Appendices

Appendix A Scoping Decision



In the Matter of the Application of Otter Tail
Power Company and Western Minnesota
Municipal Power Agency, through its agent,
Missouri River Energy Services for a Route Permit
for a High Voltage Transmission Line for the Big
Stone South to Alexandria 345 kV Transmission
Project in West-Central Minnesota

ENVIRONMENTAL IMPACT STATEMENT SCOPING DECISION

Docket No. E017, ET10/TL-23-160

The above matter has come before the Commissioner of the Department of Commerce (Department) for a decision on the scope of the environmental impact statement (EIS) to be prepared for the Big Stone South to Alexandria 345 kV Transmission Project in west-central Minnesota.

Project Description

On October 22, 2024, Otter Tail Power Company and Western Minnesota Municipal Power Agency, through its agent, Missouri River Energy Services (hereinafter the applicants), filed a route permit application¹ with the Minnesota Public Utilities Commission (Commission) to construct approximately 91 to 106 miles of 345 kV transmission line using double-circuit capable structures from the Minnesota/South Dakota border, approximately one mile south of Ortonville, Big Stone County, Minnesota, to the existing Alexandria Substation in Alexandria, Douglas County, Minnesota. On December 3, 2025, the Commission found the route permit application to be complete.²

The applicants propose to construct the transmission line within a 150 foot right-of-way using double-circuit capable structures, with a single circuit installed initially and the other circuit remaining open for a future transmission line. The project's steel, monopole structures will be 120 to 180 feet in height with spans ranging from 400 to 1,400 feet. The applicants proposed two possible transmission line routes in each of three regions delineated for the Project: South, Central, and North (Attachment 1, Map 1). The applicants have requested a route width of 1,000 feet, with a few areas requiring a wider or narrower route width.

The Project also includes modifications to the existing Alexandria Substation, southwest of the City of Alexandria, Minnesota and the Big Stone South Substation, in Grant County, South Dakota. In addition, a new fiber optic regeneration station for amplifying and regenerating optical communications between substations is proposed.

¹ Otter Tail Power Company and Missouri River Energy Services. Big Stone South to Alexandria 345 kV Transmission Line Project, Application to the Minnesota Public Utilities Commission for a Route Permit for a High Voltage Transmission Line, October 22, 2024, eDockets Numbers 202410-211322-01 (through -07), hereinafter the Route Permit Application.

² Public Utilities Commission, Order, December 3, 2024, eDockets No. <u>202412-212609-01</u>.

The Big Stone South to Alexandria Project (Project) is the western segment of the larger Big Stone South – Alexandria – Big Oaks 345 kV Transmission Project. A certificate of need for the Big Stone South – Alexandria – Big Oaks Project was issued by the Commission on October 30, 2024.^{3,4}

Project Purpose

The Big Stone South – Alexandria – Big Oaks 345 kV Transmission Project is needed to provide reliable, resilient, and cost-effective delivery of energy as the generation resource mix continues to evolve over the coming years. ⁵ Specifically, the Project is needed to address reliability issues on the existing 230 kV system in eastern North Dakota and South Dakota and in western and central Minnesota. This existing 230 kV system is at its capacity leading to thermal and voltage issues. The Project would resolve these issues by adding a 345 kV circuit to the system in this area.

Regulatory Process and Procedures

The Big Stone South to Alexandria 345 kV Transmission Project requires a route permit from the Commission. Route permit applications are subject to environmental review conducted by Department Energy Environmental Review and Analysis (EERA) staff on behalf of the Commission. EERA will prepare an EIS that will inform the Commission's decision on the applicants' route permit application. The EIS preparation process includes scoping for the EIS, preparation of a draft EIS, public comment on the draft EIS, preparation of a final EIS, and a determination of EIS adequacy.

Scoping Process

The first step in preparing the EIS is scoping. The scoping process has two primary purposes: (1) to gather public input on the impacts, mitigation measures, and alternatives to study in the EIS, and (2) to focus the EIS on those impacts, mitigation measures, and alternatives that will aid in the Commission's decision on the route permit application.

Staff uses the information gathered during scoping to inform the content of the EIS. EERA staff gathered input on the scope of the EIS through public meetings and an associated comment period. This scoping decision identifies the impacts and mitigation measures as well as routing alternatives that will be analyzed in the EIS.

Public Information and Scoping Meetings

Commission and EERA staff gathered input on the scope of the EIS through six public scoping meetings and an associated comment period as summarized below:

³ Northern States Power Company, Great River Energy, Minnesota Power, Otter Tail Power Company, and Western Minnesota Municipal Power Agency. Big Stone South – Alexandria – Big Oaks Transmission Line Project, Application to the Minnesota Public Utilities Commission for a Certificate of Need for a High Voltage Transmission Line, September 29, 2023, eDockets Numbers 20239-199284-01 (through -05), hereinafter the Certificate of Need Application.

⁴ Public Utilities Commission, Notice of Certificate of Need for the Big Stone South – Alexandria – Big Oaks Transmission Line Project. October 30, 2024, 202410-211465-01.

⁵ Certificate of Need Application, Section 1.3

Date	Location	Approximate Number of Attendees		
January 14, 2025	Alexandria	14		
January 14, 2025	Glenwood	21		
January 15, 2025	Hancock	50		
January 15, 2025	Benson	26		
January 16, 2025	Ortonville	25		
January 16, 2025	Remote-Access	2		

The purpose of the meetings was to provide information to the public about the proposed project, to answer questions, and to allow the public an opportunity to suggest impacts, mitigation measures, and alternatives for analysis in the EIS.

Approximately 138 people attended the public meetings. Twenty-two persons provided verbal comments. Commenters asked questions about the potential impacts to farming, personal property and easements, water quality and wells, as well as many comments on wildlife and natural resources. Commenters also noted concerns with topics such as electric and magnetic fields (EMF), stray voltage, frequency interference, human health, among other topics.

Written Public Comments

A comment period, ending on January 31, 2025, provided the public an opportunity to submit comments to EERA staff on potential impacts and mitigation measures for analysis in the EIS.⁷ Written comments were received during this comment period from one federal agency, two state agencies, two local units of government, one labor union, one private company, and 97 community members. All of these public comments have been compiled and can be viewed in eDockets.⁶

U.S. Fish and Wildlife Service (USFWS)

USFWS comments focused on potential environmental impacts to lands that are part of the National Wildlife Refuge System near the Project. These lands include Waterfowl Production Areas and conservation easement interest lands (habitat easements and wetland easements). The USFWS comments included several alternative routes proposed to minimize potential impacts to these lands.

Minnesota Department of Natural Resources (DNR)

DNR comments focused on potential environmental impacts with a list of their preferred routes and recommendations. The comment included two Natural Heritage Reviews that were completed for the Project and suggested that the EIS refer to these reviews and incorporate steps to minimize or avoid impacts to state-listed species or other rare resources, such as calcareous fens, sites of biodiversity significance, and native plant communities. Additionally, DNR requested the EIS analyze lighting, dust control, and erosion control.

⁶ Big Stone South to Alexandria 345 kV Transmission Project – Scoping comments, eDockets Number 20252-215692-01.

⁷ Public Utilities Commission. Notice of Public Information and Environmental Impact Statement Scoping meetings, December 17, 2024, eDockets Number <u>202412-213102-01</u>.

Minnesota Department of Transportation (MNDOT)

MNDOT comments focused on potential impacts to scenic byways and requested that impacts to the following three scenic byways be discussed in the EIS: King of Trails Scenic Byway, Glacial Ridge Trail Scenic Byway, and Minnesota River Valley National Scenic Byway. MNDOT acknowledged their appreciation of extensive early coordination efforts by the applicants.

Lake Mary Township Board

The Lake Mary Township Board's comments focused on potential impacts to property values, agricultural properties, and associated farming activities. The comments also stated their preference for the route to follow existing rights-of-way.

Local 49 of the International Union of Operating Engineers

Local 49 of the International Union of Operating Engineers commented that while this Project would not provide a substantial amount of work for its members, the projects that this Project would induce would benefit heavy equipment operators. The comment requested that the EIS discuss the potential benefits to their members.

Minnerath Investments LLC

The Minnerath Investments LLC's comments focused on potential impacts to gravel mining operations and associated properties in the vicinity of the Project. The comment requests that the EIS include the following: an assessment of the economic impact of the Project on aggregate availability, operational efficiency, and property values; consideration of alternative routes that minimize impacts on industrial operations; and mitigation measures to address any negative impacts on Minnerath Investments LLC's business.

Other Comments

Community members that submitted written public comments expressed concern about a variety of potential impacts associated with the project, including but not limited to: farming operations, property values, multiple transmission lines on a property, human health/EMF, aesthetics, land use, wildlife and associated habitat, water resources, water quality, and noise. Approximately one-half of the comments expressed a preference for, or displeasure with, a routing option proposed in the route permit application. Commentors also proposed multiple route and alignment alternatives for analysis in the EIS.

Applicants' Response to Scoping Comments

EERA staff conferred with the applicants on the alternatives proposed for study in the EIS and reviewed their response to each proposed routing alternative. The applicants included a list of all of the routing alternatives and whether they believed each should be included in the scope of the EIS along with their justification.

⁸ Minnesota Rule 7850.2500, Subp.3; Applicants Response to Scoping Comments, February 21, 2025, eDockets Number <u>20252-215667-01</u>.

⁹ Ibid. Attachment 1.

Commission Review

On March 19, 2025, EERA staff provided the Commission with a summary of the EIS scoping process. ¹⁰ The summary discussed routing alternatives that were proposed during the EIS scoping process and EERA staff's recommendation to study the applicants' proposed routing alternatives and 20 additional routing alternatives proposed by the public during the scoping comment period. ¹¹ The Commission met on April 10, 2025, to consider EERA staff's recommendation. On May 1, 2025, the Commission agreed with and adopted EERA staff's recommendations on the scope of the EIS and included three additional routing alternatives for analysis in the EIS. ¹²

Routing Alternatives

Commenters recommended one route, six route connectors, 23 route segments, and six alignment alternatives during the scoping process. Of these, the Commission authorized three route connectors, 12 route segments, and five alignment alternatives be included for study in the EIS (Table 1). These alternatives will be included in the scope of EIS. The Commission added three routing alternatives to the scope of the EIS. These routing alternatives are included in Table 1.

Numbers provided after a commenter's name in the "Source" column in **Table 1** coincide with the comment number assigned in the index of scoping comments received.¹³

Table 1 Routing Alternatives Included in the EIS Scope

Name Map		Туре	Associated Route	Source	
S104	Attachment 1 – Map 2-1	Route Connector	Connects South 1 and South 2 Routes	Pam Rehn #60 and #94	
C101	Attachment 1 – Map 2-10	Route Connector	Connects Central 1 and Central 2 Routes	USFWS #48	
C102	Attachment 1 – Map 2-7	Route Connector	Connects Central 1 and Central 2 Routes	Lance Mumm #7 Allen Mumm #30	
S201	Attachment 1 – Map 2-3	Route Segment	South 2	Brian Hamman #3	
S202	Attachment 1 – Map 2-3	Route Segment	South 2	USFWS #48	
S203	Attachment 1 – Map 2-3	Route Segment	South 2	Brian Hamman #3	
S204	Attachment 1 – Map 2-4	Route Segment	South 1	Roger Schmidt #54	

¹⁰ Department of Commerce (March 19, 2025) *Scoping Summary Comments and Recommendations*, eDockets No. <u>20253-216613-01</u>.

¹¹ Ibid.

¹² Commission Order On Route Alternatives For The Environmental Impact Statement, May 1, 2025, eDockets No. <u>20255-</u> 218416.

¹³ Big Stone South to Alexandria 345 kV Transmission Project – Scoping comments, eDockets No. <u>20252-215692-01</u>.

Name Map		Туре	Associated Route	Source
S205	Attachment 1 – Map 2-4	Route Segment	South 1	USFWS #48
S207	Attachment 1 – Map 2-1	Route Segment	South 2	USFWS #48
S208	Attachment 1 – Map 2-2	Route Segment	South 1	USFWS #48
S210	Attachment 1 – Map 2-1	Route Segment	South 1	Cathy Klebofski #33
S211	Attachment 1 – Map 2-4	Route Segment	South 1 and South 2	Commission
C202	Attachment 1 – Map 2-10	Route Segment	Central 2	Loren Boysen #8
C203	Attachment 1 – Map 2-8	Route Segment	Central 2	Don/Michele Greiner #51
C208	Attachment 1 – Map 2-7	Route Segment	Central 2	John/Heidi Beyer #27 Daniel/Becky Beyer #28 Norman Beyer #29
N205	Attachment 1 – Map 2-11	Route Segment	North 1	Neal Kalina #39
N206	Attachment 1 – Map 2-11	Route Segment	North 2	Commission
N207	Attachment 1 – Map 2-11	Route Segment	North 2	Commission
SAA01	Attachment 1 – Map 2-6	Alignment Alternative	South 1 and South 2	Lance Mumm #7 Allen Mumm #30
SAA02	Attachment 1 – Map 2-6	Alignment Alternative	South 1 and South 2	Lance Mumm #7 Allen Mumm #30
SAA03	Attachment 1 – Map 2-5 Alignment Alternative		South 1	Nancy Vollmer #37
SAA04	Attachment 1 – Map 2-2	Alignment Alternative	South 2	David Hovde #20
CAA01	Attachment 1 – Map 2-9	Alignment Alternative	Central 2	Scott Johnson #44

HAVING REVIEWED THE MATTER, consulted with staff, and in accordance with Minnesota Rule 7850.2500, I hereby make the following scoping decision:

MATTERS TO BE ADDRESSED

The EIS will describe the project, the existing environment, and the human and environmental resources potentially affected by the project. It will provide information about potential direct and indirect impacts—both positive and negative—resulting from construction, operation, and maintenance of the project. The EIS will describe mitigation measures that could reasonably be implemented to reduce or eliminate identified negative impacts. The EIS will identify impacts that cannot be avoided and irreversible and irretrievable commitments of resources, as well as permits from other government entities that may be required for the project. The EIS will discuss the relative merits of proposed routes with respect to the routing factors in Minnesota Rule 7850.4100.

Data and analyses will be commensurate with the level of impact for a given resource and the relevance of the information to consider mitigation measures. EERA staff will consider the relationship between the cost of data and analyses and the relevance and importance of the information in determining the level of detail of information to be prepared for the EIS. Less important material may be summarized, consolidated, or simply referenced.

If relevant information cannot be obtained within timelines prescribed by statute and rule, the costs of obtaining such information is excessive, or the means to obtain it is unknown, EERA staff will include in the EIS a statement that such information is incomplete or unavailable and the relevance of the information in evaluating potential impacts or alternatives.

The issues outlined below will be analyzed in the EIS for the project. This outline is not intended to serve as a table of contents for the document itself.

I. PROJECT OVERVIEW

- A. Description
- B. Purpose
- C. Costs
- D. Schedule

II. REGULATORY FRAMEWORK

- A. Certificate of Need
- B. Transmission Line Route Permit
- C. Environmental Review
- D. Other Permits and Approvals

III. PROJECT DESIGN AND CONSTRUCTION

- A. Transmission Line Structures
- B. Construction
 - 1. Transmission Line
 - 2. Right-of-Way Requirements
 - 3. Existing Substation Reconfigurations
 - 4. New Regeneration Station
 - 5. Associated Facilities
- C. Operation and Maintenance

1. Restoration and Vegetation Management

IV. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATIVE MEISSURES

- A. Environmental Setting
- B. Human Settlements
 - 1. Noise
 - 2. Aesthetics
 - 3. Displacement
 - 4. Property Values
 - 5. Zoning and Land Use
 - 6. Cultural Values
 - 7. Transportation and Public Services
 - 8. Radio and Television Interference
- C. Socioeconomics
 - 1. Environmental Justice
- D. Land Based Economies
 - 1. Agriculture
 - 2. Forestry
 - 3. Mining
 - 4. Recreation and Tourism
- E. Public Health and Safety
 - 1. Electric and Magnetic Fields
 - 2. Stray and Induced Voltage
 - 3. Emergency Services
 - 4. Implantable Medical Devices
- F. Archaeological and Historic Resources
- G. Natural Environment
 - 1. Air Quality
 - 2. Greenhouse Gas Emissions
 - 3. Climate Change / Climate Resilience
 - 4. Water Resources
 - 5. Wetlands and Calcareous Fens
 - 6. Geology and Soils
 - 7. Vegetation
 - 8. Public and Designated Lands
 - 9. Wildlife and Habitats
 - 10. Rare and Unique Natural Resources
- H. Use or Paralleling of Existing Right-of-Way
- I. Electric System Reliability
- J. Costs that are Dependent on Design and Route
- K. Unavoidable Impacts
- L. Irreversible and Irretrievable Commitments of Resources
- M. Cumulative Potential Effects

V. ROUTING ALTERNATIVES TO BE EVALUATED IN THE ENVIRONMENTAL IMPACT STATEMENT

The EIS will evaluate the routes, route connectors, and route segment alternatives proposed by the applicants in their route permit application. The EIS will also evaluate the routes, route connectors, route segments, and alignment alternatives listed in Table 1 and visually depicted in Attachment 1.

VI. IDENTIFICATION OF PERMITS

The EIS will include a list and description of permits from other government entities that may be required for the project.

ISSUES OUTSIDE THE SCOPE OF THE EIS

The EIS will not address the following topics:

- Any routes, route connectors, route segments, or alignment alternatives not specifically identified for study in this scoping decision.
- Project need, including size, type, and timing.
- Policy issues concerning whether utilities or local governments should be liable for the cost to relocate utility poles when roadways are widened.
- The manner in which landowners are compensated for transmission line right-of-way easements.

SCHEDULE

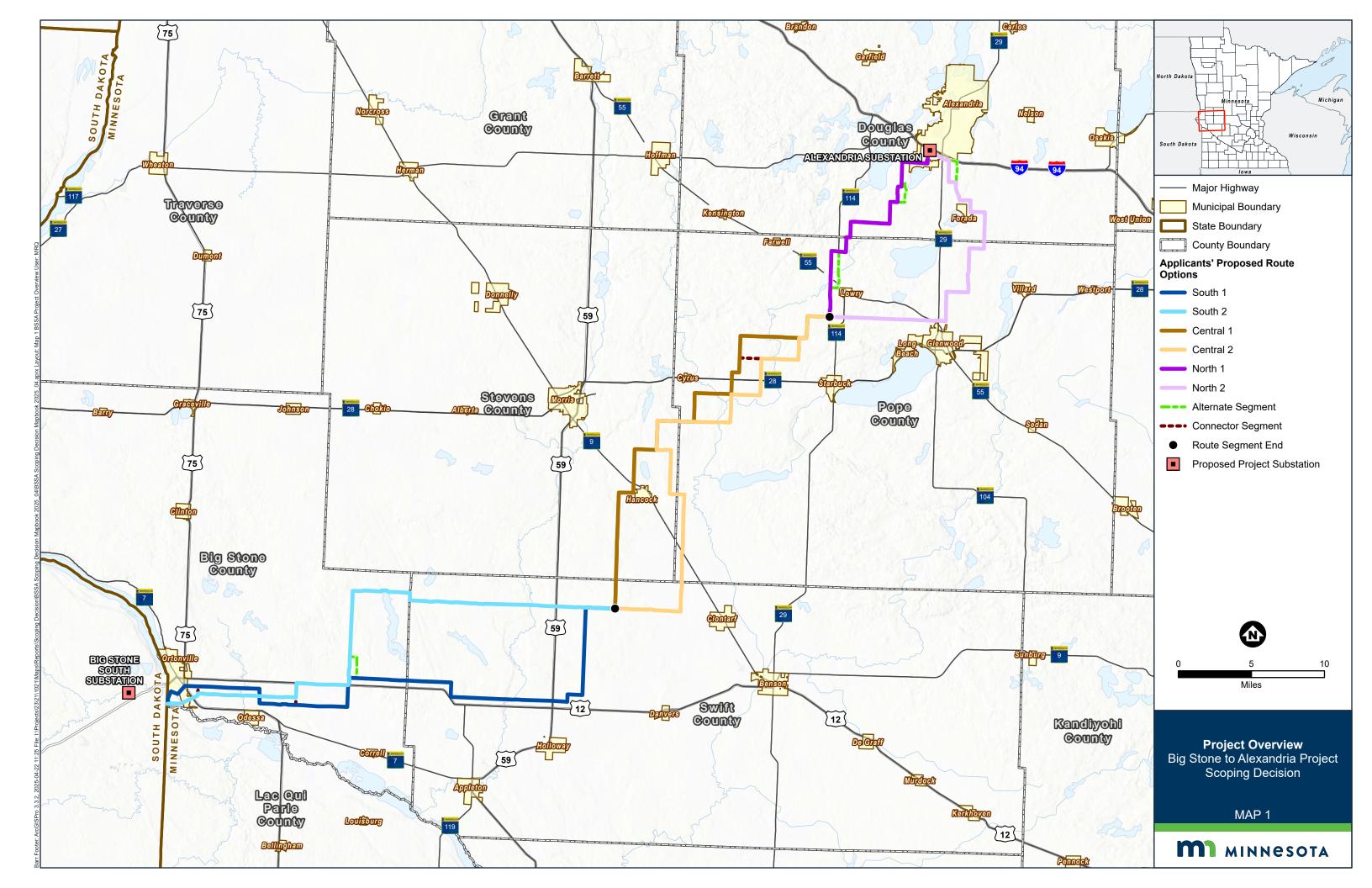
Upon issuance of the EIS scoping decision, preparation of the draft EIS will begin. The draft EIS is anticipated to be completed and made available for review in September 2025. Joint public meetings and hearings, and a written comment period will then occur. Substantive comments on the draft EIS will be responded to and included in a final EIS.

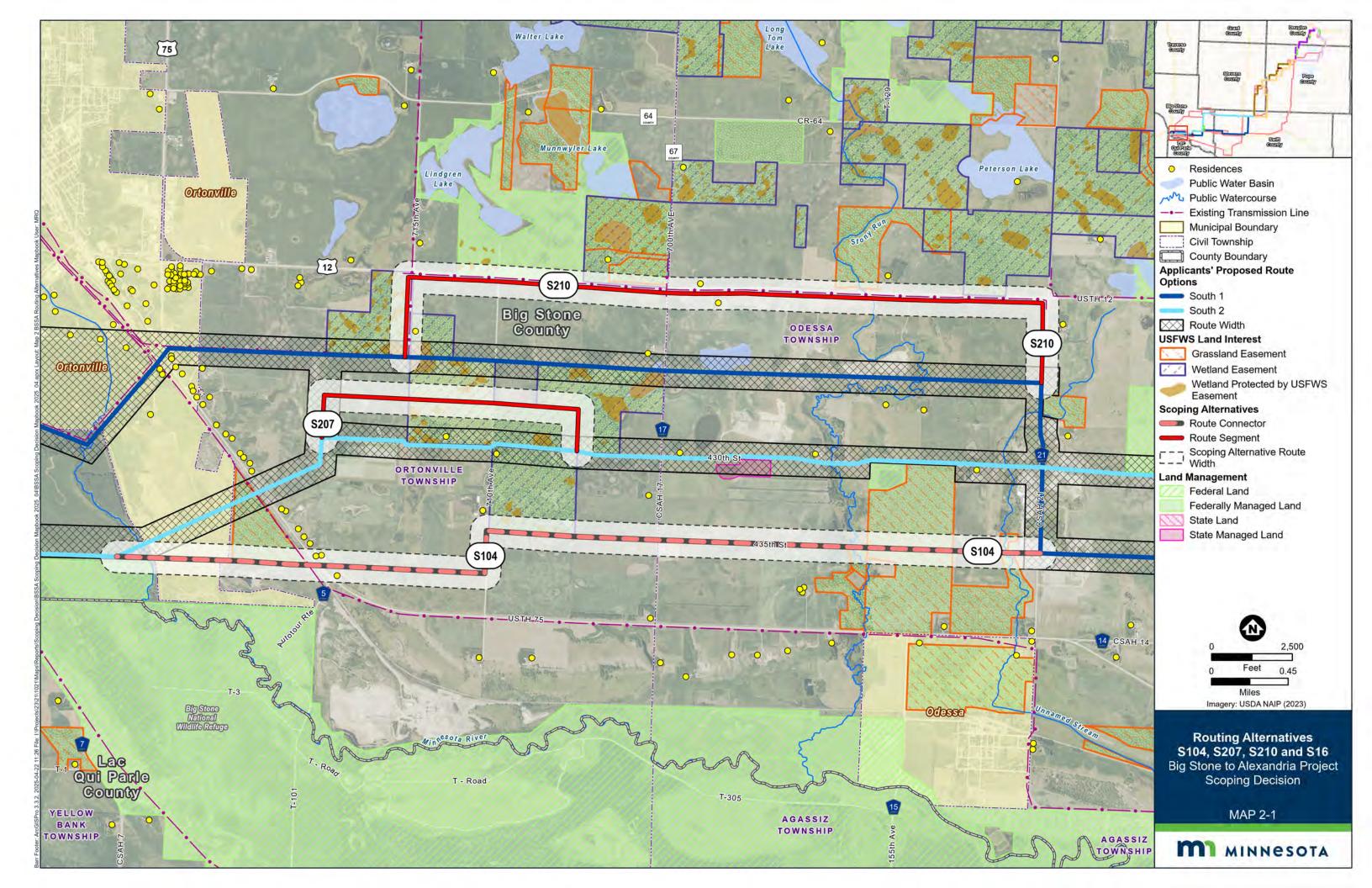
Signed this 6th day of May, 2025

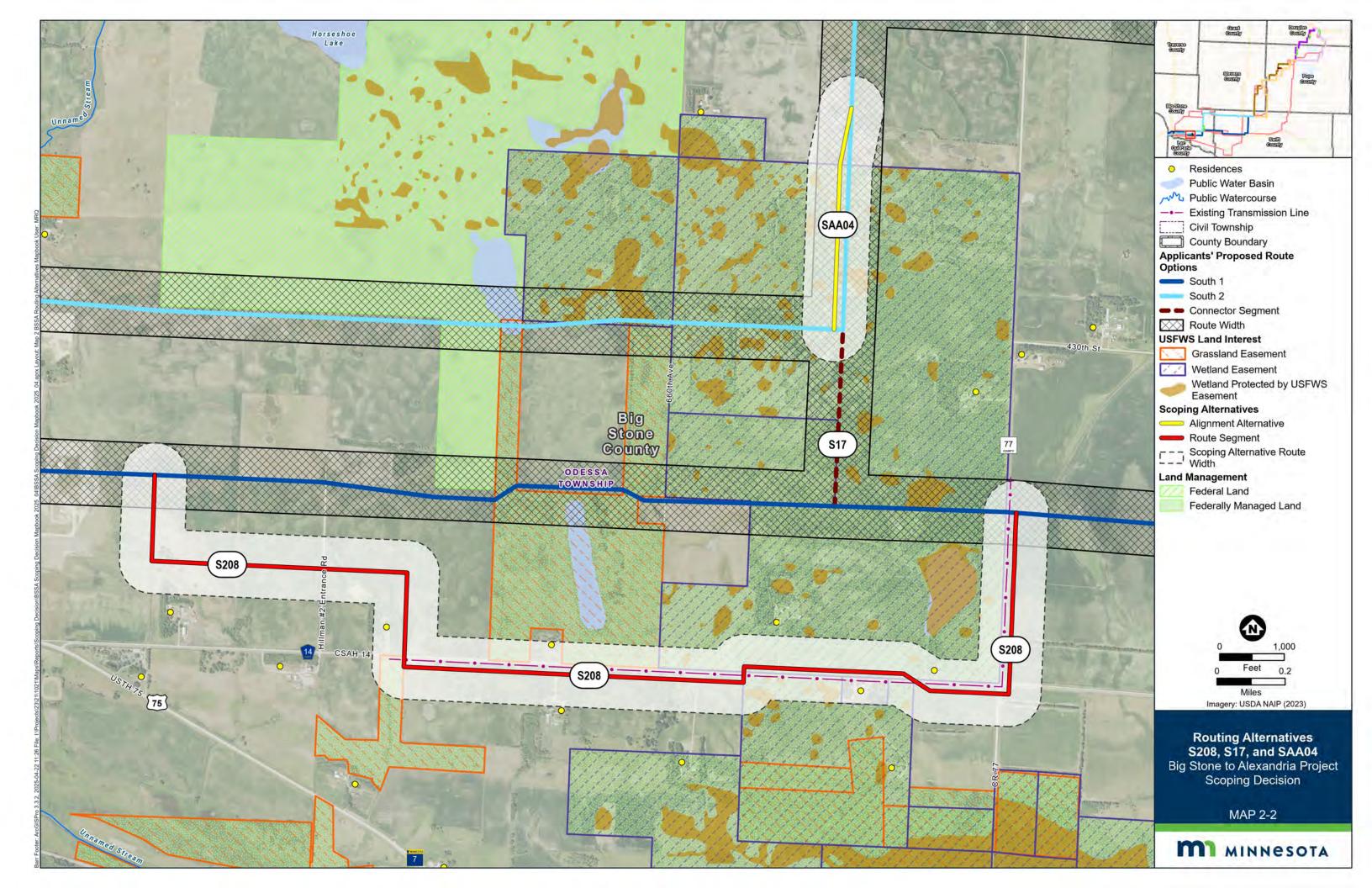
STATE OF MINNESOTA
DEPARTMENT OF COMMERCE

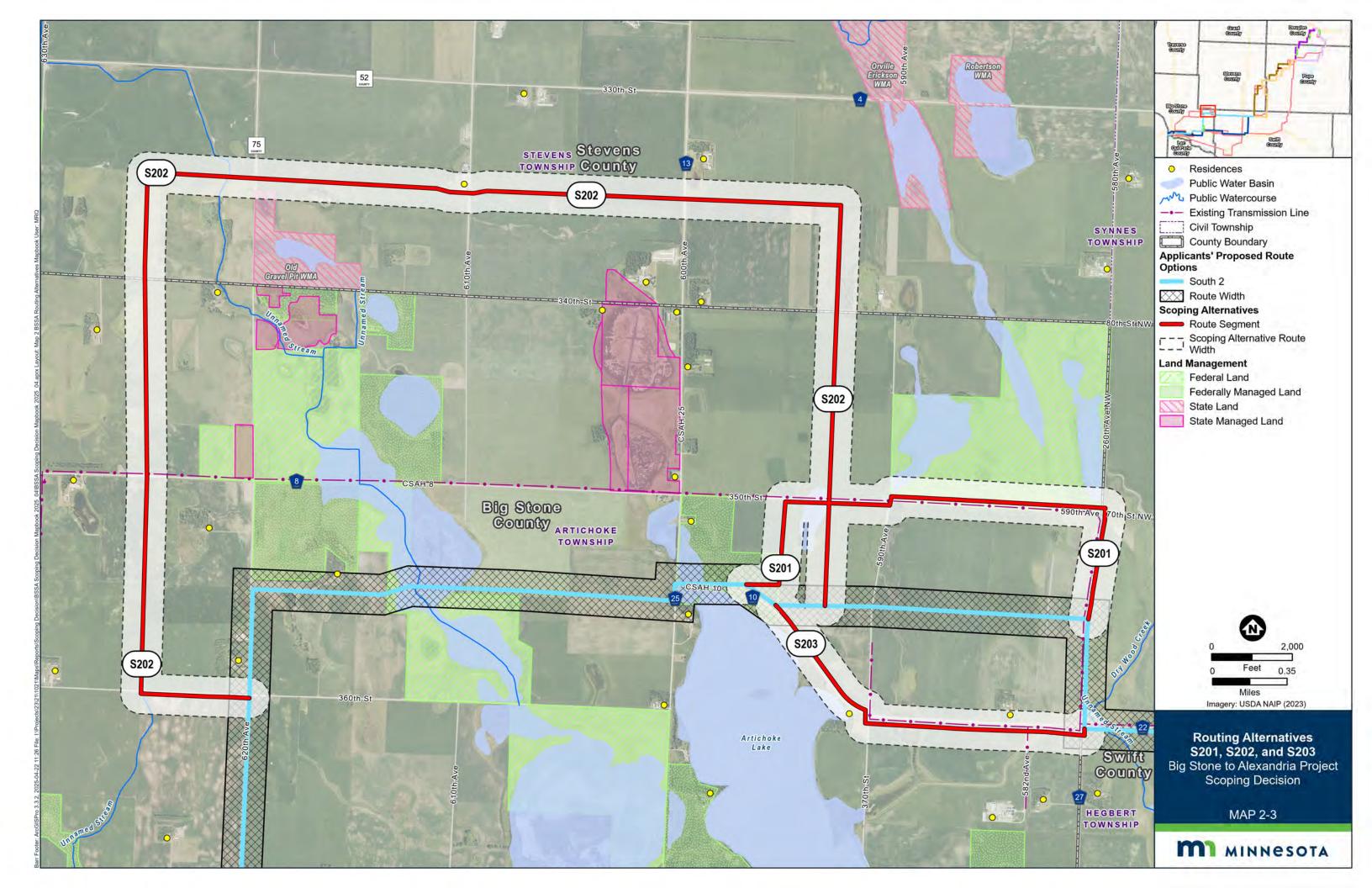
te Wyskaff

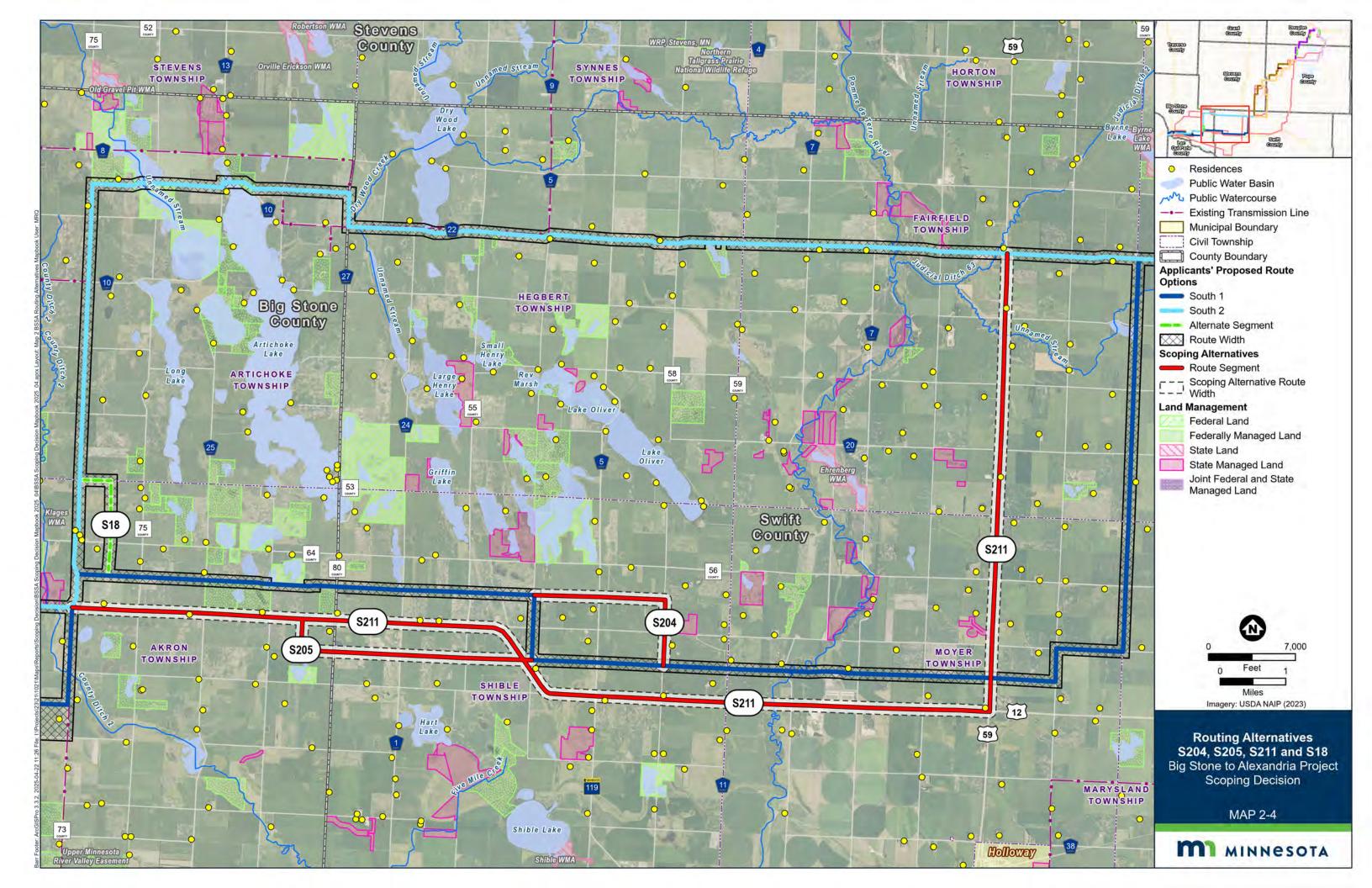
Pete Wyckoff, Deputy Commissioner



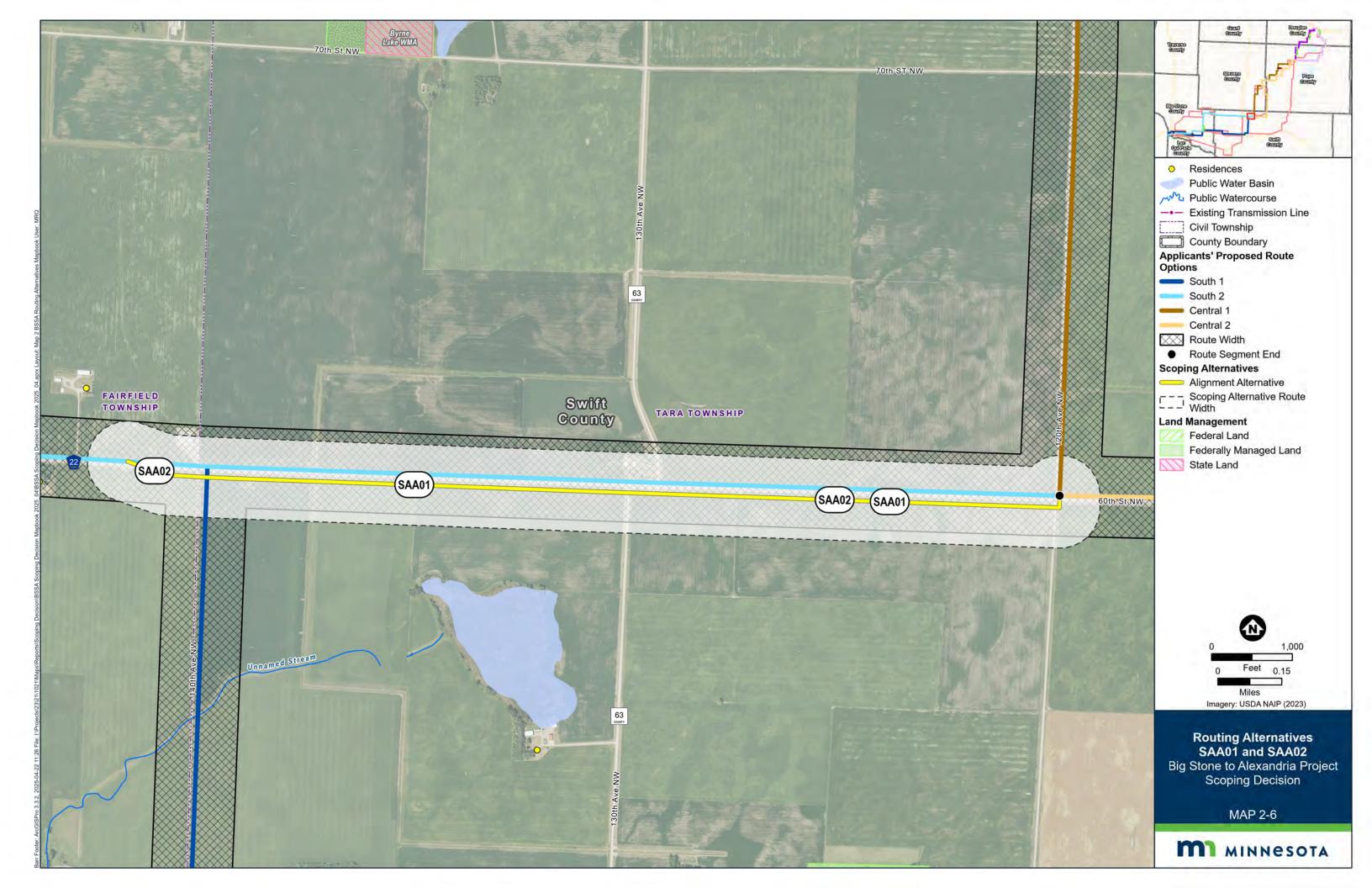


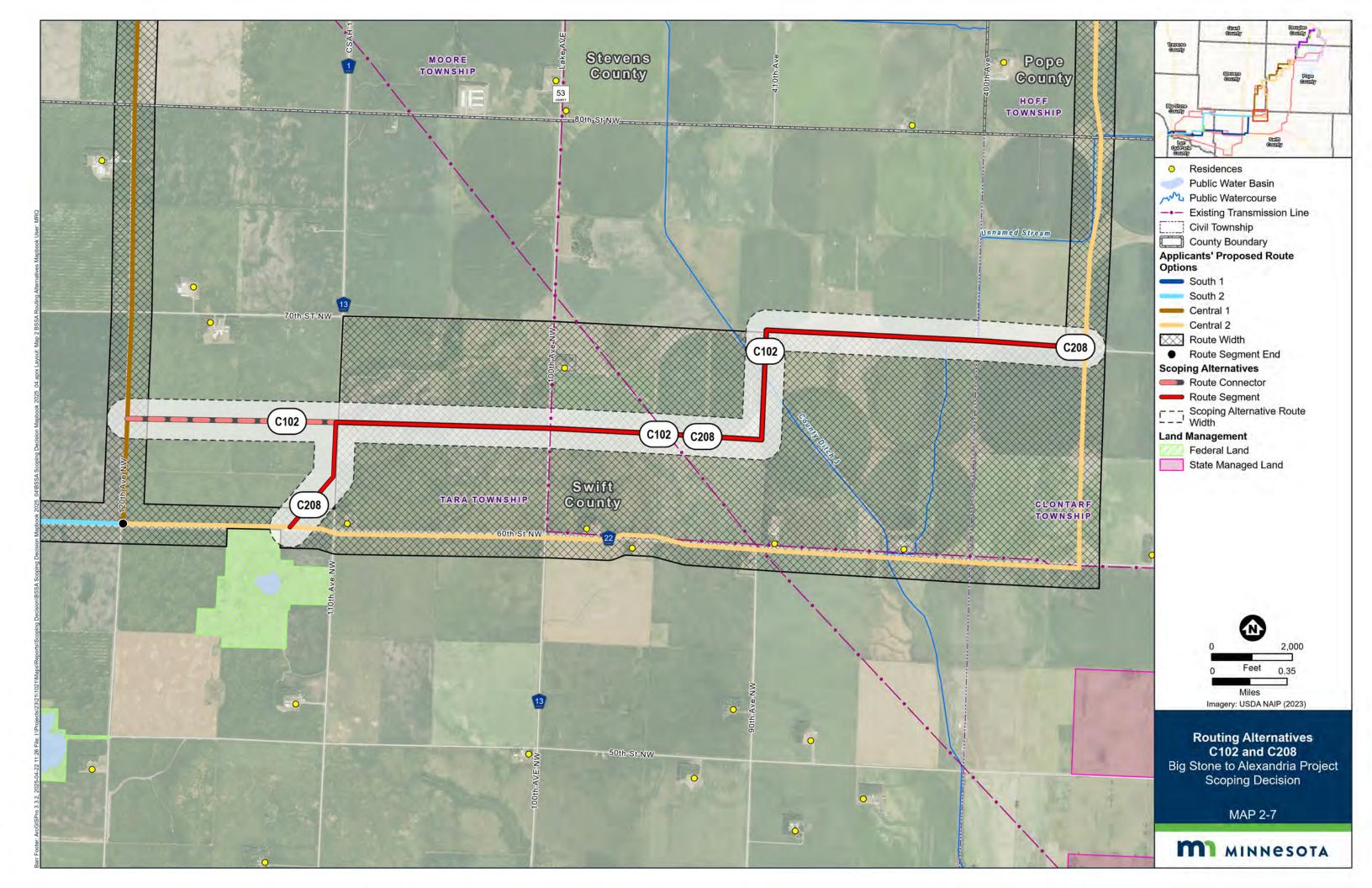


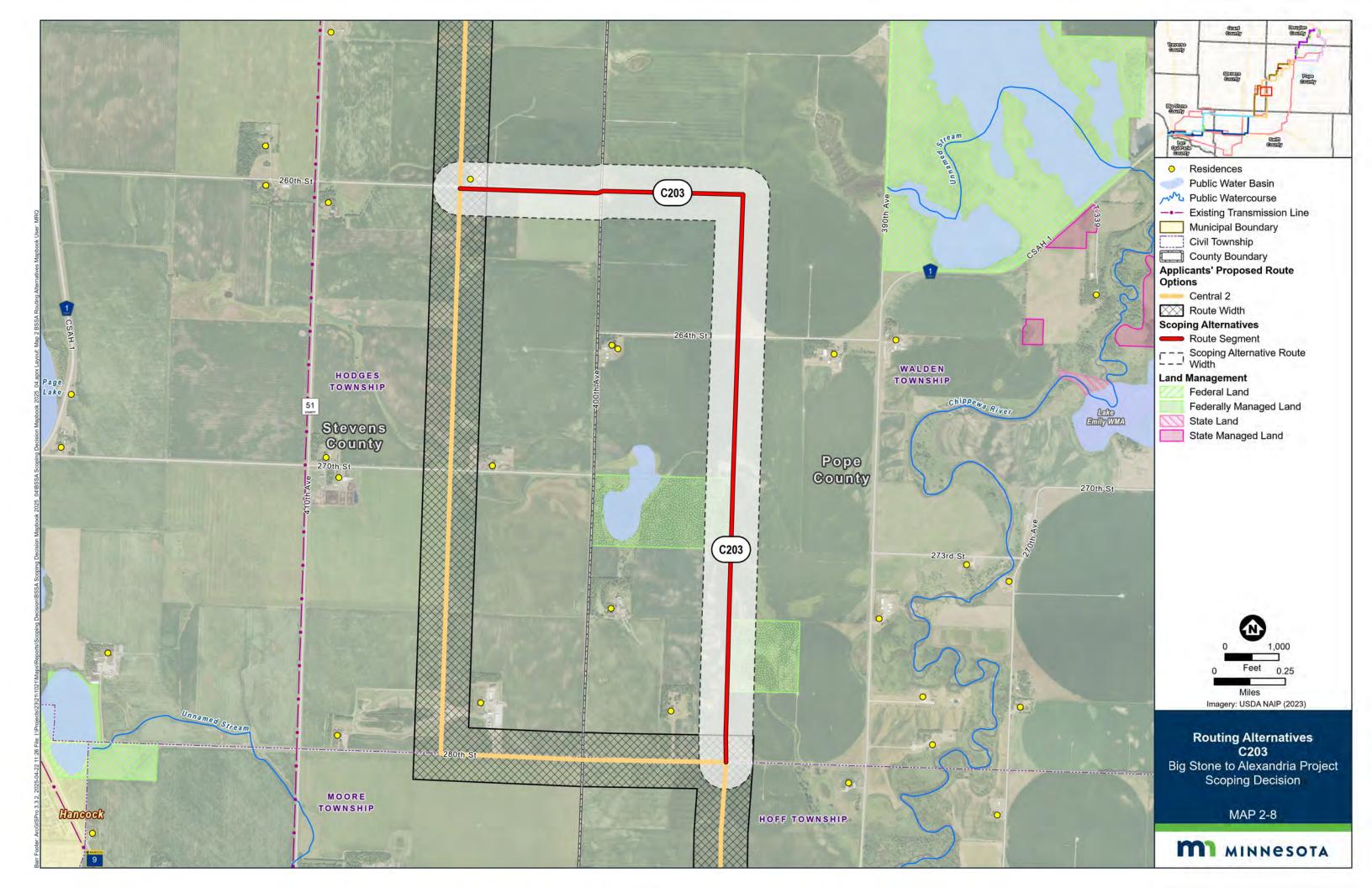


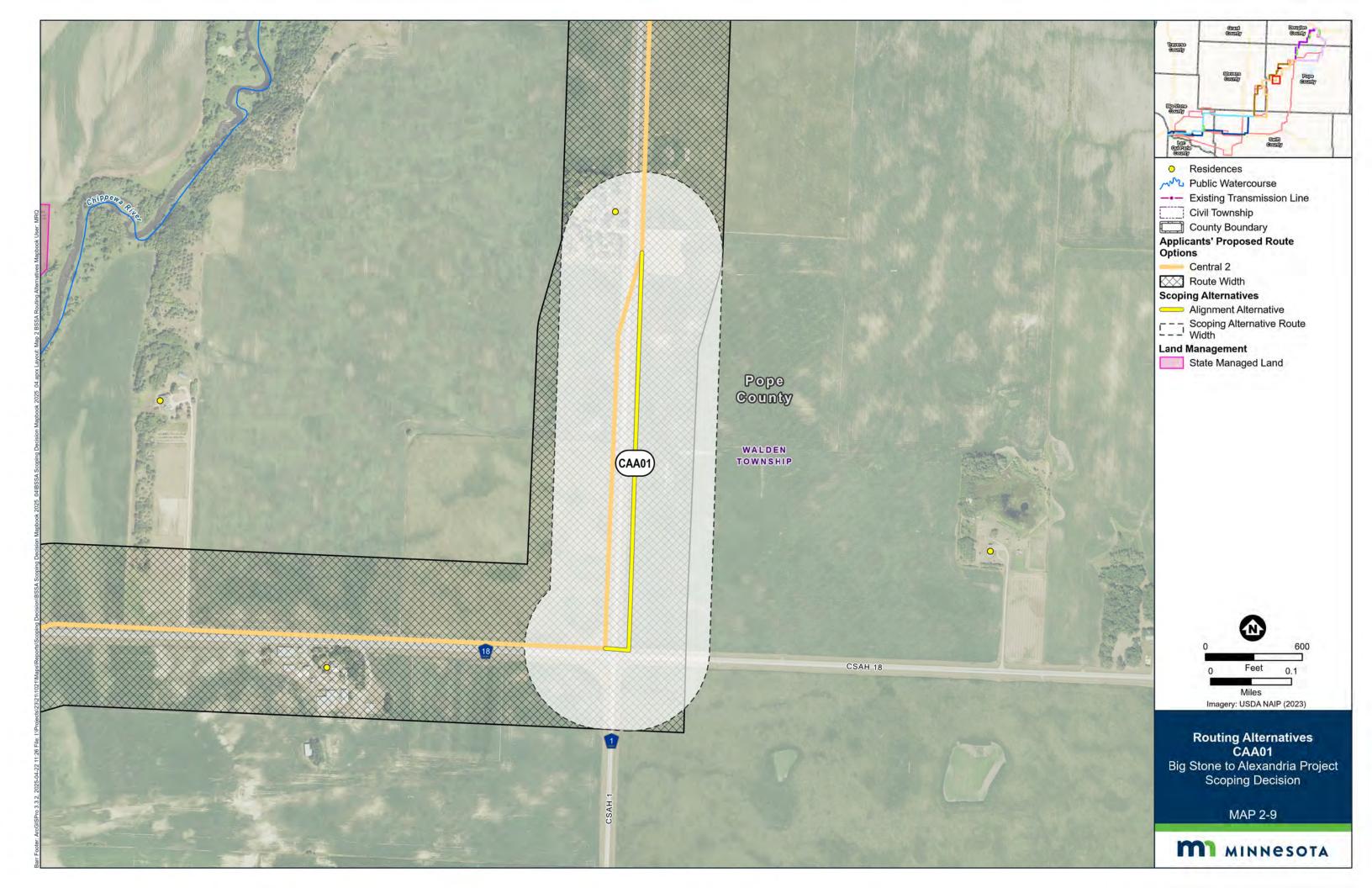


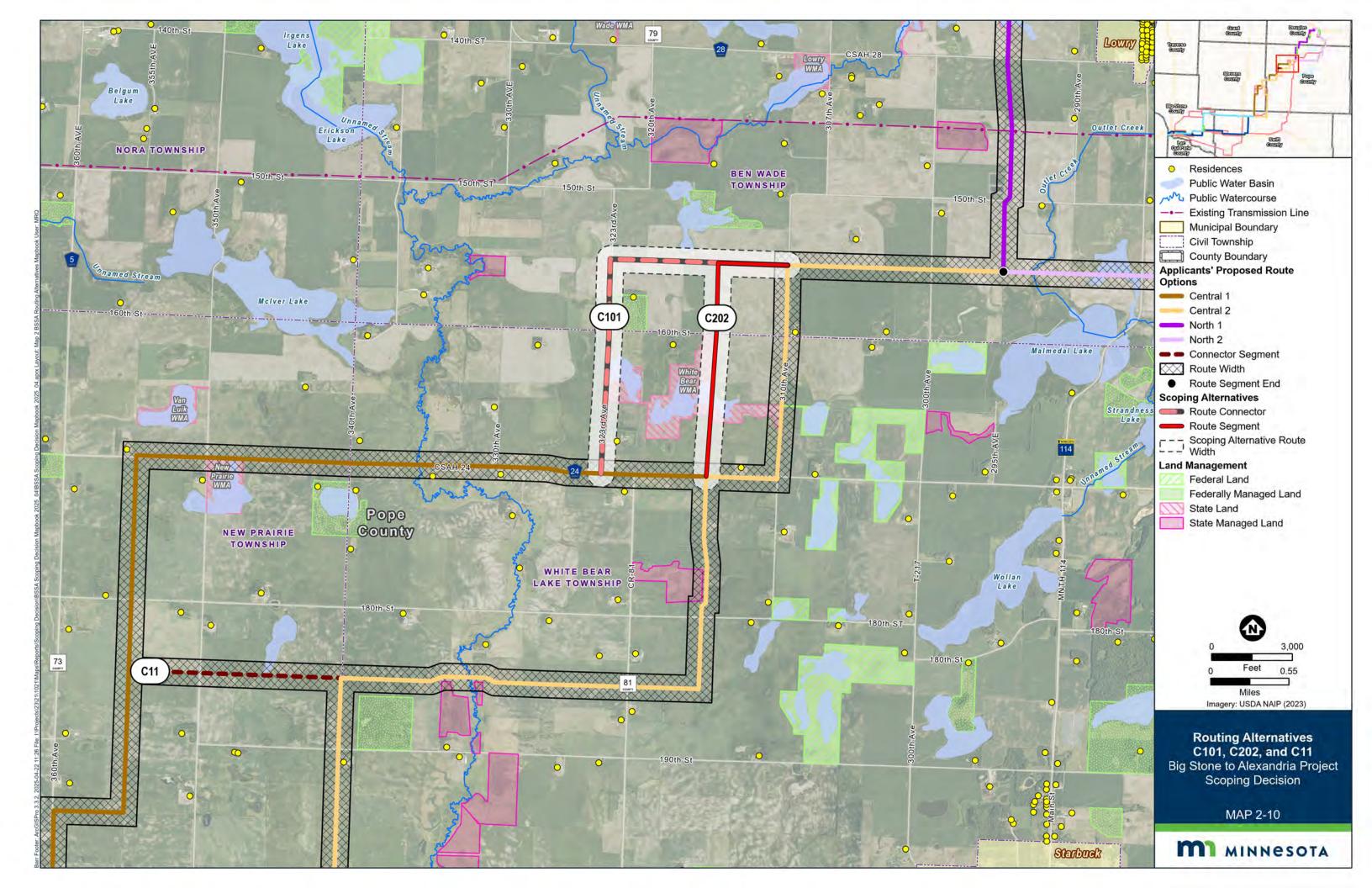


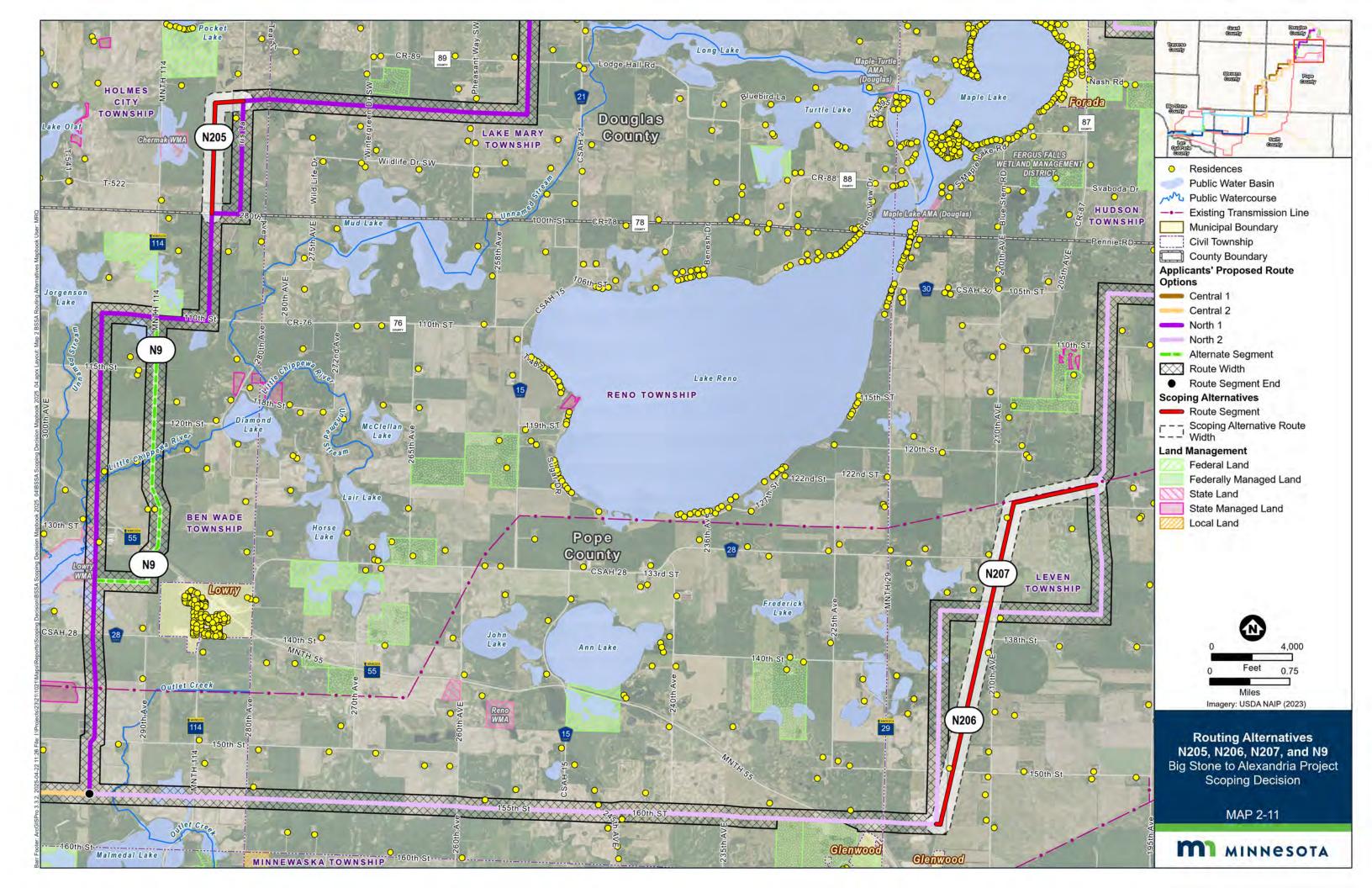


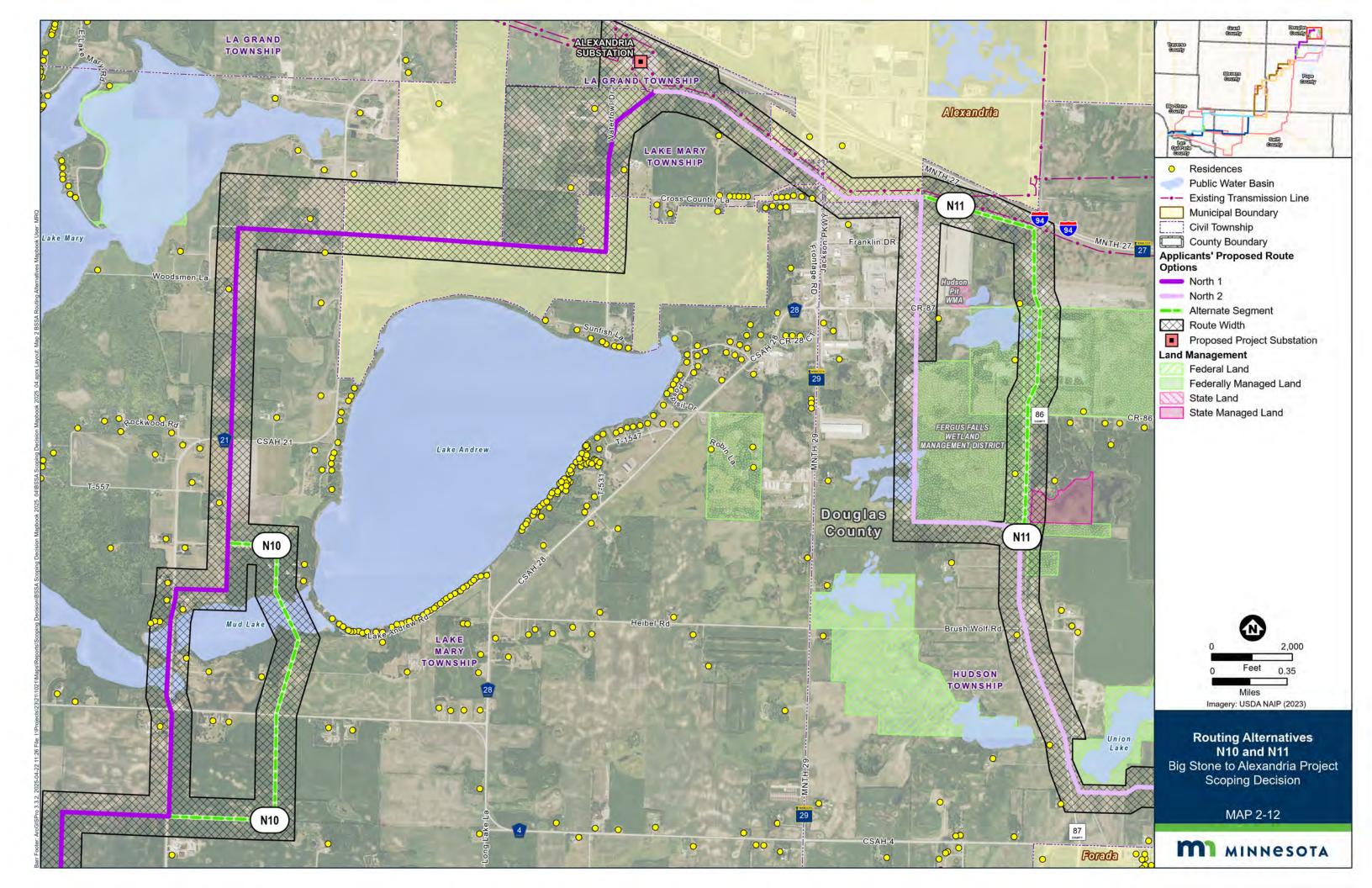












Appendix B Draft Route Permit

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

ROUTE PERMIT FOR [PROJECT NAME]

A HIGH-VOLTAGE TRANSMISSION LINE AND ASSOCIATED FACILITIES

IN [COUNTY]

ISSUED TO [PERMITTEE]

PUC DOCKET NO. [Docket Number]

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

[Permittee]

[Permittee] is authorized by this route permit to construct and operate [Provide a description of the project authorized by the Minnesota Public Utilities Commission].

The high-voltage transmission line shall be constructed within the route identified in this route permit and in compliance with the conditions specified in this route permit.

Approved and adopted this day of [Month, Ye	ar
BY ORDER OF THE COMMISSION	
Will Seuffert,	_
Will Seuliert, Executive Secretary	

To request this document in another format such as large print or audio, call 651-296-0406 or 800-657-3782 (voice). Persons with a hearing or speech impairment may call using their preferred Telecommunications Relay Service or email consumer.puc@state.mn.us for assistance.

CONTENTS

1		ROUTE PE	RMIT	1
	1.1	Pre-emp	tion	1
2		TRANSMIS	SSION FACILITY DESCRIPTION	1
	2.1	Structur	es	1
	2.2		ors	
	2.3		ons and Associated Facilities	
3		DESIGNAT	ED ROUTE	2
4		RIGHT-OF	-WAY	2
5		GENERAL	CONDITIONS	3
	5.1		ermit Distribution	
	5.2		o Property	
	5.3	Construc	ction and Operation Practices	3
		5.3.1	Field Representative	
		5.3.2	Employee Training - Route Permit Terms and Conditions	
		5.3.3	Independent Third-Party Monitoring	
		5.3.4	Public Services, Public Utilities, and Existing Easements	
		5.3.5	Temporary Workspace	
		5.3.6	Noise	
		5.3.7	Aesthetics	
		5.3.8	Soil Erosion and Sediment Control	
		5.3.9	Wetlands and Water Resources	
			Vegetation Management	
			Application of Pesticides	
			Invasive Species	
		5.3.13	Noxious Weeds	
			Roads	
			Archaeological and Historic Resources	
			Avian Protection	
			Drainage Tiles	
			Restoration	
			Cleanup	
			Pollution and Hazardous Wastes	
			Damages	
	5.4		l Performance Standards	
		5.4.1	Grounding	. 10

		5.4.2	Electric Field	10		
		5.4.3	Interference with Communication Devices	10		
	5.5	.5 Other Requirements				
		5.5.1	Safety Codes and Design Requirements	11		
		5.5.2	Other Permits and Regulations	11		
6		SPECIAL C	CONDITIONS	11		
7		DELAY IN	CONSTRUCTION	12		
8		COMPLAI	NT PROCEDURES	12		
9		COMPLIA	NCE REQUIREMENTS	12		
	9.1	Pre-Con	struction Meeting	12		
	9.2	Plan and	d Profile	12		
	9.3		eports			
	9.4	In-Servi	ce Date	13		
	9.5	As-Built	s	14		
	9.6		a			
	9.7	Right of	Entry	14		
1()	ROUTE PE	RMIT AMENDMENT	14		
11	1	TRANSFEI	R OF ROUTE PERMIT	14		
12	2	REVOCAT	ION OR SUSPENSION OF ROUTE PERMIT	15		

ATTACHMENTS

Attachment 1 – Complaint Handling Procedures for Permitted Energy Facilities

Attachment 2 – Compliance Filing Procedures for Permitted Energy Facilities

Attachment 3 – Route Permit Maps

1 ROUTE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this route permit to [Permittee Name] (Permittee) pursuant to Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850. This route permit authorizes the Permittee to construct and operate a [Provide a description of the project as authorized by the Commission] ([Project Name, if applicable], henceforth known as Transmission Facility). The high-voltage transmission line shall be constructed within the route identified in this route permit and in compliance with the conditions specified in this route permit.

1.1 Pre-emption

Pursuant to Minn. Stat. § 216E.10, this route permit shall be the sole route approval required for construction of the transmission facilities and this route permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose governments.

2 TRANSMISSION FACILITY DESCRIPTION

[Provide a description of the Transmission Facility as authorized by the Commission]

The Transmission Facility is located in the following:

County Township N		Township	Range	Section

2.1 Structures

[Provide a detailed description of the structures authorized by the Commission]

2.2 Conductors

[Provide a detailed description of the conductors authorized by the Commission]

The table below details specifics on the various structure and conductor types as presented in the route permit application.

Line Type	Conductor	Structure		Foundation	Height	Span
Line Type		Type	Material	Foundation	Height	Spair

2.3 Substations and Associated Facilities

[Provide a detailed description of the associated facilities and substations as authorized by the Commission]

3 DESIGNATED ROUTE

The route designated by the Commission is depicted on the route maps attached to this route permit (Designated Route). The Designated Route is generally described as follows:

[Provide detailed description of the authorized route including the route widths and any other specifics relevant to each segment. Also include a reference to the relevant route map to be attached to the route permit.]

The Designed Route includes an anticipated alignment and a right-of-way. The right-of-way is the physical land needed for the safe operation of the transmission line. The Permittee shall locate the alignment and associated right-of-way within the Designated Route unless otherwise authorized by this route permit or the Commission. The Designated Route provides the Permittee with flexibility for minor adjustments of the alignment and right-of-way to accommodate landowner requests and unforeseen conditions.

Any modifications to the Designated Route or modifications that would result in right-of-way placement outside the Designated Route shall be specifically reviewed by the Commission in accordance with Minn. R. 7850.4900 and Section 10 of this route permit.

4 RIGHT-OF-WAY

This route permit authorizes the Permittee to obtain a new permanent right-of-way for the transmission line up to [number] feet in width. The permanent right-of-way is typically [number] feet on both sides of the transmission line measured from its centerline or alignment.

The anticipated alignment is intended to minimize potential impacts relative to the criteria identified in Minn. R. 7850.4100. The final alignment must generally conform to the anticipated alignment identified on the route maps unless changes are requested by individual landowners and agreed to by the Permittee or for unforeseen conditions that are encountered or as otherwise provided for by this route permit.

Any right-of-way or alignment modifications within the Designated Route shall be located so as to have comparable overall impacts relative to the factors in Minn. R. 7850.4100, as does the right-of-way and alignment identified in this route permit, and shall be specifically identified

SAMPLE PERMIT [Project Name and PUC Docket No.]

and documented in and approved as part of the plan and profile submitted pursuant to Section 9.1 of this route permit.

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

5 GENERAL CONDITIONS

The Permittee shall comply with the following conditions during construction and operation of the Transmission Facility over the life of this route permit.

5.1 Route Permit Distribution

Within 30 days of issuance of this route permit, the Permittee shall provide all affected landowners with a copy of this route permit and the complaint procedures. An affected landowner is any landowner or designee that is within or adjacent to the Designated Route. In no case shall a landowner receive this route permit and complaint procedures less than five days prior to the start of construction on their property. The Permittee shall also provide a copy of this route permit and the complaint procedures to the applicable regional development commissions, county environmental offices, and city and township clerks. The Permittee shall file with the Commission an affidavit of its route permit and complaint procedures distribution within 30 days of issuance of this route permit.

5.2 Access to Property

The Permittee shall notify landowners prior to entering or conducting maintenance within their property, unless otherwise negotiated with the landowner. The Permittee shall keep records of compliance with this section and provide them upon the request of the Minnesota Department of Commerce (Department of Commerce) staff or Commission staff.

5.3 Construction and Operation Practices

The Permittee shall comply with the construction practices, operation and maintenance practices, and material specifications described in the permitting record for this Transmission Facility unless this route permit establishes a different requirement in which case this route permit shall prevail.

5.3.1 Field Representative

The Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this route permit during construction of the Transmission Facility. This person shall be accessible by telephone or other means during normal business hours throughout site preparation, construction, cleanup, and restoration.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the field representative at least 14 days prior to the preconstruction meeting. The Permittee shall provide the field representative's contact information to affected landowners, local government units and other interested persons at least 14 days prior to the pre-construction meeting. The Permittee may change the field representative at any time upon notice to the Commission, affected landowners, local government units and other interested persons. The Permittee shall file with the Commission an affidavit of distribution of its field representative's contact information at least 14 days prior to the pre-construction meeting and upon changes to the field representative.

5.3.2 Employee Training - Route Permit Terms and Conditions

The Permittee shall train all employees, contractors, and other persons involved in the Transmission Facility construction regarding the terms and conditions of this route permit. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

5.3.3 Independent Third-Party Monitoring

Prior to any construction, the Permittee shall propose a scope of work and identify an independent third-party monitor to conduct construction monitoring on behalf of the Department of Commerce. The scope of work shall be developed in consultation with and approved by the Department of Commerce. This third-party monitor will report directly to and will be under the control of the Department of Commerce with costs borne by the Permittee. Department of Commerce staff shall keep records of compliance with this section and will ensure that status reports detailing the construction monitoring are filed with the Commission in accordance with scope of work approved by the Department of Commerce.

5.3.4 Public Services, Public Utilities, and Existing Easements

During Transmission Facility construction, the Permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services or public utilities occur these shall be temporary, and the Permittee shall restore service promptly. Where any impacts to utilities have the potential to occur the Permittee shall work with both landowners and local

SAMPLE PERMIT [Project Name and PUC Docket No.]

entities to determine the most appropriate mitigation measures if not already considered as part of this route permit.

The Permittee shall cooperate with county and city road authorities to develop appropriate signage and traffic management during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

5.3.5 Temporary Workspace

The Permittee shall limit temporary easements to special construction access needs and additional staging or lay-down areas required outside of the authorized right-of-way. Temporary space shall be selected to limit the removal and impacts to vegetation. The Permittee shall obtain temporary easements outside of the authorized transmission line right-of-way from affected landowners through rental agreements. Temporary easements are not provided for in this route permit.

The Permittee may construct temporary driveways between the roadway and the structures to minimize impact using the shortest route feasible. The Permittee shall use construction mats to minimize impacts on access paths and construction areas. The Permittee shall submit the location of temporary workspaces and driveways with the plan and profile pursuant to Section 9.1.

5.3.6 Noise

The Permittee shall comply with noise standards established under Minn. R. 7030.0010 to 7030.0080. The Permittee shall limit construction and maintenance activities to daytime working hours to the extent practicable.

5.3.7 Aesthetics

The Permittee shall consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance. The Permittee shall use care to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural surroundings in the vicinity of the Transmission Facility during construction and maintenance. The Permittee shall work with landowners to locate the high-voltage transmission line to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads. The Permittee shall place structures at a distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highways, or trail crossings.

5.3.8 Soil Erosion and Sediment Control

The Permittee shall implement those erosion prevention and sediment control practices recommended by the Minnesota Pollution Control Agency (MPCA) Construction Stormwater Program. If construction of the Transmission Facility disturbs more than one acre of land or is sited in an area designated by the MPCA as having potential for impacts to water resources, the Permittee shall obtain a National Pollutant Discharge Elimination System/State Disposal System Construction Stormwater Permit from the MPCA that provides for the development of a Stormwater Pollution Prevention Plan that describes methods to control erosion and runoff.

The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage, blend with the natural terrain, and are left in a condition that will facilitate revegetation and prevent erosion. All areas disturbed during construction of the Transmission Facility shall be returned to pre-construction conditions.

5.3.9 Wetlands and Water Resources

The Permittee shall develop wetland impact avoidance measures and implement them during construction of the Transmission Facility. Measures shall include spacing and placing the power poles at variable distances to span and avoid wetlands, watercourses, and floodplains. Unavoidable wetland impacts as a result of the placement of poles shall be limited to the immediate area around the poles. To minimize impacts, the Permittee shall construct in wetland areas during frozen ground conditions where practicable and according to permit requirements by the applicable permitting authority. When construction during winter is not possible, the Permittee shall use wooden or composite mats to protect wetland vegetation.

The Permittee shall contain soil excavated from the wetlands and riparian areas and not place it back into the wetland or riparian area. The Permittee shall access wetlands and riparian areas using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts. The Permittee shall not place staging or stringing set up areas within or adjacent to wetlands or water resources, as practicable. The Permittee shall assemble power pole structures on upland areas before they are brought to the site for installation.

The Permittee shall restore wetland and water resource areas disturbed by construction activities to pre-construction conditions in accordance with the requirements of applicable state and federal permits or laws and landowner agreements. The Permittee shall meet the

SAMPLE PERMIT [Project Name and PUC Docket No.]

USACE, Minnesota Department of Natural Resources (DNR), Minnesota Board of Water and Soil Resources, and local units of government wetland and water resource requirements.

5.3.10 Vegetation Management

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

The Permittee shall remove tall growing species located within the transmission line right-of-way that endanger the safe and reliable operation of the transmission line. The Permittee shall leave undisturbed, to the extent possible, existing low growing species in the right-of-way or replant such species in the right-of-way to blend the difference between the right-of-way and adjacent areas, to the extent that the low growing vegetation that will not pose a threat to the transmission line or impede construction.

5.3.11 Application of Pesticides

The Permittee shall restrict pesticide use to those pesticides and methods of application approved by the Minnesota Department of Agriculture (MDA), DNR, and the U.S. Environmental Protection Agency (EPA). Selective foliage or basal application shall be used when practicable. All pesticides shall be applied in a safe and cautious manner so as not to damage adjacent properties including crops, orchards, tree farms, apiaries, or gardens. The Permittee shall contact the landowner at least 14 days prior to pesticide application on their property. The Permittee may not apply any pesticide if the landowner requests that there be no application of pesticides within the landowner's property. The Permittee shall provide notice of pesticide application to landowners and beekeepers operating known apiaries within three miles of the pesticide application area at least 14 days prior to such application. The Permittee shall keep pesticide communication and application records and provide them upon the request of Department of Commerce staff or Commission staff.

5.3.12 Invasive Species

The Permittee shall employ best management practices to avoid the potential introduction and spread of invasive species on lands disturbed by Transmission Facility construction activities. The Permittee shall develop an Invasive Species Prevention Plan and file it with the Commission at least 14 days prior to the pre-construction meeting. The Permittee shall comply with the most recently filed Invasive Species Prevention Plan.

5.3.13 Noxious Weeds

The Permittee shall take all reasonable precautions against the spread of noxious weeds during all phases of construction. When utilizing seed to establish temporary and permanent vegetative cover on exposed soil the Permittee shall select site appropriate seed certified to be free of noxious weeds. To the extent possible, the Permittee shall use native seed mixes. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

5.3.14 Roads

The Permittee shall advise the appropriate governing bodies having jurisdiction over all state, county, city, or township roads that will be used during the construction phase of the Transmission Facility. Where practical, existing roadways shall be used for all activities associated with construction of the Transmission Facility. Oversize or overweight loads associated with the Transmission Facility shall not be hauled across public roads without required permits and approvals.

The Permittee shall construct the fewest number of site access roads required. Access roads shall not be constructed across streams and drainage ways without the required permits and approvals. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits.

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when accessing construction workspace, unless otherwise negotiated with the affected landowner.

5.3.15 Archaeological and Historic Resources

The Permittee shall make every effort to avoid impacts to archaeological and historic resources when constructing the Transmission Facility. In the event that a resource is encountered, the Permittee shall consult with the State Historic Preservation Office and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible, mitigation must include an effort to minimize Transmission Facility impacts on the resource consistent with State Historic Preservation Office and State Archaeologist requirements.

Prior to construction, the Permittee shall train workers about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If human remains are encountered during construction, the Permittee shall immediately halt construction and promptly notify local law enforcement and the State Archaeologist. The Permittee shall not

resume construction at such location until authorized by local law enforcement or the State Archaeologist. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

5.3.16 Avian Protection

The Permittee in cooperation with the DNR shall identify areas of the transmission line where bird flight diverters will be incorporated into the transmission line design to prevent large avian collisions attributed to visibility issues. Standard transmission design shall incorporate adequate spacing of conductors and grounding devices in accordance with Avian Power Line Interaction Committee standards to eliminate the risk of electrocution to raptors with larger wingspans that may simultaneously come in contact with a conductor and grounding devices. The Permittee shall submit documentation of its avian protection coordination with the plan and profile pursuant to Section 9.1.

5.3.17 Drainage Tiles

The Permittee shall avoid, promptly repair, or replace all drainage tiles broken or damaged during all phases of the Transmission Facility's life unless otherwise negotiated with the affected landowner. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

5.3.18 Restoration

The Permittee shall restore the right-of-way, temporary workspaces, access roads, abandoned right-of-way, and other public or private lands affected by construction of the Transmission Facility. Restoration within the right-of-way must be compatible with the safe operation, maintenance, and inspection of the transmission line. Within 60 days after completion of all restoration activities, the Permittee shall file with the Commission a Notice of Restoration Completion.

5.3.19 Cleanup

The Permittee shall remove and properly dispose of all construction waste and scrap from the right-of-way and all premises on which construction activities were conducted upon completion of each task. The Permittee shall remove and properly dispose of all personal litter, including bottles, cans, and paper from construction activities daily.

5.3.20 Pollution and Hazardous Wastes

The Permittee shall take all appropriate precautions to protect against pollution of the environment. The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean up and disposal of all waste generated during construction and restoration of the Transmission Facility.

5.3.21 Damages

The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damages sustained during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

5.4 Electrical Performance Standards

5.4.1 Grounding

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

5.4.2 Electric Field

The Permittee shall design, construct, and operate the transmission line in such a manner that the electric field measured one meter above ground level immediately below the transmission line shall not exceed 8.0 kV/m rms.

5.4.3 Interference with Communication Devices

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

this section and provide them upon the request of Department of Commerce staff or Commission staff.

5.5 Other Requirements

5.5.1 Safety Codes and Design Requirements

The Permittee shall design the transmission line and associated facilities to meet or exceed all relevant local and state codes, the National Electric Safety Code, and North American Electric Reliability Corporation requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements.

5.5.2 Other Permits and Regulations

The Permittee shall comply with all applicable state statutes and rules. The Permittee shall obtain all required permits for the Transmission Facility and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations.

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission an Other Permits and Regulations Submittal that contains a detailed status of all permits, authorizations, and approvals that have been applied for specific to the Transmission Facility. The Other Permits and Regulations Submittal shall also include the permitting agency name; the name of the permit, authorization, or approval being sought; contact person and contact information for the permitting agency or authority; brief description of why the permit, authorization, or approval is needed; application submittal date; and the date the permit, authorization, or approval was issued or is anticipated to be issued.

The Permittee shall demonstrate that it has obtained all necessary permits, authorizations, and approvals by filing an affidavit stating as such and an updated Other Permits and Regulations Submittal prior to commencing construction. The Permittee shall provide a copy of any such permits, authorizations, and approvals at the request of Department of Commerce staff or Commission staff.

6 SPECIAL CONDITIONS

The special conditions shall take precedence over other conditions of this permit should there be a conflict.

[Add Special Conditions in accordance with the record of the docket]

7 DELAY IN CONSTRUCTION

If the Permittee has not commenced construction or improvement of the route within four years after the date of issuance of this route permit the Permittee shall file a Failure to Construct Report and the Commission shall consider suspension of this route permit in accordance with Minn. R. 7850.4700.

8 COMPLAINT PROCEDURES

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission the complaint procedures that will be used to receive and respond to complaints. The complaint procedures shall be in accordance with the requirements of Minn. R. 7829.1500 or Minn. R. 7829.1700, and as set forth in the complaint procedures attached to this route permit.

Upon request, the Permittee shall assist Department of Commerce staff or Commission staff with the disposition of unresolved or longstanding complaints. This assistance shall include, but is not limited to, the submittal of complaint correspondence and complaint resolution efforts.

9 COMPLIANCE REQUIREMENTS

Failure to timely and properly make compliance filings required by this route permit is a failure to comply with the conditions of this route permit. Compliance filings must be electronically filed with the Commission.

9.1 Pre-Construction Meeting

Prior to the start of construction, the Permittee shall participate in a pre-construction meeting with Department of Commerce and Commission staff to review pre-construction filing requirements, scheduling, and to coordinate monitoring of construction and site restoration activities. Within 14 days following the pre-construction meeting, the Permittee shall file with the Commission a summary of the topics reviewed and discussed and a list of attendees. The Permittee shall indicate in the filing the anticipated construction start date.

9.2 Plan and Profile

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission, and provide the Department of Commerce, and the counties where the Transmission Facility, or portion of the Transmission Facility, will be constructed with a plan and profile of the right-of-way and the specifications and drawings for right-of-way preparation,

construction, structure specifications and locations, cleanup, and restoration for the Transmission Facility. The documentation shall include maps depicting the plan and profile including the right-of-way, alignment, and structures in relation to the route and alignment approved per this route permit.

The Permittee may not commence construction until the earlier of (i) 30 days after the preconstruction meeting or (ii) or until the Commission staff has notified the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this route permit.

If the Commission notifies the Permittee in writing within 30 days after the pre-construction meeting that it has completed its review of the documents and planned construction, and finds that the planned construction is not consistent with this route permit, the Permittee may submit additional and/or revised documentation and may not commence construction until the Commission has notified the Permittee in writing that it has determined that the planned construction is consistent with this route permit.

If the Permittee intends to make any significant changes in its plan and profile or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission, the Department of Commerce, and county staff at least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this route permit.

9.3 Status Reports

The Permittee shall file with the Commission monthly Construction Status Reports beginning with the pre-construction meeting and until completion of restoration. Construction Status Reports shall describe construction activities and progress, activities undertaken in compliance with this route permit, and shall include text and photographs.

If the Permittee does not commence construction of the Transmission Facility within six months of this route permit issuance, the Permittee shall file with the Commission Pre-Construction Status Reports on the anticipated timing of construction every six months beginning with the issuance of this route permit until the pre-construction meeting.

9.4 In-Service Date

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

9.5 As-Builts

Within 90 days after completion of construction, the Permittee shall submit to the Commission copies of all final as-built plans and specifications developed during the Transmission Facility construction.

9.6 GPS Data

Within 90 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (e.g., ArcGIS compatible map files, GPS coordinates, associated database of characteristics) for all structures associated with the Transmission Facility and each substation connected.

9.7 Right of Entry

The Permittee shall allow Commission designated representatives to perform the following, upon reasonable notice, upon presentation of credentials and at all times in compliance with the Permittee's site safety standards:

- (a) To enter upon the facilities easement of the property for the purpose of obtaining information, examining records, and conducting surveys or investigations.
- (b) To bring such equipment upon the facilities easement of the property as is necessary to conduct such surveys and investigations.
- (c) To sample and monitor upon the facilities easement of the property.

 To examine and copy any documents pertaining to compliance with the conditions of this route permit.

10 ROUTE PERMIT AMENDMENT

This route permit may be amended at any time by the Commission. Any person may request an amendment of the conditions of this route permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission will mail notice of receipt of the request to the Permittee. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required under Minn. R. 7850.4900.

11 TRANSFER OF ROUTE PERMIT

The Permittee may request at any time that the Commission transfer this route permit to another person or entity (transferee). In its request, the Permittee must provide the Commission with:

- (a) the name and description of the transferee;
- (b) the reasons for the transfer;
- (c) a description of the facilities affected; and
- (d) the proposed effective date of the transfer.

The transferee must provide the Commission with a certification that it has read, understands and is able to comply with the plans and procedures filed for the Transmission Facility and all conditions of this route permit. The Commission may authorize transfer of the route permit after affording the Permittee, the transferee, and interested persons such process as is required under Minn. R. 7850.5000.

12 REVOCATION OR SUSPENSION OF ROUTE PERMIT

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

Appendix C

Information Request Responses from Applicants

Response to: MN Department of Commerce

Analyst: Jenna Ness

Date Received: May 15, 2025 Date Due: June 2, 2025

Date of Response: June 2, 2025

Responding Witness: Jason Weiers, Mgr, Transmission Project Development - (218) 739-8311

Data Request:

I noticed in your application that Figure 7-2 is named, "Calculated Magnetic Field(mG) for Proposed 345 Kilovolt **Single Circuit Transmission Line** on Double Circuit Capable Structures." Can you please verify whether these calculations are based on one transmission line or two? Since a route permit granted for this project would eventually include two transmission lines on the same structure, I would like the calculations to match that if they're different.

Attachments: 0

Response:

Figure 7-1 and Table 7.2-14 include the Electric Field calculations for a single circuit 345 kV line on double circuit capable structures. An equivalent table and figure of the Electric Field calculations for a double circuit 345 kV transmission line is as follows for the anticipated steady state and maximumoperating voltages:

Electric Field Calculations Summary at one meter above ground – Double Circuit 345 kV Transmission Line

Calcula	Calculated Electric Field Magnitudes - Double Circuit 345 kV Transmission Line													
Maxim Values	um	Dista	nce to A	Applica	tion Al	lignme	nt (Fee	et)						
Within ROW	Edge of ROW	-300	-200	-100	-75	-50	-25	0	25	50	75	100	200	300
			St	eady St	ate at 1	100% (of nom	inal vo	ltage (l	kV/m)				
4.15	0.36	0.05	0.08	0.06	0.36	1.70	3.63	3.42	3.73	1.66	0.36	0.19	0.11	0.06
	Maximum at 110% of nominal voltage (kV/m)													
4.57	0.40	0.05	0.09	0.07	0.40	1.87	4.00	3.77	4.10	1.84	0.40	0.21	0.12	0.06

Calculated Electric Field (kV/m) at one meter above ground $\,$ - Double Circuit 345 kV $\,$ Transmission Line

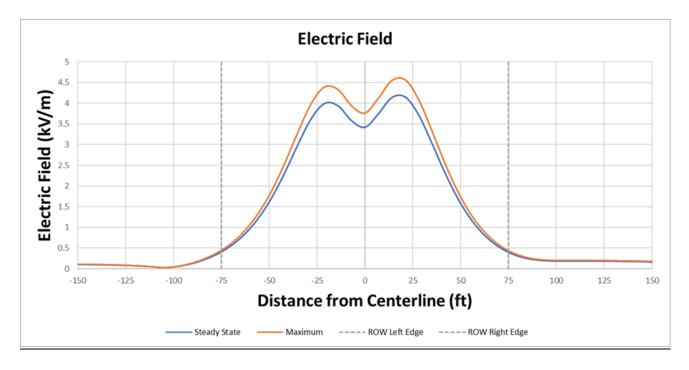
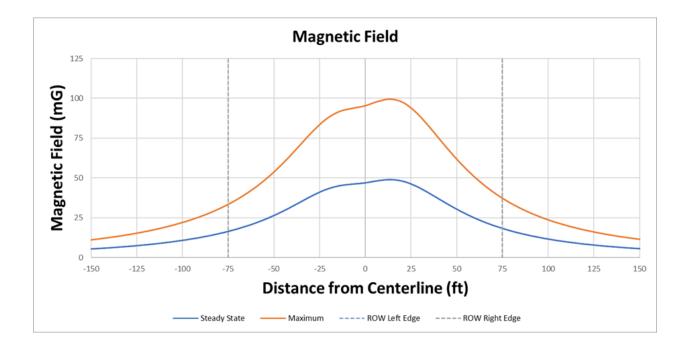


Figure 7-2 and Table 7.2-15 include the Magnetic Field calculations for a single circuit 345 kV line on double circuit capable structures. An equivalent table and figure of the Magnetic Field calculations for a double circuit 345 kV transmission line is as follows for the anticipated steady state and maximum flows:

Magnetic Field Calculations Summary at one meter above ground – Double Circuit 345 kV Transmission Line

Calcula	Calculated Magnetic Field Magnitudes - Double Circuit 345 kV Transmission Line													
Maxim Values	um	Distan	ce to A	pplicati	on Al	ignme	nt (Fe	eet)						
Within ROW	Edge of ROW	-300	-200	-100	-75	-50	-25	0	25	50	75	100	200	300
		Double	e Circui	t with s	steady	state	curre	nt of	476 A	per l	line (m	ıG)		
49	18	1	3	11	16	27	39	47	45	31	18	12	3	2
Double Circuit with maximum current of 968 A per line (mG)														
100	36	2	6	23	32	55	80	95	91	63	36	25	7	3

Calculated Magnetic Field (mG) at one meter above ground - Double Circuit 345 kV Transmission Line



Response to: MN Department of Commerce

Analyst: Jenna Ness

Date Received: May 15, 2025 Date Due: May 23, 2025

Date of Response: May 20, 2025

Responding Witness: Jason Weiers, Mgr, Transmission Project Development - (218) 739-8311

Data Request:

For the Regeneration Station, the application says that backup power could be batteries or propane. How much energy would these provide in a situation where backup is required? The batteries or a propane tank would supply the generator that's needed, correct?

Attachments: 0

Response:

The back-up power source of either batteries or a propane-fired generator would be sized to only supply the energy needs of the regeneration station. The back-up power source would operate intermittently to keep the regeneration station in-service if the electrical service is interrupted due to a power outage.

Response to: MN Department of Commerce

Analyst: Jenna Ness

Date Received: May 15, 2025 Date Due: May 23, 2025

Date of Response: May 20, 2025

Responding Witness: Jason Weiers, Mgr, Transmission Project Development - (218) 739-8311

Data Request:

Now that we're past scoping, is there a chance that BSSA can narrow in on a subregion for the Regeneration Station? Understood it is still based on the final route and project design, but now we have delineated subregions in shapefiles attached to this email that we'll be using for EIS analysis. We created subregions based on common start and end points so routing decisions can be made by the PUC in each subregion independent of routing decisions made in other subregions.

Attachments: 0

Response:

No, it is still too early to identify a potential location for a regeneration station. A study will be performed with the exact route and line length following a decision from the Commission to determine if a regeneration station is needed, and if so, where to build it. To the extent that a regeneration station is needed, the Applicants anticipate it would be located within the Central Segment.

Response to: MN Department of Commerce

Analyst: Jenna Ness

Date Received: May 15, 2025 Date Due: May 23, 2025

Date of Response: May 20, 2025

Responding Witness: Jason Weiers, Mgr, Transmission Project Development - (218) 739-8311

Data Request:

Any high voltage circuit breakers at the Regeneration Station?

Attachments:

Response:

No, there will not be any high voltage circuit breakers at the regeneration station.

Response to: MN Department of Commerce

Analyst: Jenna Ness

Date Received: May 15, 2025 Date Due: June 18, 2025

Date of Response: June 18, 2025

Responding Witness: Jason Weiers, Mgr, Transmission Project Development - (218) 739-8311

Data Request:

Are there any changes from scoping to project costs? I checked Appendix C of your RPA which outlines the estimated segment cost at the end of the table. We plan to discuss Costs that are Dependent on Design and Route for relative merits among the routing options within each subregion, and the PUC may ask for breakdowns at the route permit decision. Can you provide us estimated cost for each routing alternative that was introduced during scoping, or perhaps a rough estimate per mile? If there's a way you think would make this easier to address, let me know how you'd like to handle presenting cost among routing alts in the EIS. We could also break down cost for all of the applicants' routes based on subregion for comparison. My goal is to make this discussion and comparison as easy as possible at the route permit decision.

Attachments: 0

Response:

The Applicants have updated the estimated costs for each of the route segments included within the scope of the EIS in the table below. As part of its analysis, the Applicants identified updates to the cost estimates provided in Appendix C of the Route Permit Application filed with the Commission in October 2024. The updated estimates reflect the same set of assumptions for each larger route segment alternative by subregion and each of the individual route segments. These updates are intended to ensure consistency when comparing the various route segment alternatives under consideration in the EIS.

Similar to the approach used to estimate the costs presented in Appendix C of the Route Permit Application, the estimated cost for each route segment includes transmission line material costs, land cost, engineering cost and construction cost but do not include other costs common among all segments such as but not limited to construction management, contractor mobilizations, environmental inspections, storage yards, environmental surveys, land agent costs and owners' internal costs. Accordingly, the Applicants would like to emphasize that the estimated cost per route segment are only to be considered for comparison purposes between route segments in each

comparison group and that the summation of individual route segments will not equal the total project cost.

Route Segment Estimates

Comparison Group	Unique Route ID	Length (mi)	Estimated Cost
32	32-R-North 1 (Appendix C of Route Permit)	18.13	\$95,246,500
32	32-R-North 2 (Appendix C of Route Permit)	25.26	\$127,668,000
31	31-R-Central 1 (Appendix C of Route Permit)	34.43	\$165,629,500
31	31-R-Central 2 (Appendix C of Route Permit)	38.52	\$193,163,000
30	30-R-South 1 (Appendix C of Route Permit)	41.94	\$203,544,500
30	30-R-South 2 (Appendix C of Route Permit)	38.82	\$192,279,000
29	29-ASR-RSA-N11	2.07	\$11,569,000
29	29-ASR-RSA-N11_North2_Eq	2.13	\$12,026,500
28	28-ASR-RSA-N207	1.84	\$11,011,000
28	28-ASR-RSA-N207_North2_Eq	2.27	\$10,990,500
27	27-ASR-RSA-N206	2.09	\$11,178,500
27	27-ASR-RSA-N206_North2_Eq	2.46	\$12,731,500
26	26-ASR-RSA-N10	2.06	\$12,678,500
26	26-ASR-RSA-N10_North1_Eq	1.53	\$10,427,500
25	25-ASR-RSA-N205	1.30	\$6,742,000
25	25-ASR-RSA-N205_North1_Eq	1.33	\$8,595,500
24	24-ASR-RSA-N9	3.04	\$17,115,500
24	24-ASR-RSA-N9_North1_Eq	3.03	\$14,894,500
23	23-ASR-S-North 1	18.13	\$95,246,500
23	23-ASR-S-North 2	25.26	\$127,668,000
22	22-WBLSR-RSA-C202	2.00	\$10,414,500
22	22-WBLSR-RSA-C202_Central1_2_Eq	2.01	\$10,870,500
21	21-WBLSR-S-Central 1	12.04	\$58,455,500
21	21-WBLSR-S-Central 2	12.07	\$62,087,000
21	21-WBLSR-S-Central 3_C11	12.05	\$62,059,000
21	21-WBLSR-S-Central 4_C101	12.06	\$58,905,000
20	20-CSR-AA-CAA01	0.49	\$3,269,500
20	20-CSR-AA-CAA01_Central2_Eq	0.47	\$4,105,500
19	19-CSR-S-Central 1	8.98	\$44,288,000
19	19-CSR-S-Central 2	8.93	\$43,794,500
18	18-HSR-RSA-C203	3.00	\$15,133,000
18	18-HSR-RSA-C203_Central2_Eq	2.99	\$15,119,500
17	17-HSR-RSA-C208	4.58	\$26,622,500
17	17-HSR-RSA-C208_Central2_Eq	4.76	\$23,257,000
16	16-HSR-S-Central 1	13.41	\$64,144,000
16	16-HSR-S-Central 2	17.55	\$86,758,000
16	16-HSR-S-Central 3_C102	17.50	\$88,328,000

Response to Data Request MN-DOC-005 Page 3 of 4

15	15 CCD AA CAAO1	2.03	¢10.007.000
15 15	15-SSR-AA-SAA01		\$10,897,000
	15-SSR-AA-SAA01_South1_Eq	2.03	\$9,981,500
14	14-SSR-AA-SAA02	2.22	\$12,233,500
14	14-SSR-AA-SAA02_South2_Eq	2.19	\$9,418,000
13	13-SSR-AA-SAA03	0.51	\$4,193,000
13	13-SSR-AA-SAA03_South1_Eq	0.53	\$3,350,500
12	12-SSR-RSA-S203	1.78	\$13,343,000
12	12-SSR-RSA-S203_South2_Eq	1.98	\$11,281,500
11	11-SSR-RSA-S201	2.61	\$17,807,500
11	11-SSR-RSA-S201_South2_Eq	1.64	\$10,358,000
10	10-SSR-RSA-S202	8.10	\$40,535,500
10	10-SSR-RSA-S202_South2_Eq	3.32	\$20,789,000
09	09-SSR-RSA-S18	2.39	\$14,604,000
09	09-SSR-RSA-S18_South2_Eq	1.46	\$7,506,500
08	08-SSR-RSA-S204	3.00	\$15,133,500
08	08-SSR-RSA-S204_South1_Eq	3.00	\$14,212,000
07	07-SSR-RSA-S205	7.52	\$36,069,500
07	07-SSR-RSA-S205_South1_Eq	8.50	\$43,418,000
06	06-SSR-S-South 1	26.02	\$124,861,500
06	06-SSR-S-South 2	25.16	\$121,842,000
06	06-SSR-S-South 3_S211	25.50	\$117,994,000
06	06-SSR-S-South 4_S211	25.52	\$121,500,000
05	05-BSSR-AA-SAA04	0.65	\$4,967,500
05	05-BSSR-AA-SAA04_South2_Eq	0.68	\$4,127,000
04	04-BSSR-RSA-S208	3.65	\$27,334,000
04	04-BSSR-RSA-S208_South1_Eq	2.55	\$13,327,000
03	03-BSSR-RSA-S210	4.66	\$23,736,500
03	03-BSSR-RSA-S210_South1_Eq	3.74	\$17,511,500
02	02-BSSR-RSA-S207	1.99	\$12,405,500
02	02-BSSR-RSA-S207_South2_Eq	1.52	\$13,657,000
01	01-BSSR-S-South 1	15.93	\$78,683,000
01	01-BSSR-S-South 10_S16_S17	15.62	\$80,303,500
01	01-BSSR-S-South 1_South 2	14.90	\$76,388,500
01	01-BSSR-S-South 2	13.66	\$71,358,000
01	01-BSSR-S-South 2_South 1	14.67	\$75,664,859
01	01-BSSR-S-South 3_S16	15.59	\$77,468,097
01	01-BSSR-S-South 4_S16	14.97	\$80,270,000
01	01-BSSR-S-South 5_S17	14.67	\$75,178,729
01	01-BSSR-S-South 6_S17	15.95	\$81,605,000
01	01-BSSR-S-South 7_S104	14.10	\$67,878,500
01	01-BSSR-S-South 8_S104_S17	14.13	\$67,934,000
01	01-BSSR-S-South 9_S16_S17	15.98	\$84,575,500
			1 - / /

Response to Data Request MN-DOC-005 Page 4 of 4

Notes:

1) The estimated cost per segment are only to be considered for comparison purposes between segments in each comparison group. The estimates include transmission line material costs, land cost, engineering costs and construction costs but do not include other project costs common among all segments including but not limited to construction management, contractor mobilizations, environmental inspections, storage yards, environmental surveys, land agent costs and owners' internal costs.

Response to: MN Department of Commerce

Analyst: Jenna Ness

Date Received: June 23, 2025

Date Due: July 2, 2025

Date of Response: July 2, 2025

Responding Witness: Jason Weiers, Mgr, Transmission Project Development - (218) 739-8311

Data Request:

Barr created the table below based on the RPA, Appendix E, which only includes a single row with the typical tangent structure. Barr expanded the table to include the 4 structure types in Appendix E. Can you confirm this information is accurate for the project and also provide the span lengths?

Below the table, we also have pictures we'd like to use in the draft EIS. Please confirm if you're okay with using those or if you want to provide us with something else to use.

Line Type	Structure Type	Structure	Structure	Foundation	Typical Span
		Material	Height	Diameter	Between
			(feet)	(feet)	Structures
					(feet)
345 kV Double-circuit	Monopole with	Corten	120 to 180	7 to 14	400 to 1,400
Tangent, Small and	Davit Arms	(weathered)			
Medium Angles		Steel			
345 kV Double-circuit	Monopole with	Corten	120 to 160	8 to 10	
Tangent, Crossing Span	Davit Arms	(weathered)			
		Steel			
345 kV Double-circuit	Monopole with	Corten	90 to 130	10 to 12	
Large Angle and Dead-end,	Davit Arms	(weathered)			
Standard		Steel			
345 kV Double-circuit	Two poles with	Corten Corten	90 to 130	8 to 10	
Large Angle and Dead-end,	<mark>Davit Arms</mark>	<mark>(weathered)</mark>		each pole	
<mark>2-Pole</mark>		<mark>Steel</mark>			

Attachments: 1

Attachmen1 1 to DR MN-DOC-2.00.pdf

Response:

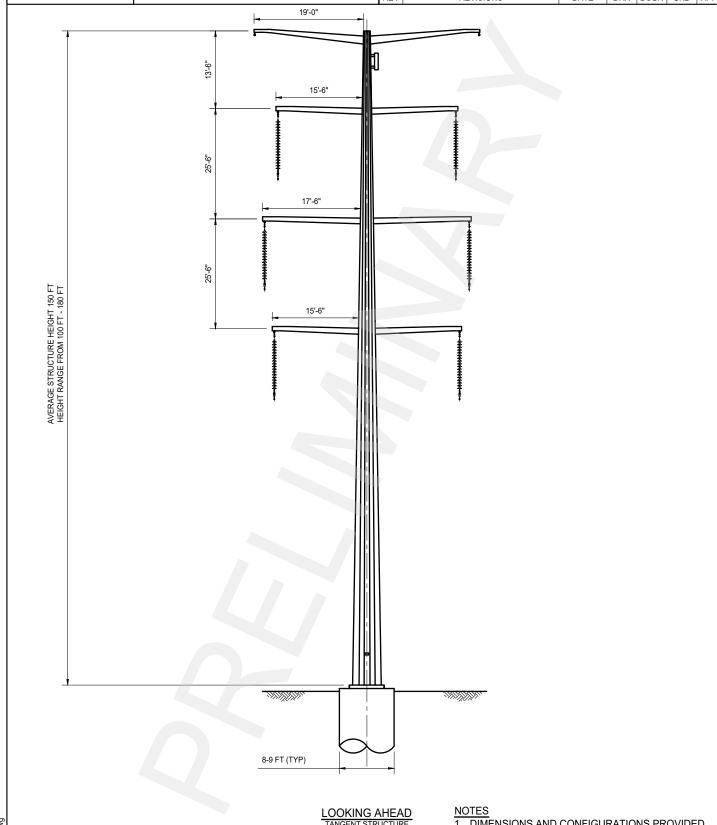
The following table includes the estimated parameters for the typical structure types that are expected for the Project. The attached file includes six drawings and six photos that illustrate the typical structure types for each line item below.

Drawing #	Line Type	Structure Type	Structure Material	Structure Height (feet)	Foundation Diameter (feet)	Typical Span Between Structures (feet)
01	345 kV Double- Circuit Tangent, Standard	Monopole with Davit Arms	Corten (weathered) Steel	100 - 180	8 - 9	400 - 1,400
02	345 kV Double- Circuit Running Angle	Monopole with Davit Arms	Corten (weathered) Steel	120 - 170	9 - 11	400 - 1,200
03	345 kV Double- Circuit Deadend, Standard	Monopole with Davit Arms	Corten (weathered) Steel	90 - 140	12 - 14	200 - 1,200
04	345 kV Double- Circuit Crossing Tangent	Monopole with Davit Arms	Corten (weathered) Steel	90 - 160	9 - 10	400 - 1,200
05	345 kV Double- Circuit Crossing Deadend	Monopole with Davit Arms	Corten (weathered) Steel	90 - 160	12 - 14	400 - 1,200
06	345 kV Double- Circuit Two-Pole Deadend	Two-Pole	Corten (weathered) Steel	90 - 130	8 - 10 (each pole)	200 - 1,200

THIS DRAWING WAS PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT, TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWERS CLIENT IS GRANTED.

BSSA Big Stone South to Alexandria

PRELIMINARY FOR PERMITTING 1/10/25 EC ML JB JB REV REVISIONS DATE DRN DSGN CKD APPD



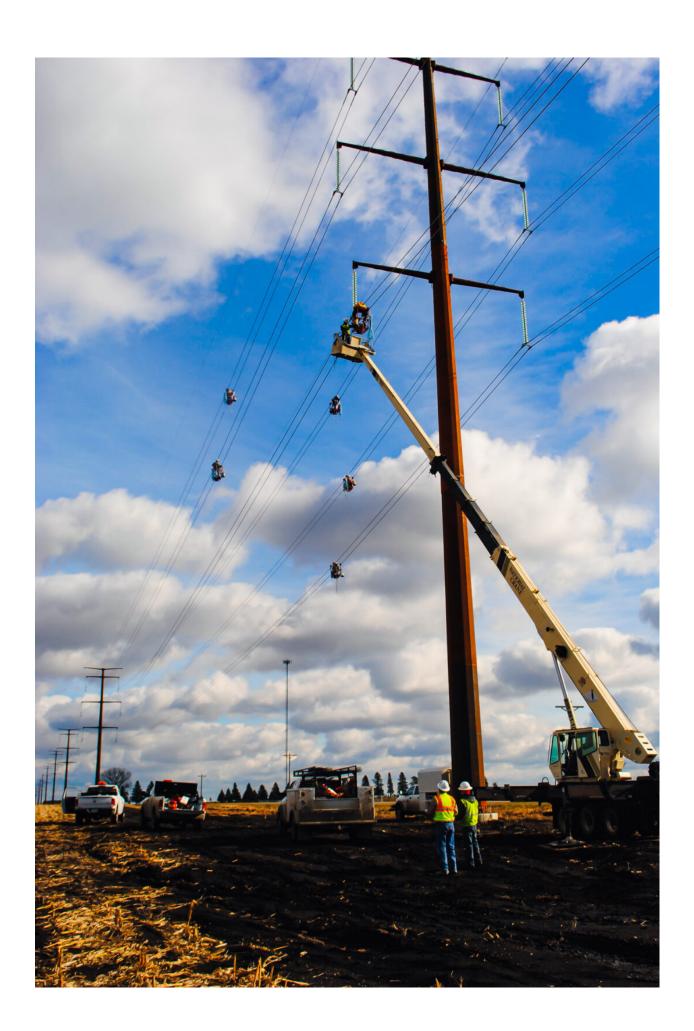
STANDARD SPAN

1. DIMENSIONS AND CONFIGURATIONS PROVIDED ARE PRELIMINARY AND ARE SUBJECT TO CHANGE

щ						
불			DSGN	ML	1/10/25	Γ
202			DRN	EC	1/10/25	l
_			CKD	JB	1/10/25	L
A S			SCALE:	N.T.S.		ľ
BSSB	*	*		11	.1.0.	l
n	REFERENCE DRAWINGS		FC	R 8.5x11 DWC	ONLY	

POWER	l
ENGINEERS	

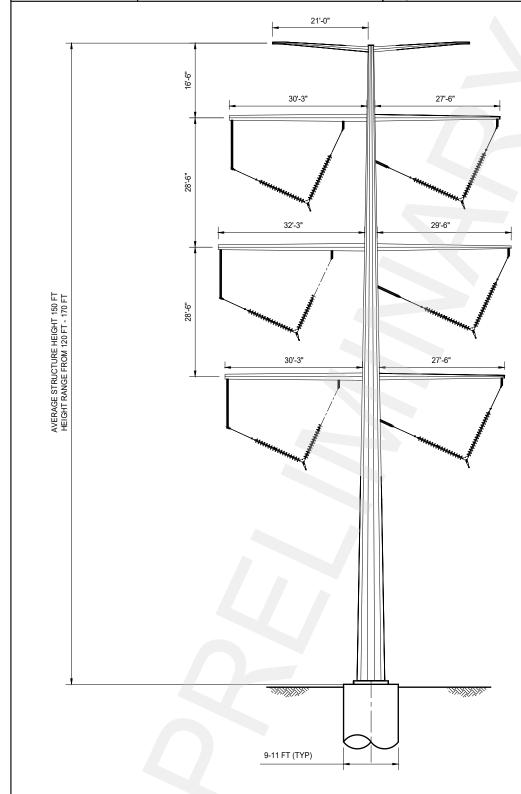
BIG STONE SOUTH TO ALEXANDRIA	JOB NUMBER	RE'	
345kV TRANSMISSION LINE	0253345		
345 KV DOUBLE CIRCUIT STEEL	DRAWING NUM	BER	
MONO-POLE TANGENT STRUCTURE TYPE TTT66NUPT	01		



THIS DRAWING WAS PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT, TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWERS CLIENT IS GRANTED.

BSS Big Stone South to Alexandria

Α	PRELIMINARY FOR PERMITTING	1/10/25	EC	ML	JB	JB
REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD



LOOKING AHEAD MONO-POLE ANGLE STRUCTURE

NOTES 1. DIMENSIONS AND CONFIGURATIONS PROVIDED ARE PRELIMINARY AND ARE SUBJECT TO CHANGE

REV A

ш						_
2			DSGN	ML	1/10/25	Γ
진			DRN	EC	1/10/25	l
STRUCTU			CKD	JB	1/10/25	١
			SCALE:	N	.T.S.	ľ
BSSA	*	*		11	.1.0.	l
ш		REFERENCE DRAWINGS	FOR 8.5x11 DWG ONLY			L

POWER	
ENGINEERS	

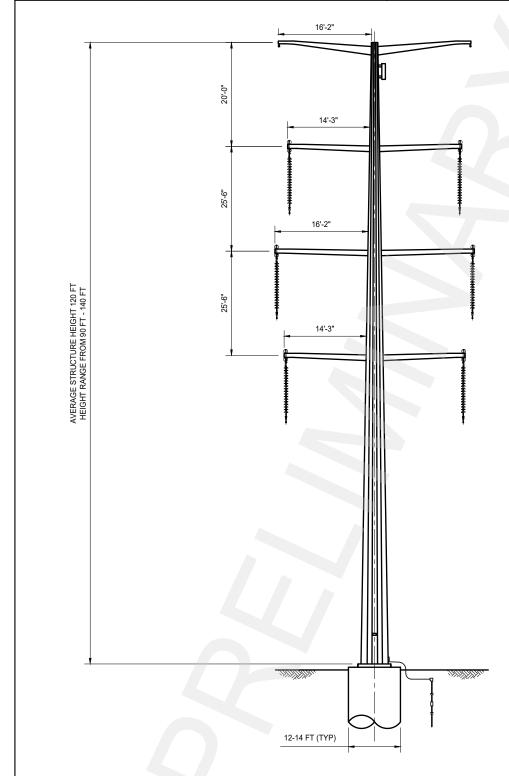
BIG STONE SOUTH TO ALEXANDRIA	JOB NUMBER	RE\
		\wedge
345kV	0253345	/A\
TRANSMISSION LINE		4
	DRAWING NUM	RFR
345 KV DOUBLE CIRCUIT STEEL	DIVAVIING NOW	DLI
MONO-POLE RUNNING ANGLE STRUCTURE	02	
TYPE TA266NUPT	02	
THE TAZOUNOLL		



THIS DRAWING WAS PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT, TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWER'S CLIENT IS GRANTED.

BSS Big Stone South to Alexandria

Α	PRELIMINARY FOR PERMITTING	1/10/25	EC	ML	JB	JB
REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD



LOOKING AHEAD DEADEND STRUCTURE STANDARD

NOTES

DIMENSIONS AND CONFIGURATIONS PROVIDED
 ARE PRELIMINARY AND ARE SUBJECT TO CHANGE

REV A

אַ			DSGN	ML	1/10/25		
RUCI			DRN	EC	1/10/25		
			CKD	JB	1/10/25		
A S			SCALE: N.T.S.				
BSSA	*	*]				
ъ		REFERENCE DRAWINGS	FC	OR 8.5x11 DW	ONLY		

POWER	
ENGINEERS	

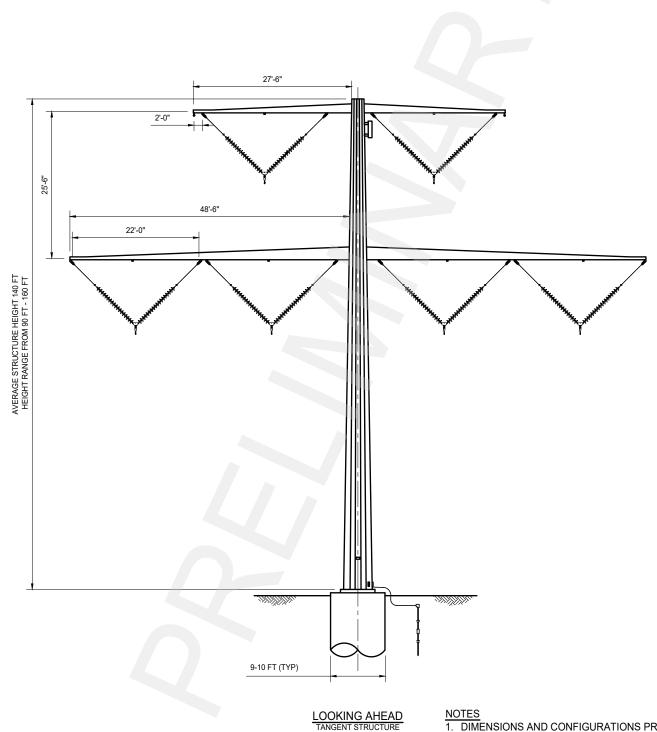
BIG STONE SOUTH TO ALEXANDRIA	JOB NUMBER	KEV
345kV TRANSMISSION LINE	0253345	
345 KV DOUBLE CIRCUIT STEEL	DRAWING NUM	IBER
MONO-POLE DEADEND STRUCTURE TYPE TD166NUPT	03	



THIS DRAWING WAS PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT, TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWER'S CLIENT IS GRANTED.

BSS Big Stone South to Alexandria

Α	PRELIMINARY FOR PERMITTING	1/10/25	EC	ML	JB	JB
REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD



CROSSING SPAN

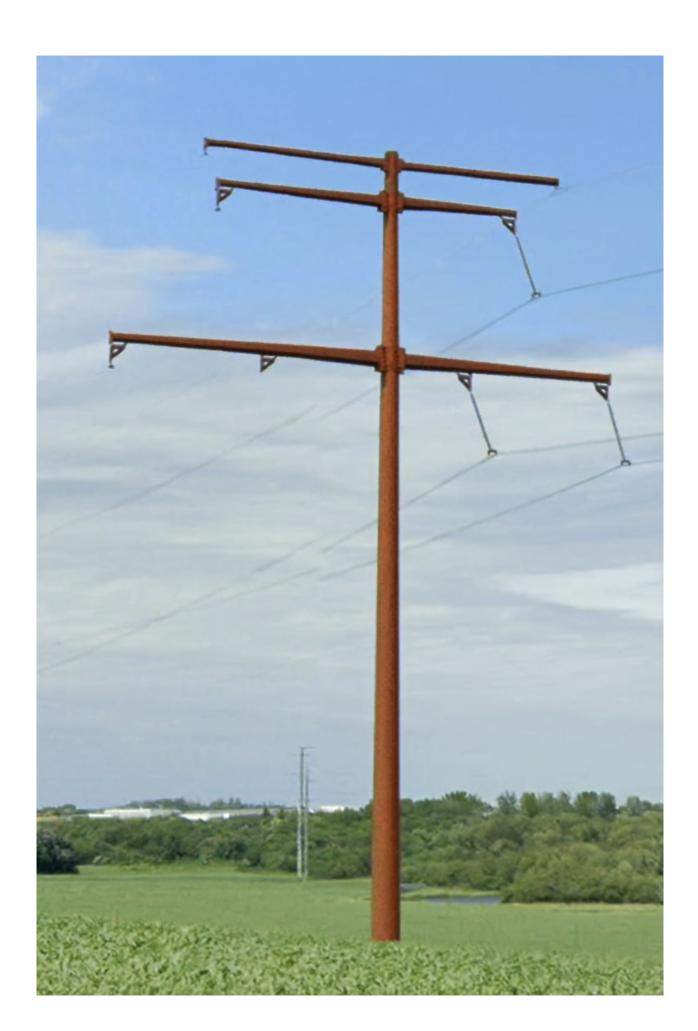
NOTES

1. DIMENSIONS AND CONFIGURATIONS PROVIDED ARE PRELIMINARY AND ARE SUBJECT TO CHANGE

뿞					
CTUR			DSGN	ML	1/10/25
진			DRN	EC	1/10/25
STRU			CKD	JB	1/10/25
			SCALE:	N	.T.S.
SSA	*	*		11	.1.0.
à		REFERENCE DRAWINGS	FOR 8.5x11 DWG ONLY		

-	POWER
	ENGINEERS
	ENGINEERO

BIG STONE SOUTH TO ALEXANDRIA	JOB NUMBER	REV
345kV TRANSMISSION LINE	0253345	A
345 KV DOUBLE CIRCUIT STEEL	DRAWING NUM	BER
MONO-POLE CROSSING TANGENT STRUCTURE TYPE TCT66NUPT	04	



THIS DRAWING WAS PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT, TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWER'S CLIENT IS GRANTED.

BSSA Big Stone South to Alexandria

SCALE:

REFERENCE DRAWINGS

N.T.S.

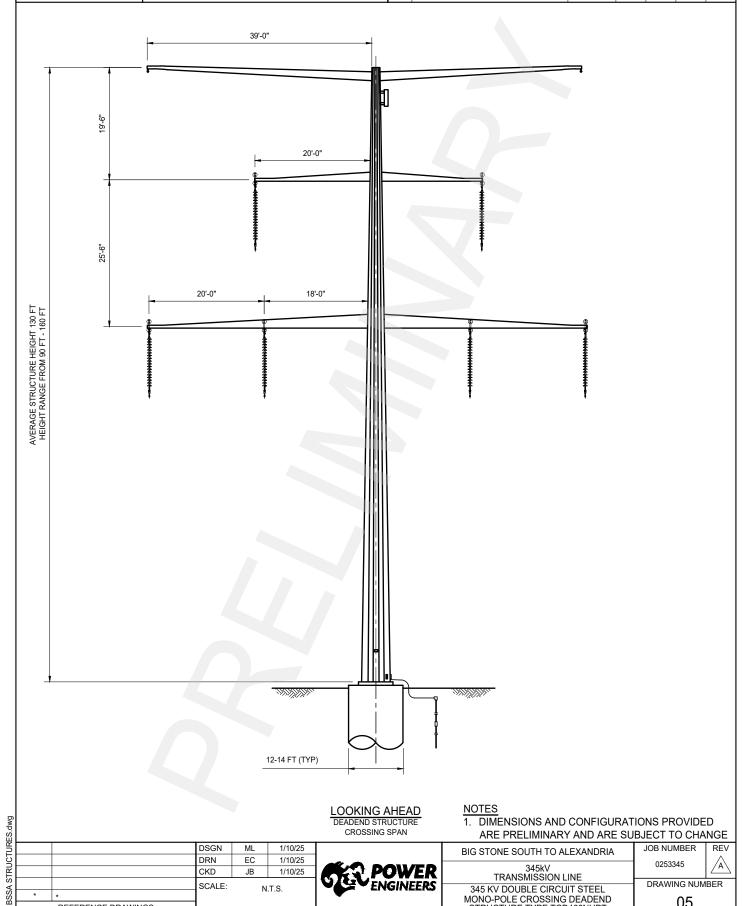
FOR 8.5x11 DWG ONLY

Α	PRELIMINARY FOR PERMITTING	1/10/25	EC	ML	JB	JB
REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD

DRAWING NUMBER

05

345 KV DOUBLE CIRCUIT STEEL MONO-POLE CROSSING DEADEND STRUCTURE TYPE TCD466NUPT





THIS DRAWING WAS PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT, TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWERS CLIENT IS GRANTED.

BSSA Big Stone South to Alexandria

DRN

CKD

REFERENCE DRAWINGS

SCALE:

JB

FOR 8.5x11 DWG ONLY

1/10/25

1/10/25

N.T.S.

POWER ENGINEERS

Α	PRELIMINARY FOR PERMITTING	1/10/25	EC	ML	JB	JB
REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD

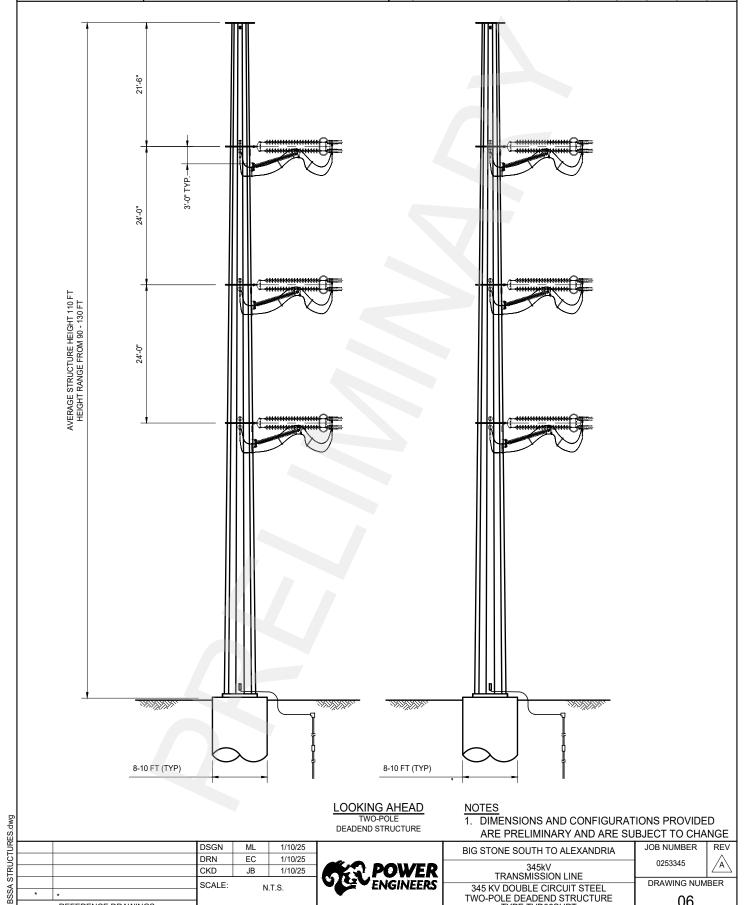
345kV TRANSMISSION LINE 345 KV DOUBLE CIRCUIT STEEL TWO-POLE DEADEND STRUCTURE TYPE TVD06SUPT

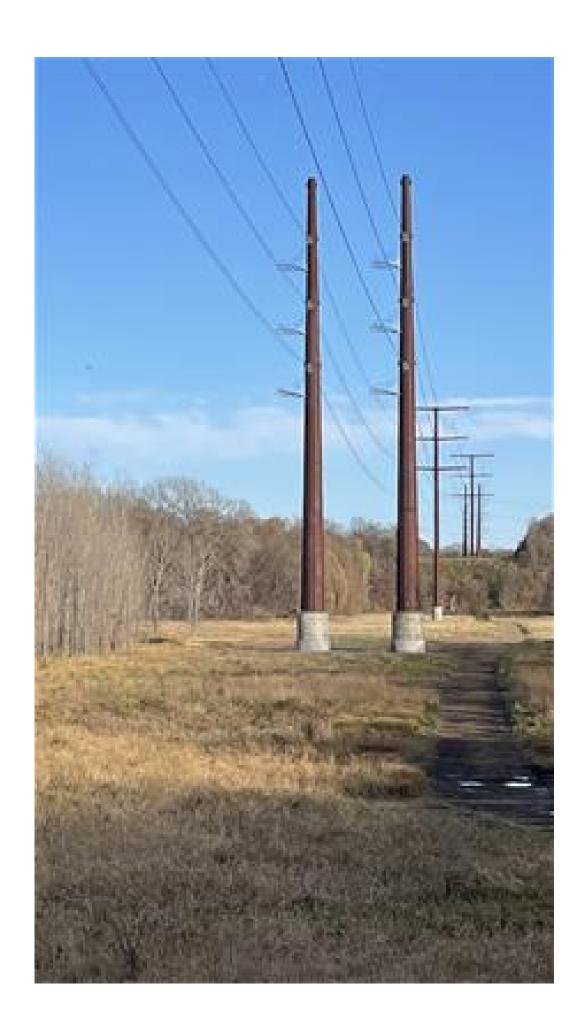
0253345

DRAWING NUMBER

06

 \bigwedge





Appendix D

Spatial Data

Spatial Data Sources

Alexandria. Zoning data. Received Data 05/13/2025.

Barr Engineering Company. Alignment Alternatives. Digitized based on scoping comments. Received 12/30/2024.

Barr Engineering Company. Commerical & Non-Residential Structures. Digitized Data. Compiled 5/13/2025.

BWSR. RIM Conservation Easements https://gisdata.mn.gov/dataset/bdry-bwsr-rim-cons-easements. Received 4/4/2025.

DNR. Calcareous Fens. https://gisdata.mn.gov/dataset/biota-nhis-calcareous-fens. Received 4/4/2025.

DNR. Campsites. https://gisdata.mn.gov/dataset/struc-parks-and-trails-campsites. Received 4/4/2025.

DNR. Consolidated Conservation & School Trust Lands. Received 4/4/2025.

DNR. County Lands. https://gisdata.mn.gov/dataset/plan-stateland-dnrcounty. Received 4/4/2025.

DNR. DNR Forest Stand. https://gisdata.mn.gov/dataset/biota-dnr-forest-stand-inventory. Received Received 4/4/2025.

DNR. DNR Native Prairies. https://gisdata.mn.gov/dataset/biota-dnr-native-prairies. Received 4/4/2025.

DNR. DNR State Park Trails. https://gisdata.mn.gov/dataset/trans-state-park-trails-roads. Received 4/4/2025.

DNR. DNR State Trails. https://gisdata.mn.gov/dataset/trans-state-trails-minnesota. Received 4/4/2025.

DNR. Hunter Walking Trails. https://gisdata.mn.gov/dataset/trans-hunter-walking-trails. Received 4/4/2025.

DNR. Lakes of Biological Significance. https://gisdata.mn.gov/dataset/env-lakes-of-biological-signific. Received 4/4/2025.

DNR. MBS Native Plant Communities by Type. https://gisdata.mn.gov/dataset/biota-dnr-native-plant-comm. Received 4/4/2025.

DNR. MBS Railroad Right-of-Way Prairies. https://gisdata.mn.gov/dataset/biota-mcbs-railroad-prairies. Received 4/4/2025.

DNR. MBS Sites of Biodiversity Significance. https://gisdata.mn.gov/dataset/biota-mcbs-sites-of-biodiversity. Received 4/4/2025.

DNR. MDNR Old growth stands. https://gisdata.mn.gov/dataset/biota-dnr-forest-inv-old-growth. Received 4/4/2025.

DNR. Mineral Leases (Active vs. Ever Offered). https://gisdata.mn.gov/dataset/plan-state-minleases. Received 4/4/2025.

Spatial Data Sources

DNR. MN DNR Migratory Fowl Feeding and Resting Areas. https://gisdata.mn.gov/dataset/env-migratory-waterfowl-areas. Received 4/4/2025.

DNR. MN DNR Scientific and Natural Areas. https://gisdata.mn.gov/dataset/bdry-scientific-and-nat-areas. Received 4/4/2025.

DNR. MN DNR Shallow Lakes. https://gisdata.mn.gov/dataset/water-shallow-lakes-id-by-wldlif. Received Received 4/4/2025.

DNR. MN DNR State Aquatic Management Areas. https://gisdata.mn.gov/dataset/plan-mndnr-fisheries-acquisition. Received 4/4/2025.

DNR. MN DNR State Game Refuges. Not Applicable. Received 4/4/2025.

DNR. MN DNR State Water Trails. https://gisdata.mn.gov/dataset/trans-water-trails-minnesota. Received Received 4/4/2025.

DNR. MN DNR State Wildlife Management Areas. https://gisdata.mn.gov/dataset/bdry-dnr-wildlife-mgmt-areas-pub. Received 4/4/2025.

DNR. MN DNR Wildlife Action Network. https://gisdata.mn.gov/dataset/env-mnwap-wildlife-action-netwrk. Received 4/4/2025.

DNR. MN DNR Wildlife Lakes. https://gisdata.mn.gov/dataset/env-designated-wildlife-lakes. Received 4/4/2025.

DNR. NHIS Rare Species. Confidential. Received 9/25/2023

DNR. NWI (MN Update). https://gisdata.mn.gov/dataset/water-nat-wetlands-inv-2009-2014. Received 4/4/2025.

DNR. Outstanding Resource Value Waters. Outstanding Resource Value Waters - Resources - Minnesota Geospatial Commons (mn.gov). Received 4/4/2025.

DNR. Public Water Inventory Basins. https://gisdata.mn.gov/dataset/water-mn-public-waters. Received 4/4/2025.

DNR. Public Water Inventory Streams. https://gisdata.mn.gov/dataset/water-mn-public-waters. Received 4/4/2025.

DNR. Public Water Inventory Wetlands. https://gisdata.mn.gov/dataset/water-mn-public-waters. Received 4/4/2025.

DNR. Snowmobile Trails. https://gisdata.mn.gov/dataset/trans-snowmobile-trails-mn. Received 4/4/2025.

DNR. State Admin Lands. https://gisdata.mn.gov/dataset/bdry-dnr-managed-areas. Received 4/4/2025.

DNR. State Fee Lands. https://gisdata.mn.gov/dataset/plan-stateland-dnrcounty. Received 4/4/2025.

DNR. State Forest Camp Grounds. https://gisdata.mn.gov/dataset/struc-state-forest-campgrounds. Received 4/4/2025.

DNR. State Parks. https://gisdata.mn.gov/dataset/bdry-dnr-lrs-prk. Received 4/4/2025.

DNR. Trout Lakes. https://gisdata.mn.gov/dataset/env-trout-lake-designation. Received 4/4/2025.

DNR. Trout Streams. https://gisdata.mn.gov/dataset/env-trout-stream-designations. Received 4/4/2025.

DNR. Walk In Access Points. https://gisdata.mn.gov/dataset/bdry-dnr-walk-in-access-sites. Received 4/4/2025.

DNR. Water Access Points. https://gisdata.mn.gov/dataset/loc-water-access-sites. Received 4/4/2025.

DNR. Wetland Banking Easement. https://gisdata.mn.gov/dataset/bdry-wetland-banking-easements. Received 4/4/2025.

DNR. Wild Rice Lakes Identified by DNR Wildlife. Wild Rice Lakes Identified by DNR Wildlife - Resources - Minnesota Geospatial Commons. Received 4/4/2025.

DNR. Wild Rice - MN DNR Modeled. https://gisdata.mn.gov/dataset/env-orv-waters. Received 4/4/2025.

DNR. Wild and Scenic River District. https://gisdata.mn.gov/dataset/bdry-wild-and-scenic-river-admin. Received 4/4/2025.

Douglas County. Zoning data. Received Data 05/14/2025

FEMA. FEMA Floodplain / Flood Hazard Areas.

https://files.dnr.state.mn.us/waters/watermgmt_section/floodplain/flood-map-updates-timeline.pdf. Received 4/4/2025.

Fieldcheck by FieldWatch. Minnesota Crop Site Registry. DriftWatch MN - Map. Received 4/4/2025

MDH. Hospitals. https://gisdata.mn.gov/dataset/health-facility-hospitals. Received 4/4/2025.

MDH. MDH County Well Index. https://gisdata.mn.gov/dataset/water-well-information-non-pws. Received 4/4/2025.

MDH. MDH Emergency Response area. Received 4/4/2025.

MDH. MDH Wellhead protection area. https://gisdata.mn.gov/dataset/water-wellhead-protection-areas. Received 4/4/2025.

MDH. Nursing Homes. https://gisdata.mn.gov/dataset/health-facility-nursing-boarding. Received 4/4/2025.

MDHS. Daycares/Child-care centers/Pre-schools. https://gisdata.mn.gov/dataset/econ-child-care. Received 4/4/2025.

MDoE. Schools (Public & Private, > Kindergarten). https://gisdata.mn.gov/dataset/struc-school-buildings. Received 4/4/2025.

MNDOT. Aggregate Sources. https://gisdata.mn.gov/dataset/geos-aggregate-mapping. Received 4/4/2025.

MNDOT. Military Reservation Lands.

https://www.arcgis.com/home/item.html?id=6b911a60a5a4465a85fd5c42668bf907. Received 4/4/2025.

MNDOT. Native American Reservation Lands.

https://www.arcgis.com/home/item.html?id=8fded139728f48b3b374a5dbf41dd4ec. Received 4/4/2025.

MNDOT. Scenic Byways. https://gisdata.mn.gov/dataset/trans-routes-tour. Received 4/4/2025.

MPCA. Environmental Justice Census Data. https://gisdata.mn.gov/dataset/env-ej-mpca-census. Received 4/4/2025.

MPCA. MPCA Impaired Lakes (2024 Proposed). https://gisdata.mn.gov/dataset/env-impaired-water-2024-draft. Received 4/4/2025.

MPCA. MPCA Impaired Streams (2024 Proposed). https://gisdata.mn.gov/dataset/env-impaired-water-2024-draft. Received 4/4/2025.

MPCA. MPCA What's in My Neighborhood Sites. https://gisdata.mn.gov/dataset/env-my-neighborhood. Received 4/4/2025.

Pope County. Zoning data. Received Data 04/01/2025.

SHPO. Archaeological Sites Data. Confidential. Received 4/4/2025.

SHPO. Historic Structures.

https://geocrm.gisdata.mn.gov/arcgis/rest/services/MnSHIP public external/HistoricProp public wfs/Feat ureServer. Received 4/4/2025.

State of MN. Airport/Heliport Locations. https://gisdata.mn.gov/es/dataset/trans-airports. Received 4/4/2025.

State of MN. Christmas tree farms. https://gisdata.mn.gov/dataset/agri-cropland-data-layer-2022. Received 4/4/2025.

State of MN. Communication Towers. https://gisdata.mn.gov/dataset/util-fcc. Received 4/4/2025.

State of MN. County/Local Trails. https://gisdata.mn.gov/dataset/trans-state-park-trails-roads. Received 4/4/2025.

State of MN. Minnesota Fire Stations. https://gisdata.mn.gov/dataset/struc-fire-stations-mn. Received 4/4/2025.

State of MN. Minnesota Law Enforcement Locations. https://gisdata.mn.gov/dataset/struc-law-enforcemm. Received 4/4/2025.

State of MN. National Parks. https://www.dot.state.mn.us/maps/gdma/data/metadata/natparks.htm. Received 4/4/2025.

Spatial Data Sources

State of MN. State Conservation Easements. https://gisdata.mn.gov/dataset/plan-stateland-dnrcounty. Received 4/4/2025.

State of MN. State Forests. Not Applicable. Received 4/4/2025.

State of MN. Undocumented or Private Airstrips. https://gisdata.mn.gov/es/dataset/trans-airports. Received 4/4/2025.

Stevens County. Zoning data. Received Data 06/12/2025.

Swift County. Zoning data. Received Data 06/23/2025.

U of M. Minnesota Spring Inventory. https://gisdata.mn.gov/dataset/env-mn-springs-inventory. Received 4/4/2025.

U of M. UofM 2013 Landcover (Updated). https://conservancy.umn.edu/handle/11299/181555. Received 4/4/2025.

USDA. SSURGO Prime Farmland. Received 4/4/2025.

USDA. SSURGO Farmland of Statewide Importance. Received 4/4/2025.

USDA. SSURGO Non-irrigated Land Capability Class. Received 4/4/2025.

USDA. SSURGO Rutting Hazard. Received 4/4/2025.

USDA. SSURGO Compaction Prone. Received 4/4/2025.

USDA. SSURGO Erosion Hazard, Off-Road/Off-Trail. Received 4/4/2025.

USDA. SSURGO Hydric soils. Received 4/4/2025.

USDA. SSURGO Soil map unit name. Received 4/4/2025.

USDA. SSURGO Soil map unit symbol. Received 4/4/2025.

USDA. SSURGO Surface texture. Received 4/4/2025.

USFWS. Landscape Conservation Coops.

https://www.sciencebase.gov/catalog/item/55b943ade4b09a3b01b65d78. Received 4/4/2025.

USFWS. MN DNR Waterfowl Production Area.

 $\frac{https://arcgis.dnr.state.mn.us/portal/home/item.html?id=6de3eb66e7e2494ebe3669a29f22ad42}{Received 4/4/2025}.$

USFWS. National Wildlife Refuge. https://www.fws.gov/service/national-wildlife-refuge-system-gis-data-and-mapping-tools. Received 4/4/2025.

USFWS. USFWS Critical Habitat. https://ecos.fws.gov/ecp/report/table/critical-habitat.html. Received 4/4/2025.

Spatial Data Sources

USFWS. Proposed Critical Habitat for Rusty Patched Bumblebees. <u>Species Profile for Rusty patched bumble bee(Bombus affinis)</u>. Received 4/4/2025.

USFWS. USFWS Interests. https://catalog.data.gov/dataset/fws-cadastral-geodatabase-external-facing-7b028. Received 4/4/2025.

USGS. NHD Flowlines. https://prd-

tnm.s3.amazonaws.com/index.html?prefix=StagedProducts/Hydrography/NHD/State/GDB/. Received 4/4/2025.

USGS. NHD Waterbodies. https://prd-

tnm.s3.amazonaws.com/index.html?prefix=StagedProducts/Hydrography/NHD/State/GDB/. Received 4/4/2025.

USGS. NLCD 2022. https://www.usgs.gov/centers/eros/science/national-land-cover-database. Received 4/4/2025.

USGS. PAD-US 4.0. https://www.sciencebase.gov/catalog/item/622262ded34ee0c6b38b6bd3. Received 12/29/2023. Received 4/4/2025.

Xcel Energy/Barr. Cultural Historic Cemetaries. Digitized Data from Confidential site. Received 5/24/2025.

Xcel Energy/Barr. Cultural Archaeological Sites. Digitized Data from Confidential site. Received 5/24/2025.

Appendix E

Landowner Rights Factsheet



Understanding your rights: Transmission lines and your land

This information is a general guide and not legal advice. If a utility company wants to build a high-voltage transmission line on or near your property, it's important to understand your rights. You should always talk to your own legal and real estate advisors for help with your specific situation.

How transmission line routes are chosen

The Minnesota Public Utilities Commission (Commission) decides where high-voltage transmission lines (HVTL) can be built. They try to find routes that cause the least harm to people and the environment while making sure our energy system is reliable.

When the Commission approves a route, it sets a general area (the "route") and a specific strip of land within that area (the "right-of-way") where the transmission line will be located. The route is usually wider than the right-of-way, giving the utility some flexibility in where they place the line. Before building, the utility will file detailed plans showing the exact location of the right-of-way.

Rights-of-Way and easements

A right-of-way is the legal permission for a utility to use someone else's land for a specific purpose, like building and maintaining a transmission line.

An easement is a written agreement that gives the utility this right. It's like a contract between you and the utility that says they can use a specific part of your land. This agreement is recorded in official land records and stays in place even if you sell your property.

The easement document will clearly state where the transmission line will go and what the utility can and cannot do on your land. It will also outline what you, as the landowner, can and cannot do on that part of your land in the future.

Sometimes, instead of an easement, the utility might want to buy your land outright (this is called buying the fee title).

Because an easement or buying fee title are legal agreements that affect your land for the long term, it's crucial to get advice from legal and real estate professionals before signing anything.

Eminent domain: When the utility can take your land

Minnesota law allows a utility with the Commission's permission to use eminent domain (also called condemnation) to acquire property rights if they can't reach an agreement with the landowner. This means the utility can legally take the necessary land (either an easement or full ownership) even if you don't want to sell or agree to an easement.

The U.S. and Minnesota Constitutions say that if your land is taken through eminent domain, you are entitled to just compensation for its value. If a utility uses eminent domain, they must:

- First try to negotiate with you in good faith to settle on the amount of compensation you will receive.
- Provide you with a professional appraisal (estimate of value) of the property interest they want to take.

You have the right to get your own appraisal, and the utility must pay for it (within certain limits). Any appraisal should consider not just the value of similar easements or properties, but also any income you might lose because of the transmission line and any decrease in the value of the rest of your property.

The Eminent domain process and timeline



The legal process of eminent domain starts when the utility files a petition in the district court of the county where your land is located. This petition will describe the land they want and name all the owners.

At least 20 days before filing the petition, the utility must send you a *Notice of the Objects of the Petition*. This notice will tell you when and where a court hearing will take place.

At the hearing, you can object to the utility using eminent domain. However, if the court decides the transmission line serves a public purpose, is necessary, and has been properly authorized, it will likely allow the taking to proceed.

The issue of compensation will be decided separately. The court will appoint a panel of experts to determine how much you should be paid. There will be another hearing for this. You can appeal the decision (called the award) to the district court.

Possession of the property

If you don't appeal the compensation award, the utility can take ownership and possession of the property or easement once they pay you the awarded amount. If you do appeal, they can usually take possession after depositing three-fourths of the award with the court.

If the utility needs to start construction quickly, they can use a "quick take" process. In this case, they must give you 90 days' written notice by certified mail and pay you (or deposit with the court) the value of the property as they appraised it. The court can then give the utility ownership and possession after the 90-day notice period.

It's very important to consult with a legal advisor as soon as you know the utility might use eminent domain.

Relocation and Buy-the-Farm rights

The Commission tries to avoid building transmission lines in ways that would force people to move their homes or businesses. However, sometimes this can't be avoided. If the right-of-way goes directly through your residence or business, you may be entitled to relocation benefits, including:

- Minimum compensation: At least enough money to buy a comparable property in your community. This might be more than the "just compensation" mentioned earlier.
- Advisory services: Help from the utility to find suitable replacement property. This includes interviews to understand your needs, information about available properties, and help with the process.
- Moving costs and other expenses: Reimbursement for certain costs related to moving.

Buy the Farm

Minnesota law, often referred to as the "Buy the Farm" provision, offers significant protections to residential landowners and farmers facing the impact of large transmission lines. Recognizing that these projects can significantly affect property value and quality of life, the legislature created this option to empower landowners and mitigate the negative impacts of large transmission lines. This option only applies if the utility is using eminent domain. If you reach a voluntary agreement for an easement, you generally cannot use the Buy the Farm option later.

Specifically, for HVTL's of 200 kilovolts or larger, Minnesota law grants certain landowners the right to compel the utility company to purchase more than just the land directly needed for the transmission line if the utility is using eminent domain.

This Buy the Farm option applies to the following types of properties:

- Homestead property: This includes both agricultural and non-agricultural land that serves as the owner's primary residence.
- Non-homestead agricultural land: This covers farmland that is not the owner's primary residence but is actively used for agricultural purposes.
- Rental residential property: This includes properties that are leased to tenants for residential use.
- Seasonal residential recreational property: This encompasses properties used for recreational purposes on a seasonal basis, such as cabins or lake homes.

If the utility buys your entire property under Buy the Farm, and this includes your home or business, you are also entitled to the relocation benefits mentioned above.

When to decide on Buy the Farm

When the utility starts the eminent domain process, they will send you a *Notice of the Objects of the Petition*. You have 60 days from the date you receive this notice to inform the utility in writing if you want them to buy your entire property under the Buy the Farm law. However, if you know that you want to use Buy the Farm from the start of negotiations with the utility before they use eminent domain, your agreement with the utility might include them buying your property.

It's crucial to consult with a legal advisor if you are considering the Buy the Farm option to make sure you send the proper notices within the deadline.

The Public Utilities Commission's role in eminent domain

It's important to understand that the Public Utilities Commission does not have the authority to decide issues related to the utility's use of eminent domain, including how much you are compensated, Buy the Farm requests, or relocation benefits.

The Commission's job is to decide on the best routes for transmission lines to minimize harm to people and the environment.

Protecting your rights

The impact of transmission lines on your land can be significant. You are encouraged to:

- Participate in the Commission's proceedings that lead to the routing decisions.
- Consult with real estate and legal professionals to understand how the project might affect your land.
- Ensure that any taking of your property is fairly compensated according to the law.

For more information

For detailed information on eminent domain and Buy the Farm, visit the Minnesota Revisors website at www.revisor.mn.gov and see Minnesota Statutes Chapters 117 and 216I.21.