

**Big Stone South to Alexandria Transmission Line Project**  
**Facility Permit Application**  
Submitted to the South Dakota Public Utilities Commission

Otter Tail Power Company &  
Western Minnesota Municipal Power Agency, through its agent Missouri  
River Energy Services  
April 15, 2024



**Big Stone South  
to Alexandria**

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## List of Acronyms and Abbreviations

AM	Amplitude Modulated
APLIC	Avian Power Line Interaction Committee
ARSD	Administrative Rules of South Dakota
BCC	Birds of Conservation Concern
BIA	Bureau of Indian Affairs
BMP	Best Management Practice
BSSA Project Commission	Big Stone South to Alexandria Transmission Line Project Public Utilities Commission of the State of South Dakota
CRP	Conservation Reserve Program
CUP	Conditional Use Permit
dB	Decibel
dBA	A-weighted decibel
ELF	Extremely Low Frequency
EMF	Electric and Magnetic Fields
ESA	Endangered Species Act of 1973
FAA	Federal Aviation Administration.
FCC	Federal Communications Commission
FM	Frequency Modulated
GIS	Geographic Information System
GLO	General Land Office
GPA	Game Production Area
GPS	Global Positioning System
GW	Gigawatts
HUC	Hydrologic Unit Code
IPaC	Information for Planning and Consultation (USFWS)
kV	kiloVolt
kV/m	kiloVolt per meter
L RTP	Long Range Transmission Planning
mG	milliGauss
MHz	Megahertz
MISO	Midcontinent Independent System Operator, Inc.
MPUC	Minnesota Public Utilities Commission
MRES	Missouri River Energy Services
MTEP	MISO Transmission Expansion Plan
MTEP21	MISO Transmission Expansion Plan 2021
MW	Megawatts
NAAQS	National Ambient Air Quality Standards
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NGO	Non-Government Organization
NHD	National Hydrography Dataset
NHP	National Heritage Program
NLCD	National Land Cover Database
NLEB	Northern Long-Eared Bat
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	National Rivers Inventory

NWI	National Wetland Inventory
NWR	National Wildlife Refuge
OHGW	Overhead Ground Wire
OPGW	Optical Ground Wire
Otter Tail	Otter Tail Power Company
Project	The South Dakota portion of the BSSA Project
PUC	Public Utilities Commission
ROW	Right Of Way
SDCL	South Dakota Codified Laws
SDDANR	South Dakota Department of Agriculture & Natural Resources
SDDOT	South Dakota Department of Transportation
SDGFP	South Dakota Game, Fish, and Parks
SDGS	South Dakota Geological Survey
SDPUC	South Dakota Public Utilities Commission
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Office
SSURGO	Soil Survey Geographic Database
SWAP	State Wildlife Action Plan (South Dakota)
SWPPP	Storm Water Pollution Prevention Plan
TP	Twisted Pair
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Western Minnesota	Western Minnesota Municipal Power Agency
WMA	Wildlife Management Areas
WNS	White-Nose Syndrome
WPA	Waterfowl Production Area



# 1.0 Introduction

Otter Tail Power Company (Otter Tail) and Western Minnesota Municipal Power Agency (Western Minnesota), through its agent, Missouri River Energy Services (MRES) (collectively, Applicants) submit to the South Dakota Public Utilities Commission (Commission) this Application for a Facility Permit (Application) for the portion of the Big Stone South to Alexandria 345 kilovolt (kV) Transmission Line Project (BSSA Project) located within South Dakota (the Project).

The Project consists of an approximately 3.5-mile-long 345 kV transmission line between the existing Big Stone South Substation located west of Big Stone City to the South Dakota – Minnesota border at a location south of Big Stone City in Big Stone Township, as well as associated upgrades at the Big Stone South Substation. The Project will be located entirely within Grant County, South Dakota (Figure 1 of Appendix A). Project components are anticipated to include:

- Double-circuit transmission structures constructed on steel, single-pole (monopole) structures;
- Initial installation of a single-circuit, 345 kV transmission line and associated communication lines (referred to as an optical ground wire (OPGW), with a second 345 kV circuit and associated overhead ground wire (OHGW) added when conditions warrant;
- Expansion of the existing Big Stone South Substation and modifications to accommodate new breaker positions and additional reactive power equipment (all within Otter Tail-owned property); and
- Temporary laydown/staging areas, pulling/tensioning sites, and access roads.

The Project is part of the BSSA Project, which would consist of new 345 kV transmission facilities between the existing Big Stone South Substation near Big Stone City, South Dakota, and the existing Alexandria Substation near Alexandria, Minnesota. In turn, the BSSA Project will connect to the Alexandria to Riverview to Big Oaks Transmission Line Project (Alexandria to Big Oaks Project) proposed by the Applicants and three additional utilities (Xcel Energy, Great River Energy, and Minnesota Power). The Alexandria to Big Oaks Project will extend between Western Minnesota's existing Alexandria Substation to Great River Energy's existing Riverview Substation to a new substation called the Big Oaks Substation that will be owned by Xcel Energy and located near the Sherco Power Plant in Becker, Minnesota. These two projects, collectively referred to as the Big Stone South-Alexandria-Big Oaks Transmission Line Project (Big Stone South-Alexandria-Big Oaks Project) were approved by the Midcontinent Independent System Operator (MISO) (discussed further in Section 2.0 below) and will improve reliability, reduce transmission congestion, and increase access to low-cost energy in the region.

Otter Tail is an investor-owned electric utility company headquartered in Fergus Falls, Minnesota, that provides electricity and energy services to over 133,000 customers, spanning 70,000 square miles in western Minnesota, eastern North Dakota, and northeastern South Dakota. Otter Tail wholly or jointly owns approximately 6,000 miles of transmission lines and approximately 1,100 megawatts (MW) of generation capacity in these three states and is a transmission-owning member of MISO.

Western Minnesota is a municipal corporation and political subdivision of the State of Minnesota, headquartered in Ortonville, Minnesota. Western Minnesota owns generation and transmission facilities, the capacity and output of which are sold to MRES. MRES, which is headquartered in

Sioux Falls, South Dakota, provides electricity, including conservation program services, to its 61-member municipal utilities in Iowa, Minnesota, North Dakota, and South Dakota, who in turn serve approximately 174,000 customers. MRES is also a transmission owning member of MISO.

Otter Tail and MRES/Western Minnesota have extensive track records of developing large-scale high voltage transmission projects in the region.

The Applicants submit this Application for the Project to the Commission pursuant to South Dakota Codified Laws (SDCL) Chapter 49-41B and South Dakota Administrative Rules (ARSD) Chapter 20:10:22. Regarding Otter Tail's existing Big Stone South Substation, the Commission issued a permit authorizing construction of the substation in its Decision and Order Approving Stipulation and Granting Permit to Construct Transmission Facilities, dated January 16, 2007 (EL06-002). Additionally, on May 10, 2013, the Commission accepted a certification submitted pursuant to SDCL §49-41B-27 for the Big Stone South Substation in its Order Granting Withdrawal; Order Approving the Joint Motion for Approval of Stipulation; Order Granting Certification (EL12-063). In this Application, Applicants request approval to construct the above-referenced modifications to the existing Big Stone South Substation, including approval of modifications to the prior authorizations issued in Dockets EL06-002 and EL12-063, as needed.

## **2.0 BSSA Project overview**

As noted above, the Project is part of the BSSA Project, which will be jointly owned by Otter Tail and Western Minnesota. The BSSA Project, together with the proposed Alexandria to Big Oaks Project, make up the Big Stone South-Alexandria-Big Oaks Project. Collectively, the projects will enhance transmission grid reliability, reduce transmission congestion, increase grid resiliency, and increase access to low-cost energy.

Since the Project is a key component of larger system upgrades, the following sections provide a brief overview of the Big Stone South-Alexandria-Big Oaks Project segments in South Dakota and Minnesota, as well as the purpose and benefits of the proposed upgrades.

### **2.1 South Dakota segment (the Project)**

The Project originates at Otter Tail’s existing Big Stone South Substation, located approximately 2 miles west of Big Stone City, South Dakota. From that substation, the Project extends to the South Dakota – Minnesota border in Big Stone Township just south of Big Stone City in Grant County, South Dakota. The Project will include double-circuit transmission structures. Initially, a single 345 kV circuit will be installed, with the second 345 kV circuit added when conditions warrant. The Project will also include upgrades to the existing Big Stone South Substation, including expansion of the existing substation site and modifications to accommodate new breaker positions and additional reactive power equipment. The substation expansion will be on Otter Tail-owned property. Figure 1 of Appendix A is an overview map of the Project.

Construction of the Project is anticipated to commence in 2027 or 2028 and be completed in either 2030 or 2031.

### **2.2 Minnesota segments**

#### **2.2.1 BSSA Project**

In Minnesota, the BSSA Project will extend from the South Dakota – Minnesota border in Big Stone Township south of Ortonville to Western Minnesota’s existing Alexandria Substation near Alexandria, Minnesota. The Minnesota segment could traverse Big Stone, Swift, Stevens, Pope, and Douglas counties in Minnesota, depending on the final route. Construction of the Minnesota segment is also anticipated to commence in 2027 or 2028 and be completed in either 2030 or 2031. Otter Tail and Western Minnesota anticipate filing a route permit application with the Minnesota Public Utilities Commission (MPUC) in the fourth quarter of 2024 for the Minnesota portion of the BSSA Project. An overview map of the BSSA Project is shown in Figure 2 of Appendix A.

#### **2.2.2 Alexandria to Big Oaks Project**

The Alexandria to Big Oaks Project will extend between Western Minnesota’s existing Alexandria Substation to Great River Energy’s existing Riverview Substation near Freeport, Minnesota, and from there to a new Big Oaks Substation that will be owned by Xcel Energy and located near Becker, Minnesota. The Alexandria to Big Oaks Project could traverse Douglas, Todd, Stearns, Wright and Sherburne counties in Minnesota, depending on the final route. The Alexandria to Big Oaks Project will be jointly owned by Xcel Energy, Great River Energy, Minnesota Power, Otter Tail, and Western Minnesota. Construction may commence in 2025 and be completed by the end

of 2027. A route permit application was filed with the MPUC on September 29, 2023, for the Alexandria to Big Oaks Project.<sup>1</sup>

A certificate of need application for the Minnesota portion of the Big Stone South-Alexandria-Big Oaks Project (consisting of the Minnesota portion of the BSSA Project and the Alexandria to Big Oaks Project) was filed with the MPUC on September 29, 2023.<sup>2</sup>

## 2.3 Purpose and benefits

The proposed Project, which is part of the larger Big Stone South-Alexandria-Big Oaks Project, is needed to provide additional transmission capacity, increase access for new generation, improve electric system reliability, and reduce transmission congestion that will increase access to low-cost energy.

The Big Stone South-Alexandria-Big Oaks Project is one of 18 new transmission projects that comprise the Long Range Transmission Planning (LRTP) Tranche 1 Portfolio identified by MISO that will provide significant benefits to the Midwest subregion of the MISO footprint by facilitating more reliable, safe, and affordable energy delivery.<sup>3</sup> The project is a key part of the Tranche 1 Portfolio. Specifically, the project is designed to provide additional transmission capacity and address reliability issues on the existing 230 kV system in eastern North Dakota and South Dakota and western and central Minnesota. The 230 kV system is at its capacity, leading to a number of thermal and voltage issues and reliability concerns that could affect the transmission system's ability to effectively and efficiently serve customers' future demand and energy requirements. The project will help to resolve these issues by adding another 345 kV circuit to the system in this area. As part of its analysis, MISO concluded that the project, in combination with a new, 345 kV line between Jamestown and Ellendale, North Dakota, will relieve 40 transmission elements with excessive thermal loading and 97 locations with depressed voltages when one transmission element is out of service (N-1 contingency). Likewise, MISO concluded that the project, in combination with a new 345 kV line between Jamestown and Ellendale, North Dakota, will also relieve 70 transmission elements with excessive loading and 91 locations with depressed voltages when one or more transmission elements are out of service (N-1-1 contingency). In addition to providing reliability and resiliency benefits, the project also provides additional transmission capacity to accommodate additional future generation resources.

In addition to meeting system reliability needs, the Big Stone South-Alexandria-Big Oaks Project will also provide economic benefits to help offset its costs. MISO projects that the Tranche 1 Portfolio will provide \$23.2 billion to \$52.2 billion in net economic savings over the first 20 to 40 years (respectively) of the portfolio being in-service – a benefit to cost ratio range of 2.6 to 3.8 for the entire MISO Midwest subregion.

The Project is a key component of not only the overall Big Stone South-Alexandria-Big Oaks Project, but also the entire Tranche 1 Portfolio approved by MISO. As such, the Project is essential

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<sup>1</sup> *In the Matter of the Application for a Route Permit for a High Voltage Transmission Line for the Alexandria to Big Oaks 345 kV Transmission Project in Central Minnesota*, MPUC Docket No. TL-23-159.

<sup>2</sup> *In the Matter of the Application for a Certificate of Need for the Big Stone South – Alexandria – Big Oaks 345 kV Transmission Project*, MPUC Docket No. CN-22-538.

<sup>3</sup> MISO, MTEP21 Report Addendum: Long Range Transmission Planning Tranche 1 Portfolio Report, available at <https://cdn.misoenergy.org/MTEP21%20Addendum-LRTP%20Tranche%201%20Report%20with%20Executive%20Summary625790.pdf>.

to obtaining the benefits outlined above. Additional discussion of the need for the Project is provided in Section 7.0.

## 3.0 Project development summary

### 3.1 Public, agency, and Tribal outreach

The Applicants have coordinated with various stakeholders including landowners, local community members, local officials, Tribes, and federal, state, and local agencies, regarding the Project. Appendix C includes agency and stakeholder correspondence for the Project to date. The following paragraphs briefly summarize the Project development history and agency, community, and stakeholder outreach to date:

- In February 2023, the Applicants began the public outreach process by collecting Geographic Information System (GIS) data from local, state, and federal agencies to help understand routing constraints and opportunities in the Study Area (Figure 3 of Appendix A)<sup>4</sup> in South Dakota.
- On April 21, 2023, the Applicants emailed 30 Tribes requesting comments on the BSSA Project, which includes the Project.
- The Applicants hosted an in-person, public open house on April 27, 2023, at the Ortonville Community Center across the South Dakota border in Minnesota. The Applicants introduced the Project Study Area, answered questions, and collected early input from landowners and stakeholders.
- On May 16, 2023, the Applicants gave a presentation to the Grant County Board of Commissioners regarding the Project and the routing process.
- On June 27, 2023, the Applicants met with representatives of the Sisseton – Wahpeton Oyate Tribe to discuss the Project and potential Tribal involvement.
- The Applicants used the collected GIS data and input from landowners and other stakeholders to create potential corridors.
- The Applicants introduced the corridors to landowners and other stakeholders at two open houses in October 2023; one on October 16, 2023, at the Milbank Visitors Center in Milbank, South Dakota, and another on October 24, 2023, at the Ortonville Community Center. At each open house, the Applicants provided updated information on the Project and collected feedback to identify further routing constraints and opportunities.
- The Applicants started securing rights of entry for Project survey activities.
- On October 26, 2023, the Applicants sent an email to the South Dakota Game, Fish, and Parks (SDGFP) and the South Dakota Department of Agriculture and Natural Resources (SDDANR) to introduce the Project. SDGFP responded on November 7, 2023, providing a link to its online environmental review tool.

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<sup>4</sup> The Study Area refers to the South Dakota portion of the initial area proposed for the BSSA Project in April 2023. The Study Area is bounded to the east by the South Dakota/Minnesota border and extends 6 miles to the west, encompassing approximately 43,340 acres.

- On November 10, 2023, the Applicants sent letters to various federal, state, and local agencies as well as stakeholders, providing a summary of the BSSA Project and requesting information pertaining to each agency for the siting analysis. The Applicants received responses from the South Dakota State Historic Preservation Office (SHPO) on November 13, 2023; the U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS) on November 28, 2023; and the U.S. Fish and Wildlife Service (USFWS) on November 29, 2023.
- On December 11, 2023, the Applicants had a phone call with the Bureau of Indian Affairs (BIA) Lake Traverse, followed up by information on landownership on the Lake Traverse Reservation and government lots.
- On December 19, 2023, the Applicants gave a presentation to the Grant County Board of Commissioners regarding Project updates.
- In December 2023, the Applicants mailed information packets on the Project to landowners in the Project Study Area. Packets included overview information, a description of the routing process, maps, and an opportunity to provide comments.
- The Applicants used the information and feedback to refine the proposed corridors to develop a single route corridor.
- On January 12, 2024, the Applicants sent notification letters to stakeholders, including state, federal, and local agencies, elected officials, Tribes, and non-governmental organizations (NGOs) regarding the open houses to be held in February 2024.
- On January 15, 2024, the Applicants received a SDGFP Environmental Review Report for the Project, noting that SDGFP did not identify any environmental conflicts related to the Project.
- On January 19, 2024, the Applicants received a letter from the SHPO with recommendations related to cultural resources.
- The Applicants hosted two additional open houses in February 2024; one on February 12, 2024, at the Ortonville Community Center and one on February 21, 2024, at the American Legion near Big Stone City. The open houses included information sharing and feedback from stakeholders and landowners near the route corridor. Following the February 2024 open houses, a final Route was selected (see Section 9.0 for more details on routing and siting).
- The Applicants secured 100 percent right of entry for survey activities along the proposed Route in February 2024.
- On February 28, 2024, SDGFP provided a letter regarding Project route selection and siting recommendations regarding wildlife and wildlife habitat.
- The Applicants submitted the Level III Cultural Resources Report to the SHPO for review on March 8, 2024, and received the SHPO's comments on April 2, 2024. The Applicants responded to the SHPO's comments on April 4, 2024.

- On March 26, 2024, the Applicants met with Big Stone Township regarding the Project’s road use and the anticipated road use and maintenance agreement.
- In March 2024, the Applicants consulted with SDGFP regarding the land SDGFP leases from Big Stone Power Plant to manage the SDGFP Game Production Area (GPA), a portion of which overlaps with the Project right-of-way (ROW).
- On March 27, 2024, the Applicants received a list of species that may occur in the vicinity of the Project from the SDGFP Natural Heritage Database.
- On March 28, 2024, the Applicants consulted with representatives of Grant County regarding the potential county permits that may be required for the Project.
- On April 2, 2024, the Applicants gave a presentation to the Grant County Board of Commissioners regarding Project updates.
- On April 3, 2024, the Applicants met with the USFWS to discuss the Applicants’ plans for species-specific surveys. USFWS agreed with the Applicants’ proposed plan for surveys and stated it has no concerns regarding the Project as proposed. The Applicants received a no effect determination using USFWS’s Determination Key for the Northern long-eared bat (NLEB) (*Myotis septentrionalis*).
- On April 4, 2024, the Applicants provided responses to SDGFP’s previous letters and recommendations.

The Project route selection process described in this Application was a multifaceted approach that included identifying and following state and federal requirements and an extensive public engagement campaign. Overall, few comments or concerns were received in relation to the Project. The Applicants considered the information provided in developing the proposed Route that is included in this Application.

### 3.2 Environmental analysis

The environmental and resource studies and field surveys conducted (or ongoing/planned) for the Project are summarized in Table 3-1. The associated study reports, if available, are included in Appendix D and Appendix E, respectively.

**Table 3-1. Summary of studies/surveys**

Resource Study	Date Conducted	Summary of Finding / Status
Aquatic Resource Delineation	October 10-12, 2023	The Aquatic Resources Delineation Report identified 12 wetlands and nine stream segments consisting of the Whetstone River, its tributaries, or side channel/oxbow features within the Survey Area. Additional aquatic resource delineations will be completed as needed, prior to construction. See Appendix D for additional information.



Resource Study	Date Conducted	Summary of Finding / Status
Level I Cultural Resources Records Search	November 1, 2023	<p>The Level I records search identified 25 previous cultural resources surveys that have been conducted within 1 mile of the Cultural Resources Study Area. Seven of the previous surveys overlap the Cultural Resources Study Area. The search also identified 105 previously recorded cultural resources within 1 mile of the Cultural Resources Study Area. Three previously recorded cultural resources were identified within the Cultural Resources Study Area. See Section 21.5.1.2 for additional information.</p> <p>The Level I Cultural Resources Records Search is complete.</p>
Level III Cultural Resource Survey	November 14, 2023 February 7, 2024 April 9-11, 2024	<p>The initial Level III surveys in November 2023 and February 2024 identified one previously recorded site within the Cultural Resources Study Area, as defined in Appendix E, and recorded two contributing segments of the site, the former Milwaukee Road Railroad. See Section 21.5.1.3 for additional information.</p> <p>The Level III Cultural Resource Survey report was submitted to the SHPO for review on March 8, 2024. The SHPO provided comments on April 2, 2024, and Applicants responded on April 4, 2024.</p> <p>Additional cultural resource field surveys were completed in April 2024. A historic architectural resource reconnaissance survey was completed at the same time. An addendum Level III Cultural Resource Survey report will be prepared and submitted to the SHPO for review. See Section 21.5.1.4 for additional information.</p>
Tribal Cultural Resource Survey	<p>April 9, 2024 (Flandreau Santee Sioux Tribes of South Dakota)</p> <p>April 10, 2024 (Sisseton-Wahpeton Oyate of the Lake Traverse Reservation)</p>	<p>The Tribal Cultural Resource Surveys are planned for April 9 and 10, 2024. The Tribal Cultural Resource Survey reports will be drafted after the survey is complete and provided as addendums to the South Dakota Public Utilities Commission (SDPUC) Facility Permit, as the Tribes determine appropriate. See Section 21.5.1.5 for additional information.</p> <p>The Tribal Cultural Resource Survey is in progress.</p>

### 3.3 Project design

The results of the various coordination activities and studies listed above have been used to inform the Project design and route. The Project Route and structure locations are being designed to avoid or minimize impacts to environmental resources in the Flexibility Area during construction and operation. Final micro-siting of Project facilities will continue to occur until the design has been finalized. The following design criteria will be used to the extent practicable:

- Place structures in previously disturbed areas to avoid potential habitats associated with protected wildlife and plant species;
- Use previously disturbed lands, including existing roads, where practical, to minimize wildlife habitat fragmentation;
- Structures will be placed outside of the SDGFP GPA to minimize any impacts to waterfowl and grassland associated birds;
- Avoid or minimize disturbance to wetlands during Project construction; where impacts are unavoidable, comply with applicable requirements of the U.S. Army Corps of Engineers (USACE) Nationwide Permitting Program;
- Avoid disturbance to potentially undisturbed grasslands in the vicinity of the Project during Project construction;
- Avoid placing structures within or immediately adjacent to surface water features, and minimize potential impacts to floodplains in accordance with Grant County floodplain development permitting requirements;
- Consult with appropriate resource agencies to avoid or minimize potential impacts to sensitive species within the vicinity of the Project.

As discussed in more detail in the sections that follow, the remaining study work is not anticipated to affect the environmental analysis set forth in this Application, nor would it prevent the Project from meeting all applicable local, state, and federal permitting requirements.

### **3.4 Land acquisition**

A 150-foot-wide easement (ROW) will be needed for the Project to cross private property and will require coordination with entities and agencies where the ROW crosses or shares a right-of-way with other public utilities, public roads, and the railroad. The Applicants contacted landowners beginning in September 2023 to request right of entry for surveys. All landowners along the proposed Route granted right of entry. Beginning in March 2024, the Applicants began contacting landowners to discuss obtaining easements for the proposed Route, and that process is on-going. The Applicants will coordinate with landowners throughout Project development, construction, and operation.

### **3.5 County permitting**

The Project is located in two zoning districts in Grant County: the Agricultural District and the Commercial/Industrial District. Within each district, the Project is a conditional use requiring a conditional use permit (CUP). Applicants have been coordinating with the County regarding the CUP process and plan to submit a CUP application in April 2024. Closer to the time the Project begins construction, Applicants will also secure a building permit for the Project.

Additionally, if it is not possible for final structure placement to avoid floodplains, the Project may also require a floodplain development permit from Grant County. The Applicants have discussed the floodplain development permitting process with the Grant County Floodplain Administrator and will obtain floodplain development permits, as needed.

## 4.0 Facility permit application compliance

In accordance with SDCL Chapter 49-41B and ARSD Chapter 20:10:22, this Application provides information on the existing environment, potential Project impacts, and proposed avoidance, minimization, and/or mitigation measures for the following resources:

- Physical environment (geology, economic deposits, soils, seismic risks);
- Hydrology (surface water, groundwater, and wetlands);
- Terrestrial ecosystems (vegetation, wildlife, threatened and endangered species);
- Aquatic ecosystems;
- Land use (agriculture, residential, displacement, sound, aesthetics, electromagnetic interference, safety and health, real estate values);
- Water quality;
- Air quality; and
- Communities (socioeconomics, transportation and emergency response, cultural resources).

Based on the analysis completed by the Applicants, the Project is not expected to have significant impacts on the environment. A summary of potential impacts and avoidance/minimization/mitigation measures is presented in Section 22.0.

In this Application, the Applicants have addressed each matter set forth in SDCL Chapter 49-41B and in ARSD Chapter 20:10:22 (Energy Facility Siting Rules) related to transmission facilities. Included with this Application is a Completeness Checklist that sets forth where in the Application each rule requirement is addressed (Appendix B).

Pursuant to SDCL §49-41B-22, the information presented here establishes that:

- The proposed facility will comply with all applicable laws and rules;
- The facility will not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area. An applicant for an electric transmission line that holds a conditional use permit from the applicable local units of government is determined not to threaten the social and economic condition of inhabitants or expected inhabitants in the siting area;
- The facility will not substantially impair the health, safety, or welfare of the inhabitants; and
- The facility will not unduly interfere with the orderly development of the region with due consideration having been given to the views of governing bodies of affected local units of

government. An applicant for an electric transmission line that holds a conditional use permit from the applicable local units of government is in compliance with this subdivision.

Additionally, as noted above, the Applicants plan to submit a CUP application to Grant County in April 2024 and will provide the Commission with a copy of the CUP issued for the Project as evidence of compliance with SDCL §§49-41B-22(2) and (4).

## 5.0 Names of participants (ARSD 20:10:22:06)

The Applicants' full names, business address, and business telephone number are shown below:

### **Otter Tail Power Company**

215 South Cascade Street  
Fergus Falls, MN 56537  
(218) 739-8200

### **Western Minnesota Municipal Power Agency**

129 2nd Street NW  
Ortonville, MN 56278  
(320) 839-2549

The individuals authorized to receive communications relating to this Application on behalf of Otter Tail and Western Minnesota are shown below:

### **Otter Tail**

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## **6.0 Names of owner and manager (ARSD 20:10:22:07)**

Otter Tail and Western Minnesota will co-own and operate the Project, except that the equipment and improvements required inside the Big Stone South Substation will be owned solely by Otter Tail. Otter Tail is the Project Manager and will be responsible for the construction, operation, maintenance, and management of the Project.

## **7.0 Purpose of and demand for transmission facility (ARSD 20:10:22:08; 20:10:22:10)**

As discussed in Section 2.3, the Big Stone South-Alexandria-Big Oaks Project, which includes the Project, is a key part of the Tranche 1 Portfolio identified by MISO to provide additional transmission capacity and address reliability issues on the existing 230 kV system in eastern South Dakota, eastern North Dakota, and western and central Minnesota. By adding another 345 kV circuit to the existing transmission system in this area, the Project will help to resolve the thermal and voltage issues and reliability concerns on the existing 230 kV system. The Project will also provide additional transmission capacity to accommodate future generation resources, economic benefits estimated to more than offset its costs, and a variety of local benefits (as discussed in Section 21.1.2).

The Applicants have actively participated in MISO's LRTP study and support the conclusions that led to the identification of the Tranche 1 Portfolio.

### **7.1 Demand for transmission facility**

MISO has a responsibility, established by the Federal Energy Regulatory Commission, to study the transmission system within its footprint to identify necessary transmission projects to address reliability issues and relieve anticipated system congestion. This study is performed on an annual basis through what is called the MISO Transmission Expansion Plan (MTEP) cycle. As part of the MTEP cycle, MISO and its stakeholders engage in a robust process to develop a range of forward-looking scenarios, or Futures. These Futures, which include various assumptions intended to forecast multiple paths and timelines for states and utilities to meet their energy goals, are then used to assess the transmission system and identify transmission needed to meet the required demand and deliver the necessary energy reliably and efficiently from generation resources to customers.

As part of the 2021 MTEP cycle (MTEP21), three Futures were developed by MISO that incorporated varying assumptions about utility and state goals, generation resource retirements, distributed energy resources adoption, and electrification, among other factors. Under Future 1, the "least transformational" Future (in other words, it was the most conservative in terms of generation resource addition), 90 gigawatts (GW) of resource additions were assumed. MISO based its LRTP study on Future 1, as any benefits of new transmission lines that are demonstrated under the Future 1 assumptions can be assumed to increase under Future 2 and Future 3 because they assume higher levels of transformational changes in terms of both generation and load assumptions as compared to Future 1. These Futures were considered in MISO's LRTP study.

The LRTP study is a multi-year, multi-phase study to identify a regional transmission "backbone" to cost-effectively maintain reliability, reduce system congestion, and serve future needs. MISO evaluated the LRTP in accordance with MISO's federally approved tariff. The Project was identified as one part of a broader regional portfolio of transmission projects needed to maintain reliability and reduce congestion in the most cost-effective manner in the Midwest region. In July 2022, MISO approved the first phase or "tranche" from the LRTP study – the Tranche 1 Portfolio. The Tranche 1 Portfolio consists of 18 transmission projects (including the Project) involving approximately 2,000 miles of new and upgraded high voltage transmission equaling approximately \$10 billion in investment. The Tranche 1 Portfolio represents a set of transmission

projects that will help ensure a reliable, resilient, and cost-effective transmission system for the Midwest subregion by 2030 and beyond.

The Tranche 1 Portfolio is needed to ensure the MISO transmission grid can continue to reliably deliver energy from future generation resources to load under a range of projected system conditions associated with the Future 1 scenario in the 10-year and 20-year time horizon. While the Tranche 1 Portfolio was developed as a collection of 18 projects that are designed to work together, each project was also individually studied and justified by MISO. As discussed in Section 2.3, the Project, as part of the larger Big Stone South-Alexandria-Big Oaks Project, is needed to resolve regional reliability issues on the existing 230 kV system in eastern South Dakota, eastern North Dakota, and western and central Minnesota.

While the Tranche 1 Portfolio was designed by MISO to primarily address reliability issues, MISO also optimized it to provide economic benefits to help offset the capital costs of the portfolio. MISO projects that the Tranche 1 Portfolio will provide \$23.2 billion to \$52.2 billion in net economic savings over the first 20 to 40 years (respectively) of the portfolio being in-service – a benefit to cost ratio range of 2.6 to 3.8 for the entire MISO Midwest subregion. This means MISO projects in the Tranche 1 Portfolio will more than pay for themselves in less than 20 years of service. MISO used six different metrics to calculate the projected economic savings of the portfolio: (1) congestion and fuel savings, (2) avoided capital cost of local resource investment, (3) avoided transmission investment, (4) resource adequacy savings, (5) avoided risk of load shedding, and (6) reduced carbon emissions.

As an additional indicator of the regional need for additional transmission, in 2022, the MISO Generator Interconnection Queue set another record with 956 requests representing approximately 171 GW of proposed new generation across the MISO footprint seeking to interconnect to the MISO transmission grid. As outlined above, this Project, which is a component of the Tranche 1 Portfolio, is needed to address reliability and congestion issues in the region.

### **7.1.1 Consequence of delay**

The Project is an essential element of the Big Stone South-Alexandria-Big Oaks Project, which, in turn, is a key part of the Tranche 1 Portfolio. If the Project is delayed, the benefits of it and the Big Stone South-Alexandria-Big Oaks Project are also delayed. These benefits include additional transmission capacity, increased access for new generation, improved electric system reliability, reduced transmission congestion, and significant economic savings in addition to the short-term economic benefits from the construction of the Project.



## **8.0 Estimated cost of facility (ARSD 20:10:22:09)**

The estimated total capital costs for the Project are between \$29.7 million and \$41.4 million. This includes: (1) the modifications to the Big Stone South Substation, which are estimated between \$14.2 million to \$23.6 million; and (2) costs associated with the construction of the Project's approximately 3.5-mile long, 345-kV transmission line in South Dakota, which are estimated to be between \$15.5 million and \$17.8 million. Estimated costs are based on the proposed Route and preliminary engineering and are subject to change based on the final Project design.

The cost estimates for the transmission line portions of the Project are based on Applicants' experience and the actual costs incurred for constructing prior similar transmission projects. The Applicants then updated this data based on market conditions and included a risk reserve for unknown variables such as unfavorable weather conditions, additional environmental or cultural mitigation measures, and material/contractor pricing.

To estimate substation construction costs, the Applicants identified the necessary components, then estimated land, material, construction, design, and permitting costs based on cost estimates for these items from prior substation improvement projects.

## 9.0 General site and project components description (ARSD 20:10:22:11; 20:10:22:34; 20:10:22:35)

### 9.1 Site location and overview

The Project is located entirely within Grant County, South Dakota. To the north of the Project is the Big Stone Power Plant, and Big Stone City, South Dakota, is located approximately 1 mile north/northeast. Figure 1 of Appendix A displays the Project from the Minnesota/South Dakota border to the Big Stone South Substation. A detailed map of the Project showing Project components is provided in the Figure 4 series of Appendix A. Applicants have identified a preliminary centerline for the Project’s 345 kV transmission line (Route) and are in the process of obtaining voluntary easements for an approximately 150-foot-wide area centered on the Route (ROW). Table 9-1 below provides the location of the Project Route and ROW using township, range, and section numbers. Modification to the Project may occur following the filing of this Application as a result of final engineering, permitting, and/or land rights.

**Table 9-1. Proposed location of the Project ROW and Route**

Township Name	Township	Range	Sections
Big Stone	121N	46W	18, 19, and 20
		47W	24 and 13

### 9.2 Siting flexibility

The Figure 4 series of Appendix A depicts an area within which Applicants request the ability to make adjustments to the ROW and/or structure locations (Flexibility Area). More specifically, Applicants propose the following conditions:

With respect to the Project, Applicants may adjust the 150-foot-wide ROW and the structure locations within the ROW so long as: (a) both remain within the corridor field-surveyed for both cultural resources and wetlands, the “Flexibility Area” shown on the Figure 4 series of Appendix A; (b) impacts to cultural resources are avoided or mitigated in consultation with the SHPO; (c) wetland impacts are avoided or are in compliance with applicable USACE regulations; (d) the ROW and structures will not be located in potentially undisturbed grasslands (as depicted in Figure 12 and Figure 15 of Appendix A); and (e) all other applicable regulations and requirements are met.

Any adjustments that do not meet the above-stated limitations are considered a “material change.” If a “material change” is proposed, Applicants shall file a request for approval of the “material change” prior to making the adjustment pursuant to the following approval process:

- Applicants will file with the Commission and serve on the official Service List a request for approval of a material change that includes:
  - An affidavit describing the proposed adjustment(s), the reason for the adjustment(s), the reason the adjustment(s) do(es) not comply with one or

more flexibility limitations set forth above, and information regarding compliance with all other applicable requirements; and

- A map showing the approved location of the 150-foot-wide ROW and structure locations and the proposed adjusted locations (in different colors).
- Once received, the information would be reviewed by Commission staff, and Commission staff will have 10 calendar days within which to request further Commission review.
- If no further review is requested, Applicants may proceed with the adjustment.
- If further review is requested, the Commission will issue a decision regarding Applicants' request at its next available regularly scheduled Commission meeting, subject to notice requirements.

Wetland delineations and mapping and cultural resource field surveys have been completed within the Flexibility Area.

## **9.3 Transmission facility**

### **9.3.1 Transmission ROW**

The ROW for the Project will be 150 feet wide. The transmission structures will be centered within the ROW. The Project's approximately 3.5-mile-long Route will extend from the existing Big Stone South Substation located in Section 24, Township 121, Range 47, and continue east approximately 0.9 mile, then south approximately 0.9 mile, then east approximately 1.7 miles to the Minnesota/South Dakota border. Figure 1 and the Figure 4 series of Appendix A display the proposed Route and ROW for the Project. In addition to the permanent ROW, additional temporary workspace will be needed in certain locations during construction. The Project ROW crosses 25 parcels of land, five of which are owned or co-owned by Otter Tail.

### **9.3.2 Configuration of structures and conductors**

The transmission line design selected for the Project will be a double-circuit 345 kV transmission facility that is anticipated to be constructed on steel-monopole structures. Initially, a single-circuit 345 kV transmission line and associated communication lines, referred to as OPGW, will be installed, with a second 345 kV circuit and associated OHGW to be installed in the future when conditions warrant. Each circuit of the line will consist of three-phase conductors hung vertically from insulators attached to davit arms on each side of the monopole structure. Each phase will have a total of two conductor bundles with 18-inch, vertical spacing. An example of the structure configuration is provided in Figure 5 of Appendix A.

The phase conductors are expected to be twisted pair (TP), 636 ACSR "Grosbeak." TP conductors consist of two conductors placed side by side and twisted at a predefined distance by the manufacturer. This type of conductor provides motion resistance to wind-induced events on transmission lines (e.g., conductor galloping or vibration). Each phase will consist of two of these TP conductors to provide optimal current carrying capacity at 345 kV.

The associated communication lines proposed for the Project with the initial installation of the single circuit are expected to be OPGW. OPGW is a fiber optic cable with a designated set of fibers surrounded by steel wires that serve a dual purpose at the top of each structure: (1) to protect the phases from lightning strikes; and (2) to exchange information (i.e. communicate) between the endpoint substations and other locations on the transmission system.

The Project is expected to require up to 27 transmission structures with spans ranging from 400 to 1,300 feet, but this may vary depending on geological, environmental, or engineering constraints identified during micro-siting. Configuration details are provided in Table 9-2. The structures will be bolted to concrete, drilled, pier foundations embedded in the ground. Foundation sizes vary generally from 7 to 14 feet in diameter and from 25 to 60 feet in depth. Specialty structures such as H-frame or three-pole structures may be used where unique features are encountered along the Route, such as crossing other transmission lines.

**Table 9-2. Project configuration summary**

Type	Material	ROW Width	Approx. Height	Approx. Structure Base Diameter	Approx. Foundation Diameter	Typical Span
Monopole Structure w/ Davit Arms	Corten Steel	150 feet	120–180 feet	5–10 feet	7–14 feet	400–1,300 feet

### 9.3.3 Substation upgrades

The Project will include an expansion of the existing Big Stone South Substation and modifications to the substation to accommodate new breaker positions and additional reactive power equipment (all within Otter Tail-owned property). The existing ring bus configuration will be modified to a breaker-and-a-half configuration by adding one additional row to the 345 kV portion of the substation. The new row will allow for new breaker positions added for the BSSA Project and additional reactive power equipment. The current fenced area of the Big Stone South Substation will be expanded on Otter Tail-owned property to accommodate this new substation equipment (see Figure 5 of Appendix A).

### 9.3.4 Temporary use areas

The transmission line construction process will include the following temporary use areas that will be restored following construction, unless the landowner requests for them to remain after construction is complete:

- Pulling/tensioning sites will be required to facilitate conductor installation. These sites require a flattened area approximately 200 feet x 700 feet. It is expected there will be up to 13 of these locations required for the Project.
- Temporary access to the structures will be required to enable foundation installation, structure assembly and erection, conductor and OPGW or OHGW installation. This access will consist of 30-foot-wide, temporary roads extending from existing roads to the structure sites. Temporary access roads may be bladed, if needed, to provide a level area. To prevent rutting, and as otherwise determined necessary by the contractor, temporary mats will be installed to facilitate equipment travel to the structure sites.
- Each structure site will require an approximately 150-foot x 200-foot, temporary workspace to facilitate foundation construction, structure assembly, and erection.

- An approximately 3-acre, temporary material site may be needed to store materials.

The final locations of these temporary use areas are dependent upon final micro-siting of structure locations. Applicants commit to the following with respect to the temporary use areas: (a) all necessary land rights will be secured; (b) cultural resource field surveys and wetland delineations will be conducted, if not in an area previously surveyed; (c) cultural resource impacts will be avoided or mitigated in consultation with the SHPO; (d) wetland impacts will be avoided or will be in compliance with applicable USACE regulations; (e) potentially undisturbed grasslands (as depicted in Figure 12 and Figure 15 of Appendix A) will be avoided; and (f) all other applicable regulations and requirements will be met.

## **9.4 Construction and operations**

### **9.4.1 ROW clearing**

During the land rights process, individual property owners will be advised as to the construction schedule, needed access to the Project ROW, and any vegetation clearing required for the Project. To maintain compliance with North American Electric Reliability Corporation (NERC) reliability standards, the Project ROW will be cleared of vegetation as necessary to construct, operate, and maintain the Project. Clear cutting (the removal of all trees, brush, and other low-growing vegetation) will occur within the Project ROW, along temporary construction access roads, and at structure erection sites. Trees that could present a danger to the safe operation of the Project will also be removed or pruned to ensure safety and maximize reliability, including trees outside of the Project ROW that could hit the transmission line should they fall. Disposal of timber, treetops, limbs, and slash will comply with state and local ordinances. Wood from the clearing operation will be offered to the landowner or removed from the site.

### **9.4.2 Transmission construction procedures**

Construction will begin after necessary federal, state, and local approvals are obtained and land rights are acquired for the areas where construction will take place. Construction timing will depend on permit conditions, environmental timing restrictions, material deliveries, weather conditions, and available workforce. If temporary removal or relocation of fences is necessary, installation of temporary or permanent gates will be coordinated with the landowner. The Applicants will work with landowners to minimize disruptions during construction to the extent possible.

Transmission line structure sites are typically selected in areas that would require minimal grading. Therefore, structure sites with slopes of 10 percent or less would typically not be graded or leveled, unless it is necessary to provide a reasonably level area for construction access and activities. At sites with more than 10 percent slope, working areas may require grading or fill to develop a suitable work area. Following construction, the site would be graded as close as possible to its original condition; all imported fill, including temporary culverts and road approaches, would be removed from the site; and disturbed areas would be returned to pre-disturbance conditions to the extent possible.

Typical construction equipment consists of tree removal equipment, mowers, cranes, backhoes, digger-derrick line trucks, track-mounted drill rigs, dump trucks, front end loaders, bucket trucks, bulldozers, flatbed trucks, pickup trucks, concrete trucks, helicopters, and various construction trailers. Many types of excavation equipment are set on wheel or track-driven vehicles. Structures are transported on tractor-trailer trucks, usually in three sections before they are assembled at each structure location.

The Applicants employ standard construction and mitigation practices that have been developed from experience as well as using industry-specific Best Management Practices (BMPs).

For the concrete foundations, concrete will be delivered to the structure site with a concrete truck. Foundations are typically allowed to cure for approximately three weeks prior to erecting the structures. Soil spoils will be hauled offsite to an approved area. A Storm Water Pollution Prevention Plan (SWPPP) would be prepared to identify potential sources of stormwater pollution and specify BMPs to control erosion and sedimentation and minimize negative impacts caused by stormwater discharges from the Project (see Section 12.2.2).

From the construction staging areas, the steel structures and associated components are transported to the structure assembly areas by truck. The structure assembly areas are typically located within the Project ROW immediately adjacent to the structure site. At each structure assembly area, the steel structure sections are assembled, the davit arms are attached, and insulators and other hardware are attached while the steel structure is on the ground. The fully assembled structure is then set on top of the concrete foundation by use of a crane. Sufficient rights to use temporary laydown areas that are outside of the Project ROW that are needed for construction will be secured from affected landowners through lease and/or easement agreements.

After the structures have been erected, conductors are installed by establishing pulling/tensioning setup areas. Conductor stringing operations require access to each structure to secure the conductor to the insulators or OPGW or shield wire clamps to OPGW or OHGW once final sag is established. Temporary guard or clearance structures are installed as needed over existing distribution or communication lines, roads and highways, railways, or other obstructions to ensure that construction operations do not obstruct traffic, prevent the conductors from contacting existing energized conductors or other cables, and ensure public safety.

### **9.4.3 BMPs during construction**

The Applicants employ standard construction and mitigation practices that have been developed from experience with past projects as well as industry-specific BMPs. These BMPs address ROW clearing, erecting transmission line structures, stringing transmission lines, and minimizing environmental impacts. BMPs for each specific construction task are based on permit requirements, environmental constraints, terrain and land use characteristics, maintenance guidelines, inspection procedures, and other practices. Resource-specific avoidance, minimization, and mitigation measures and BMPs are discussed further in Sections 12 to 21 and summarized in Section 22. A noxious weed control plan will be developed to identify and establish the procedures to limit the introduction and spread of noxious and invasive weeds during construction and ongoing operations.

### **9.4.4 Restoration procedures**

During construction, ground disturbance at the structure sites and structure assembly areas will occur. Following the completion of construction, disturbed areas, including staging areas, structure assembly areas, and pulling/tensioning areas will be restored according to the agreement negotiated with the landowner and applicable permitting requirements.

All construction materials and debris will be removed from the site once construction is complete. Post-construction reclamation activities also include dismantling all temporary facilities (including staging areas), employing appropriate erosion control measures, and reseeding areas disturbed by construction activities unless otherwise directed by the landowner. The Applicants

will use a seed mix that is recommended by the NRCS or USFWS unless otherwise agreed to with the landowner. The USFWS recommends use of milkweed in the seed mix in non-agricultural areas if the landowner agrees. The Applicants will work to ensure that restoration activities are completed in accordance with easement agreements and applicable permitting requirements. As discussed further in Section 21.4, the Applicants have met with Big Stone Township to discuss road use and will continue that coordination. The Applicants will also coordinate with Grant County regarding road use. The Applicants will coordinate with applicable road authorities regarding the use and restoration of local roads, as needed.

#### **9.4.5 Maintenance procedures**

Once the Project is operational, access to the Project ROW is required periodically to perform inspections, conduct maintenance, and repair damage. Regular maintenance and inspections will be performed during the life of the Project to ensure it continues to provide safe and reliable performance. The Applicants will perform maintenance of the Project in compliance with the applicable reliability standards established by the North American Electric Reliability Corporation (NERC). Generally, the Applicants inspect the transmission lines at least once per year. Inspections are typically limited to the immediate Project ROW and pre-determined access points. If concerns or problems are found during inspections, repairs will be performed and the landowners and agencies will be notified, as needed.

The Project ROW will be managed to remove trees and vegetation that interfere with the safe and reliable operation of the transmission line. ROW clearing practices include a combination of mechanical and hand clearing, and may include application of herbicides, where allowed, to remove or control vegetation and weed growth. A noxious weed control plan will be developed to identify and establish the procedures to limit the introduction and spread of noxious and invasive weeds during construction and ongoing operations.

The Big Stone South Substation would be visually inspected monthly to verify that the physical equipment and fence have not been damaged, the gravel is free of weeds and washouts, and the premises is free from trash. Equipment testing would also be done in accordance with the NERC reliability standards. If any damage or concerns are identified during inspections or testing, repairs or equipment replacements will be performed, as needed.

## **10.0 Alternative sites and siting criteria (ARSD 20:10:22:12)**

The following sections discuss the Project site/Route selection process, including the alternatives considered, and summarize the siting/routing criteria applied.

### **10.1 General Project location and Route selection**

As discussed above, the Project was identified as part of the Big Stone South-Alexandria-Big Oaks Project, which is one of the Tranche 1 Portfolio projects identified by MISO as needed to enhance transmission grid reliability, reduce transmission congestion, increase grid resiliency, and to provide increased access to low-cost energy.

In February 2023, the Applicants began evaluating transmission line routing options in an area around Otter Tail's existing Big Stone South Substation and extending east across the South Dakota-Minnesota border. The Applicants began their analysis by collecting GIS data from local, state, and federal agencies for this Study Area. The Applicants also identified routing constraints, which included airports, population centers, Big Stone National Wildlife Refuge, the Minnesota River, and Wildlife Management Areas (WMAs). Using this information, the Applicants developed potential routing corridors within the Study Area, which typically followed public roadways, section or quarter section field lines, or existing transmission line corridors to minimize impacts to existing land uses and to allow for easier construction and long-term maintenance access. As more information was collected at public open house meetings and through landowner, stakeholder, and agency feedback, the potential routing corridors were narrowed down to one approximately 2-mile-wide corridor.

Within this narrower corridor, further analysis was conducted to identify a proposed route. This included conducting field surveys, including wetland/waterbody field delineations/mapping and Tribal/cultural/architectural resource surveys. Route selection required the Applicants to balance various factors such as: (1) avoiding engineering constraints (i.e., existing high voltage transmission lines and other infrastructure in and around Big Stone City); (2) utilizing engineering opportunities (i.e., following existing utility and road rights-of-way); (3) avoiding or minimizing impacts to environmental resources (e.g., cultural resources, waterbodies/wetlands, potentially undisturbed grassland, public lands); and (4) minimizing impacts to landowners and existing land use in order to maximize the potential to secure voluntary easements. The result is the currently proposed Route depicted on Figure 1 and the Figure 4 series of Appendix A.

As discussed throughout this Application, in addition to meeting the essential requirement of originating at the existing Big Stone South Substation and traveling east, the proposed Route is compatible with the existing land uses, which are primarily agricultural (e.g., crop production, pastureland, hay production). Additionally, the proposed Route minimizes overall line length, while avoiding and/or minimizing potential impacts to existing infrastructure and environmental resources. The Applicants have also been granted right of entry by all the landowners along the proposed Route and are currently in the process of securing easements for the Project.

Figure 6 of Appendix A depicts the parcels within and within one-half mile of the Flexibility Area, designated to receive notice of the application pursuant to SDCL §49-41B-5.2.



## 10.2 Route alternatives considered

While analyzing potential routes, the Applicants considered but rejected a route south of the Big Stone South Substation. The route south of the Big Stone South Substation was rejected to avoid:

- Big Stone National Wildlife Refuge;
- Lac Qui Parle WMA;
- South Dakota Board of Water and Soil Resources easements;
- native plant community habitats; and
- USFWS grassland easements.

The Applicants also considered whether it would be possible to identify a route to the north. However, given all of the constraints, the area north of the Big Stone South Substation was not feasible for routing. Those constraints include:

- urban and suburban communities near Big Stone City and Ortonville;
- the Ortonville Municipal Airport;
- a concentration of lakes including Big Stone Lake; and
- crossing a large reservoir that would not be feasible to span.

Potential routes to the north or south would also have increased the length of the proposed transmission line significantly, resulting in more construction disturbance and long-term land impacts.

## 10.3 Reliance on eminent domain

Applicants are in the process of securing ROW for the Project and currently do not anticipate needing to use eminent domain to acquire right-of-way for the Project.

## 11.0 Environmental information (ARSD 20:10:22:13)

The Project is located in an area with existing linear infrastructure including a BNSF railroad, U.S. Highway 12, and several local roads. The majority of the Project will be routed along existing transmission corridors (a 230 kV Northwestern Energy line, two 115 kV Great River Energy lines). The Big Stone Power Plant, a coal-fired electric generation facility, is located approximately 1 mile from the proposed Project. Approximately 1 mile to the north/northeast of the Project is Big Stone City, South Dakota, which consists of more densely developed residential, commercial, and industrial land use. Land use in the Flexibility Area, including along the Project ROW, is primarily agriculture.

Sections 12.0 through 21.0 provide further detail regarding the existing environment at the time of the submission of this Application, the potential changes to the existing environment from construction and operation of the Project, identification of the minimal amount of irreversible changes which are anticipated to remain beyond the operating lifetime of the Project, as well as the avoidance, minimization, and mitigation measures that have been or will be taken by the Applicants for the Project. Documentation of consultation with agencies regarding the Project is discussed in Section 3.1 and Appendix C.

A cumulative impacts analysis that accounts for the impacts of the proposed Project and energy conversion facilities that are operating or under construction is required (ARSD 20:10:22:13). The phrase “energy conversion facility” is defined as “any new facility, or facility expansion, designed for or capable of generation of one hundred megawatts or more of electricity, but does not include any wind or solar energy facilities” (SDCL §49-41b-2(6)). There are no operating energy conversion facilities, existing or under construction, or other major industrial facilities under regulation by the Commission within or adjacent to the Project. The closest energy conversion facility is the Big Stone Power Plant located approximately 1 mile north of the Big Stone South Substation and the Project. The Applicants are unaware of any other major industrial facilities under regulation by the Commission which may have an adverse effect on the environment as a result of their construction or operation in the siting area. Given the lack of energy conversion facilities in the vicinity of the Project, construction and operation of the Project would not result in cumulative effects on resources, as addressed in ARSD 20:10:22:13.

The maximum estimated temporary and permanent impacts for the Project are shown in Table 11-1. Permanent impacts are defined as the extent of the structure foundations. Temporary impacts are defined as all areas potentially subject to construction related disturbance, all of which will be revegetated following construction completion. The Applicants have presented potential temporary impacts within the Flexibility Area in the following sections. Activities within the existing Big Stone South Substation site are excluded from these impact calculations because the area is previously disturbed.

**Table 11-1. Summary of temporary and permanent Project impacts**

Project Component	Total Temporary Impacts (acres)	Total Permanent Impacts (acres)
Temporary Access Roads (30-foot width) <sup>1</sup>	10.9	0
Temporary Laydown/Staging Area (3 acres)	3.0	0
13 Pulling/Tensioning Sites (200 feet x 700 feet)	41.7	0

Project Component	Total Temporary Impacts (acres)	Total Permanent Impacts (acres)
ROW (150-foot width) (Total)		
27 Structure Foundations (Total)	18.6 <sup>2</sup>	0.09 <sup>3</sup>
Other Lands within ROW <sup>4</sup>	44.5	0
<b>Total<sup>5</sup></b>	119.4	0.09

<sup>1</sup>Calculated using a total length of 3 miles (15,840 feet) to account for new temporary access roads and the use of previously disturbed access roads. Impacts to existing roadways (0.25 mile) were not included.

<sup>2</sup>Temporary impacts associated with the temporary workspace for one structure (150 feet x 200 feet) is 0.7 acre per structure.

<sup>3</sup>Permanent impacts associated with the foundation (14-foot diameter) of one structure is 0.003 acre per structure.

<sup>4</sup>The total acreages of the ROW is 63.8 acres. Temporary impacts to other lands within the ROW were calculated by subtracting the permanent impacts and temporary workspace impacts from the total acreage within the ROW.

<sup>5</sup> Addends may not sum due to rounding.

## **12.0 Effect on physical environment and geological resources (ARSD 20:10:22:14)**

The following sections describe the existing physical environment in the vicinity of the Project, the potential effects of the proposed Project on the physical environment, and measures that have been or will be utilized to avoid, minimize, and/or mitigate potential impacts.

### **12.1 Geological resources**

#### **12.1.1 Existing geological resources**

##### **12.1.1.1 Description of regional landforms**

The Project traverses one physiographic region in northeast South Dakota; the Minnesota-Red River Lowland Physiographic Region (Johnson et al. 1995). A physiographic region consists of recurring landform patterns that reflect regional geology and weathering forces of past and present climates. The Minnesota-Red River Lowland Physiographic Region is a gently undulating, glacial drift prairie that lies at the base of the eastern escarpment of the Prairie Couteau in northeast South Dakota. The Des Moines lobe of Pleistocene glaciers advanced through this region into Minnesota and Iowa. The northwest corner of this region in South Dakota was the southern limit of glacial Lake Agassiz. The Red River of the North drains the northern reaches of the region, while streams in the south drain into the Minnesota River (Johnson et al. 1995).

The Minnesota-Red River Lowland Physiographic Region contains Big Stone Lake, which the Minnesota River flows out of continuing south. The Whetstone River flows east to northeast and outlets into the Minnesota River at the Big Stone Lake outlet area. Many tributaries flow through the region into the Whetstone River. Elevations along the Project range from approximately 925 feet above sea level near the Whetstone and Minnesota Rivers to approximately 1,150 feet above sea level to the western part of the Project. A topographic map of the Project is included in Figure 7 of Appendix A.

##### **12.1.1.2 Geological features and constraints**

The area in the vicinity of the Project ROW is underlain by the Greenhorn Formation, Milbank Granite, and Carlile Shale. The uppermost bedrock is the Greenhorn Formation, which has a thickness of up to 40 feet. This formation consists of gray shale, mudstone, calcarenite, and shaly limestone grading upward into light gray, alternating marl, and thin-bedded, fossiliferous limestone. The Milbank Granite is pink to dark-red, coarse-grained granite composed of orthoclase, quartz, and biotite. The Carlile Shale is dark gray to black, silty to sandy shale with several zones of septarian, fossiliferous, carbonate concretions. This shale contains up to three sandstone units in the upper portion of the formation and a sandy calcareous marl at the base with a thickness of up to 330 feet (Tomhave and Schulz 2004). Neither of these formations are significantly developed for groundwater supplies (SDDANR 2023). Ground moraine till is the surficial geology present along the proposed Route. The thickness varies from 300 feet for ground moraine till (Martin et al 2004).

Figure 8 and Figure 9 of Appendix A illustrate the bedrock and surficial geology in the vicinity of the Project; respectively. Bedrock and surficial geology cross sections are included as Figure 10 and Figure 11 of Appendix A; respectively. Alluvium and ground moraine till are mainly present.

The thickness varies from 75 feet in thickness for alluvium and 300 feet for ground moraine till (Martin et al. 2004).

### **12.1.1.3 Economic deposits**

Mining is present in the vicinity of the Project, including both active and reclaimed sites adjacent to the Big Stone South Substation and west of 484<sup>th</sup> Avenue.

Based on mapping by the SDDANR, a review of aerial photographs, and field observations, there are no gravel/sand pits within the Flexibility Area. Gravel/sand pits in the vicinity of the Project are depicted on Figure 12 of Appendix A.

Information from the SDDANR Minerals and Mining Program and the U.S. Geological Survey (USGS) indicates that the closest oil and gas well is located approximately 24 miles from the Project.

### **12.1.1.4 Seismic risks**

The risk of seismic activity near the Project is considered low. The 2023 National Seismic Hazard Model produced by USGS shows that the area in the Project vicinity have less than a 5 percent chance of a damaging earthquake shaking in the next 100 years (USGS 2024a). Faults, both active and inactive, have the potential to increase seismic risk. The Project is not located within the vicinity of any known faults (USGS 2024b). Information from the South Dakota Geological Survey (SDGS) for Grant County and adjacent counties was reviewed and only one seismic event was recorded since 1900. The seismic event happened in 1995 in Roberts County (SDGS 2023). There have been no recorded seismic events in Grant County since 1990.

### **12.1.1.5 Subsidence potential**

The risk for subsidence within and along the ROW is considered minimal. The Greenhorn Formation and Carlile Shale bedrocks do not show signs of karst topography and are not significantly developed for groundwater supplies, making both formations unlikely to be susceptible to dissolution by water (Martin et al. 2004). The Applicants are not aware of any current or historic underground mining operations within the Project vicinity which could increase the potential risk of subsidence. There are no gravel/sand pits within the Flexibility Area. Gravel/sand pits in the vicinity of the Project are depicted on Figure 12 of Appendix A.

The Applicants are not aware at this time of subsidence potential or slope instability problems associated with the Project.

## **12.1.2 Geological resource impacts and avoidance, minimization, and mitigation measures**

The characteristics of the geologic materials in the vicinity of the Project generally limit the risks of impacts from the Project. The Project has been routed to minimize impacts to landforms, geology, and economic deposits. Available geologic data indicate that the Project will not significantly affect soil conditions or bedrock geology. The geological conditions, including geologic formations, seismic risk, and subsidence potential, within the Project ROW are favorable and are not anticipated to control or impact construction or operation of the Project. Seismic activity is not anticipated to affect the performance of the transmission line structures. The placement of structure foundations in the ground will have a minor impact on the underlying geologic conditions. Except as described in this Application, the Applicants are not aware of any

additional constraints that may be imposed by geological characteristics on the design, construction, or operation of the Project. Additionally, prior to construction, geotechnical soil borings would be conducted at transmission line structure locations to determine the soil suitability to support the transmission line structure foundations. This information would help dictate the final design parameters of the structure foundations.

There are no gravel/sand pits or oil/gas wells within the Flexibility Area. Thus, construction and operation of the Project is not anticipated to impact mining operations or oil and gas resources, and no mitigation recommendations are necessary for impacts to these resources.

## 12.2 Soils

### 12.2.1 Existing soil resources

Soils in the vicinity of the Project ROW can be grouped by soil associations. An association is a group of individual soil series that occur together in a characteristic geographic pattern or distinctive pattern of soils, relief, and drainage. Each soil association is typically composed of one or more major soils and one or more minor soil components. Soil associations are defined by the NRCS.

Soil Survey Geographic Database (SSURGO) GIS data available from the NRCS were analyzed using ArcInfo license of ESRI® ArcMap™ 10.0 to determine the soil associations and series in the vicinity of the Project. The soil associations identified in the vicinity of the Project are shown on Figure 13 of Appendix A. The Applicants also identified the soil associations and series located within the Flexibility Area; sixteen soil associations were identified. Descriptions and acreages of the soil associations within the Flexibility Area are provided below in Table 12-1.

Erosion factor K indicates the susceptibility of soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation and the Revised Universal Soil Loss Equation to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on the percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the K value, the more susceptible the soil is to sheet and rill erosion by water. The soils (upper 12 inches) within the Flexibility Area have a K factor range from 0.17 to 0.37 and are, therefore, considered moderately susceptible to erosion (NRCS 2023).

A wind erodibility group consists of soils that have similar properties affecting their susceptibility to wind erosion. Soils assigned to Group 1 are the most susceptible to wind erosion and those assigned to Group 8 are the least susceptible. The soils within the Flexibility Area have limited susceptibility to wind erosion with groups ranging from 3 to 7 (NRCS 2023).

**Table 12-1. Soil associations within the Flexibility Area**

Soil Association	Soils within the Flexibility Area (acres)
Divide loam	12.9
Egeland sandy loam, 2 to 6 percent slopes	7.9
Estelline silty clay loam	21.2
Fordville-Renshaw loams, 2 to 6 percent slopes	0.1
Esmond-Sisseton-Heimdal, complex, 2 to 12 percent slopes, moderately eroded	29.0

Soil Association	Soils within the Flexibility Area (acres)
Heimdal-Svea loams, 0 to 2 percent slopes	3.7
Heimdal-Svea loams, 2 to 6 percent slopes	29.1
Parnell silty clay loam, occasionally ponded, 0 to 1 percent slopes	3.9
Poinsett- Waubay silty clay loams, 0 to 2 percent slopes	34.9
Renshaw loam, 0 to 2 percent slopes	11.0
Renshaw loam, 1 to 6 percent slopes	0.03
Sioux-Rensaw complex, 15 to 40 percent slopes	3.5
Sisseton-Esmond-Heimdal, complex, 6 to 20 percent slopes, moderately eroded	3.8
Svea loam, 1 to 3 percent slopes	1.2
Tonka silty clay loam, 0 to 1 percent slopes	4.2
Vallers-Tonka complex	5.0
<b>Total<sup>1</sup></b>	<b>171.5</b>

<sup>1</sup> Addends may not sum due to rounding.  
Source: NRCS 2023.

### 12.2.1.1 Prime farmland

NRCS farmland classifications include “prime farmland” (land that has the best combination of physical and chemical characteristics for the production of crops), “farmland of statewide importance” (land other than prime farmland that has a good combination of physical and chemical characteristics for the production of crops), and “not prime farmland” (land that does not meet qualifications for prime farmland), among other classifications. Prime farmlands are areas that have been determined by the South Dakota NRCS to have adequate pH, water supply, growing season length, and temperature for growing crops. Soils in prime farmlands are not excessively erodible or wet throughout the growing season. Soils that do not meet the criteria for “prime farmland” may be considered prime farmland if the limiting factor is mitigated (e.g., by draining or irrigating). Table 12-2 shows the acreage of farmland classifications within the Flexibility Area (NRCS 2023).

**Table 12-2. Prime farmland classifications within the Flexibility Area**

Prime farmland classification	Prime Farmland within Flexibility Area (acres)
Prime farmland	110.9
Farmland of statewide importance	29.0
Prime farmland if drained	9.1
Prime farmland if irrigated	11.2
Not prime farmland	11.2
<b>Total<sup>1</sup></b>	<b>171.5</b>

<sup>1</sup> Addends may not sum due to rounding.  
Source: NRCS 2023.

## 12.2.2 Soil resource impacts and avoidance, minimization, and mitigation measures

Construction of the Project would result in up to approximately 63.7 acres of temporary disturbance and approximately 0.09 acre of permanent disturbance to surface soils within the Flexibility Area. The Project will permanently impact approximately 0.08 acre of prime farmland/farmland of statewide importance. In a letter dated November 28, 2023, the USDA NRCS determined that the Project will have no impact on prime or important farmland under the Farmland Protection Policy Act. Therefore, Project impacts to prime farmland/farmland of statewide importance are *de minimis*.

Surface disturbance caused by construction of the transmission structures may result in the soil surface becoming more prone to erosion or compaction which can result from use of heavy equipment. Clearing, grading, trench excavation, and backfilling would occur during construction within the designated construction workspace, which may result in impacts on soil resources in these areas. Clearing includes the removal of cover, which exposes soil to the effects of wind and precipitation, which may increase the potential for soil erosion and movement of sediments into sensitive environmental areas. Heavy equipment and repeated traffic may compact soil, reducing porosity and percolation rates, which could result in increased runoff potential.

To reduce potential impacts to and from soils, the Applicants will develop and utilize BMPs during construction to protect topsoil and adjacent wetland resources and minimize soil erosion. Measures to reduce impacts to soils during construction may include the use of erosion and sediment control BMPs during construction and restoration, noxious weed control, segregating topsoil from subsurface materials, reseeding of disturbed areas based on agency recommendations or landowner requests, the use of construction equipment appropriately sized to the scope and scale of the Project, verifying access road grades fit closely with the natural terrain, proper onsite disposal of soil cuttings from foundation construction, and maintaining proper drainage. Soils disturbed during construction will be decompacted and/or restored to preconstruction contours to the extent practicable and in accordance with landowner agreements 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. Construction laydown areas and temporary travel paths will be restored per the landowner agreement.

As noted above, geotechnical soil borings would be conducted at transmission line structure locations before construction to determine the soil suitability to support the transmission line structure foundations. This information would help dictate the final design parameters of the structure foundations. Contamination from the release of fuels, lubricants, and coolants from construction equipment could also impact soils. These impacts are localized, temporary, and related to construction activities.

Construction will require coverage under the SDDANR General Permit for Storm Water Discharges Associated with Construction Activities, which requires preparation of a SWPPP which will identify potential sources of stormwater pollution and specify BMPs to control erosion and sedimentation and minimize negative impacts caused by stormwater discharges from the Project. The BMPs may include use of silt fence, straw wattles, erosion control blankets, re-vegetation, or other features and methods designed to control storm water runoff and mitigate erosion and sedimentation. The SWPPP will be prepared before the start of construction. The SWPPP would be implemented from the initiation of construction and used through site restoration efforts. Once construction has been completed, backfill graded and excavated areas would be restored to preconstruction conditions. During operation, stormwater volume,



stormwater flow and erosion, and sediment impact on surface water and groundwater resources are not anticipated to change from preconstruction conditions.

## **13.0 Effect on hydrology (ARSD 20:10:22:15)**

The following sections describe the existing hydrology in the vicinity of the Project, the potential effects of the proposed Project on hydrology, and measures that have been or will be utilized to avoid, minimize, and/or mitigate potential impacts.

### **13.1 Groundwater resources**

#### **13.1.1 Existing groundwater resources**

The Project is within Coteau des Prairies, a highland plateau between the Minnesota River lowland to the east and the James River lowland to the west. Land-surface altitude ranges from 970 feet in northeast Grant County to 2,015 feet above sea level on the crest of the Coteau in northern Codington County. The Project is within the Missouri Hydrologic Region and within the Missouri River Basin, Upper Minnesota sub-basin (USGS Hydrologic Unit Code [HUC] 07020001).

Of the seven glacial aquifers and two bedrock aquifers that have been delineated in Grant County, two glacial aquifers (Veblen and Altamont Aquifers) and one bedrock aquifer (granite wash aquifer) are located along the Project ROW (SDGS et al. 1990). Water moves through the aquifers generally in a west to east direction. The Veblen Aquifer is in eastern Grant County and is composed of brown, medium to coarse sand and fine gravel. The aquifer is present in Milbank and slopes to the east under artesian conditions in most areas. Recharge to the Veblen Aquifer is by direct infiltration and subsequent percolation of rainfall and snowmelt. The Veblen Aquifer is at the land surface in Township 121 North, Range 46W. The Altamont Aquifer is in most of Codington County and western Grant County. It is composed of well-rounded, medium to coarse sand. The average depth to the top of the aquifer is 460 feet below the land surface. The average thickness is 40 feet, and the recharge is probably by leakage from the overlying till. The granite wash aquifer overlies the informally named Milbank granite in eastern Grant County. Water level fluctuations indicate that recharge is from snowmelt and spring rainfall.

#### **13.1.2 Groundwater resource impacts and avoidance, minimization, and mitigation measures**

Construction activities such as trenching and backfilling and dewatering that encounter shallow surficial aquifers may result in negligible to minor temporary and very localized fluctuations in groundwater levels depending on the proximity and connectivity of groundwater and extent of the excavated area. Once the construction activity has been completed, the groundwater levels typically recover quickly. Additionally, the Project has been sited to avoid water wells based on the water well completion report data made available by SDDANR (SDDANR 2024a).

No groundwater resources will be used for construction of the Project. During construction, the Project will have a SWPPP outlining pollution prevention measures for the storage, handling, and disposal of hazardous materials, solid waste, concrete and equipment wash water, portable toilets, construction products, and materials.

Groundwater resources will not be needed for any operational activities associated with the Project.

## 13.2 Surface water resources

### 13.2.1 Existing surface water resources

The primary surface water features in the vicinity of the Project are Big Stone Lake, Lake Albert, the Minnesota River, and the Whetstone River. Seasonal variations in streamflow and lake levels are directly related to seasonal variations in precipitation and evapotranspiration. Long-term, lake level fluctuations correlate with departures from normal precipitation.

Drainage patterns in eastern Grant County are well defined, draining toward the north and south Forks of the Whetstone and Yellow Bank Rivers. These rivers drain into the Minnesota River. The USGS, in cooperation with various federal and state agencies, has mapped the hydrologic boundaries of water resources, in order of descending scale into regions, subregions, basins, subbasins, watersheds, and sub-watersheds. A detailed map of the surface waters, wetlands, and existing water drainage areas is included in Figure 14 of Appendix A.

The Project crosses one watershed basin, Outlet Whetstone River (HUC 070200010706), within the Upper Minnesota subbasin. The only major USGS-named streams that the Project is located in proximity to is the Whetstone River. On the Minnesota side, the confluence of the Whetstone River with the Minnesota River is located just downstream of the Big Stone Lake outlet (SDDANR 2022).

The Clean Water Act requires states to publish, biannually, a list of streams and lakes that are not meeting their designated uses because of excess pollutants. These streams and lakes are considered impaired waters. The list, known as the 303(d) list, is based on violations of water quality standards. States establish priority rankings for waters on the 303(d) list and develop the total maximum daily load of a pollutant that the water can receive and still safely meet water quality standards. There are no waterbodies listed as impaired on South Dakota's 2022 303(d) list within the Flexibility Area.

Big Stone Lake, which is located to the north of the Project, has the following beneficial uses:

- Warmwater, semi-permanent fish life;
- Immersion recreation;
- Limited contact recreation;
- Fish and wildlife propagation, recreation, and stock watering waters; and
- Irrigation waters.

The 2022 SDDANR Integrated Report noted this waterbody as meeting all beneficial uses and supporting water quality parameters of alkalinity, dissolved oxygen, E coli, pH, ammonia, nitrate, temperature, specific conductivity, total dissolved solids, and total suspended solids (SDDANR 2022).

The Whetstone River is formed by the confluence of the North and South Forks of the Whetstone River 4 miles northeast of Milbank. It can be found as close as a quarter mile to the north of the proposed Route that runs east and west along 146th Street. The proposed Route crosses a

tributary of the Whetstone River in Section 20, Township 121N, Range 46 W south of 146th Street.

The Whetstone River has the following beneficial uses:

- Warmwater, semi-permanent fish life;
- Limited contact recreation;
- Fish and wildlife propagation, recreation, and stock watering waters; and
- Irrigation waters.

This segment of Whetstone River from its confluence with the north and south forks to the South Dakota/Minnesota border is meeting all the beneficial uses and the supporting water quality parameters of dissolved oxygen, E coli, pH, ammonia, nitrate, temperature, specific conductivity, total dissolved solids, and total suspended solids (SDDANR 2022).

Lake Albert, which is located approximately 3 miles southwest of the Project, does not have specific assigned beneficial uses, so under Chapter 74:51:02 is assigned the beneficial uses of:

- Immersion recreation waters;
- Limited contact recreation waters; and
- Fish and wildlife propagation, recreation, and stock watering waters.

Water quality for Lake Albert was not reported in the recent version of the South Dakota DANR Integrated Report (SDDANR 2022).

The National Park Service's Nationwide Rivers Inventory (NRI) is a listing of more than 3,200 free-flowing river segments in the U.S. that are believed to possess one or more "outstandingly remarkable" natural or cultural values judged to be of more than local or regional significance. Under a 1979 Presidential Directive and related Council on Environmental Quality procedures, all federal agencies must seek to avoid or mitigate actions that would adversely affect one or more NRI segments. There are no NRI-listed rivers in the Flexibility Area (National Park Service [NPS] 2022). The nearest NRI segment in South Dakota (the North Whetstone River) is located just over 3 miles to the west of the Project.

A desktop review of data from the National Hydrography Dataset (NHD) and the National Wetland Inventory (NWI) was conducted to identify surface water resources, including wetlands, streams, and other surface waters, in the vicinity of the Project. In addition, field delineations/mapping were completed on October 10-12, 2023. Evidence of tile drainage was observed throughout the area surveyed during the field delineation/mapping of aquatic resources. Nine stream segments consisting of the Whetstone River, its tributaries, or side channel/oxbow features (totaling 48.4 acres) were identified within the surveyed area. There is one stream crossing the Flexibility Area; the stream is an intermittent tributary to the Whetstone River and drains north through a cultivated landscape. The tributary has an approximately 150-foot-wide, permanently-vegetated buffer. The results of the delineation/mapping and a discussion of Project impacts to wetlands are discussed in Section 13.4. Evidence of tile drainage throughout the area was observed during the field delineation/mapping.

### **13.2.1.1 Floodplains**

According to Federal Emergency Management Agency floodplain data, there are a total of four mapped floodplains crossed by the Flexibility Area comprising 5.7 acres. The widest floodplain is one unnamed tributary of the Whetstone River and will be spanned by the Project. Some structures may be placed within the designated floodplain; the locations will be determined during final design.

### **13.2.2 Surface resource impacts and avoidance, minimization, and mitigation measures**

Potential impacts to surface water resources from the construction of the Project may include sedimentation, impacts to drainage patterns, and increased runoff due to the creation of impervious surfaces. The Project has been sited to avoid or minimize impacts to surface water resources to the extent practicable. The Project is not anticipated to result in changes to existing drainage patterns. Therefore, the Project is not expected to cause significant changes in runoff patterns or volume of runoff, nor is it expected to have adverse impacts on existing hydrology.

During construction there is the possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading, and construction traffic. Appropriate storm water management BMPs would be implemented during construction and operation of the Project to control erosion and reduce the potential for sediment-laden runoff from exposed soils during precipitation events. Construction of the Project would require coverage under the General Permit for Storm Water Discharges Associated with Construction Activities issued by the SDDANR, which includes the development and implementation of a SWPPP which would prescribe BMPs to control erosion and sedimentation. The Applicants will implement BMPs to avoid and/or minimize the potential for sediment to reach surface waters. Temporary erosion and sediment control methods will be properly placed, monitored, and maintained adjacent to water resources. Erosion and sediment control BMPs may include use of silt fence, straw wattles, erosion control blankets, re-vegetation, or other features and methods designed to control storm water runoff and mitigate erosion and sedimentation. Where appropriate, the Applicants will revegetate disturbed areas to mimic preconstruction conditions, in consultation with the landowner or land manager.

The proposed Route would span one small stream/drainage area, an unnamed tributary to the Whetstone River. This area is dominated by emergent and herbaceous vegetation, with scattered small individual trees. The Project has been designed to avoid surface water features whenever feasible. Structure foundations will be located outside of all streams. Given the flexibility of pole locations and a typical span distance of 1,000 feet, the Project is expected to span all rivers and streams, thus avoiding potential permanent impacts. It is anticipated that crossing of streams and drainage ways will be avoided by the temporary access roads; if impacts occur, they will be temporary and restored in accordance with applicable requirements.

Final structure locations will be determined based on final design, and floodplains will be considered in structure placement. If it is not possible to avoid floodplains with structures, Applicants will coordinate with the Grant County Floodplain Administrator to review structure locations and obtain floodplain development permits, as needed. Construction would comply with applicable Grant County floodplain administration ordinance and permit requirements. Impacts to floodplain storage capacity will be negligible due to the long spans between transmission structures and the relatively small volume of foundation material used at the structures.

Due to the lack of NRI-listed rivers within the Flexibility Area, construction and operation of the Project poses no impact to these resources. Therefore, no mitigation is required for impacts to NRI-listed rivers.

Due to the lack of 303(d)-listed waters within the Flexibility Area, construction and operation of the Project poses no impact to these resources. Therefore, no mitigation is required for impacts to 303(d)-listed waters.

Water use for the Project will be restricted to dust control and foundation construction. This water will be pumped from local surface waters following consultation with applicable resource agencies.

## **13.3 Current and planned water use**

### **13.3.1 Current and planned water use**

The public water system serving the vicinity of the Project is the Grant-Roberts Rural Water System, which serves more than 5,000 customers an average of 893,000 gallons of water per day. Water is sourced from groundwater produced by local wells that are located near the facilities treatment plant, which is located in Codington County, South Dakota. Big Stone City purchases water from the Grant-Roberts Rural Water System (SDDANR 2020a).

There are no known private wells within the Flexibility Area. The nearest private well is located in Section 30, Township 121N, Range 46W, approximately 0.5 mile south of the Project. It is a domestic well that is 62 feet deep and has the capacity to produce 10 gallons of water per minute (SDDANR 2024a).

Perennial streams in the vicinity of the Project, including the Whetstone River, (Figure 14 of Appendix A), provide habitat for fish and wildlife and support recreational activities, such as fishing.

### **13.3.2 Effect on current and planned water use**

No groundwater resources will be used for construction or operation of the Project. Water use for the Project will be restricted to dust control and foundation construction. This water will be pumped from local surface waters following consultation with applicable resource agencies. Construction will require a SDDANR Stormwater Permit for Construction, which identifies requirements for water use and dewatering and will specify appropriate BMPs. Following construction, the Project will not require new water uses or water rights.

The proposed Project is not anticipated to have impacts on either public water supply systems or private wells in the vicinity of the Project.

Accordingly, impacts to current and planned water uses are not anticipated.

## **13.4 Wetlands**

### **13.4.1 Existing wetlands**

Potential wetlands in the vicinity of the Project were identified using a combination of desktop analysis of NHD and NWI data. In addition, field delineations and mapping were completed on

October 10-12, 2023, by HDR Engineering, Inc. (HDR) for the Project. Wetlands (wetlands 1-11) were field delineated where access to conduct soil sampling had been granted within a portion of the larger area identified within the Aquatic Resources Delineation Report (Appendix D). Field-delineated wetland boundaries were defined by guidelines provided in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual Midwest Region* (USACE 2010). An area was considered a wetland if it met the three USACE-defined requisite criteria as provided in the Manual and Supplement (Environmental Laboratory 1987, USACE 2010): hydrophytic vegetation, hydric soils, and wetland hydrology. Where field sampling was not possible (wetland 12, which is outside of the Flexibility Area), soils were conservatively presumed to be hydric based on desktop analysis of the NWI and saturated signatures detectable using aerial imagery.

As a result of the aquatic resources delineation/mapping, 12 wetlands (61.8 acres) were identified within the survey area. Classifications and acreages of the wetlands are provided in the Aquatic Resources Delineation Report (Appendix D). As noted above, the aquatic resources within the area reviewed in the Aquatic Resources Delineation Report primarily consist of depressional “pothole” wetlands within or adjacent to cultivated crop fields and two other waters: the Whetstone River and its unnamed tributary to the south. Many of the wetlands identified within the NWI were confirmed to have been fully drained and converted to cultivated agriculture. The classifications of wetlands present in the surveyed area are described in Table 2 of the Aquatic Resources Delineation Report (Appendix D).

Freshwater emergent and riverine wetlands are present within the Flexibility Area. Other waters present within the Flexibility Area are associated with the Whetstone River, its tributary to the south, and an oxbow. A total of 11.0 acres of freshwater emergent delineated/mapped wetlands and 0.1 acre of riverine delineated/mapped wetland are present within the Flexibility Area (Figure 14 of Appendix A).

### **13.4.2 Wetland impacts and avoidance, minimization, and mitigation measures**

In a letter dated February 28, 2024, SDGFP recommended avoiding siting Project infrastructure in wetlands or wetland complexes. In accordance with that recommendation, the Project has been designed to avoid and/or minimize impacts to wetlands.

Table 13-1 summarizes the delineated/mapped wetlands within the Flexibility Area and the potential temporary and permanent impacts to wetlands. As currently configured, total permanent impacts to wetlands are anticipated to be 0.01 acre and Applicants will analyze structure placement during final design to determine if permanent wetland impacts can be further minimized or avoided. Based on the current design, the potential impacts to wetlands would still be minor and within the threshold for authorization under the USACE Nationwide Permit program without pre-construction notification. Wetland impacts will be avoided where practicable; if wetland impacts occur, Applicants will comply with USACE Nationwide Permit Program requirements.

**Table 13-1. Temporary and permanent impacts to wetlands**

Wetland Type	Wetland Area within the Flexibility Area (Acres)	Temporary Impacts (Acres) <sup>1</sup>	Permanent Impacts (Acres) <sup>2</sup>
Freshwater Emergent Wetland	11.0	4.2	0.01
Riverine	0.10	0.02	0.00
Totals <sup>3</sup>	11.0	4.2	0.01

<sup>1</sup> Impacts are associated with the preliminary location of the temporary construction workspaces for structures located within delineated/mapped wetlands.

<sup>2</sup> Impacts are associated with the preliminary location of the structure foundations located within delineated/mapped wetlands.

<sup>3</sup> Addends may not sum due to rounding.



## 14.0 Effect on terrestrial ecosystems (ARSD 20:10:22:16)

The following sections describe the existing terrestrial ecosystem in the vicinity of the Project, the Project's potential impacts on the terrestrial ecosystem, and measures that have been or will be utilized to avoid, minimize, and/or mitigate potential impacts. Terrestrial ecosystem wildlife and vegetation data was identified and gathered through literature searches, federal and state agency reports and consultations, natural resources databases, and site visits.

### 14.1 Vegetation

#### 14.1.1 Existing vegetation

The Project is within the Northern Glaciated Plains Level III Ecoregion, an area that has transitioned between tallgrass and shortgrass prairie communities and has been largely converted to agricultural use (U.S. Environmental Protection Agency [USEPA] 2013, Bryce et al. 2010). The Project is located on the level terrain of the Minnesota River Prairie (Ecoregion 46o), which is composed of thick glacial drift. Wetlands are common, though fewer, than those in the neighboring stagnation moraines. The desiccating winds and historic fire regime promoted the prairie ecosystem in the region (Bryce et al. 1996). Agricultural crops within the area includes corn (*Zea mays*), soybeans (*Glycine max*), sunflowers (*Helianthus annuus*), and sorghum (*Sorghum bicolor*) (HDR 2023).

Based on the National Land Cover Database (NLCD) (USGS 2021), the dominant land cover within the Flexibility Area is cultivated crops (146.6 acres). There are 13.8 acres of other vegetated land cover (i.e., emergent herbaceous wetlands and hay/pasture lands) in the Flexibility Area. The remaining land cover within the Flexibility Area consists of developed land (11.1 acres). Land classified as developed (open space, low, and medium intensity) is due to the presence of local roads, U.S. Highway 12, and the BNSF railroad. Existing agricultural land is discussed further in Section 21.2.2. Table 14-1 summarizes the types of land cover crossed by the Flexibility Area and temporary and permanent impacts to land cover within the Flexibility Area. The existing NLCD land cover types in the vicinity of the Project are depicted on Figure 15 of Appendix A.

**Table 14-1. Temporary and permanent impacts to land cover in the Flexibility Area**

NLCD Land Cover Category	Land Cover in Flexibility Area (acres)	Temporary Impacts (acres) <sup>1</sup>	Permanent Impacts (acres) <sup>2</sup>
Cultivated Crops	146.6	54.1	0.09
Developed, Low Intensity	2.1	0.7	0.0
Developed, Medium Intensity	1.1	0.4	0.0
Developed, Open Space	7.9	4.2	<0.01
Emergent Herbaceous Wetlands <sup>3</sup>	10.7	3.6	<0.01
Hay/Pasture	3.1	0.7	0.0
<b>Total <sup>4</sup></b>	<b>171.5</b>	<b>63.7</b>	<b>0.09</b>

<sup>1</sup>Temporary impacts vegetation include all vegetation cover within the ROW less the permanent impacts associated with the 27 structure foundations.

<sup>2</sup> Permanent impacts associated with the 27 structure foundations.

<sup>3</sup> NWI wetlands.

<sup>4</sup> Addends may not sum due to rounding.

Source: USGS 2021.

A desktop review was completed to determine the land cover types utilizing the SDGFP Environmental Review Tool and USDA National Agricultural Statistics Service National Cropland Layer (USDA 2024). Each is discussed further in the following sections.

**14.1.1.1 American spikenard**

The American spikenard (*Aralia racemosa*) was identified in the SDGFP Natural Heritage Program (NHP) Database search as having the potential to occur in proximity to the Project. The American spikenard is typically found in dense forests in eastern South Dakota (SDGFP 2018(a)).

**14.1.1.2 Potentially Undisturbed Grasslands**

Per the SDGFP February 28, 2024 letter, the best available information regarding potentially undisturbed (untilled) grasslands for South Dakota is Bauman et al. 2014, Bauman et al. 2016, and Bauman et al. 2018. Based on a review of the Bauman data, the potentially undisturbed grasslands present in the vicinity of the Project are shown on Figure 12 and Figure 15 of Appendix A. The Project ROW will not cross any potentially undisturbed grasslands. Additionally, the proposed Flexibility Area avoids potentially undisturbed grasslands, and no temporary use areas will be located within potentially undisturbed grasslands.

**14.1.1.3 Western Prairie Fringed Orchid**

The western prairie fringed orchid (*Platanthera praeclara*) was listed as federally threatened on September 28, 1989. In a letter dated November 29, 2023, the USFWS stated that the western prairie fringed orchid is presently known to occur in six states (Iowa, Kansas, Minnesota, Missouri, Nebraska, and North Dakota) and Manitoba, Canada; and appears to be extirpated from Oklahoma, and no populations are known to exist in South Dakota. Although the plant is typically associated with intact native prairie, the orchid has also been found on disturbed sites. Potential habitats generally include mesic upland prairies, wet prairies, sedge meadows, sub-irrigated prairies, and swales in sand dune complexes. This species is not known to occur in South Dakota.

**14.1.1.4 Forest and woodlands**

Land cover in the Project vicinity is largely cultivated crops and there are very few trees within the Flexibility Area and crossed by the proposed Route. The proposed Route would span one stream/drainage area that is dominated by emergent and herbaceous vegetation, with scattered small individual trees, based on aerial photo review.

**14.1.1.5 Noxious weeds**

Noxious weeds are regulated by state (SDCL 38-22) and federal statutes and regulations designed to stop the spread of plants that are detrimental to the environment, crops, livestock, and/or public health. According to the SDDANR and the Grant County Weed and Pest Board (2023), ten noxious weeds species are known to occur and are regulated within Grant County (Table 14-2).

**Table 14-2. Noxious weeds in Grant County, South Dakota**

Common Name	Scientific Name
Musk Thistle	<i>Carduus nutans</i>
Plumeless Thistle	<i>Carduus acanthoides</i>
Bull Thistle	<i>Cirsium vulgare</i>

Common Name	Scientific Name
Common Burdock	<i>Arctium minus</i>
Spotted Knapweed	<i>Centaurea biebersteinii</i>
Leafy Spurge	<i>Euphorbia esula</i>
Absinth Wormwood	<i>Artemisia absinthium</i>
Perennial Sowthistle	<i>Sonchus arvensis</i>
Canada Thistle	<i>Cirsium arvense</i>
Saltcedar	<i>Tamarix spp.</i>

Sources: Grant County Weed and Pest Board 2023; SDDANR 2020b, 2024c.

### 14.1.2 Vegetation impacts and avoidance, minimization, and mitigation measures

Temporary and permanent impacts to vegetation would occur due to construction of the Project. The Project has been designed to avoid impacts to vegetation, to the extent practicable. It is anticipated that 58.4 acres of vegetation would be temporarily impacted due to construction of the Project. Permanent impacts to vegetation would occur due to the placement of structure foundations. It is anticipated that 0.09 acre of vegetation would be permanently impacted. The Project has been sited to maximize the placement of facilities in previously disturbed agricultural lands, and the majority of the temporary vegetation impacts would occur to cultivated agricultural fields. Impacts that would occur to cultivated lands are not considered biologically significant because these lands are frequently disturbed by tilling, planting, and harvesting activities associated with crop production.

Temporary impacts to vegetation would be mitigated through BMPs, such as employing appropriate erosion control measures and reseeding areas disturbed by construction activities unless otherwise directed by the landowner. The Applicants will use a seed mix that is recommended by the NRCS or USFWS unless otherwise agreed to with the landowner. The USFWS recommends use of milkweed in the seed mix in non-agricultural areas if the landowner agrees. Areas temporarily disturbed due to construction would be re-vegetated with vegetation types matching the surrounding agricultural landscape unless otherwise directed by the landowner.

#### 14.1.2.1 American spikenard

No American spikenard is known to occur, and suitable habitat is not believed to be present within the Flexibility Area. Accordingly, no impacts are anticipated, and no mitigation is proposed.

#### 14.1.2.2 Potentially Undisturbed Grasslands

In a letter dated February 28, 2024, SDGFP recommended avoiding siting the Project within grassland habitats, especially undisturbed grasslands; if grassland habitat cannot be avoided, SDGFP recommended minimizing the amount of disturbance or site on the edges of grassland habitats rather than in large intact blocks, and to site Project infrastructure in previously disturbed areas as much as possible and existing ROWs.

The Applicants have sited the Project consistent with these recommendations. There are no potentially undisturbed grasslands present in the Project ROW or surrounding area that would be impacted by construction activity, the majority of which is in cultivation. The Applicants will locate temporary use areas used for Project construction outside of potentially undisturbed

grasslands. The closest potentially undisturbed grassland area (less than 5 acres) is crossed by two existing transmission lines.

#### **14.1.2.3 Western Prairie Fringed Orchid**

As stated previously, no western prairie fringed orchid is known to exist in South Dakota. Accordingly, no impacts are anticipated, and no mitigation is proposed.

#### **14.1.2.4 Forest and woodlands**

The Applicants have designed the Project to minimize tree removal to the extent possible. Only one stream/drainage crossing is treed, so minimal tree removal will be required.

#### **14.1.2.5 Noxious weeds**

Project activities have the potential to result in the spread of noxious weed species resulting from construction equipment introducing seeds into new areas, or erosion or sedimentation due to clearing ground in the construction areas. The spread of noxious weeds would be controlled using weed-free seed mixes and application of herbicides, where allowed, as necessary. A noxious weed control plan will be developed to identify and establish the procedures to limit the introduction and spread of noxious and invasive weeds during construction and ongoing operations.

## **14.2 Wildlife**

The Applicants have been coordinating with the USFWS and SDGFP regarding wildlife resources that may occur in the vicinity of the Project. Copies of the agency correspondence are provided in Appendix C. A discussion of the analysis conducted regarding wildlife resources is provided below.

### **14.2.1 Existing wildlife**

A desktop review of available information was completed to assess the potential presence of wildlife species and habitats, including species of concern. Data sources included USFWS Information for Planning and Conservation (IPaC) website, the SDGFP list of state-threatened and endangered species, the SDGFP Environmental Review Tool, and the South Dakota NHP Database. In addition, agency input was requested from USFWS and SDGFP regarding any instances of federally and state-listed animals and plants, significant natural communities, and other species of concern or significant habitats that occur in the vicinity of the Project.

#### **14.2.1.1 Avian Species**

The Migratory Bird Treaty Act of 1918, as amended, provides protection for most avian species in the United States. Based on review of relevant data sources, avian species that may be found in the vicinity of the Project include red-winged blackbird (*Agelaius phoeniceus*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), mourning dove (*Zenaida macroura*), mallard (*Anas platyrhynchos*), ruddy duck (*Oxyura jamaicensis*), gadwall (*Mareca strepera*), killdeer (*Charadrius vociferus*), horned lark (*Eremophila alpestris*), barn swallow (*Hirundo rustica*), house wren (*Troglodytes aedon*), common yellowthroat (*Geothlypis trichas*), vesper sparrow (*Pooecetes gramineus*), common grackle (*Quiscalus quiscula*), western meadowlark (*Sturnella neglecta*), American robin (*Turdus migratorius*), and American goldfinch (*Spinus tristis*). Lands in the vicinity of the Project also include some wetlands and croplands, which may be used as stopover habitat during migration for waterfowl and shorebirds. The Project is outside of the whooping crane migration corridor. Wintering habitat for snow buntings (*Plectrophenax nivalis*)

and longspurs (*Calcarius pictus*) may be present. Many of the avian species that may utilize habitat in the vicinity of the Project are common throughout the Upper Great Plains. The following sections address avian species of concern that may be present in the vicinity of the Project.

**Birds of Conservation Concern**

The 1988 amendment to the Fish and Wildlife Conservation Act mandates that the USFWS identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the federal Endangered Species Act (ESA) of 1973. Because of this mandate, the USFWS created the Birds of Conservation Concern (BCC) list. The goal of the BCC list is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservation actions and coordinating consultations in accordance with Executive Order 13186. The Project is located within Bird Conservation Region 11, which includes over 200 BCC species. Table 14-3 lists the BCC species with the potential to occur in the vicinity of the Project.

**Table 14-3. BCC species with potential to occur in the vicinity of the Project**

Common name	Scientific name	Breeding season
American Golden Plover	<i>Pluvialis dominica</i>	Breeds elsewhere
Black Tern	<i>Chlidonias niger</i>	May 15 to Aug 20
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	May 15 to Oct 10
Bobolink	<i>Dolichonyx oryzivorus</i>	May 20 to July 31
Chimney Swift	<i>Chaetura pelagica</i>	Mar 15 to Aug 25
Franklin’s Gull	<i>Leucophaeus pipixcan</i>	May 1 to July 31
Henslow’s Sparrow	<i>Ammodramus henslowii</i>	May 1 to Aug 31
Le Conte’s Sparrow	<i>Ammodramus leconteii</i>	Jun 1 to Aug 15
Lesser Yellowlegs	<i>Tringa flavipes</i>	Breeds elsewhere
Marbled Godwit	<i>Limosa fedoa</i>	May 1 to Jul 31
Pectoral Sandpiper	<i>Calidris melanotos</i>	Breeds elsewhere
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	May 10 to Sept 10
Western Grebe	<i>Aechmophorus occidentalis</i>	Jun 1 to Aug 31

**Source:** USFWS 2024a.

**Eagles and Raptors**

The Bald and Golden Eagle Protection Act provides protection for bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). Neither the bald eagle nor the golden eagle is identified by USFWS as a BCC species in the vicinity of the Project, but both have been observed to occur in the general vicinity of the Project (USFWS 2024a). Bald eagles prefer habitat near rivers, lakes, and marshes but are increasingly found in drier areas such as farmland and urban and suburban habitat. During the winter, bald eagles congregate near open water in tall trees to spot prey (USFWS undated). There is limited habitat in the vicinity of the Project that could provide suitable nesting or wintering habitat for bald eagles.

Golden eagles typically nest on cliffs or in large trees and can be found in a variety of habitats including the tundra, grasslands, forested habitat and woodland brushlands, and arid deserts. Individuals will occasionally nest near semi-urban areas where there is limited residential housing and in farmland habitat (USFWS 2011). Additionally, there have been no observations of the golden eagle by SDGFP in recent nesting surveys in the vicinity of the Project (SDGFP undated).

**Species of Greatest Conservation Need**

The SDGFP has developed the South Dakota State Wildlife Action Plan (SWAP), which is a comprehensive planning document that establishes the framework and information for setting conservation priorities for the State of South Dakota. The SWAP identifies and focuses on Species of Greatest Conservation Need (SGCN) and ecosystems that require conservation strategies to avoid future ESA listing. SGCN are not afforded protections under the State endangered species law statute. No avian SGCN were identified in the SDGFP NHP Database search as having the potential to occur in the vicinity of the Project.

**14.2.1.2 Bats**

There are 11 known species of bats that inhabit South Dakota, seven of which have the potential to occur in Grant County: NLEB, tricolored bat (*Perimyotis subflavus*), big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), little brown bat (*Myotis lucifugus*), red bat (*Lasirurus borealis*), Townsend’s big-eared bat (*Corynorhinus townsendii*), western small-footed bat (*Myotis ciliolabrum*), long-legged bat (*Myotis volans*), and fringed myotis (*Myotis thysandes*). Of these species, the following have the potential to occur in Grant County: the NLEB, tricolored bat, big brown bat, hoary bat, silver-haired bat, little brown bat, and red bat. Of these species, the NLEB and Tricolored Bat are the only federally listed bats with the potential to occur within the vicinity of the Project. These two species are discussed further in Section 14.2.1.3. There are no state-listed bat species in South Dakota.

**14.2.1.3 Federal and State-listed and sensitive terrestrial species**

A review of the USFWS South Dakota Ecological Services Field Office IPaC was completed on April 3, 2024, for the Project to identify the federally-listed threatened, endangered, and candidate species that have the potential to occur in the vicinity of the Project (see Table 14-4) (USFWS 2024a). According to a review of the USFWS IPaC, five terrestrial species are federally listed, proposed to be federally listed, or are candidate species under the ESA and have the potential to occur in proximity to the Project. No designated critical habitat is present for any species within the Flexibility Area or Project ROW.

The SDGFP maintains a list of state-listed threatened and endangered species (animal and plants; SDCL Chapter 34A-8 and 34A-8A). The SDGFP list (SDGFP 2021) was reviewed, and the range of the species was reviewed. One terrestrial state-listed threatened species, the osprey (*Pandion haliaetus*), is identified as potentially occurring in Grant County (Table 14-4). No terrestrial state-listed endangered species are identified as having the potential to occur in the vicinity of the Project. Table 14-4 identifies the federally and state listed terrestrial species with the potential to occur in Grant County. Aquatic species, including the North American River Otter, are discussed further in Section 15.0, Aquatic Ecosystems.

**Table 14-4. Federal and state-listed threatened, endangered, proposed, and candidate terrestrial species potentially occurring within Grant County**

Common Name	Scientific Name	Status <sup>1</sup>
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	(F) Endangered
Tricolored Bat	<i>Perimyotis subflavus</i>	(F) Proposed Endangered
Rufa Red Knot	<i>Canlidris canutus rufa</i>	(F) Threatened
Dakota Skipper	<i>Hesperia dacotae</i>	(F) Threatened
Monarch Butterfly	<i>Danaus plexippus</i>	(F) Candidate
Osprey	<i>Pandion haliaetus</i>	(S) Threatened



Source: USFWS 2024a.

1. (F) indicated a federally listed species, (S) indicates a state-listed species

### **Northern Long-eared Bat**

The NLEB was reclassified by the USFWS as endangered under the ESA on November 29, 2022, with an effective date of March 31, 2023. Reclassification occurred primarily because the NLEB faces extinction due to the wide-range impacts of white-nose syndrome (WNS). As a result, reclassification of NLEB to an Endangered species has nullified the section 4(d) rule, which limited prohibitions for the incidental take of the species to those that would protect the bat in WNS-affected areas. While the 4(d) rule has been nullified, USFWS still requires projects to comply with Section 7(a)(2) of the ESA and to consult with the USFWS to ensure projects will not jeopardize the continued existence of any federally listed species or adversely modify designated critical habitats. With reclassification to Endangered, incidental take of the species is now prohibited in all cases without an incidental take statement from USFWS.

The NLEB typically roosts underneath bark or in tree cavities during active months (USFWS 2024c). However, woodland habitats are uncommon in the Project vicinity, which limits the species' likelihood to occur. As noted above, land cover in the Project vicinity is largely cultivated crops and there are very few trees within the Flexibility Area and Project ROW. The Project will span one small stream/drainage area that is dominated by emergent and herbaceous vegetation, with scattered small individual trees, based on aerial photo review.

### **Tricolored Bat**

The tricolored bat is proposed for listing as endangered under the ESA. Tri-colored bats are associated with forested landscapes, where they forage near trees (including forest perimeters) and along waterways. In many areas, most foraging occurs in riparian areas, and they typically utilize areas with intact, unfragmented forest cover (NatureServe Explorer 2024). Woodland habitats are uncommon in the Project vicinity, which limits the species' likelihood to occur. As noted above, land cover in the Project vicinity is largely cultivated crops and there are very few trees within the Flexibility Area and Project ROW. The Project will span one small stream/drainage area that is dominated by emergent and herbaceous vegetation, with scattered small individual trees, based on aerial photo review.

### **Rufa Red Knot**

The rufa red knot is a medium-sized, stocky, short-necked sandpiper with a rather short, straight bill. The rufa red knot was ESA-listed as threatened in 2014. Rufa red knots migrate long distances annually between the Canadian Arctic and several wintering regions, including the southeastern United States. A majority of rufa red knots follow migration routes along the east and west coasts of the United States, but small numbers of this species have been documented along an inland migration route across the Midwest during spring and fall migrations. These sightings are typically concentrated along the Great Lakes. They typically use habitats such as alkali lakes and wetlands, including sparsely vegetated shorelines, sandbars, islands, salt-encrusted mud flats, and gravelly salt flats. The rufa red knot does not breed in South Dakota (USFWS 2020). No designated critical habitat is present in the Project vicinity.

### **Dakota Skipper**

The Dakota skipper is listed as threatened under the ESA. The Dakota skipper prefers native dry mesic to dry prairie where mid-height grasses such as little bluestem, prairie dropseed, and side oats grama are a major component of the vegetation (USFWS 2021). Potential habitat for this

species is limited to prairie remnants or wetland areas surrounded by prairie remnants, which are not present within the Flexibility Area or Project ROW. There are no potentially undisturbed grasslands present in the Project ROW or surrounding area that would be impacted by construction activity, the majority of which is in cultivation. No designated critical Dakota skipper habitat exists in the Project ROW or in the vicinity.

### **Monarch Butterfly**

The monarch butterfly is listed as a candidate species that is being reviewed under the ESA. Milkweed and flowering plants are needed for monarch butterfly habitat. Milkweed can occur in many areas, ranging from native grasslands to degraded sites such as road rights-of-way, and may occur in the vicinity of the Project. The monarch butterfly ranges across South Dakota from May through October, potentially occurring wherever its required plant resources exist (SDGFP 2018(b)). The Flexibility Area and Project ROW are primarily disturbed areas (cultivated lands and utility/roadway corridors); thus, the potential for suitable habitat in the Flexibility Area and Project ROW is limited.

### **Osprey**

The osprey is a state-listed threatened species. Osprey is a raptor species commonly found near freshwater habitats such as rivers, lakes, and some wetlands. Osprey prefer nesting in tall structures like trees, utility poles, or artificial platforms near water bodies. In South Dakota, osprey are sporadically distributed, with nesting sites primarily concentrated in the Black Hills and surrounding areas. None are reported from Grant County (SDGFP 2022).

#### **14.2.1.4 Other Wildlife Species**

Other species most likely to occur in proximity to the Project are common throughout the Upper Great Plains and are generalists that have adapted to thriving in an agricultural landscape with patches of grasslands and wetlands. Common mammals likely to be found in the vicinity of the Project may include raccoon (*Procyon lotor*), opossum (*Didelphis marsupialis*), mink (*Neogale vison*), Eastern cottontail (*Sylvilagus floridanus*), white-tail deer (*Odocoileus virginianus*), coyote (*Canis latrans*), Eastern gray squirrel (*Sciurus carolinensis*), muskrat (*Ondatra zibethicus*), and skunk (*Mephitis mephitis*). Reptiles and amphibians potentially present in the area include snapping turtle (*Chelydra serpentina*), painted turtle (*Chrysemys picta*), plains garter snake (*Thamnophis radix*), common garter snake (*Thamnophis sirtalis*), Canadian toad (*Anaxyrus hemiophrys*), American toad (*Anaxyrus americanus*), gray tree frog (*Hyla versicolor*), and northern leopard frog (*Lithobates pipiens*).

The Eastern gray squirrel was identified in the SDGFP NHP Database search as having the potential to occur in the general Project vicinity.

#### **14.2.2 Wildlife impacts and avoidance, minimization, and mitigation measures**

Terrestrial wildlife species could be potentially impacted at various spatial and temporal scales during the construction and operation of the Project. The Project ROW crosses wetlands and cultivated fields that can serve as resting areas and foraging areas for waterfowl and other species. There may be daily movements between areas used for roosting, nesting, and foraging and a new transmission line increases potential for avian collisions during daily and seasonal movements.



The Project has been sited to avoid or minimize impacts to federally listed and other special-status wildlife species. Effects on terrestrial habitats will be minimized by not altering stream channels or drainage patterns, minimizing placement of fill in wetlands, restoration of temporary disturbance areas, and replanting disturbed areas, if necessary, using a seed mix that is recommended by the NRCS or USFWS unless otherwise agreed to with the landowner. The USFWS recommends use of milkweed in the seed mix in non-agricultural areas if the landowner agrees. Temporary impacts would also be minimized by utilizing erosion and sedimentation BMPs that minimize or prevent sediment from reaching adjacent waterways and protect topsoil.

The SDGFP recommended a yearly database search of the South Dakota NHP. The Applicants will conduct an annual NHP database search to review potential new information relevant to the Project. Coordination will occur with SDGFP if any changes to species information is noted.

The following sections further discuss the potential impacts and avoidance, minimization, and mitigation measures by species grouping or individual species. Aquatic species are discussed further in Section 15.0, Aquatic Ecosystems.

#### **14.2.2.1 Avian Species**

Transmission lines may result in direct mortality of birds from collisions and indirect impacts from avoidance, habitat disruption, and displacement of birds.

To address the potential for collisions and electrocution, USFWS and SDGFP recommended the Project incorporate the Avian Power Line Interaction Committee (APLIC) considerations for overhead powerlines (APLIC and USFWS 2005). In accordance with the USFWS and SDGFP recommendation, the Project will be designed in accordance with APLIC's *Suggested Practices for Avian Protection On Power Lines: State of the Art in 2006*. Additionally, the Applicants' transmission line design standards provide adequate spacing to minimize the risk of electrocution to large avian species.

Wetland areas in the vicinity of the Project are limited. As a result, avian species that utilize wetlands are unlikely to be impacted by the Project. The structures will be placed outside of the SDGFP GPA to minimize any impacts to waterfowl and grassland associated birds. Additionally, the Project will avoid disturbance to potentially undisturbed grasslands in the vicinity of the Project during construction and will avoid placing structures within or immediately adjacent to surface water features.

#### **Species of Greatest Conservation Need and Birds of Conservation Concern**

No SGCN avian species were identified in the SDGFP NHP Database search as having the potential to occur in the vicinity of the Project. Accordingly, no impacts are anticipated. Applicants will conduct preconstruction surveys for bald eagle, golden eagle, other raptor, and migratory bird/birds of conservation concern nests along the Project ROW and record the location of any nests identified using a Global Positioning System (GPS). No further mitigation is proposed.

#### **Eagles and Raptors**

Applicants will conduct preconstruction surveys for bald eagle, golden eagle, other raptor, and migratory bird/birds of conservation concern nests along the Project ROW and record the location of any nests identified using a Global Positioning System (GPS). If a bald eagle or golden

eagle nest is identified in the Project ROW before construction, the Applicants will comply with the Bald and Golden Eagle Protection Act.

Trees for nesting are limited within the Flexibility Area and Project ROW to a single stream/drainage crossing, so minimal tree removal is anticipated. Tree removal, ground clearing, or mowing within the Project ROW is anticipated to occur in late fall or early spring (outside of bird nesting and bat roosting periods) to discourage tree and ground nesting within temporary or permanent disturbance areas. In areas where construction activity disturbs vegetative cover, the Applicants will use a seed mix that is recommended by the NRCS or USFWS unless otherwise agreed to with the landowner.

#### **14.2.2.2 Federal and State listed and sensitive terrestrial species**

##### **Dakota skipper**

The Dakota skipper prefers native dry mesic to dry prairie where mid-height grasses such as little bluestem, prairie dropseed, and side oats grama are a major component of the vegetation (USFWS 2021). Potential habitat is limited to prairie remnants or wetland areas surrounded by prairie remnants, which are not present within the Flexibility Area or the Project ROW. No designated critical Dakota skipper habitat has been identified in the Flexibility Area or the Project ROW. There are no potentially undisturbed grasslands present in the Project ROW or surrounding area that would be impacted by construction activity, the majority of which is in cultivation. Due to these factors, the USFWS concurred that Dakota skipper surveys are not warranted. The Project is not anticipated to impact Dakota skipper or its habitat.

##### **Monarch butterfly**

The monarch butterfly is listed as a candidate species that is being reviewed under the Endangered Species Act to be listed as threatened or endangered. Milkweed and flowering plants are needed for monarch habitat, whether it's a field, roadside area, open area, wet area, or urban garden (SDGFP 2018(b)). Milkweed can occur in many areas, ranging from native grasslands to degraded sites such as road rights-of-way, and may occur in the vicinity of the Project. However, the Flexibility Area and Project ROW are primarily disturbed areas (cultivated lands and utility/roadway corridors); thus, the potential for suitable habitat in the Flexibility Area and Project ROW is limited. Based on consultations with USFWS, surveys are not warranted, and impacts are not anticipated. The USFWS recommends use of milkweed in the seed mix in non-agricultural areas if the landowner agrees. In areas where construction activity disturbs vegetative cover, the Applicants will use a seed mix that is recommended by the NRCS or USFWS unless otherwise agreed to with the landowner.

##### **Northern Long-eared Bat and Tricolored Bat**

Potential impacts to bats could occur as a result of tree removal. There is very limited tree cover present in the Flexibility Area or in the vicinity Project. Tree cover along the Flexibility Area and Project ROW is limited to one stream/drainage crossing with fewer than five trees. No major tree clearing activities are anticipated. Applicants will minimize tree removal to the extent possible. Tree removal, if required, will be restricted to periods outside of bat roosting and summer pup rearing periods (April 1 – October 31), in accordance with tree restrictions for the NLEB per the ESA. As a result, based on consultation with the USFWS, no bat surveys are proposed unless tree removal would need to occur within the April 1 - October 31 timeframe; if that occurs, trees greater than 3-inch diameter at breast height would be surveyed for suitable habitat prior to removal. A Determination Key review through the USFWS IPaC for potential effects of the Project on NLEB resulted in a “no effect” finding; this review was provided to the USFWS via email on

April 3, 2024. No impacts to NLEB or tricolored bat are anticipated. These proposed mitigation measures are also applicable to other bat species that may occur within the vicinity of the Project.

### **Rufa Red Knot and Osprey**

The rufa red knot and osprey may pass through the Project area. However, the Flexibility Area and Project ROW are primarily disturbed areas (cultivated crops and linear infrastructure) and are not likely to contain habitat suitable for these species. Based on consultations with USFWS, surveys are not warranted, and impacts are not anticipated.

### **14.2.2.3 Other wildlife species**

Other wildlife species may be impacted by direct disruption of habitat and potentially direct mortality could occur during the construction phase of the Project. Permanent habitat loss due to construction of the transmission line would be minimal and localized. Direct mortalities are not anticipated to impact wildlife populations. Following construction, wildlife species are expected to habituate to routine operational activities in a manner similar to relationships with existing operations of infrastructure and agricultural uses.

### **Bats**

The measures discussed above for the NLEB also apply to other bat species. These measures include minimizing tree clearing to the extent possible, and following timing recommendations when tree clearing is necessary to avoid impacting bat roosting periods.

## 15.0 Effect on aquatic ecosystems (ARSD 20:10:22:17)

The following sections describe the existing aquatic ecosystems in the vicinity of the Project, the potential effects of the proposed Project on aquatic ecosystems, and measures that have been or will be utilized to avoid, minimize, and/or mitigate potential impacts.

### 15.1 Existing aquatic ecosystems

The Project is within the Missouri Hydrologic Region and within the Missouri River Basin, Upper Minnesota sub-basin. Many of the lakes and rivers present within the vicinity of the Project support fish populations valued by wildlife and sportsmen. These fisheries can be of high value and produce desirable game species such as northern pike (*Esox lucius*), walleye (*Sander vitreus*), yellow perch (*Perca flavescens*), and other game fish. Before 1935, the North Fork of the Whetstone River was stocked by SDGFP with the following species: yellow perch, brown trout (*Salmo trutta*), and largemouth bass (*Micropterus salmoides*) (SDGFP 1937). In the past 20 years, SDGFP has also stocked Big Stone Lake with the following species: walleye, lake sturgeon (*Acipenser fulvescens*), bluegill (*Lepomis macrochirus*), and black crappie (*Pomoxis nigromaculatus*) (SDGFP 2023). SDGFP maintains public access for fishing and other water recreation. There is no public access for fishing within the Flexibility Area (SDGFP 2024a).

Aquatic habitat within the Flexibility Area includes waters associated with the Whetstone River, its tributary to the south, an oxbow, and freshwater emergent and riverine wetlands (USGS 2023, HDR 2023). Some habitat has been altered by cultivation and channelization. These water features likely support aquatic biota, including aquatic insects, crustaceans, and mollusks, and possibly small fish and minnows. There are wetlands in the vicinity of the Project that provide habitat for birds, waterfowl, amphibians, reptiles, and small mammals. As discussed in Sections 13.2 and 13.4, the delineation/mapping conducted for the Aquatic Resources Delineation Report identified a total of 11.0 acres of freshwater emergent delineated/mapped wetlands and 0.1 acre of riverine delineated/mapped wetland present within the Flexibility Area (Figure 14 of Appendix A).

A review of the USFWS South Dakota Ecological Services Field Office IPaC was completed for the Project on April 3, 2024, to identify the federally listed threatened, endangered, and candidate species that have the potential to occur in the vicinity of the Project (USFWS 2024a). According to a review of the USFWS IPaC, there are no federally listed aquatic species protected under the ESA that have the potential to occur in proximity to the Project.

The SDGFP maintains a list of state-listed threatened and endangered species (animal and plants; SDCL Chapter 34A-8 and 34A-8A). There are no state-listed aquatic species that have the potential to occur in proximity to the Project.

In its Environmental Review Report dated January 15, 2024 (Appendix C), the SDGFP provided a list of species, including SGCN and NHP Database aquatic species, that have been documented within 800 meters of the Project ROW, which encompasses the Flexibility Area. Table 15-1 identifies the SGCN and NHP Database aquatic species with the potential to occur in the Project vicinity. Terrestrial species are discussed further in Section 14.0.

**Table 15-1. SGCN and SDGFP NHP Database aquatic species with the potential to occur in Project vicinity**

Common Name	Scientific Name	Species Type	Federal Status	State Status	SGCN
Creek Heelsplitter	<i>Lasmigona compressa</i>	Mussel	Not Listed	Not Listed	Yes
North American River Otter <sup>1</sup>	<i>Lontra canadensis</i>	Mammal	Not Listed	Not Listed	No
Hornyhead Chub	<i>Nocomis biguttatus</i>	Fish	Not Listed	Not Listed	Yes
Carmine Shiner <sup>1</sup>	<i>Notropis percobromus</i>	Fish	Not Listed	Not Listed	Yes
Blackside Darter	<i>Percina maculata</i>	Fish	Not Listed	Not Listed	Yes

<sup>1</sup> Identified in the SDGFP NHP Database

**Source:** SDGFP 2022, 2024b; USFWS 2024b.

### Creek Heelsplitter

The creek heelsplitter is not federally or state listed but is identified as a SGCN. The creek heelsplitter prefers headwater streams of small to medium-sized rivers with mud or sand substrations. The creek heelsplitter has been confirmed in northeastern South Dakota and in tributaries to the Big Sioux and Minnesota River basins with probable distribution also in southeastern South Dakota (SDGFP 2014). In northeastern South Dakota, the creek heelsplitter is considered rare but has been collected from the South Fork of the Whetstone River and the North and South Forks of the Yellowbank River in Grant County (Skadsen 2019).

### North American River Otter

The North American river otter is not federally, or state listed or identified as a SGCN, but was identified in the SDGFP's NHP Database search as having the potential to occur in proximity to the Project. The North American river otter, which has the potential to occur in Grant County, was previously state-listed as threatened but was de-listed in 2020 due to its meeting state recovery criteria including a continuous rise in population and geographic distribution expansion. However, this species is still monitored by the state (SDGFP 2020). The species occupies dens that have openings typically within the water and has a diet of small fish (National Wildlife Federation 2024). Additionally, the North American river otter prefers slow-moving rivers and streams with deep pools and an abundance riparian vegetation (SDGFP 2014). Historically, the North American river otter occurred in suitable habitat across South Dakota, but its current geographical distribution is limited to eastern South Dakota (SDGFP 2014).

### Hornyhead Chub

The hornyhead chub is not federally or state listed but is identified as a SGCN. The hornyhead chub is found primarily in eastern South Dakota and in tributaries to the Big Sioux and Minnesota River basins. Typical habitat for the hornyhead chub includes pools and small runs of small/medium stream with gravel substrates and moderate to no flow (SDGFP 2014).

### Carmine Shiner

The carmine shiner is not federally, or state listed but is identified as a SGCN and was identified in the SDGFP's NHP Database search as having the potential to occur in proximity to the Project. The carmine shiner habitat typically consists of clear, swift, large streams and rivers with gravel or rocky substrates. The geographic distribution of the carmine shiner is primarily in northeastern South Dakota and in tributaries to the Big Sioux and Minnesota River basins (SDGFP 2014).

## **Blackside Darter**

The blackside darter is not federally or state listed but is identified as a SGCN. The blackside darter habitat typically consists of pools of streams to medium-sized rivers with moderate current and sand or gravel substrates. The geographic distribution of the blackside darter is primarily in eastern South Dakota and in tributaries to the Big Sioux and Minnesota River basins (SDGFP 2014).

## **15.2 Aquatic ecosystems impacts and avoidance, minimization, and mitigation measures**

The Project has been designed to avoid impacts to aquatic ecosystems, to the extent practicable. Potential impacts to aquatic resources are primarily related to installation of structures within the aquatic habitat area or sediment deposition related to construction activities. To the extent practicable, the Project will avoid streams and other drainage systems and minimize disturbance to wetlands during construction. During construction there is the possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading, and construction traffic. The BMPs described in Sections 13.2 and 13.4 pertaining to minimizing/mitigating potential impacts to surface waters and wetlands would also apply to minimizing/mitigating potential impacts to aquatic ecosystems.

Water use for the Project will be restricted to dust control and foundation construction. This water will be pumped from local surface waters following consultation with applicable resource agencies. No impacts to aquatic ecosystems as a result of water use during Project construction are anticipated. Since erosion and sediment control BMPs would be in place during Project construction and restoration, as applicable, no impacts to aquatic ecosystems are anticipated from the Project.

It is anticipated that the Project will span the unnamed tributary to the Whetstone River, depending on geologic or engineering constraints determined in final design, and no transmission structures will be placed in the unnamed tributary. Therefore, no permanent impacts to aquatic ecosystems as a result of the Project are anticipated. No additional mitigation measures are proposed for aquatic resources.

## 16.0 Land use (ARSD 20:10:22:18)

The following section discusses the existing land use, public lands and facilities, noise, aesthetics, and communications systems in the vicinity of the Project; potential impacts; and measures that have been or will be utilized to avoid, minimize, and/or mitigate potential impacts. Existing land cover in the vicinity of the Project is shown on Figure 15 of Appendix A. Existing land use in the vicinity of the Project using the land use classifications in ARSD 20:10:22:18 is shown on Figure 12 of Appendix A.

### 16.1 Land use

The existing land uses in the vicinity of the Project are described below, followed by a discussion of the potential effects of the proposed Project's construction and operation on land use and avoidance and/or minimization measures.

#### 16.1.1 Existing land use

Land use in the vicinity of the Project is predominantly agricultural, with land cover consisting of cultivated crops and hay and pastureland, herbaceous emergent wetlands, and barren and developed land and open water (Figure 12 of Appendix A). Land classified as barren or developed (open space, low, and medium intensity) is due to the presence of local roads, U.S. Highway 12, and the BNSF railroad. The Project would be located primarily on private land that is predominantly agricultural. The most common land use within the Project ROW is cultivated agriculture land used for planted row crops such as corn and soybeans.

The land surrounding the Project to the east, south, and west consists of rolling hills with wooded areas, wetlands, and streams. The Minnesota River valley and associated habitat and waterbodies are located to the west of the Project. To the northeast of the Project is Big Stone City, South Dakota, and Ortonville, Minnesota, which consists of more densely developed residential, commercial, and industrial land use. The Project is located entirely outside of any municipal limits.

The Big Stone Power Plant is approximately 1 mile north of the Big Stone South Substation and the Project. The Big Stone Power Plant is a coal-powered, 456 MW plant that began operating in 1975. The plant dominates the land use in the area immediately adjacent to it, including numerous existing high-voltage transmission lines going to and from the plant and the Big Stone South Substation, cooling ponds, and railroad tracks for transporting coal.

There are no residences or businesses within the Flexibility Area. The closest residence is located approximately 464 feet away from the Project ROW and 440 feet away from the Flexibility Area. The closest business, a concrete and bulk material transport company, is located approximately 468 feet away from the Project ROW and is approximately 250 feet away from the Flexibility Area.

Figure 12 of Appendix A is a land use map of the Project vicinity based on the classification system specified in ARSD 20:10:22:18(1). The following land use classifications from ARSD 20:10:22:18(1) occur in the vicinity of the Project, as depicted on Figure 12 of Appendix A:

- Land used primarily for row and non-row crops in rotation;
- Irrigated lands;

- Pasturelands and rangelands;
- Haylands;
- Undisturbed native grasslands;
- Existing and potential extractive nonrenewable resources;
- Rural residences and farmsteads, family farms, and ranches;
- Residential;
- Public, commercial, and institutional use; and
- Noise sensitive land uses.

The following land use classifications from ARSD 20:10:22:18(1) were not identified in the vicinity of the Project, as noted on Figure 12 of Appendix A:

- Other major industries; and
- Municipal water supply and water sources for organized rural water systems.

Based on aerial imagery and a review of water rights (SDDANR 2024b), no center pivot irrigation is present within the ROW or immediately adjacent to the Project.

Land use in Grant County is comprised of approximately 72 percent agricultural land, 24 percent pastureland, and the remaining 4 percent as other (USDA 2017). There are approximately 324,188 acres of farmland within Grant County with the top-producing crops being corn, soybeans, and wheat. Cattle and hogs are the dominate livestock. Grant County had a value of \$328,667,000 from the total agriculture sales in 2022 (USDA 2022b).

Beyond the immediate ROW, mining is present in the vicinity of the Project, including both active and reclaimed sites adjacent to the Big Stone South Substation and west of 484<sup>th</sup> Avenue.

### **16.1.2 Land use impacts and avoidance, minimization, and mitigation measures**

Construction of the Project will result in the conversion of a very small amount of land (<0.1 acre) from existing agricultural land uses into use for a transmission line. Approximately 58.7 acres of agricultural land would be temporarily impacted by construction of the Project, and 0.09 acre of agricultural land would be permanently impacted. Following construction, areas subject to temporary disturbance would be revegetated to pre-construction land uses, if necessary, using a seed mix that is recommended by the NRCS or USFWS unless otherwise agreed to with the landowner. The USFWS recommends use of milkweed in the seed mix in non-agricultural areas if the landowner agrees. Agricultural impacts are discussed further in Section 21.2.

The Project is compatible with and will have minimal impacts on the existing land use in the vicinity of the Project. Crop production on some portions of agricultural lands may be temporarily interrupted for one growing season depending on the timing and duration of construction. In



cultivated cropland areas, the Applicants will attempt to conduct construction before crops are planted or following harvest, if possible. The Applicants will compensate landowners for impacts on crops resulting from the construction, operation, and maintenance of the Project, including soil compaction that might result from these activities. If there are drain tiles, the Applicants will work with landowners on identifying those systems, and, if impacted, will coordinate with the landowners on repairs. Additionally, the Applicants will continue to coordinate with landowners on final structure locations to minimize potential impacts to existing farming and other agricultural uses.

There are no occupied homes or businesses located within the Flexibility Area; accordingly, based on the proposed Project design, there would be no displacement of residences or businesses due to construction and operation of the Project.

## **16.2 Public lands and facilities**

The existing public lands and facilities within or adjacent to the Flexibility Area are described below, followed by a discussion of the potential effects of the proposed Project's construction and operation and avoidance and/or minimization measures.

### **16.2.1 Existing public lands and facilities**

Publicly owned or managed lands, conservation easements, and facilities in the vicinity of the Project are shown on Figure 16 of Appendix A.

The USFWS manages fee-owned Waterfowl Production Areas (WPAs) to protect breeding, forage, shelter, and migratory habitat for waterfowl or wading birds, such as ducks, geese, herons, and egrets. WPAs provide opportunities for viewing wildlife and intact ecosystems. There are no USFWS WPAs within the Flexibility Area. The nearest USFWS WPA is approximately 1,992 feet from the Flexibility Area.

The USFWS also manages National Wildlife Refuges (NWRs) with the purpose of creating a network of lands and waters to conserve, manage, and restore the nation's wildlife, fish, and plant resources. There are no USFWS NWRs within the Flexibility Area. The nearest NWR, the Big Stone NWR in Minnesota, is located approximately 0.4 mile from the edge of the Project ROW.

There are no USFWS wetland or grassland easements within the Flexibility Area. The nearest USFWS wetland or grassland easement is approximately 5,454 feet from the Flexibility Area.

There are conservation easements managed by the USFWS for the protection of wildlife and waterfowl habitat and NRCS flood-management easements are located within 5 miles of the Project, but none are located within or traversed by the Flexibility Area.

The Conservation Reserve Program (CRP) is a land conservation program administered by the USDA Farm Service Agency with technical support provided by the USDA NRCS. Landowners can agree to enroll their land in the CRP, essentially taking the land out of agricultural production for a period of 10 to 15 years, in exchange for annual payments. Most often, lands enrolled in the CRP are not identifiable using publicly available data. To date, no CRP lands have been identified within the Flexibility Area. CRP lands will be discussed in consultation with landowners during the ROW easement acquisition process. If CRP lands are identified, the Project team will coordinate with landowners and the local NRCS to address impacts, as needed.

There are no reservations or other Tribal lands located within the Flexibility Area.

There are no SDGFP Grassland Reserve Program easements within or adjacent to the Flexibility Area.

There is one SDGFP GPA on Otter Tail-owned lands within the Project ROW and, therefore, within the Flexibility Area; the Applicants have consulted with SDGFP regarding the lease and there are no concerns or permits required (Appendix C). The Big Stone Power Plant GPA, a 1.01-square-mile easement managed by the SDGFP, is located adjacent to the edge of the Project ROW for approximately 398 feet.

There are no SDGFP Walk-In Area Program areas within or adjacent to the Flexibility Area.

There are no SDGFP Conservation Reserve Enhancement Program areas within or adjacent to the Flexibility Area.

There are no other federal, state, or local lands or easements, school and public lands, landmarks, cemeteries, parks, places of worship, recreational campgrounds, boat launches, or other public or institutional land uses located within or near the Flexibility Area. There are also no Nature Conservancy lands within the Flexibility Area.

## **16.2.2 Public lands and facilities impacts and avoidance, minimization, and mitigation measures**

The Project has been designed to avoid public lands and facilities. As discussed in Section 10.0 above, the Applicants selected the proposed Route in part because it avoids public lands and conservation easements. The USFWS WPAs, NWRs, and wetland/grassland easements are located outside of the Project ROW; therefore, no direct impacts are anticipated. Similarly, the Grassland Reserve Program easements and Walk-In Area Program areas are located outside of the Project ROW and no direct impacts are anticipated.

Noise from construction activities may temporarily impact the SDGFP GPA; however, such impacts would be temporary in nature and would be limited to areas in close proximity to the work areas. Additionally, construction activities will mostly occur during daytime hours. The Applicants have designed the Project so that no structures are located on the SDGFP GPA. The Applicants have consulted with SDGFP regarding the location of the Project ROW and structure placement in relation to the GPA (Appendix C). If impacts to the GPA are unavoidable during Project construction or operation, the Applicants will coordinate with SDGFP in advance.

## **16.3 Noise**

### **16.3.1 Existing sound**

Noise (sound) is measured in units of decibels (dB) on a logarithmic scale. Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more “weight.” The A-weighted decibel (dBA) scale corresponds to the frequency sensitivity range for human hearing. Noise levels capable of being heard by humans are measured in dBA. A noise level change of three dBA is barely perceptible to average human hearing. A five dBA change in noise level, however, is clearly noticeable. A 10 dBA change in noise level is perceived as a doubling or halving of noise loudness.

The State of South Dakota has not adopted a noise level requirement. Grant County does not have an applicable noise level requirement.

The Project is located in an area with existing linear infrastructure, such as a BNSF railroad, U.S. Highway 12, several local roads, and several existing transmission lines (a 230 kV Northwestern Energy line, two 115 kV Great River Energy lines). The Big Stone Power Plant is located approximately 1 mile from the proposed Project. Approximately 1 mile to the north/northeast of the Project is Big Stone City, which consists of more densely developed residential, commercial, and industrial land use. Land use in the Flexibility Area is primarily agriculture.

Vehicular traffic, railroad use, pockets of industrial use, and farming activities are likely the largest contributors to noise in the vicinity of the Project. Windy conditions in the vicinity of the Project tend to increase ambient noise levels compared to other rural areas. Additionally, higher levels likely exist near roads and other areas of human activity. Figure 12 of Appendix A shows noise sensitive land uses in the vicinity of the Project (rural residences and farmstead, family farms, ranches). The closest sensitive land use (residence) is located 464 feet from the Project ROW.

### **16.3.2 Noise level impacts and avoidance, minimization, and mitigation measures**

Construction noise will be temporary with the main sources coming from heavy construction equipment operation and increased vehicle traffic due to construction personnel transporting materials to and from the site. Additional, intermittent construction-related noise may occur based on the final Project design (e.g., the use of implosive sleeves). Residents living in close proximity to the Project ROW may be temporarily affected by noise generated from construction activities. Construction noise levels will be minimized by ensuring that construction equipment is equipped with mufflers that are in good working order. Construction activities will mostly occur during daytime hours.

Generally, noise levels during the operation and maintenance of transmission lines are minimal. Transmission conductors can emit a noise that is called corona under certain conditions. Corona noise has a crackling sound and is due to corona discharges—the small amount of electricity ionizing the moist air near the conductors. The level of noise depends on conductor conditions, voltage level, and weather conditions. During heavy rain, the background noise level of the rain is usually greater than the noise from the transmission line. As a result, people do not normally hear noise from a transmission line during heavy rain. During light rain, dense fog, snow, and other times when there is moisture in the air, noise from transmission lines (corona noise) may be more perceivable because it is not being masked by the sounds of rain, but the noise levels produced are equal to approximately household background levels. During dry weather, noise from transmission lines is barely perceptible by humans. Several other factors, including conductor voltage, shape and diameter, and surface irregularities such as scratches, nicks, dust, or water drops can affect a conductor's electrical surface gradient and, therefore, its corona noise emission levels. The way conductors are arranged on the support poles also affects corona noise production.

Transformers, inverters, and switchgears are among the primary noise sources of a substation. Noise emissions from this equipment have a tonal character that sometimes sounds like a hum or a buzz, that corresponds to the frequency of the alternating current. Transformer or shunt reactor “hum” is the dominant noise source at substations if such equipment exists. At substations without transformers or shunt reactors, only infrequent noise sources would exist such as the opening and closing of circuit breakers or the operation of an emergency generator. Typical substation design is such that noise produced by these sources does not reach beyond the

substation property. Noise typical from substations blends into background noise levels with increasing distance away from the source without being too intrusive off-site.

No additional mitigation measures are necessary since there will be minimal noise impacts from the operation of the Project.

## **16.4 Visual resources**

### **16.4.1 Existing visual resources**

The visual impact of a project is largely subjective. Generally, landscapes with a combination of variety and harmony have the greatest potential for high scenic value and may be considered important to persons living in or traveling through a region. View response is based on the sensitivity and exposure of the view to a particular viewshed. Sensitivity relates to the magnitude of the viewer's concern for the viewshed, while exposure is a function of the type, distance, perspective, and duration of the view. The discussion of visual quality and aesthetics contained in this section is based on a qualitative review of the existing landscape environment in the vicinity of the Project.

There have been numerous modifications to the natural environment in the vicinity of the Project, including man-made infrastructure such as residential homes, urban areas, transmission lines, highways, county roads, railroads, substations, and other industrial and commercial structures. Existing modifications include: existing linear infrastructure (e.g., BNSF railroad, U.S. Highway 12, and several local roads); existing transmission corridors (i.e., a 230 kV Northwestern Energy line, two 115 kV Great River Energy lines); the Big Stone Power Plant, a coal-fired electric generation facility; and Big Stone City, South Dakota, which consists of more densely developed residential, commercial, and industrial land use.

The existing modifications to the viewshed are visible to users of nearby public lands and facilities which may have a view of the Project, including the USFWS-managed Streich WPA, SDGFP-managed Big Stone GPA, and the Big Stone NWR. Similarly, the existing infrastructure in the area has likely already been introduced into the viewsheds of the National Register of Historic Places (NRHP)-eligible cultural resources/sites in the vicinity of the Project (see Section 21.5 for more detailed information), as well as the viewshed of the scenic byway, the Minnesota Highway 75 King of Trails Scenic Byway located within two miles of the Project. There are no state parks within 2 miles of the Project.

The existing Big Stone South Substation and high-voltage transmission lines within the Flexibility Area are currently visible in the vicinity of the Project. The presence of these facilities has introduced vertical lines into a strongly horizontal landscape in the vicinity of the Project.

### **16.4.2 Visual resource impacts and avoidance, minimization, and mitigation measures**

Construction of the Project may result in temporary visual impacts, including the presence of construction equipment and temporary access roads.

The Project will create an additional, minor visual element in the vicinity, but the degree to which the transmission line will be visible will vary by location. The visual impact of the Project could affect landowners who live along or near the Project, or community residents traveling along U.S. Highway 12 and 145th and 146th streets, and other nearby roads. The viewer's degree of discernible detail decreases as the physical distance from an object increases. However, the visual

impact of the Project is not anticipated to be significant given the existing linear and other infrastructure already present in the area.

As noted above, the viewshed in the vicinity of the Project includes existing transmission lines, railroads, roadways, industrial activities from the Big Stone Power Plant to the north, and two existing substations. The Project is consistent with these existing elements. The Project would parallel existing linear infrastructure, resulting in minimal change to the existing visual landscape. Additionally, modifications to the Big Stone South Substation are not expected to create additional visual impacts in the vicinity of the Project since the substation is part of the existing environment.

Measures to minimize potential visual impacts may include the following:

- Where feasible, the location of structures and other disturbed areas will be determined by considering input from landowners or land management agencies to minimize visual impacts.
- Structure types (designs) will be uniform to the extent practical. In general, the Applicants anticipate using monopole steel structures ranging in height from approximately 120 feet to 170 feet.
- Structures will utilize corten steel (i.e., self-weathering steel) to have a dark brown matte finish to minimize sunlight reflections that could be visible to nearby landowners and commuters using nearby roadways.
- Care will be used to preserve the natural landscape; construction and operation will be conducted to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings. During operation of the Project, clearing of trees and shrubs will be conducted only as necessary per the NERC standards and to allow safe operation and inspection of the Project.

## **16.5 Satellite, cellular, radio, TV, and GPS reception**

### **16.5.1 Existing satellite, cellular, radio, TV, and GPS reception**

Existing satellite, cellular, radio, TV, and GPS systems in the vicinity of the Project were identified by reviewing publicly available information and the Federal Communications Commission (FCC) database.

#### **16.5.1.1 Radio broadcasting stations**

Amplitude modulated (AM) radio service is typically limited to a radius of 100 miles from the signal source and multiple stations may be audible in the vicinity of the Project. One local FM/AM radio broadcasting station, Big Stone Radio (KMSD 95.1 FM & 1510 AM) is present approximately 8 miles west of the Project in Milbank, South Dakota.

#### **16.5.1.2 Cellular phone**

There are no FCC-licensed cellular phone towers within 1 mile of the Project Route. Cellular phone service providers which operate in the vicinity of the Project include T-Mobile, Verizon, AT&T, Spectrum Mobile, Mint Mobile, and Twigby.

### **16.5.1.3 GPS**

GPS technology is used for a range of applications including farming, construction, logistics, surveying, wireless services, and for the operation of a range of modern navigation devices. GPS is likely used throughout the vicinity of the Project.

### **16.5.1.4 Television**

Television stations which broadcast in the vicinity of the Project over-the-air (without a cable or satellite connection) are located in Florence and Sioux Falls, South Dakota, and Appleton, Minnesota, and include:

- Columbia Broadcasting System (KDLO)
- My Network TV (KDLO-TV2)
- Public Broadcasting System (KWCM and KWCM-TV4)
- Public Broadcasting System Kids 24/7 (KWCM-TV5)
- FNX (KWCM-TV6)
- Create (KWCM-TV)
- MN Channel (KWCM-DT3)

Television stations with a cable or satellite connection may be located hundreds of miles from the Project and broadcast to cities in the vicinity of the Project.

## **16.5.2 Satellite, cellular, radio, TV, and GPS reception impacts and avoidance, minimization, and mitigation measures**

No impact on radio, television, cellular phones, or GPS units are expected from construction or operation of the Project.

Generally, transmission lines do not cause interference with radio, television, or other communication signals and reception. While it is rare in everyday operations, four potential sources for interference do exist, including gap discharges, corona discharges, and shadowing and reflection effects.

Gap discharge interference is the most commonly noticed form of power line interference with radio and television signals and also typically the most easily fixed. Gap discharges are usually caused by hardware defects or abnormalities on a transmission or distribution line causing small gaps to develop between mechanically connected metal parts. As sparks discharge across a gap, they create the potential for electrical noise, which can cause interference with radio and television signals in addition to audible noise. The degree of interference depends on the quality and strength of the transmitted communication signal, the quality of the receiving antenna system, and the distance between the receiver and the power line. Gap discharges are usually a maintenance issue, since they tend to occur in areas where gaps have formed due to broken or ill-fitted hardware (clamps, insulators, brackets). Because gap discharges are a hardware issue, they can be repaired relatively quickly once the issue has been identified. The Project hardware will be designed and maintained to minimize gap discharges.

Corona from transmission line conductors can also generate electromagnetic noise at the same frequencies that radio and television signals are transmitted. The air ionization caused by corona generates audible noise, radio noise, light, heat, and small amounts of ozone. The potential for radio and television signal interference due to corona discharge relates to the magnitude of the transmission line-induced radio frequency noise compared to the strength of the broadcast signals. Because radio frequency noise, like electric and magnetic fields, becomes significantly weaker with distance from the transmission line conductors, very few practical interference problems related to corona-induced radio noise occur with transmission lines. In most cases, the strength of the radio or television broadcast signal within a broadcaster's primary coverage area is great enough to prevent interference. Routine maintenance activities such as tightening loose hardware on the transmission line can help minimize corona noise. The Project hardware will be designed and maintained to minimize gap and corona discharges.

There is the potential for AM radio interference to occur directly below transmission lines, but this effect will dissipate rapidly beyond the transmission line ROW. If radio interference from transmission line corona does occur for an AM radio station, satisfactory reception can be restored by appropriate modification of (or addition to) the receiving antenna system. The situation is unlikely, however, because AM radio frequency interference is typically localized to under a transmission line and within the right-of-way.

Frequency modulated (FM) radio receivers usually do not pick up interference from transmission lines 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]).
- The interference rejection properties inherent in FM radio systems make them virtually immune to amplitude-type disturbances.

Television broadcast frequencies are typically high enough that they are not affected by corona-generated noise. In particular, digital and satellite television transmissions are not affected by corona-generated noise because they are dependent on packets of binary information or transmitted in the Ku band of radio frequencies (12,000-18,000 MHz), respectively. Digital and satellite transmissions are more likely to be affected by multipath reflections (shadowing) generated by nearby towers. Television interference due to shadowing and reflection effects is rare but may occur when a large transmission structure is aligned between the receiver and a weak distant signal, creating a shadow effect. In the rare situation where a transmission line may cause interference within a station's primary coverage area, the problem can usually be corrected with the addition of an outside antenna.

Cellular phone signals and GPS signals use an ultra-high frequency which is significantly higher than the range of electromagnetic noise generated by transmission line conductors. Because both cellular phone signals and GPS operate at frequencies outside the range of electromagnetic noise generated by transmission line conductors, the risk of interference is negligible. Additionally, utilities regularly use GPS-based surveying methods under and around transmission lines and have not experienced interference. Because no impacts are anticipated, no mitigation measures are proposed.

If television or radio interference is caused by or from the operation of the Project in those areas where good reception was available prior to construction of the Project, Applicants will evaluate the circumstances contributing to the impacts and determine the necessary actions to restore

reception to the present level. Potential mitigation measures may include making the appropriate modifications to the receiving antenna system.

In the unlikely event that the Project causes interference within a television station's primary coverage area, the Applicants will work with the affected viewers to correct the problem at the Applicants' expense. This problem can usually be corrected with the addition of an outside antenna.



## **17.0 Local land use controls (ARSD 20:10:22:19)**

Land use in Grant County is regulated by the Grant County Compiled Zoning Ordinances. The current Comprehensive Land Use Plan for Grant County (Comprehensive Plan) has no provisions for high-voltage transmission lines or power lines (Grant County Planning Commission 2022). The Comprehensive Plan is supportive of development within Grant County, including wind and solar farms and the associated facilities (e.g., transmission lines) (Grant County Planning Commission 2022).

The Project is located in two zoning districts in Grant County: the Agricultural District and the Commercial/Industrial District. Within each district, the Project is a conditional use requiring a CUP. The Applicants have been coordinating with the County regarding the CUP process and plan to submit a CUP application in April 2024. Closer to the time the Project begins construction, Applicants will also secure a building permit for the Project.

Additionally, if it is not possible for final structure placement to avoid floodplains, the Project may also require a floodplain development permit from Grant County. The Applicants have discussed the floodplain development permitting process with the Grant County Floodplain Administrator and will obtain floodplain development permits, as needed.

Construction of the Project will comply with applicable local ordinances and may require those permits identified in Section 26.0.

## **18.0 Water quality (ARSD 20:10:22:20)**

The following sections describe the existing water quality in the vicinity of the Project, the potential effects of the proposed Project on water quality, and measures that have been or will be utilized to avoid, minimize, and/or mitigate potential impacts.

### **18.1 Existing water quality**

Groundwater and surface water resources are discussed in Section 13.0.

### **18.2 Water quality impacts and avoidance, minimization, and mitigation measures**

During construction, there is a limited possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading, and construction traffic. This could potentially affect water quality if the erosion is not controlled. However, erosion and sediment control BMPs would keep sediments on site that might otherwise increase sediment loading in receiving waters.

Construction of the Project will require coverage under the SDDANR General Permit for Storm Water Discharges Associated with Construction Activities, which requires preparation of a SWPPP. The SWPPP will identify potential sources of stormwater pollution and specify BMPs to control erosion and sedimentation. The SWPPP will be prepared before the start of construction. The Applicants would implement BMPs during construction of the Project to protect topsoil and adjacent water resources and minimize soil erosion. Construction practices would be completed in accordance with the National Pollutant Discharge Elimination System (NPDES) permit requirements. BMPs may include:

- Containment of stockpiled material away from stream banks and shorelines as required by the NPDES permit.
- Stockpiling and respreading topsoil at laydown areas and/or permitted areas.
- Reseeding and revegetating disturbed areas as required by the NPDES permit.
- Implementing erosion and sediment controls as required by the NPDES permit, such as use of silt fence, straw wattles, erosion control blankets, re-vegetation, or other features and methods designed to control storm water runoff and mitigate erosion and sedimentation.
- Minimizing stormwater generated by construction by following BMPs.

Because erosion and sediment controls would be in place for construction of the Project, impacts to water quality are expected to be negligible.

## **19.0 Air quality (ARSD 20:10:22:21)**

The following sections describe the existing air quality conditions in the vicinity of the Project, the potential effects of the proposed Project on air quality, and measures that have been or will be utilized to avoid, minimize, and/or mitigate potential impacts.

### **19.1 Existing air quality**

Under the Clean Air Act, the USEPA is required to set National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants including particulate matter, ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead. The USEPA designates areas as meeting NAAQS (attainment) or not meeting standards (nonattainment), while states are required to develop plans to attain and maintain standards, or to design specific plans to attain standards for designated nonattainment areas (42 United States Code §7401). The entire area of South Dakota is in attainment for both national and South Dakota ambient air quality standards (USEPA 2024). The nearest ambient air quality monitoring site is located in Watertown, South Dakota, which is approximately 39 miles southwest of the Project and monitors for particulate matter and ozone. The primary emission sources that exist in the vicinity of the Project include agricultural-related equipment and vehicles traveling along roads and other industrial uses, such as the Big Stone Power Plant.

### **19.2 Air quality impacts and avoidance, minimization, and mitigation measures**

During construction, fugitive dust emissions would temporarily increase due to equipment vehicle traffic in the vicinity of the Project as well as ROW clearing activities. Additionally, there would be short-term emissions from construction vehicles and equipment onsite. The concentration of pollutants during construction will be greatest near the Project ROW but will decrease rapidly with distance from the Project ROW. Air quality effects caused by dust or vehicle emissions would be short-term, limited to the time of construction, and would not result in any NAAQS exceedances for criteria pollutants.

General mitigation measures will include the implementation of BMPs throughout construction to suppress fugitive dust emissions. BMPs during construction may include watering unpaved roads and loose gravel areas, implementing spray-on amendments (e.g., calcium chloride, water), staging construction activities to limit soil disturbance, mulching and planting vegetation, limiting construction traffic speeds, and other applicable measures as necessary. Upon completion of construction activities, measures would be taken to revegetate disturbed areas (outside of cultivated areas) to permanently stabilize soil and prevent further production of fugitive dust emissions.

No impacts to air quality due to the operation of the Project are anticipated. Minimal increases in greenhouse gas emissions may result from the maintenance of transmission facilities as repair technicians and personnel access portions of the transmission line, but these impacts will be temporary and insignificant. Corona which ionizes the air within a few centimeters of a transmission line's conductors and hardware can produce small concentrations of ozone and oxides of nitrogen in the air surrounding it. However, studies designed to monitor the production of ozone under transmission lines have generally been unable to detect any significant increase due to the presence of transmission facilities and production of ozone during operation of the Project will be insignificant (Sebo et al. 1976, Valuntaite et al. 2009).

## 20.0 Time schedule (ARSD 20:10:22:22)

The Applicants expect that the Project will be placed in-service in 2030 or 2031. A preliminary permitting and construction schedule for the Project is provided in Table 20-1 below.

This schedule is based on information known as of the date of filing and may be subject to change as further information develops because of multiple variables involved in siting new transmission lines. Otter Tail, as project manager for the Project, will use best efforts to manage the schedule to deliver a safe and reliable Project as soon as reasonably possible. However, activities such as land acquisition, obtaining the necessary federal, state, or local approvals, material lead times, contractor availability and weather conditions are just some of the variables that could cause the in-service date of the Project to change.

**Table 20-1. Estimated permitting and construction schedule**

Milestone	Estimated Start Date	Estimated End Date
MPUC Certificate of Need Process	Q3 2023	Q4 2024
Acquisition of Land Rights (South Dakota)	Q2 2024	Q2 2024
SDPUC Facility Permit Process <sup>5</sup>	Q2 2024	Q2 2025
MPUC Route Permit Process	Q4 2024	Q4 2026
Acquisition of Land Rights (Minnesota)	Q1 2027	Q1 2029
Transmission Line and Substation Design	Q1 2027	Q3 2028
Other Federal, State and Local Permits	Q2 2027	Q2 2028
Construction	Q3 2028	Q3 2031
Commissioning/Testing	Q3 2031	Q4 2031
In-Service Operations	Q4 2031	

<sup>5</sup> The start date for the SDPUC Facility Permit Process being well ahead of the MPUC Route Permit Process is due to the timeline set forth in SDCL § 49-32-20.

## 21.0 Community impact (ARSD 20:10:22:23)

The following sections describe the existing community characteristics in the vicinity of the Project; the potential impacts of the Project with respect to socioeconomics, community resources, commercial sector, industrial sector, agricultural sector, transportation, and cultural resources; and measures that have been or will be utilized to avoid, minimize, and/or mitigate potential impacts.

### 21.1 Socioeconomic and community resources

#### 21.1.1 Existing socioeconomic and community resources

The Project is located in northeastern Grant County, South Dakota, on land used primarily for agricultural purposes. The U.S. Census Bureau (USCB) 2022 population estimate for Grant County was 7,486 (USCB, 2022a). The closest residential area to the Project is Big Stone City, South Dakota, located approximately 1 mile north/northeast, with a 2022 population estimate of 408 (USCB, 2022b). Milbank, South Dakota, located approximately 9 miles to the southwest of the Project, is the next closest residential area and has a 2022 population estimate of 3,484 (USCB, 2022b).

In Grant County, 91.8 percent of the population is white (not Hispanic or Latino), 5 percent is Hispanic or Latino, 0.9 percent is Black or African American, 1.3 percent is American Indian and Alaska Native, 0.5 percent is Asian, 0.1 percent is Native Hawaiian and Other Pacific Islander, and 1.2 percent is two or more races (USCB 2022a). In the State of South Dakota, 80.7 percent of the State’s population is white (not Hispanic or Latino), 4.9 percent is Hispanic or Latino, 2.6 percent is Black or African American, 8.5 percent is American Indian and Alaska Native, 1.8 percent is Asian, 0.1 percent is Native Hawaiian and Other Pacific Islander, and 2.8 percent is two or more races (USCB 2022a). Additional statistics from the USCB (2022a) on population, income, demographics, poverty rates, English-speaking ability, and unemployment rates for Grant County and the State of South Dakota are provided in Table 21-1.

**Table 21-1. Socioeconomic characteristics in Grant County**

	Grant County	South Dakota
2020 Population	7,556	886,667
2022 Population	7,486	909,869
Population Change (%)	-2.6	1.2
2022 Median Household Income (\$)	70,851	69,457
2022 Unemployment Rate (%)	3.3	3.1
2022 Population Below Poverty Level (%)	10.9	12.5
2022 Percent Minority (%)	3.9	15.8
2022 Percent LEP Population (%)	2.7	1.5
Rental Vacancy Rate (%)	< 1.0	20.6
Employment Rate (%)	95.9	97.9

LEP: Limited English Population, defined as anyone age 5 or older or reported speaking English less than “very well.”

Source: USCB 2020, 2022a, 2022c, South Dakota Department of Labor and Regulation 2024.

In Grant County, the top industries in terms of employment for individuals over the age of 16 in 2022 were: educational services, and health care and social assistance (22.7%); manufacturing (15.3%); construction (10.2%); agriculture, forestry, fishing and hunting, and mining (10.1%); and arts, entertainment, recreation, and accommodation and food services (8.4%) (USCB 2022d). The unemployment rate for the same time period in Grant County was 95.9 percent (South Dakota Department of Labor and Regulation 2024).

### **21.1.2 Socioeconomic and community resource impacts and avoidance, minimization, and mitigation measures**

As discussed in Sections 2.0 and 7.0, the proposed Project, which is part of the larger Big Stone South-Alexandria-Big Oaks Project, will provide significant benefits to the existing 230 kV system in the region by providing additional transmission capacity, increasing access for new generation, improving electric system reliability, reducing transmission congestion, and increasing access to low-cost energy.

The Project is expected to create both short- and long-term positive impacts to the local economy. Impacts to social and economic resources from construction activities would be short-term during the construction phase. Local businesses, such as restaurants, grocery stores, hotels, and gas stations, may see increased business during this phase from construction-related workers. Local industrial businesses, including aggregate and cement suppliers, may also benefit from construction of the Project.

Construction of the BSSA Project, which includes the Project, is anticipated to last between 2 to 4 years. As discussed in Section 23.0, while employment estimates specific to the Project are not available, it is anticipated that construction of the BSSA Project, which includes the Project, will employ approximately 100 to 150 construction workers. See Section 23.0 for a breakdown of the typical construction and operation jobs and the estimated labor-hours to support Project construction.

Construction and operation of the proposed Project would not directly result in a change in the population size or demographics of Grant County. The influx of construction personnel to the area may result in a temporary increase in the need for temporary housing, but any increase would be spread out over the length of the Project construction phase and would not be expected to affect the availability of rental housing or temporary lodging (e.g., hotels, motels, campgrounds) in any one location. The construction and operation of the Project is not anticipated to create or remove jobs in the area over the long-term or result in the permanent relocation of individuals to or from the area. Construction and operation of the Project is not anticipated to affect the local distribution of jobs or occupations in the community due to the specific skills required for the construction of a high-voltage transmission line, requiring trained professionals to be temporarily relocated to the vicinity of the Project.

No impacts to property values are anticipated from the Project. Prior studies have found that transmission lines do not substantially affect the value of adjoining or abutting property. Jackson and Pitts (2010) prepared a literature review of empirical studies conducted between 1964 and 2009. Based on the studies reviewed, while having some inconsistencies in their detailed results, there were generally small (2 to 9% reduction in property value) or no effect on sales price due to the presence of electric transmission lines. Where an effect was detected, this effect generally dissipated with time and distance. While this study indicates that a small reduction in property value is possible, significant impacts to property values are not anticipated. Additionally, the Project has been sited in proximity to existing linear infrastructure to further reduce the potential for impacts.

Long-term beneficial impacts from the Project will include beneficial impacts to the local tax base in the form of revenues from property taxes paid by the Applicants. The amount of property taxes generated from the Project will be based on the cost of the Project. Based on a range of total capital costs between \$29.7 million and \$41.4 million, the Project is estimated to generate between approximately \$184,000 and \$257,000 in direct economic benefits annually to taxing authorities in South Dakota.

Overall, the Applicants anticipate that the Project would be socioeconomically beneficial to the local population and would not impact long-term population trends, income, housing, occupation distribution, or integration or cohesion of communities. Therefore, no mitigation measures are anticipated to be required.

## **21.2 Commercial, industrial, and agricultural sectors**

### **21.2.1 Commercial and industrial sectors**

#### **21.2.1.1 Existing commercial and industrial sectors**

Other than agriculture, the top industries in Grant County include manufacturing, tourism, and small businesses. There are limited commercial and industrial businesses in the vicinity of the Project. Local commercial businesses in the vicinity of the Project include restaurants, grocery stores, hotels, and gas stations. Local industrial businesses in the vicinity of the Project include aggregate and cement suppliers.

#### **21.2.1.2 Commercial and industrial sector impacts and avoidance, minimization, and mitigation measures**

The Project is anticipated to have economic benefits to various commercial and industrial sectors in the vicinity of the Project during construction and operation. As noted above, local businesses, such as restaurants, grocery stores, hotels, and gas stations, may see increased business during the construction of the Project from an increase of construction-related workers to the area. Some construction materials and supplies may be purchased from local businesses. Local industrial businesses, including aggregate and cement suppliers, may also benefit from construction of the Project. No commercial or industrial sectors exist within the Flexibility Area and businesses in the vicinity of the Project are not anticipated to be negatively impacted; therefore, no mitigation measures are proposed.

### **21.2.2 Agricultural industry**

#### **21.2.2.1 Existing agricultural industry**

Land use in Grant County is predominantly agricultural, with approximately 62 percent of the land in Grant County being used for agricultural purposes in 2023 (USDA 2023). In 2022, there were a total of 574 active farms in Grant County, with the majority of farms comprising over 1,000 acres (USDA 2022a). Grant County had a value of \$328,667,000 from the total agriculture sales in 2022 (USDA 2022b). Corn and soybeans made up most crop sales and hogs and pigs comprised the majority of livestock sales in 2022 (USDA 2022a). Commodity sales were similar between farms supplying crops and livestock, with 48.1 percent of sales from selling crops and 51.9 percent of sales from livestock (USDA 2022a). Grant County ranked 12 out of the 66 South Dakota counties in total value of agricultural products sold (USDA 2022b).

### **21.2.2.2 Agricultural industry impacts and avoidance, minimization, and mitigation measures**

Project construction activities will temporarily use cropland and grassland/pasture within the Project ROW and adjacent areas to facilitate equipment movement (construction access roads) and structure laydown pads. These activities would remove land from productivity during the duration of construction, displace livestock (if present), or result in a delay or loss of crop production.

Minimal existing agricultural land would be taken out of production by the proposed Project, primarily the area around transmission structures. It is estimated that approximately 0.09 acre of agricultural land would be permanently impacted and approximately 58.7 acres of agricultural land would be temporarily impacted by the Project. However, this is a conservative estimate that assumes the entire ROW is needed for temporary disturbances.

Landowners will be compensated for any crop damage that occurs during construction. The Applicants will also work with landowners once a route is finalized to coordinate the need for early crop harvest and compensate landowners for any crop losses. If livestock are present in the Project construction areas, fencing or cattle guards will be placed where necessary to prevent livestock from entering the construction area. Once construction is completed, agricultural activities will be allowed to resume within the proposed ROW between structures.

Drain tile lines may be present along the Project ROW. The Applicants will work with the landowners to identify, and mark drain tile lines and will try to avoid damage during construction. Where locations are known, temporary travel paths will avoid drain tiles where they can and when they are unavoidable, matting may be required. If drain tile lines are damaged by construction of the Project, the Applicants will coordinate with the landowner to ensure the tile lines are repaired in accordance with landowner agreements.

Areas disturbed during construction will be repaired and restored to preconstruction contours to the extent practicable so that surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural re-vegetation (outside of cultivated areas, provide for proper drainage, and prevent erosion). Construction laydown areas and temporary transmission line travel paths will be restored per the landowner agreement. The Applicants will use a seed mix that is recommended by the NRCS or other agency unless otherwise agreed to with the landowner. Excess concrete will be removed from site and will not be buried in agricultural areas.

## **21.3 Community facilities and services**

### **21.3.1 Existing community facilities and services**

There are numerous existing community facilities and services within 10 miles of the Project, including hospitals, law enforcement, fire and ambulance services, schools, nursing homes, and churches. Table 21-2 identifies these facilities in relation to the Project. The Project is located within the Grant-Roberts Rural Water System. Electrical service in the vicinity of the Project is primarily provided by Whetstone Valley Electric Cooperative and Otter Tail Power Company. Big Stone City Municipal Electric Department provides electrical services to Big Stone City (South Dakota Public Utilities Commission undated).



**Table 21-2. Community services and facilities in the vicinity of the Project**

Community Facility	Name	Location	Distance from Project (miles)
Schools	Big Stone City Elementary	Big Stone City, SD	1.54
	Milbank High School	Milbank, SD	7.64
	St. Lawrence Elementary	Milbank, SD	7.34
	Milbank Koch School	Milbank, SD	7.77
Churches	Big Stone Tabor Methodist Church	Big Stone City, SD	1.44
	Bethlehem Lutheran Church	Milbank, SD	5.63
	Peace Lutheran Church	Milbank, SD	6.65
Nursing Homes	St. Williams Care Center	Milbank, SD	7.17
	Golden Living Center	Milbank, SD	8.06
	Golden Living Community	Milbank, SD	8.03
Hospitals	Milbank Area Hospital/Avera Health	Milbank, SD	7.18
Ambulance Services	Milbank Ambulance Service	Milbank, SD	7.61
Fire Departments	Big Stone City Fire Hall	Big Stone City, SD	1.32
	Milbank City Fire Department	Milbank, SD	7.59
Law Enforcement	Milbank City Police Headquarters	Milbank, SD	7.18
	Grant County Sheriff	Milbank, SD	7.70

Source: City of Milbank undated, Big Stone City School District #25-1 undated, Big Stone City undated-a, Big Stone County Undated, Grant County 2024, Big Stone City undated-b, County Office 2024.

### **21.3.2 Community facilities and services impacts and avoidance, minimization, and mitigation measures**

The additional workers in the region during construction of the proposed Project could temporarily add an additional demand on some of the existing community facilities and services. However, this demand would be temporary, and it is anticipated that the existing facilities would have sufficient capacity to meet this demand.

During the construction period and during subsequent operation, it is expected that the Project would have no significant impact on the security and safety of the local communities and the surrounding area. Some additional risk for workers or public injury may exist during the construction phase, as it would for any large construction project. The Project will not significantly impact the safety or livelihood of surrounding communities, and existing emergency services in the vicinity of the Project are expected to be sufficient to support construction personnel. The Applicants will develop a workplan and an emergency response plan and support workforce and community safety during the Project construction. The Project's general contractor will identify and secure all active construction areas to prevent public access to potentially hazardous areas and will require workers to follow safety standards. In the event an incident does occur, the Project's emergency response plan will be implemented, and area local emergency services will be contacted, as needed. In addition, the construction workforce is not anticipated to impact to the local government, utilities, or community services.

The Project is not anticipated to impact existing water systems or electrical services. Appropriate safety measures would be implemented before structure foundation excavation begins, including coordinating with utility companies to determine utility locations and complying with South Dakota One-Call system to verify existing utilities are properly marked, as needed.

## 21.4 Transportation

The existing transportation resources in the vicinity of the Project are described below, followed by a discussion of the potential effects of the proposed Project and avoidance, minimization, and mitigation measures.

### 21.4.1 Existing transportation

The Project ROW is readily accessible from existing roads. Local roads in the vicinity of the Project are typically composed of gravel. The transportation network that will be used during construction and for maintenance during operation of the Project is comprised largely of federal and state highways composed of asphalt concrete including: U.S. Highway 12 (intersects the Project), U.S. Highway 75 (3.6 miles to the east of the Project), State Highway 109 (1.2 miles to the north and northeast of the Project), and State Highway 15 (6.4 miles to the west of the Project). The Project will cross U.S. Highway 12, as well as the following roads in Grant County: 145th Street, 146th Street, 485th Avenue, 486th Avenue, and 487th Avenue.

The 2022 Average Daily Traffic volume on roads near the Project is show in Table 21-3.

**Table 21-3. Average daily traffic near the Project**

Roadway	Total traffic volume	Truck traffic volume
US Highway 12 southwest of Big Stone City	3,115	448
State Highway 15 directly north of Milbank	2,065	194
State Highway 109 northwest of Big Stone City	1,063	180
485th Avenue northwest of 146th Street	205	n/a
487th Avenue northeast of 146th Street	230	n/a
145th Street northwest of 485th Avenue	205	n/a

Source: SDDOT 2022.

The Project Route crosses the BNSF Railroad just north of U.S. Highway 12. The BNSF Railroad primarily transports agricultural products, consumer products, industrial products, and coal. There are no other railroads present within the Flexibility Area.

The closest commercial airport, the Ortonville Municipal Airport, is approximately 2.3 miles from the Project. The closest private airport is the Ortonville Hospital Heliport, located approximately 3 miles from the Project. The nearest private airstrip (SD94) is located approximately 19 miles away from the Project. The nearest U.S. air military installation is Ellsworth Air Force Base, located approximately 333 miles from the Project near Rapid City, South Dakota. The nearest South Dakota Air National Guard installation is Joe Foss Field Air National Guard, located approximately 118 miles from the Project in Sioux Falls, South Dakota.

### 21.4.2 Transportation impacts and avoidance, minimization, and mitigation measures

The area in the vicinity of the Project contains several major highways as well as local roads. There may be temporary impacts to local roads during construction of the Project. During construction, construction vehicles would travel to and from the site, as well as private vehicles used by the

construction personnel. The movement of equipment, materials, and personnel to the site would cause a relatively short-term increase in traffic on area roads. These effects are expected to be minor and temporary as relatively low numbers of workers and equipment will be accessing any one location along the Project ROW at any given time and will cease after completion of construction. Project construction is not anticipated to significantly impact existing traffic patterns or capacity. Operation and maintenance visits to the Project will have negligible impact on area traffic once the Project is operating.

The Project is expected to have a minimal effect on existing road infrastructure and will comply with all applicable federal, state, and local requirements. All highway crossings will meet or exceed National Electrical Safety Code requirements. The Applicants have met with Big Stone Township to discuss road use and will continue that coordination. The Applicants will also coordinate with Grant County regarding road use. The Applications will coordinate with applicable local and state road authorities so that all applicable permits are obtained, delivery plans are communicated, and traffic management plans are implemented where necessary. The Applicants will coordinate with applicable local and state road authorities regarding the use and restoration of roads, as needed. The Applicants will coordinate with U.S. Department of Transportation (USDOT), South Dakota Department of Transportation (SDDOT), the Grant County Highway Department, and Township staff and will obtain the necessary permits, as needed.

The Applicants will also coordinate with BNSF Railroad to ensure construction and operation of the Project will not affect the use of the railroad lines.

The Applicants used the Federal Aviation Administration (FAA) Notice Criteria Tool to analyze potential impacts from the Project on airspace for preliminary structure locations and heights. No impacts to the Ortonville Municipal Airport or other registered commercial or private aviation facilities are expected based on that analysis. The Applicants will obtain FAA Determinations of No Hazard (Form 7460-1, Notices of Proposed Construction or Alteration) prior to construction of the structures, as needed. The Applicants will also comply with any applicable requirements for pre- and post-construction FAA submittals (Form 7460-2).

## **21.5 Cultural resources**

The following sections provide information on the cultural resources potentially affected by the construction, operation, and maintenance of Project facilities and how potential impacts to these resources would be avoided, minimized, and/or mitigation.

### **21.5.1 Existing cultural resources**

#### **21.5.1.1 Regulatory Framework**

SDCL §1-19A-11.1 requires that state agencies or political subdivisions of the state, or any instrumentality thereof (i.e., county, municipality) may not undertake any project that will encroach upon, damage, or destroy any historic property included in NRHP or state registers until the SHPO has been given notice and an opportunity to investigate and comment on the proposed project. Any permits required by the state, county, or municipalities, including an SDPUC Facility Permit, will invoke this law.

ARSD 20:10:22:23 states that an application for a Facility Permit shall include a forecast of the impact on landmarks and cultural resources of historic, religious, archaeological, scenic, natural, or other cultural significance.

The Applicants are in the process of completing cultural resources investigations for the Project, as described in the following sections, in accordance with SDCL §1-19A-11.1 and ARSD 20:10:22:23, to enable forecasting of potential impacts and develop impact avoidance or minimization measures.

All work was, and will be, conducted to professional standards and guidelines in accordance with the Secretary of the Interior’s Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-44742), the Secretary’s Standard for Identification (48 FR 44720-44723), and the 2012 South Dakota Guidelines for Compliance with the National Register of Historic Preservation Act and SDCL §1-19A-11.

**21.5.1.2 Level I Records Search**

A Level I cultural resource records search was completed on November 1, 2023, in accordance with SHPO guidelines to provide an inventory of previously recorded cultural resources. The Level I records search was conducted for the area described within the Level III Cultural Resource Survey (included as Appendix E), consisting of a 200-foot buffer (400-foot corridor) off the centerline of the proposed Route and alternative then under consideration (Cultural Resources Study Area), plus a 1-mile buffer.

The Level I records search identified 25 previous cultural resources surveys that have been conducted within 1 mile of the Cultural Resources Study Area. Seven of the previous surveys overlap the Cultural Resources Study Area (report nos. ESD-0045, ESD-0211, ESD-0457, ESD-0647, ESD-0649, ESD-0663, ESD-0781) (Table 21-4).

**Table 21-4. Previous cultural resource surveys within 1 mile of the Cultural Resources Study Area.**

Report No.	Year	Report Name	Author(s)	Type
AGT-0001	1975	Archaeological Survey and Testing for the Upstream Work: Big Stone Lake-Whetstone River Project Area, Grant County, South Dakota. Project No. DACW37-75-C-0198	Johnson, Elden	Level III
AGT-0021	1991	An Intensive Cultural Resources Survey of the Proposed Materials Pit Near Big Stone City in T121N, R47W, Section 24, Grant County, South Dakota. SDDOT Project No. RS 3109(3)157 PCEMS 5540. CIS No. 614	Estep, Rose F.	Level III
AGT-0026	1994	An Intensive Cultural Resources Survey of the Proposed Corn Processing Facilities Near Milbank, Grant County, South Dakota. CIS No. 958	Donohue, James, and Roger Williams	Level III
AGT-0029	1996	Cultural Resources Survey of Big Stone City Wastewater Treatment System Improvements in Grant County, South Dakota, Northeast Lowland Archeological Region	Winham, R. Peter	Level III
AGT-0030	1996	An Intensive Cultural Resources Survey of the Proposed Ortonville Water Treatment Plant and Water Supply Line to Big Stone City, in Big Stone County, Minnesota and Grant County, South Dakota	Lueck, Edward	Level III
AGT-0032	1995	Phase I Cultural Resource Survey: Ortonville-Big Stone Line of Rail Construction Grant County, South Dakota, Big Stone County, Minnesota	Hanson Engineers	Level III
AGT-0042	2002	A Cultural Resources Survey of Bridge Project No. BRF 0012(101)398, PCEMS 6241, Grant County, South Dakota. CIS No. 1609	Messerli, Thomas	Level III

Report No.	Year	Report Name	Author(s)	Type
AGT-0066	2007	Level I and III Cultural Resources Survey for the Big Stone II Project, Grant County, South Dakota. Volume I and II. Project No. 05-10 & Geotechnical Investigation Areas, Big Stone II Power Plant Project (May 19, 2006)	Doperalski, Mark, Andrew Bielakowski, Betsy Bradley, Katherine Guidi, Adam C. Holven, William Stark, Jennifer Tworzyanski, and Holly Wright	Level I & Level III
AGT-0075	2009	A Level III Cultural Resources Survey for the Construction of Electrical Distribution Facilities by Whetstone Valley Electric Cooperative (Letter 1609h05020) in Grant County, South Dakota	Downing, Patricia	Level III
AGT-0077	2007	Level I and III Cultural Resources Survey for the Big Stone II Project, Grant County, South Dakota. SHPO File No 050427006f(W). Project No. 05-10 & Geotechnical Investigation Areas, Big Stone II Power Plant Project (May 19, 2006)	Doperalski, Mark, Andrew Bielakowski, Betsy Bradley, Katherine Guidi, Adam C. Holven, William Stark, Jennifer Tworzyanski, and Holly Wright	Level I & Level III
AGT-0078	2010	An Archaeological Survey of Mortuary Features in Grant County, South Dakota. CIS No. 2423	Bruce, Terri, Jason M. Kruse, Austin A. Buhta, Renee M. Boen	Level III
AGT-0089	2013	An Intensive Cultural Resources Survey of the 2011 and 2012 State Infrastructure Bank Emergency Proposed Wetlands Mitigation Project SDDOT ER 0010(98), PCN 0451, Grant County, South Dakota. CIS No. 2717	Byrne, Daniel, and Laurie Bozzetti	Level III
AGT-0110	2020	An Intensive Cultural Resources Survey for SDDOT Project NH 0012(218)387, PCN 05EK, Grant County, South Dakota. CIS No. 3680	Nesselbeck, Lisa, and David T. Williams	Level III
AGT-0121	2021	BRO 8026(35) PCN 084D Bridge 26-374-023 Replacement: A Class III Cultural Resource Inventory in Grant County, South Dakota, Report of Investigation: 2973	Moloney, Brenna	Level III
ESD-0045*	1981	Cultural Resources Survey of Selected Portions of the Proposed Grant-Roberts Rural Water System in Roberts, Grant, Codington, and Deuel Counties, South Dakota. CIS No. 31	Haug, James	Level III
ESD-0211*	1999	A Cultural Resources Reconnaissance Survey for Whetstone Valley Electric Cooperative 1999-2000 Work Plan in Roberts and Grant Counties, South Dakota Project 981104004F (Part I)	Downing, Patricia	Level III
ESD-0457*	2008	Class III Archaeological Inventory for the Big Stone II Transmission Line Project, Deuel and Grant Counties, South Dakota	Kennedy, Laura, Michael Justin, Michael Madson	Level III
ESD-0464	2010	An Archaeological Survey of Mortuary Features in Codington, Grant, Hamlin and Roberts Counties, South Dakota. CIS No. 2410	Bruce, Terri, Jason M. Kruse, Austin A. Buhta, Renee M. Boen	Level III

Report No.	Year	Report Name	Author(s)	Type
ESD-0573	2016	Level III Intensive Archaeological and Traditional Cultural Property Resources Inventory for the Big Stone South to Ellendale 345 kV Transmission Line Project, Brown, Day, and Grant Counties, South Dakota. Volume I of IV	Sabatke, Stephen, and Alan Stanfill	Level I & Level III
ESD-0644	2014	Level I and III Archaeological Investigation of the CapX2020 Big Stone South to Brookings County 345 kV Transmission Line Project: Northern Portion, Grant and Deuel Counties, South Dakota. Addendum I. ERM Project No. 121120004S	Doperalski, Mark	Level I & Level III
ESD-0647*	2015	Level I and III Archaeological Investigation of the CapX2020 Big Stone South to Brookings County 345 kV Transmission Line Project, Grant, Deuel, and Brookings Counties, South Dakota. Addendum IV. ERM Project No. 121120004S	Doperalski, Mark	Level III
ESD-0649*	2018	Level III Intensive Archaeological and Traditional Cultural Property Resources Inventory for the Crowned Ridge Transmission Line, Codington and Grant Counties, South Dakota. Project No. 42659.01. SWCA Report No. 17-694	SWCA	Level III
ESD-0663*	2019	Addendum 1 to Level III Intensive Archaeological and Traditional Cultural Property Resources Inventory for the Crowned Ridge Transmission Line, Codington and Grant Counties, South Dakota. SWCA Report No. 19-329. Project No. 42659.01 and 42659.03 MAY 2019	SWCA	Level III
ESD-0676	2015	Addendum 2 to Level III Intensive Archaeological and Traditional Cultural Property Resources Inventory for the Crowned Ridge Transmission Line, Codington and Grant Counties, South Dakota OCTOBER 2019	SWCA	Level III
ESD-0781*	2015	Big Stone South to Ellendale 345 kV Transmission Line Project, Intensive Historic Building Inventory and Evaluation, North Dakota/South Dakota Border to the Big Stone South Substation Segment. HDR Project No. 130117001S: SHPO Project No. 120801003F	Sabatke, Stephen, and Alan Stanfill	Level III

Note: \* Overlaps cultural resource Study Area.

The Level I records search identified 105 previously recorded cultural resources within 1 mile of the Cultural Resources Study Area. The list of sites consists of 91 structures, 12 sites, and four bridges (Table 21-5). Three previously recorded cultural resources were identified within the Cultural Resources Study Area: two lines of Chicago, Milwaukee, St. Paul & Pacific Railroad (39GT2007 [now BNSF Railway] and 39GT2042 [abandoned]), and a prehistoric and Euro-American artifact scatter (39GT399). Of these, the two railroad sites (39GT2007 and 39GT2042) are listed as eligible for the NRHP and site 39GT2007 intersects the proposed Route.

**Table 21-5. Previously recorded cultural resources within 1 mile of the Cultural Resources Study Area.**

Site/ SHPO No.	Name/ description	Resource type	NRHP eligibility from previous investigation
39GT6	Prehistoric earthwork and artifact scatter	Site	Unevaluated
39GT4	Prehistoric occupation and Euro-American artifact scatter	Site	Unevaluated
39GT35	Woodland period mound	Site	Unevaluated
39GT39	Prehistoric artifact scatter	Site	Not eligible (O)

Site/ SHPO No.	Name/ description	Resource type	NRHP eligibility from previous investigation
39GT45	Prehistoric artifact scatter	Site	Not eligible (O)
39GT46	Prehistoric artifact scatter	Site	Not eligible (O)
39GT47	Prehistoric artifact scatter	Site	Not eligible (O)
39GT48	Prehistoric mound and artifact scatter; Historic Cemetery	Site	Eligible (O)
39GT53	Prehistoric artifact scatter	Site	Not Eligible (R)
39GT399*	Prehistoric and Euro-American artifact scatter	Site	Not Eligible (R)
39GT2007*	Chicago, Milwaukee, St. Paul & Pacific Railroad (existing BNSR Railway)	Railroad	Eligible (O)
39GT2042*	Chicago, Milwaukee, St. Paul & Pacific Railroad (abandoned)	Railroad	Eligible (O)
GT00000006	26-374-023	Bridge	Eligible
GT00001163	26-350-031	Bridge	Not Eligible
GT00001228	Structure Number 26-379-024	Bridge	Not Eligible
GT00001235	Chicago, Milwaukee, St. Paul Railroad Flume	Bridge	Not Eligible
GT00000010	Building	Building	Not Eligible
GT00000037	Building	Building	Listed on National Register
GT00000398	Building	Building	Not Eligible
GT00000400	Building	Building	Not Eligible
GT00000402	Building	Building	Not Eligible
GT00000404	Building	Building	Not Eligible
GT00000406	Building	Building	Not Eligible
GT00000410	Building	Building	Unevaluated
GT00000412	Building	Building	Unevaluated
GT00000416	Building	Building	Unevaluated
GT00000418	Building	Building	Unevaluated
GT00000420	Building	Building	Not Eligible
GT00000422	Building	Building	Unevaluated
GT00000424	Building	Building	Not Eligible
GT00000426	Building	Building	Unevaluated
GT00000428	Building	Building	Not Eligible
GT00000514	Building	Building	Not Eligible
GT00000516	Building	Building	Unevaluated
GT00000518	Building	Building	Not Eligible
GT00000520	Building	Building	Listed on National Register
GT00000522	Building	Building	NR Eligible
GT00000524	Building	Building	Not Eligible
GT00000526	Building	Building	Not Eligible
GT00000528	Building	Building	Not Eligible
GT00000530	Building	Building	Not Eligible
GT00000532	Building	Building	Not Eligible
GT00000534	Building	Building	Not Eligible

Site/ SHPO No.	Name/ description	Resource type	NRHP eligibility from previous investigation
GT00000535	Building	Building	Unevaluated
GT00000536	Building	Building	Not Eligible
GT00000537	Building	Building	Not Eligible
GT00000538	Building	Building	Not Eligible
GT00000539	Building	Building	Not Eligible
GT00000540	Building	Building	Not Eligible
GT00000541	Building	Building	Not Eligible
GT00000542	Building	Building	Not Eligible
GT00000543	Building	Building	Not Eligible
GT00000558	Building	Building	Not Eligible
GT00000559	Building	Building	Not Eligible
GT00000560	Building	Building	Not Eligible
GT00000562	Building	Building	Not Eligible
GT00000563	Building	Building	Not Eligible
GT00000564	Building	Building	Not Eligible
GT00000565	Building	Building	Not Eligible
GT00000566	Building	Building	NR Eligible
GT00000567	Building	Building	Not Eligible
GT00000568	Building	Building	Not Eligible
GT00000569	Building	Building	Not Eligible
GT00000570	Building	Building	Unevaluated
GT00000571	Building	Building	Not Eligible
GT00000572	Building	Building	Not Eligible
GT00000573	Building	Building	Not Eligible
GT00000574	Building	Building	Unevaluated
GT00000575	Building	Building	Not Eligible
GT00000576	Building	Building	Not Eligible
GT00000577	Building	Building	Not Eligible
GT00000578	Building	Building	Not Eligible
GT00000579	Building	Building	Not Eligible
GT00001086	Building	Building	Not Eligible
GT00600001	Building	Building	Not Eligible
GT00600002	Building	Building	Not Eligible
GT00600003	Building	Building	Not Eligible
GT00600004	Building	Building	Not Eligible
GT00600005	Building	Building	Not Eligible
GT00600006	Building	Building	Not Eligible
GT00600007	Building	Building	Not Eligible
GT00600008	Building	Building	Not Eligible
GT00600009	Building	Building	Not Eligible
GT00600010	Building	Building	Not Eligible
GT00700001	Building	Building	Not Eligible



Site/ SHPO No.	Name/ description	Resource type	NRHP eligibility from previous investigation
GT00700002	Building	Building	Not Eligible
GT00700003	Building	Building	Not Eligible
GT00800001	Building	Building	Not Eligible
GT00800002	Building	Building	Not Eligible
GT00800003	Building	Building	Not Eligible
GT00800004	Building	Building	Not Eligible
GT00900001	Building	Building	Not Eligible
GT00900002	Building	Building	Not Eligible
GT01000001	Building	Building	Not Eligible
GT01000002	Building	Building	Not Eligible
GT01000003	Building	Building	Not Eligible
GT01000004	Building	Building	Not Eligible
GT01000005	Building	Building	Not Eligible
GT01000006	Building	Building	Not Eligible
GT01000007	Building	Building	Not Eligible
GT01000008	Building	Building	Not Eligible
GT01000009	Building	Building	Not Eligible
GT02200001	Building	Building	Not Eligible
GT02200002	Building	Building	Not Eligible
GT02200003	Building	Building	Not Eligible
GT02200004	Building	Building	Not Eligible
GT02200005	Building	Building	Not Eligible

Notes:

\*Within Cultural Resources Study Area; (O) = Official Determination; (R) = Recommended; NRHP = National Register of Historic Places.

In addition to the records search, HDR, on behalf of the Applicants, reviewed general land office (GLO) records and historical topographic maps of the Cultural Resources Study Area (U.S. Bureau of Land Management [BLM] 2023, USGS 2023). The 1865 GLO plat of T121N R47W has a hand drawn line in Section 24 that was later labeled the Milwaukee Road on the 1873 GLO plat. This cultural resource (previously recorded as Site 39GT2042 [Eligible]) crosses through the Cultural Resources Study Area and intersects the proposed Route. The 1971 1:24,000 topographic maps that overlap the Cultural Resources Study Area gives the best depiction of the Milwaukee Road segments that cross the Cultural Resources Study Area and show Site 39GT2007 (previously recorded [Eligible]) as the active railway for Milwaukee Road, while Site 39GT2042 (discussed above) is labeled the “Old Railroad Grade.” No cultural resources, such as historical buildings and structures, that have not been previously recorded were identified in the Cultural Resources Study Area during the historical literature and map review.

### 21.5.1.3 Level III Cultural and Architectural Resource Survey

A Level III pedestrian survey of portions of the Cultural Resources Study Area was conducted on November 14, 2023, and February 7, 2024. Of the 243.5 acres comprising the Cultural Resources Study Area, the 156 acres for which the Applicants have landowner permission were surveyed. Level III surveys of the portions of the Flexibility Area and Project ROW not previously surveyed were field surveyed in April 2024.

The Level III survey identified one previously recorded site within the Cultural Resources Study Area: two contributing segments of the site, former Milwaukee Road Railroad (39GT2007, now BNSF Railway). One of the contributing segments crosses the proposed Route and the other is within the Cultural Resource Study Area but does not cross the proposed Route. No evidence of the previously recorded non-contributing segments of the abandoned Milwaukee Road (39GT2042) or the previously recorded prehistoric and Euro-American artifact scatter (39GT399, does not intersect the proposed Route) identified in the records search was observed during the pedestrian survey; these appear to have been destroyed. No new cultural resource sites or isolated finds were identified during the Level III survey. A copy of the Level III Cultural Resources Survey Report is included in Appendix E. A copy of the Level III report, site forms, and spatial data were submitted to the South Dakota SHPO for review on March 8, 2024.

A historic architectural resource reconnaissance survey was completed in April 2024 at the same time as the additional Level III cultural resource surveys. The reconnaissance documented previously recorded architectural sites listed or eligible for listing on the NRHP and the State Register of Historic Places within a one-mile buffer of the Cultural Resource Study Area. The only architectural historic properties within the one-mile buffer are in Big Stone City. Views of the existing transmission lines paralleling the proposed Project Route are obscured by other buildings and vegetation, and the historic properties are not visible from the proposed Project Route. Thus, the Project is not anticipated to have any visual impacts on historic architectural resources. The survey results will be included in the addendum cultural resources report documenting the April 2024 cultural and architectural field survey efforts.

#### **21.5.1.4 Tribal cultural resources**

The Applicants have engaged in ongoing voluntary coordination with Tribes to seek input on Tribal cultural resources. The Applicants have reached out to 28 Tribes who have interest in projects in South Dakota and Minnesota.

Of the 28 Tribes, three have expressed interest in the Project: Flandreau Santee Sioux Tribe of South Dakota, Mille Lacs Band of Ojibwe, and Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota. The Applicants and Tribes are planning cultural resource surveys of the proposed Project later in 2024.

#### **21.5.2 Cultural resources impacts and avoidance, minimization, and mitigation measures**

Cultural resources within the Project ROW may potentially be subject to direct and/or indirect impacts. Direct impacts would result primarily from ground disturbance associated with the construction and maintenance of the Project, including transmission structures, access roads, and pulling/tensioning areas. Indirect effects to cultural resources may result from activities that occur near, but not physically effecting cultural resources. Indirect visual impacts, for example, may occur to some types of NRHP-eligible cultural resources when modern structures (e.g., transmission towers) are introduced into the viewsheds of these resources.

Project infrastructure has been sited to avoid direct impacts to NRHP-eligible or unevaluated eligible historic and cultural resources. The proposed Project would span across Site 39GT2007 (NRHP eligible), and no construction is proposed within the site. The visual setting of this resource already includes modern infrastructure such as transmission lines, and the proposed transmission line would follow the alignment of existing transmission lines. Therefore, the Project

will not introduce significant new visual effects, and is not anticipated to negatively affect the visual setting of existing historic architectural resources.

The Project plans to avoid Tribal resources identified during the Tribal cultural resource surveys. However, if avoidance is not possible, the Applicants will consult with the participating Tribes to mitigate impacts.

Additionally, the Applicants will develop an unanticipated discovery plan, which will be followed during construction in the event that potential cultural resources or human remains are encountered. An unanticipated discoveries plan will be developed prior to construction and when completed, a copy of the unanticipated discoveries plan will be provided to SHPO.

## **22.0 Summary of potential impacts and avoidance, minimization, and mitigation measures**

The Applicants have routed and designed the Project to avoid or minimize impacts to identified resources in the vicinity. Additionally, the Applicants will implement certain measures to avoid, minimize and/or mitigate potential impacts due to Project construction. A summary of avoidance, minimization, and mitigation measures is presented in Table 22-1.

**Table 22-1. Summary of potential impacts and proposed avoidance/minimization/ mitigation measures**

Resource	Potential impact	Proposed avoidance/minimization/mitigation measures
<b>Physical environment</b>		
Geological resources	No impacts to geological resources are anticipated.	Prior to construction, geotechnical soil borings will be conducted at transmission line structure locations to determine the soil suitability to support the transmission line structure foundations.
Soils	<p>Construction of the Project would result in up to approximately 63.7 acres of temporary disturbance and approximately 0.09 acre of permanent disturbance to surface soils within the Flexibility Area.</p> <p>Surface disturbance caused by construction of the transmission structures may cause the soil surface to become more prone to erosion or compaction.</p>	<p>Impacts to soils will be minimized through the use of BMPs. The Applicants will obtain coverage under the SDDANR General Permit for Storm Water Discharges Associated with Construction Activities, which requires preparation of a SWPPP which will specify BMPs to control erosion and sedimentation. BMPs may include erosion and sediment control measures, noxious weed control, segregation of topsoil from subsurface materials, the use of construction equipment appropriately sized to the scope and scale of the Project, reseeded of disturbed areas based on agency recommendations or landowner requests, and decompaction and/or restoration of soils disturbed during construction to preconstruction contours to the extent practicable and in accordance with landowner agreements 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.</p> <p>The Applicants will conduct geotechnical soil borings at transmission line structure locations before construction to determine the soil suitability to support the transmission line structure foundations.</p> <p>The Applicants will also develop and implement a noxious weed control plan.</p>
<b>Hydrology</b>		
Groundwater resources	<p>Construction activities may result in negligible to minor temporary and localized fluctuations in groundwater levels. Once the construction activity has been completed, the groundwater levels typically recover quickly.</p> <p>No groundwater resources will be used for construction or operation of the Project.</p>	The Applicants will develop and implement a SWPPP, which will include sediment and erosion control BMPs.

Resource	Potential impact	Proposed avoidance/minimization/mitigation measures
Surface water resources	<p>During construction there is the possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading, and construction traffic.</p> <p>The Project is not anticipated cause changes to existing drainage patterns.</p> <p>Water use for the Project will be restricted to dust control and foundation construction and will be pumped from local surface waters.</p> <p>Some structures may be placed within a designated floodplain. Impacts to floodplain storage capacity will be negligible due to the long spans between transmission structures and the relatively small volume of foundation material used at the structures.</p>	<p>The Project has been designed to avoid surface water features whenever feasible. Structure foundations will be located outside of all streams. It is anticipated that crossing of streams and drainage ways will be avoided by the temporary access roads; if impacts occur, they will be temporary and restored in accordance with applicable requirements.</p> <p>The Applicants will obtain coverage under the SDDANR's General Permit for Storm Water Discharges Associated with Construction Activities, which includes the development and implementation of a SWPPP which would prescribe BMPs to control erosion and avoid and/or minimize the potential for sediment to reach surface waters. Erosion and sediment control BMPs may include use of silt fence, straw wattles, erosion control blankets, re-vegetation, or other features and methods designed to control storm water runoff and mitigate erosion and sedimentation.</p> <p>Water used for the Project will be pumped from local surface waters following consultation with applicable resource agencies.</p> <p>Final structure locations will be determined based on final design, and floodplains will be considered in structure placement. If it is not possible to avoid floodplains with structures, Applicants will coordinate with the Grant County Floodplain Administrator to review structure locations and obtain floodplain development permits, as needed.</p>
Current and planned water use	<p>No impacts to current or planned water uses are anticipated.</p> <p>Water use for the Project will be restricted to dust control and foundation construction and will be pumped from local surface waters.</p>	<p>Water used for the Project will be pumped from local surface waters following consultation with applicable resource agencies.</p>
Wetlands	<p>The Project is anticipated to result in approximately 4.2 acres of temporary impacts and approximately 0.01 acre of permanent impacts to wetlands.</p>	<p>The Project has been designed to avoid and/or minimize impacts to wetlands, to the extent practicable. The Applicants will analyze structure placement during final design to determine if permanent wetland impacts can be further minimized or avoided. If wetland impacts occur, Applicants will comply with USACE Nationwide Permit Program requirements. Based on the current design, the</p>

Resource	Potential impact	Proposed avoidance/minimization/mitigation measures
		<p>potential impacts to wetlands would be within the threshold for authorization under the USACE Nationwide Permit program without pre-construction notification.</p> <p>The Applicants will develop and implement a SWPPP, which will include sediment and erosion control BMPs.</p>
<b>Terrestrial ecosystems</b>		
Vegetation	<p>The Project will temporarily impact approximately 58.4 acres of vegetation (the majority of which is cropland) and permanently impact approximately 0.09 acre of vegetation.</p> <p>The Project will avoid areas of potentially undisturbed grasslands.</p>	<p>The Project has been sited to maximize the placement of facilities in previously disturbed agricultural lands, and the majority of the temporary vegetation impacts would occur to cultivated agricultural fields.</p> <p>Temporary impacts to vegetation would be mitigated through BMPs, such as employing appropriate erosion control measures, and reseeding areas disturbed by construction activities unless otherwise directed by the landowner. The Applicants will use a seed mix that is recommended by the NRCS or other resource agency unless otherwise agreed to with the landowner. The Applicants will develop and implement a noxious weed control plan.</p> <p>There are no potentially undisturbed grasslands present in the Project ROW or surrounding area that would be impacted by construction activity. The Applicants will locate temporary use areas used for Project construction outside of potentially undisturbed grasslands.</p>
Wildlife	<p>The Project may impact avian species through increasing the potential for avian collisions and/or habitat impacts. Avian species that utilize wetlands are unlikely to be impacted by the Project due to the limited wetland areas in the vicinity of the Project.</p> <p>Trees for nesting or roosting are limited within the Project ROW and Flexibility Area to a single stream/drainage crossing, so minimal tree removal is anticipated.</p> <p>The potential for federally and state listed species to occur in the vicinity of the Project is low due to limited potential habitat; therefore, impacts to listed species are not anticipated.</p>	<p>The Project has been designed to avoid and/or minimize impacts to wildlife.</p> <p>The Project has been sited to avoid or minimize impacts to federally and state listed and other special-status wildlife species. Effects on terrestrial habitats will be minimized by not altering stream channels or drainage patterns, minimizing placement of fill in wetlands, restoration of temporary disturbance areas, and replanting disturbed areas, if necessary, using a seed mix that is recommended by the NRCS or other resource agency unless otherwise agreed to with the landowner. The USFWS recommends use of milkweed in the seed mix in non-agricultural areas if the landowner agrees. Temporary impacts would also be minimized by utilizing</p>

Resource	Potential impact	Proposed avoidance/minimization/mitigation measures
		<p>erosion and sedimentation BMPs that minimize or prevent sediment from reaching adjacent waterways and protect topsoil.</p> <p>The structures will be placed outside of the SDGFP GPA to avoid and/or minimize impacts to waterfowl and grassland associated birds. Additionally, the Project will avoid disturbance to potentially undisturbed grasslands in the vicinity of the Project during construction and will avoid placing structures within or immediately adjacent to surface water features.</p> <p>Based on consultation with USFWS, the Applicants will conduct preconstruction surveys for bald eagle, golden eagle, other raptor, and migratory bird/birds of conservation concern nests along the Project ROW.</p> <p>Minimal tree removal is anticipated. Tree removal, ground clearing, or mowing within the Project ROW is anticipated to occur in late fall or early spring (outside of bird nesting and bat roosting periods) to discourage tree and ground nesting within temporary or permanent disturbance areas. Based on consultation with the USFWS, if tree removal would need to occur within the April 1 - October 31 timeframe, trees greater than 3-inch diameter at breast height would be surveyed for suitable habitat prior to removal.</p> <p>The Project will be designed in accordance with APLIC's <i>Suggested Practices for Avian Protection On Power Lines: State of the Art in 2006</i>.</p> <p>In accordance with SDGFP's recommendation, the Applicants will conduct an annual NHP database search to review potential new information relevant to the Project. Coordination will occur with SDGFP if any changes to species information is noted.</p>
Aquatic ecosystems	<p>Potential impacts to aquatic resources would be primarily related to installation of structures within the aquatic habitat area or sediment deposition related to construction activities.</p> <p>It is anticipated that the Project will span the unnamed tributary to the Whetstone River, depending on</p>	<p>The Project has been designed to avoid and/or minimize impacts to aquatic ecosystems. To the extent practicable, the Project will avoid streams and other drainage systems and minimize disturbance to wetlands during construction. The Project is expected to span all rivers and streams, thus avoiding potential permanent impacts. It is anticipated that crossing of streams and drainage</p>



Resource	Potential impact	Proposed avoidance/minimization/mitigation measures
	<p>geologic or engineering constraints determined in final design, and no transmission structures will be placed in the unnamed tributary. Therefore, no permanent impacts to aquatic ecosystems as a result of the Project are anticipated.</p> <p>No impacts to aquatic ecosystems as a result of water use during Project construction are anticipated.</p>	<p>ways will be avoided by the temporary access roads; if impacts occur, they will be temporary and restored in accordance with applicable requirements.</p> <p>The Applicants will develop and implement a SWPPP, which will include sediment and erosion control BMPs.</p>
<b>Land use</b>		
Land use	<p>The Project will temporarily impact approximately 58.7 acres of agricultural land and permanently impact approximately 0.09 acre of agricultural land. Construction of the Project will result in the conversion of a very small amount of land (&lt;0.1 acre) from existing agricultural land uses into use for a transmission line.</p> <p>Crop production on some portions of agricultural lands may be temporarily interrupted for one growing season depending on the timing and duration of construction.</p>	<p>The Project is compatible with existing land uses in the vicinity of the Project.</p> <p>In cultivated cropland areas, the Applicants will attempt to conduct construction before crops are planted or following harvest, if possible. The Applicants will compensate landowners for impacts on crops resulting from the construction, operation, and maintenance of the Project. If there are drain tiles, the Applicants will work with landowners on identifying those systems and, if impacted, will coordinate with the landowners on repairs.</p> <p>Following construction, areas subject to temporary disturbance would be revegetated to pre-construction land uses, if necessary, using a seed mix that is recommended by the NRCS or USFWS unless otherwise agreed to with the landowner.</p>
Public lands and facilities	<p>Noise from construction activities may temporarily impact the SDGFP GPA on Otter Tail-owned lands within the Flexibility Area; however, such impacts would be temporary in nature and would be limited to areas in close proximity to the work areas.</p>	<p>The Project has been designed to avoid public lands and facilities.</p> <p>The Applicants have designed the Project so that no structures are located on the SDGFP GPA. The Applicants have consulted with SDGFP regarding the location of the Project ROW and structure placement in relation to the GPA. If impacts to the GPA are unavoidable during Project construction or operation, the Applicants will coordinate with SDGFP in advance. Additionally, construction activities will mostly occur during daytime hours.</p>
Noise	<p>Construction noise will be temporary with the main sources coming from heavy construction equipment operation, and increased vehicle traffic due to construction personnel transporting materials to and</p>	<p>Construction noise levels will be minimized by ensuring that construction equipment is equipped with mufflers that are in good working order. Construction activities will mostly occur during daytime hours.</p>

Resource	Potential impact	Proposed avoidance/minimization/mitigation measures
	<p>from the site. Additional, intermittent construction related noise may occur based on the final Project design (e.g., the use of implosive sleeves).</p> <p>Noise levels during the operation and maintenance of the Project are anticipated to be minimal.</p>	
Visual resources	<p>The Project will create an additional, minor visual element in the vicinity, but the degree to which the transmission line will be visible will vary by location.</p>	<p>The existing viewshed in the vicinity of the Project includes existing transmission lines, railroads, roadways, industrial activities from the Big Stone Power Plant to the north, and two existing substations. The Project is consistent with these existing elements. The Project would parallel existing linear infrastructure, resulting in minimal change to the existing visual landscape. Additionally, modifications to the Big Stone South Substation are not expected to create additional visual impacts in the vicinity of the Project since the substation is part of the existing environment.</p> <p>Measures to minimize/mitigate potential visual impacts may include the following: where feasible, input from landowners and land management agencies will be considered when determining locations of structures and other disturbed areas; structure types (designs) will be uniform, to the extent practical; structures will utilize corten steel (i.e., self-weathering steel) to have a dark brown matte finish to minimize sunlight reflections that could be visible to nearby landowners and commuters using nearby roadways; and construction and operation will be conducted to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings. During operation of the Project, clearing of trees and shrubs will be conducted only as necessary per the NERC standards and to allow safe operation and inspection of the Project.</p>
Electromagnetic interference	<p>No impacts to satellite, cellular, radio, television, or GPS systems are anticipated.</p>	<p>If television or radio interference is caused by or from the operation of the Project in those areas where good reception was available prior to construction of the Project, the Applicants will evaluate the circumstances contributing to the impacts and determine the necessary actions to restore reception to the present level. In the unlikely event that the Project causes interference within a television station's primary coverage area, the Applicants will work with the affected viewers to correct the problem at the Applicants' expense.</p>

Resource	Potential impact	Proposed avoidance/minimization/mitigation measures
Local land use controls	No impacts are anticipated.	<p>The Project is compatible with existing land uses and has been designed to comply with local land use ordinances. The Applicants have been coordinating with the County regarding the CUP process and plan to submit a CUP application in April 2024 and obtain a building permit prior to commencement of construction.</p> <p>If required, the Applicants will obtain floodplain development permits.</p>
Water quality	During construction, there is a limited possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading, and construction traffic.	The Applicants will obtain coverage under the SDDANR General Permit for Storm Water Discharges Associated with Construction Activities, which requires preparation of a SWPPP, which will include sediment and erosion control BMPs.
Air quality	<p>During construction, fugitive dust emissions would temporarily increase due to equipment vehicle traffic in the vicinity of the Project as well as ROW clearing activities. Additionally, there would be short-term emissions from construction vehicles and equipment onsite. The concentration of pollutants during construction will be greatest near the Project ROW but will decrease rapidly with distance from the Project ROW. Air quality effects caused by dust or vehicle emissions would be short-term, limited to the time of construction, and would not result in any NAAQS exceedances for criteria pollutants.</p> <p>No impacts to air quality due to the operation of the Project are anticipated. Minimal increases in greenhouse gas emissions may result from the maintenance of transmission facilities as repair technicians and personnel access portions of the transmission line, but these impacts will be temporary and insignificant.</p>	The Applicants will employ BMPs throughout construction to suppress fugitive dust emissions, which may include watering unpaved roads and loose gravel areas, implementing spray-on amendments (e.g., calcium chloride, water), staging construction activities to limit soil disturbance, mulching and planting vegetation, limiting construction traffic speeds, and other applicable measures as necessary. Upon completion of construction activities, measures would be taken to revegetate disturbed areas (outside of cultivated areas) to permanently stabilize soil and prevent further production of fugitive dust emissions.
<b>Community impact</b>		
Socioeconomic and community resources	Long-term beneficial socioeconomic impacts from the Project will include beneficial impacts to the local tax base in the form of revenues from property taxes paid by the Applicants. The amount of property taxes generated from the Project will be based on the cost of the Project. Based on a range of total capital costs between \$29.7 million and \$41.4 million, the Project is estimated to generate between approximately \$184,000	No mitigation measures proposed.

Resource	Potential impact	Proposed avoidance/minimization/mitigation measures
	and \$257,000 in direct economic benefits annually to taxing authorities in South Dakota.	
Commercial, industrial, and agricultural sectors	<p>The Project is anticipated to have economic benefits to various commercial and industrial sectors in the vicinity of the Project during construction and operation.</p> <p>Project construction activities will temporarily use cropland and hay land/pasture within the Project ROW and adjacent areas to facilitate equipment movement (construction access roads) and structure laydown pads. These activities would remove land from productivity during the duration of construction, displace livestock (if present), or result in a delay or loss of crop production. The Project is estimated to permanently impact approximately 0.09 acre of agricultural land and temporarily impact approximately 58.7 acres of agricultural land.</p>	<p>Landowners will be compensated for any crop damage that occurs during construction. The Applicants will also work with landowners once a route is finalized to coordinate the need for early crop harvest and compensate landowners for any crop losses.</p> <p>Areas disturbed during construction will be repaired and restored to preconstruction contours to the extent practicable so that surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural re-vegetation (outside of cultivated areas), provide for proper drainage, and prevent erosion. The Applicants will use a seed mix that is recommended by the NRCS or other agency unless otherwise agreed to with the landowner.</p> <p>Once construction is completed, agricultural activities will be allowed to resume within the proposed ROW between structures.</p> <p>The Applicants will work with the landowners to identify, and mark drain tile lines and will try to avoid damage during construction. If drain tile lines are damaged by construction of the Project, the Applicants will coordinate with the landowner to ensure the tile lines are repaired in accordance with landowner agreements.</p>
Community facilities and services	The additional workers in the region during construction of the proposed Project could temporarily add an additional demand on some of the existing community facilities and services. However, this demand would be temporary, and it is anticipated that the existing facilities would have sufficient capacity to meet this demand.	The Applicants will develop an emergency response plan. Appropriate safety measures would be implemented before structure foundation excavation begins, including coordinating with utility companies to determine utility locations and complying with South Dakota One-Call system to verify existing utilities are properly marked, as needed.
Transportation	<p>Construction of the Project will temporarily increase traffic on haul roads. Traffic impacts associated with the operations phase after construction will be negligible.</p> <p>No impacts to the Ortonville Municipal Airport or other registered commercial or private aviation facilities are expected.</p>	The Applicants will coordinate with applicable road authorities regarding the use and restoration of roads, as needed. The Applicants will coordinate with USDOT, SDDOT, the Grant County Highway Department, and Township staff and will obtain necessary road-related permits, as needed. All highway crossings will meet or exceed National Electrical Safety Code requirements.

Resource	Potential impact	Proposed avoidance/minimization/mitigation measures
	<p>The Project Route crosses the BNSF Railroad just north of U.S. Highway 12.</p>	<p>The Applicants will obtain FAA DNHs, as needed.</p> <p>The Applicants will coordinate with BNSF Railroad to ensure construction and operation of the Project will not affect the use of the railroad lines.</p>
<p>Cultural resources</p>	<p>Cultural resources within the Project ROW may potentially be subject to direct and/or indirect impacts. Direct impacts would result primarily from ground disturbance associated with the construction and maintenance of the Project, including transmission structures, access roads, and pulling/tensioning areas. Indirect effects to cultural resources may result from activities that occur near, but not physically effecting cultural resources. Indirect visual impacts, for example, may occur to some types of NRHP-eligible cultural resources when modern structures (e.g., transmission towers) are introduced into the viewsheds of these resources.</p> <p>The Project would span across Site 39GT2007 (NRHP eligible).</p>	<p>Project infrastructure has been sited to avoid direct impacts to NRHP-eligible or unevaluated eligible historic and cultural resources. Class I and III surveys have been completed for the Flexibility Area, including the Project ROW.</p> <p>The Project will span Site 39GT2007 (NRHP eligible); no construction is proposed within the site.</p> <p>The only architectural historic properties within the surveyed area are in Big Stone City. Views of the existing transmission lines paralleling the proposed Project Route are obscured by other buildings and vegetation, and the historic properties are not visible from the proposed Project Route. Thus, the Project is not anticipated to have any visual impacts on historic architectural resources.</p> <p>The Applicants will prepare an Unanticipated Discoveries Plan.</p> <p>The Applicants have engaged in ongoing voluntary coordination with Tribes to seek input on Tribal cultural resources, and Tribal resource surveys of the Project were completed in April 2024. No impacts to Tribal resources are anticipated.</p>

## 23.0 Employment estimates (ARSD 20:10:22:24)

Construction for the BSSA Project, which includes the Project, is estimated to last between 2 to 4 years. While employment estimates specific to the Project are not available, it is anticipated that construction of the BSSA Project, which includes the Project, will employ approximately 100 to 150 construction workers. The majority of positions needed during construction of the Project will be contracted and are expected to include, but are not limited to: project management, project assistant, safety, structure hauling, structure framing and setting, linemen, civil foundation drilling and installation, quality assurance/quality control, construction project management, inspections, design, concrete truck drivers, and an environmental manager for the 345 kV line portion of the BSSA Project. Additional positions expected to be involved in the construction related to the expansion/upgrades of the Big Stone South Substation are anticipated to be more of a balanced blend of Applicants' employees and contracted positions that include, but are not limited to: project management, electrical technicians, relay technicians, inspections, construction, design, construction management, and safety.

While the majority of the positions will require specialized skills and expertise, some positions (skilled or unskilled) may be filled by qualified individuals from South Dakota. Specialized labor may need to come from other areas of the State or from other states, as the relatively short duration of construction makes special training of local or regional labor impracticable. The contractor, who will be responsible for determining employment needs for the construction may develop plans for utilizing and training the existing South Dakota labor market for the specialized positions and the adequacy of the local manpower to meet the temporary labor positions arising from construction of the Project.

The estimated number of construction jobs by classification and annual employment expenditures during construction are included below in Table 23-1 and Table 23-2. It is not anticipated that the construction of the Project will create new permanent jobs, but construction will create temporary construction jobs that will provide an influx of income to the area.

**Table 23-1. Anticipated construction jobs and employment expenditures for the 345 kV line portion of BSSA Project**

Job Classification	Number of Employees	Estimated Annual Salary
<b>Applicants</b>		
Project Manager	1	\$130,000
Project Assistant	1	\$65,000
GIS Manager	1	\$95,000
Access Manager	1	\$110,000
<b>Contracted</b>		
Construction Project Manager	5	\$130,000
Safety Project Manager	1	\$115,000
Safety Professional	3	\$110,000
Hauling Structure Workers	4	\$110,000
Frame Structure Workers	6	\$110,000
Structure Setting Workers	6	\$115,000
Linemen/Wire Workers	18	\$125,000

Job Classification	Number of Employees	Estimated Annual Salary
Civil Foundations Workers	24	\$120,000
On site Civil Workers	6	\$105,000
Off Site Roadway Workers	4	\$95,000
QA/QC Manager	1	\$125,000
QA/QC Inspector	6	\$120,000
Project Assistant	2	\$65,000
Crane Operators	8	\$120,000
Construction Manager	1	\$130,000
Testing/Inspection	2	\$95,000
Line Design Engineers	2	\$135,000
Concrete Truck Drivers	10	\$80,000
Environmental Manager	1	\$110,000

**Table 23-2. Anticipated construction jobs and employment expenditures for the Big Stone South Substation**

Job Classification	Number of Employees	Estimated Annual Salary
<b>Applicants</b>		
Project Managers	1	\$130,000
Electrical Technician I & II	4	\$114,000
Relay Technician	2	\$122,000
Testing / Inspection	1	\$85,000
Substation Design Engineer	1	\$96,000
<b>Contracted</b>		
Senior Lead Construction	1	\$124,000
Lead Construction	1	\$117,000
Electrical Crew Forman	1	\$124,000
Construction Workers	4	\$108,000
Design Engineers / Construction Managers	2	\$96,000
Safety Training / Inspection	1	\$85,000

The estimated number of jobs by classification and annual employment expenditures during operations are included in Table 23-3 and Table 23-4. Annual employment expenditures are anticipated to be the same for each of the first 10 years of commercial operation. It is anticipated that the Applicants would use contractors for most of the 345 kV line portion of the BSSA Project, but perform most of the operations activities at the Big Stone South Substation with its own employees. It is not anticipated that operations of the Project will create new permanent jobs. As shown in the tables below, operations of the BSSA Project and the Big Stone South Substation is not expected to require new full-time positions for the Applicants once these facilities are in operation; rather, they will utilize existing employees within their respective organizations and contracted positions shared with other projects.



**Table 23-3. Anticipated operations jobs and employment expenditures for the 345 kV line portion of BSSA Project**

Job Classification	Number of Employees	Estimated Annual Duration of Work	Estimated Annual Salary
<b>Applicants</b>			
Line Design Engineer	1	3 weeks	\$135,000
Maintenance Specialist	1	3 weeks	\$100,000
<b>Contracted</b>			
Vegetation Management Workers	3	3 weeks	\$98,000
Line Patrol Workers / Inspectors	2	1 week	\$88,000
Lineman	4	2 weeks	\$125,000

**Table 23-4. Anticipated operations jobs and employment expenditures for the Big Stone South Substation**

Job Classification	Number of Employees	Estimated Annual Duration of Work	Estimated Annual Salary
<b>Applicants</b>			
Electrical Technicians I & II	1	3 weeks	\$114,000
Relay Technician	1	3 weeks	\$122,000
<b>Contracted</b>			
Herbicide Specialist (spraying)	1	1 week	\$105,000



## **24.0 Future additions and modifications (ARSD 20:10:22:25)**

As discussed above, the Project includes double-circuit capable structures. Initially, a single-circuit 345 kV transmission line and associated communication lines (OPGW) will be installed, but the Applicants request authorization to add the second 345 kV circuit and associated OHGW when conditions warrant.

Other than adding the second 345 kV circuit and associated OHGW, the Applicants are not aware of any future additions, modifications, or expansions of the Project. The Applicants do request route and ROW adjustment flexibility as discussed in Section 9.2.

## **25.0 Reliability and safety (ARSD 20:10:22:35)**

The following sections discuss the reliability and safety of the Project.

### **25.1 Reliability**

Transmission lines and substations are designed to operate for decades and require only moderate maintenance, particularly in the first years of operation. Transmission infrastructure has very few mechanical elements, which results in reliability. It is built to withstand weather extremes that are normally encountered, with the exception of outages due to severe weather such as tornadoes and heavy ice storms.

Transmission lines are automatically taken out of service by the operation of protective relaying equipment when a fault is detected on the system. Such interruptions are usually only momentary. Scheduled maintenance outages are also infrequent on high-voltage transmission lines. As a result, the average annual availability of transmission infrastructure is very high, in excess of 99 percent.

### **25.2 Safety**

#### **25.2.1 Design**

The Project will be designed according to local, state, and National Electric Safety Code (NESC) standards regarding ground clearance, crossing utilities clearance, building clearance, strength of materials, and right-of-way widths. Construction crews and/or contract crews will comply with local, state, and NESC standards regarding facility installation and standard construction practices. Applicants' established industry safety-compliant procedures will be followed during and after installation of the transmission line, including clear signage during all construction activities.

The proposed transmission line will be equipped with protective devices (circuit breakers and relays located in substations where transmission lines terminate) to safeguard the public in the event of an accident, or if the structure or conductor falls to the ground. The protective equipment will de-energize the transmission line should such an event occur. In addition, the substation facilities will be properly fenced, have proper signage, and will be accessible only by authorized personnel.

#### **25.2.2 Electric and magnetic fields**

Electric and magnetic fields (EMFs) are invisible areas of energy associated with use of electrical power. For the lower frequencies associated with power lines (referred to as Extremely Low Frequency (ELF)), EMF should be considered separately – electric fields and magnetic fields, measured in kilovolt per meter (kV/m) and milliGauss (mG), respectively. Electric fields are dependent on the voltage of a transmission line, and magnetic fields are dependent on the current carried by a transmission line. The strength of the electric field is proportional to the voltage of the line, and the intensity of the magnetic field is proportional to the current flow through the conductors. Transmission lines operate at a power frequency of 60 Hertz (cycles per second).

### **25.2.2.1 Electric fields**

There is no federal standard for transmission line electric fields. The strength of electric fields diminishes rapidly as the distance from the conductor increases.

### **25.2.2.2 Magnetic fields**

There are no South Dakota regulations pertaining to magnetic field exposure. Magnetic field levels decrease rapidly as the distance from the centerline increases (proportional to the inverse square of the distance from source). In addition, since the magnetic field produced by the transmission line is dependent on the current flow, the actual magnetic fields when the Project is placed in service will vary as the current flow on the line changes throughout the day and time of year.

### **25.2.2.3 EMF Research**

Considerable research has been conducted since the 1970s to determine whether exposure to power-frequency (60 hertz) magnetic fields causes biological responses and health effects. Public health professionals have also investigated the possible impact of exposure to EMF on human health for the past several decades. While the general consensus is that electric fields pose no risk to humans, the question of whether exposure to magnetic fields can cause biological responses or health effects continues to be debated.

Since the 1970s, a large amount of scientific research has been conducted on EMF and health. This large body of research has been reviewed by many leading public health agencies such as the U.S. National Cancer Institute, the U.S. National Institute of Environmental Health Sciences, and the World Health Organization, among others. These reviews show that exposure to electric power EMF neither causes nor contributes to adverse health effects.

For example, in 2016, the U.S. National Cancer Institute (2016) summarized the research as follows:

Numerous epidemiologic studies and comprehensive reviews of the scientific literature have evaluated possible associations between exposure to non-ionizing EMFs and risk of cancer in children (13–15). (Magnetic fields are the component of non-ionizing EMFs that are usually studied in relation to their possible health effects.) Most of the research has focused on leukemia and brain tumors, the two most common cancers in children. Studies have examined associations of these cancers with living near power lines, with magnetic fields in the home, and with exposure of parents to high levels of magnetic fields in the workplace. No consistent evidence for an association between any source of non-ionizing EMF and cancer has been found.

Other agencies have also found that there is insufficient evidence to demonstrate a causal relationship between EMF exposure and any adverse human health effects.<sup>6</sup>

### **25.2.3 Stray and induced voltage**

“Stray voltage” is a condition that can potentially occur on a property or on the electric service entrances to buildings from distribution lines serving these buildings – not transmission lines as proposed here. The term generally describes a current of electricity between two objects where no voltage difference should exist. More precisely, stray voltage is an electrical current that exists between the neutral wire of either the service entrance or of premise wiring and grounded objects in buildings such as barns and milking parlors.

Transmission lines do not, by themselves, create stray voltage because they do not connect directly to businesses or residences. Transmission lines, however, can induce voltage on a distribution circuit that is parallel and immediately under the transmission line. If the proposed transmission lines run parallel to or cross distribution lines, appropriate mitigation measures can be taken to address any induced voltages.

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<sup>6</sup> See, e.g., The Minnesota State IntraAgency Working Group on EMF Issues, *A White Paper on Electric and Magnetic Fields Policy and Mitigation Options* (Sept. 2002); *In the Matter of the Application of Xcel Energy for a Route Permit for the Lake Yankton to Marshall Transmission Line Project in Lyon County*, MPUC Docket No. E002/TL-07-1407, Findings of Fact, Conclusions of Law and Order Issuing a Route Permit to Xcel Energy for the Lake Yankton to Marshall Transmission Project at 7-8 (Aug. 29, 2008); *In the Matter of the Application for a HVTL Route Permit for the Tower Transmission Line Project*, Docket No. ET2, E015/TL-06-1624, Findings of Fact, Conclusions of Law and Order Issuing a Route Permit to Minnesota Power and Great River Energy for the Tower Transmission Line Project and Associated Facilities at 23 (Aug. 1, 2007).

## 26.0 List of potential permits and approvals (ARSD 20:10:22:05)

The Applicants must comply with applicable federal, state, and local laws and regulations and obtain permits/approvals from a variety of federal, state, and local agencies for the Project. Table 26-1 identifies permits and approvals that may be needed for the Project. This list of permits/approvals is subject to change as Project development continues.

**Table 26-1. List of potentially applicable permits and approvals.**

Agency	Type of permit or approval	Trigger	Status
<b>Federal</b>			
Federal Aviation Administration (FAA)	Notice of Proposed Construction and Actual Construction or Alteration (FAA Form 7460) (Determinations of No Hazard)	Required for construction or alteration of structures higher than 200 feet Above Ground Level, structures near airports, or siting within line of sight of radar of an air defense facility.	To be obtained, as needed.
U.S. Army Corps of Engineers (USACE)	Clean Water Act, Section 404 Permit	Required for dredging or filling of waters of the U.S.	To be obtained, as needed.
U.S. Fish and Wildlife Service (USFWS)	Migratory Bird Treaty Act compliance	Consultation regarding potential impacts on migratory birds.	Ongoing.
	Bald and Golden Eagle Protection Act compliance	Consultation regarding potential impacts on bald and golden eagles.	Ongoing.
	Threatened and Endangered Species, Endangered Species Act consultation	Consultation regarding potential impacts to listed species or designated critical habitat protected under the Endangered Species Act.	Ongoing.
U.S. Environmental Protection Agency (USEPA)	Spill Prevention, Control, and Countermeasure (SPCC) Plan	Aboveground oil storage with 1,320 gallons or more capacity or belowground oil storage with 42,000 gallons or more capacity.	May be required for temporary storage of oil for reactor within Big Stone South Substation.
<b>State of South Dakota</b>			
South Dakota Public Utilities Commission (SDPUC)	Facility Permit	Construction of a transmission facility.	In progress.
SHPO / South Dakota State Historical Society	Cultural Resources consultation	Consultation required in connection with other agency permitting requirements, such as the Commission.	Level I and III surveys have been completed for the majority of the Project, with the remaining areas to be surveyed in spring 2024. The Level III Cultural Resource Survey report was submitted to SHPO

Agency	Type of permit or approval	Trigger	Status
			for review on March 8, 2024. Additional cultural resource field surveys are in progress. Once complete, an addendum Level III Cultural Resource Survey report will be prepared and submitted to SHPO for review.
South Dakota Department of Agriculture and Natural Resources	Section 401 Water Quality Certification	Required in conjunction with Section 404 permit for filling jurisdictional waters of the U.S.	Incorporated into USACE Section 404 permit.
	National Pollutant Discharge Elimination System (NPDES) Permit – Construction Stormwater Permit (includes Stormwater Pollution Prevention Plan (SWPPP))	Required for land disturbance from construction activities that disturb 1.0 acre or more of land. Must prepare a SWPPP.	To be obtained, as needed.
	Temporary Discharge Permit(s)	Required to discharge water to surface waters of the state for one year or less.	To be obtained, as needed.
	Water Right Permit(s) for Non-irrigation uses	Required for appropriation of water for all water uses in South Dakota except for certain domestic uses of water.	To be obtained, as needed.
	Temporary Water Use Permit	May be required for the use of public water for construction, testing, or drilling purposes.	To be obtained, as needed.
South Dakota Aeronautics Commission	Submit FAA Determinations of No Hazard, if obtained	If an FAA Determination of No Hazard is obtained, the final Determination of No Hazard must be filed with the South Dakota Aeronautics Commission.	To be submitted, as needed.
South Dakota Department of Transportation	Highway Access Permit(s)	Required for any access road abutting a state road.	To be obtained, as needed.
	Oversize/overweight Permit(s)	Required for transport of oversized/overweight loads on state roads.	To be obtained, as needed.
	Permit(s) To Occupy Right of Way	Required to occupy a state road right-of-way.	To be obtained, as needed.
	Utility Crossing Permit(s)	Required to install electrical lines (transmission line) across/within state road right-of-way.	To be obtained, as needed.
South Dakota Game, Fish and Parks	State-listed Threatened/Endangered Species Review	Consultation regarding effects on state-listed species.	Ongoing.
<b>Local County or Township</b>			
Grant County	Conditional Use Permit	Required for a transmission line.	To be obtained, as needed.

Agency	Type of permit or approval	Trigger	Status
Grant County	Building Permit	Required for the installation of the Project.	To be obtained, as needed.
Grant County	Floodplain Development Permit(s)	May be required for installation of structures within a floodplain.	To be obtained, as needed.
Grant County	Utility Permit(s)	Required for the installation of transmission line facilities on, over, across, or adjacent to Grant County rights-of-way.	To be obtained prior to activity subject to permit, if required.
Grant County	Road Approach Permit(s)	Required for the installation of approaches/driveways abutting road rights-of-way over which Grant County has asserted road jurisdiction.	To be obtained prior to activity subject to permit, if required.
Grant County	Fence Permit (Big Stone South Substation)	May be required to construct a fence.	To be obtained, as needed.
Grant County	Haul Road Agreement	May be required for construction or transportation activities affecting roads under Grant County jurisdiction.	To be obtained, as needed.
Grant County	Oversize/overweight Permit(s)	May be required to transport oversize/overweight loads on roads under Grant County jurisdiction.	To be obtained prior to use of local roads for construction, if required.
Grant County	Temporary Approach, Road/Right-of-way Modification, Improvement, and/or Utility Crossing Permit(s)	May be required for temporary facilities/modifications affecting roads under Grant County jurisdiction.	To be obtained prior to activity subject to permit, if required.
Grant County Weed Board	Weed Board Approval	May be required for noxious weed management plan.	To be obtained prior to implementation of noxious weed plan, if required.
Organized Township(s)	Haul Road Agreement(s)	May be required for construction or transportation activities affecting township roadways.	To be obtained prior to use of local roads for construction, if required.
Organized Township(s)	Utility Permit(s)	May be required for the installation of transmission line facilities on, over, across, or adjacent to township rights-of-way.	To be obtained prior to activity subject to permit, if required.
Organized Township(s)	Road Approach Permit(s)	Required for the installation of approaches/driveways abutting road rights-of-way over which township has asserted road jurisdiction.	To be obtained prior to activity subject to permit, if required.
Organized Township(s)	Oversize/overweight Permit(s)	May be required to transport oversize/overweight loads on roads over which township has asserted road jurisdiction.	To be obtained prior to activity subject to permit, if required.
Organized Township(s)	Temporary Approach, Road/Right-of-way Modification,	May be required for temporary facilities/modifications affecting roads over which township has asserted road jurisdiction.	To be obtained prior to activity subject to permit, if required.

Agency	Type of permit or approval	Trigger	Status
	Improvement, and/or Utility Crossing Permit(s)		
BNSF	BNSF Railroad ROW Crossing Agreement; may include a Construction & Maintenance (C&M) Agreement or a Temporary Occupancy Permit (TOP)	May be required to cross or use BNSF rights-of-way, property, or facilities.	To be obtained, as needed.
Existing Infrastructure Owner(s)	Crossing Agreements/ Licenses/Permits	May be required to cross existing easements (e.g., pipelines, drainage easements, electric lines, telecommunications cables, oil and gas gathering lines).	If needed, to be obtained prior to crossing existing infrastructure and easements.



## **27.0 Additional information in the Application (ARSD 20:10:22:36)**

The Applicants believe that this Application, including appendices, contains all the information required to meet Applicants' burden of proof specified in SDCL §49-41B-22.

### **27.1 Agency coordination**

The Applicants have provided correspondence and meeting notes pertinent to the Project in Appendix C, which outline the coordination efforts taken with federal and state agencies to date.

## 27.2 Testimony and exhibits (ARSD 20:10:22:39)

The Applicants are submitting testimony and exhibits in support of this Application. The individuals identified in Table 27-1 are providing testimony in support of the Application. The Applicants reserve the right to provide supplemental and/or rebuttal testimony, as needed, to further support this Application.

**Table 27-1. List of individuals providing testimony**

Individual	Title and Organization	Subject Matter
Jason Weiers	Manager, Transmission Project Development Otter Tail Power Company	Project development
Kevin Scheidecker	Senior Environmental Specialist Otter Tail Power Company	Environmental, wildlife, and cultural resources

## 27.3 Applicants' verification

JoAnn Thompson, being duly sworn, deposes and states that she is the Authorized Representative of Otter Tail and is authorized to sign this Application on behalf of the Project Owner/Applicant, Otter Tail Power Company.

She further states that she does not have personal knowledge of all the facts recited in the Application and Exhibits and Attachments attached hereto, but the information has been gathered from employees and agents of the Owner/Applicant, and the information is verified by her as being true and correct on behalf of the Owner/Applicant.

Dated this 15th day of April, 2024.



JoAnn Thompson – Vice President, Asset Management, Otter Tail Power Company

Terry Wolf, being duly sworn, deposes and states that he is the Authorized Representative of Western Minnesota and is authorized to sign this Application on behalf of the Project Owner/Applicant, Western Minnesota.

He further states that he does not have personal knowledge of all the facts recited in the Application and Exhibits and Attachments attached hereto, but the information has been gathered from employees and agents of the Owner/Applicant, and the information is verified by him as being true and correct on behalf of the Owner/Applicant.

Dated this 15th day of April, 2024.



Terry Wolf – Second Assistant Secretary of Western Minnesota Municipal Power Agency

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