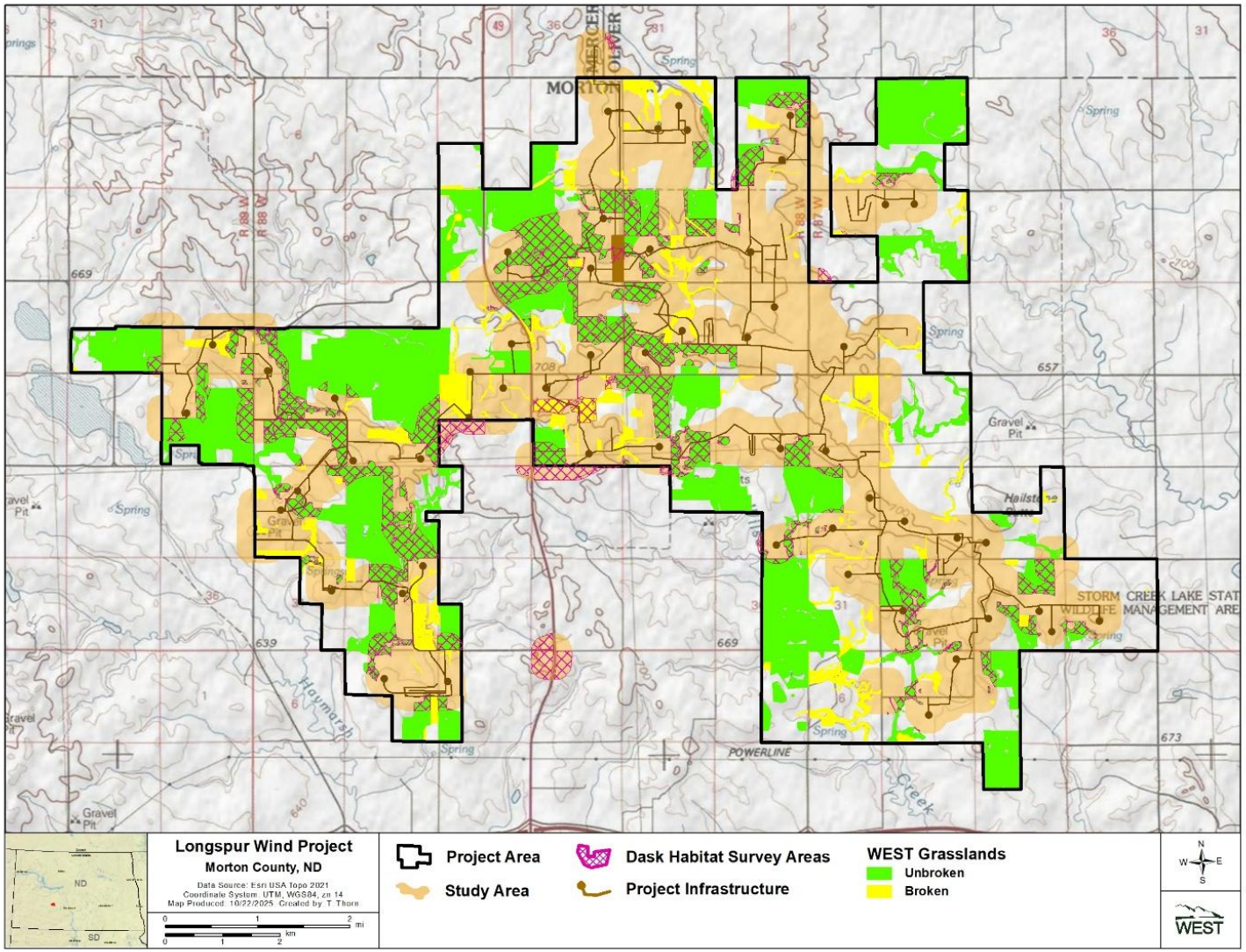


**Figure 2. Dakota skipper larval habitat Survey Area for the Longspur Wind Project in Morton, Mercer, and Oliver Counties, North Dakota, August 4 – October 2, 2025.**

The level of existing grassland disturbance was assessed based on several factors, consisting of topography, vegetative composition (e.g., abundance and distribution of invasive species indicating past disturbance), soil condition, presence of wetlands and drainages, and presence of large rocks or rock piles within each grassland polygon. When applicable, suitable DASK larval habitat (see below) was delineated with an Android tablet using the Arc GIS Field Maps application and a built-in Global Positioning System receiver, and representative photos were taken to depict characteristics of each grassland polygon (Appendix A). Dominant plant species identified in each grassland polygon were recorded, along with notes on abundance of requisite plant species for DASK. The field survey was conducted from August 4 – October 2, 2025.

**Definitions and Terminology**

DASK, a prairie obligate species, requires nectar-producing native flowers and native grasses to sustain its lifecycle. According to the 2024 Survey Guidance, DASK habitat is characterized by two types of prairie habitat. The first type of habitat (i.e., Type A) typically occurs in relatively low, wet, high quality tall grass prairie dominated by big (*Andropogon gerardii*) and little bluestem (*Schizachyrium scoparium*), with wood lily (*Lilium philadelphicum*), bluebell bellflower (*Campanula rotundifolia*), mountain deathcamas/smooth camas (*Zigadenus elegans*), candle anemone (*Anemone cylindrica*), and black-eyed Susan (*Rudbeckia hirta*) being the indicator nectar plant species. The second type of habitat (Type B) is relatively dry, upland mixed-grass prairie dominated by big and little bluestem grasses and needle/porcupine grasses (*Hesperostipa* spp.) and supports extensive stands of purple coneflower (*Echinacea angustifolia*), upright prairie coneflower (*Ratibida columnifera*), and common gaillardia/blanketflower (*Gaillardia aristata*). Type B habitat may have other native grass species, such as prairie dropseed (*Sporobolus heterolepis*) or western wheatgrass. Larvae require grass components of mixed-grass prairie that include bluestem grasses and needlegrasses, while adults require nectar sources. Therefore, suitable DASK habitat includes nectar-producing forbs as well as a sufficient abundance of bunchgrasses to support the reproductive needs of the species.

Only habitat parcels within the Survey Area were delineated and classified as suitable DASK habitat, as described by the USFWS (USFWS 2024). Suitable DASK habitat, for the purposes of the surveys, was defined as native, unbroken grassland containing the necessary (requisite) plant species associated with supporting and sustaining larval survival and the reproductive ecology of the species (USFWS 2018, 2024a). Sites were classified as non-suitable DASK habitat when they were characterized as having low densities of requisite plant species, low ground cover, and/or a preponderance of missing requisite plant species.

**Data Management**

WEST implemented quality assurance and quality control (QA/QC) measures at all stages of the assessment, including during the desktop review, in the field, during data compilation, and during report writing. Data were reviewed by field staff before they were submitted for compilation and analysis. If any errors, omissions, or problems were identified, follow-up QA/QC measures were implemented, including discussions and review of field data with the field staff and/or Project Manager. Data were exported as a shapefile from the Field Maps application. The resulting

shapefile was updated as needed based on field notes. WEST retained all field notes, spatial files, and electronic data files under secure conditions for reference.

## RESULTS

Approximately 7,813 ac of native, unbroken grasslands were previously identified during the grassland habitat assessment (Piorkowski et al. 2024; Figure 2). Of these, 2,965 ac were identified as potential DASK habitat (Type B) that were surveyed during August and October 2025 (Figures 3a–3e). An estimated 2,692 ac were surveyed via pedestrian surveys while 273 ac were surveyed from public roads due to access restrictions. There were 17 individual patches of suitable DASK habitat identified), resulting in 20.96 ac within the surveyed grasslands (Table 1; Figures 3a–3e). No suitable DASK habitat was identified in grasslands visually surveyed from public roads.

**Table 1. Areas identified as suitable Dakota skipper larval habitat within the Longspur Wind Project Survey Area in Morton, Mercer, and Oliver counties, North Dakota, August 4 – October 2, 2025.**

| DASK Area ID | Survey Date | Acres | Species Observed |
|---|---|---|---|
| 1 | 10/1/2025 | 1.40 | Little bluestem, needle and thread grass, prairie sand reed, Kentucky bluegrass |
| 2 | 10/1/2025 | 1.76 | Little bluestem, needle and thread grass, prairie sand reed, Kentucky bluegrass |
| 3 | 10/1/2025 | 0.69 | Little bluestem, needle and thread grass, prairie sand reed, Kentucky bluegrass |
| 4 | 8/15/2025 | 3.71 | Little bluestem, dotted gayfeather, purple coneflower, purple prairie clover |
| 5 | 10/1/2025 | 3.03 | Little bluestem, needle and thread grass, prairie sand reed, Kentucky bluegrass |
| 6 | 8/15/2025 | 0.45 | Little bluestem, side-oats grama, purple coneflower, needlegrasses |
| 7 | 8/4/2025 | 0.40 | Big bluestem, little bluestem, purple coneflower, white sage |
| 8 | 10/2/2025 | 3.95 | Little bluestem, prairie sand reed, purple coneflower, purple prairie clover |
| 9 | 8/15/2025 | 0.88 | Little bluestem, purple coneflower, side-oats grama |
| 10 | 8/15/2025 | 0.57 | Little bluestem, side-oats grama, purple coneflower |
| 11 | 10/2/2025 | 0.66 | Little bluestem, prairie sand reed, purple coneflower, purple prairie clover |
| 12 | 10/2/2025 | 0.35 | Little bluestem, prairie sand reed, western wheatgrass, purple coneflower |
| 13 | 10/2/2025 | 0.61 | Little bluestem, sideoats grama, big bluestem, purple coneflower |
| 14 | 10/2/2025 | 0.44 | Little bluestem, sideoats grama, big bluestem, purple coneflower |
| 15 | 10/2/2025 | 1.12 | Little bluestem, sideoats grama, big bluestem, purple coneflower |
| 16 | 10/2/2025 | 0.36 | Little bluestem, sideoats grama, big bluestem, purple coneflower |
| 17 | 8/15/2025 | 0.56 | Little bluestem, side-oats grama, purple coneflower |
| | **Total[1]** | **20.96** | |

[1.] Sums of values may not add to total value shown due to rounding.

DASK = Dakota skipper; ID = identification.

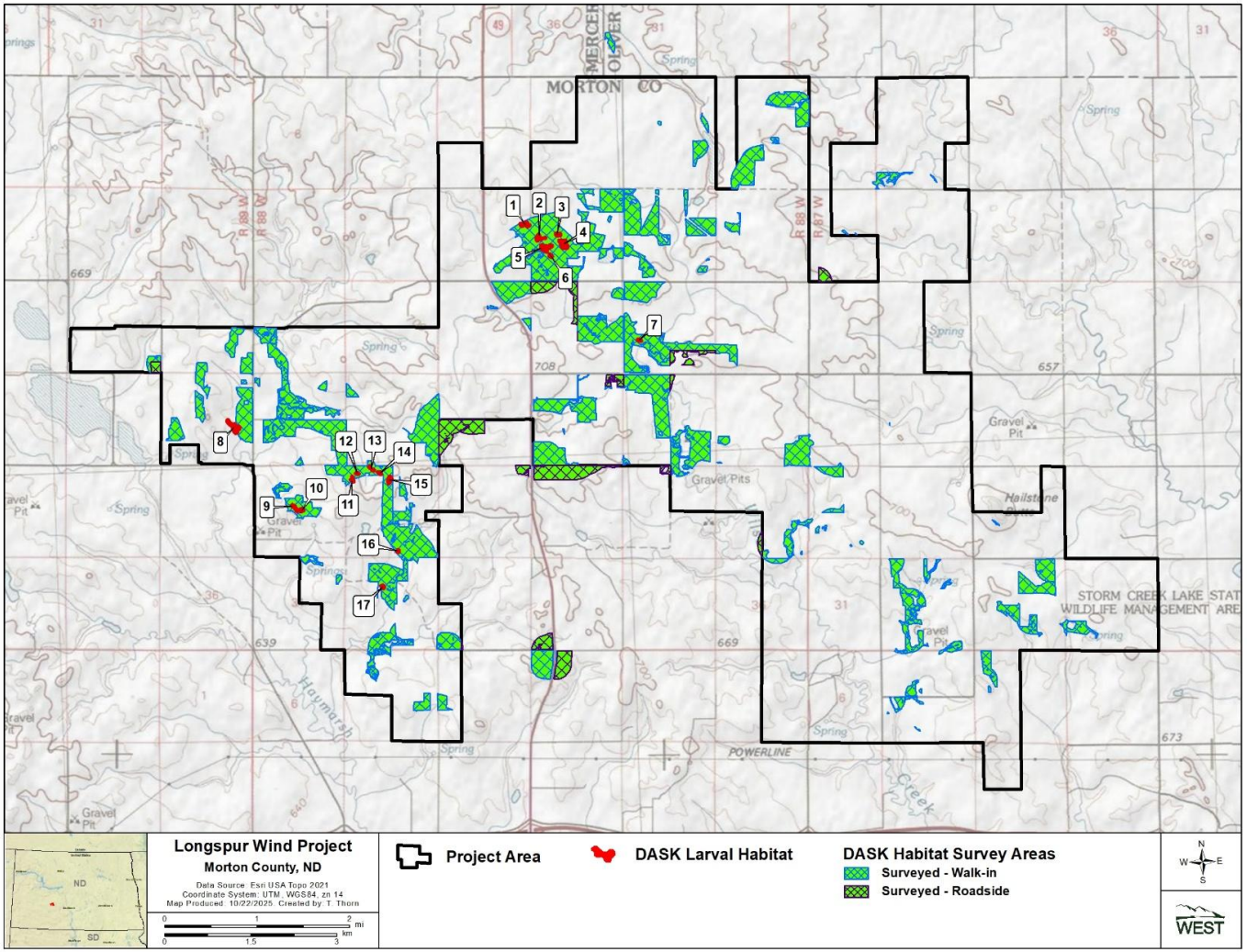


**Figure 3a. Dakota skipper (DASK) larval habitat patch locations within the Longspur Wind Project Survey Area in Morton, Mercer, and Oliver Counties, North Dakota, August 4 – October 2, 2025.**

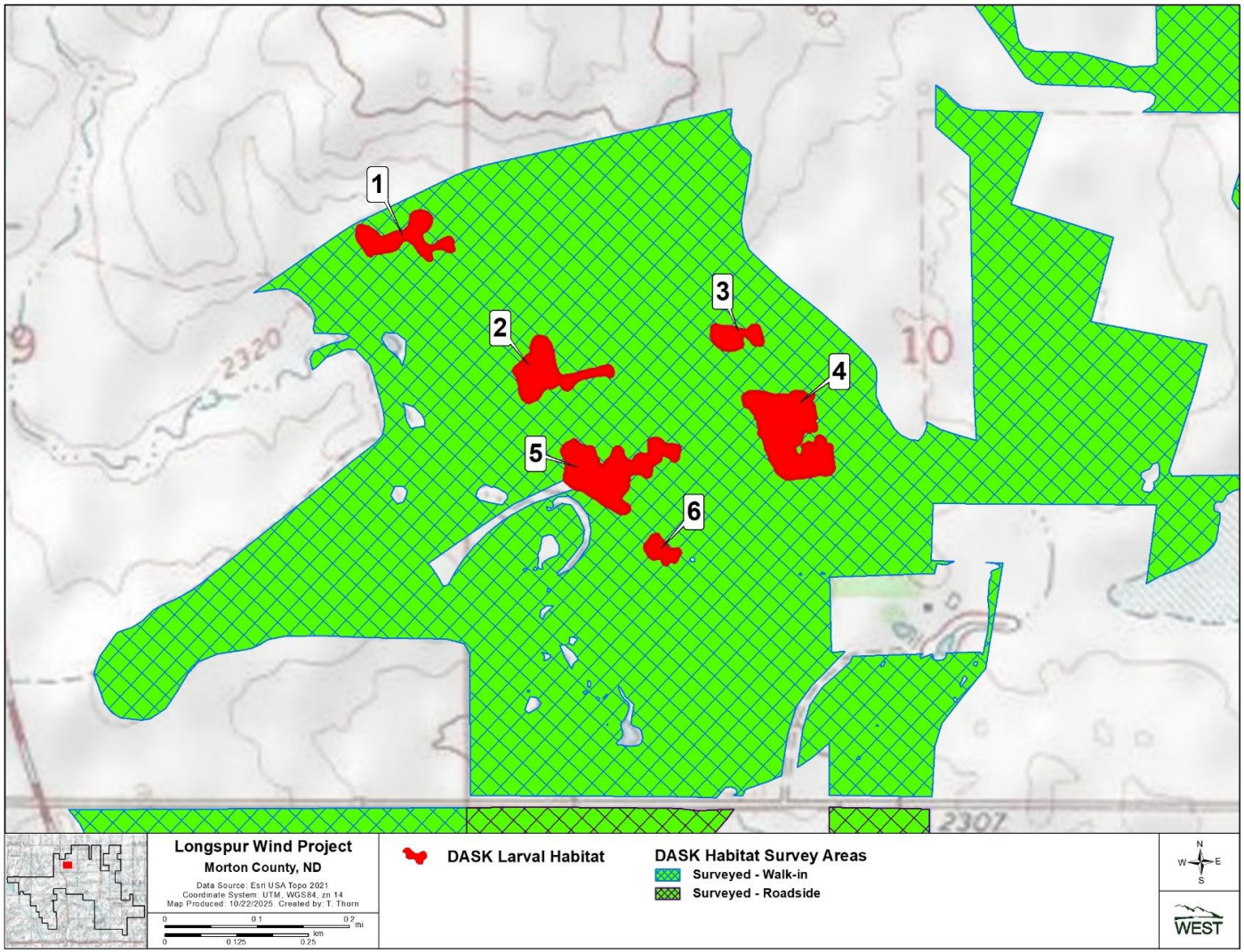


**Figure 3b. Dakota skipper (DASK) larval habitat patch locations in the northern portion of the Longspur Wind Project Survey Area in Morton County, North Dakota, August 4 – October 2, 2025.**



Longspur T-Line 000817

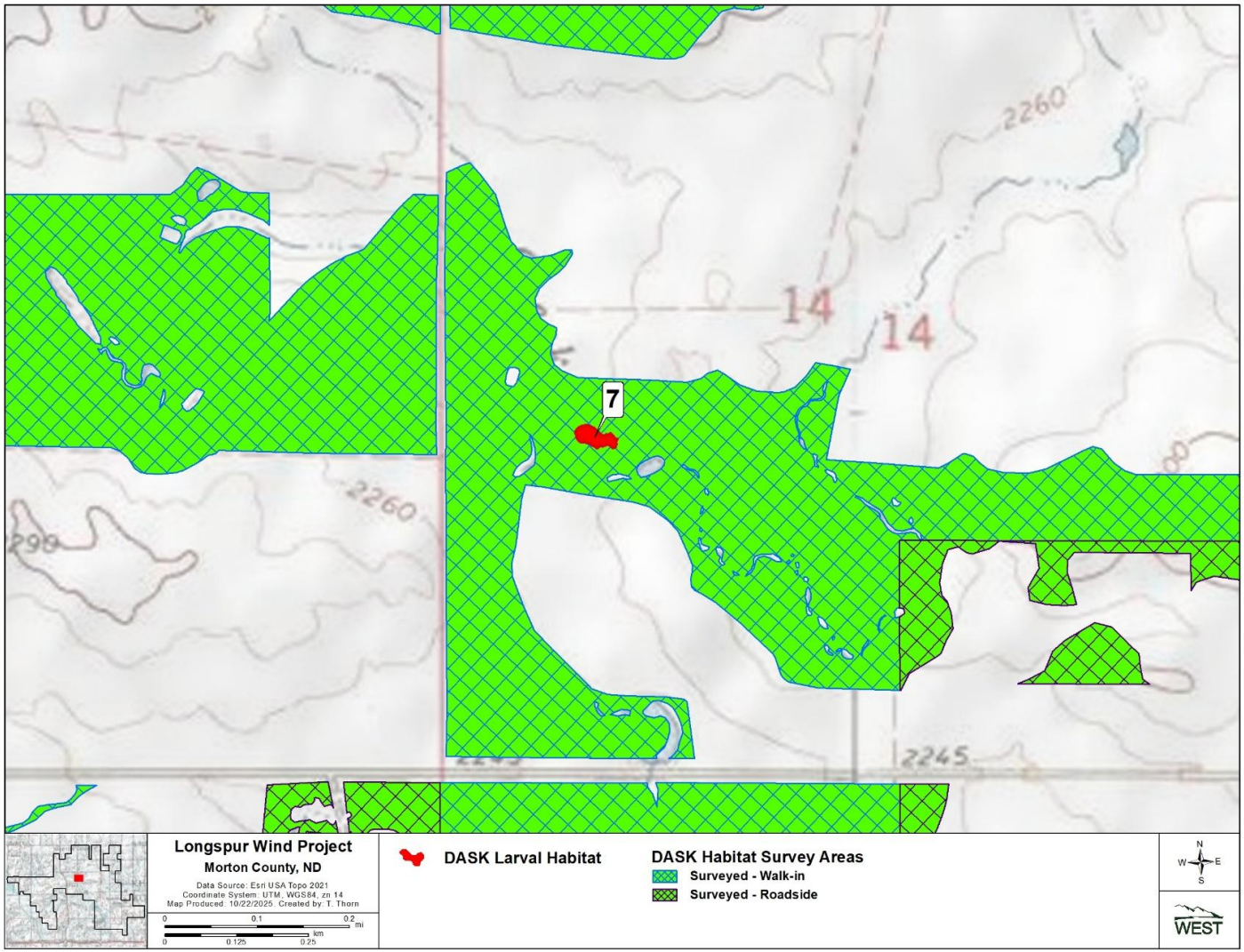


**Figure 3c. Dakota skipper (DASK) larval habitat patch locations in the central portion of the Longspur Wind Project Survey Area in Morton County, North Dakota, August 4 – October 2, 2025.**



Longspur T-Line 000818

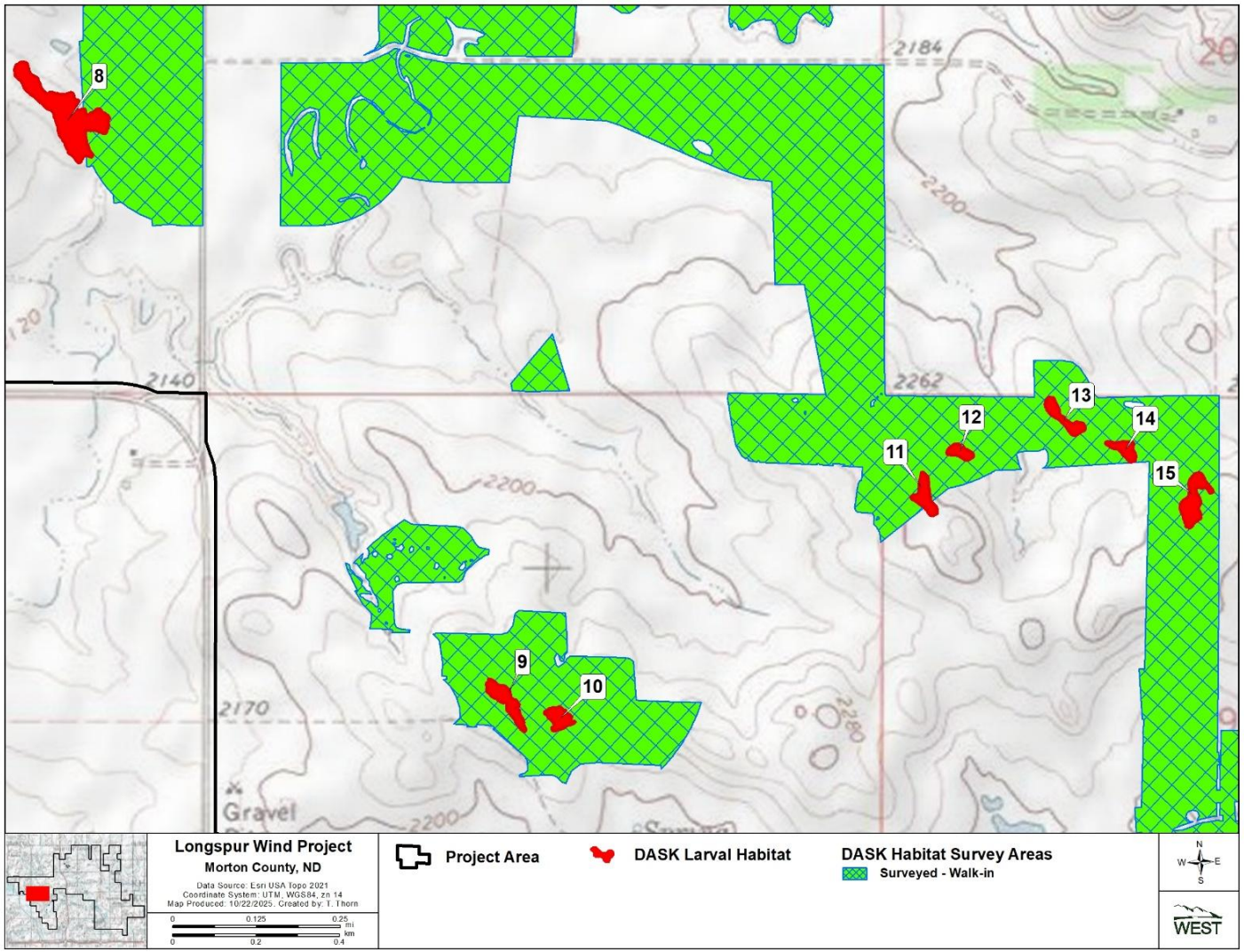


**Figure 3d. Dakota skipper (DASK) larval habitat patch locations in the western portion of the Longspur Wind Project Survey Area in Morton County, North Dakota, August 4 – October 2, 2025.**

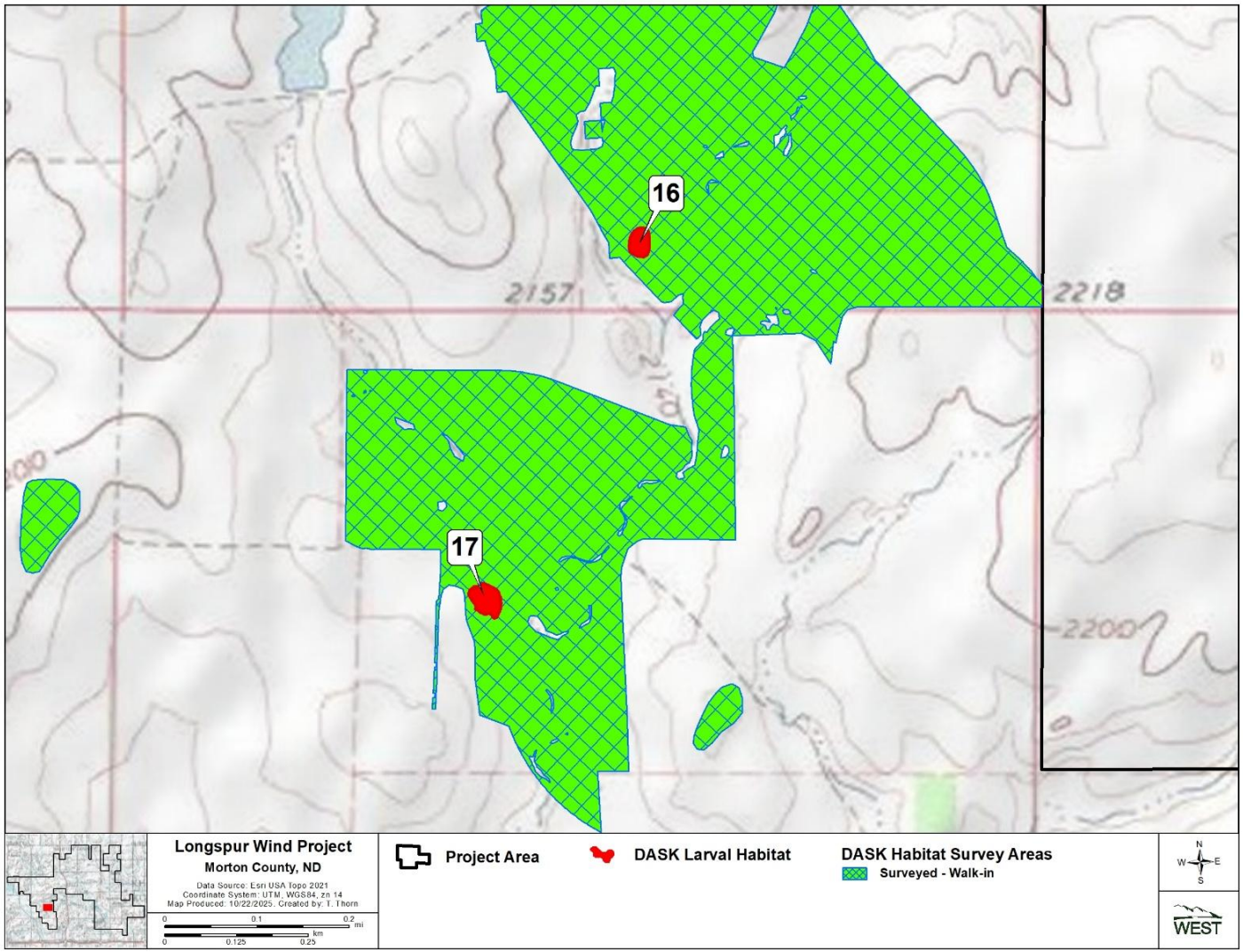


**Figure 3e. Dakota skipper (DASK) larval habitat patch locations in the southwestern portion of the Longspur Wind Project Survey Area in Morton County, North Dakota, August 4 – October 2, 2025.**

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**Appendix A. Representative Photographs Taken During the Dakota Skipper Habitat Survey Conducted for the Longspur Wind Project Area in Morton County, North Dakota, August 4 – October 2, 2025.**

**Appendix A1. Suitable Dakota skipper (DASK) habitat located on a hilltop at DASK Area ID 1 with patches of purple coneflower, dotted blazing star, and fringed prairie sagewort at the Longspur Wind Project Area in Morton County, North Dakota, August 4 – October 2, 2025**.

**Appendix A2. Suitable Dakota skipper (DASK) habitat located on a hilltop at DASK Area ID 2 with patches of purple coneflower, dotted blazing star, and fringed prairie sagewort at the Longspur Wind Project Area in Morton County, North Dakota, August 4 – October 2, 2025.**

**Appendix A3. Suitable Dakota skipper (DASK) habitat located on a hilltop at DASK Area ID 8 with patches of pasque flower and fringed prairie sagewort at the Longspur Wind Project Area in Morton County, North Dakota, August 4 – October 2, 2025.**

**Appendix A4. Representative photo of Dakota skipper non-habitat grasslands dominated by smooth brome at the Longspur Wind Project Area in Morton County, North Dakota.**

**Appendix A5. Representative photo of Dakota skipper non-habitat grasslands dominated by blue grama with wheat fields in background at the Longspur Wind Project Area in Morton County, North Dakota.**

Studies and Assessments

B11. Grassland Survey (2025)

# Grassland Habitat Assessment
# Longspur Wind Project
# Morton County, North Dakota

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## Final Report
## November 2024

**Prepared for:**

**Minnesota Power**

30 West Superior Street
Duluth, Minnesota 55802

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**Prepared by:**

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**December 18, 2024**

WEST

*Confidential Business Information*

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## REPORT REFERENCE

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Appendix A. Representative Photographs of Unbroken and Broken Grassland Habitats at the Longspur Wind Project in Morton County, North Dakota, November 7–8, 2024.

## INTRODUCTION

Minnesota Power is developing the Longspur Wind Project (Project) in Morton County, North Dakota (Figure 1). Minnesota Power contracted Western EcoSystems Technology, Inc. (WEST), to complete a grassland habitat assessment, including categorization of unbroken/broken sod status, to support development of the Project. Unbroken grasslands, defined in the North Dakota Game and Fish Department's (NDGFD) *KeyWind Energy Development in North Dakota, Best Management Practices* (2021) as "grasslands that have not been tilled or otherwise broken," are considered key habitat for the "health and long-term survival of many of North Dakota's native wildlife".

The objective of this study was to identify unbroken and broken grasslands within the Project Area (Figure 1). This effort verified and updated previous grassland surveys conducted at the Project in 2020 (Brazeal and Piorkowski 2021) using current data and refreshed field verification for the Project Area. A desktop review identified grassland parcels and categorized the sod type of each parcel as either unbroken or broken. Field surveys were then conducted to verify the current land cover status of all identified grasslands within the Project Area, including those grasslands previously verified in 2020. Results from this assessment can help inform siting of facilities and guide decisions regarding future survey needs at the Project.

## PROJECT AREA

The Project is located in south-western North Dakota, approximately four miles north of Glen Ullin in Morton County (Figure 1). The Project is within the Northwestern Great Plains Level III and the Missouri Plateau Level IV ecoregions, which encompass much of western North Dakota (US Environmental Protection Agency 2012). This ecoregion consists of semi-arid rolling plains punctuated by buttes and badlands.

The Project Area, provided in October 2024, is approximately 25,933 acres (ac; Figure 1). Topography within the Project Area is characterized by flat land to gently rolling hills with elevation ranging from 2,080–2,477 feet above mean sea level (US Geological Survey 2024). Small waterways and scattered natural and man-made wetlands are present in the Project Area (US Fish and Wildlife Service National Wetlands Inventory 2024). The primary land uses include cultivated crops and livestock grazing. According to the National Land Cover Database (NLCD), the Project Area is primarily a mix of cropland (56.3%) and herbaceous (grasslands) land cover (32.3%). Other common land cover types in the Project Area include shrub/scrub (4.5%), hay/pasture (4.1%), and developed (2.3%; NLCD 2021; Table 1). Each remaining land cover type comprises less than 1% of the Project Area (Table 1).

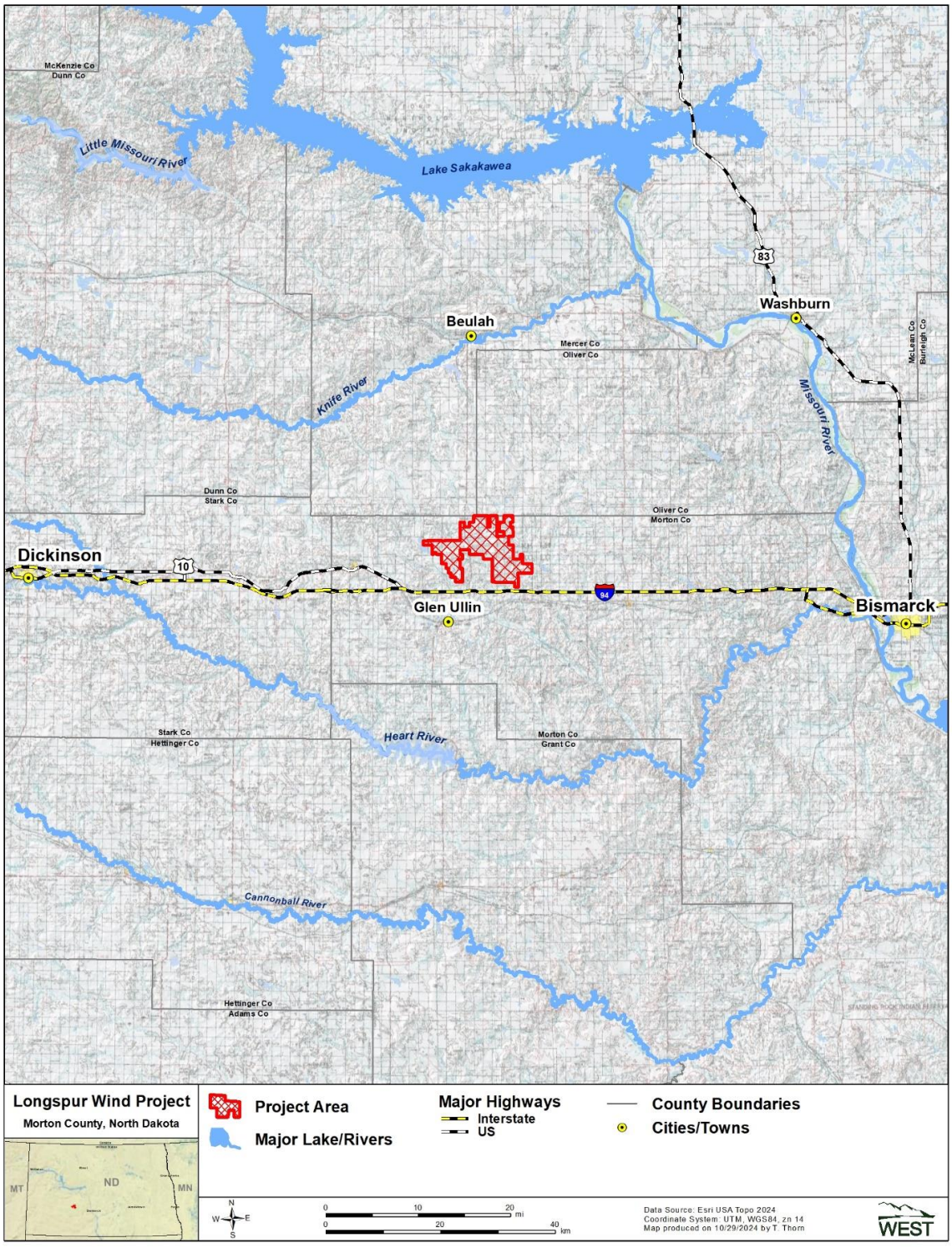


**Figure 1. Location of the Longspur Wind Project in Morton County, North Dakota.**

**Table 1. Land cover types, coverage, and percent composition within the Project Area at the Longspur Wind Project in Morton County, North Dakota.**

| Land Cover Type | Coverage (acres) | Percent Composition |
|---|---|---|
| Cultivated Crops | 14,604 | 56.3 |
| Herbaceous | 8,371 | 32.3 |
| Shrub/Scrub | 1,172 | 4.5 |
| Hay/Pasture | 1,061 | 4.1 |
| Developed | 605 | 2.3 |
| Water/Wetland | 91 | 0.4 |
| Tree/Forest | 29 | 0.1 |
| Barren Land | 2 | <0.1 |
| **Total[1]** | **25,933** | **100** |

[1.] Sums of values may not add to the total value shown, due to rounding.

Source: National Land Cover Database 2021.

## METHODS

The grassland assessment was completed using a two-step process: a desktop review followed by field verification. The desktop review was completed for the entire Project Area. The field verification surveys were conducted at all identified grassland parcels within the Project Area, to the extent possible.

### Desktop Review

WEST completed a desktop review to identify potential grasslands within the Project Area using aerial imagery (US Department of Agriculture [USDA] Farm Production and Conservation Business Center 2023) and NDGFD's "Native Prairie" layer (2022). This review, conducted using Environmental Systems Research Institute Software (ArcGIS 10.8), resulted in a digital data layer of polygons delineating "grassland" or "other" (i.e., non-grass areas such as cultivated cropland, shrub/scrub, development, wetlands, forests, and barren land).

Delineated grassland polygons were further examined using a series of historical USDA National Agriculture Imagery Program aerial photography and USDA North Dakota statewide imagery from 1957 – 1962 (USDA 2017) and defined by visual changes in the landscape (e.g., grassland to cropland or forest edges) to establish a preliminary classification of the grassland sod type (i.e., unbroken or broken). A unique identifier (Grassland ID) was given to each polygon. Broken sod was identified based on features such as rock piles indicating extensive mechanized rock clearing; presence and amount or height of trees and shrubs; field edge changes; absence of scattered rocks; straight line features indicating plowing, disking, harvesting, or planting; or any other features indicating human disturbance. Unbroken sod was identified based on the lack of these disturbance features. The geographical information system specialist provided maps showing all grassland polygons, Grassland ID, roads, cities, and land access information for field verification surveys.

### Field Surveys

Field surveys were conducted to verify the desktop classification of unbroken and broken grasslands within the Project Area. A biologist conducted visual surveys from publicly accessible roads using binoculars. For each grassland polygon that was visible, the biologist recorded the sod type (unbroken, broken), tree/shrub presence, field edge changes, rock piles, human disturbance such as buildings, and linear features such as disking, harvesting, plowing, or planting. Representative photographs were taken to document the status and features of the grassland parcels (Appendix A). Field surveys included field verification from at least one survey location for each of the desktop delineated polygons and may not be a complete representation of the entire polygon. In the event that a grassland polygon was not visible from public roads, previously verified data from Brazeal and Piorkowski (2021) were used. If no previously verified data was available, grassland polygon classification was based on a desktop review only.

WEST implemented quality assurance and quality control measures at all stages of the assessment, including during the desktop review, in the field, during data entry, and during report writing. If any errors, omissions, or problems were identified, follow-up measures were implemented including discussions and review of field data with field staff and/or the Project Manager. Upon completion of field surveys, the digital data layer created during the desktop review was updated, as needed.

## RESULTS

The desktop review identified 9,064 ac of grassland in the Project Area (Table 2, Figure 2). Field verification surveys were conducted from November 7–8, 2024, for all visible grassland polygons within the Project Area. Approximately 86% (7,813 ac) of grasslands in the Project Area were classified as unbroken. Of this, 7,773 ac were confirmed unbroken by field verification and 40 ac were classified as unbroken based on only the desktop review (Table 2, Figure 2). The remaining 14% (1,252 ac) of grasslands were classified as broken, with 1,189 ac of this confirmed broken during field verification surveys (Table 2, Figure 2).

**Table 2. Grassland sod types and field verification of grassland sod types within the Longspur Wind Project in Morton County, North Dakota.**

| Sod Type | Survey Type | Acres |
|---|---|---|
| Unbroken Grassland | Field Verified | 7,773 |
| | Desktop Review | 40 |
| Broken Grassland | Field Verified | 1,189 |
| | Desktop Review | 63 |
| **Total[1]** | | **9,064** |

1. Sums of values may not add to the total value shown, due to rounding.

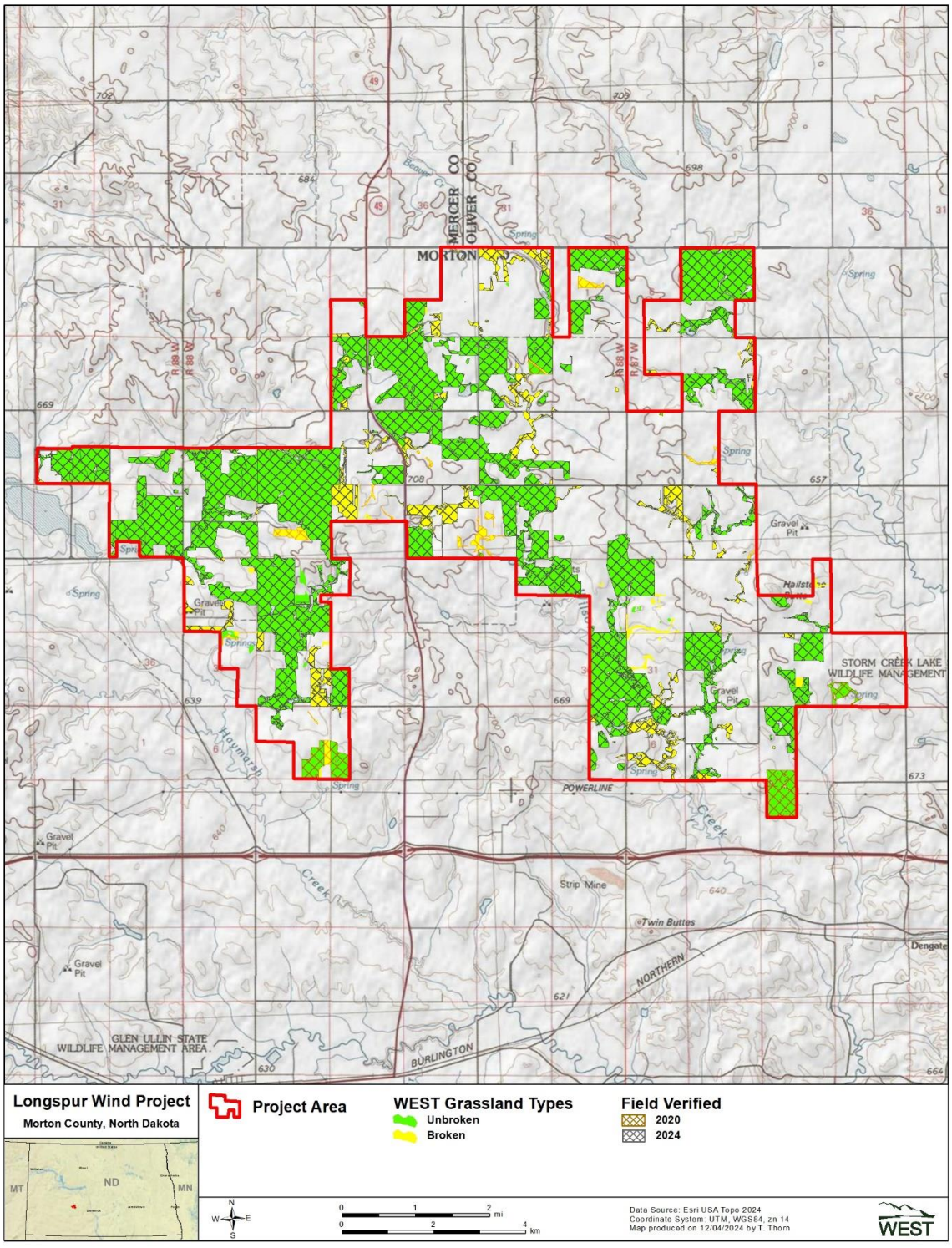


**Figure 2. Results of the 2024 desktop review and field verification of potential grassland habitat at the Longspur Wind Project in Morton County, North Dakota.**

## REFERENCES

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**Appendix A. Representative Photographs of Unbroken and Broken Grassland Habitats at the Longspur Wind Project in Morton County, North Dakota, November 7–8, 2024.**

**Appendix A1. Unbroken grassland habitat within the Longspur Wind Project in Morton County, North Dakota, November 7–8, 2024.**

**Appendix A2. Unbroken grassland habitat within the Longspur Wind Project in Morton County, North Dakota, November 7–8, 2024.**

**Appendix A3. Broken grassland habitat within the Longspur Wind Project in Morton County, North Dakota, November 7–8, 2024.**

**Appendix A4. Broken grassland habitat within the Longspur Wind Project in Morton County, North Dakota, November 7–8, 2024**

**APPENDIX C**
Agency Notification Letters and Responses

Agency Notification Letters and Responses

C1. Agency Notification Letter Templates

minnesota power

AN ALLETE COMPANY

Month, Day, Year **VIA U.S. Mail**

Name
Agency
Title
Address
Address

**Re: Longspur Wind Project**
**Morton and Mercer Counties, North Dakota**
**Request for Agency Comments**

Dear Name:

Minnesota Power, an operating division of ALLETE, Inc., is proposing to construct an approximately 200 megawatt wind energy conversion facility, known as the Longspur Wind Project (Project), in Morton and Mercer Counties, North Dakota. The Project will include a 2.5-mile-long, 230-kilovolt (kV) transmission line (gen-tie line) to connect the Project's substation in Morton County to the existing Tri-County 230 kV substation in Mercer County, which will also serve as the Project's Point of Interconnection.

Minnesota Power plans to submit applications for a Certificate of Site Compatibility and a Certificate of Corridor Compatibility for the Project to the North Dakota Public Service Commission (ND PSC) in the fall of 2025. The Project is anticipated to be in operation before the end of 2027.

The Project's permanent facilities will include:

- Approximately 45 wind turbines and associated equipment
- Access roads to wind turbine locations
- Electrical collection lines
- A Project substation
- 2.5-mile 230kV Transmission Line
- An operations and maintenance facility
- Aircraft detection lighting system
- Up to two permanent meteorological towers

The Project's temporary facilities will include:

- Staging/laydown areas for construction activities
- Improvements to existing roads for transport and access during construction
- Crane paths between turbines during construction

The purpose of this letter is to provide notification of the proposed Project per Section 69-06-01-05 of the North Dakota Administrative Code. Minnesota Power is soliciting input from your agency or entity regarding any sensitive resources, current or planned development, or property interests your agency or entity may have in or around the Study Area that Minnesota Power should consider as it

moves forward with Project development. In addition, we ask that you provide information regarding any applicable permits that may be required from your office.

Minnesota Power respectfully requests your response within 30 days of receipt of this letter. Copies of all correspondence received in response to this letter will be included with the ND PSC application. Minnesota Power requests review of the Study Area shown within the legal descriptions provided in the table below and on the attached map.

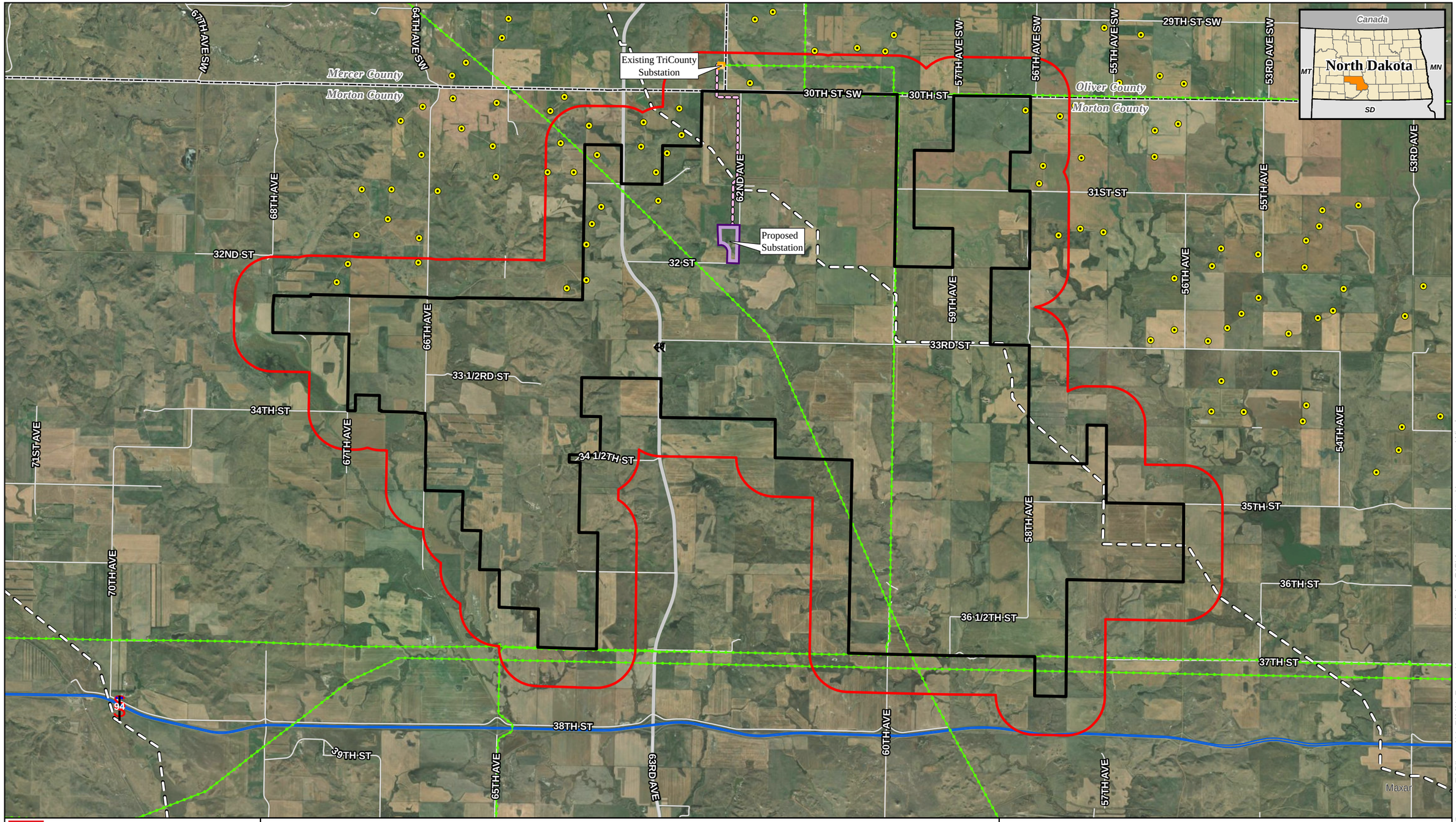
| County | Township | Range | Section(s) |
|---|---|---|---|
| Mercer | 141 North | 87 West | 31, 32, 33, 34, 35 |
| | 141 North | 88 West | 36 |
| Morton | 139 North | 87 West | 2, 3, 4, 5, 6, 7, 8, 9 |
| | 139 North | 88 West | 1, 4, 5, 6, 7, 8, 9, 12 |
| | 140 North | 87 West | 4, 5, 6, 7, 8, 9, 16, 17, 18, 19, 20, 21, 22, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 |
| | 140 North | 88 West | 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| | 140 North | 89 West | 13, 14, 15, 22, 23, 24, 25, 26, 36 |

If further information is desired or if you have comments regarding the Project, please contact me at the address below, at 218-355-3569, or at djanke@mnpower.com.

Sincerely,

Drew Janke
Environmental Compliance Specialist II
Minnesota Power | ALLETE Inc.

Enclosure: Project Overview Map

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For Environmental Review Purposes Only

4

# Longspur Wind Project

## Minnesota Power

### Project Area

### Morton County, North Dakota

- Minnesota Power's Project Study Area
- Project Boundary
- Proposed Substation
- Existing TriCounty Substation
- Existing Wind Turbine
- Proposed Gen-Tie Route
- Existing Pipeline
- Existing Transmission Line
- County Boundary

Source: Z:\Clients\M_P\MN_Power\Longspur_Wind\ArcGIS\Agency_Letters\Longspur_Wind.aprx

Date: (5/30/2025)

Agency Notification Letters and Responses

C2. North Dakota Aeronautics Commission

## Alex Luman (MP)

**From:** Erwin, Grant <gerwin@nd.gov>
**Sent:** Tuesday, July 8, 2025 2:15 PM
**To:** Drew Janke (MP)
**Cc:** Wanner, Kyle C.
**Subject:** [EXTERNAL MAIL] Minnesota Power - Longspur Wind Project
**Attachments:** MinnPower proposed wind facility.pdf

You don't often get email from gerwin@nd.gov. Learn why this is important

Think Before You Click

**[EXTERNAL EMAIL] This email was sent from someone outside the company.**

Don't let cyber threats cloud our summer! Remember not to click links, download attachments, or reply with personal information unless you recognize the sender and know the content is safe.

Good afternoon, Mr. Janke.

My name is Grant Erwin, airport planner with the North Dakota Aeronautics Commission (NDAC). You recently informed us of the Longspur Wind Project, a proposed wind energy conversion facility in Morton & Mercer Counties. Attached is the proposal as we received.

Currently, NDAC has no comments regarding the proposed project area. We monitor airspace surrounding our local public airports and study any possible obstructions or structures that could pose a safety risk to pilots navigating the surrounding airspace. The closest public airport to the project area is Glen Ullin Regional Airport (D57). The closest boundary of the study area is approximately 3.7 nautical miles from the airfield. At this distance, there are no dangers or obstructions to any protected surfaces at the airport. Other airports near to the project area are Beulah Municipal (95D), and Mercer County Regional (KHZE) airports. At distances of approximately 15.7 nautical miles and 19.4 nautical miles respectively, NDAC has no concerns regarding the airspace & protected surfaces for these airports.

If you haven't already, I highly recommend contacting the three airport authorities mentioned above. Please share project information with them. I also recommend contacting the Federal Aviation Administration (FAA) as well, to keep them informed of the project and proposed wind turbine locations as the project progresses. I have listed my best contacts for each entity below.

- Glen Ullin Regional Airport: Gene Glasser, Chair
  - cgene@westriv.com
  - 701-226-1147
- Beulah Municipal Airport: Shawn Morten, Manager
  - smorten@dakotahelicopters.com
  - 701-870-4100
- Mercer County Regional Airport: Steve Frovarp, Manager
  - Steve_nd@hotmail.com

    - 701-880-9989
- FAA: Travis Schmit, Program Manager
    - Travis.l.schmit@faa.gov
    - 701-323-7392

Best Regards,


## Grant Erwin

Airport Planner
ND Aeronautics Commission
Phone: (701) 328-9655 (office)
(701) 595-3856 (mobile)
Email: gerwin@nd.gov

minnesota power
AN ALLETE COMPANY

July 25, 2025 **VIA Email**

Shawn Morten
Beulah Municipal Airport
Airport Manager
6220 County 20
Beulah, ND 58523
smorten@dakotahelicopters.com

**Re: Longspur Wind Project**
**Morton and Mercer Counties, North Dakota**

Dear Mr. Morten:

Minnesota Power, an operating division of ALLETE, Inc., is proposing to construct an approximately 200-megawatt wind energy conversion facility, known as the Longspur Wind Project (Project), in Morton and Mercer Counties, North Dakota. The Project will include a 2.5-mile-long, 230-kilovolt (kV) transmission line (gen-tie line) to connect the Project's substation in Morton County to the existing Tri-County 230 kV substation in Mercer County, which will also serve as the Project's Point of Interconnection.

Grant Erwin, an airport planner with the North Dakota Aeronautics Commission, recently communicated there are no foreseen concerns with this proposed Project. Based on your proximity to the Longspur Project Study Area, Minnesota Power is soliciting any input you may have regarding any sensitive resources, current or planned development, or property interests in or around the Study Area that Minnesota Power should consider as it moves forward with Project development.

The Project's permanent facilities will include:

- Approximately 45 wind turbines and associated equipment
- Access roads to wind turbine locations
- Electrical collection lines
- A Project substation
- 2.5-mile 230kV Transmission Line
- An operations and maintenance facility
- Aircraft detection lighting system
- Up to two permanent meteorological towers

The Project's temporary facilities will include:

- Staging/laydown areas for construction activities
- Improvements to existing roads for transport and access during construction
- Crane paths between turbines during construction

minnesota power
AN ALLETE COMPANY

The table below displays the legal descriptions associated with the Study Area as shown in the attached map.

| County | Township | Range | Section(s) |
|---|---|---|---|
| Mercer | 141 North | 87 West | 31, 32, 33, 34, 35 |
| | 141 North | 88 West | 36 |
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| | 140 North | 88 West | 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| | 140 North | 89 West | 13, 14, 15, 22, 23, 24, 25, 26, 36 |

Minnesota Power plans to submit applications for a Certificate of Site Compatibility and a Certificate of Corridor Compatibility for the Project to the North Dakota Public Service Commission (ND PSC) in the fall of 2025. The Project is anticipated to be in operation before the end of 2027.

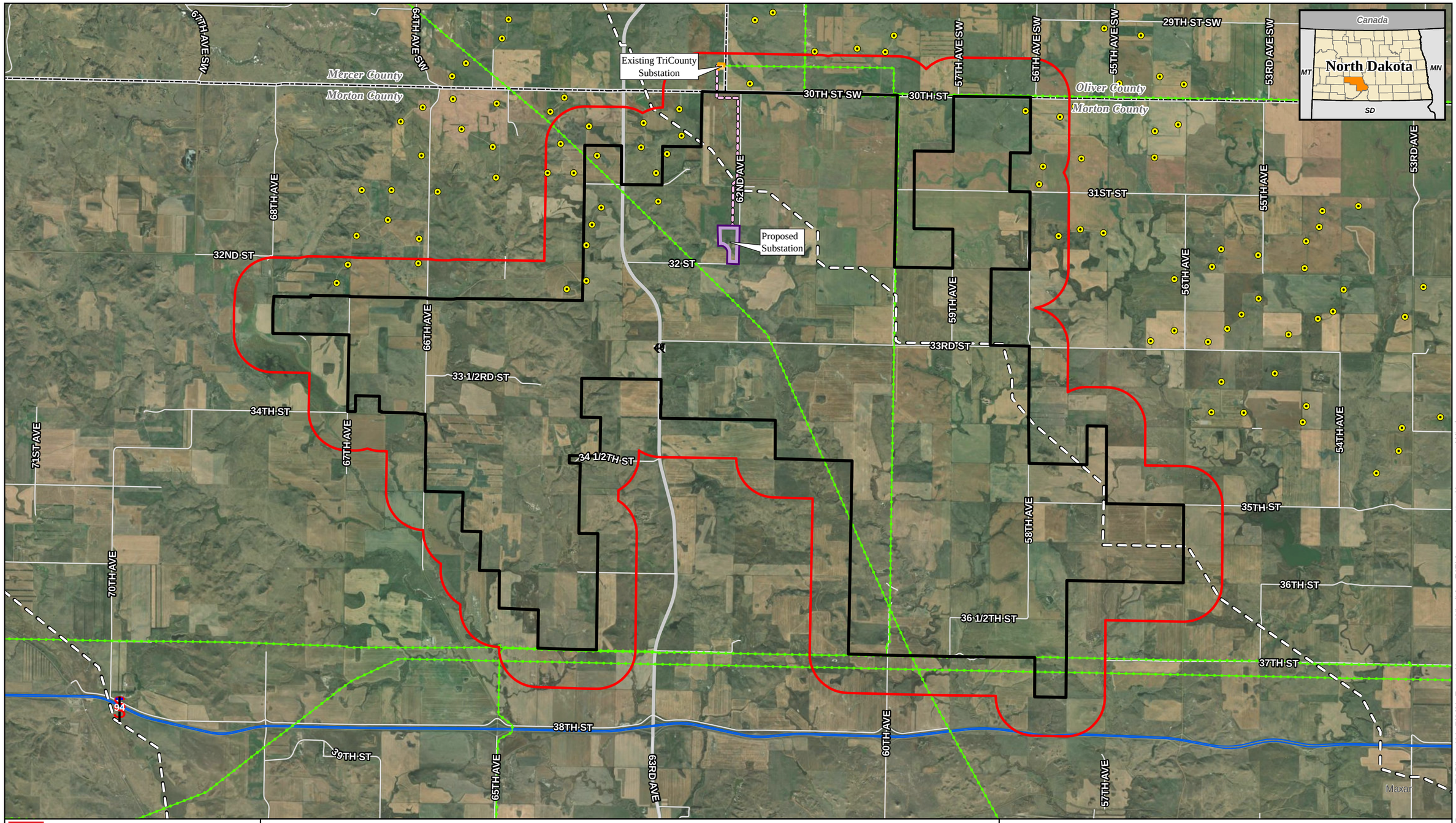
Copies of all correspondence received in response to this letter will be included with the ND PSC application.

If you have any questions, concerns, or information that may be of assistance in development of the Project, please contact me at the address below, at 218-355-3569, or at djanke@mnpower.com.

Sincerely,

Drew Janke
Environmental Compliance Specialist II
Minnesota Power | ALLETE Inc.

Enclosure: Project Overview Map

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For Environmental Review Purposes Only

# Longspur Wind Project

## Minnesota Power

### Project Area

### Morton County, North Dakota

- Minnesota Power's Project Study Area
- Project Boundary
- Proposed Substation
- Existing TriCounty Substation
- Existing Wind Turbine
- Proposed Gen-Tie Route
- Existing Pipeline
- Existing Transmission Line
- County Boundary

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Date: (5/30/2025)

minnesota power
AN ALLETE COMPANY

July 25, 2025 **VIA Email**

Steve Frovarp
Mercer County Regional Airport
Airport Manager
P.O. Box 507
Hazen, ND 58545
Steve_nd@hotmail.com

**Re: Longspur Wind Project**
**Morton and Mercer Counties, North Dakota**

Dear Mr. Frovarp:

Minnesota Power, an operating division of ALLETE, Inc., is proposing to construct an approximately 200-megawatt wind energy conversion facility, known as the Longspur Wind Project (Project), in Morton and Mercer Counties, North Dakota. The Project will include a 2.5-mile-long, 230-kilovolt (kV) transmission line (gen-tie line) to connect the Project's substation in Morton County to the existing Tri-County 230 kV substation in Mercer County, which will also serve as the Project's Point of Interconnection.

Grant Erwin, an airport planner with the North Dakota Aeronautics Commission, recently communicated there are no foreseen concerns with this proposed Project. Based on your proximity to the Longspur Project Study Area, Minnesota Power is soliciting any input you may have regarding any sensitive resources, current or planned development, or property interests in or around the Study Area that Minnesota Power should consider as it moves forward with Project development.

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minnesota power
AN ALLETE COMPANY

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If you have any questions, concerns, or information that may be of assistance in development of the Project, please contact me at the address below, at 218-355-3569, or at djanke@mnpower.com.

Sincerely,

Drew Janke

Drew Janke
Environmental Compliance Specialist II
Minnesota Power | ALLETE Inc.

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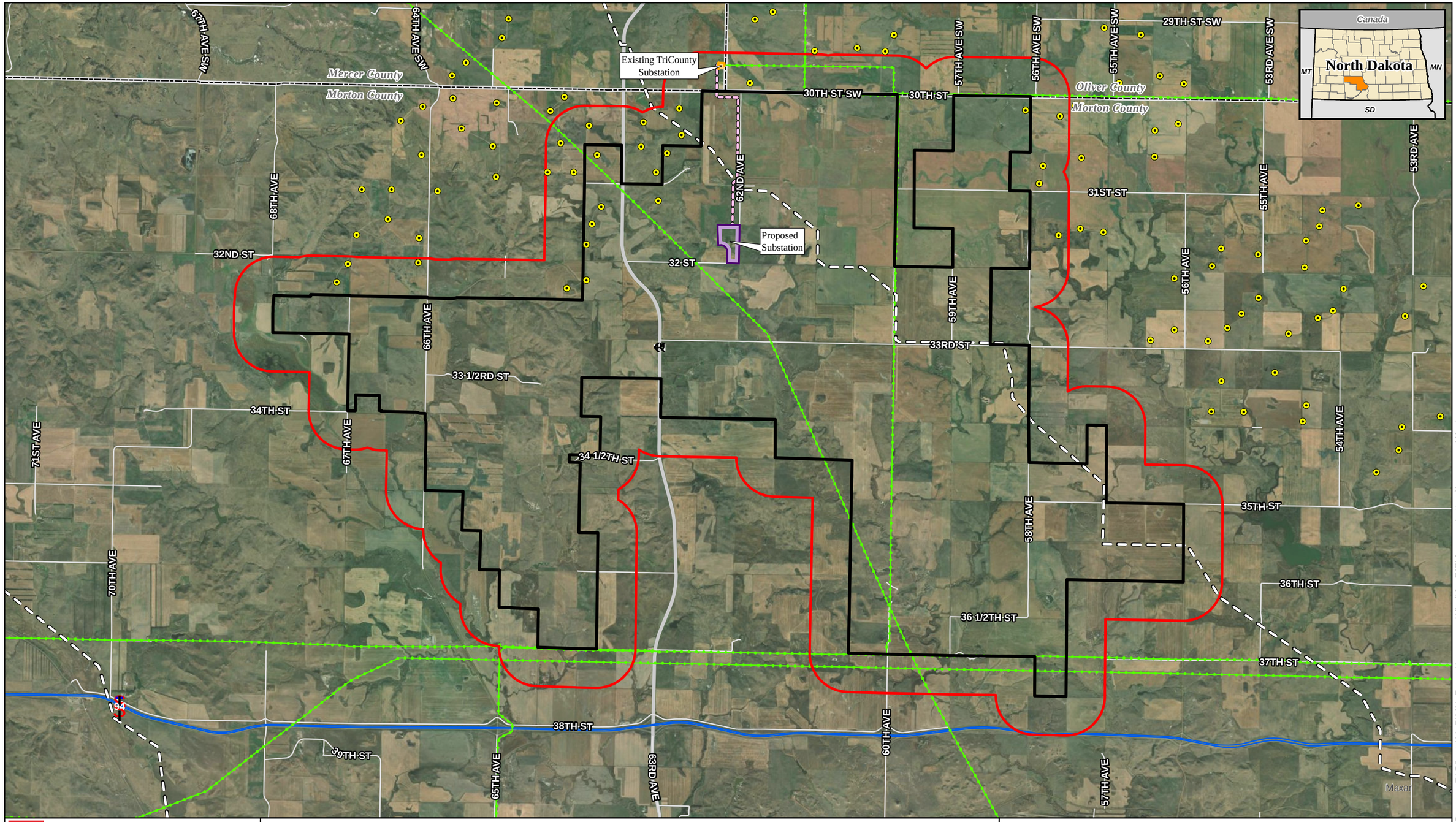


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For Environmental Review Purposes Only

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**Longspur Wind Project**

**Minnesota Power**

**Project Area**

**Morton County, North Dakota**

- Minnesota Power's Project Study Area
- Project Boundary
- Proposed Substation
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- County Boundary

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Date: (5/30/2025)

minnesota power
AN ALLETE COMPANY

July 25, 2025 **VIA Email**

Gene Glasser
Glen Ullin Regional Airport
Airport Manager
P.O. Box 306
Glen Ullin, ND 58631
cgene@westriv.com

**Re: Longspur Wind Project**
**Morton and Mercer Counties, North Dakota**

Dear Mr. Glasser:

Minnesota Power, an operating division of ALLETE, Inc., is proposing to construct an approximately 200-megawatt wind energy conversion facility, known as the Longspur Wind Project (Project), in Morton and Mercer Counties, North Dakota. The Project will include a 2.5-mile-long, 230-kilovolt (kV) transmission line (gen-tie line) to connect the Project's substation in Morton County to the existing Tri-County 230 kV substation in Mercer County, which will also serve as the Project's Point of Interconnection.

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minnesota power
AN ALLETE COMPANY

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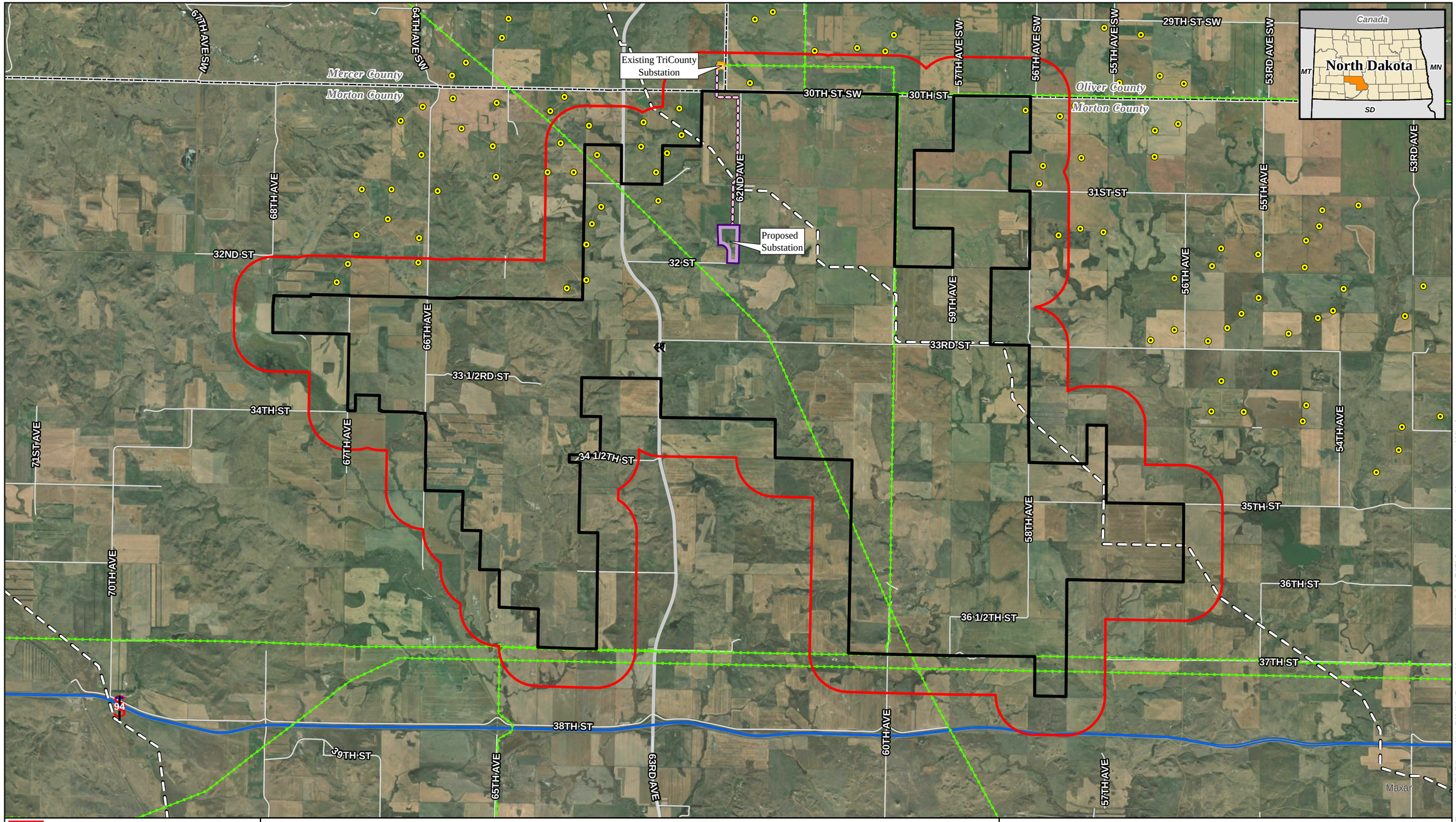
If you have any questions, concerns, or information that may be of assistance in development of the Project, please contact me at the address below, at 218-355-3569, or at djanke@mnpower.com.

Sincerely,

Drew Janke
Environmental Compliance Specialist II
Minnesota Power | ALLETE Inc.

Enclosure: Project Overview Map

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For Environmental Review Purposes Only

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**Longspur Wind Project**
**Minnesota Power**
**Project Area**
**Morton County, North Dakota**

- Minnesota Power's Project Study Area
- Project Boundary
- Proposed Substation
- Existing TriCounty Substation
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- Existing Pipeline
- Existing Transmission Line
- County Boundary

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Date: (5/30/2025)

Agency Notification Letters and Responses

C3. North Dakota Department of Agriculture

## Alex Luman (MP)

**From:** Bialke, Joseph P. <bialkej@nd.gov>
**Sent:** Thursday, June 26, 2025 4:30 PM
**To:** Drew Janke (MP)
**Cc:** Bodine, Thomas H.; Miller, Adam M.
**Subject:** [EXTERNAL MAIL] Longspur Wind Project Notice - North Dakota Department of Agriculture Mitigation Program
**Attachments:** Longspur Wind Project Notice - dtd 6.18.25.pdf; Mitigation Progam Statutes (effective March 27, 2025).pdf; mitigation fund admin rules - eff 7.1.24.pdf

**Importance:** High

You don't often get email from bialkej@nd.gov. Learn why this is important

Think Before You Click

**[EXTERNAL EMAIL] This email was sent from someone outside the company.**

Don't let cyber threats cloud our summer! Remember not to click links, download attachments, or reply with personal information unless you recognize the sender and know the content is safe.

Drew

Agriculture Commissioner Goehring is in receipt of your attached letter, received June 23, 2025. Thank you for your detailed correspondence.

I know the issue of potential environmental mitigation for this various project may still be at least a year or two into the future. Nonetheless, I thought I'd proactively reach out to you in relation to mitigating or offsetting potential direct or indirect adverse environmental impacts associated with the construction and operation of the proposed Longspur wind project.

As you are aware, in 2023, North Dakota enacted new laws establishing an environmental mitigation program within NDDA to better address adverse environmental impacts resulting from the construction and operation of energy facilities in the State. These laws were further amended last legislative session, in March 2025. These new applicable laws are attached, as well as associated administrative rules that became effective on July 1, 2024.

Prior to the state Public Service Commission issuing a permit or certificate to an applicant under NDCC chapter 49-22, Commissioner Goehring must notify the Public Service Commission of mitigation efforts to create, restore, or mitigate similar habitat affected by the construction or operation of an energy conversion or transmission facility.

Accordingly, these new laws create transparency and ensure that mitigation efforts are properly structured in a manner to reflect the project.

Additionally, these new laws ensure that mitigation projects may no longer result in perpetual easements that affect agricultural land and future infrastructure projects. Now, according to the new laws, perpetual easements are not

permitted. A conservation easement, in relation to an energy facility mitigation project, must be limited in time to no longer than the operational life of the facility.

Since these laws became effective, NDDA has made extensive progress in creating and implementing an approach that provides regulatory certainty and avoids further unintended consequences.

In particular, NDDA manages the environmental impact mitigation fund. These funds are used by NDDA, in accordance with N.D.C.C. § 4.1-01-21.1, primarily to create, restore, or mitigate similar habitat affected by the construction or operation of an energy conversion or transmission facility. Mitigation projects within the vicinity of, or closest to, the wind energy project are given priority.

NDDA works constructively with landowners near the applicable project in establishing preservation and conservation mitigation projects on working lands. Further, NDDA significantly lowers mitigation effort overhead costs by using our existing department resources in the coordination, planning, implementation, and maintenance of these mitigation projects.

We look forward to working with you in relation to any necessary environmental mitigation project that you may contemplate.

Please contact either me or Adam Miller, cc'ed above, if you have any questions or if we can be of any assistance.

All the best,

Dutch

**J.P. "Dutch" Bialke**
General Counsel/Senior Policy Advisor
Special Assistant Attorney General
ND Department of Agriculture
600 E. Boulevard Ave., Dept. 602 | Bismarck, ND 58505-0020
P: 701.328.1496 | F: 701.328.4567
bialkej@nd.gov
www.nd.gov/ndda

## Alex Luman (MP)

**From:** Bialke, Joseph P. <bialkej@nd.gov>
**Sent:** Thursday, October 30, 2025 2:25 PM
**To:** Alex Luman (MP)
**Cc:** Miller, Adam M.; Mitchell Bettenhausen (ACE); Drew Janke (MP); Kevin Shelley
**Subject:** [EXTERNAL MAIL] Grassland Compensatory Mitigation for Longspur Wind Project - Teams call tomorrow afternoon (Friday) at 2:00 pm - October 31
**Attachments:** Mitigation Progam Statutes (effective March 27, 2025).pdf; mitigation fund admin rules - eff 7.1.24.pdf; NDDA working lands mitigation program conservation easement_deed (8.21.2025).pdf; BADGER - ND Dept of Ag MOU (Grassland and Wetland Impact).docx; Letter to PSC.pdf; NDDA - Badger Wind MOU dtd 2.29.24_MDC_Final.pdf; Letter to PSC Commissioner Christmann, dtd 12.29.23 re Oliver Wind IV Project.pdf; NDDA-Oliver Wind IV MOU (Final).pdf; Longspur Wind Project Notice - North Dakota Department of Agriculture Mitigation Program

**Importance:** High

**Follow Up Flag:** Follow up
**Flag Status:** Completed

Be wary!

**[EXTERNAL EMAIL] This email was sent from someone outside the company.**

Happy Cyber Security Awareness Month! Continue to be 'Cyber Smart' by thinking twice before you click links, download attachments, or reply with personal information unless you recognize the sender and know the content is safe.

Alex

Thanks for the below email and our congenial phone conversation this morning.

As discussed, we welcome your interest in the North Dakota Department of Agriculture (NDDA) Working Lands Mitigation Program.

Additionally, thank you for your verbal open public records request to the NDDA. I am responding back to you on behalf of NDDA.

In your open public records request, you requested, in summary:

- a template document/MoU examples related to recent program participation of wind power energy companies in the NDDA Working Lands Mitigation Program

Attached are documents responsive to your request. Any charges or fees associated with NDDA responding to this request for open public records are waived.

For your additional reference, I have also attached corresponding letters from Agriculture Commissioner Goehring to the ND Public Service Commission in relation to the Badger and Oliver Wind Projects, as well as relevant ND statutes and administrative rules. I also attached a word document of a previous finalized MOU.

Moreover, earlier this year the Legislature granted the Agriculture Commissioner the authority to purchase and hold easements on behalf the State (see attached applicable mitigation program ND statutes). Additionally, we are in the process of amending our administration rules accordingly. We'd be happy to discuss these potential administrative rule amendments with you.

We have also created a sample draft conservation easement template (attached). We strived to make it concise, straightforward, and easy to understand – with an emphasis on continuing working lands.

Additionally, we extended our consulting services contract with West Eco Systems Technology through current fiscal biennium. West will be able to provide us technical expertise as we continue to develop and implement our program. I've cc'ed Kevin Shelly from West on this email. We hope he can be on the call tomorrow afternoon.

Now that the Agriculture Commissioner has statutory authority to purchase and hold conservation easements, beginning in the Spring, 2026, we intend to locate, negotiate, and purchase a number of long-term conservation easements in and around North Dakota (using funds from the Mitigation fund you have indicated you wish to contribute to). As you know, these conservation easements are to be limited in duration to the life of the energy facility, as close to the energy facility as feasibly possible, be working lands conservation easements, and, as appropriate, be similar habitat (i.e., grasslands to grasslands, wetlands to wetlands).

In relation to your specific project, if you happen to know of any landowners in the areas of Morton and Mercer counties who might have land suitable for a working lands conservation easement, we are absolutely open to making contact with them – either later on this winter or early next spring.

**Thank you and I look forward to chatting with you tomorrow (Friday) afternoon at 2:00 pm.**

All the best,

Dutch

**J.P. "Dutch" Bialke**
General Counsel/Senior Policy Advisor
Special Assistant Attorney General
ND Department of Agriculture
600 E. Boulevard Ave. Dept. 602 | Bismarck, ND 58505
P: 701.328.1496 | F: 701.328.4567
bialkej@nd.gov | www.ndda.nd.gov

Agency Notification Letters and Responses

C4. North Dakota Game and Fish Department

## USFWS, NDGFD, WEST, and Minnesota Power – Longspur Wind Project Introduction

**Attendees:**

| | |
|---|---|
| USFWS: | Hanna Edens |
| NDGFD: | Bruce Kreft, Elisha Mueller |
| WEST: | Martin Piorkowski, Nicholas O'Neil |
| Merjent: | Dan Flo, Mandy Bohnenblust |
| MN Power/ALLETE: | Ben Reister, Scott Monroe, Mitchell Bettenhausen, John Hollingsworth Chris Aepelbacher, Mike French, Drew Janke, Alex Luman |

**Location:** NDGFD Conference Room & Teams Meeting (Virtual)
**Date/Time:** December 4, 2024; 10:00 – 11:00 AM (CST)

**Summary of Meeting:**

Minnesota Power (MN Power) requested a wildlife agency meeting with US Fish and Wildlife Service (USFWS) and North Dakota Game and Fish Department (NDGFD) on December 4, 2024. The objectives of this meeting were to introduce the Longspur Wind Project (Project) in Morton County, North Dakota to the wildlife agencies and to provide survey results from completed studies and to propose upcoming surveys and studies at the Project. Western EcoSystems Technology, Inc. (WEST) added that a secondary objective of this meeting was to gain any feedback on proposed studies and their designs. A PowerPoint presentation accompanied this meeting for visualization of data and proposed survey efforts.

<u>Project Overview and Timeline</u>

- MN Power Introduced the Project to the USFWS and NDGFD and explained that the Project had been under development over the last decade under different Project names. Project development resumed in early 2024 with the intention to file for permits in 2025 with Public Service Commission (PSC) permitting in mid-late 2025. Targeted construction is anticipated in Q2 of 2026 with commercial operations beginning in Q4 2027.

- WEST explained that although there had been wildlife and habitat work completed at the Project previously, these studies were getting older, and that proposed work would use previously collected information to inform new and updated studies at the Project to provide current data within the new Longspur Wind Project area.

- NDGFD asked if MN Power/ALLETE were aware of any impending changes to wind development with changing of federal administration. MN Power/ALLETE could not say for certain but discussed only small changes were observed in 2017 during similar administration changes.

Previous Study Review

- WEST discussed studies conducted at the Project in 2024 including aerial eagle nest surveys and sharp-tailed grouse lek surveys. Avian use surveys started in September 2024, but no results were discussed during this meeting.

- One aerial survey was conducted within the Project area and a 2-mile buffer of the Project area focused specifically on eagle nests. Two occupied and active bald eagle nests were observed within the 2-mi buffer surrounding the Project but not within the Project area.

- Three rounds of sharp-tailed grouse surveys were conducted following NDGFD Best Management Practices. Thirteen 13 active leks were identified of which six were historic leks from previous survey efforts and seven were new leks. Of the historic leks, none had moved significantly from their originally documented locations.

Proposed Studies with Discussion

- WEST discussed ten proposed and ongoing studies at the Project and a Wildlife Conservation Strategy through early 2026.

    - Following the Wind Energy Guidance (2012), A Tier 2 Site Characterization Study (SCS) is currently in development. NDGFD emphasized that North Dakota's Species of Conservation Priority (SCP) is a tiered level based on funding. WEST indicated that for the SCS the draft Species of Greatest Conservation Need (SGCN; available on the NDGFD website) would be used, and all species of greatest conservation need should be considered when reporting on this analysis. NDGFD stated that the updated State Wildlife Action Plan (SWAP) with the SGCN is expected to be released sometime in mid- to late-2025.

    - Grassland assessment is in development and expands and updates data collected and field verified in 2020. NDFGD was interested in seeing if WEST could discuss grassland conversion rate within the Project using data gathered in 2020 and 2024.

    - The whooping crane habitat assessment will include a more comprehensive approach using the Niemuth Model data layers and an additional Project buffer based on recent literature and to align with habitat stopover assessments in other regions of the migration corridor.

    - Eagle and raptor nest surveys are planned in 2025 following USFWS Region 6 guidance.

    - A second year of sharp-tailed grouse lek surveys are planned in 2025 following NDGFD BMP's using the same design as 2024 surveys.

    - Avian use surveys are ongoing and expected to occur through 2026 for two years of data collection. These surveys cover approximately 36% of the current Project

area and include both a 10-minute small bird surveys and 60-minute eagle and large bird survey at each survey location. Eagle data will be collected using the data standards described in the Eagle Conservation Plan Guidance.

- General bat activity acoustic surveys are planned for 2025. These will occur using two acoustic units with two microphones each at up to two MET towers. Qualitative review for northern long-eared bat and little brown bat calls are planned. USFWS briefly discussed the intended study design for bat activity surveys with WEST and asked if detectors could be placed lower than 3 meters and if there was a measurable difference between 1.5 and 3 meters. WEST did not know if there were differences between the two heights but indicated that 1.5 meter was typical as it is generally a height that is high enough above grass or crop height to avoid significant insect noise.

- A northern long-eared bat habitat assessment planned for 2025 following current USFWS survey guidance. WEST requested information from USFWS on what habitat features the assessment should include for northern long-eared bat habitat. WEST explained that the Project is on the western edge of the northern long-eared bat range and the previously used 10-acre minimum patch size for habitat may not be the best starting point considering the recently finalized USFWS guidance. USFWS recommended starting with an assessment of where trees are located within the Project and what species/size of tree looked like in these features for further discussion with the USFWS. USFWS referenced a Montana graduate student that had found northern long-eared bats roosting in eight cm willows, which smaller than what is typical for the species. NDGFD acknowledged there is less data on the North Dakota populations compared to the eastern populations.

- Northern long-eared presence/probable absence surveys are planned for 2025 following current survey guidance and results from the NLEB habitat assessment. Study plan will be provided to USFWS prior to survey for approval and authorization.

- Dakota skipper larval habitat surveys are planned for 2025, if infrastructure is proposed within 250m of unbroken grassland, and will follow USFWS 2024 guidance. NDGFD asked what steps WEST and MN Power/ALLETE were taking with siting should critical habitat be found late into construction planning/development. WEST emphasized to the service that the intention of the surveys was to inform avoidance of habitat rather than necessitate presence/absence surveys.

- A Wildlife Conservation Strategy (WCS) is proposed to be developed in mid- to late-2025 and updated with completion of wildlife studies and site development. NDGFD asked that information from wildlife studies be provided to them as soon as possible so that they can submit their comments 30 days prior to the PSC permit

hearing. USFWS echoed the same request. WEST plans to have a draft WCS 100 days prior to the PSC permit hearing, which should provide adequate time for NDGFD to review and submit their comments. WEST additionally stated that individual reports can be provided as well, if needed.

Timeline and Next Steps

- WEST showed a proposed timeline for studies at the Project as well as next steps to prepare for siting and permitting.

    - WEST proposed upcoming meetings (annual) with the agencies to discuss survey results and avoidance and minimization measures being implemented at the Project. NDGFD asked that the Project's turbine layout be provided once available as well to inform impact avoidance taken by the Project.

    - MN Power/WEST also plans to set up a meeting with the ND Department of Agriculture (NDDA) to introduce the Project and discuss implementation of a voluntary offset strategy.

Additional Discussions

- NDGFD followed up after the presentation to see if the Project is considering mitigation funds with the NDDA or if they would pursue independent mitigation funding. MN Power is waiting to see what guidance is provided by the NDDA before committing to mitigation funding/plans.

- NDGFD asked about considering cumulative impacts going forward. PCM data is dated on existing infrastructure near the Project so effects could be difficult to assess. NDGFD clarified this question was not intended to be addressed or investigated by MN Power, but the Agency is considering if cumulative impacts analysis is warranted or if further investigation is needed.

- USFWS reminded WEST and MN Power that the regal fritillary is proposed for listing through the Endangered Species Act and should be considered when conducting grassland and DASK assessments.

- NDFGD emphasized that they are most interested in the habitat and impacts analysis outlined in their BMPs for permit review/comments. NDGFD suggested that WEST/MN Power complete the avian habitat offset analysis described in those BMPs using site collected data. NDGFD would likely defer to the site-specific data, focused on unbroken grasslands, even if their analysis only included the modeled grassland data.

- NDGFD confirmed that turbine placement should avoid any grasslands within a 2-mile buffer of grouse leks. The goal is to conserve grasslands (i.e., nesting habitat) within 2-miles of leks over concerns of disturbing leks in crop fields as most grouse nest within 2-mile of a lek location. However, NDGFD would prefer avoidance of grasslands wherever

possible though they provided the opportunity to discuss other options if this was not feasible.

Schedule/Action Items

- WEST and MN Power will be scheduling a meeting with NDDA for discussion of voluntary offsets in the near future (likely before the end of January 2025).

- A copy of the meeting's notes will be provided for review with the wildlife agencies. Additionally, a PDF of the PowerPoint presentation will accompany these meeting notes for reference.

NORTH Dakota | Game and Fish
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June 29, 2025

Drew Janke
Environmental Compliance Specialist II
Minnesota Power | ALLETE Inc.
20 West Superior Street
Duluth, Minnesota 55802-2093

RE: Proposed Longspur Wind Project, Morton and Mercer County, ND

Dear Drew:

Thank you for reaching out to the North Dakota Game and Fish Department (Department) in request of agency input on the proposed Longspur Wind Project. We would like to use this opportunity to provide some early guidance recommendations and to encourage continued coordination as the project progresses.

First and foremost, native prairie (prairie that has not been plowed or broken in any way) is the most endangered ecosystem in North Dakota and one of the most endangered ecosystems worldwide. As a prairie state, the majority of our native species are linked to and dependent on healthy grasslands. Disturbance, fragmentation, and loss of native prairie have adversely impacted a wide variety of species and these negative impacts only continue to compound as more development takes place across the landscape.

Many of North Dakota's declining resident and migratory species are becoming more and more dependent on the remaining tracts of unbroken prairie. This habitat supports 62 Species of Greatest Conservation Need and 55 Species of Greatest Information Need identified in the Draft North Dakota State Wildlife Action Plan (North Dakota Game and Fish Department, 2025). Grassland dependent species have experienced drastic declines, such as the state bird of North Dakota, the Western Meadowlark, whichh has decreased by approximately 48% globally and the monarch butterfly which has declined by over 80% since the 1990s. The loss and fragmentation of native prairie in the project area may further negatively impact these declining species, making avoidance and minimization efforts a necessary priority.

Wetlands are another productive wildlife habitat in North Dakota, supporting 39 Species of Greatest Conservation Need and 18 Species of Greatest Information Need, as well as a considerable number of waterfowl, shorebirds and cranes throughout the year. The grassland-wetland mosaic of North Dakota is often referred to as the "Duck Factory" for its high-quality nesting habitat and the vast number of ducks produced. Therefore, it's important to prioritize protecting this productive habitat for both its local and national importance.

Finally, though the Department believes the best way to protect our species of conservation priority is by taking a habitat-focused approach, we would also like to reiterate the following species-specific concerns.

- Nearly 31% of the entire Sharp-tailed Grouse population falls within North Dakota and declines to the state's population will likely lead to range-wide population declines. Sharp-tailed Grouse are a high-valued upland game bird, and because research indicates that prairie grouse may be adversely affected by energy development, it is vital that lek surveys be conducted to understand the risk associated with development.
- Bats are long-lived, reproduce slowly, and migrate long distances, making them particularly susceptible to wind development. Acoustic surveys should begin at a minimum of two years pre-construction to assess the risk the project poses to local and migrating bat populations.
- The Whooping Crane's migration corridor centers along the east side of the Missouri River. The project falls within the 50% core migration corridor and there is core stopover habitat to the east and south. The U.S. Fish and Wildlife Habitat and Population Evaluation Team's (HAPET) Whooping Crane model should be used to evaluate risk associated with development to migrating Whooping Cranes.
- The Bald Eagle population and number of nest sites is increasing significantly in North Dakota. The number of nest sites has increased from 10 known sites in the year 2000 to more than 350 in the year 2023. Due to the continual increase and selection of non-traditional nest sites, it is possible that Bald Eagle nests may be found anywhere across the state where large trees are present. Therefore, it is recommended that searches for raptor nests be conducted during the breeding season to understand the risk associated with development.

The Department has a number of resources available for the benefit of the developer and consultant, including Best Management Practices (BMPs) (https://gf.nd.gov/sites/default/files/publications/wind-energy-development-bmp.pdf) . These BMPS include recommendations for responsible development of both turbines and transmission lines, as well as pre and post construction monitoring recommendations. The Department also has available maps and information on native habitats, priority areas, and sensitive species. Geospatial data can be found here https://gf.nd.gov/wildlife/data . Finally, the Department also recommends working with the U.S. Fish and Wildlife Service, as any state recommendations do not relieve the developer of its obligations to comply with any applicable federal regulations.

As we continue to address the challenges of stemming the decline of our state's most sensitive species, we cannot endorse the disturbance, fragmentation, and loss of the remaining high value habitats essential to Species of Greatest Conservation Need without recommending that suitable replacement or offsets be applied back onto the landscape. Ensuring these habitats remain on the landscape is the only way to stem the decline of these species and prevent listings through the Endangered Species Act, which could impact both the state and its citizens. The Department has stressed the importance of following the best available science in determining impacts and voluntary offsets. The best science addressing North Dakota resources are Loesch et al. 2013, Shaffer and Buhl 2016, and Shaffer et al. 2019; these papers should be

used to help guide ALLETE in understanding impacts and developing a voluntary offset package, if one is deemed appropriate. For Further guidance on estimating grassland impacts, there are also resources on the NDGFD website, which can be found at: https://gf.nd.gov/sites/default/files/publications/ndgf-desktop-approach-grasslands-2021.pdf .

As ALLETE moves forward with this project, the Department requests to remain informed. To accurately analyze the project and provide valuable feedback to the PSC, it is important that the Department receives all documents, including wildlife surveys, spatial data, a Wildlife Conservation Strategy (WCS or BBCS), and any voluntary offsets being proposed 100 days prior to the hearing date.

Thank you for the opportunity to provide input. We hope to remain informed as the project moves forward.

Sincerely,

Bruce Kreft
Chief, Conservation and Communications Division

CC. Luke Toso, USFWS
Steven Kahl, ND PSC

Agency Notification Letters and Responses

C.5 North Dakota Department of Transportation

NORTH Dakota | Transportation
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July 14, 2025

Drew Janke
Environmental Compliance Specialist
Minnesota Power/ALLETE Inc.
30 West Superior Street
Duluth, MN 55802-2093

LONGSPUR WIND PROJECT MORTON AND MERCER COUNTIES, NORTH DAKOTA

We have reviewed your June 18, 2025, letter.

This project should have no adverse effect on the North Dakota Department of Transportation highways.

However, if because of this project any work needs to be done on highway right of way, appropriate permits and risk management documents will need to be obtained from the Department of Transportation District Engineer, Larry Gangl at 701-328-6955.

JON KETTERLING, P.E., DIRECTOR – OFFICE OF PROJECT DEVELOPMENT

57/jk/js
c: Larry Gangl, Bismarck District Engineer

Agency Notification Letters and Responses

C6. State Historical Society of North Dakota

July 8, 2025

Drew Janke
Minnesota Power
30 W Superior St
Duluth, MN 55802-2093

**SHSND Ref: 25-9058 Longspur Wind Project in Mercer, Morton, and Oliver Counties, North Dakota**

Dear Drew,

We reviewed your preliminary information on SHSND Ref: 25-9058 Longspur Wind Project in Mercer, Morton, and Oliver Counties, North Dakota. We recommend survey for cultural resources as follows:

- A current Class I: Literature Search to determine any previously recorded cultural resources in the project area, provide background research, allow predictions of the types and distribution of expected cultural resources, and identify preservation and/or research priorities.

- A Class II (reconnaissance) and Class III (intensive) survey by a permitted architectural historian for standing buildings and structures (including cemeteries) over 45 years old in the visual Area of Potential Effect (APE). This is within a two-mile radius of individual turbine locations. The purpose is to evaluate any architectural or structural features that may be eligible for nomination to the National Register of Historic Places or the State Historic Sites Registry. At least three out of the seven aspects of integrity used to evaluate historic properties could be impacted by the proposed project: the setting, feeling, and association of historic sites.

- A Class III intensive archaeological survey of all areas of direct impact including crane paths, met towers, access roads, turbine locations and staging areas, unless the footprint has been recently surveyed for cultural resources.

Thank you for the opportunity to review this project to date. We look forward to review of the Class II/Class III surveys. Please include the SHSND reference number listed above in any further correspondence for this specific project. If you have any questions, please contact Lorna Meidinger, Lead Historic Preservationist, at (701) 328-2089 or lbmeidinger@nd.gov.

Sincerely,

*for* William D. Peterson, PhD
Director, State Historical Society of North Dakota

25-9058

Agency Notification Letters and Responses

C7. North Dakota Parks and Recreation Department

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July 10, 2025

Minnesota Power
30 West Superior Street
Duluth, MN 55802

Re: Longspur Wind Project – Morton and Mercer Counties

Dear Drew,

The North Dakota Parks and Recreation Department (NDPRD) has reviewed the above referenced proposed Longspur Wind Project in Morton and Mercer Counties, North Dakota.

NDPRD's scope of authority and expertise covers properties that NDPRD owns, leases, or manages; properties protected under Section 6(f) of the Land and Water Conservation Fund (LWCF); rare plants; and ecological communities established through the Natural Heritage Program.

The project does not appear to affect properties NDPRD owns, leases, or manages.
The project does not appear to affect any properties protected under Section 6(f) of the LWCF.

A North Dakota Natural Heritage biological conservation database query determines whether any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, one animal species of concern was documented within or immediately adjacent to the project site. Refer to the attached map and spreadsheet for additional details.

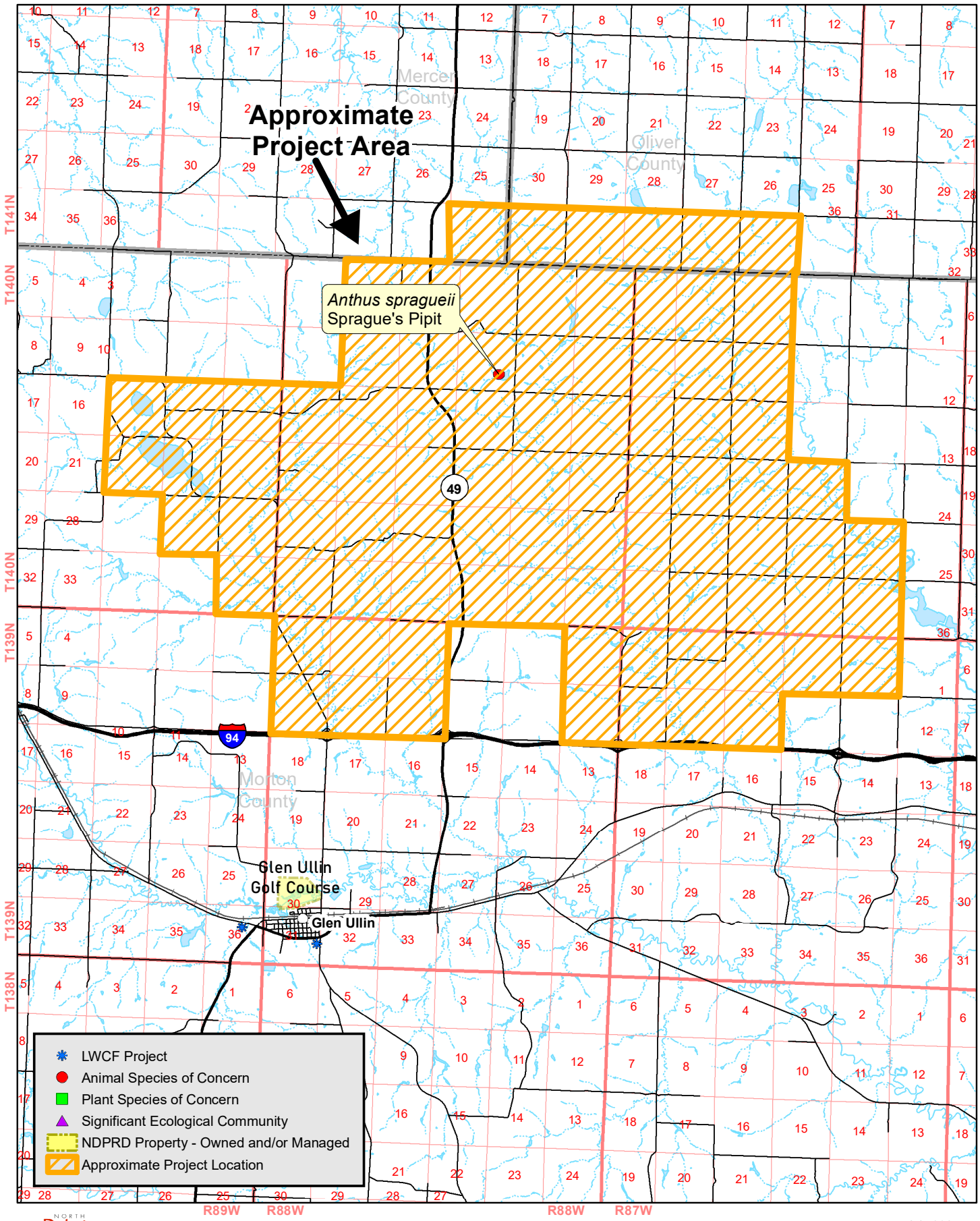
We appreciate your commitment to rare plant, animal, and ecological community conservation, management, and inter-agency cooperation. For additional information, please contact Kathy Duttenhefner at 701-328-5370, 701-220-3377 (cell), or kgduttenhefner@nd.gov.

Thank you for the opportunity to comment on the proposed project.

Sincerely,
Kathy Duttenhefner
Kathy Duttenhefner, Chief Natural Resources Division

604 E Boulevard Ave Dept. 750 | Bismarck, ND 58505
PHONE: 701-328-5357 | FAX: 701-328-5363 | EMAIL: parkrec@nd.gov | WEBSITE: www.parkrec.nd.gov

# North Dakota Parks and Recreation Department
# North Dakota Natural Heritage Inventory




NORTH Dakota | Parks & Recreation

July 2025

Longspur T-Line 000877

North Dakota Natural Heritage Inventory
Rare Animal and Plant Species and Significant Ecological Communities

| State Scientific Name | State Common Name | State Rank | Global Rank | Federal Status | Township Range Section | County | Last Observation | Estimated Representation Accuracy | Precision |
|---|---|---|---|---|---|---|---|---|---|
| Anthus spragueii | Sprague's Pipit | S3 | G4 | C | 140N088W - 10 | Morton | 1976-05 | | S |

Agency Notification Letters and Responses

C8. United States Department of Agriculture

USDA

United States Department of Agriculture

Natural Resources
Conservation Service

Bismarck State Office
PO Box 1458
Bismarck, ND
58502-1458

Voice 701.530.2000
Fax 855-813-7556

July 2, 2025

Drew Janke
Minnesota Power
30 West Superior Street
Duluth, MN 55802-2093

Dear Mr. Janke:

The Natural Resources Conservation Service (NRCS) has reviewed your letter dated June 18, 2025, regarding the Minnesota Power Longspur Wind Project, Morton and Mercer Counties, North Dakota.

Farmland Protection Policy Act

NRCS has a major responsibility with the Farmland Protection Policy Act (FPPA) in documenting conversion of farmland (i.e., Prime, Statewide Importance and/or Local Importance) to non-agricultural use when a federal funding source is utilized. There is no mention of the proposed project being supported by federal funding; therefore, FPPA does not apply, and no further action is needed.

Wetlands

The Wetland Conservation Provisions of the 1985 Food Security Act, as amended, provide that if a USDA participant converts a wetland for the purpose or to have the effect of making agricultural production possible, loss of USDA benefits could occur. NRCS has developed the following guidelines for the installation of permanent structures where wetlands occur. If these guidelines are followed the impacts to the wetland will be considered minimal allowing USDA participants to continue to receive USDA benefits. The following are the requirements:

- Disturbance to the wetland must be temporary.
- No drainage of wetland is allowed (temporary or permanent).
- Mechanized landscaping necessary for installation is kept to a minimum and preconstruction contours are maintained.
- Temporary side cast material must be placed in such a manner not to be dispersed in the wetland.
- All trenches must be backfilled to the original wetland bottom elevation.

NRCS recommends that impacts to wetlands be avoided.



USDA is an equal opportunity provider, employer, and lender.

If you have additional questions pertaining to FPPA, please contact Lance Duey, Assistant State Soil Scientist, NRCS, Bismarck, North Dakota, at (701) 530-2109.

Sincerely,

SUSAN SAMSON LIEBIG

Digitally signed by SUSAN SAMSON LIEBIG
Date: 2025.07.02 08:19:25 -05'00'

SUSAN SAMSON-LIEBIG
Acting State Soil Scientist

Agency Notification Letters and Responses

C9. North Dakota Department of Water Resources

**From:** Yrkoski, Kyle
**To:** Drew Janke (MP)
**Subject:** [EXTERNAL MAIL] Longspur Wind Project Morton and Mercer Counties, ND
**Date:** Friday, July 25, 2025 10:16:18 AM
**Attachments:** image001.png
image002.png
image003.png
Longspur Wind Project Morton and Mercer Counties, ND[8].docx
4071_001.pdf
4072_001.pdf

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You don't often get email from kyrkoski@nd.gov. Learn why this is important

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[EXTERNAL EMAIL] This email was sent from someone outside the company.

Don't let cyber threats cloud our summer! Remember not to click links, download attachments, or reply with personal information unless you recognize the sender and know the content is safe.

Drew,

Please find attached our comment letter regarding the Longspur Wind Project Morton and Mercer Counties, ND.

Please let me know that you received this.

Thanks

Kyle Yrkoski
*Planner III, Planning & Education Division*

701.328.4970(d) 701.328.3696(f) kyrkoski@nd.gov www.dwr.nd.gov

NORTH Dakota | Water Resources
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701.328.2750 • dwr@nd.gov • 1200 Memorial Highway • Bismarck, ND 58504

NORTH Dakota | Water Resources
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July 15, 2025

Mr. Drew Janke

Minnesota Power
30 West Superior Street
Duluth, Minnesota 55802-2093
djanke@mnpower.com
218-355-3569

Dear Mr. Janke,

This is in response to your request for a review of the environmental impacts associated with the Longspur Wind Project, located in Morton and Mercer Counties, North Dakota.

The proposed project has been reviewed by Department of Water Resources (DWR), and the following comments are provided:

- Initial review indicates the project does not require a conditional or temporary permit for water appropriation. However, if surface water or groundwater will be diverted for construction of any future projects identified in the plan, a water permit will be required per North Dakota Century Code § 61-04-02. Please consult with the DWR Water Appropriation Division if you have any questions at (701) 328-2754 or appropinfo@nd.gov.

- The DWR Regulatory Division's Engineering and Permitting Section reviewed the project location and determined no drainage permits, or construction permits for dikes, diversions, or restorations are likely required so long as no watercourses are modified (i.e., deepened, widened, rerouted, etc.) and no ponds, sloughs, lakes, sheetwater, or any series thereof, with a drainage area of 80 acres or more are drained. North Dakota Stream Crossing Design Standards (N.D.A.C. art. 89-14) apply to stream crossings within a constructed or reconstructed highway, street, or road as defined in N.D.A.C. § 89-14-01-02. For more information, please visit the Regulation & Appropriation tab on the DWR website (dwr.nd.gov) or contact the Regulatory Division directly at 701-328-2750 or dwrregpermits@nd.gov.

- There are no FEMA National Flood Insurance Program (NFIP) floodplains identified or mapped where the proposed project is to take place. No permits relative to the NFIP are likely required based on the current Flood Insurance Rate Map and State minimum standards. However, flood risk has been identified through the North Dakota Risk Assessment Mapservice and Base Level Engineering (BLE) (ndram.dwr.nd.gov). In the absence of FEMA NFIP data, BLE is often considered best available data and is recommended to be considered in the design process. The State of North Dakota has no formal NFIP permitting authority as all NFIP permitting decisions are considered by impacted NFIP participating communities, the community with zoning authority for the area in question. Please work directly with the local floodplain administrators of the zoning authorities impacted.

Thank you for the opportunity to provide review comments. Should you have further questions, please contact me at 701-328-4970 or kyrkoski@nd.gov.

Sincerely,

Kyle Yrkoski
Planner III

KY:mg/1570

Agency Notification Letters and Responses

C10. North Dakota Department of Environmental Quality

NORTH Dakota | Environmental Quality
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July 21, 2025

Drew Janke
Environmental Compliance Specialist II
Minnesota Power
30 West Superior St.
Duluth, MN 55802-2093

Re: Longspur Wind Project in Mercer and Morton Counties

Dear Mr. Janke:

The North Dakota Department of Environmental Quality (Department) has reviewed the information concerning the above-referenced project received at the Department on June 23, 2025, with respect to possible environmental impacts.

1. Necessary measures should be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise should be dealt with in an efficient and effective manner.

2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.

3. Projects involving the building and removal of structures over waters of the state (i.e., bridges and culverts) will inspect equipment for oil, gas, diesel, antifreeze, hydraulic fluid, and other petroleum leaks. Leaks will be repaired and equipment cleaned prior to being allowed onsite. Precautions will be employed to prevent deconstruction material from entering the water. Remove from the water and bank all material belonging to the original bridge within 14 days of project completion. Protect upland, riparian, and adjacent vegetation, except where it is being removed. Exposed riparian areas should be revegetated preferably with native species following completion of work. All riprap must be clean, free from rebar, rubbish, and wood, and of the appropriate size and shape to withstand the energy of the water.

4. Projects disturbing one or more acres are required to have a permit to discharge stormwater runoff until the site is stabilized by the re-establishment of vegetation or other permanent cover. Further information on the stormwater permit may be obtained from the

Department's website or by calling the Division of Water Quality at 701-328-5210. Also, cities may impose additional requirements and/or specific best management practices for construction affecting their storm drainage system. Check with the local officials to be sure any local stormwater management considerations are addressed.

A total maximum daily load (TMDL) allocation for fecal coliform has been developed for the Elm Creek watershed in the area of the project (Assessment Unit ND-10130201-045-S_00). Additionally, a plan to address *E. coli* impairment is in place for Hailstone Creek in the Danzig Dam watershed (Assessment Unit ND-10130203-041-S_00). The Wilson Creek watershed (Assessment Unit ND-10130203-046-S_00) also is listed as impaired for *E. coli* under Section 303(d) of the Federal CWA. Stormwater runoff from the project should not contribute to the impairment if the appropriate practices are in place to manage sanitary waste.

5. The construction project overlies the Elm Creek aquifer. Care should be taken to avoid spills of any materials that may have an adverse effect on groundwater quality. All spills must be immediately reported to this Department and appropriate remedial actions performed.

6. All solid waste materials must be managed and transported in accordance with the state's solid and hazardous waste rules. Appropriate efforts to reduce, reuse and/or recycle waste materials are strongly encouraged. As appropriate, segregation of inert waste from non-inert waste can generally reduce the cost of waste management. Further information on waste management and recycling is available from the Department's Division of Waste Management at 701-328-5166.

The Department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,

Karl Rockeman, P.E., Deputy Director
North Dakota Department of Environmental Quality

KR:ll
Attach.

## Construction and Environmental Disturbance Requirements

The following are the minimum requirements of the North Dakota Department of Environmental Quality (Department) for projects that involve construction and environmental disturbance in or near waters of the State of North Dakota. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect waters of the state. All projects must be constructed to minimize the loss of soil, vegetative cover, and pollutants (chemical or biological) from a site.

### Soils

Prevent the erosion and sediment loss using erosion and sediment controls. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, and land resources must be prohibited against compaction, vegetation loss and unnecessary damage.

### Surface Waters

All construction must be managed to minimize impacts to aquatic systems. Follow safe storage and handling procedures to prevent the contamination of water from fuel spills, lubricants, and chemicals. Stream bank and stream bed disturbances must be contained to minimize silt movement, nutrient upsurges, plant dislocations, and any physical chemicals, or biological disruption. The use of pesticides or herbicides in or near surface waters is allowed under the Department's pesticide application permit with notification to the Department.

### Fill Material

Any fill material placed below the ordinary high-water mark must be free of topsoil, decomposable materials, and persistent synthetic organic compounds, including, but not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill material. All temporary fills must be removed. Debris and solid waste must be properly disposed or recycled. Impacted areas must be restored to near original condition.

Agency Notification Letters and Responses

C11. North Dakota Geological Survey

**Alex Luman (MP)**

**From:** Anderson, Fred J. <fjanderson@nd.gov>
**Sent:** Thursday, June 26, 2025 2:42 PM
**To:** Drew Janke (MP)
**Subject:** [EXTERNAL MAIL] N.D. Geological Survey: Comments on the Proposed Longspur Wind Project Morton and Mercer Counties, North Dakota

You don't often get email from fjanderson@nd.gov. Learn why this is important

Think Before You Click

**[EXTERNAL EMAIL] This email was sent from someone outside the company.**

Don't let cyber threats cloud our summer! Remember not to click links, download attachments, or reply with personal information unless you recognize the sender and know the content is safe.

Dear Mr. Janke,

The NDGS appreciates the opportunity to review and provide comment on this proposed energy infrastructure development project.

We compared the proposed project study area footprint to our recent landslide mapping work and noted that there are several landslide areas mapped in the study area.

Most of these areas are found in the southeastern portion of the proposed project study area with several concentrated along Wilson Creek in northwestern Morton County.

These areas should be avoided whenever possible as potential locations for any structures or towers.

All our landslide maps and data sets are available on our website at: https://www.dmr.nd.gov/dmr/ndgs/landslides

Please contact our office if there are any questions or comments regarding this review.

Regards,

Fred J. Anderson
*Surface Geology Section Manager*

701.328.8000 (O) . fjanderson@nd.gov . www.dmr.nd.gov

NORTH Dakota Be Legendary.™ | Mineral Resources

**Appendix D**

County Applications and Approvals

County Applications and Approvals

D.1 Minnesota Conditional Use Permit Application

# Conditional Use Permit Application

# TRANSMISSION INFRASTRUCTURE

**MERCER COUNTY, NORTH DAKOTA**

PREPARED BY:

Merjent, Inc.

1 Main Street SE, Suite 300

Minneapolis, Minnesota 55414

August 2025

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Attachment 2 – Certified Survey Map

# ABBREVIATIONS AND TERMS

| | |
|---|---|
| Application | Application for Conditional Use Permit |
| Applicant | Minnesota Power |
| County | Mercer County |
| CUP | Conditional Use Permit |
| kV | kilovolt |
| Ordinance | Mercer County Zoning Ordinance |
| POI | Point of Interconnect |
| Project | Transmission Infrastructure Project |
| PSC | North Dakota Public Service Commission |

# 1.0 INTRODUCTION

Minnesota Power, an investor-owned public utility based in Duluth, Minnesota, is submitting this application for a Conditional Use Permit (CUP) to construct an approximately 0.3-mile-long, 230 kilovolt (kV) Transmission Infrastructure Project (Project). The Project will start at the existing Tri-County 230 kV substation in Mercer County and will extend south into Morton County. The Project location is shown on Map 1 (attached). The entirety of the Project in Mercer County will be located on property that is zoned Commercial and owned in fee by Minnesota Power.

## 2.0 APPLICANT

The name, contact information, and signature of the Applicant are provided herein.

**Applicant:**

Minnesota Power, an ALLETE Company

30 West Superior St.

Duluth, MN 55802

**Applicant's Representative:**

Alexander Luman

Environmental Compliance Specialist I

Minnesota Power, an ALLETE Company

30 West Superior St.

Duluth, MN 55802

Direct: (218) 355-3029

Mobile: (218) 481-2796

The Applicant's signature is included on the CUP Application form provided in Attachment 1.

# 3.0 DESCRIPTION OF PROJECT

Minnesota Power proposes to site, construct, and operate the proposed 230 kV Project in Morton and Mercer Counties, North Dakota. The Project will include approximately 0.3 mile of new high voltage transmission line that will start at the existing Tri-County Substation in Mercer County. From there, the Project will extend south to include approximately 3 miles of transmission line in Morton County. The Project will convey power from the planned Longspur Substation in Morton County, associated with the Longspur Wind Energy Center, to the point of interconnection (POI) at existing Tri-County Substation in Mercer County. The Longspur Substation is being developed as part of the Longspur Wind Energy Center and is not included within this Project. The Tri-County Substation is, and will continue to be, owned and operated by Minnesota Power.

The Project is needed to enhance the reliability of the regional transmission system and increase regional transmission capacity, and the Project will support ALLETE's infrastructure and the delivery of electricity to the POI. The Tri-County Substation and the land on which the Project will be sited in Mercer County is, and will continue to be, owned and operated by Minnesota Power.

The Project will also require a Certificate of Corridor Compatibility and Route Permit from the North Dakota Public Service Commission (PSC). Minnesota Power anticipates filing the combined Certificate and Route Permit application with the PSC in the third quarter of 2025.

The Project's permanent facilities in Mercer County will include:

- three weathering steel monopole transmission structures, including one dead-end structure and two tangent structures;
- 230 kV electrical conductors; and
- a new connection within the fenced area of the existing Tri-County Substation.

The Project's temporary facilities in Mercer County may include:

- a wire stringing, pulling and tensioning site;
- temporary construction access between pole locations; and
- one construction laydown area for equipment.

Minnesota Power will own the entire Project and, as a result, will manage the construction of all equipment and associated facilities. Minnesota Power will select a third-party engineering, procurement, and construction contractor to manage and complete construction of the Project.

Minnesota Power is requesting approval of a CUP for a transmission line right-of-way approximately 240 feet wide and approximately 0.3 mile long. A Certified Survey Map is included in Attachment 2.

## 3.1 Location

The Project is proposed for construction on parcel number 48-141-88-00-36-801 in Township 141 North, Range 88 West, Section 36 (Map 2). All facilities in Mercer County will be located on land owned by Minnesota Power, except where the Project will cross the public road right-of-way associated with 30th Street SW.

# 4.0 COMPLIANCE WITH MERCER COUNTY ORDINANCE REQUIREMENTS

According to Mercer County, the Project location is zoned Commercial and a CUP is required.

Minnesota Power has sited the Project to comply with the applicable requirements set forth in the Mercer County Zoning Ordinance. All improvements will not encroach upon the established right-of-way from any county, state, or federal roads, and no new driveways or permanent access roads will be required. Fences will not obstruct views or create safety hazards for traffic on adjacent roadways. The facilities will comply with all parking and sign regulations.

## 4.1 Compliance with Conditional Use Permit Application Submittal Requirements

This Application contains the information and documentation required pursuant to Section XI, Chapter 2 of the Ordinance (Procedure for Approval of a Conditional Use).

### 4.1.1 Name and Address of Applicant, With Signature of the Applicant (Ch. 2, Sect. XI-A)

The name and address of the Applicant is provided in Section 2.0 above. Signatures are included on the CUP Application form provided in Attachment 1.

### 4.1.2 Date of Application (Ch. 2, Sect. XI-B)

The Application is being submitted on August 8, 2025.

### 4.1.3 Description and Map of the Site and its Relationship to the Surrounding Area (Ch. 2, Sect. XI-C)

The Project is located in rural, central North Dakota in an area predominantly comprised of pastureland, hay fields, grassland, wetlands, and the Tri-County Substation. The Project location is depicted on Maps 1 through 6. The Project will be located on Mercer County parcel number 48-141-88-00-36-801, which is owned by Minnesota Power.

### 4.1.4 Sketch Showing Size and Shape of the Site (Ch. 2, Sect. XI-D)

A sketch of the Project site is provided in Map 3.

### 4.1.5 Preliminary Map Showing Location of Structures to be Developed on the Site (Ch. 2, Sect. XI-E)

A preliminary map showing the locations of structures to be developed on the site is provided in Map 3.

### 4.1.6 Topographical Map of Site (Ch. 2, Sect. XI-F)

A topographical map in 10-foot contours of the site is included as Map 4.

### 4.1.7 General Soils of the Site (Ch. 2, Sect. XI-G)

There are four soil types within the Project Corridor. The soils are predominantly loams and are mostly considered Not Prime Farmland. A detailed list of soils for the right-of-way is shown in **Table 1** and on Map 5.

**Table 1 Soil Types Within the Right-of-Way**

| Map Unit | Map Unit Name | Farmland Class |
|---|---|---|
| E2987B | Sen-Chama silt loams, 3 to 6 percent slopes | Farmland of statewide importance |
| E2607D | Amor-Werner loams, 9 to 15 percent slopes | Not prime farmland |
| E4139A | Korchea-Fluvaquents complex, channeled, 0 to 2 percent slopes, frequently flooded | Not prime farmland |
| E2601C | Amor-Cabba loams, 6 to 9 percent slopes | Not prime farmland |

### 4.1.8 Location of Existing and Proposed Utilities (Ch. 2, Sect. XI-H)

A map showing the location of existing utilities and proposed utility extensions and/or alterations is included as Map 6.

### 4.1.9 Parking Plan Showing Off-Street Parking Areas, Loading (Ch. 2, Sect. XI-I)

A 7-acre laydown area is located at the existing Tri-County Substation (see Map 3) which will be used for the duration of construction.

Parking is available at the existing Tri-County substation and additional parking will be available at the laydown yard, if needed. The location and size of permanent off-street parking areas is shown on Map 3.

### 4.1.10 A Timing Schedule Indicating Anticipated Starting and Completion Dates of the development (Ch. 2, Sect. XI-J)

The Project's anticipated development schedule is dependent upon permitting approval and other development activities. Assuming all permits and approvals will be in place as expected, the anticipated schedule for the Project, including obtaining the Certificate and Route Permit from the PSC, plus construction and operation, are included below in **Table 2**.

**Table 2 Anticipated Time Schedule**

| Activity | Anticipated Time |
|---|---|
| Obtaining the Certificate of Corridor Compatibility | Q2 2026 |
| Obtaining the Route Permit | Q2 2026 |
| Completing right-of-way acquisition | Complete |
| Starting construction | Q3 2026 |
| Completing construction | Q4 2027 |
| Testing operations | Q3 – Q4 2027 |
| Commencing commercial operation | Q4 2027 |

### 4.1.11 Written Approval of respective highway authority regarding status of public access road(s), private approaches, etc. (Ch. 2, Sect. XI-K)

The Project will not require additional public access or private approaches; therefore, written approval of highway authorities is not required.

### 4.1.12 Names and Addresses of Adjacent Property Owners (Ch. 2, Sect. XI-L)

The names and addresses of the owners of Mercer County properties adjacent to the Project are included in **Table 3**.

**Table 3 Adjacent Landowner Information**

| Name | Address |
|---|---|
| Lance A & Anissa Gartner | 6285 46th St. Glen Ullin, ND 58631-0000 |
| Bernard Weinhardt Life Estate | P.O. BOX 3536, Gilette, WY 82717 |
| Deborah & Richard M Schirado | 6275 31st St Glen Ullin, ND 58631-0000 |

#### 4.1.13 Written Approval from the Appropriate School District Regarding School Bus Routes (Ch. 2, Sect. XI-M)

There are no bus routes adjacent to the Project location; therefore, written approval from the school district is not required.

#### 4.1.14 Ch. 2, Sect. XI-N: *Not Applicable*

#### 4.1.15 Any Reasonable Information the Planning and Zoning Commission Deems Necessary (Ch. 2, Sect. XI-O)

Additional information will be provided at the request of the Planning Commission.

Representatives of the Project will be present at the Planning Commission public hearing to answer questions and provide additional information if needed.

### 4.2 Transmission Line Siting

The Project's transmission line route and structure locations are sited to have minimal interference with farming and follow quarter or section lines where possible.

All facilities are on private land owned by the Applicant except where the Project crosses public road rights-of-way.

In accordance with North Dakota Century Code Chapter 49-22, the Applicant must obtain a Certificate of Corridor Compatibility and a Route Permit from the PSC. Thus, in addition to complying with the County's requirements, the Project will also comply with State of North Dakota permitting requirements and the PSC's siting rules.

### 4.3 Other Permits and Approvals

Minnesota Power will obtain all permits and approvals required to construct and operate the Project, including county approvals needed for new driveways (not anticipated at this time); a county Erosion and Sediment Control Plan; a county Storm Water Management Plan; county Storm Water Permit; and county and state approvals for over size/weight vehicles, if necessary, once final design is developed.

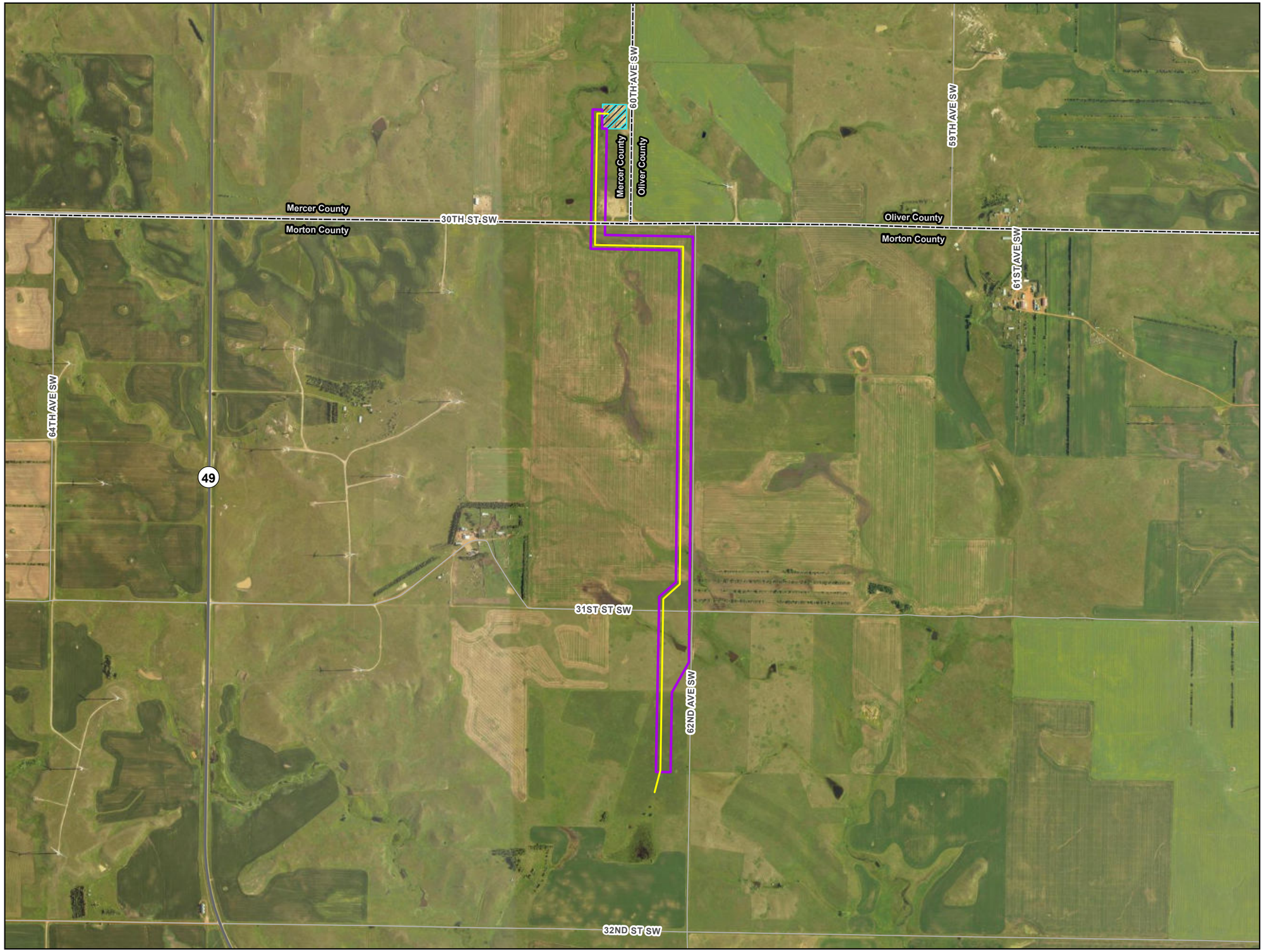
# 5.0 CONCLUSION

As discussed above, the Project will comply with the applicable requirements set forth in the Mercer County Ordinance. Therefore, the Applicant respectfully requests that the Mercer County Planning Commission make the following findings:

1. Recommend and approve a CUP for the facilities to be owned and operated by Minnesota Power.

**MAP 1**

**PROJECT LOCATION**



0 750 1,500 Feet

1:18,000

N W E S

Project Route

Project Corridor

Existing TriCounty Substation

County Boundary

# Map 1 - Project Location

**Minnesota Power Transmission Infrastructure Project**

**Minnesota Power**

**Mercer County, North Dakota**

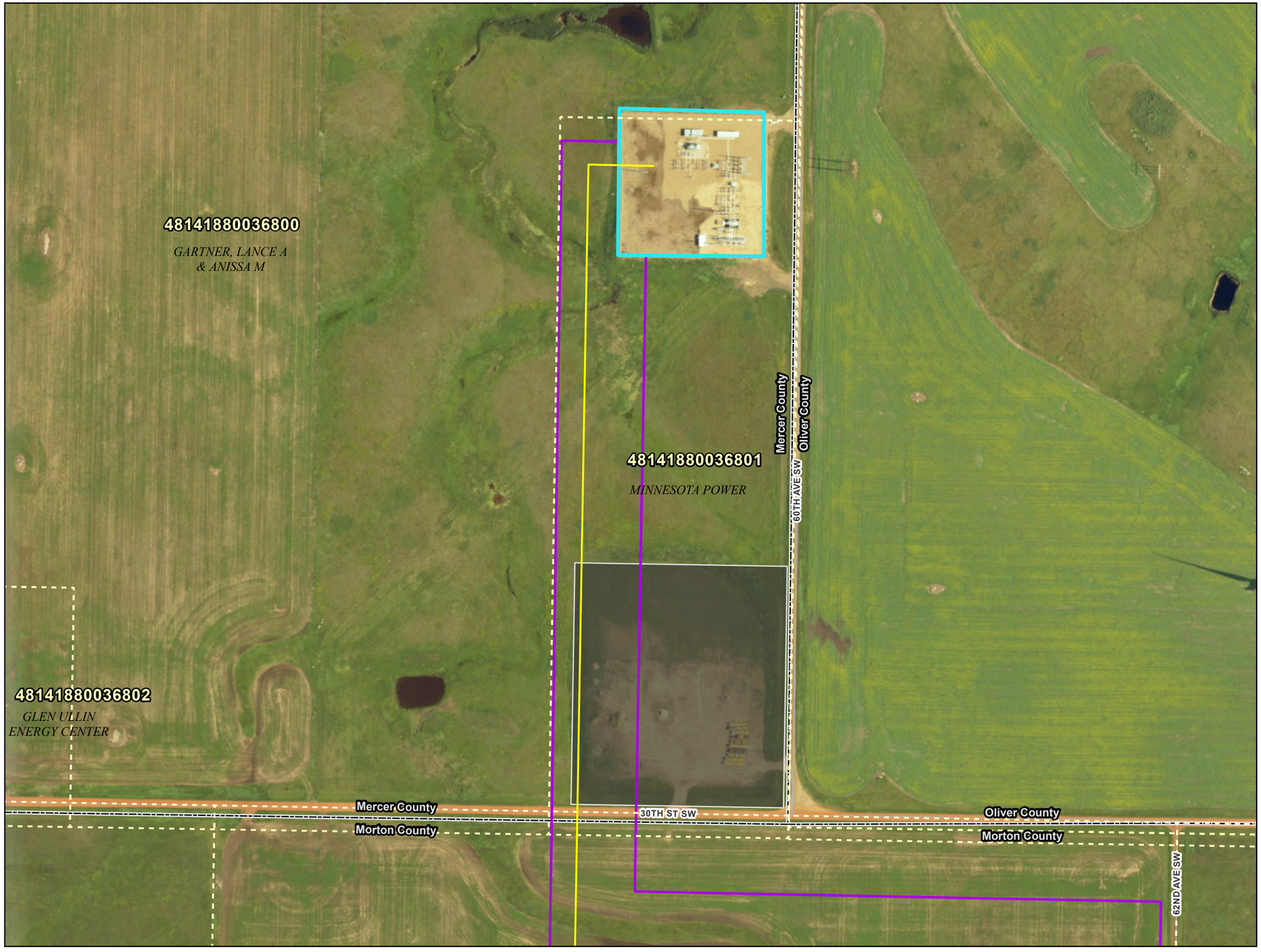
merjent

For Environmental Review Purposes Only

Date: (8/5/2025) Source: Z:\Clients\M_P\MN_Power\Longspur_Wind\ArcGIS\Permitting\CUP_Mercer_Co\Longspur_TLine_MercerCo_CUP.aprx

**MAP 2**

**LAND OWNERSHIP**



0 150 300 Feet

1:3,000

N W E S

- Project Route
- Project Corridor
- Construction Laydown Area / Parking
- Existing TriCounty Substation
- Parcel Owned by Minnesota Power
- Parcel Boundary
- County Boundary

# Map 2 - Land Ownership

**Minnesota Power Transmission Infrastructure Project**

**Minnesota Power**

**Mercer County, North Dakota**

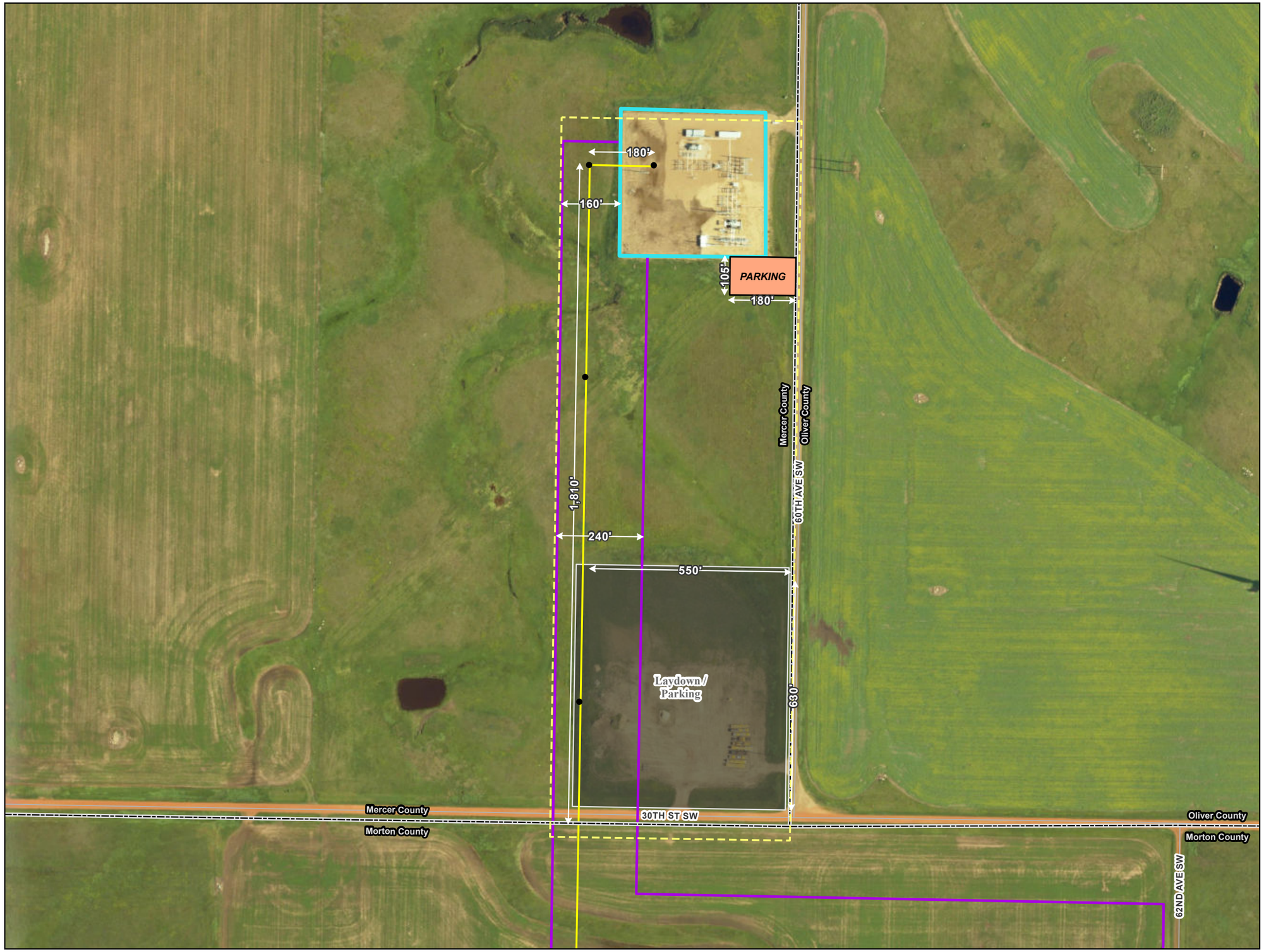
merjent

For Environmental Review Purposes Only

Date: (8/5/2025) Source: Z:\Clients\M_P\MN_Power\Longspur_Wind\ArcGIS\Permitting\CUP_Mercer_Co\Longspur_TLine_MercerCo_CUP.aprx

**MAP 3**

**PROJECT DESIGN**



0 150 300 Feet

1:3,000

N W E S

- Proposed Structure
- Project Route
- Project Corridor
- Existing TriCounty Substation
- Construction Laydown Area / Parking
- Property Boundary
- Parking
- County Boundary

# Map 3 - Project Design

## Minnesota Power Transmission Infrastructure Project

## Minnesota Power

### Mercer County, North Dakota

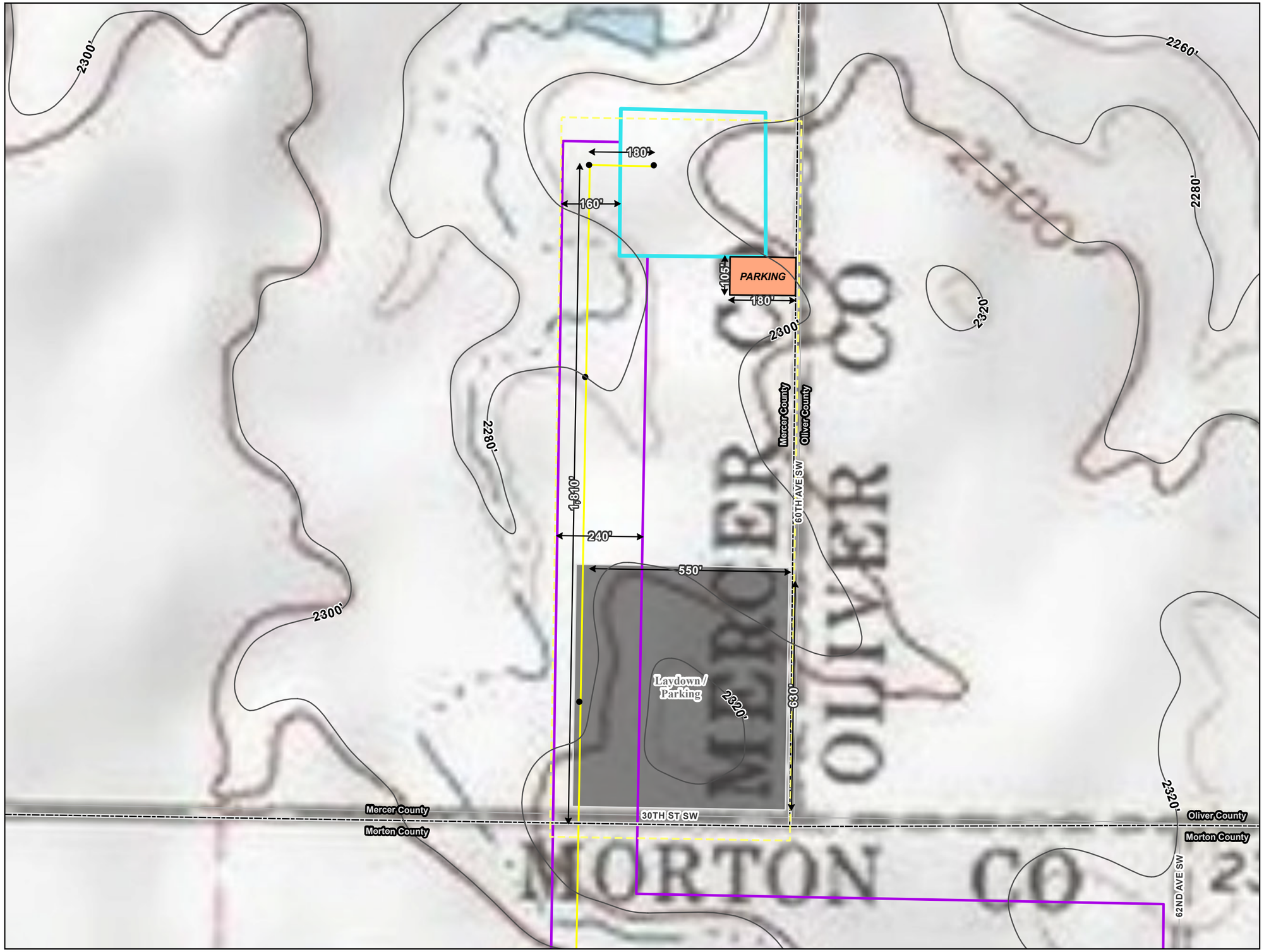
merjent

For Environmental Review Purposes Only

Date: (8/5/2025) Source: Z:\Clients\M_P\MN_Power\Longspur_Wind\ArcGIS\Permitting\CUP_Mercer_Co\Longspur_TLine_MercerCo_CUP.aprx

**MAP 4**

**TOPOGRAPHIC MAP**



0 150 300 Feet

1:3,000

N
W E
S

- Proposed Structure
- 10ft Contour
- Project Route
- Existing TriCounty Substation
- Project Corridor
- Construction Laydown Area / Parking
- Parking
- Property Boundary
- County Boundary

## Map 4 - Topographic

**Minnesota Power Transmission Infrastructure Project**

**Minnesota Power**

**Mercer County, North Dakota**

merjent.

For Environmental Review Purposes Only

Source: Z:\Clients\M_PWR_PowerLongspur_MN\ArcGIS\Permitting\LSP_Mercer_CoLongspur_Line_MercerCo_CUP.aprx
Date: (8/5/2025)

**MAP 5**

**GENERAL SOILS OF THE SITE**

0 150 300 Feet

1:3,000

N W E S

- Project Route
- Project Corridor
- Existing TriCounty Substation
- Construction Laydown Area / Parking
- SSURGO Soil Map Unit
- Property Boundary
- County Boundary

| Soils within the Corridor (Mercer County) | |
|---|---|
| Soil Unit | Soil Description |
| E2601C | Amor-Cabba loams, 6 to 9 percent slopes |
| E2607D | Amor-Werner loams, 9 to 15 percent slopes |
| E2987B | Sen-Chama silt loams, 3 to 6 percent slopes |
| E4139A | Korchea-Fluvaquents complex, channeled, 0 to 2 percent slopes, frequently flooded |

# Map 5 - General Soils of the Site

## Minnesota Power Transmission Infrastructure Project

## Minnesota Power

### Mercer County, North Dakota

merjent

For Environmental Review Purposes Only

Date: (8/5/2025) Source: Z:\Clients\M_P\MN_Power\Longspur_Wind\ArcGIS\Permitting\CUP_Mercer_Co\Longspur_TLine_MercerCo_CUP.aprx

# MAP 6

# LOCATION OF EXISTING AND PROPOSED UTILITIES

0 150 300 Feet

1:3,000

N W E S

Project Route

Project Corridor

Existing TriCounty Substation

Construction Laydown Area / Parking

Existing Transmission Line

**Map 6 - Location of Existing and Proposed Utilities**

**Minnesota Power Transmission Infrastructure Project**

**Minnesota Power**

**Mercer County, North Dakota**

merjent

For Environmental Review Purposes Only

Date: (8/5/2025) Source: Z:\Clients\M_P\MN_Power\Longspur_Wind\ArcGIS\Permitting\CUP_Mercer_Co\Longspur_TLine_MercerCo_CUP.aprx

# ATTACHMENT 1

# CONDITIONAL USE PERMIT APPLICATION

## APPLICATION FOR CONDITIONAL PERMITTED USE

MERCER COUNTY – PLANNING AND ZONING FEE: _____

(Reference Section 2.9 of the Mercer County Zoning Ordinance)

**Zoning Case NO. _____**

Name of Applicant: Minnesota Power _____ Phone: _____

Address: 30 West Superior Street, Duluth, MN 55802 Email: _____

1. Name of Person Representing Applicant: Alexander Luman _____
   Address: 30 West Superior Street, Duluth, MN 55802 Phone: 218-355-3029
2. Owner of Record: _____ Phone: _____
   Address: _____
3. Legal
   Description: See Section 3.1 in supplemental information

4. What is the Conditional Permitted Use Requested? Be specific as to what land use is being sought and explain. See Section 3.0 in supplemental information

5. Attach the following:
   a. Sketch of drawing of lot, building and any other information pertinent to the application. The sketch or drawing should also show the lots location to adjoining lots. (Show area of at least 200 feet of adjoining lots).
   b. Certified survey map or subdivision plat, if necessary.
   c. If applicant is not the owner of record, enclose a notarized letter from the owner stating agreement of the action for the proposed conditional permitted use.
   d. Any other information deemed appropriate or as required by the Mercer County Planning Ordinances.

Alexander Luman August 8, 2025

Signature of Applicant Date

***FOR OFFICE USE ONLY***

Legal Description of Land: _____

Lot Dimensions: _____ Sq. Ft. or Acres: _____

Present Zoning: _____ Present Land Use: _____

Any adjustments, variances, conditional permits, conditional permitted uses or any restrictive covenants?

_____ If so, describe: _____

Under what section of the zoning ordinance is this use sought? _____

Is a variance or zoning change being requested? _____

**Date received:** _____

**Acknowledged by:** _____

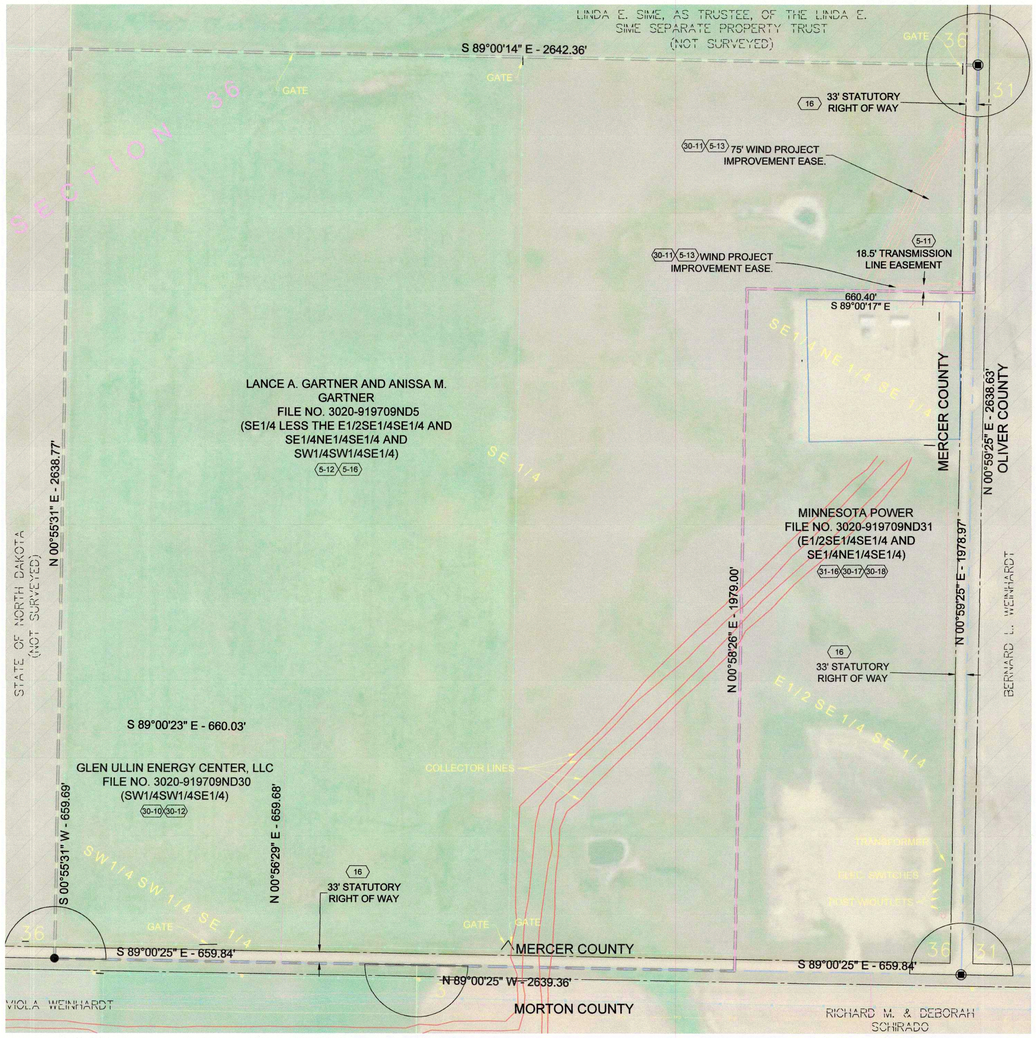
**ATTACHMENT 2**

**CERTIFIED SURVEY MAP**

# ALTA/NSPS LAND TITLE SURVEY

*SECTION 36, TOWNSHIP 141 NORTH, RANGE 88 WEST OF THE FIFTH PRINCIPAL MERIDIAN, MECER COUNTY, NORTH DAKOTA*

SECTION 25




## TRACT 5 (NCS 919709ND5)

**FEE OWNER:**
LANCE A. GARTNER AND ANISSA M. GARTNER, AS JOINT TENANTS

## LEGAL DESCRIPTION:

PER FIRST AMERICAN TITLE INSURANCE COMPANY FILE NO. 3020-919709ND5

**EASEMENT ESTATE:**
MEMORANDUM OF EASEMENTS, DATED SEPTEMBER 27, 2018 AND FILED FOR RECORD JANUARY 29, 2019 AT 3:25 PM, AS DOCUMENT NO. 217280, BY AND BETWEEN LANCE GARTNER AND ANISSA GARTNER, HUSBAND AND WIFE, AND GLEN ULLIN ENERGY CENTER, LLC, A DELAWARE LIMITED LIABILITY COMPANY, IN AND TO THE FOLLOWING:

SOUTHEAST ¼, LESS THE EAST ½ SOUTHEAST ¼ SOUTHEAST ¼ AND SOUTHEAST ¼ NORTHEAST ¼ SOUTHEAST ¼ AND SOUTHWEST ¼ SOUTHWEST ¼ SOUTHEAST ¼ OF SECTION 36, TOWNSHIP 141 NORTH, RANGE 88 WEST, MERCER COUNTY, NORTH DAKOTA.

### (FILE NO. 3020-919709ND5)
### SCHEDULE B EXCEPTIONS FROM COVERAGE

| ITEM NO. | RECORDATION INFO. | PURPOSE | LOCATION ON SHEET |
|---|---|---|---|
| | ENCROACHMENTS | SEE NOTE | NONE FOUND |
| 16 | NDCC 24-07-03 | STATUTORY RIGHT OF WAY FOR PUBLIC ROAD | SHOWN HEREON; 33' WIDE EASEMENT |
| 5-11 | DOCUMENT NO. 203154 | TRANSMISSION LINE EASEMENT | SHOWN HEREON |
| 5-12 | DOCUMENT NO. 203219 & 216545 | WIND PROJECT OPTION AGREEMENT & ASSIGNMENT OF EASEMENTS | BLANKET IN NATURE NOT PLOTTED HEREON |
| 5-13 | DOCUMENT NO. 203243 | MEMORANDUM OF WIND PROJECT EASEMENTS | SHOWN HEREON |
| 5-16 | DOCUMENT NO. 217280 | MEMORANDUM OF EASEMENTS | CANNOT BE SHOWN GRAPHICALLY; NOT PLOTTED HEREON |

## TRACT 30 (NCS 919709ND30)

**FEE ESTATE:**
GLEN ULLIN ENERGY CENTER, LLC, A DELAWARE LIMITED LIABILITY COMPANY

SOUTHWEST ¼ SOUTHWEST ¼ SOUTHEAST ¼ OF SECTION 36, TOWNSHIP 141 NORTH, RANGE 88 WEST OF THE 5TH PRINCIPAL MERIDIAN, MERCER COUNTY, NORTH DAKOTA.

## LEGAL DESCRIPTION:

PER FIRST AMERICAN TITLE INSURANCE COMPANY FILE NO. 3020-919709ND30

**FEE SIMPLE ESTATE TO:**

SOUTHWEST ¼ SOUTHWEST ¼ SOUTHEAST ¼ OF SECTION 36, TOWNSHIP 141 NORTH, RANGE 88 WEST, MERCER COUNTY, NORTH DAKOTA.

### (FILE NO. 3020-919709ND30)
### SCHEDULE B EXCEPTIONS FROM COVERAGE

| ITEM NO. | RECORDATION INFO. | PURPOSE | LOCATION ON SHEET |
|---|---|---|---|
| | ENCROACHMENTS | SEE NOTE | NONE FOUND |
| 16 | NDCC 24-07-03 | STATUTORY RIGHT OF WAY FOR PUBLIC ROAD | SHOWN HEREON; 33' WIDE EASEMENT |
| 30-10 | DOCUMENT NO. 203219 & 216545 | WIND PROJECT OPTION AGREEMENT & ASSIGNMENT OF EASEMENTS | BLANKET IN NATURE NOT PLOTTED HEREON |
| 30-12 | DOCUMENT NO. 217280 | MEMORANDUM OF EASEMENTS | CANNOT BE SHOWN GRAPHICALLY; NOT PLOTTED HEREON |

## TRACT 31 (NCS 919709ND31)

**FEE OWNER:**
MINNESOTA POWER, A DIVISION OF ALLETE, INC., A MINNESOTA CORPORATION

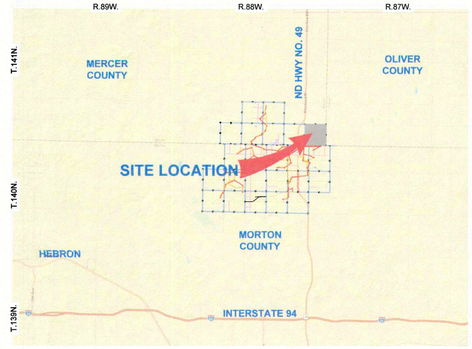
## LEGAL DESCRIPTION:

**EASEMENT ESTATE:**
MEMORANDUM OF EASEMENTS, DATED NOVEMBER 15, 2019 AND FILED FOR RECORD NOVEMBER 18, 2019, AS DOCUMENT NO. 218811, BY AND BETWEEN MINNESOTA POWER, A DIVISION OF ALLETE, INC., A MINNESOTA CORPORATION, AND GLEN ULLIN ENERGY CENTER, LLC, A DELAWARE LIMITED LIABILITY COMPANY, IN AND TO THE FOLLOWING:

THE EAST HALF OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER (E1/2SE1/4SE1/4) AND THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER (SE1/4NE1/4SE1/4) OF SECTION THIRTY-SIX (36), TOWNSHIP ONE HUNDRED FORTY-ONE (141) NORTH, RANGE EIGHTY-EIGHT (88) WEST OF THE FIFTH PRINCIPAL MERIDIAN, MERCER COUNTY, NORTH DAKOTA.

### (FILE NO. 3020-919709ND31)
### SCHEDULE B EXCEPTIONS FROM COVERAGE

| ITEM NO. | RECORDATION INFO. | PURPOSE | LOCATION ON SHEET |
|---|---|---|---|
| | ENCROACHMENTS | SEE NOTE | NONE FOUND |
| 16 | NDCC 24-07-03 | STATUTORY RIGHT OF WAY FOR PUBLIC ROAD | SHOWN HEREON; 33' WIDE EASEMENT |
| 31-16 | DOCUMENT NO. 100968 & 200584 | ZONING ORDINANCE AND RESOLUTION TO AMEND ZONING ORDINANCE | CANNOT BE SHOWN GRAPHICALLY; NOT PLOTTED HEREON |
| 30-17 | DOCUMENT NO. 189929 | WIND PROJECT OPTION AGREEMENT | CANNOT BE SHOWN GRAPHICALLY; NOT PLOTTED HEREON |
| 30-18 | DOCUMENT NO. 218811 | MEMORANDUM OF EASEMENTS | CANNOT BE SHOWN GRAPHICALLY; NOT PLOTTED HEREON |




VICINITY MAP
*NOT TO SCALE*

### LEGEND

- REBAR & LS 8732 AC SET
- ORIGINAL STONE FOUND
- ALUMINUM CAP FOUND
- IRON REBAR FOUND
- IRON REBAR W/PLASTIC CAP
- CALCULATED
- RR SPIKE
- ELECTRICAL PEDESTAL
- POWER POLE
- GUY WIRE
- UTILITY MARKER
- WELLHEAD
- HOSE BIB
- WATER GATE VALVE
- WATER TOWER
- WATER METER
- WATER MANHOLE
- SANITARY SEWER MANHOLE
- TELEPHONE PEDESTAL
- WIND TURBINE LOCATION
- OVERHEAD ELECTRICAL
- BARBED WIRE FENCE
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND TELEPHONE FIBER OPTIC LINE
- UNDERGROUND ELECTRICAL LINE
- WATER LINE
- EDGE OF WATER
- ADJACENT PROPERTY LINE
- EASEMENT LINE
- RIGHT OF WAY LINE
- SECTION LINE
- 1/4 LINE
- 1/16 LINE
- PARCEL BOUNDARY LINE
- COLLECTOR LINE
- ACCESS ROAD CENTERLINE
- WIND ENERGY FACILITY SETBACK LINE
- WIND ENERGY FACILITY PERIMETER LINE
- BUILDING LINE
- N 00°00'00" E - 5280.00' BOUNDARY LINES BEARING & DISTANCE
- NON-PARTICIPATING PARCEL

N
W E
S

200 0 200 400
SCALE 1" = 200' FEET

## *TABLE A*
## *ALTA/NSPS Land Title Survey Optional Requirements*

**ITEM 1.**
THE PROPERTY CORNER MONUMENTS HAVE BEEN FOUND AND/OR SET AS SHOWN HEREON.

**ITEM 2.**
THE ADDRESS LISTED FILE NO. 3020-919709ND5 IS: SE¼ LESS THE E½SE¼SE¼ AND SE¼NE¼SE¼ 36-141-88, MERCER COUNTY, ND. NO OTHER ADDRESSES LISTED.

**ITEM 3.**
PROPERTY IS LOCATED WITHIN AN UNPRINTED PANEL OF FEMA FIRM MAP NO. 38057C0975E, INFORMATION RETRIEVED. OCTOBER 10, 2018 www.fema.gov

**ITEM 4.**
THE LAND AREA OF THE DESCRIBED PROPERTY IN FILE NO. 3020-919709ND5 IS ±118.99 ACRES.
THE LAND AREA OF THE DESCRIBED PROPERTY IN FILE NO. 3020-919709ND30 IS ±9.99 ACRES
THE LAND AREA OF THE DESCRIBED PROPERTY IN FILE NO. 3020-919709ND31 IS ±29.99 ACRES

**ITEM 6(B).**
NO ZONING REPORT RECEIVED

**ITEM 7(A), 7(B)(1), 7(B)(2), 7(C).**
NO BUILDINGS OBSERVED ON THE SURVEYED PROPERTY.

**ITEM 8.**
ANY SUBSTANTIAL FEATURES OBSERVED IN THE PROCESSES OF CONDUCTING THE SURVEY ARE SHOWN HEREON.

**ITEM 11.**
UTILITIES WERE SURVEYED AS MARKED AND PER FOUND EVIDENCE ON THE SITE.
UTILITIES WERE MARKED AND LOCATED ON THE SITE THROUGH "NORTH DAKOTA ONE CALL."
TICKET NUMBER 18122961
(TELE: 1.800.795.0555)
(WEB SITE: WWW.NDONECALL.COM)

**ITEM 13.**
ADJOINING OWNERS ARE SHOWN HEREON. INFORMATION RETRIEVED. OCTOBER 8, 2018
http://gisonline.co.morton.nd.us/parcels/
https://ndrinweb3.hplains.state.nd.us/recordernew/web/login.jsp

**ITEM 14.**
INTERSECTING STREETS ARE SHOWN HEREON.

**ITEM 16.**
NO OBSERVED EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS.

**ITEM 17.**
NO KNOWN PROPOSED CHANGES IN STREET RIGHT OF WAY LINES NOR OBSERVED EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION.

**ITEM 19.**
PLOTTABLE OFFSITE EASEMENTS OR SERVITUDES DISCLOSED IN DOCUMENTS PROVIDED OR OBTAINED AS PART OF THE SURVEY ARE SHOWN HEREON.

**DATUM NOTES:**
1. THE MAXIMUM ALLOWABLE RELATIVE POSITIONAL PRECISION IN ACCORDANCE WITH ALTA/NSPS LAND TITLE SURVEY STANDARDS HAS BEEN MAINTAINED.

2. HORIZONTAL DATUM:
SURVEY IS BASED ON NORTH DAKOTA STATE PLANE SYSTEM, NAD83(2011), SOUTH ZONE, U.S. FOOT. BEARINGS SHOWN ARE GRID, DISTANCES SHOWN ARE GRID DISTANCE. MULTIPLY BY 1.0001121356 TO GO FROM GRID DISTANCE TO GROUND DISTANCE.

3. VERTICAL DATUM:
NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88) DERIVED FROM OPUS SOLUTION.

***TO GLEN ULLIN ENERGY CENTER LLC, A DELAWARE CORPORATION, FIRST AMERICAN TITLE INSURANCE COMPANY, AND EACH OF THEIR RESPECTIVE SUCCESSORS AND ASSIGNS:***

***This is to certify that this plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 6(b), 7(a), 7(b)(1), 7(b)(2), 7(c), 8, 11, 13, 14, 16, 17 and 19 of Table A thereof. The field work was completed December, 2019.***

12/13/19
*Date of Plat*

*Jarrett M. Leas*
*ND Professional Land Surveyor No. 8732*

NORTH DAKOTA LICENSED JARRETT M. LEAS No. 8732 DATE 12/13/19 REGISTERED LAND SURVEYOR

Rev'd. 9/20/2019, 10/15/2019, 12/12/2019

GLEN ULLIN ENERGY CENTER, LLC
30 W. SUPERIOR ST., SUITE 200, DULUTH, MN 55802

SHEET NO. 6

KLJ

ALTA/NSPS LAND TITLE SURVEY

SECTION 36, TOWNSHIP 141 NORTH, RANGE 88 WEST OF THE FIFTH PRINCIPAL MERIDIAN MERCER COUNTY, NORTH DAKOTA

| DRWN. BY | CHK'D BY | PROJECT NO. | DATE |
|---|---|---|---|
| JMB | JML | 1809-01317 | 12/11/2018 |

©KLJ 2019

Dec 12, 2019 - 11:26am - \\klj-solutions.com\dfs\Data\IP\BRND\P\Power\1809-01317 Clean Energy\CADD\1809-01317-ALTA_36-141-88.dwg

STATE OF NORTH DAKOTA
COUNTY OF MERCER

198950
OFFICE OF
COUNTY RECORDER

I hereby certify that the within instrument was filed in this office for record this 3/2/2012 at 10:05 AM, and was duly recorded as Book 153 DEED on Page 161 Fee: $13.00

MORTGAGEE
MORTGAGOR
INDEXED ✓

County Recorder Brenda L. Cook

By Deputy

Return To: ND GUARANTY & TITLE CO, 400 E BROADWAY AVE
SUITE 102 BISMARCK, ND 58501

Taxes and Special Assessments paid and TRANSFER ACCEPTED this 2nd day of March, 2012.

Monte G. Ellhardt
Mercer County Auditor

Pamela R. Drath, Clerk
By: Deputy Auditor

COUNTY RECORDER SEAL MERCER COUNTY, N. DAK.

File No. B101340

## WARRANTY DEED

THIS INDENTURE, made this 27th day of Febuary, 2012, by and between **Lance A. Gartner** and **Anissa M. Gartner**, individually and as husband and wife, hereinafter referred to as Grantors, and **Minnesota Power, a Division of ALLETE, Inc., a MN corporation** of 30 W. Superior St., Duluth, MN 55802, hereinafter referred to as Grantee(s);

WITNESSETH, For and in consideration of the sum of One Dollar and other good valuable consideration paid by Grantee(s) to Grantors, the receipt and sufficiency of which is hereby acknowledged, Grantors do hereby sell, grant and convey to the said Grantee(s), all of the following real property lying and being in the County of Mercer, North Dakota, described as follows:

Property Address: Vacant Land, Mercer County, North Dakota

**The East Half of the Southeast Quarter of the Southeast Quarter (E½SE¼SE¼) and the Southeast Quarter of the Northeast Quarter of the Southeast Quarter (SE¼NE¼SE¼) of Section Thirty-six (36), Township One Hundred Forty-one (141) North, Range Eighty-eight (88)West of the Fifth Principal Meridian, Mercer County, North Dakota.**

The above legal description was obtained from previously recorded instrument(s)

I CERTIFY THAT THE FULL CONSIDERATION PAID FOR THE PROPERTY CONVEYED IS $_____; OR

X I CERTIFY THAT A REPORT OF THE FULL CONSIDERATION PAID FOR THE PROPERTY CONVEYED HAS BEEN FILED WITH THE STATE BOARD OF EQUALIZATION.

[signature] (Grantee or agent)

This form was created using www.MyStateLegalForms.com
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**Reserving unto the Seller all oil, gas, gravel, sand, coal and other minerals now owned by Seller, provided that Seller shall not disturb any substation improvement of the Buyer, nor interfere with the Buyer's usage of such improvements if Seller explores for, develops or produces any mineral from the Real Property.**

**The Seller reserves the right of first refusal to buy back any unused portion of the Real Property that the Buyer offers for sale. Buyer shall inform Seller in writing of any offer Buyer has received and intends to accept. Seller shall have 15 days from receipt of the notice of offer to inform Buyer that Seller intends to purchase the property to be sold for the same price and terms that Buyer has received, and shall execute an agreement for the purchase, with earnest money in the same amount as provided in the officer Buyer has received.**

And the said Grantors for themselves, and their successors and assigns, do covenant with the Grantee(s) that they are well-seized in fee of the land and premises aforesaid and have good right to sell and convey the same in the manner and form aforesaid; that the same are free from all encumbrances, except installments of special assessments or assessments for special improvements which have not been certified to the County Auditor for collection, and except for easements and restrictions of record, and the above granted lands and premises in the quiet and peaceable possession of said Grantee(s), against all persons lawfully claiming or to claim the whole or any part thereof, the said Grantors will warrant and defend.

WITNESS, The hands of the Grantors:

Lance A. Gartner, Grantor

Anissa M. Gartner, Grantor

STATE OF North Dakota )
) SS.
COUNTY OF Burleigh )

On this 27th day of February, 2012, before me, personally appeared Lance A. Gartner and Anissa M. Gartner, individually and as husband and wife, known to me to be the persons that are described in, and who executed the within and foregoing instrument, and acknowledged to me that they executed the same.

JOLENE A. MUSCHA
NOTARY PUBLIC
STATE OF NORTH DAKOTA
MY COMMISSION EXPIRES DEC 23, 2014

Notary Public, State of North Dakota

My Commission Exp: _____


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County Applications and Approvals

D.2 Mercer County Conditional Use Permit Approval

**MERCER COUNTY BOARD OF COMMISSIONERS**
**STANTON, NORTH DAKOTA**

**CERTIFICATE OF APPROVAL OF A CONDITIONAL USE**
**ZONING CASE 25-09-01**

**ISSUED TO:** Minnesota Power
30 W Superior St
Duluth, MN 55802

**CONDITIONAL USE:** 230-Kilovolt Transmission Line

**LEGAL DESCRIPTION:** .3-Mile-long line in Section 36, T141N, R88W of the 5th P.M. Mercer County, ND

**PLANNING COMMISSION:** Recommended approval September 18, 2025

**REMARKS:** Keep planning commission informed of any changes or additional uses.

Issued this 1st day of October 2025, by the Board of Mercer County Commissioners.

Gene Wolf, Chairman

Carmen Reed, County Auditor

**BEFORE THE STATE OF NORTH DAKOTA**

**PUBLIC SERVICE COMMISSION**

| | |
|---|---|
| **In the Matter of the Application of Minnesota Power for a Certificate of Corridor Compatibility and Transmission Facility Route Permit to construct the approximately 2.5-mile long Longspur Wind 230-kV Transmission Line in Morton and Mercer Counties, North Dakota** | **Case No. PU-26-___** |

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## AFFIDAVIT OF SERVICE BY MAIL

---

STATE OF NORTH DAKOTA )
)§
COUNTY OF BURLEIGH )

Lisa Herberholz, being first duly sworn on oath, deposes and says: That she is a citizen of the United States over the age of eighteen years and not a party to, nor interested in, the above entitled action.

That on the 30th day of December, 2025, this affiant did deposit in the United States Post office at Bismarck, North Dakota, a true and correct copy of the following document:

**CONSOLIDATED APPLICATION OF MINNESOTA POWER FOR CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT**

That the document with postage prepaid was mailed, directed to the persons to be served at their last known post office address as follows:

Ms. Dawn Rhone
Morton County Auditor
210 2nd Ave. NW
Mandan, ND 58554

Ms. Carmen Reed
Mercer County Auditor
PO Box 39
410 Van Slyck Ave.
Stanton, ND 58571

To the best of affiant's knowledge, the addresses above given were the actual post office addresses of the parties intended to be served.

Lisa Herberholz

Subscribed and sworn to before me this 30th day of December, 2025.

( S E A L )

LISA CROWLEY
NOTARY PUBLIC
STATE OF NORTH DAKOTA
MY COMMISSION EXPIRES DEC. 16, 2027

Lisa Crowley
Notary Public
Burleigh County, North Dakota
My Commission Expires: 12.16.27

**BEFORE THE STATE OF NORTH DAKOTA**

**PUBLIC SERVICE COMMISSION**

| | |
|---|---|
| **In the Matter of the Application of Minnesota Power for a Certificate of Corridor Compatibility and Transmission Facility Route Permit to construct the approximately 2.5-mile long Longspur Wind 230-kV Transmission Line in Morton and Mercer Counties, North Dakota** | **Case No. PU-26-___** |

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## NOTICE OF APPEARANCE

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Notice is hereby given that Casey A. Furey and Erik J. Edison, Crowley Fleck PLLP, will be appearing in the above-entitled matter on behalf of Minnesota Power, a business unit of ALLETE, Inc. All correspondence, notices, pleadings, and other material relevant to this matter should be served upon the undersigned.

Dated this 30th day of December, 2025.

By: _____

CASEY A. FUREY (Bar ID #08035)
cfurey@crowleyfleck.com
ERIK J. EDISON (Bar ID #08790)
ejedison@crowleyfleck.com
CROWLEY FLECK PLLP
*Attorneys for Minnesota Power*
100 West Broadway, Suite 250
P.O. Box 2798
Bismarck, ND 58502-2798
(701) 223-6585