

Environmental Assessment

Prairie Rose Transmission

In the Matter of the Application of Prairie Rose Transmission, LLC
for a Route Permit for a 115 kV Transmission Line in Rock County

PUC Docket No. IP-6838/TL-10-134



Energy Facilities Permitting
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Responsible Government Unit

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Abstract

On March 10, 2011, Prairie Rose Transmission, LLC (Applicant or Prairie Rose) filed a high voltage transmission line (HVTL) route permit application under the alternative review process for the Prairie Rose Wind Farm 115 kilovolt (kV) transmission line project (Project). The route is required to connect the Prairie Rose Wind Farm to the grid. The route permit application was accepted as complete by the Commission on April 15, 2011.

The complete proposed transmission line would span approximately 24 miles, from the Prairie Rose Wind Farm Substation in Rose Dell Township in Rock County to the Split Rock Substation in Brandon, South Dakota. The Minnesota portion of the proposed Project would be approximately 5.5 to seven miles long. The single-circuit transmission line would head west along County Highway 7 to County Highway 23. There it would continue due west along Township Road 72 to the Minnesota-South Dakota border. The proposed route would be sited along a combination of existing road right-of-way (ROW) and private land adjacent the public road ROW.

Two separate approvals from the Minnesota Public Utilities Commission (Commission) are required for the construction of the Prairie Rose 115 kV transmission line project – a certificate of need (CN) and a route permit. The Project required a CN even though it was less than 10 miles because it crosses the state line into South Dakota. The CN was issued in a September 16, 2011, Order under docket no. ET-6838/CN-10-80.

The Energy Facility Permitting (EFP) staff of the Department of Commerce (DOC) is required to do an environmental assessment (EA) under the HVTL Route Permit procedures (Minnesota Rule 7850.3700). The environmental assessment addresses the issues required in Minnesota Rule 7850.3700, subpart 4, and as determined in the Scoping Decision of June 28, 2011.

Persons interested in these matters can register their names on the Project webpage at <http://energyfacilities.puc.state.mn.us/Docket.html?Id=28283> or by contacting David Birkholz, Energy Facilities Permitting, 85 7th Place East, Suite 500, St. Paul, Minnesota 55101, phone: (651) 296-2878, e-mail: david.birkholz@state.mn.us. Documents of interest can be found at the above website or by going to <https://www.edockets.state.mn.us/EFiling/search.jsp> and entering “10” and “80” for the CN docket, “10” and “425” for the site permit and “10” and “134” for the route permit docket as the year and project identification search criteria.

Following the release of this Environmental Assessment, a Public Hearing will be held in the project area.

Acronyms, Abbreviations and Definitions

ACSR	Aluminum Conductor Steel Reinforced
AC	Alternate Current
ALJ	Administrative Law Judge
BMP	Best management practice
BPA	Bonneville Power Association
Commission	Minnesota Public Utilities Commission
CN	Certificate of Need
CSAH	County State Aid Highway
dB	decibels
dba	A-weighted sound level recorded in units of decibels
DC	Direct Current
DNR	Department of Natural Resources
DOC	Department of Commerce
EA	Environmental Assessment
EFP	Department of Commerce Energy Facilities Permitting
EMF	electromagnetic field
EPA	United States Environmental Protection Agency
ER	Environmental Report
FEMA	Federal Emergency Management Agency
G	Gauss
HVTL	high voltage transmission line
Hz	Hertz
kV	kilovolt
kV/M	Kilovolt per meter
kWh	Kilowatt hour
mA	milliAmperes
MCBS	Minnesota County Biological Survey
MDH	Minnesota Department of Health
mG	milligauss
MHz	Mega Hertz
Mn DNR	Minnesota Department of Natural Resources
Mn DOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MSIWG	Minnesota State Interagency Working Group
MW	Megawatt
NAC	noise area classification
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NEV	Neutral-to-Earth Voltage
NIEHS	National Institute of Environmental Health Sciences
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
PM	Particulate Matter

ppm	parts per million
PWI	Public Waters Inventory
RAPID	U.S. EMF Research and Public Information Dissemination
ROW	Right-of-Way
RUS	Rural Utilities Service
SFD	Swan Flight Diverter
SHPO	State Historic Preservation Office
SNA	Scientific and Natural Area
SWPPP	Stormwater Pollution Prevention Plan
USCOE	United States Corp of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WCA	Minnesota Wetland Conservation Act
WHO	World Health Organization
WPA	Waterfowl Production Area
WMA	Wildlife Management Area

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1.0 Introduction

On March 10, 2011, Prairie Rose Transmission, LLC filed a high voltage transmission line route permit application with the Minnesota Public Utilities Commission under the alternative review process for the Prairie Rose Wind Farm 115 kV transmission line project pursuant to Minnesota Statutes Section 216E and Minnesota Rules Chapter 7850. Prairie Rose Transmission, LLC is a wholly-owned subsidiary of Geronimo Wind Energy, LLC.

The Department of Commerce Energy Facility Permitting staff is tasked with conducting environmental review on applications for route permits. The intent of the environmental review process is to inform the public, the applicant and decision-makers about potential impacts and possible mitigations for the proposed route and any alternatives.

This document is an Environmental Assessment that meets the environmental review requirements of the alternative review route permit process by:

- a) Providing information in Section 2 on the regulatory framework;
- b) Describing in Section 3 the proposed route and alternatives to the proposed route;
- c) Summarizing in Section 4 the potential effects on people and the environment of the proposed route and any route alternatives;
- d) Assessing in Section 5 a comparison of the proposed route and alternative routes; and
- e) Identifying in Section 6 any unavoidable impacts.

1.1 Project Description

The complete proposed 115 kV transmission line would span approximately 24 miles, from the Prairie Rose Wind Farm Substation in Rose Dell Township in Rock County to the Split Rock Substation in Brandon, South Dakota. The Minnesota portion of the proposed Project would be approximately 5.5 to seven miles long. The single-circuit transmission line would head west along County Highway 7 to County Highway 23. There it would continue due west along Township Road 72 to the Minnesota-South Dakota border. The proposed route would be sited along a combination of existing road ROW and private land adjacent the public road ROW.

The proposed structures would be single-pole steel structures that would range in height between 60 and 80 feet. The span length between structures would range between 350 and 600 feet depending on site-specific considerations. The right-of-way for the proposed transmission line would generally be 80 feet in width.

The estimated cost for the 24 miles of transmission line between the Prairie Rose Wind Substation and the Split Rock Substation is \$15 million. The portion of this cost relating to the Minnesota piece of the Project is estimated to be approximately \$5 million.

A project substation was authorized by the Commission in its September 16, 2011 Order granting Prairie Rose Wind Farm a large wind energy conversion system (LWECS) site permit. The location of this substation is being determined in the route permit review process.

1.2 Project Location

The Proposed Route is located in Rose Dell Township in Rock County, Minnesota as shown in **Figure 1**. **Table 1** below identifies the sections, townships, and ranges where the proposed route is located.

Table 1. Project Location

County	Township Name	Township	Range	Sections
Rock	Rose Dell	104N	46W	26-35
Rock	Rose Dell	104N	47W	25, 26, 35, 36

1.3 Project Purpose

The need for the project is predicated on the construction of the 200 MW Prairie Rose Wind Farm. The transmission is required as an interconnection with the electric grid. Two primary factors justified the need for the overall Project, the continuing growth in demand for electricity in the state and region and the growing demand for additional renewable resources needed to meet Minnesota’s Renewable Energy Standard (RES) requirements.

According to the 2008 Quadrennial Report, there is “not enough excess generating capacity available to meet this increase in demand, new generation and transmission facilities will be needed in the near future to serve the electric needs and the reliability of the regional electricity transmission – both state and region.”¹ The Minnesota Resource Assessment Study completed in October 2009, concluded that electricity demand is likely to grow in the future and as much as 4,000 MW of renewable generator will be needed by 2025.²

1.4 Sources of Information

Much of the information used in this Environmental Assessment is derived from documents prepared by Geronimo Wind Energy. These include the Certificate of Need Application, May 13, 2010, and the HVTL Route Permit Application, March 10, 2011. Discussion of Electromagnetic Field (EMF) issues came primarily from the white paper developed by the Interagency Task Force led by the Minnesota Health Department, the National Institute for Environmental Health and the World Health Organization. Additional information comes from earlier Energy Facility Permitting environmental review documents in similar dockets, other state agencies, such as the Department of Natural Resources, and additional research. First hand information was gathered by site visits along the proposed line.

¹ Minnesota Office of Energy Security, *Energy Policy and Conservation Report*, (2008) at 7-8 (http://www.state.mn.us/mn/externalDocs/Commerce/Quadrennial_Report_2008_091509012935_2008-QuadReport.pdf)

² Minnesota Office of Energy Security, *Minnesota Resource Assessment Study*, (2009), at 4 (http://www.state.mn.us/mn/externalDocs/Commerce/Minnesota_Resource_Assessment_Supplement_012910035648_MN_Resource_Assessment2.pdf)

2.0 Regulatory Framework

In Minnesota, most high voltage transmission line projects go through a two stage regulatory process. First, application is made to the Minnesota Public Utilities Commission for a Certificate of Need (CN). If a CN is granted, the utility must then obtain a Route Permit from the Commission that designates a specific route for the line.

2.1 Certificate of Need

Before any large HVTL can be constructed in Minnesota, the Commission must determine that it is necessary and in the best interest of the state (Minn. Statute 216B.243 subd. 2). The certificate of need process includes environmental review and public hearings, and typically takes 12 months. This process is the only proceeding in which a no-build alternative and the size, type, timing, system configuration and voltage of the proposed project will be considered.

This project was technically below the threshold of requiring a CN as it is below 230 kV and under ten miles. However, one was required because the line crosses the border into another state (Minn. Rule 7849.1100 subp. 5). The CN for the transmission was combined with the CN for the Prairie Rose Wind Farm application, and was submitted on May 13, 2010. The Energy Facility Permitting staff was responsible for administering the environmental review process. The Commission was responsible for determining if the proposed project is needed. An Order granting a Certificate of Need for the 200 MW wind farm and the 115 kV transmission line was issued on September 16, 2011.

A copy of the certificate of need application, along with the Order and other relevant documents, can be reviewed at the eDockets web page. Search year "10" and number "80" at:

<https://www.edockets.state.mn.us/Efiling/search.jsp>

2.2 Route Permit

Minnesota Statutes Section 216E.03, subd. 2, provides that no person may construct a HVTL without a route permit from the Commission. An HVTL is defined as a transmission line of 100 kV or more and greater than 1,500 feet in length in Minnesota Statutes Section 216E.01, subd. 4. The proposed transmission line is an HVTL and therefore a route permit is required prior to construction. Prairie Rose Transmission, LLC submitted the HVTL route permit application for the proposed transmission line pursuant to the provisions of the Alternative Permitting Process outlined in Minnesota Rules 7850.2900-3900. The alternative permitting process includes environmental review and public hearings, and typically takes six months.

A copy of the route permit application, along with other relevant documents, can be reviewed at the eDockets web page. Search year "10" and number "134" at:

<https://www.edockets.state.mn.us/Efiling/search.jsp>

or see:

<http://energyfacilities.puc.state.mn.us/Docket.html?Id=28283>

The EFP staff is responsible for evaluating the HVTL route permit application and administering the environmental review and permitting process. The Commission is responsible for selecting the final transmission line route and issuing the HVTL route permit.

Environmental Review

Environmental review under the alternative permitting process includes a public information/scoping meeting and the preparation of an environmental review document, the Environmental Assessment (Minn. Rule 7850.3700). The Environmental Assessment is a written document that describes the human and environmental impacts of the transmission line project (and selected alternative routes) and methods to mitigate such impacts. The EA must be completed and made available prior to the public hearing.

On May 22, 2011, the EFP staff sent notice of the place, date and time of the Initial Public Information and Scoping meeting to those persons on the General List, the agency technical representatives list and the project contact list. Notice of the public meeting was also published in the local newspapers. On Tuesday, June 7, 2011, the Energy Facility Permitting staff held a public information/scoping meeting at Memorial Hall in Jasper. The purpose of the meeting was to provide information to the public about the proposed project, to answer questions, and to allow the public an opportunity to suggest alternatives and impacts that should be considered during preparation of the environmental review document.

Four people attended the public information and scoping meeting; a member of the public requested information on the type of structure planned for the Project, especially concerning the possible use of self-weathering poles. A court reporter was present to document oral statements.

A written comment period was open through Monday, June 20, 2011. EFP received one comment letter to review and consider during preparation of the scope of the Environmental Assessment. The letter was from the Minnesota Department of Natural Resources (DNR) requesting review in the EA of the placement of the substation and routing the line near Minnesota County Biological Survey sites. Specifically, the DNR requests the EA evaluate on which side of the road an alignment would cause the least impact on biologically significant areas.

There was no Advisory Task Force established for this routing docket.

After consideration of the application and the public comments, the Department of Commerce Deputy Commissioner issued his Scoping Decision on June 28, 2011. A copy of this order is attached as **Appendix A**. The comments, along with the typical HVTL routing impacts, were incorporated into the Scoping Decision.

The Commission's obligation is to choose routes that minimize adverse human and environmental impacts while insuring continuing electric power system reliability and integrity, and also while insuring that electric energy needs are met and fulfilled in an orderly and timely fashion. The route permit will contain conditions specifying construction and system operation standards (see a sample Route Permit in **Appendix B**).

Public Hearing

The Commission is required by Minn. Rule 7850.3800 subp. 1, to hold a public hearing once the EA has been completed. It is anticipated that this hearing will be held in late October or early November 2011, in the project area, and will be conducted by an Administrative Law Judge (ALJ). The hearing will be noticed separately and details can be found when available online at

<http://energyfacilities.puc.state.mn.us/Docket.html?Id=28283>. Interested persons may comment on the EA at the public hearing. Persons may testify at the hearing without being first sworn under oath. The ALJ will ensure that the record created at the hearing is preserved and will provide EFP with a summary of testimony from the hearing.

Comments received on the Environmental Assessment become part of the record in the proceeding, but EFP staff is not required to revise or supplement the EA document. A final decision on a route permit will be made by the Commission at an open meeting within a couple of months after the public hearing, depending on scheduling opportunities. The process anticipates a decision within six months of the Application.

If issued a route permit by the Commission, Prairie Rose Transmission, LLC will not have authority to exercise the power of eminent domain to acquire the land necessary for the project pursuant to Minnesota Statute 216E.12 and Minnesota Statute 117.

2.3 Other Permits

The Public Utilities Commission HVTL route permit is the only State permit required for routing of high voltage transmission lines, but other permits may be required for certain construction activities, such as river crossings. **Table 2** includes a list of supplementary permits that may be required for Prairie Rose to complete this project.

Table 2. Potential Required Permits³

Permit	Jurisdiction
Federal Approvals	
Section 404 Clean Water Act	U.S. Army Corps of Engineers
Farmland Conversion Form AD-1006	U.S. Department of Agriculture
State of Minnesota Approvals	
License to Cross Public Waters	MnDNR Division of Lands and Minerals
Application for utility permit (long form)	MnDOT
National Pollutant Discharge Elimination System	Minnesota Pollution Control Agency
Local Approvals	
Road Crossing Permits	County, Township, City
Lands Permits	County, Township, City
Over-width Loads Permits	County, Township, City
Driveway/Access Permits	County, Township, City

Once the Commission issues a Route Permit, local zoning, building and land use regulations and rules are preempted per Minn. Statute 216E.10, subd 1. However, the Applicants are still required to obtain relevant permissions, such as road crossing permits.

³ Prairie Rose Transmission, LLC Route Permit Application, March 10, 2011, (hereafter RPA) at 44

2.4 Applicable Codes

The transmission line, regardless of route location, must meet all requirements of the National Electrical Safety Code (NESC) and the Rural Utilities Service (RUS) Design Manual for High Voltage Transmission Lines. These standards are designed to protect human health and the environment. They also ensure that the transmission line and all associated structures are built from high quality materials that will withstand the operational stresses placed upon them over the expected lifespan of the equipment provided normal routine operational and maintenance is performed.

Utilities must comply with the most recent edition of the National Electric Safety Code, as published by the Institute of Electrical and Electronics Engineers, Inc., and approved by the American National Standards Institute, when constructing new facilities or reinvesting capital in existing facilities. See Minn. Statute 326B.35 and Minn. Rule 7826.0300 subp 1.

The NESC is a voluntary utility developed set of standards intended to ensure that the public is protected. The NESC covers electric supply stations and overhead and underground electric supply and communication lines, and is applicable only to systems and equipment operated by utilities or similar systems on industrial premises. For more information, go to standards.ieee.org/faqs/NESCFAQ.html#q1. The RUS provides leadership and capital to “upgrade, expand, maintain, and replace America's vast rural electric infrastructure.” For more information, go to <http://www.usda.gov/rus/electric/index.htm>.

2.5 Issues Outside the Scope of the EA

The EA will not consider the following:

- Any route or substation alternatives not specifically identified in this scoping decision, or
- The manner in which landowners are paid for transmission rights-of-way easements.

3.0 Proposed Project

The project is located in Rock County in Rose Dell Township. The Prairie Rose route permit application requests approval to construct a 115 kV, single-circuit transmission line that would run for 5.5 or seven miles, depending on the Prairie Rose Wind Farm project substation location. It would head west from that substation along County Highway 7 to County Highway 23. There it would continue due west along Township Road 72 and cross over the border into South Dakota (See **Figures 2A-2L** to see the proposed HVTL illustrated on aerial photographs). Applicants are requesting a route width of 180 feet along the center line of the roads. The complete proposed transmission line would proceed for approximately 17 miles to the Split Rock Substation in Brandon, South Dakota. That portion of the line will require a route permit from South Dakota.

3.1 Alternative Routes

Route permit applications under this the Alternative Review Process must provide specific information about the proposed project, applicant, environmental impacts and mitigation measure. Applicants do not need to propose any alternative routes to the preferred route as required in the Full Review Process. However, in this case there are arguably two alternates along the same highway; one a seven mile line that originates from the proposed substation, the other a 5.5 mile line that origins from an alternative substation 1.5 miles to the west. There were no other alternatives routes presented during the EA scoping process.

3.2 Right-of-Way Requirements

A mix of both private easements and public ROW will be required for the Project. The Applicants are requesting a right-of-way (ROW) width up to 80 feet wide, anticipating 40 feet of private easement. The Project will be sited on private land adjacent to existing public ROW wherever feasible or in public ROW when not. Portions of the existing public ROW will be used for structures or overhang along the Proposed Route where private easements can't accommodate the required ROW.⁴

Table 3. Structure Design Summary

Project Component	Single-circuit 115 kV Transmission Line
Line Voltage	Designed and Operated at 115 kV
Structure Type	Tubular steel with davit arms
ROW Required	40 ft (adjacent to existing road ROW)
Conductor	795 kcmil 24/7 ACSR "Drake", double horizontal 18" bundle
Foundation	Direct Embed, Concrete Foundation or Gravel Backfill if geology requires
Typical Span Length (feet)	600-800 Private land, 350-500 Public ROW
Average Height (feet) Vertical Structures	75-85
Average Height (feet) Delta Structures	75-85
Typical Structure Diameter (at base) (feet)	3-6 (5-8 caisson base when needed)

Figures 3A and 3B illustrate the general ROW requirements, 4A and 4B the pole dimensions.

⁴ RPA at 10

Right-of-Way Acquisition

The evaluation and acquisition process would include title examination, initial owner contacts, survey work, document preparation and purchase. The Applicant has stated in its Application that it will continue to work with the landowners to address their concerns, develop an easement agreement for the Applicant's purchase of land rights, and identify the least intrusive pole locations.

3.3 Project Construction and Maintenance

Steel poles with either a vertical or delta configuration are proposed to be used for the 115 kV single circuit transmission lines (see **Table 3** above). Pictures of the proposed structure types are shown below in **Figures 4A and 4B**. The 115 kV conductor proposed for the project will be 795 kcmil 24/7 ACSR (Aluminum Conductor Steel Reinforced), double horizontal 18" bundle.

The steel structures will be approximately 60 to 80 feet tall with spans of approximately 350 to 600 feet to keep the conductor within existing rights-of-way where applicable. The proposed transmission line will be designed to meet or surpass relevant local and state codes including the National Electric Safety Code (NESC), North American Electric Reliability Corporation (NERC) and Company standards. Appropriate standards will be met for construction and installation, and applicable safety procedures will be followed during and after installation.

Construction

Construction would begin after federal, state and local approvals are obtained, property and rights-of-way are acquired, soil conditions are established and design is completed. The precise timing of construction would take into account various requirements that may be in place due to permit conditions, system loading issues, available workforce and materials. Actual construction would follow standard construction and mitigation practices, addressing right-of-way clearance, staging, erecting transmission line structures and stringing transmission lines. Construction and mitigation practices to minimize impacts would be based on the proposed schedule for activities, permit requirements, prohibitions, maintenance guidelines, inspection procedures, terrain and other practices. Some construction restrictions and requirements will be reviewed in discussion concerning mitigation later in this document.

Maintenance

The principal operating and maintenance cost for transmission facilities is the cost of inspections, usually done monthly by air. Annual operating and maintenance costs for transmission lines in Minnesota and the surrounding states vary. However, past experience shows that for voltages from 69 kV through 345 kV, costs are approximately \$300 to \$500 per mile. Actual line-specific maintenance costs depend on the setting, the amount of vegetation management necessary, storm damage occurrences, structure types, materials used and the age of the line.

3.4 Project Implementation

The in-service date for the Project is tied to the in-service date of the Prairie Rose Wind Farm. The Applicant's goal is to complete the construction of wind project and achieve commercial operation between the third calendar quarter of 2011 and the first calendar quarter of 2012. This schedule is based on information known as of the date of the application filing and upon planning assumptions that balance the timing of implementation with the availability of crews, material and other practical considerations. This schedule may be subject to adjustment and revision as further information is developed.

Project Costs

The estimated cost for the 24 miles of transmission line between the Prairie Rose Wind Substation and the Split Rock Substation is \$15 million. The portion of this cost relating to the Minnesota piece of the Project is estimated to be approximately \$5 million.

4.0 Potential Impacts of the Proposed Route

The construction of a transmission line involves both short and long-term impacts. An impact is a change in the status of the existing environment as a direct or indirect result of the proposed action. Direct impacts are caused by the action and occur at the same time and place. Indirect impacts are caused by the action and occur later or are further removed in distance, but are still reasonably foreseeable.

Impacts may be negative or positive and temporary or permanent or long-lasting. Short-term impacts are generally associated with the construction phase of the project and can include crop damage, soil compaction, and noise. Long-term impacts can exist for the life of the project and may include land use restrictions or modifications. Measures that would be implemented to reduce, minimize, or eliminate potential impacts are discussed under the appropriate topic and highlighted as necessary in this section.

It may be possible to mitigate potential impacts by adjusting the proposed route, selecting a different type of structure or pole, using different construction methods, or implementing any number of post-construction practices. The Commission can require route permit applicants to use specific techniques to mitigate impacts or require certain mitigation thresholds or standards to be met through permit conditions.

There are a number of potential impacts associated with HVTLs that must be taken into account on any transmission line project. Minnesota Rule 7850.4100, A through N, identifies 14 factors that the Commission must consider when designating a route for a HVTL.

4.1 Description of Environmental Setting

The project area lies within the “Inner Coteau” ecological subsection of the “North Central Glaciated Plains” in southwestern Minnesota.⁵ Presettlement vegetation was generally tallgrass prairie. In Rock County, there are also areas of bedrock outcropping. However, wetland and prairie areas were frequently cropped, ditched, and drained. Agriculture is currently the most important land use in this subsection, and there are few remnants of presettlement vegetation left. Presently, agricultural fields, farmsteads, and gently rolling topography dominate the proposed route area.

The project area natural environment is home to a variety of wildlife and natural resources. However, the proposed transmission line is primarily located in agricultural areas, along existing roadways.

4.2 Socioeconomic

According to 2010 Census data, Rock County has a 2.6 percent minority population. In Rose Dell Township, minority groups constitute .9 percent.

Per capita incomes within the township in the project area are comparable to Rock County as a whole. The proposed route does not contain disproportionately high minority populations or low-income populations. Population and economic characteristics based on the 2010 U.S. Census and the Census Bureau’s 2009 American Community Survey are presented in **Table 4**.

⁵ <http://www.dnr.state.mn.us/ecs/251Bc/index.html>

Table 4. Population and Economic Profile

Location	Population*	White Non-Hispanic (Percent)*	Per Capita Income**	Percentage of Individuals Below Poverty Level**
State of Minnesota	5,303,925	87.2	\$ 29,431	10.0
Rock County	9,687	97.4	\$ 22,732	8.1
Rose Dell Township	216	99.1	\$ 22,565	4.1

** 2010 Census*

***2009 American Community Survey*

Approximately 8 to 10 workers will be required by Prairie Rose for transmission line construction. The transmission crews are expected to spend approximately 13 weeks constructing the project.

There will be short-term impacts to community services as a result of construction activity and an influx of contractor employees during construction of the various segments of the project. Contractors will be used for construction activities. The communities near the project should experience short-term positive economic impacts through the use of the hotels, restaurants and other services by the various workers.

It is not expected that additional permanent jobs will be created by the project. The construction activities will provide a seasonal influx of economic activity into the communities during the construction phase, and materials such as concrete may be purchased from local vendors. Long-term beneficial impacts from the project include increased local tax base resulting from the incremental increase in revenues from utility property taxes.

Potential Impacts

Socioeconomic impacts resulting from the project will be primarily positive with an influx of wages and expenditures made at local businesses during the construction of the project, increased tax revenue and increased opportunities for business development.

Short-term impacts to existing socioeconomic resources would be relatively minor. The construction, operation and maintenance of the transmission line would not have a significant effect on agricultural operations. The project construction would not cause permanent impacts to leading industries within the project area. Long-term beneficial impacts to the county's tax base, as a result of the construction and operation of the transmission line, would be the incremental increase in revenue from utility property taxes which is based on the value of the project.

Positively, the line would enable 200 MW of wind energy conversion systems (wind turbines) to be installed for the Prairie Rose Wind Farm. This will have a significant economic impact, which is discussed in the Prairie Rose Wind Site Permit Application and the Environmental Report prepared by the Department of Commerce.

There is no indication that any minority or low-income population is concentrated in any one area of the project, or that the transmission line would cross through an area occupied primarily by any minority group.

Property Values

One of the first concerns of many residents near existing or proposed transmission lines is how that proximity could affect the value of their property. Those concerns are addressed in this case by comparing similar transmission lines in other communities.

The Shenehon Company of Minneapolis, a business and real estate valuation company, performed a study on property values in the Maple Grove area relative to proximity to transmission lines. Their conclusions were included in the GRE application for a permit for a 115 kV line in Plymouth and Maple Grove in Hennepin County, EQB Docket No. 03-65-TR-GRE PMG. According to the report, "it is our opinion that single source power lines do not cause a measurable and significant diminution in value to typical single-family homes in Maple Grove ... homes defined as larger "family" homes exhibit a slightly larger incremental decrease in selling price. However, given the inexact nature of real estate markets in general, we cannot conclude that the entire difference is attributed to proximity to the power line, or that the difference is considered significant."

In the Final Environmental Impact Statement on the Arrowhead-Weston Electric Transmission Line Project, the Wisconsin Public Service Commission addressed the issue of property value changes associated with high voltage transmission lines⁶. This document looked at approximately 30 papers, articles and court cases covering the period from 1987 through 1999.

In general there are two types of property value impacts that can be experienced by property owners affected by a new transmission line. The first is a potential economic impact associated with the amount paid by a utility for a right-of-way (ROW) easement. The second is the potential economic impact involving the future marketability of the property.

However, substantial differences may exist between people's perceptions about how they would behave and their actual behavior when confronted with the purchase of property supporting a power line.

The presence of a power line may not affect some individual's perceptions of a property's value at all. These people tend to view power lines as necessary infrastructure on the landscape, similar to roads, water towers and antenna. They generally do not notice the lines nor do they have strong feelings about them.

The Final EIS provides six general observations from the studies it evaluated. These are:

- The potential reduction in sale price for single family homes may range from 0 to 14 per cent.
- Adverse effects on the sale price of smaller properties could be greater than effects on the sale price of larger properties.

⁶ Final Environmental Impact Statement, Arrowhead –Weston Electric Transmission Line Project, Volume I, Public Service Commission of Wisconsin Docket 05-CE-113, October 2000, pg 212-215

- Other amenities, such as proximity to schools or jobs, lot size, square footage of a house and neighborhood characteristics, tend to have a much greater effect on sale price than the presence of a power line.
- The adverse effects appear to diminish over time.
- Effects on sale price are most often observed for property crossed by or immediately adjacent to a power line, but effects have also been observed for properties farther away from the line.
- The value of agricultural property is likely to decrease if the power line poles are placed in an area that inhibits farm operations.

Later, the Final EIS stated, “In coastal states, such as California and Florida, the decrease in property values can be quite dramatic; in states within the Midwest (Minnesota, Wisconsin and the Upper Peninsula of Michigan), the average decrease appears to be between 4 and 7 percent.”

Finally, the EIS succinctly summarizes the dilemma in its closing paragraph which stated, “It is very difficult to make predictions about how a specific transmission line will affect the value of specific properties.”

Mitigation

Socioeconomic impacts resulting from the project would be primarily positive with an influx of wages and expenditures made at local businesses during the project construction. Mitigative measures are not necessary.

In the matter of property values, potential impact would typically be a negotiated settlement in an easement agreement between the Applicants and the landowner.

4.3 Displacement

The proposed project maximizes the use of existing roadways for the entirety of its length. The use of this corridor is important because using existing corridors reduces the proliferation of corridors into cultivated fields and areas of natural resources.

Potential Impacts

There is no structure along the route of this project that would require relocation. Displacement of residential homes or businesses is not anticipated.

Mitigation

Since no relocations would occur, no mitigative measures are required.

4.4 Anticipated Noise Impacts

Noise is measured in units of decibels (“dB”) on a logarithmic scale. The A weighted decibel (dBA) scale corresponds to the sensitivity range for human hearing. For example, a noise level change of 3 dBA is barely perceptible to average human hearing while a 5 dBA change in noise level is noticeable. Two sources of noise would be associated with the completed Project: conductors and substations.

Land use activities associated with residential, commercial, and industrial land are grouped together into Noise Area Classifications (NAC). Residences, which are typically considered sensitive to noise, are classified as NAC 1. Each NAC is assigned both daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) noise limits for land use activities within the NAC. **Table 5** shows the Minnesota Pollution Control

Agency (MPCA) daytime and nighttime limits in dBA for each NAC. The limits are expressed as a range of permissible dBA within a 1-hour period; L50 is the dBA that may be exceeded 50 percent of the time within an hour, while L10 is the dBA that may be exceeded 10 percent of the time within 1 hour.

Table 5. Minnesota Noise Standards⁷

Noise Area Classification	Daytime		Nighttime	
	L ₅₀	L ₁₀	L ₅₀	L ₁₀
1	60	65	50	55
2	65	70	65	70
3	75	80	75	80

Typical noise sensitive receptors along the route would include residences; however, most of the land use along the route is rural agricultural land. Ambient noise in rural areas is commonly made up of rustling vegetation and infrequent vehicle pass-bys.

Noise concerns for this Project may be associated with both the construction and operation of the energy transmission system. Construction noise is expected to occur during daytime hours as the result of heavy equipment operation and increased vehicle traffic associated with the transport of construction personnel to and from the work area. Any exceedences of the MPCA daytime noise limits would be temporary in nature and no exceedences of the MPCA nighttime noise limits are expected for this project.

Operational noise would be associated with the transmission conductors and transformers at substations that may produce audible noise under certain operational conditions. The level of noise depends on conductor conditions, voltage level and weather conditions. Noise emission from a transmission line occurs during heavy rain and wet conductor conditions. In foggy, damp or rainy weather conditions, transmission lines can create a subtle crackling sound due to the small amount of electricity ionizing the moist air near the wires. During heavy rain, the general background noise level is usually greater than the noise from a transmission line and few people are in close proximity to the transmission line in these conditions. For these reasons, audible noise is not noticeable during heavy rain. During light rain, dense fog, snow and other times when there is moisture in the air, the proposed transmission lines may produce audible noise higher than rural background levels. During dry weather, audible noise from transmission lines is an imperceptible, sporadic crackling sound.

Noise levels produced by a 115 kV transmission line are generally less than outdoor background levels and are therefore not usually audible. Additionally, noise levels from the proposed 115/69 kV double circuit transmission lines are expected to be only slightly higher than the existing 69 kV transmission lines in the project Area. Therefore, noise levels from the new line and double circuit line should not be noticeably greater than existing levels.

The EPRI “Transmission Line Reference Book, 345kV and Above”, Chapter 6, provides empirically-derived formula for predicting audible noise from overhead transmission lines. Computer software produced by the Bonneville Power Administration (BPA) (BPA, 1977) is also frequently used to predict the level of

⁷ Minnesota Rules 7030.0040, <https://www.revisor.leg.state.mn.us/rules/?id=7030.0040>. Standards expressed in dB (A).

audible noise from power transmission lines that is associated with corona discharge. Audible noise is predicted for dry and wet conditions, with wet conditions representing a worst case. These procedures are considered to be reliable and represent International best practice.

The Project was modeled using a worst-case scenario benchmark, to ensure that noise was not under-predicted. The noise generated by the proposed transmission line is not expected to exceed approximately 8 dBA, which is significantly below the noise standards established for NAC 1, and below background levels. The Applicant does not anticipate the transmission line structure proposed for the Project would be audible at any receptor location under normal operating conditions (**Table 6**).

Table 6. Calculated Audible Noise – L₅₀ (dBA)*

Structure Type	Voltage	Distance to Proposed Centerline										
		0'	10'	20'	30'	40'	50'	60'	70'	80'	90'	100'
Single-circuit Horizontal Line Post 115 kV Transmission Line	115 kV	7.4	7.2	6.6	5.8	5.0	4.3	3.6	2.9	2.3	1.8	1.3

* Calculated audible noise for proposed transmission line at 3.28 feet above ground. Audible noise prediction methods do not apply to all line geometries, voltages, or weather conditions.

Transformer Substation Noise

Transformer “hum” is the dominant noise source at substations. Transformer hum is caused by magnetostrictive forces within the core of the transformer. These magnetic forces cause the core laminations to expand and contract, creating vibration and sound at a frequency of 100Hz (twice the a.c. mains frequency), and at multiples of 100Hz (harmonics). Typically, the noise level does not vary with transformer load, as the core is magnetically saturated and cannot produce any more noise.

It would be very unlikely that substation noise would be audible at these homes. The Applicants have stated that the substations will be designed and constructed to comply with state noise standards established by the Minnesota Pollution Control Agency (MPCA).

Potential Impacts

Noise levels produced by 115 kV transmission lines and substations are usually not audible and have not been demonstrated to approach even the most stringent state standards.

Mitigation

Conductor and substation noise would comply with state noise standards. Therefore, no mitigation measures are required for the operational phase of the line.

4.5 Radio and Television Interference

Corona on transmission line conductors can generate electromagnetic noise at frequencies at which radio and television signals are transmitted. This noise can cause interference (primarily with AM radio stations and the video portion of TV signals) with the reception of these signals depending on the frequency and strength of the radio and television signal. However, this interference is often due to weak broadcast signals or poor receiving equipment.

The most significant factor with respect to radio and television interference is not the magnitude of the transmission line induced noise, but how the transmission line induced noise compares with the strength of the broadcast signal. Very few radio noise problems have resulted from existing 115 kV transmission lines, as broadcast signal strength within a radio station's primary coverage area is great enough that adequate signal to noise ratios are maintained.

If radio interference from transmission line corona does occur with AM radio stations presently providing good reception, satisfactory reception can be obtained by appropriate modification of (or addition to) the receiving antenna system.

Interference with FM broadcast station reception is generally not a problem because:

- corona generated radio frequency noise currents decrease in magnitude with increasing frequency and are quite small in the FM broadcast band (88-108 megahertz (MHz)), and
- the excellent interference rejection properties inherent in FM radio systems make them virtually immune to amplitude type disturbances.

A two-way mobile radio located immediately adjacent to and behind a large metallic structure (such as a steel tower) may experience interference because of signal blocking effects. Movement of either mobile unit so that the metallic structure is not immediately between the two units should restore communications. This would generally require a movement of less than 50 feet by the mobile unit adjacent to a metallic tower. Noise in the frequency range of cellular type phones is almost non-existent and the technology used by these devices is superior to that used in two-way mobile radio.

As in the case with AM radio interference, corona-generated noise could cause interference with TV picture reception because the picture is broadcast as an AM signal. The level of interference depends on the TV signal strength for a particular channel (TV audio is an FM signal that is typically not impacted by transmission line radio frequency noise).

Due to the higher frequencies of the TV broadcast signal (54 MHz and above), 115 kV transmission lines seldom result in reception problems within a station's primary coverage area. In the rare situation that the proposed transmission line would cause TV interference within a broadcast station's primary coverage area where good reception is presently obtained, the Applicant has stated that it would work with the affected party to correct the problem. Usually any reception problem can be corrected with the addition of an outside antenna.

Mitigation

No interference issues are anticipated with this project, however, should such interferences be identified, the Applicants would be required to resolve the problem as a condition of the HVTL Route Permit.

4.6 Aesthetics

The topography in the Project vicinity is generally flat and the vegetation cover is uniformly low, making the high topography vulnerable to visual disruptions. The settlements in Rock County are residences and farm buildings (inhabited and uninhabited) scattered along rural county roads. These structures are focal points in the dominant open space character of the Project vicinity.

Potential Impacts

The Proposed Route will unavoidably result in an alteration of the current landscape.

Mitigation Measures

The visual disruptions in the rural landscape will be mitigated by siting the route along existing roadway corridors, thereby avoiding negative impacts to the viewsheds from homes to the greatest extent practical.

4.7 Public Health and Safety Including EMF

Proper safeguards would need to be implemented for construction and operation of the facility. The project would be designed to comply with local, state and NESC standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials and ROW widths. Permit conditions would require construction crews and/or contract crews to comply with local, state and NESC standards regarding installation of facilities and standard construction practices. Established industry safety procedures would be followed during and after installation of the transmission line. This would include clear signage during all construction activities.

The transmission line would be equipped with protective devices to safeguard the public from the transmission line if an accident occurs and a structure or conductor falls to the ground. The protective devices are breakers and relays located where the transmission line connects to the substation. The protective equipment would de-energize the transmission line, should such an event occur. In addition, the substation facilities would be fenced and access limited to authorized personnel. The underground portion of the line would be properly marked, and manhole covers would be heavy enough to prevent unauthorized access.

Electric and Magnetic Fields

Voltage transmitted through any conductor produces both an electric field and a magnetic field in the area surrounding the wire. The electric field associated with HVTLs extends from the energized conductors to other nearby objects. The magnetic field associated with HVTLs surrounds the conductor. Together, these fields are generally referred to as electromagnetic fields, or EMF. These effects decrease rapidly as the distance from the conductor increases.

Electric Fields

Voltage on any wire (conductor) produces an electric field in the area surrounding the wire. The electric field associated with a high voltage transmission line extends from the energized conductors to other nearby objects such as the ground, towers, vegetation, buildings and vehicles. The electric field from a transmission line gets weaker as one moves away from the transmission line. Nearby trees and building material also greatly reduce the strength of transmission line electric fields.

The intensity of electric fields is associated with the voltage of the transmission line and is measured in kilovolts per meter (kV/M). Transmission line electric fields near ground are designated by the difference in voltage between two points (usually 1 meter). **Table 7** provides the electric fields at maximum conductor voltage for the proposed transmission lines. Maximum conductor voltage is defined as the nominal voltage plus five percent.

Table 7. Calculated Electric Fields (kV/M)*

Structure Type**	Distance to Proposed Centerline												
	Left						Right						
	100'	50'	20'	15'	10'	5'	0'	5'	10'	15'	20'	50'	100'
Delta	0.13	0.59	1.43	1.41	1.25	1.07	1.21	1.64	1.95	1.98	1.77	0.44	0.10
Vertical	0.08	0.07	0.95	1.35	1.79	2.14	2.27	2.11	1.73	1.29	0.89	0.07	0.08

* Calculated Electric Fields (kV/m) for Proposed Transmission Line Designs at 3.28 feet above ground.

** See Figures 4A and 4B.

There is no federal standard for transmission line electric fields. The Commission, however, has imposed a maximum electric field limit of 8 kV/m measured at one meter above the ground. The standard was designed to prevent serious hazards from shocks when touching large objects parked under AC transmission lines of 500 kV or greater. The maximum electric field associated with the project, measured at one meter above ground, is calculated to be 1.98 kV/m, well under the Commission standard.

Magnetic Fields

Current passing through any conductor, including a wire, produces a magnetic field in the area around the wire. The magnetic field associated with a high voltage transmission line surrounds the conductor and decreases rapidly with increasing distance from the conductor. The magnetic field is expressed in units of magnetic flux density, expressed as milligauss (mG).

The magnetic field profile around the proposed transmission lines for each structure configuration is shown in **Table 8**. Magnetic fields were calculated under two system conditions: the expected peak and expected average current flows under normal (system intact) conditions. The peak magnetic field values are calculated at a point directly under the transmission line and where the conductor is closest to the ground. The same method is used to calculate the magnetic field at the edge of the right-of-way. The magnetic field profile data show that magnetic field levels decrease rapidly as the distance from the centerline increases (proportional to the inverse square of the distance from source).

The magnetic field produced by the transmission line is dependent on the current flowing on its conductors. Therefore, the actual magnetic field when the project is placed in service is typically less than shown in the charts. This is because the charts represent the magnetic field with current flow at expected normal peak load. Actual current flow on the line will vary, so magnetic fields will be less than peak levels during most hours of the year.

Table 8. Calculated Magnetic Flux Density (milligauss)

Structure Type	System Conditions	Distance to Proposed Centerline												
		Left						Right						
		100'	50'	20'	15'	10'	5'	0'	5'	10'	15'	20'	50'	100'
Delta	Peak 1506 amps	18.08	61.09	169.30	196.53	222.14	242.65	254.54	254.50	240.63	214.85	183.12	59.49	17.39
	Average 663 amps	7.60	25.68	71.16	82.61	93.37	101.99	106.99	106.97	101.14	90.31	76.97	25.00	7.31
Vertical	Peak 1506 amps	18.25	55.70	140.88	163.94	186.69	204.39	211.34	204.75	187.189	164.45	141.29	55.74	28.25
	Average 663 amps	7.67	23.41	59.22	68.91	78.47	85.91	88.83	86.05	78.68	69.12	59.39	23.43	7.67

Magnetic fields are not singularly associated with power lines. Every person has exposure to these fields to a greater or lesser extent throughout each day, whether at home or in schools and offices. The following table (**Table 9**) contains field readings for a number of selected, commonly encountered items. These reading represent median readings, meaning one might expect to find an equal number of readings above and below these levels.

Table 9. Magnetic Fields (milligauss) From Common Home and Business Appliances

Source	Distance From Source in Feet			
	0.5	1	2	4
Computer Display	14	5	2	-
Fluorescent Lights	40	6	2	-
Hairdryer	300	1	-	-
Vacuum Cleaners	300	60	10	1
Microwave Oven	200	40	10	2
Conventional Electric Blanket	39.4 peak, 21.8 average			
Low EMF Electric Blanket	2.7 peak, .09 average			

Source: *EMF In Your Environment*, EPA 1992

Stray Voltage

Stray voltage describes any case of elevated potential, but more precise terminology gives an indication of the source of the voltage. Neutral to earth voltage (NEV) specifically refers to a condition that can occur on the electric service entrances to structures from distribution lines. More precisely, stray voltage is a voltage that exists between the neutral wire of the service entrance and grounded objects in buildings such as barns and milking parlors.

HVTLs carry power at a high voltage from generating plants to substations. At the substation, the voltage is lowered for distribution and distribution lines deliver power to consumers (homes, businesses, and industry). Power distribution lines may cause NEV stray voltage on electric service entrances to

structures. Transmission lines do not create NEV stray voltage as they do not directly connect to businesses or residences. However, transmission lines can induce stray voltage on a distribution circuit running parallel or beneath the transmission lines as discussed below.

When an electric field extends to a nearby conductive object, a voltage is induced on the object; this form of stray voltage is termed induction. The magnitude of the voltage depends on the objects ability to collect an electric charge (capacitance), shape, size, orientation, location, object to ground resistance, and weather conditions. If a voltage is induced on an object insulated from the ground and a person touches the object, a small current would pass through their body to the ground. This current may produce a spark discharge or mild shock to the individual. Most shocks from induced current are considered more of a nuisance than a danger. However, to insure public safety, the National Electric Safety Code (NESC) requires induced current of less than 5 milliAmperes (mA) for objects under transmission lines.

Potential Impacts

There are no federal or Minnesota state regulations for the permitted strength of a magnetic field on a transmission line; however, both Florida and New York have standards ranging from 150 to 250 mG. **Table 10** summarizes the international and state guidelines for ELF (extremely low frequency) EMF.

Table 10. ELF-EMF International and State Guidelines

ELF-EMF Guidelines Established by Health & Safety Organizations		
Organization	Magnetic Field	
American Conference of Governmental and Industrial Hygienists (ACGIH) (Occupational)	10,000 mG (for general worker) 1,000 mG (for workers with cardiac pacemakers)	
International Commission on Non-Ionizing Radiation Protection (ICNIRP) (General Public, Continuous Exposure)	833 mG	
Non-Ionizing Radiation Committee of the American Industrial Hygiene Association	4,170 mG	
Institute of Electrical and Electronics Engineers (IEEE) Standard C95.6 (General Public, Continuous Exposure)	9,040 mG	
U.K., National Radiological Protection Board (NRPB)	833 mG	
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)	3,000 mG	
State Standards and Guidelines		
State	Line Voltage	Field at Edge of ROW
Florida	69-230 kV	150 mG
	230-500 kV	200 mG
	>500 mG	250 mG
Massachusetts		85 mG
New York		200 mG

The effect of EMF on human health has been the subject of study for over 25 years. Of particular concern is the link between EMF exposure and cancer. Numerous panels of experts have convened to review research data on whether EMF is associated with adverse health effects. The studies have been conducted by the National Institute of Environmental Health Sciences (NIEHS), the USEPA, the World

Health Organization (WHO), and the Minnesota State Interagency Working Group (MSIWG) on EMF issues. Studies regarding EMF exposure and childhood leukemia and other cancer risks have had mixed results. Some organizations have determined that a link between EMF and cancer exists while others have found this link to be weak or nonexistent.

In 1992, Congress initiated U.S. EMF Research and Public Information Dissemination (EMF RAPID). EMF RAPID program studied whether exposure to electric and magnetic fields produced by the generation, transmission, or use of electric power posed a risk to human health.

Program conclusions were presented to Congress on May 4, 1999 as follows:

- The scientific evidence suggesting that EMF-EMF exposures pose any health risk is weak.
- Epidemiological studies have serious limitations in their ability to demonstrate a cause and effect relationship whereas laboratory studies, by design, can clearly show that cause and effect are possible. Virtually all of the laboratory evidence in animals and humans and most of the mechanistic work done in cells fail to support a causal relationship between exposure to ELF-EMF at environmental levels and changes in biological function or disease status. The lack of consistent positive findings in animals or mechanistic studies weakens the belief that this association is actually due to ELF-EMFs, but it cannot completely discount the epidemiological findings.
- The NIEHS concludes that ELF-EMF exposure cannot be recognized as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard. In our opinion, this finding is insufficient to warrant aggressive regulatory concern. However, because virtually everyone in the United States uses electricity and therefore is routinely exposed to ELF-EMF, passive regulatory action is warranted such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. The NIEHS does not believe that other cancers or non-cancer health outcomes provide sufficient evidence of a risk to currently warrant concern (NIEHS, 1999).

In October 1996, a National Research Council Committee of the National Academy of Sciences released a report which corroborated the findings of EMF RAPID. The report concluded:

Based on comprehensive evaluation of published studies relating to the effects of power-frequency electric and magnetic fields on cells, tissues, and organisms (including humans), the conclusion of the committee is that the current body of evidence does not show that exposure to these fields presents a human-health hazard.

Currently the USEPA states the following viewpoint of the associated health effects of EMF on its website (USEPA: Electric and Magnetic Fields (EMF) Radiation from Power Lines, 2009):

Much of the research about power lines and potential health effects is inconclusive. Despite more than two decades of research to determine whether elevated EMF exposure, principally due to magnetic fields, is related to an increased risk of childhood leukemia, there is still no definitive answer. The general scientific consensus is that, thus far, the evidence available is weak and is not sufficient to establish a definitive cause-effect relationship (USEPA, 2009).

In 2001, the World Health Organization (WHO) International Agency for Research on Cancer classified power-frequency EMF as a “possible carcinogenic to humans.” Currently the WHO states the following viewpoint of the associated health effects of EMF on its website (WHO, 2009):

Extensive research has been conducted into possible health effects of exposure to many parts of the frequency spectrum. All reviews conducted so far have indicated that exposures below the limits recommended in the INNIRP (1998) EMF guidelines, covering the full frequency range from 0-300 GHz, do not produce any known adverse health effect. However, there are gaps in knowledge still needing to be filled before better health risk assessments can be made (WHO, 2009).

In September of 2002, the MSIWG on EMF Issues, published “A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options,” referred to as the “White Paper.” The MSIWG was formed to examine the potential health impacts of EMFs and to provide useful, science-based information to policy makers in Minnesota. Work Group members included representatives from the Department of Commerce, the Department of Health, the Pollution Control Agency, the Public Utilities Commission, and the Environmental Quality Board (MSIWG, 2002). The White Paper concluded the following findings:

- Some epidemiological results do show a weak but consistent association between childhood leukemia and increasing exposure to EMF (see the conclusion of IARC and NIEHS). However, epidemiological studies alone are considered insufficient for concluding that a cause and effect relationship exists, and the association must be supported by data from laboratory studies. Existing laboratory studies have not substantiated this relationship (see NTP, 1999; Takebe et al., 2001), nor have scientists been able to understand the biological mechanism of how EMF could cause adverse effects. In addition, epidemiological studies of various other diseases, in both children and adults, have failed to show any consistent pattern of harm from EMF.
- The Minnesota Department of Health concludes that the current body of evidence is insufficient to establish a cause and effect relationship between EMF and adverse health effects. However, as with many other environmental health issues, the possibility of a health risk from EMF cannot be dismissed. Construction of new generation and transmission facilities to meet increasing electrical needs in the State is likely to increase exposure to EMF and public concern regarding potential adverse health effects.
- Based upon its review, the Work Group believes the most appropriate public health policy is to take a prudent avoidance approach to regulating EMF. Based upon this approach, policy recommendations of the Work Group include:
 - Apply low-cost EMF mitigation options in electric infrastructure construction projects;
 - Encourage conservation;
 - Encourage distributed generation;
 - Continue to monitor EMF research;
 - Encourage utilities to work with customers on household EMF issues; and
 - Provide public education on EMF issues (MSIWG, 2002).

As noted above, research has not been able to establish a cause and effect relationship between exposure to EMFs and adverse health effects. However, a general consensus has been formed to continue research on the health effects of EMFs. At this time, there are no federal standards in the United States to limit EMF exposure.

Continued Research

It is important to note that although expert panels and agencies, such as the ones discussed above, have not yet identified any viable cause and effect relationships between exposure to EMFs and adverse health effects, hypotheses have existed and continue to be researched. EMF as it relates to public health and safety continues to be researched and reviewed.

Stray voltage has been raised as a concern on some dairy farms because it can impact operations and milk production. Problems are usually related to the distribution and service lines directly serving the farm or the wiring on a farm. In those instances when transmission lines have been shown to contribute to stray voltage, it was found that the electric distribution system directly serving the farm or the facilities themselves were directly under and parallel to the transmission line. These circumstances are considered in modern day routing/installing of transmission lines and can be readily avoided.

Mitigation

There are no anticipated impacts attributed to EMF from the Project; therefore, mitigation would not be needed. However, magnetic field exposure is directly related to distance from the transmission line. In the route selection process the Applicant selected a route in part to avoid residences to the greatest possible extent.⁸ As a result of this selection EMF exposure has been reduced, thus following the prudent avoidance policy cited by the Department of Health.

4.8 Recreation

No recreational facilities are located along the proposed route. The Buffalo Ridge Snowmobile Trail is located approximately five miles east of the Project. The Project will cross Split Rock Creek where possible recreational uses include fishing or canoeing; however, this creek is not designated as a state water trail.

Potential Impacts

No direct impact to the identified recreational uses in the area is expected from the Project. The nearest point of the Project to the Buffalo Ridge Snowmobile Trail is approximately 4 miles. The Project will not likely be visible from that distance.

Mitigation

Mitigation to recreational resources is not expected at this time. The Project will span Split Rock Creek, which will prevent conflicts resulting from the lines presence and the recreational uses within the creek.

4.9 Land-based Economies

Transmission lines frequently have a potential impact on local land-based economies. Those impacts appear to be limited in the area of the proposed route.

Agriculture

Primary crops in the county are corn, grain, soybeans, oats, and hay. The agricultural land along the Proposed Route is predominantly planted in a rotation of corn, soybeans, and wheat. According to the 2009 Minnesota Agricultural Statistics Bulletin, 140,500 acres of corn were planted, 1,100 acres of oats were planted, and 112,000 acres of soybeans were planted in Rock County in 2008.

Potential Impacts

Table 11 below summarizes the estimated temporary and permanent impacts of the proposed Project to agricultural land. Permanent impacts will occur due to the placement of the transmission line poles. The estimated permanent impacts from each pole foundation will be 19.6 square feet at the surface. Temporary impacts may include soil compaction and crop damages in the vicinity of each pole. The area

⁸ RPA at 20

calculated for temporary impact during construction assumes a 40-foot wide area spanning the length of the Proposed Route. The amount of poles for the proposed transmission line was calculated assuming two miles of the transmission line will be in the public ROW for the primary length (the 7 mile line running to the proposed substation location) and one mile for the alternate length (the 5.5 mile line running to the alternative substation location).

Table 11. Permanent and Temporary Impacts

Project Length (Miles)	Estimated # of Poles	Permanent Impacts	Temporary Impacts
7 (primary)	74	1,454 sq. ft. (0.033 acres)	1,478,400 sq. ft. (33.9 acres)
5.5 (alternate)	55	1,073 sq. ft. (0.025 acres)	1,161,600 sq. ft. (26.7 acres)

Mitigation

The Applicant intends to place the poles as closely as feasible (approximately 2.5 feet) from the edge of the roadway ROW, and in some cases, within the road ROW to minimize loss of farmland and to ensure reasonable access to the land near the poles. The Applicant will work with landowners to identify appropriate locations for poles. The final spacing and location of poles will be done to accommodate the movement of farm equipment between and around their locations while still maintaining the safety and design standards. The Applicant has elected to provide wider spans than needed between the poles to minimize the number of poles. The Applicant will coordinate construction of the transmission line either before crops are planted or following harvest if possible. If this is not possible, the Applicant will compensate for any impact to crops including compaction that may result from the construction. Additionally, the Applicant will compensate for crop impacts resulting from the operation and maintenance of the Project.⁹

Forestry

The route does not impact any managed forests or nurseries. No privately-owned forest production industry would be affected by the project.

Potential Impacts

Because the route follows existing ROW for its entire length, clearing of trees would be minimal. Impacts to forested areas and shelterbelts would be incidental and would be limited to the amount necessary to permit safe and reliable operation of the transmission line. Vegetation management is necessary for the safe operation of the transmission line; branches can cause stress and line outage risks, especially in areas with a strong wind resource which is typical of this area of the state.¹⁰

Mitigation

Standard HVTL Route Permit conditions require that construction staging areas be located and arranged in a manner to preserve trees and vegetation to the maximum extent practicable, and that disturbed areas will be re-graded, as required, so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that would facilitate natural re-vegetation and provide for proper drainage and prevent erosion. Where trimming of trees is necessary, the Application states it will be performed by an arborist familiar with best practices for tree trimming, so as to minimize stress on the tree.¹¹

⁹ RPA at 32

¹⁰ RPA at 33

¹¹ *Id.*

Mining

Mining resources in the vicinity of the Project include a mix of aggregate and bedrock mining. Active and inactive sand and gravel pits are scattered throughout this area. A thick belt of Sioux Quartzite covers this region and makes up the uppermost bedrock near the proposed route. Rock outcrops are present in areas throughout the county. The most productive portions of this belt extend from Jasper southwest towards Sioux Falls, South Dakota. Sioux Quartzite is mined for a variety of uses which include silica, crushed rock for construction, and for monuments and similar purposes (SME, 2006).¹² According to the 2001 County Pit Map for Rock County, produced by MnDOT, there are two inactive gravel pits located more than one mile north of the Project. The closest rock quarry was identified approximately five miles northeast of the Project.

Potential Impacts

Since there are no mineral mining or “known but undeveloped resources” along the proposed route, the project has no potential impact on mineral mines. Additionally, the project would be constructed in or adjacent the existing ROW. Any potential aggregate resources in the ROW would have already been impacted in terms of their availability for development. Therefore, there would be no additional impacts on potential aggregate resources in the project area.

Mitigation

Because no impacts are anticipated, no mitigation is required.

4.10 Commercial, Industrial, Residential Land Use

Land use in the vicinity of the Proposed Route is dominated by agriculture production, typically associated with open fields used for crop production or pastureland. Commercial and industrial land uses are not present along the route. Residential development is restricted to farmsteads which are mostly located along section lines in the area. These farmsteads are often characterized by windbreaks of deciduous trees and shrubs.

Rock County, Minnesota, has adopted a comprehensive land use plan, under which the area in the vicinity of the Project is zoned as a general agricultural district. Additionally, shoreland and floodplain zoning districts are present along Split Rock Creek.

NESC standards require certain clearances between transmission line facilities and buildings for safe operation of the transmission line. The Applicant acquires a ROW for transmission lines that is sufficient to maintain these clearances. Displacement can occur when an existing structure is located within the ROW for a new transmission facility. Fifteen homes were identified within one-half mile of the proposed route. Two of the homes are located within 100 feet and another two within 200 feet of the proposed route centerline.¹³ The location of farmsteads and their proximity to the Project are shown in **Figures 2a-2l**.

Potential Impacts

There are no anticipated changes in the land use type.

¹² Society for Mining, Metallurgy, and Exploration (SME). 2006. Industrial Minerals & Rocks: Commodities, Markets, and Uses. 7th edition.

¹³ RPA at 24

The existence of a transmission line easement restricts some possible uses for the property. Acceptable uses within the easement areas include planting crops and pasture. The two most common restrictions would include prohibiting construction of permanent structures or buildings within the easement area and restrictions on planting trees that may grow into the lines; properties with existing structures very close to or within the current ROW may have further restrictions placed on them.

Another concern associated with transmission lines includes potential effects on the availability of federal assistance mortgage loan insured by the Federal Housing Administration (FHA). FHA guidelines, as specified in the Housing and Urban Development (HUD) Handbook, prohibit mortgage support for homes in the "fall zone" of high voltage transmission towers or support structures. In order to determine the presence of this safety concern, the handbook specifies a set of guidelines to determine the danger. In this instance, the tower height is used as the fall distance, and transmission lines with a capacity of 60 kV or above are considered high voltage transmission lines (HUD, 2009). Structures for this project are between 60 and 80 feet.

Mitigation

Impacts of the new HVTL ROW are expected to be minimal because the line is adjacent to roadways. This will minimize the impacts to the existing and planned land use. Because no displacement is anticipated, no mitigation measure is necessary.

State route permits require projects to meet or exceed the clearance standards provided in NESC Section 232. A 115 kV transmission line requires a 9' 1" horizontal distance between the conductor and a building; a 15' 1" vertical distance between the conductor and a roof/balcony accessible by people; and a 20' 1" vertical distance between the conductor and a roadway.

4.11 Public Services and Transportation

Given the rural nature of the proposed route, public services are limited. The public road system in the area generally follows section lines and is managed by local and state agencies. The Rock County Rural Water District provides a centralized water distribution network for the rural residents of the county. Pipelines are generally co-located with road ROWs in the area. Rock County Heartland Express provides transportation services to residents with limited mobility across the county for a small fee.

Potential Impacts

Impacts to public services are expected to be minimal, likely occurring during construction or during maintenance activities, and may temporarily disrupt service.

Mitigation

Proper safety regulations and requirements will be followed along roadways, railroad, and existing utilities along the proposed route. The Applicant will work with MnDOT, Rock County, the relevant township(s), and the Rock County Rural Water District to coordinate any outages required when consolidating facilities. The Applicant will work with MnDOT and the Rock County Highway Department to address potential temporary impacts associated with crossing State Highway 23 and with construction adjacent to County Highway 7 and Township Road 72.¹⁴

¹⁴ RPA at 31

4.12 Archaeological and Historic Resources

The Applicant's February 2010, review of the State Historic Preservation Office (SHPO) cultural resource records did not identify any archaeological resources within one mile of the proposed route. The review did identify two historic bridges, one of which is listed on the National Register of Historic Places (NRHP).

SHPO sent a letter to the Applicant on September 9, 2009, stating that due to the nature of a proposed wind energy project, the Applicant should complete an archaeological survey of the proposed route. SHPO sent another letter on April 12, 2010, stating that an archaeological survey of the proposed route is still applicable, after learning from the Applicant that a 115 kV transmission line had been added to the Prairie Rose Wind Farm project.¹⁵ The Applicant will perform a survey of the Proposed Route to ensure resources are identified before construction.¹⁶

Potential Impacts

The line will be built alongside County Highway 7 which decreases the likelihood that construction will affect significant archaeological or architectural resources. However, as with any project, construction of new facilities has the potential to disturb intact resources. Hence, areas related to construction should be reviewed.

As the Project is currently defined, no listed NRHP resource would be directly affected by the Project. The Proposed Route has not undergone formal systematic survey at the time of this Application and it is possible additional resources are present within the construction area.

Mitigation

Avoidance of archaeological and historic architectural properties is the preferred mitigative policy for construction projects. The Applicant will coordinate with SHPO concerning possible impacts to, and will not exceed the weight limit of the bridge if it is needed to transport materials to the project location.¹⁷ A Route Permit condition could also offer the same protections.

There may be impacts to unidentified archaeological properties in previously undisturbed portions of the project. As a standard HVTL Route Permit condition, Prairie Rose would be required to work with SHPO during their review process to determine what areas may require surveys for the project. Prairie Rose would also be required to do appropriate field identification. Treatment plans may include, but are not limited to, minimal impact measures, formal excavation, monitoring, or photo documentation.

Visual impacts to identified and unidentified historic architectural properties are not anticipated.

4.13 Natural Environment

Air Quality

There are minimal air quality impacts associated with transmission line construction and operation. The only potential air emissions from a transmission line result from corona. Corona can produce ozone and oxides of nitrogen in the air surrounding the conductor. Corona consists of the breakdown or ionization of air in a few centimeters or less immediately surrounding conductors. For 115 kV single-circuit transmission lines, the conductor gradient surface is usually below the air breakdown level.

¹⁵ *Id.* at Appendix F

¹⁶ *Id.* at 35

¹⁷ *Id.*

Calculations done for a 345 kV project showed that the maximum one hour concentration during foul weather (worst case) would be 0.0007 ppm ozone. This is well below both the federal (0.075 ppm 8 hour) and state standards (0.08 ppm 8 hour) for ozone.

Temporary fugitive dust emissions from construction activities may occur. Along the proposed route, clearing vegetation and driving the utility poles may create exposed areas susceptible to wind erosion. In addition, tailpipe emissions may generate exhaust from the construction vehicles.

Fugitive dust is considered particulate matter under air quality regulations. The concentrations of fugitive dust that is fine particulate matter (PM less than 2.5 microns or PM_{2.5}) is generally small, or approximately three percent to ten percent of total particulate matter (USEPA AP-42, Sections 13.2 and 11.9). Since fine particulate matter has the potential to travel further into the lungs, it is of greater concern than larger particle size ranges.

Potential Impacts

Currently, both state and federal governments have regulations regarding permissible concentrations of ozone and oxides of nitrogen. The national standard is 0.08 ppm on an eight-hour averaging period. The state standard is 0.08 ppm based upon the fourth-highest eight-hour daily maximum average in one year. Calculations using the Bonneville Power Administration (BPA) Corona and Field Effects Program Version 3 (USDOE, BPA Undated) for a standard single-circuit 161 kV project, predicted the maximum concentration of 0.007 ppm near the conductor and 0.0003 ppm at one meter above ground during foul weather or worst-case conditions (rain at 4 inches per hour). During a mist rain (rain at 0.01 inch per hour), the maximum concentrations decreased to 0.0003 ppm near the conductor and 0.0001 ppm at one meter above ground level. For both cases, these calculations of ozone levels are well below the federal and state standards. Studies designed to monitor the production of ozone under transmission lines have generally been unable to detect any increase due to the transmission line facility. Given this, there would be no impacts relating to ozone for the project.

There would be limited emissions from vehicles and other construction equipment and fugitive dust from ROW clearing during construction of the transmission line and substation. Temporary air quality impacts caused by the construction-related emissions are expected to occur during this phase of activity. The magnitude of the construction emissions is influenced heavily by weather conditions and the specific construction activity occurring. Exhaust emissions from primarily diesel equipment would vary according to the phase of construction but would be minimal and temporary. Adverse impacts to the surrounding environment would be minimal because of the short and intermittent nature of the emission and dust-producing construction phases.

Mitigation

As a standard HVTL Permit condition, construction activities must follow best management practices (BMPs) to control air emissions (fugitive dust). Petroleum based dust suppressants may not be used. Construction vehicles with excess tailpipe emissions would not be operated until repairs to the vehicle could be made. The disturbed area for each route would be minimized.

There would be no significant impacts to air quality; therefore, no mitigation beyond BMPs would be necessary.

Water Quality

Split Rock Creek is the only named, perennial wet waterway located along the proposed route and is identified in the Public Waters Inventory (PWI). This creek generally flows southwest and is crossed by

the route, approximately three-fourths of a mile east of the state border. An unnamed, intermittent PWI stream is also crossed approximately 750 feet west of the intersection between County Road 7 and Township Road 106. Five additional, unnamed non-PWI streams are located along the route, which are included in the MnDOT 24k Streams database.

The emergent and riverine National Wetlands Inventory (NWI) identified wetlands along the Proposed Route are largely associated with Split Rock Creek. The Proposed Route does not contain mapped 100-year floodplain (FEMA, 1988), although a floodplain likely exists along Split Rock Creek. The Rock County Zoning Administration has established a floodplain zone in this area.¹⁸ No DNR PWI basins are located along the Proposed Route.

Potential Impacts

Minimal temporary impacts to wetlands may occur from construction activities and access to the line. Minimal temporary impacts to wetlands may occur if these areas need to be crossed during construction of the transmission ROW. However, crossing wetlands during construction should be largely avoidable.

During construction, there is the possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading and construction traffic. As a standard HVTL Permit condition, the Applicant would be required to employ erosion control BMPs, as well as adherence to the terms and conditions of the National Pollution Discharge Elimination System (NPDES) permits and Stormwater Pollution Prevention Plan (SWPPP).

After construction, maintenance and operation activities for substation or transmission line facilities are not expected to have an adverse impact on surface water quality. The small increase in impermeable surface area resulting from construction and expansion of the project substation could increase the likelihood of sediment in runoff reaching surface water features. However, the majority of the substation areas would remain as permeable surfaces. BMPs would be employed and erosion potential is not expected to be higher than under the existing land use at the sites.

Mitigation

BMPs include maintaining sound water and soil conservation practices during construction and operation of the project to protect topsoil and adjacent water resources and minimize soil erosion. Practices may include containing excavated material, protecting exposed soil and stabilizing restored soil. Prairie Rose would be required to avoid major disturbance of individual wetlands and drainage systems during construction. This would be done by spanning wetlands and drainage systems where possible. When it is not possible to span the wetland, Prairie Rose could draw on several options during construction to minimize impacts:

- When possible, construction would be scheduled during frozen ground conditions.
- Crews would attempt to access the wetland with the least amount of physical impact to the wetland (e.g., shortest route).
- The structures would be assembled on upland areas before they are brought to the site for installation.
- When construction during winter is not possible, plastic mats would be used where wetlands would be impacted.

¹⁸ RPA at 37

The transmission line may require waters and wetlands permits, letters of no jurisdiction, or exemptions from the USCOE and MnDNR Division of Waters. Wetland and surface water impacts would be avoided and minimized to the extent practicable. After coordination and application submission, authorization from the USACE would likely fall under a Letter of Permission (LOP-05-MN) or the utility line discharge provision of a Regional General Permit (RGP-3-MN). The MnDNR Division of Waters requires a Public Waters Work Permit for any alteration of the course, current, or cross-section below the ordinary high water level of a Public Water or Watercourse. No such alterations are anticipated. Rock County administers the WCA in the project area. It is likely that wetland impact minimization will allow the project to be eligible for a WCA *de minimis* or utilities exemption. If that is not the case, WCA permits will be required.

Minnesota Statute 84.415 requires a utility to obtain a license from the MnDNR Division of Lands and Minerals for the passage of any utility over, under, or across any state land or public waters. Therefore, Prairie Rose will either confirm the applicability of existing licenses for these crossings or obtain new utility crossing licenses prior to construction.

The MPCA regulates construction activities that may impact storm water under the Clean Water Act. It is anticipated that a National Pollution Discharge Elimination System (NPDES) construction storm water permit and Stormwater Pollution Prevention Plan (SWPPP) will be required for the project; as a standard HVTL Permit condition Prairie Rose will obtain the permit and develop a SWPPP as needed. An NPDES permit is required for owners or operators for any construction activity disturbing: 1) one acre or more of soil; 2) less than one acre of soil if that activity is part of a "larger common plan of development or sale" that is greater than one acre; or 3) less than one acre of soil, but the MPCA determines that the activity poses a risk to water resources.

Flora

The flora along the proposed route is primarily agricultural or associated with remnant grasslands in the area. Agricultural landscapes are dominated by plots of corn, soy, or oats. (See Section 4.9 for a discussion on impacts to agriculture.) Remnant grasslands along the route are typically present because surficial bedrock is too close to the soil surface to allow for tilling. These areas are dominated by native and non-native grasses, and some have been identified by the Minnesota County Biological Survey (MCBS)¹⁹ as having moderate or high biodiversity significance. This is often due to the rare communities which can congregate where surficial bedrock forms shallow pools to create mini-ecosystems. These mini-ecosystems may host state-listed threatened or endangered plant species.²⁰

Common woodland species along the proposed route are eastern cottonwood, white ash and elm. Typical primary vegetation in emergent wetlands consists of reed canary grass, cattails, bulrush, and other wetland vegetation, such as arrowhead and smartweed .

Potential Impacts

The Project will result in temporary and permanent impacts to vegetation along the proposed route. Remnant grasslands and MCBS areas have been identified in the area and have the potential to be impacted. These MCBS are presented in **Figures 5A and 5B**.

¹⁹ The Minnesota County Biological Survey (MCBS) systematically collects, interprets, and delivers baseline data on the distribution and ecology of rare plants, rare animals, native plant communities, and functional landscapes needed to guide decision making. See <http://www.dnr.state.mn.us/eco/mcbs/index.html> for more information.

²⁰ RPA @ 37

Permanent impacts would be minor since the transmission line would be constructed on or along an existing ROW. Additionally, no new ROW would be cleared in forested areas, resulting in minimal impacts to this resource. Temporary impacts may occur due to activities associated with pole construction, including minor vegetative clearing for excavation, leveling and heavy equipment traffic. Vegetative clearing would include felling trees along the existing transmission line route and temporarily trimming or removing any shrubs or tall grass. Similar to existing maintenance practices, trees that would grow to taller than 15 feet would be removed beneath the overhead lines.

Mitigation

The Route Permit will have conditions to mitigate impacts to vegetative resources during construction of the transmission line. Prairie Rose intends to utilize the existing ROW where clearance requirements have been followed for many years. To minimize impacts to remnant prairie or state-listed species, the road edge with lower biological significance will be followed. Impacts to these areas (MCBS sites ranked as moderate or high) will be spanned, and avoided during construction.²¹ The permit will require that areas disturbed due to construction activities would be restored to pre-construction contours. In non-cultivated areas, reseeded would occur in a timely manner using a seed mix certified to be free of noxious weeds, if acceptable to the affected landowner.

Fauna

Thirty one wildlife species are found in the southwest region of Minnesota. These species use the grasslands, farm woodlots, wetlands and other areas for food and cover. Mammals common to this landscape include opossum, skunk, squirrels, rodents, rabbits, deer, fox and other carnivores, and deer.²² Reptiles and amphibians are associated with wetlands, waterways and forested areas. Reptiles and amphibians include snakes, turtles and frogs. Blanding's Turtle, a state-listed threatened species, is known to occur near the project area. The Topeka shiner, a federally-listed endangered and state-listed special concern species of minnow, is also found in the area. Several species of birds and bats are also known to occur in this landscape, including grassland birds, migratory birds, raptors, and waterfowl. Birds and bats are discussed below.

Potential Impacts

There is minimal potential for the displacement of wildlife and loss of habitat from construction of the project. Wildlife that inhabits natural areas such as meadows and rivers could be impacted in the short-term within the immediate area of construction. Wildlife that resides within the construction zone may be temporarily displaced to adjacent habitats during the construction process. The distance that animals would be displaced would depend on the species. Impacts to wildlife are anticipated to be short-term since the route primarily would be constructed along an existing ROW, and the amount of grading and clearing required is minimal. Additionally, the animals in the areas where new construction would occur would be typical of those found in agricultural and rural settings. The new construction should not affect these animals because rural agricultural habitat would remain in the immediate vicinity.

Raptors, waterfowl and other bird species may also be affected by the construction and placement of the transmission lines. Avian collisions are a possibility after the completion of the transmission line. Waterfowl are typically more susceptible to transmission line collision, especially if the line is placed between agricultural fields that serve as feeding areas, or between wetlands and open water which serve as resting areas, and along riparian corridors that may be used during migration.

²¹ RPA at 38

²² Prairie Rose Site Permit Application at Section 5.18

The electrocution of large birds, such as raptors, is more commonly associated with small distribution lines than large transmission lines. Electrocution occurs when birds with large wingspans come in contact with two conductors or a conductor and a grounding device. Utility transmission line design standards provide adequate spacing to eliminate the risk of raptor electrocution and will minimize potential avian impacts of the proposed project.

It is anticipated that fish and mollusks that inhabit the local watercourses will not be affected by transmission line construction.

Mitigation

Displacement of fauna is anticipated to be temporary. No long term population-level effects are anticipated.

According to the Applicant, they have been working with various state and federal agencies to address avian issues. In cooperation with MnDNR and the U.S. Fish and Wildlife Service (USFWS), the Applicant will identify areas where installation of flight diverters (FD) on the shield wire may be warranted. In most cases, the shield wire of an overhead transmission line is the most difficult part of the structure for a bird to see. Utilities have had success in reducing collisions on transmission lines by marking the shield wires with FDs. FDs are preformed, spiral shaped devices made of polyvinyl chloride that are wrapped around the shield wire and are designed to increase its visibility. In its April 21, 2010, letter to the Applicant, the USFWS recommended that flight diverters be installed at the Split Rock Creek crossing and where the line crosses a grassland area in Sections 28, 29, 32 and 33.²³

4.14 Rare and Unique Natural Resources

The proposed route aligns along county and township road ROW, in most cases near cultivated fields, thus limiting the potential impact on rare and unique natural resources.

The USFWS does list three threatened or endangered species that occur within Rock County: Topeka shiner, Prairie bush clover, and the Western prairie fringed orchid. There is also listed critical habitat in Rock County for the Topeka shiner. While records indicate that all of these species are present in the area, the closest (Topeka shiner) is located approximately one mile to the north.

The DNR stated that due to occurrences of state-listed species in the project vicinity, DNR should be consulted once final alignments have been developed to ensure sensitive resources are avoided.²⁴

Potential Impacts

Because the proposed wind farm is within one-half mile of Touch the Sky natural wildlife refuge (NWR), the USFWS (see Site Permit Application at Appendix A) requested avian surveys be conducted in these areas. However, the transmission line route is three miles away from Touch the Sky and should have no impact on the NWR.

The DNR identified one record of a state endangered vascular plant located within the area, although no known occurrences of any listed species are within the preferred 180 foot ROW. Several state-listed species observations are located in the vicinity of the HVTL, most of which are vascular plants. These occurrences are generally located in habitats identified within the MCBS (see **Figure 5A and 5B**).

²³ RPA at 39

²⁴ RPA at Appendix F

Mitigation

The proposed route could avoid areas of moderate or high biological significance by locating the transmission line on the opposite side of county and township roads where these sensitive areas are present. For example, the transmission line could be aligned on the south side of the road east of the state border to avoid a Moderate site and align on the south side of the road east of the LWECS boundary to avoid a rare plant community to the north. If the proposed route must cross a moderate or high biological significance MCBS site or known occurrence of listed species, the sensitive areas could be avoided during construction and spanned to eliminate any permanent impacts.²⁵ In the area south of the alternative substation site, positioning the pole structures within the public ROW could help avoid sensitive habitat in a Moderate site.

²⁵ RPA at 40

5.0 Potential Impacts Comparison of Alternate Routes

In the Alternative Routing Process, applicants are not required to provide any routes for review other than their proposed, preferred route. However, alternatives are often brought forward during the scoping processes by concerned citizens or local governments. In this case, no alternatives were developed through the scoping process and carried forward into the *Scoping Decision* for further consideration.

The only variation in routes depends on the location of the project substation, which was permitted in the Site Permit (September 16, 2011) to be in one of two places. Either site will require approximately 10 acres within the selected substation property. Underground collector lines from the Prairie Rose Wind Farm will deliver energy from the wind turbines to the Prairie Rose Wind Substation. The collector system voltage then will be stepped up from 34.5 kV to 115 kV and transmitted on the proposed aboveground transmission line to the Split Rock Substation in South Dakota.

The final Prairie Rose Wind Substation location has not yet been determined. Two locations, a primary and an alternate, are being considered. The primary location being considered by Prairie Rose results in seven miles of transmission line. The alternate location being considered is 1.5 miles to the west along Cty Rd 7.

The general area is similar for either route selection, as both are located for the most part in previously cultivated areas just outside the existing road ROW. The longer route is likely to cost up to one million dollars more due to the additional length of the line, and two additional residences are in proximity to the line compared to the shorter line. Since Prairie Rose is not a regulated utility in Minnesota, the additional cost would not have a direct impact on ratepayers.

The shorter line places the substation adjacent to an MCBS of moderate significance, and within one-quarter mile of a rare plant community. In this choice, a route permit condition can be added that requires the Applicant to consult with the DNR if there is any ground disturbance within the site of moderate biodiversity. Therefore the practical implication of choosing one alternative or another is additional cost as opposed to greater potential environmental impact. Either route is feasible and should cause minimal economic or environmental impact due to placement of the route along the existing ROW.

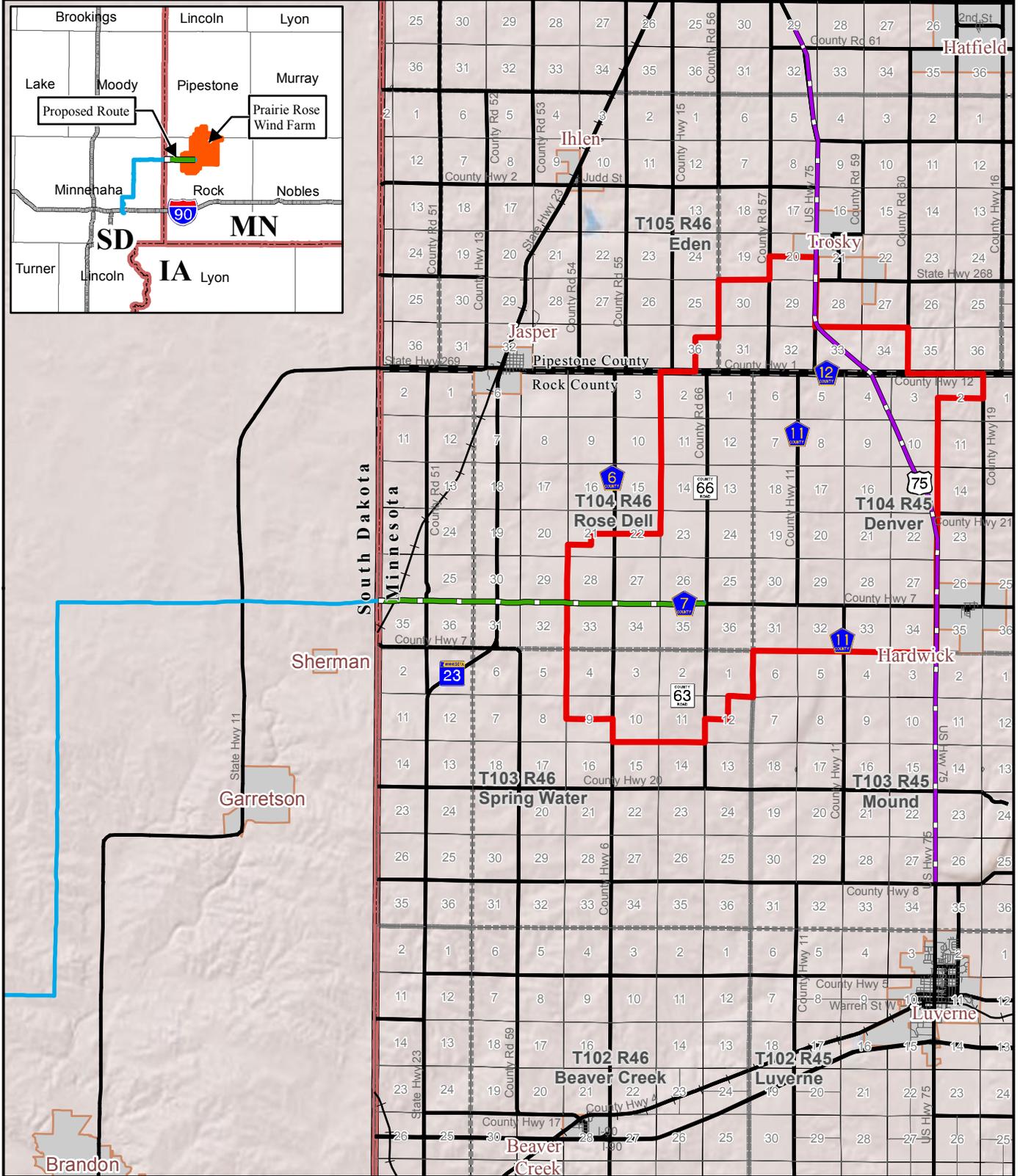
6.0 Unavoidable Impacts

The Prairie Rose Transmission Project would have no significant unavoidable adverse impacts. The bulk of the new impacts would be related to those short term impacts that are associated with the construction of the transmission line project. The long term impacts of the transmission line, those related to land and visual impacts have already been addressed earlier. The significant ROW sharing associated with this project would further mitigate the direct impacts associated with the construction of the new line.

In addition, there are few commitments of resources associated with this project that are irreversible and irretrievable, but those that do exist are primarily related to construction. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action. Construction resources that would be used include aggregate resources, concrete, steel, and hydrocarbon fuel. These resources would be used to construct the project. During construction, vehicles would be traveling to and from the site utilizing hydrocarbon fuels.

Figures

Path: \\mspe-gis-file\GISProj\Geronimo\112145_Prairie_Rose\map_docs\mxd\I_PUC_TLine\Fig1_ProjectLocationMap.mxd



- ▭ Prairie Rose Wind Farm
- ▭ Preferred Centerline
- ▭ Proposed Transmission Line (SD Segment)
- ▭ Existing Transmission Line
- Municipal Boundary
- Township Boundary
- County Boundary
- State Boundary

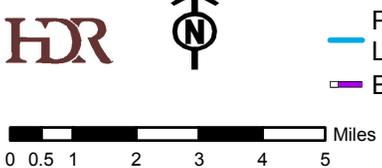
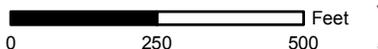
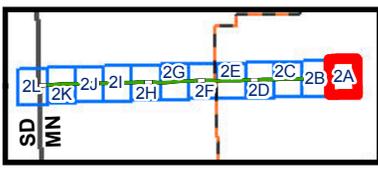


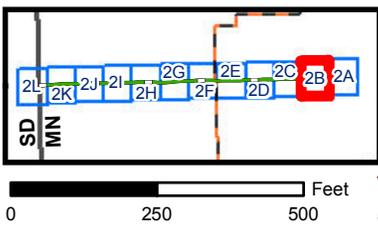
Figure 1. Project Location
Prairie Rose Transmission
Geronimo Wind Energy
Rock and Pipestone Counties, MN



- Preferred Centerline
- Proposed Route (180ft)
- Proposed Route (280ft)
- Alternate Substation
- Primary Substation
- Occupied Residence
- NWI Wetland
- Railroad
- Highway
- Local Road
- Section Boundary
- Township Boundary
- State Boundary
- PWI Stream
- USGS Streams

2A

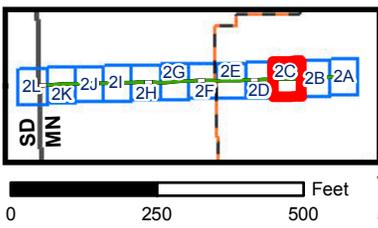
Figure 2. Route Maps
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN



- Preferred Centerline
- Proposed Route (180ft)
- Railroad
- Proposed Route (280ft)
- Highway
- Alternate Substation
- PWI Stream
- Local Road
- Primary Substation
- USGS Streams
- Section Boundary
- Occupied Residence
- NWI Wetland
- Township Boundary
- State Boundary

2B

Figure 2. Route Maps
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN

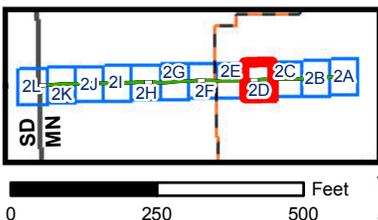


- | | | |
|------------------------|------------------------|-------------------|
| Preferred Centerline | Proposed Route (180ft) | Railroad |
| Prairie Rose Wind Farm | Proposed Route (280ft) | Highway |
| Alternate Substation | PWI Stream | Local Road |
| Primary Substation | USGS Streams | Section Boundary |
| Occupied Residence | NWI Wetland | Township Boundary |
| | | State Boundary |



2C

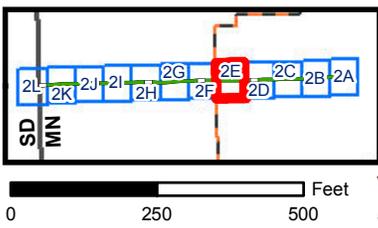
Figure 2. Route Maps
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN



- Preferred Centerline
- Proposed Route (180ft)
- Proposed Route (280ft)
- Prairie Rose Wind Farm
- Alternate Substation
- Primary Substation
- Occupied Residence
- PWI Stream
- USGS Streams
- NWI Wetland
- Railroad
- Highway
- Local Road
- Section Boundary
- Township Boundary
- State Boundary

2D

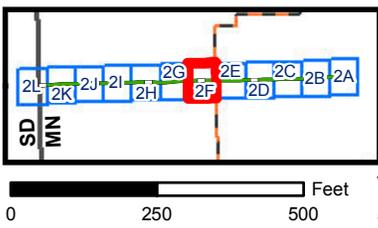
Figure 2. Route Maps
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN



- Preferred Centerline
- Proposed Route (180ft)
- Proposed Route (280ft)
- ▲ Alternate Substation
- ▲ Primary Substation
- Occupied Residence
- NWI Wetland
- Railroad
- Highway
- Local Road
- Section Boundary
- Township Boundary
- State Boundary

2E

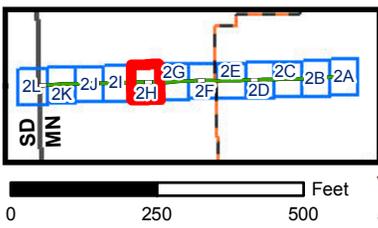
Figure 2. Route Maps
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN



- Preferred Centerline
- Proposed Route (180ft)
- Proposed Route (280ft)
- Alternate Substation
- PWI Stream
- USGS Streams
- NWI Wetland
- Prairie Rose Wind Farm
- Primary Substation
- Occupied Residence
- Railroad
- Highway
- Local Road
- Section Boundary
- Township Boundary
- State Boundary

2F

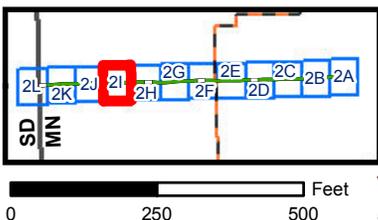
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- PWI Stream
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- Railroad
- Highway
- Local Road
- Section Boundary
- Township Boundary
- State Boundary

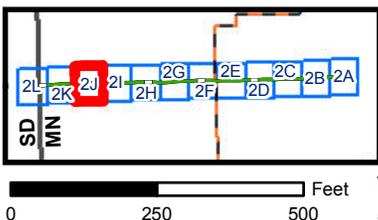
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Figure 2. Route Maps
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN



- | | | |
|------------------------|------------------------|-------------------|
| Preferred Centerline | Proposed Route (180ft) | Railroad |
| Prairie Rose Wind Farm | Proposed Route (280ft) | Highway |
| Alternate Substation | PWI Stream | Local Road |
| Primary Substation | USGS Streams | Section Boundary |
| Occupied Residence | NWI Wetland | Township Boundary |
| | | State Boundary |

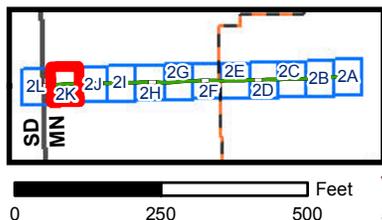
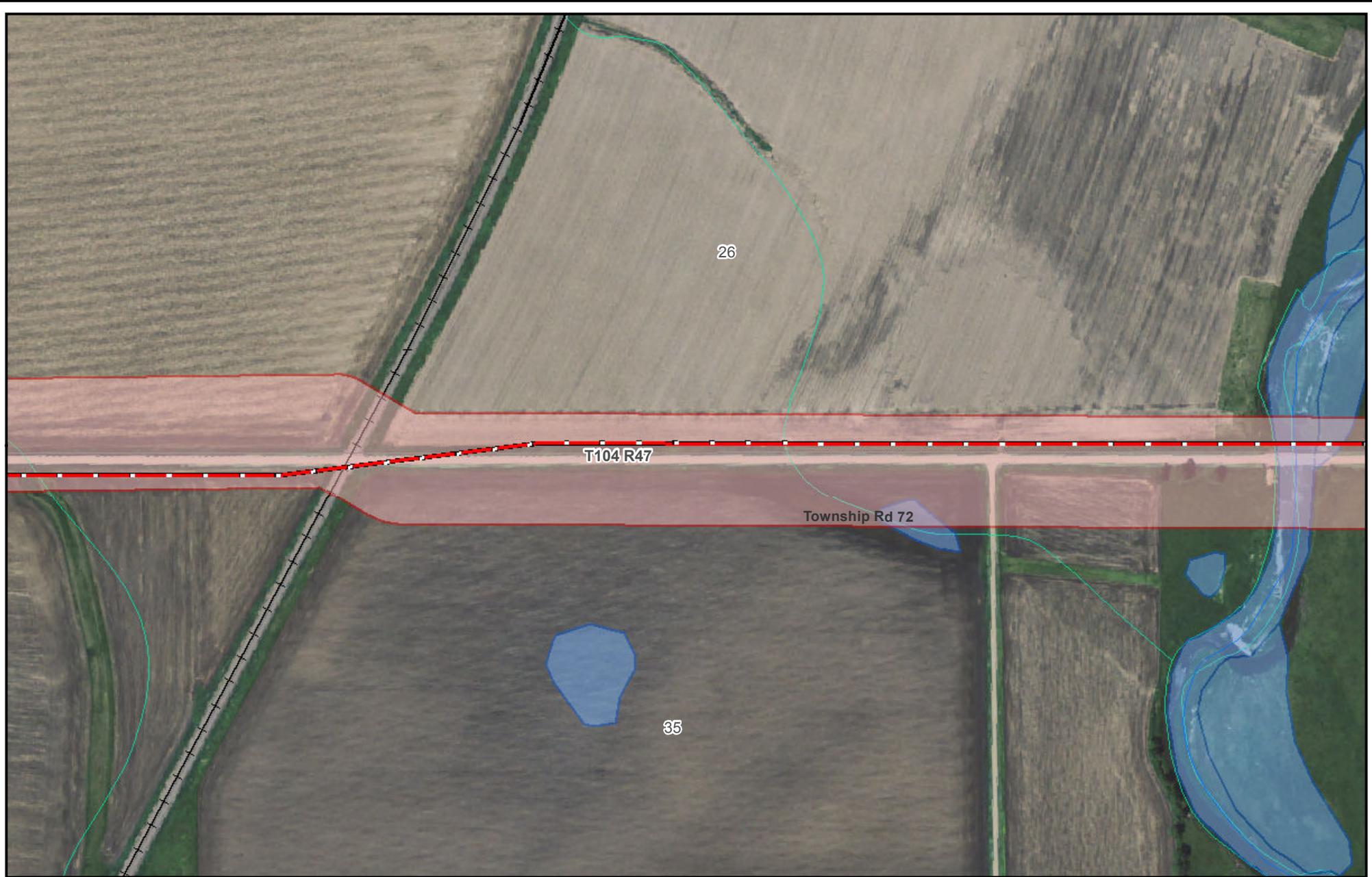
Figure 2. Route Maps
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN



- Preferred Centerline
- Proposed Route (180ft)
- Proposed Route (280ft)
- Railroad
- Highway
- Local Road
- Alternate Substation
- PWI Stream
- USGS Streams
- Section Boundary
- Township Boundary
- State Boundary
- Occupied Residence
- NWI Wetland

2J

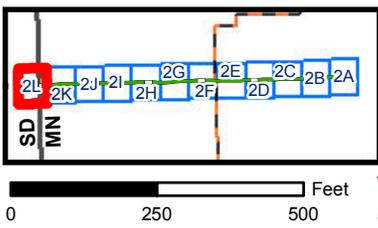
Figure 2. Route Maps
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN



- Preferred Centerline
- Prairie Rose Wind Farm
- Alternate Substation
- Primary Substation
- Occupied Residence
- Proposed Route (180ft)
- Proposed Route (280ft)
- PWI Stream
- USGS Streams
- NWI Wetland
- Railroad
- Highway
- Local Road
- Section Boundary
- Township Boundary
- State Boundary

2K

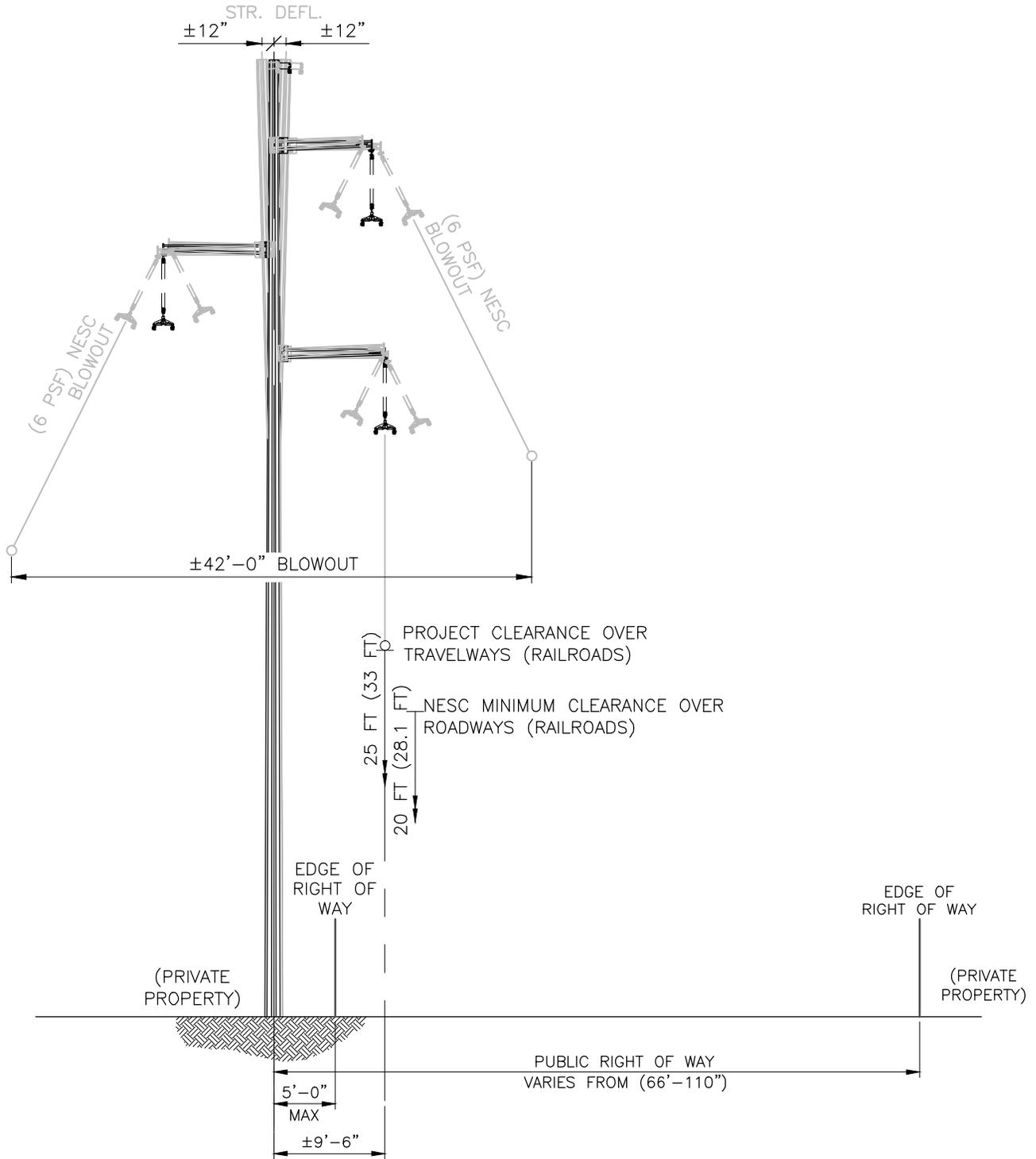
Figure 2. Route Maps
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN



- Preferred Centerline
- Proposed Route (180ft)
- Proposed Route (280ft)
- ▲ Alternate Substation
- ▲ Primary Substation
- Occupied Residence
- Prairie Rose Wind Farm
- ~ PWI Stream
- ~ USGS Streams
- ☾ NWI Wetland
- Railroad
- Highway
- Local Road
- Section Boundary
- Township Boundary
- State Boundary

2L

Figure 2. Route Maps
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN



115kV TANGENT
 (800' SPAN, 2-CONDUCTOR PER PHASE 795 ACSR "DRAKE", 11000# @ NESC HEAVY)

PRELIMINARY



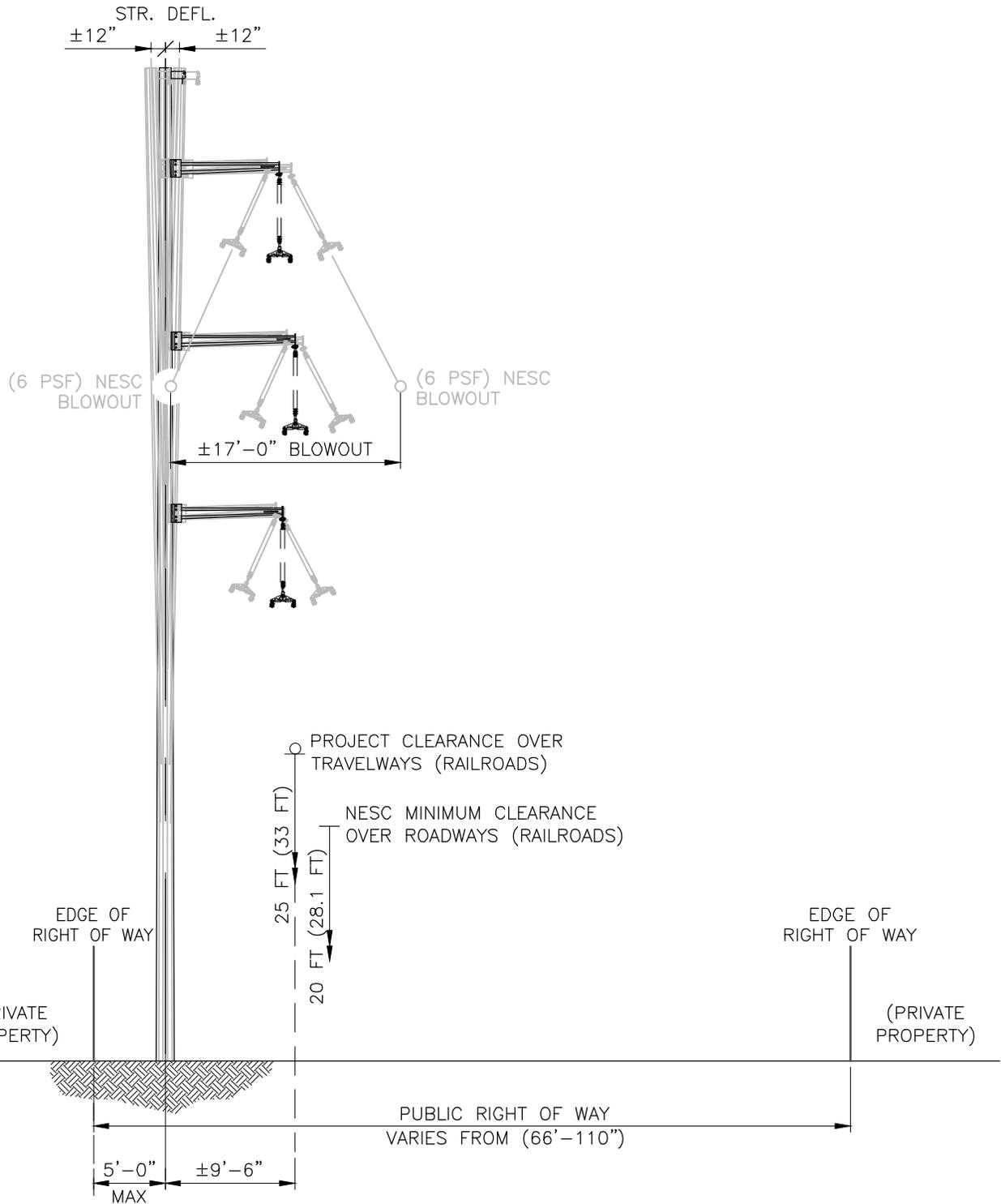
STANTEC CONSULTING INC.
 9400 S.W. BARNES ROAD
 STE. 200
 PORTLAND, OREGON, 97225
 503.297.1631 STANTEC.COM

PRAIRIE ROSE TRANSMISSION, LLC
 MN ROW EXHIBIT (PRIVATE)
 DELTA TANGENT BLOWOUT-3A

DRAWING NO.
 PRW-T-915-02

SHT.
 2

SCALE:
 NONE



115kV NARROW ROW TANGENT
 (550' SPAN, 2-CONDUCTOR PER PHASE 795 ACSR "DRAKE", 11000# @ NESC HEAVY)

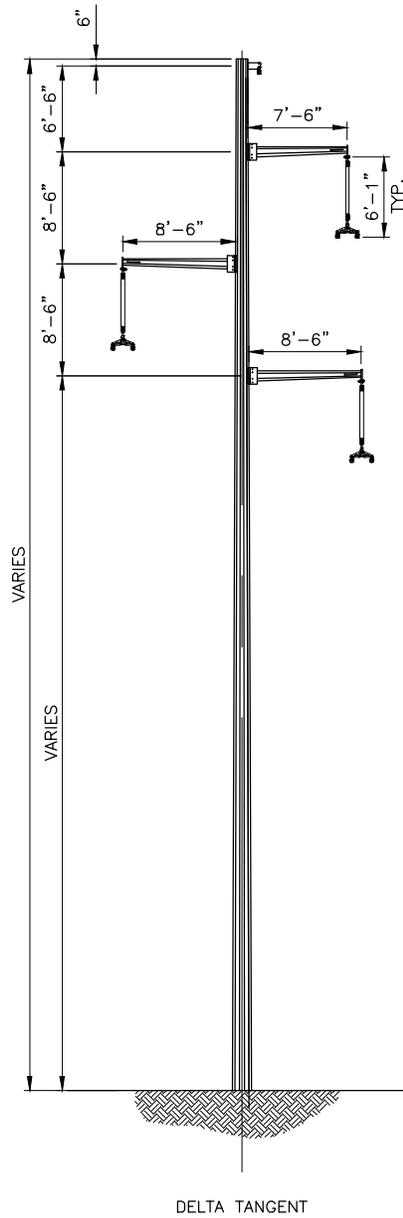
PRELIMINARY



STANTEC CONSULTING INC.
 9400 S.W. BARNES ROAD
 STE. 200
 PORTLAND, OREGON, 97225
 503.297.1631 STANTEC.COM

PRAIRIE ROSE TRANSMISSION, LLC
 MN ROW EXHIBIT (PUBLIC)
 VERTICAL TANGENT BLOWOUT-3B

DRAWING NO. PRW-T-916-02	SHT. 2	SCALE: NONE
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PRELIMINARY



Stantec

STANTEC CONSULTING INC.

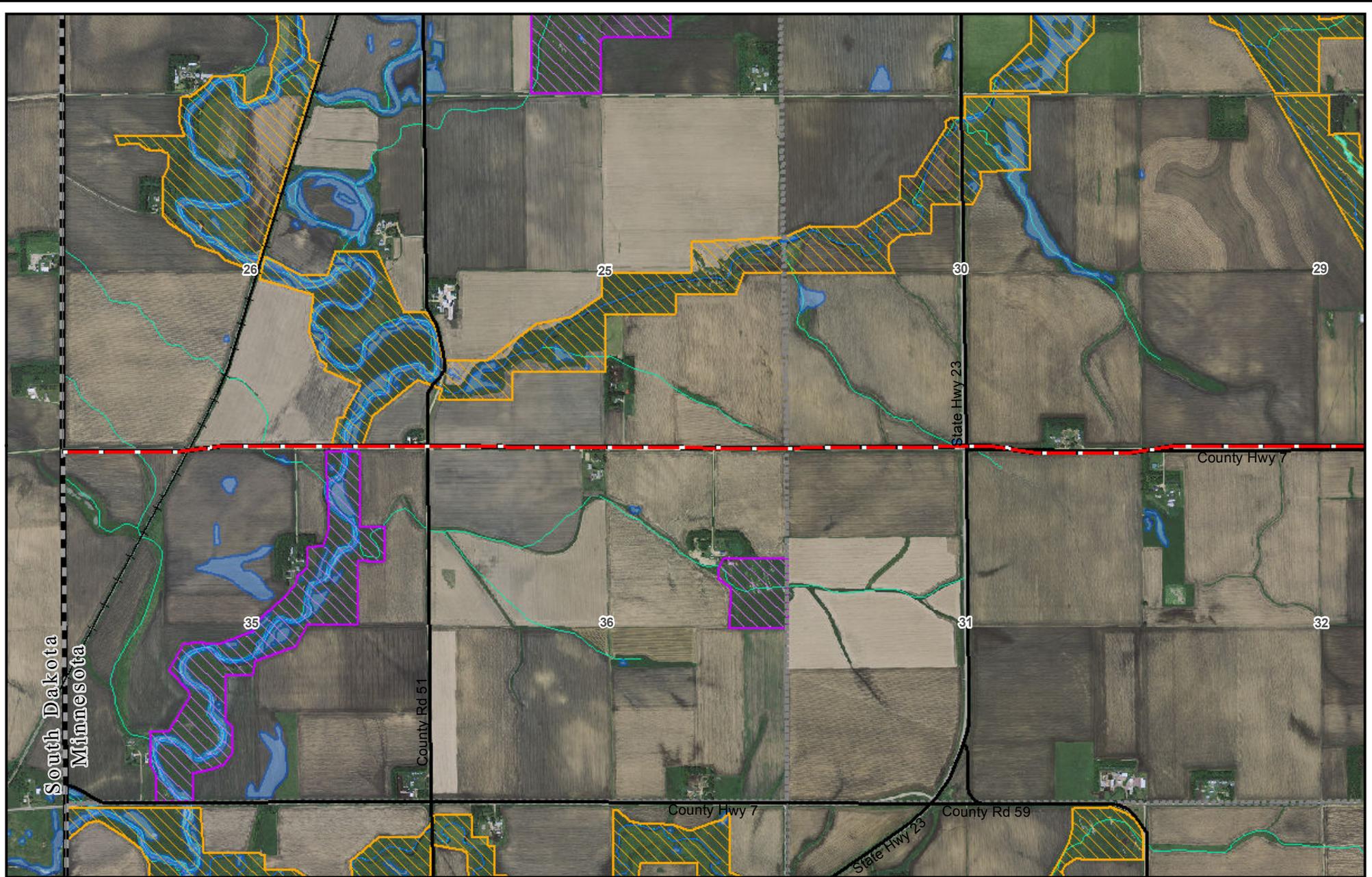
9400 S.W. BARNES ROAD
 STE. 200
 PORTLAND, OREGON, 97225
 503.297.1631 STANTEC.COM

PRAIRIE ROSE TRANSMISSION, LLC
 DELTA TANGENT EXHIBIT-FIGURE 4A

DRAWING NO.
 PRW-T-918-01

SHT.
 1

SCALE:
 NONE



HDR

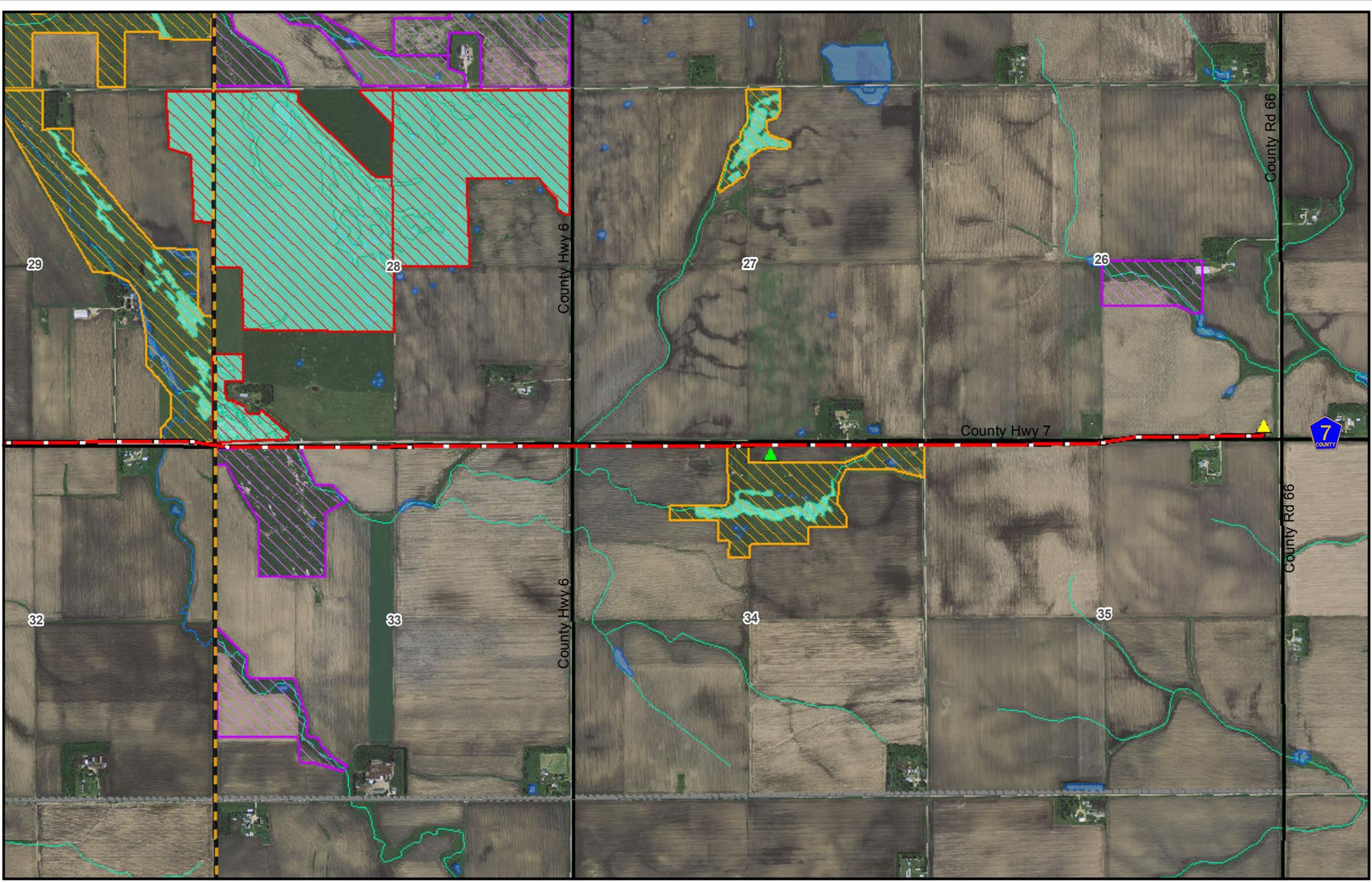


0 0.25 0.5 Miles

Source: Minnesota Department of Natural Resources, 2009.

- | | | |
|----------------------------|------------------------|----------------|
| Preferred Centerline | MCBS Site Below | PWI Stream |
| Prairie Rose Wind Farm | Moderate | USGS Streams |
| Existing Transmission Line | High | NWI Wetland |
| Alternate Substation | Outstanding | State Boundary |
| Primary Substation | Rare Plant Communities | |

Figure 5A. Rare and Natural Features
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN



HDR



0 0.25 0.5 Miles

Source: Minnesota Department of Natural Resources, 2009.

- | | | |
|----------------------------|------------------------|----------------|
| Preferred Centerline | MCBS Site Below | PWI Stream |
| Prairie Rose Wind Farm | Moderate | USGS Streams |
| Existing Transmission Line | High | NWI Wetland |
| Alternate Substation | Outstanding | State Boundary |
| Primary Substation | Rare Plant Communities | |

Figure 5B. Rare and Natural Features
 Prairie Rose Transmission
 Geronimo Wind Energy
 Rock and Pipestone Counties, MN

Appendix A – Scoping Decision



**In the Matter of the Prairie Rose
Transmission, LLC Route Permit Application
for a 115 kV Transmission Line in Rock
County for Interconnection of the Prairie
Rose Wind Farm**

**ENVIRONMENTAL ASSESSMENT
SCOPING DECISION**

PUC Docket No. IP-6838/TL-10-134

The above matter has come before the Deputy Commissioner of the Department of Commerce (DOC) for a decision on the scope of the Environmental Assessment (EA) to be prepared for the Prairie Rose Transmission, LLC (Applicant) application for a permit to construct a 115 kilovolt (kV) High Voltage Transmission Line (Project) in Rose Dell Township in Rock County.

Prairie Rose Transmission, LLC is a wholly-owned subsidiary of Geronimo Wind Energy, LLC, a Minnesota limited liability renewable energy company. A route permit application was filed on March 10, 2011, and accepted as complete by the Minnesota Public Utilities Commission on April 15, 2011.

The Project is a 115 kV transmission line that would be built to interconnect the Prairie Rose 200 MW Wind Farm to the transmission grid. The complete proposed transmission line would span approximately 24 miles, from the Prairie Rose Wind Farm Substation in Rose Dell Township in Rock County to the Split Rock Substation in Brandon, South Dakota. The Minnesota portion of the proposed Project would be approximately 5.5 to seven miles long. The single-circuit transmission line would head west along County Highway 7 to County Highway 23. There it would continue due west along Township Road 72 to the Minnesota-South Dakota border. The proposed route would be sited along a combination of existing road right-of-way (ROW) and private land adjacent the public road ROW.

The DOC Energy Facility Permitting (EFP) staff held a public information and environmental assessment scoping meeting on June 7, 2011, at Memorial Hall in Jasper, Minnesota, to discuss the project with the public and gather public input on the scope of the Environmental Assessment to be prepared. Four people attended the meeting. A member of the public requested information on the type of structure planned for the Project, especially concerning the possible use of self-weathering poles.

The public was given until June 20, 2011, to submit written comments. EFP received one comment letter to review and consider during preparation of the scope of the Environmental Assessment. The letter was from the Minnesota Department of Natural Resources (DNR) requesting review in the EA of the placement of the substation and routing the line near Minnesota County Biological Survey sites. Specifically, the DNR requests the EA evaluate on which side of the road an alignment would cause the least impact on biologically significant areas.

No additional environmental questions were recommended to staff, and no alternative routes were recommended to staff for analysis in the EA.

Having reviewed the matter, consulted with the EFP staff, and in accordance with Minnesota Rule 7850.3700, I hereby make the following Scoping Decision:

MATTERS TO BE ADDRESSED

The Environmental Assessment on the proposed Prairie Rose 115 kV High Voltage Transmission Line Project will address the following matters:

A. GENERAL DESCRIPTION OF THE PROPOSAL

1. Purpose of the Transmission Line
2. Project Location and Environmental Setting
3. Engineering and Operation Design
 - a. Transmission Line and Structures
 - b. Transmission Capacity
 - c. Construction Procedures
 - d. Right-of-Way Maintenance

B. IMPACTS AND MITIGATIVE MEASURES

1. Human Settlement
2. Public Health and Safety (including electromagnetic fields [EMF] and safety codes)
3. Noise
4. Aesthetics
5. Recreation
6. Transportation
7. Soils and Geology
8. Land Use
9. Archaeological and Historic Features
10. Air Quality Resources
11. Surface Water Resources
12. Wetlands
13. Flora
14. Fauna
15. Rare and Unique Natural Resources
16. Radio, Television, and Cellular Phone Interference

EFP staff is not recommending that any additional routes other than the one presented in the Route Permit Application be evaluated in the EA. The EA will evaluate the relative impact of the two substation alternatives noted in the Application.

D. IDENTIFICATION OF PERMITS

The Environmental Assessment will include a review of permits that will be required or likely required for construction of this project.

ISSUES OUTSIDE THE SCOPE OF THE ENVIRONMENTAL ASSESSMENT

The EA will not consider whether a different size or type of transmission line should be built instead, nor will the EA consider the no-build option. The EA will also not consider the following:

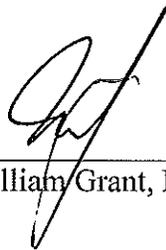
1. The manner in which land owners are paid for transmission rights-of-way easements, as that is outside the jurisdiction of the Commission.
2. Alternatives not described specifically in this Scoping Decision.

SCHEDULE

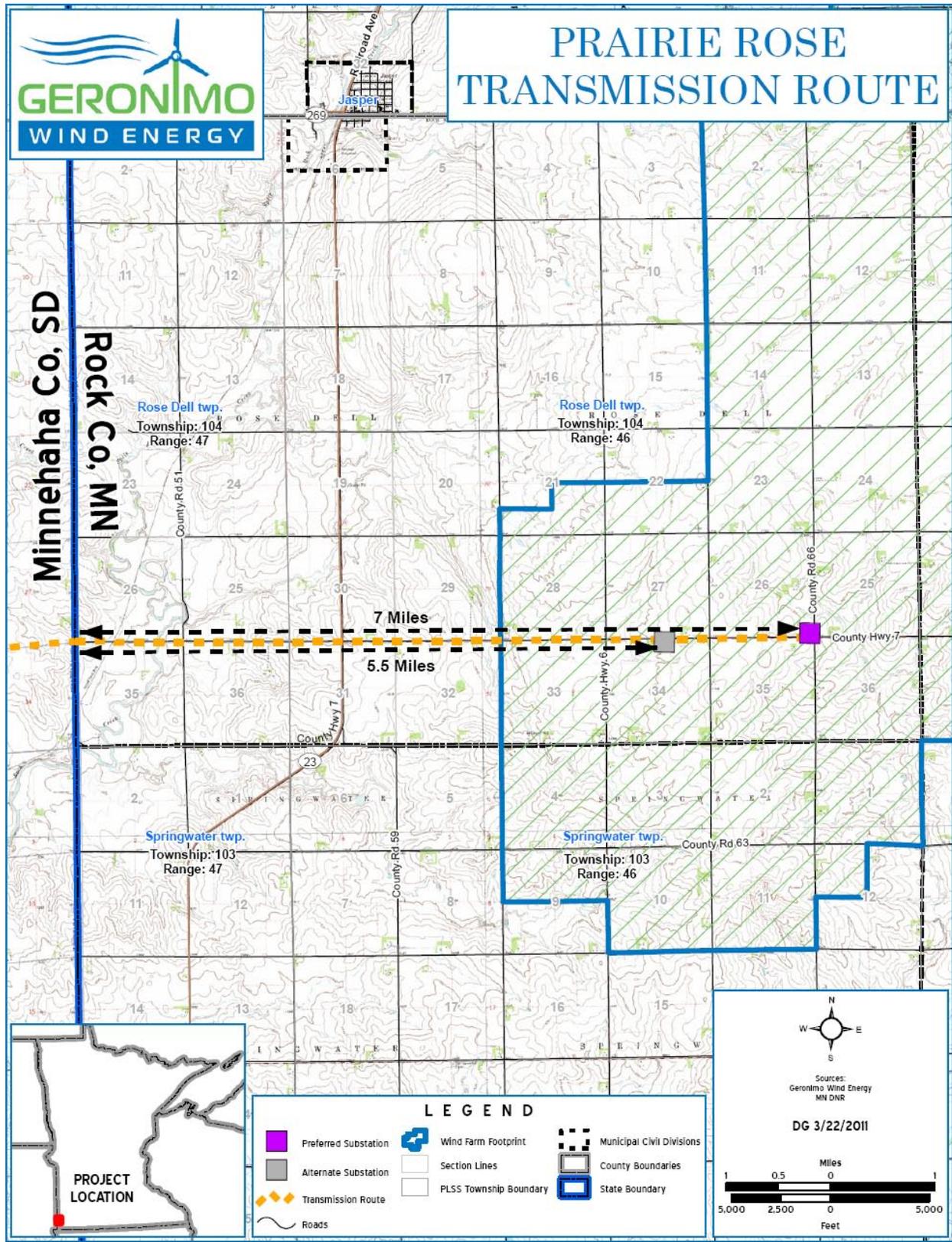
The Environmental Assessment shall be completed and available by August 31, 2011. A public hearing will be held in the Project area after the Environmental Assessment has been issued and notice served.

Signed this 28th day of June 2011

STATE OF MINNESOTA
DEPARTMENT OF COMMERCE



William Grant, Deputy Commissioner



Appendix B – Sample Route Permit

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

**ROUTE PERMIT FOR CONSTRUCTION OF A HIGH-VOLTAGE TRANSMISSION
LINE AND ASSOCIATED FACILITIES**

IN HUBBARD COUNTY

**ISSUED TO
GREAT RIVER ENERGY
PUC DOCKET NO. ET2/TL-10-86**

In accordance with the requirements of Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850, this route permit is hereby issued to:

GREAT RIVER ENERGY

Great River Energy is authorized by this route permit to construct a new 7.25-mile 115 kilovolt (kV) transmission line between a newly proposed Potato Lake substation to be constructed in Arago Township and a tap point on Great River Energy's existing Mantrap Sub Tap 34.5 kV transmission line in Lake Emma Township, Hubbard County, Minnesota. The new 115 kV transmission facility line would initially be operated at 34.5 kV until conversion to 115 kV becomes necessary.

The transmission line and associated facilities shall be built within the route identified in this permit, as portrayed on the official route maps, and in compliance with the conditions specified in this permit.

Approved and adopted this _____ day of November, 2010

BY ORDER OF THE COMMISSION

Burl W. Haar,
Executive Secretary

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FIGURES

Figure 1 – Overview Proposed Route

Figures 2 A-F – Proposed Route

ATTACHMENTS

Minnesota Public Utilities Commission Complaint Handling Procedures for High-Voltage Transmission Lines

Minnesota Public Utilities Commission Compliance Filing Procedures for Permitted Energy Facilities

1 ROUTE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this route permit to Great River Energy (Permittee) pursuant to Minn. Stat. § 216E.03 and Minn. R. Chapter 7850. This permit authorizes the Permittee to construct approximately 7.25 miles of new 115 kV transmission line and associated facilities in Hubbard County, Minnesota and as identified in the attached Route Permit Maps, hereby incorporated into this document.

2 PROJECT DESCRIPTION

The Permittee is authorized to construct a project comprising a 7.25-mile transmission line and Potato Lake Substation as described in the Route Permit Application and evaluated in the Environmental Assessment. The approved route is shown on the Route Permit Maps attached to this permit and further designated as described.

2.1 115 kV High-Voltage Transmission Line

The 115 kV transmission line route would be located northeast of the city of Park Rapids in Hubbard County, Minnesota. The project would specifically be located in sections of Arago, Lake Emma, Todd, and Henrietta townships.

Project Location Data

County	Township Name	Township	Range	Sections
Hubbard	Arago	141 N	35 W	21, 22, 26, 27, 28, 34, 35, 36
	Henrietta	140 N	34 W	5, 6
	Lake Emma	141 N	34 W	31, 32
	Todd	140 N	35 W	1, 2

The Route is 7.25 miles of new overhead 115 kV transmission line between the new Potato Lake Substation in section 21 of Arago Township and a tap point on GRE's existing Mantrap Sub Tap 34.5 kV line in both section five of Henrietta Township and section 32 of Lake Emma Township.

2.2 Substation

The new Potato Lake substation will be a fenced-in area of 96 feet by 146 feet on a 3.2 acre parcel located in section 21 of Arago Township, along U.S. Highway 71. Itasca-Mantrap has purchased 3.2 acres of the land and will own all common facilities (land, fence, etc.) (*See Figure 1*).

2.3 Structures & Conductors

The Permittee will use single-pole, direct-embedded wood structures, or similar. The poles average 65 to 80 feet in height with spans of 300 to 400 feet between poles. Horizontal post insulators will be used unless design requires longer spans beyond the capability of the insulators, in which case a braced post design will be utilized to accommodate the increased loadings.

Single-pole with underbuild design will be used in areas where the new transmission line will utilize the existing right-of-way of Itasca-Mantrap distribution lines along U.S. Highway 71 and 230th Street (Northern Pine Road) and including new 12.5 kV distribution lines on the new 115 kV structures that follow along 230th Street (Northern Pine Road) and 141st Avenue up to the intersection with County Highway 18. Where the structures are “stacked” with a 115kV above a 12.5 kV the higher total voltage will result in poles heights of 75 to 85 feet with span length of 250 to 300 feet.

The Applicant will develop strategies in an Avian Mitigation Plan that will be implemented to avoid or minimize impacts to birds or their habitats at the Potato River crossing and other public waters along the route, pursuant to Section 5.1 of this Permit. The Avian Mitigation Plan will be submitted to the Commission with the Plan and Profile for the Project.

The three phases of the 115kV transmission line will each consist of one single 26/7 kcmil 477 steel-reinforced aluminum conductor.

One shield wire will be strung above the conductors to prevent damage from lightning strikes. These shield wires are typically less than one inch in diameter and include fiber optic cables, which allow a path for substation protection equipment to communicate with equipment at other terminals on the transmission line.

Transmission Line and Structure Specifications

Line Voltage	Conductor	Structure Type	Pole Material	Foundation	Found-ation dia.	Height (feet)	Span (feet)
115 kV Single- Circuit	ACSR 477 kcmil 26/7	Single Pole Horizontal- Post	Wood	Direct Embed	20 inches	60-85	300-400
115 kV Single-Circuit with 12.5 kV Distribution Underbuild	ACSR 477 kcmil 26/7	Single Pole Horizontal- Post with 12.5 kV Distribution Underbuild	Wood	Direct Embed	20 inches	70-85	250-300
115 kV Single-Circuit	ACSR 477 kcmil 26/7	Angle Structure	Guyed Wood, Laminated Wood or Steel	Direct Embedment with guys or Drilled Pier	48-60 inches	60-85	NA
115 kV Single-Circuit	ACSR 477 kcmil 26/7	H-Frame	Wood	Direct Embed	20 inches	60-85	600-800

Transmission lines shall be equipped with protective devices (breakers and relays located where transmission lines connect to substations) to safeguard the public in the event of an accident. Associated facilities will be properly fenced and accessible only by authorized personnel.

3 DESIGNATED ROUTE

The approved route is shown on the official route maps attached to this permit and further designated as follows:

The transmission line route exits the new Potato Lake Substation in Section 21 of Arago Township along U.S. Highway 71 and proceeds south paralleling U.S. Highway 71 for approximately 1.5 miles to 230th Street (Northern Pine Road); east along 230th Street for approximately 1.5 miles to 141st Avenue; south approximately 1 mile along 141st Avenue to County Highway 18; then east paralleling County Highway 18 for approximately 3.25 miles to County Highway 4 and a new three-way switch on the existing Mantrap Sub Tap 34.5 kV line in both section five of Henrietta Township and section 32 of Lake Emma Township along County Highway 4.

3.1 Route Width and Alignment

The designated route will be limited to 300 feet in width as depicted on the attached Official Route Maps. This width will provide the Permittee with flexibility for minor adjustments of the specific alignment or right-of-way to accommodate landowner requests and unforeseen conditions. The final alignment (i.e., permanent and maintained rights-of-way) will be located within this designated route unless otherwise authorized below.

The designated route, as shown on the attached aerial photos anticipates an alignment that would follow two to five feet outside existing road rights-of-way (County Highway 4, County Highway 18, 141st Street, 230th Street and U.S. Highway 71) or replace distribution structures and follow Itasca-Mantrap's existing distribution line right-of-way along U.S. Highway 71, and that minimizes the overall potential impacts relating to the factors identified in Minn. R. 7850.4100, as evaluated in the environmental review and permitting processes. Consequently, this permit anticipates that the actual right-of-way will generally conform to this alignment unless changes are requested by individual landowners, unforeseen conditions are encountered, or are otherwise provided for by this permit. Any alignment modifications within this designated route shall be located so as to have comparable overall impacts relative to the factors in Minn. R. 7850.4100 as does the alignment identified in this permit, and shall be specifically identified in, and approved as, part of the Plan and Profile submitted pursuant to Part 4.1 of this permit.

Route width variations outside the designated route may be allowed for the Permittee to overcome potential site specific constraints. These constraints may arise from any of the following:

- 1) Unforeseen circumstances encountered during the detailed engineering and design process.
- 2) Federal or state agency requirements.
- 3) Existing infrastructure within the transmission line route, including but not limited to roadways, railroads, natural gas and liquid pipelines, high voltage electric transmission lines, or sewer and water lines.

- 4) Planned infrastructure improvements identified by state agencies and LGUs and made part of the evidentiary record during the contested case proceeding for this permit.

Any alignment modifications arising from these site specific constraints that would result in right-of-way placement outside the designated route shall be located so as to have comparable overall impacts relative to the factors in Minn. R. 7850.4100 as does the alignment identified in this permit and shall also be specifically identified (i.e., highlight or otherwise specified) in and approved as part of the Plan and Profile submitted pursuant to Part 4.1 of this permit.

3.2 Right-of-Way Placement

Where the transmission line route parallels existing highway and other road rights-of-way, the transmission line right-of-way shall occupy and utilize the existing right-of-way to the maximum extent possible, consistent with the criteria in Minn. R. 7850.4100, the other requirements of this permit and, for highways under the jurisdiction of the Minnesota Department of Transportation (Mn/DOT), Mn/DOT rules, policies, and procedures for accommodating utilities in trunk highway rights-of-way.

3.3 Right-of-Way Width

The 115 kV transmission line will be built primarily with single pole structures, which will require a 100-foot right-of-way. Where specialty structures are required for long spans or in environmentally sensitive areas, up to 180 feet of right-of-way may be employed.

4 PERMIT CONDITIONS

The Permittee shall comply with the following conditions during construction of the transmission line and associated facilities and the life of this permit.

4.1 Plan and Profile

At least 30 calendar days before right-of-way preparation for construction begins on any segment or portion of the project, the Permittee shall provide the Commission with a Plan and Profile of the right-of-way and the specifications and drawings for right-of-way preparation, construction, transmission structure specifications and locations, and restoration for the transmission line. The documentation shall include maps depicting the plan and profile including the right-of-way, alignment, and structures in relation to the route and alignment approved per the permit.

The Permittee may not commence construction until the 30 days has expired or until the Commission has advised the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this permit. If the Permittee intend to make any significant changes in its Plan and Profile or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission at least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this permit.

4.2 Construction Practices

The Permittee shall follow those specific construction practices and material specifications described in the Great River Energy Application to the Commission for a Route Permit, dated February 26, 2010, and as described in the environmental assessment and Findings of Fact, unless this permit establishes a different requirement, in which case this permit shall prevail.

4.2.1 Field Representative

At least 10 days prior to commencing construction, the Permittee shall advise the Commission in writing of the person or persons designated to be the field representative for the Permittee with the responsibility to oversee compliance with the conditions of this permit during construction.

The field representative's address, phone number, email, and emergency phone number shall be provided to the Commission and shall be made available to affected landowners, residents, public officials and other interested persons. The Permittee may change the field representative at any time upon written notice to the Commission.

4.2.2 Local Governments

During construction, the Permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services occur, these would be temporary and the Permittee will work to restore service promptly. Where any impacts to utilities have the potential to occur, Permittee will work with both landowners and local agencies to determine the most appropriate pole placement.

The Permittee shall cooperate with county and city road authorities to develop appropriate signage and traffic management during construction.

4.2.3 Cleanup

All waste and scrap that is the product of construction shall be removed from the area and properly disposed of upon completion of each task. Personal litter, including bottles, cans, and paper from construction activities shall be removed on a daily basis.

4.2.4 Noise

Construction and routine maintenance activities will be limited to daytime working hours, as defined in Minn. R. 7030.0200, to ensure nighttime noise level standards will not be exceeded.

4.2.5 Vegetation Removal in the Right-of-Way

The Permittee shall minimize the number of trees to be removed in selecting the right-of-way specifically preserving to the maximum extent practicable windbreaks, shelterbelts, living snow fences and areas such as, trail crossings and the Lake Country Scenic By-Way, where vegetative screening may minimize aesthetic impacts, to the extent that such actions do not violate sound engineering principles or system reliability criteria.

As part of construction, low growing brush or tree species are allowable within and at the outer limits of the easement area. Taller tree species that endanger the safe and reliable operation of the transmission facility need to be removed. To the extent practical, low growing vegetation that will not pose a threat to the transmission facility or impede construction should remain in the easement area.

4.2.6 Aesthetics

The Permittee will consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance. Care will be used to preserve the natural landscape and prevent any unnecessary destruction of the natural surroundings in the vicinity of the project during construction and maintenance.

New structures will be designed to support the existing transmission and distribution lines, thereby allowing the use of existing alignments and will share existing road rights-of-way to the extent that such actions do not violate sound engineering principles or system reliability criteria.

Structures will be placed at the maximum feasible distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highway, or trail crossings and could cross roads to minimize or avoid impacts. The Permittee shall work with landowners to identify and address issues related to the transmission line such as distance from existing structures, tree clearing, and other aesthetic concerns.

4.2.7 Erosion Control

The Permittee shall follow standard erosion control measures outlined in Minnesota Pollution Control Agency (MPCA) guidance and best management practices regarding sediment control practice during construction include protecting storm drain inlets, use of silt fences, protecting exposed soil, immediately stabilizing restored soil, controlling temporary soil stockpiles, and controlling vehicle tracking.

The Permittee shall implement reasonable measures to minimize runoff during construction and shall promptly plant or seed, erect silt fences, and/or use erosion control blankets in non-agricultural areas that were disturbed where structures are installed.

When utilizing seed to establish temporary and permanent vegetative cover on exposed soil, the Permittee will consult with the Minnesota Department of Transportation (Mn/DOT) and Minnesota Department of Natural Resources (MnDNR) to select site characteristic seed certified to be free of noxious weeds.

Contours will be graded as required so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation, provide for proper drainage, and prevent erosion. All areas disturbed during construction of the facilities will be returned to their pre-construction condition.

Larger disturbed areas of one acre or more (substation site) will be regulated by a National Pollutant Discharge Elimination System (NPDES) permit and Stormwater Pollution Prevention Plan prepared for the project.

4.2.8 Wetlands and Water Resources

Structures shall be located to span watercourses, wetlands, and floodplains to the extent practicable and consistent with sound engineering principles. Minimal grading of areas around pole locations may be required to accommodate construction vehicles and equipment.

Minimal grading of areas around pole locations may be required to accommodate construction vehicles and equipment. The Permittee will use wooden mats or a composite mat system for construction during frozen conditions to minimize disturbance and compaction of wetlands and riparian areas during construction. Soil excavated from the wetlands and riparian areas will be contained and not placed back into the wetland or riparian area. Silt fencing or other erosion control measures will be used to prevent sedimentation when working near wetlands and watercourses. Areas disturbed by construction activities will be restored to pre-construction conditions (soil horizons, contours, vegetation, etc.) (*See also* Section 4.2.7 [Erosion Control]).

4.2.9 Archaeological and Historic Resources

The Permittee shall make every effort to avoid impacts to identified archaeological and historic resources when installing the high-voltage transmission line on the approved route. In the event that a resource is encountered, the SHPO should be contacted and consulted; the nature of the resource should be identified; and a determination should be made on the eligibility for listing in the National Register of Historic Places. Where feasible, avoidance of the resource is required.

4.2.10 Temporary Work Space

The Permittee shall limit temporary easements to special construction access needs and additional staging or lay-down areas required outside of the authorized right-of-way. Space should be selected to limit the removal and impacts to vegetation.

Temporary lay down areas outside of the authorized transmission line right-of-way will be obtained from affected landowners through rental agreements and are not provided for in this permit

Temporary driveways may be constructed between the roadway and the structures to minimize impact by using the shortest route possible. Construction mats may also be used to minimize impacts on access paths and construction areas.

4.2.11 Restoration

The Permittee shall restore the right-of-way, temporary work spaces, access roads, abandoned right-of-way, and other public or private lands affected by construction of the transmission line. Practices to restore areas impacted by construction and maintenance activities are further described in Section 4.2.7 of this permit. Restoration within the right-of-way must be compatible with the safe operation, maintenance, and inspection of the transmission line.

Within 60 days after completion of all restoration activities, the Permittee shall advise the Commission in writing of the completion of such activities. The Permittee shall compensate landowners for any yard/landscape, crop, soil compaction, drain tile, or other damages that may occur during construction.

4.2.12 Notice of Permit

The Permittee shall inform all employees, contractors, and other persons involved in the transmission line construction of the terms and conditions of this permit.

4.3 Periodic Status Reports

The Permittee shall report to the Commission on progress regarding finalization of the route, design of structures, and construction of the transmission line. The Permittee need not report more frequently than weekly.

At the request of the Commission, the Permittee shall report to the Commission on progress regarding finalization of the route and design of structures. The Permittee shall report to the Commission on construction of the Project in a manner outlined in the Environmental Management Plan under Section 5.1 Special Conditions.

4.4 Complaint Procedures

Prior to the start of construction, the Permittee shall submit to the Commission, the procedures that will be used to receive and respond to complaints. The procedures shall be in accordance with the requirements set forth in the complaint procedures attached to this permit.

4.5 Notification to Landowners

The Permittee shall provide all affected landowners with a copy of this permit and the complaints procedures at the time of the first contact with the landowners after issuance of this permit. At the time of first contact, the Permittee shall also provide all affected landowners with a copy of the *Landowner Guide to Easements* publication provided by OES.

The Permittee shall contact landowners prior to entering the property or conducting maintenance along the route. The Permittee shall avoid construction and maintenance practices, particularly the use of fertilizer, herbicides or other pesticides, that are inconsistent with the landowner's or tenant's use of the land.

The Permittee shall work with landowners to locate the high-voltage transmission lines to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads.

4.6 Completion of Construction

4.6.1 Notification to Commission

At least three days before the line is to be placed into service, the Permittee shall notify the Commission of the date on which the line will be placed into service and the date on which construction was complete.

4.6.2 As-Builts

Within 60 days after completion of construction, the Permittee shall submit copies of all the final as-built plans and specifications developed during the project.

4.6.3 GPS Data

Within 60 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (ArcGIS compatible map files, GPS coordinates, associated database of characteristics, etc.) for all structures associated with the transmission lines, each switch, and each substation connected.

4.7 Electrical Performance Standards.

4.7.1 Grounding

The Permittee shall design, construct, and operate the transmission line in a manner that the maximum induced steady-state short-circuit current shall be limited to five milliamperes (mA), root mean square (rms) alternating current between the ground and any non-stationary object within the right-of-way, including but not limited to large motor vehicles and agricultural equipment. All fixed metallic objects on or off the right-of-way, except electric fences that parallel or cross the right-of-way, shall be grounded to the extent necessary to limit the induced short-circuit current between ground and the object so as not to exceed one mA rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the National Electric Safety Code (NESC). Permittee shall address and rectify any induced current problems that arise during transmission line operation.

4.7.2 Electric Field

The transmission line shall be designed, constructed, and operated in such a manner that the electric field measured one meter above ground level immediately below the transmission line shall not exceed 8.0 kV/m rms.

4.7.3 Interference with Communication Devices

If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the transmission line, the Permittee shall take whatever action is prudently feasible to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the line.

4.8 Other Requirements.

4.8.1 Applicable Codes

The Permittee shall comply with applicable requirements of the NESC including clearances to ground, clearance to crossing utilities, clearance to buildings, right-of-way widths, erecting power poles, and stringing of transmission line conductors. The transmission line facility shall also meet the North American Electric Reliability Corporation's (NERC) reliability standards.

4.8.2 Other Permits

The Permittee shall comply with all applicable state rules and statutes. The Permittee shall obtain all required local, state and federal permits for the project and comply with the conditions of these permits. A list of the required permits is included in the route permit application and the environmental assessment. The Permittee shall submit a copy of such permits to the Commission upon request.

4.8.3 Pre-emption

Pursuant to Minn. Stat. § 216E.10, subd. 1 and 2, this route permit shall be the sole route approval required to be obtained by the Permittee and this permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose government.

4.8.4 Delay in Construction

If the Permittee have not commenced construction or improvement of the route within four years after the date of issuance of this permit, the Commission shall consider suspension of the permit in accordance with Minn. R. 7850.4700.

5 SPECIAL CONDITIONS

The Permittee shall provide a report to the Commission as part of the Plan and Profile submission that describes the actions taken and mitigative measures developed regarding the Project and the following Special Conditions.

5.1 Avian Mitigation Plan for Potato River Crossing

The Permittee will prepare an Avian Mitigation Plan to identify potential issues that may pose a risk to avian species or their habitats at the Potato River crossing and other public waters along the route. The Permittee will develop strategies in an Avian Mitigation Plan that will be implemented to avoid or minimize impacts to birds or their habitats at this crossings. Among other elements, the Plan shall require the Permittee to use large swan type bird diverters. The Permittee shall coordinate the number and spacing of the diverters with the MnDNR. The Permittee is to consult with the MnDNR and U.S. Fish and Wildlife Service (USFWS) in developing the Plan. The Plan shall include strategies to ensure construction activities are scheduled to avoid disturbing normal eagle breeding, feeding, or sheltering behavior, as necessary. The Permittee shall ensure the project conforms with the requirements of the Bald and Golden Eagle Protection Act in consultation with the USFWS. The Avian Mitigation Plan will be submitted to the Commission for approval with the Plan and Profile for the Project.

The Permittee's standard transmission design shall incorporate adequate spacing of conductor(s) and grounding devices in accordance with Avian Power Line Interaction Committee (APLIC) standards to eliminate the risk of electrocution to raptors with larger wingspans that may simultaneously come in contact with a conductor and grounding devices.

5.2 Blanding's Turtle

The Permittee shall follow measures and recommendations for avoiding and minimizing impacts to Blanding's turtle populations as outlined in the *Minnesota Department of Natural Resources Division of Ecological Resources Environmental Review Fact Sheet Series for Blanding's Turtle* (http://files.dnr.state.mn.us/natural_resources/animals/reptiles_amphibians/turtles/blandings_turtle/factsheet.pdf). Construction and maintenance personnel shall be made aware of the Blanding's turtle and their habitat during pre-construction meetings.

6 PERMIT AMENDMENT

The permit conditions in Sections 4 and 5 may be amended at any time by the Commission. Any person may request an amendment of the conditions of this permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission will mail notice of receipt of the request to the Permittee. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required.

7 TRANSFER OF PERMIT

The Permittee may request at any time that the Commission transfer this permit to another person or entity. The Permittee shall provide the name and description of the person or entity to whom the permit is requested to be transferred, the reasons for the transfer, a description of the facilities affected, and the proposed effective date of the transfer.

The person to whom the permit is to be transferred shall provide the Commission with such information as the Commission shall require to determine whether the new Permittee can comply with the conditions of the permit. The Commission may authorize transfer of the permit after affording the Permittee, the new Permittee, and interested persons such process as is required.

8 REVOCATION OR SUSPENSION OF THE PERMIT

The Commission may initiate action to revoke or suspend this permit at any time. The Commission shall act in accordance with the requirements of Minn. R. 7850.5100 to revoke or suspend the permit.

MINNESOTA PUBLIC UTILITIES COMMISSION COMPLAINT HANDLING PROCEDURES FOR HIGH-VOLTAGE TRANSMISSION LINES

A. Purpose

To establish a uniform and timely method of reporting complaints received by the Permittees concerning Permit conditions for site preparation, construction, cleanup and restoration, operation and resolution of such complaints.

B. Scope

This document describes complaint reporting procedures and frequency.

C. Applicability

The procedures shall be used for all complaints received by the Permittees and all complaints received by the Commission under Minnesota Rule 7829.1500 or 7829.1700 relevant to this Permit.

D. Definitions

Complaint: A verbal or written statement presented to the Permittees by a person expressing dissatisfaction or concern regarding site preparation, cleanup or restoration or other route and associated facilities permit conditions. Complaints do not include requests, inquiries, questions or general comments.

Substantial Complaint: A written complaint alleging a violation of a specific Route Permit condition that, if substantiated, could result in Permit modification or suspension pursuant to the applicable regulations.

Unresolved Complaint: A complaint which, despite the good faith efforts of the Permittees and a person(s), remains to both or one of the parties unresolved or unsatisfactorily resolved.

Person: An individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private, however organized.

E. Complaint Documentation and Processing

The Permittees shall document all complaints by maintaining a record of all applicable information concerning the complaint, including the following:

- Name of complainant, address, phone number, and e-mail address.
- Precise property description or parcel number.
- Name of Permittees representative receiving Complaint and date of receipt.
- Nature of Complaint and the applicable Site Permit conditions(s).
- Activities undertaken to resolve the Complaint.
- Final disposition of the Complaint.

The Permittees shall designate an individual to summarize Complaints for the Commission. This person's name, phone number and email address shall accompany all complaint submittals.

A Person presenting the Complaint should to the extent possible, include the following information in their communications:

- Name, address, phone number, and e-mail address.
- Date
- Tract or parcel
- Whether the complaint relates to (1) a route permit matter, or (2) a compliance issue.

F. Reporting Requirements

The Permittees shall report all complaints to the Commission according to the following schedule:

Immediate Reports: All substantial complaints shall be reported to the Commission the same day received, or on the following working day for complaints received after working hours. Such reports are to be directed to High-Voltage Transmission Line Permit Compliance, 1-800-657-3794, or by e-mail to: DOC.energypermitcompliance@state.mn.us, or voice messages are acceptable.

Monthly Reports: By the 15th of each month, a summary of all complaints, including substantial complaints received or resolved during the preceding month, shall be Filed to Dr. Burl W. Haar, Executive Secretary, Public Utilities Commission, using the Minnesota Department of Commerce eDocket system (see eFiling instructions attached to this permit).

If no Complaints were received during the preceding month, the Permittees shall submit (eFile) a summary indicating that no complaints were received.

G. Complaints Received by the Commission or Office of Energy Security

Complaints received directly by the Commission from aggrieved persons regarding site preparation, construction, cleanup, restoration, operation and maintenance shall be promptly sent to the Permittees.

H. Commission Process for Unresolved Complaints

Initial Screening: Commission staff shall perform an initial evaluation of unresolved Complaints submitted to the Commission. Complaints raising substantial High-Voltage Transmission Line Permit issues shall be processed and resolved by the Commission. Staff shall notify Permittees and appropriate person(s) if it determines that the Complaint is a Substantial Complaint. With respect to such Complaints, each party shall submit a written summary of its position to the Commission no later than ten days after receipt of the Staff notification. Staff shall present Briefing Papers to the Commission, which shall resolve the Complaint within twenty days of submission of the Briefing Papers.

Permittees Contacts for Complaints

Complaints shall be sent to:

Michelle Lommel
Great River Energy
12300 Elm Creek Boulevard
Maple Grove, MN 55369

Telephone: (763) 445-5977

Email: mlommel@grenergy.com

MINNESOTA PUBLIC UTILITIES COMMISSION COMPLIANCE FILING PROCEDURE FOR PERMITTED ENERGY FACILITIES

1. Purpose

To establish a uniform and timely method of submitting information required by the Commission energy facility permits.

2. Scope and Applicability

This procedure encompasses all compliance filings required by permit.

3. Definitions

Compliance Filing – A sending (filing) of information to the Commission, where the information is required by a Commission site or route permit.

4. Responsibilities

The Permittees shall eFile all compliance filings with Dr. Burl Haar, Executive Secretary, Public Utilities Commission, through the Department of Commerce (DOC) eDocket system. The system is located on the DOC website: <https://www.edockets.state.mn.us/EFiling/home.jsp>

General instructions are provided on the website. Permittees must register on the website to eFile documents.

All filings must have a cover sheet that includes:

- Date
- Name of submitter / Permittee
- Type of permit (Site or Route)
- Project location
- Project docket number
- Permit section under which the filing is made
- Short description of the filing

Filings that are graphic intensive (e.g., maps, plan and profile) must, in addition to being eFiled, be submitted as paper copies and on CD. Copies and CDs should be sent to: 1) Dr. Burl W. Haar, Executive Secretary, Minnesota Public Utilities Commission, 121 7th Place East, Suite 350, St. Paul, MN, 55101-2147, and 2) Department of Commerce, Energy Facility Permitting, 85 7th Place East, Suite 500, St. Paul, MN, 55101-2198.

PERMIT COMPLIANCE FILINGS¹

PERMITTEES: Great River Energy

PERMIT TYPE: 115 kV High-Voltage Transmission Line Route Permit

PROJECT LOCATION: Hubbard County, Minnesota

PUC DOCKET NUMBER: ET2/TL-10-86

Filing Number	Permit Section	Description	Due Date
1.	4.2.1	Contact information for field representative	10 days prior to construction
2.	4.3	Periodic Status Reports	Not more than weekly
3.	4.4	Complaint Procedures	Prior to start of construction
4.	4.5	Notification to Landowners	First contact with the landowners after issuance of permit
5.	4.1	Plan and Profile of Right-of-Way	30 days before right-of-way preparation or construction
6.	4.6.1	Notice of completion and date of placement in service	Three days prior to energizing
7.	4.6	Provide As-built and GPS information (ArcGIS files or similar)	Within 60 days of construction
8.	5.1	Avian Mitigation Plan	Submit with Plan and Profile

¹ This compilation of permit compliance filings is provided for the convenience of the Permittee and the Commission. However, it is not a substitute for the permit; the language of the permit controls.