Facility Permit Application
Submitted to the South Dakota Public Utilities Commission

Basin Electric Power Cooperative
Haakon County, South Dakota
August 2025

BASIN ELECTRIC
POWER COOPERATIVE
A Touchstone Energy® Cooperative

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Appendices

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List of Acronyms and Abbreviations

AM	amplitude modulation
APE	area of potential effects
Applicant	Basin Electric Power Cooperative
Application	Facility Permit Application
APLIC	Avian Power Line Interaction Committee
ARSD	Administrative Rules of South Dakota
Basin Electric	Basin Electric Power Cooperative
BCC	Birds of Conservation Concern
BMP	best management practice
Commission	South Dakota Public Utilities Commission
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibels
EA	Environmental Assessment
EMF	electric and magnetic fields
ESA	Endangered Species Act
FM	frequency modulation
FONSI	Finding of No Significant Impact
g	grams
IPaC	Information for Planning and Consultation
kV	kilovolt
m	meters
MBTA	Migratory Bird Treaty Act
MW	megawatts
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHD	National Hydrography Dataset
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	Nationwide Rivers Inventory
NWI	National Wetlands Inventory
O&M	Operations and maintenance
OHGW	overhead ground wire
OPGW	Optical ground wire
PGA	Peak ground acceleration
Philip Wind	Philip Wind Partners, LLC
Project	An approximately 0.95-mile-long extension of the existing 230-kV transmission line to support the interconnection of the Philip Wind Energy Project
Project Facilities	0.95-mile-long, single-circuit 230-kV transmission line extension and up to seven three-phase, single-circuit transmission structures constructed on steel, H-frame, and monopole structures
Project Route	0.95-mile-long, 125-foot-wide right-of-way along the Project centerline
ROW	right-of-way
SDCL	South Dakota Codified Laws

SDDANR	South Dakota Department of Agriculture and Natural Resources
SDGFP	South Dakota Game, Fish, and Parks
SHPO	State Historic Preservation Office
SPP	Southwest Power Pool
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WAPA	Western Area Power Administration
Wind Project	Philip Wind Energy Project

1.0 Introduction

Basin Electric Power Cooperative (Basin Electric, Applicant) submits this Facility Permit Application (Application) to the South Dakota Public Utilities Commission (Commission) for a Facility Permit for an extension of the existing 230-kilovolt (kV) Philip to Philip Tap transmission line (Project) to support the interconnection of the Philip Wind energy project (Wind Project), owned by Philip Wind Partners, LLC (Philip Wind).

The Project consists of an approximately 0.95-mile-long, single-circuit 230-kV transmission line extension between a switchyard (Philip North Switchyard) that will be constructed by the Western Area Power Administration (WAPA) and a dead-end transmission structure that will cut into the existing transmission line connected to the Philip Tap switching station. This new 0.95-mile transmission line will include construction of up to seven transmission structures. The Project will be located entirely within Haakon County, South Dakota (Figure A-1 in **Appendix A**).

Philip Wind will permit the Wind Project facilities separately. In addition, WAPA will separately construct the Philip North Switchyard and two tie-in lines to interconnect the Wind Project into WAPA's existing Oahe to New Underwood 230-kV transmission line.

Basin Electric is a not-for-profit electric generation and transmission cooperative headquartered in Bismarck, North Dakota. Basin Electric provides electricity and energy services to over 3 million customers, spanning 500,000 square miles across nine states, including South Dakota. Basin Electric wholly or jointly owns approximately 2,573 miles of high-voltage transmission and has 8,427 MW of generating capacity.

Basin Electric submits this Application for the Project to the Commission pursuant to South Dakota Codified Laws (SDCL) 49-41B and Administrative Rules of South Dakota (ARSD) 20:10:22.

2.0 The Project

2.1 Background

As noted above, the Project supports the interconnection of the proposed Wind Project. The Wind Project will have a nameplate capacity of up to 333 MW. The Project and the Wind Project have, together, been the subject of federal National Environmental Policy Act (NEPA) review by WAPA as part of WAPA's review of the Wind Project's transmission interconnection request. WAPA held public scoping meetings in January 2023, issued a draft Environmental Assessment (EA) in February 2024, and issued a final EA and Finding of No Significant Impact (FONSI) in May 2025. The FONSI noted that "the [Wind] Project will not significantly impact the environment because of its commitment to avoidance and minimization measures."[1]

2.2 Project description

The Project will originate at the new WAPA-owned Philip North Switchyard and extend west approximately 0.95 mile to connect with the existing Basin Electric transmission line, as shown on Figure A-2 in **Appendix A**. The Project will have a 125-foot-wide right-of-way (ROW) and include the 0.95-mile-long, single-circuit 230-kV transmission line extension and up to seven three-phase, single-circuit transmission structures constructed on steel H-frame and monopole structures (Project Facilities). Project structures are anticipated to be approximately 75 to 100 feet tall, with spans ranging from 200 to 950 feet. The Project will also include up to four pulling and tensioning sites.

The Project ROW, hereafter referred to as the Project Route, will be located on approximately 19.3 acres of privately owned land located northwest of the town of Philip in Haakon County, South Dakota (see Figure A-1 in **Appendix A**). The preliminary Project layout is shown in Figure A-2 in **Appendix A**.

Construction of the Project is anticipated to commence in the second quarter of 2026; construction is anticipated to be completed and the Project placed in service prior to December 31, 2026.

2.3 Project purpose

The Project is needed to interconnect the Wind Project to the grid. The electricity generated by the Wind Project will be transmitted onto the grid operated by Southwest Power Pool (SPP) where it will contribute to meeting electricity demand across the SPP service territory.

[1] The FONSI is included as **Appendix C** to this Application.

3.0 Project development summary

3.1 Public, agency, and Tribal outreach

The Project was included within the scope of the outreach conducted for the Wind Project, which included coordination with local community members; local officials; Tribes; and federal, state, and local agencies. For example, multiple years of coordination and consultation occurred with the U.S. Fish and Wildlife Service (USFWS); South Dakota Game, Fish, and Parks (SDGFP); and the South Dakota State Historical Society, which serves as the State Historic Preservation Office (SHPO) for South Dakota. Although much of this coordination was focused on the Wind Project, the coordination also supported the development and routing of this Project to avoid and minimize impacts to sensitive resources, as described further in later sections of this Application.

3.2 Environmental analysis

The environmental and resource studies and field surveys conducted for the entire Wind Project were available to the Basin Electric Project team for siting consideration. The surveys and studies listed in **Table 3-1** included analysis specifically relevant to this Project.

Table 3-1. Summary of studies/surveys relevant to the Project

Resource Study	Date Conducted	Summary of Finding/Status
Water resource analysis	October 2022	Desktop review using National Hydrography Dataset and National Wetlands Inventory, followed by field reconnaissance. to identify water resources in area of Wind Project; results used to avoid/minimize impacts to water resources.
Level I cultural resource records search	October 2022; 2023	The records search was conducted on October 24, 2022, in accordance with SHPO guidelines. No historic properties were recorded within 1 mile of the area of potential effects of the Wind Project.
Level III cultural resource survey	October 2022; September 2023	A 2022 pedestrian survey recorded no archaeological or aboveground historic-age resources within the area of potential effects of the Wind Project.
Supplemental Level III cultural resource survey	August 2025	Supplemental survey for work area not included in 2022 investigation. *See* **Appendix D**.

3.3 Project design

The results of the various coordination activities and studies described above were used to inform the Project Route and design. The Project Route and structure locations are designed to avoid or minimize impacts to environmental resources. Access to transmission infrastructure suitable for interconnection and the location of Wind Project facilities were a key consideration in Project siting. Final micrositing of Project Facilities will continue to occur until the design has been finalized.

3.4 Siting measures

In finalizing the design for the Project, the criteria below will be used to the extent practicable.

- Avoid or minimize disturbance to wetlands and waterways; where impacts are unavoidable, comply with applicable requirements of the U.S. Army Corps of Engineers (USACE) Clean Water Act (CWA) Section 404 permitting program.

- Avoid disturbance to federally and state-owned conservation lands.

- Avoid impacts to sites identified as potentially eligible for the National Register of Historic Places (NRHP).

- Site aboveground infrastructure away from grouse leks to the extent feasible.

- Follow USFWS Region 6 raptor nest (non-eagle) setback buffers from preconstruction nest data (800 meters [m] for red-tailed hawk and 400 m for great horned owl).

- Route the Project to avoid crossing tree rows and woodlots to the extent practicable and minimize tree clearing and vegetation removal for the Project.

- Limit ground disturbance wherever practicable during construction in potentially unbroken grasslands and restrict construction vehicle movement to designated areas.

3.5 Land acquisition

A 125-foot-wide ROW easement will be needed for the Project to cross private property. The Project will require easements from two landowners. Both landowners have given permission for surveys. Basin Electric has obtained an easement from one landowner and is currently in negotiations with the second.

In parallel with landowner negotiations, title searches covering the past 50+ years will be conducted to confirm current ownership and identify any encumbrances that must be addressed.

3.6 County permitting

Haakon County is unzoned and has no ordinances related to transmission lines at the time of submittal of this Application.

4.0 Facility Permit Application compliance

In accordance with SDCL 49-41B and ARSD 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 Applicant, 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 Applicant has addressed each matter set forth in SDCL 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;
- 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.

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

The Applicant's full name, business address, and business telephone number are shown below:

Basin Electric Power Cooperative

1717 E Interstate Avenue
Bismarck, North Dakota 58503
(701) 223-0441

The individuals authorized to receive communications relating to this Application on behalf of Basin Electric are shown below:

Table 5-1. Contact information

Ryan King Environmental Coordinator Basin Electric Power Cooperative 1717 E Interstate Avenue Bismarck, North Dakota 58503 (701) 557-5558 RKing@bepc.com	Lisa Agrimonti Attorney Fredrikson & Byron, P.A. 60 South 6th Street, Suite 1500 Minneapolis, Minnesota 55402 (612) 492-7000 lagrimonti@fredlaw.com
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6.0 Names of owner and manager (ARSD 20:10:22:07)

Basin Electric will own and operate the Project and will be responsible for the construction, operations and maintenance (O&M), and management of the Project.

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

7.1 Demand for transmission facility

As discussed in Section 2.3, the Project supports the interconnection of the proposed Wind Project, which will be a source of domestic, clean energy to the power grid. The electricity generated by the Wind Project will be transmitted by the Project onto the grid operated by SPP, where it will contribute to meeting electricity demand across the SPP service territory.

This approach maintains adherence to protection standards and supports the secure integration of new generation while fulfilling interconnection obligations under applicable regulatory frameworks.

7.2 Consequence of delay

Delays in the Project would delay the Wind Project connecting to the grid. Delays could also increase the Project's exposure to fluctuations in equipment and contractor pricing, which may increase construction and material costs.

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

The current estimated capital cost of the Project is $2.48 million. This estimate includes permitting, engineering, financing, construction, material, ROW, and procurement of the Project Facilities.

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 Route includes approximately 19.3 acres of privately owned land approximately 18 miles north of the town of Philip in Haakon County, South Dakota (see Figure A-1 in **Appendix A**). **Table 9-1** lists the township, ranges, and sections within the Project Route.

Table 9-1. Proposed location of the Project Route

Township	Range	Section
4N	20E	14
	20E	15

9.2 Siting flexibility

Basin Electric seeks an order condition that allows for adjustments to structure locations within the 125-foot-wide ROW as long as: a) they remain within the corridor field-surveyed for both cultural resources and wetlands; 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; 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, Basin Electric shall file a request for approval prior to making the adjustment pursuant to the following approval process:

- Basin Electric 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 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, Applicant may proceed with the adjustment.
- If further review is requested, the Commission will issue a decision regarding Applicant's request at its next available regularly scheduled Commission meeting, subject to notice requirements.

9.3 Transmission facility

9.3.1 Transmission right-of-way

The ROW for the Project will be 125 feet wide. The transmission structures will be centered within the ROW. The Project's approximately 0.95-mile-long (5,016-foot-long) route will extend from the existing Basin Electric transmission line just south of the Philip Tap switching station located in Haakon County, South Dakota, Section 15, Township 4 North, Range 20 East, and continue east approximately 0.95 mile to the proposed WAPA-owned Philip North Switchyard located in Section 14, Township 4 North, Range 20 East.

9.3.2 Transmission line design parameters

Basin Electric must design and construct the proposed transmission line in accordance with Good Utility Practice. These standards meet or exceed National Electric Safety Code (NESC) requirements for 230-kV design and construction. In support of the planned interconnection of the Wind Project, the transmission line configuration must be modified to align with established reliability and protection standards. The existing three-way tap (Philip Tap switching station) cannot be expanded to a four-way tap (new Philip North Switchyard) without compromising line protection integrity, and such a configuration does not meet WAPA Upper Great Plains Region interconnection requirements.

To ensure regulatory compliance and system reliability, the new interconnection will necessitate construction of a fully breakered substation. Property for the substation has already been acquired approximately 1 mile from the existing tap point at Philip Tap. Consequently, the transmission line must be rerouted to accommodate termination at the new Philip North Switchyard substation site.

Project construction and design will meet the requirements of the NESC for the Heavy Loading District, Basin Electric, U.S. Department of Agriculture (USDA) Rural Utilities Service design criteria, and other applicable local or national building codes. The Heavy Loading District refers to those areas that are subject to severe ice and wind loading. Minimum conductor clearance is measured at the point of greatest conductor sag and closest proximity to the ground. The transmission line will be constructed with clearances that exceed standards set by NESC. Minimum conductor height under maximum sag conditions will exceed 26 feet for all ground surfaces. **Table 9-2** includes a description of various Project design component characteristics.

Table 9-2. Project transmission line design components

Description of Design Component	Values
Voltage	230-kV
Length of transmission line	0.95 mile
Conductor diameter	1.20 inches
Overhead ground and optical wire diameter	0.5 inch and 0.571 inch
Typical minimum and maximum span distances between structures	200–950 feet
Total number of structures	7
Average height of structure	90 feet
Minimum conductor-to-ground clearance to agricultural land at 100 degrees Celsius	26 feet
Circuit configuration	Horizontal

The transmission line design selected for the Project will be a single-circuit 230-kV transmission facility that is anticipated to be constructed on galvanized steel monopole and H-frame structures. The phase conductors are to be single wire 954 thousands of circular mils (MCM) 54/7 aluminum conductor steel reinforced "Cardinal." The overhead shield wires will be steel, 0.5-inch, 7-strand, extra high strength overhead ground wire (OHGW) and 0.571-inch optical ground wire (OPGW).

The Project is expected to require up to seven transmission structures with spans ranging from 200 to 950 feet, but this may vary depending on geological, environmental, or engineering constraints identified during micrositing. Configuration details are provided in **Table 9-3**. The structures will be bolted to concrete drilled pier foundations embedded in the ground. Foundation sizes vary generally from 4 to 9 feet in diameter and from 15 to 30 feet in depth.

Table 9-3. Project configuration summary

Type	Material	Approx. Height	Approx. Structure Base Diameter	Approx. Foundation Diameter	Typical Span
Monopole structure with davit arms	Carbon Steel (HDG)	95 feet	5–6 feet	8–9 feet	400–800 feet
H-frame tangent structure	Carbon Steel (HDG)	85-90 feet	2 feet	4 feet	800 feet
H-frame dead-end angle structure	Carbon Steel (HDG)	75 feet	4–5 feet	6 feet	400–800 feet

9.3.3 Substation upgrades

There will be no substation upgrades as part of this Project.

9.3.4 Preconstruction surveying

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

9.3.5 Right-of-way clearing

During the lands rights acquisition 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 transmission line. Clear cutting (the removal of brush) of low growing vegetation will occur within the Project ROW as required for access and at structure erection sites. There are no trees within the ROW that would need to be cleared for the Project. Disposal of slash will comply with any applicable state and local requirements. Wood from the clearing operation will be offered to the landowner or removed from the site. Temporary disturbance to soils will be mitigated by returning the sites to grazing and farming unless other arrangements are made with the landowner in order to facilitate the long-term maintenance of the transmission line.

9.3.6 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. Basin Electric will work with landowners to minimize disruptions during construction to the extent possible.

The Project ROW includes areas that are relatively flat. It is anticipated that at some structure locations, blading of small areas (up to 40 × 40 feet for crane and manlift landings) or temporary matting may be required to level the ground surface to allow the safe operation of the equipment. Blading will be confined to the Project ROW and will be accomplished using bulldozers, skid steers, or front-end loaders. Soil removed during leveling will be stockpiled and replaced following construction; special emphasis will be placed on salvaging topsoil to be used for reclamation. The ground will be re-graded to the approximate original contour and revegetated (rangeland) or tilled (cropland) when the work is completed.

Typical construction equipment consists of 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, 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.

9.3.6.1 Borehole excavation and foundation installation

Crews will use a truck-mounted auger or tracked vehicle equipped with a power auger to drill holes for foundations at each structure location. Transmission structures will either be secured using concrete foundations or directly embedded and backfilled with crushed rock or native soils. Transmission structures that are considered heavy angle, or dead-end structures will have concrete foundations. Concrete foundation installation involves excavating and placing temporary steel casing, rebar, concrete and anchor bolt cages. The base of concrete foundations typically projects 1 to 2 feet above surface grade. Tangent and light angle structures may be placed on poured concrete foundations or directly embedded. Direct embedding involves drilling or digging a hole for each structure, filling the hole partially with crushed rock, and then setting the structure on the top of the rock base. The area around the structure is then backfilled with crushed rock or soil once the structure is set. Foundations may vary from approximately 4 to 9 feet in diameter and 15 to 30 feet or more in depth, both dimensions will depend on soil conditions observed during final geotechnical investigation. Large volumes of excess soil will be disposed of at local landfills or in accordance with landowner wishes. Disposal of waste material, including concrete spoils, will comply with applicable regulations.

9.3.6.2 Structure assembly and erection

Structure components (i.e., structure segments, davit arms, hardware, insulators, and related materials) will be hauled to structure work site locations and assembled. Davit arms, insulators, and other appurtenances will be attached to the poles while on the ground at each structure location within the Project Route. Erection crews will place the structure on drilled concrete pier foundations using cranes or large boom trucks. If the structure is directly embedded, the structure will be assembled on the ground then installed into the hole prepared for the structure.

9.3.6.3 Conductor stringing and tensioning

Following structure construction, crews will install the conductor, OHGW, and OPGW using stringing blocks and line pulling and tensioning equipment. The lines will be kept under tension during the stringing process to keep the conductor clear of the ground and obstacles that could damage the wire surfaces.

Pulling and tensioning sites are typically located at angle point structures and typically are partially outside of the Project Route. Stringing equipment generally consists of wire pullers, tensioners, conductor reels, OPGW wire reels, steel OHGW wire reels, and sheave blocks. After the conductor/ground wire is pulled for a section of line, it is tightened or sagged to the required design tension in compliance with the NESC. The process will be repeated until all conductor and OPGW are pulled through all sheaves. Conductor stringing will also require access to each structure for securing the conductor to the insulators or OPGW to each structure, once final line sag is established.

9.3.6.4 Transmission structure site access

Construction access to transmission structures will involve the use of existing roads where available, a temporary access road within the Project ROW, and temporary overland access trails, if necessary. The use of temporary overland access trails between structure sites will not require new construction but will result in temporary disturbance. Occasional access from section line trails could result in temporary disturbance along the Project Route; however, such disturbance will be limited to a 16-foot-wide track (approximately) and only long enough to provide vehicle access directly to structure locations. Some additional access disturbance could occur if truck or vehicle turnarounds are needed.

Existing access roads (typically paved or maintained with a gravel or aggregate base) will be used in their original condition. Basin Electric will be responsible for reimbursing the appropriate public entity for the repair of any damage caused by construction equipment movement and will return existing roads to original or better condition following construction. Basin Electric will not be responsible for maintaining roads following construction. Basin Electric will restore disturbed areas to preconstruction conditions, to the extent practicable, and will not be responsible for the long-term maintenance of section line trails. Basin Electric will not be responsible for maintaining fences and gates following construction and restoration; however, if necessary, access gates will be installed during construction will be left in place following construction in coordination with landowners.

9.3.6.5 Temporary land requirements

Temporary impacts are those impacts that result during construction to accommodate equipment and temporary construction activities outside of the areas that will remain as the permanent Project footprint during O&M.

Temporary access route within the ROW will result in a 16-foot-wide temporary disturbance and compaction of vegetation and soils. Temporary overland access routes will be subject to the same cultural resources and vegetation surveys as the Project Route. Landowners will be compensated for any additional access routes, if necessary, where public access does not exist.

An approximately 100 × 150-foot (15,000-square-foot) temporary work site will be located at each structure location and within the Project Route. At this structure assembly area, the davit arms are attached, and insulators and other hardware are attached while the steel structure is on

the ground. The area will be graded, if required, to ensure safe movement and operation of heavy equipment.

A temporary staging and laydown site will be used for construction. The site will be located within the Project ROW.

Pulling and tensioning sites and splicing sites will result in temporary disturbance to lands within and extending outside of the Project Route. Up to four pulling and tensioning sites will be required and each will be approximately 125 × 300 feet (150,000 square feet).

9.3.7 Permanent land requirements

Estimated Project permanent ground disturbance impacts are included in **Table 9-4**. In addition to the permanent disturbance listed in **Table 9-4**, throughout the life of the Project, the ROW will be kept clear of woody vegetation, and uses that are inconsistent with the safe operation of the Project will be precluded.

Table 9-4. Estimated disturbance impacts

Project Component	Quantity	Permanent Impact Assumption per unit	Permanent Impact (acres)
Single pole angle on foundation	1	9-foot diameter = 0.0015 acre	0.0015
H-frame tangent (2-pole)	4	4-foot diameter × 2 = 0.0006 acre	0.0024
H-frame tangent (2-pole on foundation)	1	4-foot diameter × 2 = 0.0006 acre	0.0006
H-frame angle (2-pole on foundation)	1	6-foot diameter × 2 = 0.0014 acre	0.0014
Total			**0.006**

9.3.8 BMPs during construction

Basin Electric employs 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 20 and summarized in Section 21.

During construction, Basin Electric will avoid or minimize disturbance to wetlands and waterways. Where impacts are unavoidable, Basin Electric will comply with the applicable requirements of the USACE Nationwide Permit Program. Basin Electric will also avoid impacts to sites identified as potentially eligible for the NRHP.

During construction, Basin Electric will also avoid disturbance to state-owned and federal-owned conservation lands. USFWS Region 6 raptor nest (non-eagle) setback buffers will be followed (800

m for red-tailed hawk and 400 m for great horned owl). Additionally, unbroken grasslands will be avoided. Where unavoidable, ground disturbance on unbroken grasslands will be minimized and construction vehicle movement will be restricted to designated areas.

9.3.9 Restoration procedures

Following construction, disturbed areas will be graded and/or re-sloped to their approximate original contours to minimize erosion and visual alteration. Construction workspaces will be restored by decompacting the subsoil and replacing stored topsoil, where applicable. In grassland or pasture areas, disturbed areas will be reseeded with native species unless an alternate seed mix is required by the landowner. Fences and gates damaged as a result of the Project will be repaired. All restoration will be pursuant to lease and easement agreements.

Rangeland from which vegetation has been removed, destroyed, or damaged will be reclaimed and revegetated. Reclamation activities, weather permitting, will be ongoing throughout construction and will take place as soon as construction activities are completed in a particular area. Drainage structures and similar improvements will be removed from areas to be reclaimed, where appropriate, and the area will be revegetated using a native seed mixture, as recommended by the County Agricultural Extension Service or the Natural Resources Conservation Service (NRCS) unless an alternate seed mix is required by the landowner.

Ruts and scars from overland travel will be leveled to break up compacted soils and aid in returning areas to approximate original contours.

The optimal timing for revegetation success will be spring or fall to coincide with seasonal rains. Mulching may be required to protect seeded areas from erosion. Other erosion control devices, such as water bars, terracing, or water diversion structures will be constructed where needed. Follow-up inspections will be carried out during the next growing season. Areas that did not become revegetated will be reseeded again, as necessary.

The reclamation procedures described above will be applied to disturbed areas including temporary workspaces, access, staging areas, and other areas disturbed by Project activities.

Provided that the Project ROW is on lands predominately used for row crop agriculture, following construction of the Project, landowners will be able to continue use of their land in accordance with their land management programs to the extent that it does not interfere with Project O&M.

9.3.10 Maintenance procedures

The following O&M activities will be performed throughout the life of the Project.

Basin Electric's preventive maintenance program for the transmission line includes aerial and ground inspections. Aerial inspections will be conducted at least two times each year. Ground patrols will be conducted annually for the first 3 or 4 years, and less frequently thereafter. Climbing inspections of structures will be conducted on a five-year cycle with every fifth structure inspected each year. Inspections and patrols will involve the use of vehicles in areas where there is suitable vehicle access.

Maintenance activities will include repairing damaged conductors, inspecting and repairing structures, replacing damaged and broken insulators, and tightening hardware.

Basin Electric will maintain any gates (if any) initially installed for the Project if continually used for access.

Basin Electric will minimize the area required for maintenance to the extent feasible. Basin Electric will restore all areas of temporary disturbance to their preexisting conditions by using applicable seed mixes.

Disturbed areas will be monitored for erosion. Erosion control may include the installation and maintenance of necessary measures for temporary and permanent erosion, sedimentation, and dust control, as required by relevant agencies or property owners. Inspection and maintenance will be completed by Basin Electric or a contractor to ensure compliance with Project reclamation specifications.

Vegetation in the ROW will be maintained to avoid interference with conductors, allow for ground-based inspections, and enable access to transmission structures during maintenance activities.

Basin Electric will remove trees that pose a clearance or safety problem to the operation of the transmission line. Specific requirements of the NERC will be followed. This activity will be completed in accordance with the landowner easement.

9.3.11 Decommissioning

If the transmission line were to be abandoned or rebuilt, decommissioning and removal of structures, conductor, and ancillary equipment will occur in accordance with applicable regulations in the place at the time. Basin Electric currently has no plans to decommission the Project.

For this Project, the existing Philip Tap will be decommissioned and the electrical equipment and structures will be removed from the site. The existing site will either be left as a fenced laydown site for long-term materials or sold.

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

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

10.1 General Project location and Route selection

As discussed above, the Project is needed to interconnect the proposed Wind Project. Basin Electric did not conduct an independent analysis of alternative sites for the Wind Project; rather, Basin Electric's analysis of alternatives was limited to alternative routes for the Project to connect the Project's endpoints. The Project is a direct route between those two endpoints and does not cross sensitive or protected resources. As such, Basin Electric did not further consider route alternatives.

10.2 Reliance on eminent domain

Basin Electric is in the process of securing ROW for the Project and currently does not anticipate needing to use eminent domain to acquire ROW for the Project.

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

Sections 11 through 16 and Sections 18 through 19 provide descriptions of the existing environment at the time of Application submittal and the potential changes to the existing environment that are anticipated to result from the construction and O&M of the Project. These sections also identify the impact avoidance, minimization, and mitigation measures that will be implemented for the Project. The long-term impacts of the Project will not result in irretrievable changes to land use, because the temporary construction areas will be restored to their preconstruction condition to the extent practicable following Project construction and permanent land disturbance impacts are expected to be less than 1 acre in size. As discussed in Section 1.2, the Project has been part of multi-year agency coordination and has undergone WAPA's environmental review process, resulting in the issuance of an EA and a FONSI. As applicable, conclusions from the EA and FONSI are incorporated into the following sections of the Application.

Once constructed, the proposed Wind Project will also be located in Haakon County, in proximity to the Project. There are no other operating wind energy facilities that are in proximity to the Project Route. The closest wind energy facility is the Willow Creek Wind Energy Project, which is almost 100 miles away (Commission 2024; Hoen et al. 2018).

The Project is not anticipated to have a significant impact on the community or environment. The Project has been routed in accordance with applicable state requirements to avoid and minimize impacts on the community and the environment.

The estimated permanent impacts for the Project are shown in **Table 9-4** and temporary impacts are discussed in Section 9.3.6.5. 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. Further, no tree clearing is anticipated for the Project, and the ROW will continue to be maintained to be free of woody vegetation.

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 land forms

The Project Route is located within the Northwestern Great Plains Level III ecoregion of the Western Central Semiarid Prairies Level II ecoregion of the Great Plains Level I ecoregion (U.S. Environmental Protection Agency 2024). The Northwestern Great Plains region is typically characterized by semiarid rolling plains of shale, siltstone, and sandstone interrupted intermittently by buttes and badlands (EPA 2024a). These features formed due to erosion of softer underlying bedrock through actions of wind and water along tributaries to the Cheyenne and Bad Rivers. The Project Route has a variable drainage pattern but typically drains northward to West Plum Creek to the northeast and Bridger Creek to the northwest. Approximately 3.7 acres of the Project Route have bedrock depth of 76 inches (NRCS 2023). The remaining acres lack relevant data, but due to the relatively small size of the Project Route, bedrock depth is likely similar.

Rangeland is common in this ecoregion with pockets of native prairies still persisting in areas of steep or broken topography. Topographic relief within the Project Route is moderate with site elevations ranging from approximately 2,429 to 2,489 feet above mean sea level.

12.1.1.2 Geological features and constraints

The Project Route consists entirely of Pierre Shale, a blue-gray to dark-gray Upper Cretaceous shale composed of beds of bentonite, black organic shale, and light brown chalky shale. Pierre Shale also contains minor sandstone, conglomerate, and abundant carbonate and ferruginous concretions, with a thickness of up to 2,700 feet (Martin et al. 2004). Bedrock outcrops may exist at the surface in places but are likely to be weathered and eroding into unlithified soils. Figures A-5 and A-6 in **Appendix A** illustrate the bedrock and surficial geology in the vicinity of the Project respectively.

12.1.1.3 Economic deposits

Commercially viable mineral deposits in Haakon County are limited to sand and gravel. Combined information from the South Dakota Department of Agriculture and Natural Resources (SDDANR) Minerals and Mining Program and a review of U.S. Geological Survey (USGS) USMIN Mineral Deposit Database/Prospect-and mine-related features on USGS topographic maps indicates no sand/gravel pit sites are present within the Project Route (SDDANR 2024a; USGS 2006). The closest gravel pit to the Project Route is approximately 18 miles south (USGS 2023a).

A review of the online information from the SDDANR Oil and Gas Initiative Program verifies that the Project Route is not within a known oil or gas field as most of the current and historic oil and

gas development occurs further west in the state. Of note, there are two oil wells within the Project Route that are now plugged and abandoned. The nearest identified oil and gas field is the Big Smoke Mine, located approximately 43 miles southwest and northeast of the Project Route respectively (SDDANR 2024b). No other active or historical economic mineral deposits exist within the vicinity of the Project.

12.1.1.4 Seismic risks

The risk of seismic activity near the Project Route is extremely low. According to the USGS 2014 Seismic Hazard Map for the United States, a 2% chance exists for an earthquake to occur within the Project Route in the next 50 years (i.e., a recurrence interval of 2,500 years) that would result in a peak ground acceleration (PGA) of between 4% and 6% of gravity (0.04–0.06 grams [g]). The USGS also estimates a 10% chance exists for an earthquake to occur within the Project Route in the next 50 years (i.e., a recurrence interval of 475 years) that would result in a PGA of between 0.02 g and 0.03 g (Petersen et al. 2015). For reference, a PGA of 0.1 g is generally considered the minimum threshold for damage to older structures or structures not made to resist earthquakes and a PGA below 0.01 is considered unfelt. According to the short-term induced seismicity 1-year models, the chance of potentially minor damage ground shaking in 2018 in the Project Route is less than 1% (USGS 2018). According to the South Dakota Geological Survey (2023), no earthquakes have been recorded in Haakon County from 1872 to 2022, though earthquakes were recorded in adjacent counties (i.e., Pennington, Jackson, Jones, and Stanley). There are no active faults or earthquakes recorded in Haakon County, South Dakota (USGS 2023b).

12.1.1.5 Subsidence potential

The potential for subsidence and slope instability is considered negligible because the bedrock underlying the Project Route is not known to develop karst topography or contain layers susceptible to dissolution by water. There are no reclaimed or underground mining operations in the Project Route (USGS 2023a). Landslide incidence is low, but susceptibility is high, which can result in slumping especially along steep slopes, in channel cuts, or during excavations (Radbruch-Hall et al. 1982).

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. Excavation, boring, and groundwater conditions associated with the underlying unconsolidated materials and other sedimentary bedrock in the Project Route are anticipated to be conducive to construction and O&M of the Project. Geotechnical borings will be completed, and soil samples will be tested to determine the engineering characteristics of the site subgrade soils and develop Project-specific design and construction parameters.

Due to the limited developed or potential economic mineral resources within the Project Route, construction and O&M of the Project poses no impact to economic mineral resources. Therefore, no mitigation is required for impacts to mineral resources. Additionally, geologic hazards, such as seismicity, are expected to be extremely low to negligible in the Project Route. Due to the limited probability of significant seismically induced ground movements, the Project faces minimal risk of earthquake-related impacts. Therefore, no additional mitigation beyond adhering to prevailing industry specifications will be necessary.

12.2 Soils

12.2.1 Existing soil resources

The soils within the Project Route generally consist of clay to silty clay textures derived from weathering of underlying shale and siltstone bedrock (National Cooperative Soil Survey 2023). These soils are moderately susceptible to rill erosion and can lose on average 5 tons of soil through water and wind erosion without affecting crop productivity (NRCS 2023). Other soil properties include a low resistance and medium susceptibility to compaction and are moderately well drained (NRCS 2023). Approximately 3.7 acres of the Project Route have bedrock depth of 76 inches (NRCS 2023). The remaining acres lack relevant data, but due to the relatively small size of the Project Route, bedrock depth is likely similar.

The drainage class identifies the natural drainage condition of the soil. It refers to the frequency and duration of wet periods and provides a guide to the limitations and potentials of the soil for field crops, forestry, range, wildlife, and recreational uses. The class roughly indicates the degree, frequency, and duration of wetness, which are factors in rating soils for various uses (NRCS 2023). Approximately 67.0% of the Project Route is classified as well drained and the remaining 33% is classified as moderately well drained.

Erosion factor K indicates the susceptibility of a 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 percentage of silt, sand, and organic matter, and on soil structure and saturated hydraulic conductivity. Factor K values range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. The soils in the Project Route have a moderate susceptibility to erosion and have factor K values ranging from 0.31 to 0.37, with the majority at 0.37.

A Wind Erodibility Group consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated or disturbed areas. The soils assigned to Group 1 are the most susceptible to wind erosion and those assigned to Group 8 are the least susceptible. The soils in the Project Route have low to moderate susceptibility to wind erosion and have Wind Erodibility Group designations between 4 and 6.

Table 12-1 lists the soil types in the Project Route and their characteristics.

Table 12-1. Soil associations within the Project Route

Soil Association	Soil Texture	Parent Material	Drainage Class	Depth to Restrictive Feature (inches)	Acres in Project Route (% of Project Route)
Ottumwa silty clay, 3 to 6 percent slopes	Silty clay	Clayey alluvium and/or clayey residuum weathered from shale	Well drained	More than 80 inches	8.5 (44%)
Ottumwa-Capa complex, 0 to 3 percent slopes	Silty clay	Clayey alluvium and/or clayey residuum weathered from shale	Well drained	More than 80 inches	1.7 (9%)
Capa-Wendte, channeled, complex	Silty clay	Clayey alluvium derived from clayey shale	Moderately well drained	More than 80 inches	5.4 (28%)
Ottumwa-Lakoma complex, 3 to 6 percent slopes	Silty clay	Alluvium	Well drained	45 to 62 inches	1.2 (6%)
Lakoma silty clay, 6 to 9 percent slopes	Silty clay	Residuum weathered from shale	Well drained	25 to 33 inches	2.5 (13%)
Total					**19.3 (100%)**

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 farmland and farmland of statewide importance are subject to protection under the Farmland Protection Policy Act (Public Law 97-98; 7 United States Code 4201–4209). The Project Route is classified as approximately 42% farmland of statewide importance and approximately 58% as not prime farmland (Figure A-8 in **Appendix A**) (NRCS 2023).

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

Primary impacts to soil resources include ground-disturbing activities (e.g., grading, trenching, and excavating). Clearing vegetation removes protective cover and 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. Grading and equipment traffic may compact soil, reducing porosity and percolation rates, which could result in increased runoff potential. Contamination from release of fuels, lubricants and coolants from construction equipment could also impact soils. These impacts, if they occur to farmland of statewide importance or prime farmland, may reduce the quality, quantity, or productivity of the soils. The majority of these impacts are temporary and related to construction activities; however, there would be long-term impacts associated with aboveground facilities during O&M. Following completion of construction, all temporary construction workspaces would be cleaned up and restored to preconstruction conditions pursuant to the easement agreements.

Areas within the ROW may be subject to temporary ground disturbance (19.3 acres), and the Project would permanently impact less than 0.1 acre of soils.

Construction of the Project would require coverage under the SDDANR General Permit Authorizing Stormwater Discharges Associated with Construction Activities (SDR10000). To maintain compliance with provisions of this General Permit, Basin Electric or their contractor will prepare a Stormwater Pollution Prevention Plan (SWPPP) to identify potential sources of stormwater pollution from the Project site and specify BMPs to control erosion and sedimentation and minimize negative impacts caused by stormwater discharges from the Project. The SWPPP will be prepared prior to construction of the Project and will be implemented from the initiation of construction and used through site restoration efforts. During Project O&M, stormwater volume, stormwater flow, and erosion and sediment impacts to surface water and groundwater resources are not anticipated to change from preconstruction conditions.

Geotechnical borings would be completed, and soil samples would be tested to determine the engineering characteristics of the site subgrade soils and develop Project-specific design and construction parameters. Adjustments to structure locations would be made for unsuitable soils as needed.

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

In South Dakota, water-producing bedrock units are deep and therefore expensive to drill and install wells in, may have undesirable water quality, or may not yield an adequate quantity of water where it is needed (Iles 2008). Often the water depth and water quality prevent the average consumer from utilizing water from these sources. Historically, rural water supplies of Haakon County were widely distributed and obtained from shallow pumped, deep pumped, and deep flowing wells (Searight and Meleen 1940). Almost all the wells (99.25) in Haakon County were shallow pumped wells, of which (98%) were less than 100 feet in depth (Searight and Meleen 1940).

The Project Route is located over the regional Northern Great Plains aquifer system (USGS 1996). Permeable rocks of this aquifer system have been grouped into five major aquifers: lower Tertiary, upper Cretaceous, lower Cretaceous, upper Paleozoic, and lower Paleozoic (USGS 1996). Within this aquifer system, water movement occurs from recharge areas at high elevations, down the dip of the aquifers, and then upward to discharge into shallower aquifers or discharge to the land surface. Recharge to this aquifer system is primarily from precipitation or snowmelt. Local recharge includes seepage of excess irrigation water. Discharge from this aquifer system is primarily from upward leakage of water into shallower aquifers where the hydraulic head in a shallower aquifer is less than that of a deeper aquifer.

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

Construction of the Project is not anticipated to have long-term impacts on groundwater resources. The construction of Project Facilities may require dewatering of excavated areas for the structure foundations due to perched or shallow groundwater. Any dewatering will be temporary and minimized to the extent practicable. The Project will not include deep well injection for effluent disposal. Watered groundwater will be properly handled to allow sediments to settle out and be removed before the water is discharged, reducing soil erosion and sedimentation of surface waters. Dewatering, if any, will be conducted in accordance with the General Permit for Temporary Discharge Activities and the Temporary Permit to Use Public Waters from the SDDANR. No aquifers will be used for potable water supply or process water. Routine O&M activities are not expected to affect groundwater resources.

The unlikely accidental release of construction-related chemicals, fuels, or hydraulic fluid into groundwater would have the potential to have an adverse effect on groundwater quality, most notably near shallow water wells. The impacts of spills are mainly linked to fuel storage, equipment refueling, and maintenance activities. There will be no on-site storage of petroleum products 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 Buzzard Creek, West Plum Creek, Grindstone Creek, Medicine Creek, North Fork, South Fork, Bridger Creek, and Mexican Creek. Two named lakes include Kroetch Lake and Ferguson Damn. No Wild and Scenic Rivers are in the Project Route (National Wild and Scenic Rivers System 2023).

The largest lake in the Project vicinity is Kroetch Lake, about 0.5 mile southwest of the Project. This waterbody is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Lakes for the following beneficial uses:

- Warmwater permanent fish life propagation waters;
- Immersion recreation waters;
- Limited contact recreation waters; and
- Fish and wildlife propagation, recreation, and stock watering waters (SDDANR 2024c).

Kroetch Lake does not appear to have an outlet. The other lake within the Project vicinity, 7.5 miles to the west, is Ferguson Dam which has an outlet on the north side and drains into the south fork of Bridger Creek.

The entirety of the Project Route is within the Lower Cheyenne sub-basin. Water flow in this portion of the Project Route runs northward through West Plum Creek, Bridger Creek, and multiple unnamed tributaries until it reaches the Cheyenne River.

The National Park Service Nationwide Rivers Inventory (NRI) is a listing of more than 3,200 free-flowing river segments in the United States that are believed to possess one or more “outstandingly remarkable” natural or cultural values judged to be of more than local or regional significance. There are no NRI-listed river segments in the Project Route. The closest NRI-listed river to the Project Route is the Cheyenne River located over 10 miles away from the Project Route (National Park Service 2025).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 United States Code 1251(a)). Under CWA Section 303(d), states, territories, and authorized tribes, collectively referred to in the CWA as "states," are required to develop lists of impaired waters.

No impaired waters listed under CWA Section 303(d) are crossed by the Project Route (EPA 2015). The nearest impaired waterbody (Waggoner Lake) is over 10 miles away from the Project and is impaired for Chlorophyll-a (SDDANR 2024c).

A desktop review of data from the National Hydrography Dataset (NHD) and the National Wetlands Inventory (NWI) was conducted to identify surface water resources, including wetlands, streams, and other surface waters crossed by the Project Route. Field verification of surface water resources was conducted in October 2022 for the Wind Project, including the Project Route, to document where observed features were inconsistent with those mapped by the NWI and NHD (Fields et al. 2023). Based on the site visit, the desktop analysis overestimated water resources;

several wetland polygons mapped by the NWI and NHD waterbodies appeared absent when viewed from publicly accessible roads. NWI and NHD data can be found in Figure A-9 in **Appendix A**. A wetland delineation will occur prior to the start of construction. The results of the field verification and a discussion of Project impacts to wetlands are discussed in Section 13.4.

13.2.1.1 Floodplains

According to the Federal Emergency Management Agency (2021), a study to determine flood hazards has not been completed for Haakon County and no floodplains were identified within 10 miles of the Project. Based on a study conducted for the Wind Project, the Project Route is in an area with low flood depths and is suitable for energy generation and transmission.

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

Potential impacts to surface waters due to the Project include transport of sediment into waters during construction due to excavation and the exposure of soils. The Project is anticipated to result in less than 0.1 acre of additional impervious surface. Because the transmission line will span any wetlands or streams, no impacts to surface waters are anticipated from transmission line. However, if there are impacts to wetlands or streams, they will be permitted in compliance with the CWA. Increased sedimentation, reduction of available flood storage, and impacts to drainage patterns due to stormwater runoff from the Project during construction and O&M will be minimized through implementation of BMPs. The BMPs may include silt fences, straw wattles, erosion control blankets, and other methods to control erosion and sedimentation. The Project is not expected to cause significant changes to existing hydrology or stormwater runoff.

There are no NRI-listed rivers crossed by the Project Route; therefore, construction and O&M of the Project poses no impact to these resources. There are no 303(d)-listed waterbodies crossed by the Project; therefore, construction and O&M of the Project will have no impact to these resources.

The Project Route would span one small intermittent stream in several locations, a riverine feature, and a portion of a freshwater emergent wetland (see Figure A-9 in **Appendix A**). This area is dominated by grassland and herbaceous vegetation. 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 600 feet, the Project is expected to span all rivers and streams, thus avoiding permanent impacts. Where crossings of streams and drainageways cannot be avoided by access roads, appropriately designed crossings (i.e., culverts, low-water crossings) will be constructed to maintain existing drainage as practicable.

Due to the lack of recorded floodplains in the Project vicinity it is likely that the construction and O&M of the Project will pose no impact to floodplains.

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 West River/Lyman-Jones rural water system which serves more than 3,600 customers. Water is sourced from Lake Sharpe on the Missouri River.

There are no known wells crossed by the Project Route. The nearest private well is located approximately 0.5 miles northeast of the Project. It is a stock watering well that is 45 feet deep. DESCRIPTION.

13.3.2 Impacts to current and planned water use

No groundwater resources will be used for construction or O&M of the Project. Water use for the Project will be restricted to dust control and foundation construction. This water will be sourced offsite and transported to the Project Route as needed. The amount of water required for the Project is considered minimal. Construction will require a SDDANR General Permit Authorizing Stormwater Discharges Associated with Construction Activities, 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.

13.4 Wetlands

13.4.1 Existing wetlands

Wetlands are defined in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." The Manual identifies three wetland criteria that must be met for a wetland to be present: dominance of hydrophytic vegetation, hydric soils, and sufficient hydrology. Some wetlands, as well as other waterbodies, are considered waters of the United States under Section 404 of the CWA and are, therefore, regulated by the USACE with respect to discharge of fill material into the water features.

Mapped waterbodies, including ponds, lakes, streams, and rivers crossed by the Project Route were determined through desktop analysis and field verification of the NHD (USGS 2023c); wetlands were determined from the NWI (USFWS 2023a). NWI maps are produced by the USFWS and provide reconnaissance-level information including the location, type, and size of these resources. NWI maps are produced by reviewing high-altitude imagery, and interpretation is variable based on quality of aerial photographs, experience of the interpreter, and whether ground-truthing was conducted.

A site reconnaissance visit was conducted on October 13 and 14, 2022, and NWI and NHD features inconsistent with the desktop analysis were documented if observed while traveling publicly accessible roads. Based on the site visit, the desktop analysis overestimated water resources; several wetland polygons mapped by the NWI and NHD waterbodies appeared absent when viewed from publicly accessible roads. NWI and NHD data can be found in Figure A-9 in **Appendix A** and in the Water Resource Analysis prepared for the Wind Project by Western EcoSystems Technology, Inc. (Fields et al. 2025).

The aquatic resources within the Project vicinity consist of one intermittent stream and a few depressional "pothole" wetlands within or adjacent to cultivated crop fields. Many of the wetlands identified within the NWI were confirmed to have been fully drained and converted to cultivated agriculture. Where field sampling was not possible due to access limitations, soils were conservatively presumed to be hydric based on desktop analysis of the NWI and saturated signatures detectable using aerial imagery. Classifications and acreages of the wetlands are

provided in the Water Resource Analysis (Fields et al. 2023), and further details are provided in Table 2 of that report.

Although the NWI and NHD features used in this section do not represent an official jurisdictional determination of waters of the United States, key infrastructure siting was informed by the results of the field verification of aquatic resources. Aquatic delineation surveys will be conducted for the Project infrastructure prior to construction.

13.4.2 Wetland impacts and avoidance, minimization, and mitigation measures

Based on the current design, there are no permanent impacts to wetlands anticipated. The potential impacts to wetlands are expected to be minor, temporary, and within the threshold for authorization under the USACE Nationwide Permit Program without preconstruction notification. Wetland impacts will be avoided where practicable; if wetland impacts occur, the Project will comply with the CWA and USACE Nationwide Permit Program requirements.

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 Route is located in the River Breaks, Subhumid Pierre Shale Plains Level IV ecoregion of the Northwestern Great Plains Level III ecoregion, which encompasses the western edge of South Dakota (EPA 2024a). The River Breaks ecoregion consists of steep slopes and heavy, sticky soils that limit cultivation and historically supported pockets of junipers (*Juniperus* spp.), deciduous trees, little bluestem (*Andropogon gerardii*), and buffalograss *(Bouteloua dactyloides*). The Subhumid Pierre Shale Plains and Semiarid Pierre Shale Plains ecoregions are characterized by heavy soils with limited trees and the historic vegetation consisted of western wheatgrass (*Pascopyrum smithii*) and needlegrass (*Nassella viridula*) plains. The predominant land use in these ecoregions is grazing.

Land cover crossed by the Project Route was initially described using the National Land Cover Database (USGS 2019) (Figure A-7 in **Appendix A**). In 2022, biologists completed field surveys to verify and update the data provided by the National Land Cover Database in the Project Route. The entirety of the Project Route is classified as grassland/herbaceous. Wetland areas occur throughout the Project Route, and total less than 1.0% of the Project Route. Section 9.2 provides a detailed discussion of wetlands and waterbodies in the Project Route.

Based on the USFWS Information for Planning and Consultation (IPaC) online review tool, no federally listed plant species are known to occur within the Project Route (USFWS 2025).

14.1.1.1 Potentially undisturbed grasslands

In 2022, a grassland habitat assessment was conducted that included the Project Route. The objective of the grassland habitat assessment was to identify parcels of grassland and to identify sod types as unbroken or broken. Broken sod type is defined as disturbed or mechanically manipulated ground (Bauman et al. 2018) and is characterized by the presence of features indicating mechanized cultivation, such as rock clearing, abrupt field edges, straight line features (indicating plowing, disking, harvesting, or planting), or presence of any other features indicating human disturbance to the sod. Unbroken sod is characterized by the absence of these features indicating no human-caused breaking of the sod (Bauman 2021; Bauman et al. 2018).

The entire Project Route was identified as a grassland (see Figure A-7 in **Appendix A**). Of this, the entire grassland was characterized as broken apart from less than 0.1 acre which was not surveyed due to access issues.

14.1.1.2 Forest and woodlands

There are no areas of forest or woodlands crossed by the Project Route.

14.1.1.3 Noxious weeds

Noxious weeds may be regulated by state (SDCL 38-22) and federal (7 Code of Federal Regulations 360) rules and regulations designed to stop the spread of plants that are detrimental to the environment, crops, livestock, and public health. According to the SDDANR, three species of noxious weeds occur and are regulated within Haakon County (SDDANR 2017a, 2017b) (**Table 14-1**).

Table 14-1. Noxious weeds

Common Name	Scientific Name
Canada thistle	*Cirsium arvense*
Hoary cress	*Lepidium draba*
Common mullein	*Verbascum thapsus*

14.1.2 Vegetation impacts and avoidance, minimization, and mitigation measures

Construction of the Project would result in both temporary and permanent impacts to existing vegetation crossed by the Project Route, primarily through the loss of mixed grass prairie areas. Areas within the Project ROW would be subject to temporary ground disturbance, and less than 0.1 acre would experience long-term ground disturbance impacts. The Project Route is entirely on uncultivated land, and no impacts to crops are anticipated.

The Project has been routed to have the least impact on vegetation communities, including native prairies, grasslands with native plant communities, and wetlands. Temporary impacts would be mitigated through the implementation of best management practices (BMPs) such as revegetation and the use of erosion control devices.

Indirect impacts, such fire hazards associated with vehicles and human activities would be minimized by employing spark arrestors on power equipment, restricting off-road vehicle use, and allowing smoking only in designated areas. Other indirect impacts, such as the spread of noxious weed species and increased potential for erosion or sedimentation due to ground disturbance, would be addressed through a combination of mechanical mowing, selective herbicide applications, and other BMPs.

Vegetation communities most sensitive to disturbance are native prairies and grasslands with native plant communities. The Project has been sited to minimize impacts to these sensitive habitats; there would be no impacts to undisturbed grasslands and no tree clearing will occur for this Project.

14.2 Wildlife

Coordination has occurred with the USFWS and SDGFP regarding wildlife resources that may occur in the vicinity of the Wind Project, and that area of review includes the Project Route. 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 the USFWS IPaC website, the SDGFP list of state-threatened and endangered species, the SDGFP Environmental

Review Tool, and the South Dakota Natural Heritage 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.

Additionally, wildlife studies related to raptors, migratory birds, bats, and other special-status species were conducted for the Wind Project, including the area in which the Project Route is proposed, between 2017 and 2023.

14.2.1.1 Avian species

Numerous bird species cross the Project Route. The Migratory Bird Treaty Act (MBTA) is the basis for migratory bird conservation and protection in the United States. The Project Route is in the Central Flyway, used by migrating waterfowl, songbirds, shorebirds, and raptors. The Project vicinity encompasses a mosaic of land cover types, including herbaceous, agricultural, wetlands, and open water areas, that may provide suitable foraging and stopover habitat for migrating avian species.

There are no Important Bird Areas or other lands designated specifically as bird habitat that cross the Project Route (National Audubon Society 2023). The closest registered Important Bird Areas to the Project are the Fort Pierre National Grassland located approximately 67 miles east of the Project and the Pierre Missouri River Bottomlands located approximately 78 miles northwest of the Project (National Audubon Society 2024).

Birds of Conservation Concern

The USFWS lists 26 species as Birds of Conservation Concern (BCCs) within the Badlands and Prairies Bird Conservation Region 17, in which the Project is located (USFWS 2021). These species are protected under the MBTA and are species that may become federally listed as threatened or endangered without conservation measures being enacted (USFWS 2021). Of these 26 species, 25 could potentially use or occur in appropriate habitats (e.g., wetlands, herbaceous areas, forested areas) within the Project Route during migration, nesting, or wintering (USFWS 2021). The mosaic of herbaceous areas, open water, wetlands, forested areas, and shrublands in the Project vicinity may attract nesting, foraging, and roosting birds, and grain fields may provide additional feeding opportunities.

Eagles and raptors

The Bald and Golden Eagle Protection Act provides protection for bald (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). Both species have been observed to occur in the general vicinity of the Project. Bald eagles prefer habitat near rivers, lakes, and marshes, but are increasingly found in drier areas such as farmland and urban and suburban habitats. During the winter, bald eagles congregate near open water in tall trees to spot prey (USFWS 2024a). Golden eagles typically nest on cliffs or in large trees and can be found in a variety of habitats including the tundra, grasslands, forests, woodlands, deserts and occasionally farmland (USFWS 2011). Bald and golden eagles and occupied nests were observed in the Project vicinity during field surveys.

Based on raptor distribution maps, one vulture species, seven owl species, and 17 diurnal raptor species (including bald and golden eagles) have potential to occur in or near the Project Route during the summer, winter, or migration periods. Migration covers both the spring and fall seasons and is representative of the timeframe as opposed to the activity. Of these 25 species, 14 have the potential to breed in the Project vicinity. This is based on the presence of potentially

suitable nesting habitat in the Project vicinity and the individual breeding ranges of the species (NatureServe 2024a; South Dakota Birds and Birding 2024).

The following raptor species were observed during field surveys for the Wind Project: American kestrel (*Falco sparverius*), bald eagle, Cooper's hawk (*Accipiter cooperii*), ferruginous hawk (*Buteo regalis*), golden eagle, great horned owl (*Bubo virginianus*), merlin (*Falco columbarius*), northern harrier (*Circus cyaneus*), peregrine falcon (*Falco peregrinus*), prairie falcon (*Falco mexicanus*), red-tailed hawk (*Buteo jamaicensis*), rough-legged hawk (*Buteo lagopus*), sharp-shinned hawk (*Accipiter striatus*), Swainson's hawk (*Buteo swainsoni*), turkey vulture (*Cathartes aura*), and unidentified hawk (Tetra Tech 2017, 2018; Piorkowski et al 2023; Wilson et al. 2024).

14.2.1.2 Bats

Fourteen bat species potentially have ranges overlapping the Project Route (South Dakota Bat Working Group 2004; SDGFP 2014, 2024). The range of the federally listed endangered and state-listed threatened northern long-eared bat (*Myotis septentrionalis*) potentially overlaps the Project Route. The little brown bat (*Myotis lucifugus*) is under review for federal listing and the tricolored bat *(Perimyotis subflavus*) is federally proposed for listing as endangered. Several species are considered Species of Greatest Conservation Need in South Dakota. Sensitive bat species are discussed in greater detail in Section 14.2.1.3.

14.2.1.3 Federally and state-listed and sensitive terrestrial species

The USFWS South Dakota Ecological Services Field Office IPaC report identified federally listed threatened, endangered, proposed, and candidate species that have the potential to occur in the vicinity of the Project (USFWS 2025). Five terrestrial species are federally listed, proposed to be federally listed, or are candidate species under the Endangered Species Act (ESA) and have the potential to occur in proximity to the Project (**Table 14-2**). No designated critical habitat is present for any species in the Project Route.

Based on a desktop review of the SDGFP distribution lists, three state-listed terrestrial species may cross the Project Route (see **Table 14-2**) (SDGFP 2024). These three species are the peregrine falcon (*Falco peregrinus*) (state-listed threatened), whooping crane (federally and state-listed endangered), and swift fox (*Vulpes velox*) (state-listed threatened). Philip Wind submitted a Natural Heritage Database request to the SDGFP for the Wind Project Area; this included the Project Route. Based on the information received from the SDGFP on February 22, 2023, evidence of only one state-listed species, the swift fox, has been documented within 5 miles of the area.

Table 14-2. Federally and state-listed threatened, endangered, proposed, and candidate terrestrial species potentially occurring within the Project Route

Common Name	Scientific Name	Status[1]
Piping plover	*Charadrius melodus*	(F) Threatened
Rufa red knot	*Calidris canutus rufa*	(F) Threatened
Whooping crane	*Grus americana*	(F/S) Endangered
Monarch butterfly	*Danaus plexippus*	(F) Proposed Threatened
Suckley's cuckoo bumble bee	*Bombus suckleyi*	(F) Proposed Endangered
Western regal fritillary	*Argynnis idalia occidentalis*	(F) Proposed Threatened
Peregrine falcon	*Falco peregrinus*	(S) Threatened
Swift fox	*Vulpes velox*	(S) Endangered

Note:(F) indicated a federally listed species, (S) indicates a state-listed species

Piping plover

The piping plover was ESA-listed as threatened in 1985, with the Northern Great Plains and Atlantic Coast populations listed as threatened and the Great Lakes population listed as endangered (USFWS 2023b). The piping plover breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes (USFWS 2023b). In South Dakota, the piping plover nests mainly along Lake Oahe and below Fort Randall and Gavin's Point Dams, and rarely on alkaline wetlands in northeastern South Dakota and along lakeshores in western South Dakota (SDGFP 2019). Most reported observations of piping plover occur around Pierre, South Dakota, approximately 60 miles east of the Project within designated critical habitat for the species that is approximately 30 miles northeast of the Project. No alkali lakes were observed in the Project; however, in dry years, piping plover could occur within dried-up wetlands. Avian use studies conducted for the Wind Project, which included the Project Route, during 2017, 2018, 2022, 2023, and 2024, detected no piping plover. Due to the lack of piping plover observations, and the lack of potentially suitable habitat, piping plovers are unlikely to occur.

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.

Whooping crane

The whooping crane was ESA-listed as endangered in 1967. The species has one natural wild population of approximately 543 individuals (Butler et al. 2022). Members of this population nest in and adjacent to Wood Buffalo National Park in the Northwest Territories and Alberta, Canada, and winter mainly in and adjacent to Aransas National Wildlife Refuge along the central Texas coast (Government of Canada 2015; USFWS 2023f). Whooping cranes spend the largest amount of time during migration feeding in harvested grain fields (USFWS 2023f). Studies indicate whooping cranes use a variety of habitats during migration and generally roost in small palustrine (marshy) wetlands ≤1 kilometer from suitable feeding areas (Howe 1987, 1989).

The Project ROW is in the range of the wild whooping crane population range (USFWS 2023f) and in the portion of the USGS whooping crane migration corridor that encompasses 95% of confirmed whooping crane sightings (Pearse et al. 2018a, 2018b). The nearest known whooping crane observation within the past 10 years occurred in spring 2015, approximately 11 miles southeast of the Project. Four additional whooping crane sightings occurred in spring 2017 approximately 20 miles northeast of the Project (Pearse et al. 2020).

A whooping crane habitat assessment was conducted for the Wind Project, which included the area in which the Project Route is proposed, in 2023 in order to identify potentially suitable whooping crane stopover habitat in the Wind Project Area. Based on the overall paucity of recent

whooping crane observations in the Project and the low quantities of suitable wetland stopover habitat in the Project Area the species is considered unlikely to cross the Project Area.

The transmission line will include bird flight diverters in accordance with Avian Power Line Interaction Committee (APLIC) guidelines. These diverters will enhance the visibility of the line for larger bird species, such as whooping cranes, thereby reducing the risk of avian collisions.

Monarch and regal fritillary butterflies

The monarch and regal fritillary butterflies are both federally proposed threatened species that are under review. Monarchs are migrating butterflies that can live in a variety of habitats, including prairies, savannas, ROWs, and field edges with abundant flowering plants. Although the monarch can live in many different habitats, their larval stage requires a diet of milkweed (*Family Asclepiadaceae*) species. Because of this reliance on milkweed, habitats with milkweed may be more likely to have monarch butterflies present.

The regal fritillary butterfly requires an abundance of violets (*Viola* spp.) and nectar sources, warm season bunchgrasses, and native tallgrass or mixed grasses indigenous of the region. Suitable grasslands are sufficiently large (ideally more than 2,471 acres), contiguous, and maintained by periodic disturbance.

According to the USFWS (2023k), there are historical records of the regal fritillary occurring in Haakon County, South Dakota, but there are no current records. Neither regal fritillary nor monarch butterflies were observed during field visits to the Project Area. However, the Project Area contains potentially suitable habitat for the monarch butterfly and regal fritillary in the form of herbaceous areas with potential to contain milkweed and/or violet species. Therefore, both butterfly species have potential to cross the Project Route.

Suckley's cuckoo bumble bee

Suckley's cuckoo bumble bee is historically found in various types of habitats including prairies, grasslands, meadows, urban and agricultural areas, and woodlands up to 10,500 feet above mean sea level. This bumble bee is an obligate social parasite entirely dependent on social bumble bee hosts to collect pollen and rear young. Suckley's cuckoo bumble bee has not been observed in the United States since 2016, despite widespread historic occurrence records and increased sampling effort for bumble bees (USFWS 2024b).

There are no records of bumble bees that could act as hosts to Suckley's cuckoo bumble bee crossing the Project Route (Bumble Bee Watch 2025). Despite suitable habitat being present, the lack of observable species or host species make Suckley's cuckoo bumble bee unlikely to cross the Project Route.

Peregrine falcon

The state-listed endangered peregrine falcon is a widespread raptor that feeds primarily on birds and small mammals, lizards, fishes, and insects. The species prefers open grasslands with cliffs and rock outcroppings available for nesting that are near a concentrated prey base. The species is believed to have been historically widespread throughout South Dakota, and peregrine falcons could use the open grasslands in the Project vicinity for foraging (SDGFP 2022). Avian surveys completed for the Wind Project, including the Project Route, included one peregrine falcon observation in the spring, fall, and winter.

Swift fox

The swift fox is an omnivore that historically occurred in appropriate habitat throughout South Dakota (SDGFP 2022). The species prefers heavily grazed shortgrass or mixed grass prairies usually associated with prairie dog or ground squirrel colonies. A swift fox den site was documented approximately 3.6 miles south of the Project boundary in 2010 (Morey, scoping letter, 2023). No swift fox dens or individuals were observed during any of the site visits; therefore, it is unlikely to cross the Project Route.

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*).

14.2.2 Wildlife impacts and avoidance, minimization, and mitigation measures

During Project construction, the temporary loss, alteration, or fragmentation may result in potential displacement of wildlife to proximate suitable habitat. Additionally, individuals of wildlife may avoid work areas due to increased traffic and noise. Avoidance may include nest or burrow abandonment or loss of eggs or young, which has the potential to result in a decrease in reproductive success for certain individuals. Common wildlife species likely to cross the Project Area are likely adapted to a mosaic of land cover types and anthropogenic uses (e.g., farming practices), and wildlife individuals are expected to reinhabit suitable areas in and adjacent to the Project Area once Project construction activities cease.

During Project construction and O&M, injury and mortality of individual wildlife may result from crushing by, or collisions with vehicles or equipment. During Project O&M, injury or mortality of individuals may also result from collisions with the transmission line. Basin will implement applicable BMPs contained in the WAPA Upper Great Plains Wind Energy Final Programmatic Environmental Impact Statement (WAPA and USFWS 2015) and additional avoidance, minimization, and mitigation measures (see Section 9.3.4) to minimize the likelihood of such events occurring.

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, wetlands, or drainage patterns, and restoration of temporary disturbance areas. Temporary impacts would also be minimized by utilizing erosion and sedimentation BMPs that minimize or prevent sediment from reaching adjacent waterways and that protect topsoil.

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.

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, 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 Applicant's 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. Additionally, the Project will avoid disturbance to undisturbed grasslands in the vicinity of the Project during construction and will avoid placing structures within or immediately adjacent to surface water features.

14.2.2.2 Federally and state-listed and sensitive terrestrial species

Rufa red knot

No suitable rufa red knot habitat is present and there are no recorded occurrences of rufa red knot crossing the Project Route during the numerous site visits, it is unlikely that rufa red knot would cross the Project Route. No impacts to rufa red knot are anticipated.

Piping plover

No suitable piping plover habitat is present and there are no recorded occurrences of piping plover in the Project vicinity, so it is unlikely that piping plover would occur in the Project Route. No impacts to piping plover are anticipated.

Whooping crane

Based on the overall paucity of recent whooping crane observations surrounding the Project and the low quantities of suitable wetland stopover habitat in the Project Route, the species is considered unlikely to cross the Project Route.

Monarch and regal fritillary butterflies

There may be suitable habitat for both butterfly species crossing the Project Area and both the monarch and regal fritillary may cross in the Project Area; however, these species are not currently protected and most potential habitat in the Project Area has been impacted by grassland conversion. Because habitat is present, minor impacts may occur for these species. These impacts would be largely avoided through siting and minimization measures listed in Section 14.1.2.

Suckley's cuckoo bumble bee

There are no records of bumble bees that could act as hosts to Suckley's cuckoo bumble bee near the Project (Bumble Bee Watch 2025). Despite suitable habitat being present, the lack of observable species or host species make Suckley's cuckoo bumble bee unlikely to cross the Project Area.

Peregrine falcon

The Project Route contains suitable foraging habitat for peregrine falcons. However, there is limited breeding habitat and a lack of recorded sightings surrounding the Project; therefore, impacts to the species are unlikely.

Swift fox

The Project vicinity contains suitable habitat as well as the presence of prey (prairie dogs); however, there are no recordings of swift fox surrounding the Project and the nearest recording was a den observation 3.5 miles outside of the Wind Project Area and were recorded over 10 years ago. Therefore, impacts to the species from the Project are unlikely.

14.2.2.3 Avoidance, minimization, and mitigation measures

Design minimization and avoidance measures:

- Locate transmission lines in areas where Basin Electric has site control and to the extent possible in areas where previous disturbance has occurred, thereby minimizing impacts to trees and associated birds and bats.

- Where applicable, the Project's aboveground power lines shall be designed and constructed to minimize avian electrocution and collision risks, referencing guidelines outlined in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012).

- Use the existing road network where feasible and reasonable to reduce the need for new road construction.

- Avoid siting Project components in wetlands and waterbodies.

- Minimize disturbance to grasslands.

- Follow USFWS Region 6 raptor nest (non-eagle) setback buffers from preconstruction data as follows: 800 meters for red-tailed hawk and 400 meters for great horned owl.

Construction minimization and avoidance measures:

- Install avian flight diverters on any new or upgraded overhead collector, distribution, and transmission lines within 1 mile of suitable stopover habitat to minimize potential collision impacts to whooping cranes and other avian species. Devices will be installed on the overhead top statis wire (as appropriate) to increase wire visibility (APLIC 2012).

- Limit vehicle speeds to 25 miles per hour to avoid wildlife collisions and construction vehicles will be restricted to pre-designated access routes.

- Cover all trash in containers, and work sites will be cleared regularly of any garbage and debris related to food.

- Pets shall not be allowed in the Project Route near Project Facilities.

O&M minimization and avoidance measures:

- Vehicle speeds will be limited to 25 miles per hour to avoid wildlife collisions.

- Fire hazards from vehicles and human activities will be reduced (e.g., use of spark arrestors on power equipment, avoiding driving vehicles off roads, allowing smoking in designated areas only).

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 regional Northern Great Plains aquifer system (USGS 1996) and in the West Plum Creek HUC 10 watershed. Approximately 0.8 acre of NWI wetlands occur within the Project Route (approximately 4% of the Project Route). The Project Route also crosses an intermittent stream in several locations (see Figure A-9 in **Appendix A**). SDGFP maintains public access for fishing and other water recreation. There is no public access for fishing within the Project Route. The closest waterbody to the Project is Kroetch Lake which is 0.5 mile away to the southwest.

Aquatic habitat within the Project Route includes waters associated with freshwater emergent wetlands and riverine wetlands. These water features are very minor but could support some aquatic biota, including aquatic insects, wetland vegetation, and possibly small fish and minnows.

The USFWS IPaC tool was used to produce a report from the South Dakota Ecological Field Office for the Project on July 14, 2025. The IPaC tool was used to identify the federally listed threatened, endangered, proposed, and candidate species that have the potential to occur within the Project Route (USFWS 2025). According to the IPaC report, there are no federally listed threatened or endangered aquatic species with potential to occur within the Project Route.

The SDGFP maintains a list of state-listed threatened and endangered species. There are no state-listed aquatic species with potential to occur in the Project Route.

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 increased sedimentation or increased total suspended solids due to soil erosion from the Project during construction. To the extent practicable, the Project will avoid streams and other drainage systems and minimize disturbance to wetlands during construction.

In general, surficial soils on flat areas are less prone to erosion than soils in sloped areas. Construction on or adjacent to steep slope areas can render soils unstable, accelerate natural erosion processes, and cause slope failure. Project Route slope ranges from 0.42 to 45.4%, with the average slope at 16.4%.

Care will be taken to avoid or limit excavation in steep slope areas. The Project will span any wetlands or waterways in its route. During construction, BMPs will be implemented to help avoid impacts to drainageways and streams from sediment runoff from exposed soils during precipitation events. Because erosion and sediment control BMPs will be implemented for construction and O&M of the Project, no impacts to aquatic ecosystems are expected.

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.

16.0 Effect on 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.

16.1 Land use

16.1.1 Existing land use

Land use crossed by the Project Route is almost entirely mixed grass prairie, with land cover consisting predominantly of herbaceous grassland, all of which categorized as broken grassland with no acreage categorized as unbroken grassland. (USGS 2019). The Project is located entirely outside of any municipal limits and there are no residences or businesses crossing within the Project Route. The closest residence is located approximately 534 meters away from the Project ROW. There are no businesses within or near the Project ROW.

Project land use is based on the classification system specified in ARSD 20:10:22:18(1) is shown in Figure A-10 in **Appendix A**. The following land use classifications occur within the Project Route:

- Land used primarily for row and non-row crops in rotation
- Pasturelands and rangelands
- Haylands

The following land use classifications from ARSD 20:10:22:18(1) are not crossed by the Project Route:

- Irrigated lands
- Existing and potential extractive non-renewable resources
- Other major industries
- Public, commercial, and institutional use
- Municipal water supply and water sources for organized rural water systems
- Potentially unbroken grasslands
- Rural residences and farmsteads, family farms, and ranches
- Residential

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

Construction of the Project will result in conversion of a small portion of the land within the Project Route (<0.1 acre). Areas within the Project ROW (19.3 acres), which consists of plains mixed grass prairie, ruderal and planted grassland, and pasture and hayland, would be subject to temporary ground disturbance. Conversely, less than 0.1 acre would be permanently impacted, all of which is mixed grass prairie. The Project Route is entirely uncultivated and no impacts to crops are expected to occur.

Following completion of construction, all temporary construction workspaces will be restored to preconstruction conditions, which primarily consist of mixed grass prairie, pursuant to the lease and easement agreements.

16.2 Public lands and facilities

16.2.1 Existing public lands and facilities

Public lands and public facilities that are crossed by the Project Route are shown in Figure A-11 in **Appendix A**.

There are no Bureau of Land Management inholdings within the Project Route. One inholding is located west of the Project Route and approximately 18 miles northwest of the town of Philip (see Figure A-10 in **Appendix A**); there are no USFWS National Wildlife Refuges, USFWS conservation easements, or USFWS wetland management district properties within the Project Route. Additionally, there are no USDA Agricultural Conservation Easement Program lands within the Project Route. There are no SDGFP properties within the Project Route.

There are no places of worship or other public spaces or publicly accessible facilities within or near the Project Route. The closest public facilities to the Project are in the town of Philip, approximately 18 miles south, including a hospital, police department, fire station, ambulance services, schools, places of worship, parks, and recreational facilities.

There are no municipal or commercial airports within or near the Project Route. The closest airport is the Philip Municipal Airport, which is approximately 18 miles south of the Project. Two additional municipal airports (the Wall and Kadoka airports) are located approximately 35 and 34 miles from the Project, respectively. Commercial airports within 100 miles of the Project consist of Rapid City Regional Airport and Pierre Regional Airport, located 70 miles to the west and 70 miles to the east, respectively. Google Earth (2022) aerial imagery shows the Ferguson Landing Strip on private land located near the intersection of 213th Avenue and 215th Street (also known as Hilland Road). However, this landing strip is no longer operational.

There are no cemeteries within or near the Project Route. The closest cemetery is located approximately 8 miles west of the Project.

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

No impacts to public lands, public facilities, or publicly accessible facilities are anticipated. No public facilities are within the Project Route, apart from public roads. The nearest airport is approximately 18 miles from the Project; therefore, no impacts to airports are anticipated.

16.3 Noise

16.3.1 Existing conditions

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) is commonly used because it emulates the human ear's varying sensitivity to the frequency of sound. A noise level change of 3 dBA is barely perceptible to average human hearing. A 5-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. Haakon County does not have an applicable noise level requirement.

Vehicular traffic 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 noise levels likely exist near roads and other areas of human activity. Figure A-7 in **Appendix A** shows noise sensitive land uses in the vicinity of the Project (e.g., rural residences and farmsteads, family farms, ranches). The closest sensitive land use (residence) is located 534 meters from the Project ROW.

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

Potential sound associated with the construction of the Project includes site clearing, grading, foundation work, and pole installation. All reasonable efforts will be made to minimize the impact of sound resulting from construction activities. Sounds generated by construction activities are typically exempt from state and local noise oversight if they occur within weekday, daytime periods. While most heavy construction work is anticipated to occur during daylight hours, some construction operations may be conducted outside of normal working hours. In these cases, the necessary construction efforts generally require activities that must be completed in their entirety once initiated (i.e., pouring concrete). To minimize the impact of construction sound, the Project will limit any necessary nighttime work near residences to quiet activities such as finishing, and will maintain equipment to manufacturers' specifications, and minimize backing up on-site of delivery trucks.

Generally, noise levels during operation of the Project will be minimal. Transmission conductors can create a noise called corona under certain conditions. Corona noise has a buzzing or 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. 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. Measures such as carefully handling the conductor during construction to avoid nicking or scraping or otherwise damaging the surface and using hardware with no sharp edges or points are typically adequate to control corona. The way conductors are arranged on the support poles also affects corona noise production. No additional mitigation measures are required since there will be minimal noise impact from Project operations.

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 is related to the magnitude of the viewers' 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.

No sensitive receptors are within the Project Route. South Dakota Highway 73 and Highway 24 are the only major transportation corridors in the vicinity of the Project. In addition to these major roadways, a number of rural roadways are within the Project vicinity, but are not within the Project Route.

Although rangeland, cropland, large open vistas, and gently rolling topography visually dominate the Project landscape, there have been numerous modifications to the natural environment in the vicinity of the Project. Existing modifications include occupied residences, scattered farm buildings, state highways (State Highway 34 and State Highway 73), and existing transmission corridors (three electric bulk power and transmission and control lines). The nearest designated scenic resources to the Project are the southwest corner of the Native American Scenic Byway located 28 miles to the northeast, Minuteman Missile National Historic Site located 33 miles south, Badlands Loop Scenic Byway beginning 33 miles to the southwest, and Badlands National Park located 45 miles southwest.

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 would create an additional, minor visual element in the vicinity, but the degree to which the transmission line would be visible would vary by location. The visual impact of the Project could affect landowners who live along or near the Project, or community residents traveling along State Highway 34 and State Highway 73. The viewer's degree of discernable detail decreases as the physical distance from an object increases; however, the visual impact of the Project would not be significant given the existing infrastructure present in the vicinity, and no additional mitigation is proposed.

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 database.

16.5.1.1 Radio broadcasting stations

Comsearch completed an amplitude modulation (AM) and frequency modulation (FM) radio report for the Wind Project, which includes the Project Route. 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. No FM/AM radio broadcasting stations are within 20 miles of the Project.

16.5.1.2 Cellular phone

There are no Federal Communications Commission 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 commonly used for a variety of applications including farming, construction, surveying, logistics, 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)
- 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

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 are possible: gap discharges, corona discharges, and shadowing and reflection effects.

Gap discharge interference is the most common form of power line interference with radio and television signals. These effects are typically quite minor. These 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 can potentially create electrical noise, interfering with radio and television signals. 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 tend to occur in areas where gaps have formed due to broken or ill-fitted hardware (clamps, insulators, brackets). The Project hardware will be designed and maintained to minimize gap discharges.

Corona from transmission line conductors can generate electromagnetic noise at the same frequencies that radio and television signals are transmitted. 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 the majority of cases, the strength of the radio or television broadcast signal within a broadcaster's primary coverage area is great enough to prevent interference. The Project hardware will be designed and maintained to minimize 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 ROW.

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.

Because both GPS and cellular phone signals operate at frequencies outside the range of electromagnetic noise generated by transmission line conductors, the risk of conflicting interference is negligible. Because no impacts are anticipated, no mitigation measures are proposed.

Furthermore, in the unlikely event that the Project causes interference within a television station's primary coverage area, Basin Electric will work with the affected viewers to correct the problem at Basin Electric's 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 the Project is regulated by Haakon County, which currently does not have a comprehensive land use plan that would include provisions for transmission lines. There are currently no County zoning ordinances in place that would apply to the Project. Basin Electric would obtain any required road crossing, approach, and utility permits required from Haakon County for the Project.

18.0 Effect on water quality (ARSD 20:10:22:20)

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 would be limited possibility of sediment reaching surface waters as the ground would be 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 would require coverage under the SDDANR General Permit Authorizing Stormwater Discharges Associated with Construction Activities, which would require preparation of a SWPPP. The SWPPP would identify potential sources of stormwater pollution and specify BMPs to control erosion and sedimentation. The SWPPP would be prepared before the start of construction. Basin Electric 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 would include:

- Containing stockpiled material away from stream banks and shorelines, as required by the NPDES permit.
- 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, revegetation, 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 Effect on air quality (ARSD 20:10:22:21)

19.1 Existing air quality

The entire state of South Dakota is in attainment for all National Ambient Air Quality Standards criteria pollutants (EPA 2024b). The nearest ambient air quality monitoring site to the Project is the Badlands of South Dakota, which is located approximately 55 miles southwest of the Project. This site monitors particulate matter, sulfur dioxide, nitrogen dioxide, and ozone levels (SDDANR 2020). The primary emission sources that exist within the Project include agriculture-related equipment and vehicles traveling along State Highway 73.

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

Temporary construction activities may lead to fugitive dust emissions and short-term emissions from diesel trucks and construction equipment. However, any air quality effects resulting from construction will be short-term and limited to the duration of construction activities, without exceeding the National Ambient Air Quality Standards for particulate matter or significantly increasing greenhouse gas emissions.

O&M of the transmission line is expected to have negligible impacts on air quality. Studies examining ozone production under transmission lines have generally been unable to detect any significant increases attributable to a transmission facility (Sebo et al. 1976; Valuntaite et al. 2009). Existing calculations concerning ozone production and concentration typically assume conditions of high humidity or rain, with no reduction in the amount of ozone due to oxidation or air movement. These calculations therefore overestimate the amount of ozone produced and concentrated at ground level.

During O&M activities, negligible amounts of dust and vehicle exhaust emissions may occur, without causing exceedances of air quality standards or negative impacts on climate change. The O&M of the Project could produce minute amounts of ozone and nitrogen oxides emissions as a result of atmospheric interactions with the energized conductors. These minor emissions during O&M will have a negligible impact on ambient air quality.

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

Table 20-1. Estimated permitting and construction schedule

Milestone	Estimated Start Date	Estimated End Date
Generation Interconnection Agreement	March 18, 2024	December 31, 2026
ROW acquisition and landowner negotiations	October 2024	March 2026
South Dakota Public Utility Commission Application	August 2025	March 2025
General Permit Authorizing Stormwater Discharges Associated with Construction Activities	Will be applied for prior to construction	
Project construction - foundations and structures	September 2026	October 2026
Project construction - line stringing and tensioning	October 2026	October 2026
Project in-service date		December 1, 2026

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

21.1 Socioeconomic and community resources

21.1.1 Existing socioeconomic and community resources

The Project is located in central South Dakota in Haakon County. In 2020, Haakon County had an estimated population of 1,872. The closest residential area to the Project is Philip, with an estimated 2020 population of 885. It is the largest city in Haakon County (U.S. Census Bureau [USCB] 2020). Philip is located approximately 15 miles from the Project.

In Haakon County, 88.2% of the population is white (not Hispanic or Latino), 0% is Hispanic or Latino, 1.4% is Black or African American, 7.2% is American Indian and Alaska Native, 0% is Asian, 0% is Native Hawaiian and Other Pacific Islander, and 2.2% is two or more races (USCB 2022a). In the State of South Dakota, 80.2% of the State's population is white (not Hispanic or Latino), 4.2% is Hispanic or Latino, 2.1% is Black or African American, 7.3% is American Indian and Alaska Native, 1.3% is Asian, 0% is Native Hawaiian and Other Pacific Islander, and 3.8% is two or more races (USCB 2022a). Statistics from the USCB (2022a) on population, income, demographics, poverty rates, English-speaking ability, and unemployment rates for Haakon County and the State of South Dakota are provided in **Table 21-1**.

Table 21-1. Socioeconomic characteristics

Characteristic	Haakon County	South Dakota
2020 population	1,872	886,667
2022 population	1,826	909,869
Population change (%)	-2.5%	1.2%
2022 median household income ($)	$53,109	$69,457
2022 unemployment rate (%)	2.1%	2.3%
2022 population below poverty level (%)	10.7%	12.5%
2022 percent minority (%) 2022 percent population with limited English proficiency (%)[1] Rental vacancy rate (%) Employment rate (%)	5.7% 0% N/A 97.9%	15.8% 1.5% 20.6% 97.9%

[1] Limited English proficiency is defined as anyone age 5 or older reported speaking English less than "very well."

Sources: Federal Reserve Bank of St. Louis (2025); South Dakota Department of Labor and Regulation (2024); USCB (2020, 2022a, 2022b)

In Haakon County, the top industries in terms of employment for individuals over the age of 16 in 2023 were: educational services, health care, and social assistance (25.1%); retail trade (13.9%); finance, insurance, real estate, and rental and leasing (6.1%); agriculture, forestry, fishing and hunting, and mining (25.0%); and other services, except public administration (7.4%) (USCB 2022b). The unemployment rate for the same time period in Haakon County was 1.7% (Federal Reserve Bank of St. Louis 2025; 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 Section 2.0, the Project supports the interconnection of the Wind Project.

As described by the applicant for the Wind Project, that project is anticipated to provide positive short-term and long-term benefits to the local economy, including direct payments to participating landowners, increased local government revenue from property taxes, and job opportunities during both the short-term construction phase.

With respect to this Project, specifically, transmission line construction will generally follow a sequential set of activities performed by workers proceeding along the length of the line. **Table 21-2** lists the construction activities. The number of personnel varies depending on the means and methods of each contractor and are listed for reference.

Table 21-2. Construction personnel, equipment, and time requirements

Task	No. of Personnel	Equipment	Length of Time
Structure site clearing and vegetation management	3	Pickups, all-terrain vehicles (ATVs)	Duration of Project
Gate installation	3	Flatbed and pickup trucks	< 1 week
Structure assembly	5-8	Pickups, cranes, material trucks, rubber-tired crane, 4x4 pickups	2 weeks
Foundation installation	5-8	Rotary drilling rigs, backhoes, pickups, rubber-tired digging equipment, ATVs, portable compressors	1-2 week
Structure erection	5-8	Rubber-tired cranes, boom trucks, 4x4 pickups	1-2 weeks
Ground wire and conductor stringing	6-10	Pickups, manlifts/boom trucks, hydraulic tensioning machines, reel trailers	2 weeks
Cleanup	3	Pickups, dump trucks, flatbed trucks	Duration of Project

All construction and maintenance activities will be carried out in compliance with applicable federal and state worker safety regulations, as defined under the Occupation Safety and Health Administration Act of 1979. Worker safety and health is administered by Basin Electric's Transmission Systems Maintenance Division, which is a member of the National Safety Council.

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 Haakon County include health care and retail trade. There are no commercial or industrial land uses within the Project Route or located in the Project vicinity.

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

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. Industrial businesses in the region may also benefit from the construction of the Project. No commercial or industrial sectors are crossed by the Project Route and no displacement of residences or businesses will occur as a result of the Project. No commercial or industrial businesses will be negatively impacted by the Project; therefore, no mitigation measures are proposed.

21.2.2 Agricultural industry

21.2.2.1 Existing agricultural industry

The Project Route is predominantly pastureland. In 2022, Haakon County's 291 farms (totaling 1,151,771 acres) produced $124.5 million in agricultural products (USDA 2024). Of the agricultural products sold, 47% were from livestock sales, and 53% were from agricultural sales. Cattle and calves were the top livestock inventory item, and wheat was the top agricultural product, in terms of acreage. Haakon County ranked 45th of the 66 South Dakota counties in total value of agricultural products sold (USDA 2024).

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

Approximately 8.13 of temporary ground disturbance impact is expected during construction of the Project, primarily in the existing pastureland. Following completion of construction, all temporary construction workspaces will be cleaned up and restored to preconstruction conditions pursuant to the lease and easement agreements. Landowners will be compensated for damage to crops that occur on cultivated lands during construction.

21.3 Community facilities and services

21.3.1 Existing community facilities and services

Table 21-3 identifies community facilities within 20 miles of the Project (there are no community facilities within 10 miles of the Project) which will have facilities and services such as hospitals, police, fire and ambulance services, schools, churches and parks, and recreational facilities. Electrical service intersecting the Project Route is provided by West Central Electric. West River/Lyman-Jones Rural Water Systems Inc. rural water system supplies rural water to the Project vicinity and maintains a network of distribution lines within the Project vicinity.

Table 21-3. Community services and facilities in the vicinity of the Project

Community Facility Type	Name	Location	Distance from Project (miles)
Schools	Philip Elementary School	Philip, SD	18.0
	Philip High School	Philip, SD	18.1
Churches	Sacred Heart Catholic Church	Philip, SD	18.3
	Church of Latter Day Saints	Philip, SD	17.9
	United Church	Philip, SD	18.3

	Our Redeemer Lutheran Church	Philip, SD	18.5
Nursing Homes	Philip Nursing Home	Philip, SD	18.3
Hospitals	Philip Hospital	Philip, SD	18.3
Ambulance Services	Philip Ambulance Service	Philip, SD	18.4
Fire Departments	Philip Volunteer Fire Department	Philip, SD	18.4
Law Enforcement	Philip Police Department	Philip, SD	18.3
	Haakon County Sheriff's Office	Philip, SD	18.3
Libraries	Haakon County Public Library	Philip, SD	18.4
Post Offices	Philip Post Office	Philip, SD	18.3

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

Given the short-term duration and small-scale of the construction activities, the Project is not likely to increase the need for public services, including police and fire protection. No significant increase in the permanent population of local communities will be expected from the O&M of the Project. Existing community facilities and services should be adequate to support the workforce during construction. In addition, the construction workforce will not create any measurable negative impact to the local government, utilities, or community services.

It is expected that the Project will have no significant impact on the security and safety of the local communities and the surrounding area during construction and O&M. Additional risk for workers or public injury may exist during the construction phase, as it will for any construction project. In response, work plans and specifications will be prepared to address worker and community safety during construction. The Project's construction contractor will identify and secure all active construction areas to prevent public access to potentially hazardous areas.

21.4 Transportation

21.4.1 Existing transportation

The Project would be readily accessible by using existing roads. The existing roadway infrastructure crossing and near the Project Route generally follows section lines and is characterized by state and county roads. Local county roads near the Project are typically composed of gravel. The Project Route is primarily accessed via South Dakota Highway 73, which is 0.1 mile east of the Project, and South Dakota Highway 34, which is 6.5 miles north of the Project. Both are paved with asphalt concrete.

The 2024 average daily traffic volume on roads near the Project is shown in **Table 21-4**.

Table 21-4. Average daily traffic near the Project

Roadway	Total Traffic Volume	Truck Traffic Volume
State Highway 34	567	196
State Highway 73	700	243

Source: South Dakota Department of Transportation (2024)

There are no railroads crossing the Project Route. The nearest railroad is the Rapid City, Pierre & Eastern Railroad, owned and operated by Genesee & Wyoming. It has active tracks 18.3 miles south of the Project and transports agricultural products, minerals, and stone.

There are no public airports within the Project Route. The closest airports to the Project are the Philip Municipal Airport, located approximately 17.7 miles south of the Project, the Wall Municipal Airport, located approximately 34.2 miles southwest of the Project, the Kadoka Municipal Airport, located approximately 34 miles southeast of the Project Area, the Rapid City Regional Airport, located 70 miles west of the Project, and the Pierre Regional Airport, located 70 miles east of the Project. Google Earth (2022) aerial imagery shows the Ferguson Landing Strip on private land located near the intersection of 213th Avenue and 215th Street (also known as Hilland Road). This landing strip is no longer operational; however, air traffic may be present near the Project for crop-dusting of agricultural fields.

21.4.2 Transportation impacts and avoidance, minimization, and mitigation measures

The Project vicinity contains two state highways as well as local roads. There are temporary impacts anticipated for local roads that cross the Project Route during construction. Construction vehicles, including light-, medium-, and heavy-duty construction vehicles, as well as private vehicles used by construction personnel, would travel to and from the Project, thereby temporarily increasing the daily traffic on the roads. Some activities may require extended construction hours, and nighttime construction may be necessary to maintain the construction schedule. Some roads may require temporary expansion along specific routes as necessary to facilitate the movement of equipment. Shipment of construction materials, such as gravel, concrete, and water, are not expected to substantially affect local primary and secondary road networks. Construction activities would temporarily increase the amount of traffic using local roadways but is not anticipated to result in significant adverse traffic impacts. Further, pursuant to SDCL 49-41B-38, Basin Electric will furnish an indemnity bond in the amount of $200,000 to secure the restoration and repair of roads after construction.

After construction is complete, traffic impacts during O&M of the Project will be minimal. Project personnel will drive through the area in pickup trucks on a regular basis to monitor and maintain the Project, as needed. Heavy equipment may occasionally return to the site if large components need to be repaired or exchanged. A slight, temporary increase in traffic will occur for occasional repair of the Project, but traffic flow will not be impacted as a result.

21.5 Cultural resources

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 an historic property included in the NRHP or state registers until the SHPO has been given notice and an opportunity to investigate and comment on the proposed project. WAPA conducted a Level I records search and a Level III intensive archaeological resources survey for their area of potential effects (APE), which included the Project Route.

All work was conducted to professional standards and guidelines in accordance with the Secretary of the Interior's Standards and Guidelines (National Park Service 1983) and the 2012 *South Dakota Guidelines for Compliance with the National Historic Preservation Act and [SDCL] 1-19A-11* (South Dakota State Historical Society 2012).

21.5.1.2 Level I records search

A Level I cultural resource records search was completed on October 24, 2022, in accordance with SHPO guidelines to provide an inventory of previously recorded cultural resources. The Level I records search indicated that three prior inventories had been completed in areas overlapping the APE and within 1 mile of the APE (**Table 21-5**), and that no historic properties were recorded within 1 mile of the APE.

Table 21-5. Previous cultural resource surveys within 1 mile of the APE

Report No.	Year	Report Name	Author(s)
AHK-0021	1995	Final Report of a Class III Cultural Resources Inventory Survey of West River Rural Water Systems, Inc.'s Elbon Project Area in Haakon County, South Dakota. DRS Project No. 95-1	Buechler, Jeffrey V.
ASD-0002	2002	Cultural Resource Investigations, Fiber Optic Cable Installation Along Three Segments of Transmission Line: Rapid City-Elk Creek, Oahe-Philip, Oahe-Glenham, Pennington, Haakon, Stanley, Hughes, Sully, Potter, Walworth Co, SD. Contract DE-AM07-97AL77612	Hall, Daniel S., and Susan L. Knudsun
WSD-0381	2009	Level III Cultural Resources Survey for the Steele City Segment in South Dakota of the Keystone XL Project, Butte, Haakon, Harding, Jones, Lyman, Meade, Perkins and Tripp Counties, South Dakota. Project No. 2008-339	Berg, Caryn, Judith Cooper, Zonna Barnes, Jennifer Long, Ryan Byerly, Daniel Shosky, Vanesa Zietz, Norma Crumbley, Courtney Higgins, Noelle Boyer, Jason Burkard, Thomas Witt, Sean Doyle, Erin Salisbury, Scott Slessman, and Michael Retter

21.5.1.3 Level III cultural and architectural resource survey

A Level III pedestrian survey was conducted on October 27 and 28, 2022. The survey recorded no archaeological resources or aboveground resources of historic age within the APE. WAPA records

indicated that the existing Philip Tap switching station and the existing Basin Electric transmission line were built in 1974 or later, and the Oahe to New Underwood transmission line entered service in 1966 and is unevaluated for listing on the NRHP. No alterations of this line are contemplated for this Project.

An additional Level III pedestrian survey was conducted on July 29, 2025, for a work area that was not included in the 2022 investigation that will be used for the construction phase of the Project. The survey recorded no archaeological resources or aboveground resources of historic age within the APE (**Appendix D**). SHPO consultation for this additional work area is ongoing.

21.5.1.4 Tribal cultural resources

Cultural resources can also include properties of traditional religious and cultural significance, which are of importance to Native American Tribes. Several federally recognized Native American Nations indicated to WAPA that they were interested in consulting on the Wind Project. Tribal Cultural Specialists from the Rosebud Sioux Tribe, the Standing Rock Sioux Tribe, the Cheyenne River Sioux Tribe, and the Santee Sioux Nation previously participated in a cultural resources survey in 2018 for the Wind Project (which included the Project Route), during which time no Tribal cultural resources or properties of traditional religious and cultural significance were identified.

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

No NRHP-listed or eligible resources will be adversely affected by the Project because they are not located within the direct APE. Likewise, WAPA determined that the Project would have no adverse effects on historic properties; SHPO concurred with this determination. Thus, no impacts are anticipated.

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

The Applicant has routed and designed the Project to avoid or minimize impacts to identified resources in the vicinity. Additionally, the Applicant will implement certain measures to avoid, minimize and/or mitigate potential impacts due to Project construction (**Table 22-1**).

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

Resource	Potential Impact	Proposed Avoidance/Minimization/Mitigation Measures
Physical Environment		
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.
Hydrology		
Groundwater resources	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. No groundwater resources will be used for construction or O&M of the Project.	Basin Electric will develop and implement a SWPPP, which will include sediment and erosion control BMPs.
Surface water resources	During construction, there is the possibility of sediment reaching surface waters as the ground is disturbed by excavation, grading, and construction traffic. The Project is not anticipated to cause changes to existing drainage patterns. Water use for the Project will be restricted to dust control and foundation construction and will be pumped from local surface waters. Impacts to floodplain storage capacity, if any, will be negligible due to the long spans between transmission structures and the	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. Basin Electric will obtain coverage under the SDDANR's General Permit Authorizing Stormwater 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, revegetation, or other features and methods designed to control storm water runoff and mitigate erosion and sedimentation.

Resource	Potential Impact	Proposed Avoidance/Minimization/Mitigation Measures
	relatively small volume of foundation material used at the structures.	Water used for the Project will be pumped from local surface waters following consultation with applicable resource agencies.
Current and planned water use	No impacts to current or planned water uses are anticipated. Water use for the Project will be restricted to dust control and foundation construction and will be pumped from local surface waters.	Water used for the Project will be pumped from local surface waters following consultation with applicable resource agencies.
Wetlands	The Project is anticipated to result in no impacts to wetlands.	The Project has been designed to avoid and/or minimize impacts to wetlands, to the extent practicable. The Applicant will analyze structure placement during final design to determine if permanent wetland impacts can be further minimized or avoided. If wetland impacts occur, Applicant will comply with applicable USACE Nationwide Permit Program requirements. Based on the current design, the potential impacts to wetlands would be within the threshold for authorization under the USACE Nationwide Permit Program without preconstruction notification. Basin Electric will develop and implement a SWPPP, which will include sediment and erosion control BMPs.
Terrestrial ecosystems		
Vegetation	The Project will temporarily impact approximately 18.4 acres of vegetation (the majority of which is mixed grass prairie) and permanently impact less than 0.1 acre of vegetation. The Project will avoid areas of potentially undisturbed grasslands.	The Project has been sited to maximize the placement of Project Facilities in previously disturbed agricultural lands, and the majority of the temporary vegetation impacts would occur to agricultural fields. 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.

Resource	Potential Impact	Proposed Avoidance/Minimization/Mitigation Measures
		There are no potentially undisturbed grasslands present in the Project ROW or surrounding area that would be impacted by construction activity.
Wildlife	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. Trees for nesting or roosting are limited within the Project Route and no tree removal is anticipated. 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.	The Project has been designed to avoid and/or minimize impacts to wildlife. 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. 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 transmission line 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. No tree removal is anticipated. Ground clearing or mowing within the Project ROW is anticipated to occur in late fall or early spring (outside of bird nesting periods) to discourage tree and ground nesting within temporary or permanent disturbance areas. The Project will be designed in accordance with APLIC's *Suggested Practices for Avian Protection on Power Lines: State of the Art in 2006*.
Aquatic ecosystems	Potential impacts to aquatic resources would be primarily related	The Project has been designed to avoid and/or minimize impacts to aquatic ecosystems. To the extent practicable, the

Resource	Potential Impact	Proposed Avoidance/Minimization/Mitigation Measures
	to installation of structures within the aquatic habitat area or sediment deposition related to construction activities. 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 impacts to aquatic ecosystems as a result of water use during Project construction are anticipated.	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 ways will be avoided by the temporary access roads; if impacts occur, they will be temporary and restored in accordance with applicable requirements. The Applicant will develop and implement a SWPPP, which will include sediment and erosion control BMPs.
Land use		
Land use	The Project may temporarily impact up to 18.4 acres of mixed grass prairie, hayland, pasture, and planted grassland. The Project will permanently impact less than 0.01 acre of mixed grass prairie. Construction of the Project will result in the conversion of a very small amount of land (<0.01 acre). The Project Route is comprised of uncultivated land and there are no anticipated impacts to crop production of any kind during construction and operation of the Project.	The Project is compatible with existing land uses in the vicinity of the Project. Because there are no anticipated impacts to cultivated areas, no avoidance or minimization measures are proposed.
Public lands and facilities	There are no public lands or facilities within the Project Route and none that have the potential to be affected by the Project.	The Project has been designed to avoid public lands and facilities.

Resource	Potential Impact	Proposed Avoidance/Minimization/Mitigation Measures
Noise	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). Noise levels during the O&M phase of the Project are anticipated to be minimal.	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.
Visual resources	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 existing viewshed in the vicinity of the Project includes existing transmission lines, roadways, and an existing substation. The Project is consistent with these existing elements and no sensitive receptors are within the vicinity of the Project Route. The visual impact of the Project would not be significant given the existing infrastructure present in the vicinity and no mitigation or avoidance is proposed.
Electromagnetic interference	No impacts to satellite, cellular, radio, television, or GPS systems are anticipated.	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 Applicant 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 Applicant will work with the affected viewers to correct the problem at the Applicant's expense.
Local land use controls	No impacts are anticipated.	The Project is compatible with existing land uses and no local land use controls exist.
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 Applicant will obtain coverage under the SDDANR General Permit Authorizing Stormwater Discharges Associated with Construction Activities, which requires preparation of a SWPPP, which will include sediment and erosion control BMPs.

Resource	Potential Impact	Proposed Avoidance/Minimization/Mitigation Measures
Air quality	During construction, fugitive dust emissions would temporarily increase due to equipment vehicle traffic in the vicinity of the Project. Additionally, there would be short-term emissions from construction vehicles and equipment on-site. The concentration of pollutants during construction will be greatest near the Project Route but will decrease rapidly with distance from the Project Route. 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 National Ambient Air Quality Standards exceedances for criteria pollutants. No impacts to air quality due to the O&M 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.	The Applicant 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.
Community Impact		
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 Applicant. The amount of property taxes generated from the Project will be based on the cost of the Project.	No mitigation measures proposed.

Resource	Potential Impact	Proposed Avoidance/Minimization/Mitigation Measures
Commercial, industrial, and agricultural sectors	The Project is anticipated to have economic benefits to various commercial and industrial sectors in the vicinity of the Project during construction and O&M. The Project is expected to have negligible impacts on the agricultural sector.	Landowners will be compensated for any pasture damage that occurs during construction. The Applicant will also work with landowners once a route is finalized to coordinate the need for early grazing, coordinating construction to minimize impacts to the landowner's use of land. 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 revegetation (outside of cultivated areas), provide for proper drainage, and prevent erosion. Once construction is completed, agricultural activities will be allowed to resume within the proposed ROW between structures. The Applicant 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 Applicant will coordinate with the landowner to ensure the tile lines are repaired in accordance with landowner agreements.
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.	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	Construction of the Project will temporarily increase traffic on haul roads. Traffic impacts associated with the O&M phase after construction will be negligible.	The Applicant will coordinate with applicable road authorities regarding the use and restoration of roads, as needed. The Applicant will coordinate with the U.S. Department of Transportation, South Dakota Department of Transportation, the Haakon County Highway Department, and staff and will

Resource	Potential Impact	Proposed Avoidance/Minimization/Mitigation Measures
	No impacts to Philip Municipal Airport or other registered commercial or private aviation facilities are expected. No impacts to railroads are expected.	obtain necessary road-related permits, as needed. All highway crossings will meet or exceed NESC requirements. The Applicant will submit a Federal Aviation Administration Notice of Proposed Construction, as needed.
Cultural resources	No NRHP-listed or eligible resources will be adversely affected by the Project because they are not located within the direct APE. Likewise, WAPA determined that the Project would have no adverse effects on historic properties; SHPO concurred with this determination. Thus, no impacts are anticipated.	No impacts are anticipated, and no mitigation is proposed.

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

Construction of the Project is anticipated to take approximately 6 to 8 weeks and employ approximately eight workers.

It is likely that general skilled labor is available in Haakon County or the state at a scale necessary to serve the basic infrastructure and site development needs of the Project. Specialized labor will be required for certain components of Project construction, which may be imported 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.

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

Apart from the final alignment flexibility requested in Section 4.2, Basin Electric does not currently have any plans for future additions to or modifications to the Project.

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 are designed to operate for decades and typically require only moderate maintenance. The transmission facility may remain in use or be repurposed after the operational life of the Wind Project. The transmission facility will include very few mechanical elements, which results in high reliability. The infrastructure is built to withstand weather extremes, and the circuits are automatically taken out of service by the operation of protective relaying equipment when a fault is sensed on the system. Such interruptions are usually momentary. Scheduled maintenance outages are also infrequent. As a result, the average annual availability of transmission infrastructure is very high, over 99%.

The transmission facility will be designed and constructed in compliance with state, county, and utility standards regarding clearance to ground, clearance to utilities, clearance to buildings, strength of materials, and ROW widths. Temporary guard or clearance structures will be installed as needed over existing distribution or communication lines, roads, navigable waterways, or other obstructions after the necessary notifications are made or permits obtained.

25.2 Safety

25.2.1 Design

The transmission facility will be equipped with protective devices, such as breakers and relays, for safety purposes. Breakers and relays will be located where the transmission facility connects to the Philip North Switchyard and will de-energize the line in the event of an emergency. In addition to protective devices, proper signage will be posted warning the public of the safety risks associated with energized equipment.

25.2.2 Electric and magnetic fields

Natural and human-made electric and magnetic fields (EMF) are present everywhere in our environment. Natural electric fields in the atmosphere range from background static levels of 10 to 120 volts per m to over several kilovolts per m produced by the build-up of electric charges in thunderstorms. The Earth itself has a magnetic field that ranges from approximately 300 to 700 milliGauss. In addition to the presence of the Earth's steady state electric field, an average home experiences additional magnetic fields of 0.5 to 4 milliGauss, which arise from the general wiring and appliances located in a typical home. Electric fields are present wherever there is an electric charge. A magnetic field arises when this charge is in motion, such as when electrons flow to generate an electric current.

The intensity of the electric field is related to the voltage of the line, while the intensity of the magnetic field is related to the current flow along the conductors. Both measurements rapidly decrease with distance from the source. Given the National Institute of Environmental Health Sciences (2023) reports EMF levels from high-voltage transmission lines decreases by ≥95% at 200 feet, and given the nearest residence would be 2,310 feet from the transmission line, it is

expected EMFs produced would dissipate before reaching residences, causing no measurable effect above background levels.

25.2.2.1 Electric fields

There are currently no federal or state standards pertaining to 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 currently no federal or state regulations pertaining to magnetic field exposure. The strength of magnetic fields diminishes rapidly as the distance from the centerline increases. In addition, since the magnetic field produced by a 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 to determine if exposure to magnetic fields, such as those from high-voltage power lines, causes biological responses and health effects. Toxicological and laboratory studies have not shown a biological mechanism between EMFs and cancer or other adverse health effects. In 2007, the World Health Organization conducted a review of health implications from magnetic fields and concluded, "…virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level extremely low frequency magnetic fields and changes in biological function or disease status" (World Health Organization 2007).

The frequency of transmission line EMFs in the United States is 60 Hz and falls in the extremely low frequency range of the electromagnetic spectrum (any frequency below 300 Hz). For the lower frequencies associated with transmission lines, the two field types (electric and magnetic) are typically evaluated separately.

25.2.3 Stray and induced voltage

Induced (stray) voltage issues are generally caused by improperly grounded and/or isolated electrical circuits found in older buildings, factories, or barns. Transmission lines do not, by themselves, create stray voltage because they do not connect to businesses or residences and are typically grounded properly. However, transmission lines can induce stray voltage on a distribution circuit that is parallel to and immediately under the transmission line. Appropriate measures, such as proper grounding, will be implemented to prevent stray voltage problems.

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

The Applicant 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
Federal			
Western Area Power Administration (WAPA)	National Environmental Policy Act	EA and FONSI for interconnection to WAPA transmission line.	Complete
Federal Aviation Administration	Notice of Proposed Construction or Alteration (Form 7460-1)	Required for any proposed construction over 200 feet above ground level.	To be obtained, if required
U.S. Army Corps of Engineers	Section 404 Wetland Permit	The Project is designed to avoid impacts to jurisdictional water resources to the extent practicable. The final Project Route will be evaluated to determine the appropriate authorization for impacts, if any.	Not started
U.S. Fish and Wildlife Service	Endangered Species Act Section 7 consultation	Determination of effect on federally listed species.	Complete
State of South Dakota			
South Dakota Public Utilities Commission	Energy Facility Permit	Required for transmission facility.	In progress
South Dakota Department of Agriculture and Natural Resources	Section 401 Water Quality Certification	The Project is designed to avoid impacts to water resources to the extent practicable. The final Project Route will be evaluated to determine the appropriate authorization for impacts, if any.	Not started
	National Pollutant Discharge Elimination System General Permit Authorizing Stormwater Discharges Associated with Construction Activities (SDR10000)	Required for land disturbance or construction activities that disturb 1 or more acres with a point source discharge to surface waters of the United States.	Not started
	General Permit for Temporary Discharges	Temporary permit for the use of public water for construction dewatering.	Not started
	Temporary Water Use Permit for	Temporary permits for the use of public water for construction,	Not started

Agency	Type of permit or approval	Trigger	Status
	Construction Activities	testing, or drilling purposes; issuance of a temporary permit is not a grant of water right.	
South Dakota Game, Fish, and Parks	Coordination	Resource coordination.	Complete
South Dakota Department of Transportation	Oversize/Overweight Permit	Permit required for heavy equipment transport over state roads during construction.	Not started
Local County or Township			
Haakon County, South Dakota	Oversize/Overweight Permits	Project use of county roads during construction.	To be obtained, if required

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

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

27.1 Agency coordination

The Project was reviewed as part of WAPA's NEPA review of the Wind Project, and agency coordination conducted as part of that review included the scope of this Project. The result of that review and agency coordination is reflected in the FONSI included as **Appendix C**.

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

The Applicant is 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 Applicant reserves the right to provide supplemental and/or rebuttal testimony, as needed, to further support this Application.

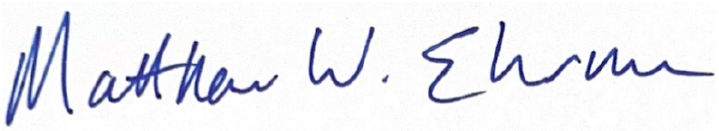
Table 27-1. List of individuals providing testimony

Individual	Title and Organization	Subject Matter
Brad Wilkinson	Structural Engineer at Basin Electric	Transmission Design
Ryan King	Environmental Coordinator at Basin Electric	Environmental Permitting

27.3 Applicant verification

Matthew W. Ehrman, being duly sworn, deposes and states that he is an Authorized Representative of Basin Electric Power Cooperative and is authorized to sign this Application on behalf of Basin Electric Power Cooperative.

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.



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Authorized Signatory

Dated this 15th day of August 2025.

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