Document Accession #: 20240913-3007 Filed Date: 09/13/2024

Office of
Energy Projects

September 2024

Northern Natural Gas Company

Docket CP24-60-000

Northern Lights 2025 Expansion Project

Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas Branch 1
Northern Natural Gas Company
Northern Lights 2025 Expansion Project
Docket No. CP24-60-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the Northern Lights 2025 Expansion Project (Project), proposed by Northern Natural Gas Company (Northern) in the above-referenced docket. Northern proposes to construct and operate about 8.6 miles of pipeline extensions, and associated ancillary and auxiliary equipment in Freeborn, Houston, and Washington Counties, Minnesota and Monroe County, Wisconsin. Northern's stated purpose for this Project is to provide up to 46,064 dekatherms per day of firm, winter natural gas transportation capacity to Northern's Market Area.[1]

The EA assesses the potential environmental effects of construction and operation of the Project in accordance with the requirements of the National Environmental Policy Act. FERC staff concludes that approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment.

The proposed Project includes the following facilities:

- 3.0-mile-long extension of the 36-inch-diameter Lake Mills to Albert Lea E Line;
- 2.43-mile-long extension of the 30-inch-diameter Elk River 3rd Branch Line;
- a non-contiguous 1.91-mile-long extension of the 30-inch-diameter Farmington to Hugo C-Line;
- 1.28-mile-long extension of the 8-inch-diameter Tomah Branch Line Loop;
- one pig new launcher,[2] valves, and piping inside the existing Hugo Compressor Station;
- minor piping modifications within the existing La Crescent Compressor Station;
- relocation of one pig receiver facility along the Tomah Branch Line loop;

[1] Northern's Market Area is north of the inlet to Northern's Clifton Compressor Station in Clay County, Kansas. The Market Area includes pipeline configured in a grid system, with gas flowing from Northern's transmission facilities and third-party interstate pipelines.
[2] A "pig" is a tool that the pipeline company inserts into and pushes through the pipeline for cleaning the pipeline, conducting internal inspections, or other purposes.

- removal of three existing tie-in valve settings along the Lake Mills to Albert Lea E-line, Elk River 3rd Branch line, and Tomah Branch Line loop;
- three new valve settings and associated valves and piping along the Lake Mills to Albert Lea E-line, Elk River 3rd Branch line, and Tomah Branch Line loop;
- and other appurtenant facilities; and
- abandonment and removal of 275 feet of the existing 30-inch diameter Elk River 3rd Branch Line.

The Commission mailed a copy of the *Notice of Availability* of the EA to federal, state, and local government representatives and agencies; elected officials; non-governmental organizations, environmental and public interest groups; potentially interested Native American tribes; affected landowners; local libraries; churches; and newspapers in the Project area. The EA is only available in electronic format. It may be viewed and downloaded from FERC's website (www.ferc.gov), on the natural gas environmental documents page (https://www.ferc.gov/industries-data/natural-gas/environment/environmental-documents). In addition, the EA may be accessed by using the eLibrary link on FERC's website. Click on the eLibrary link (https://elibrary.ferc.gov/eLibrary/search), select "General Search" and enter the docket number in the "Docket Number" field, (i.e. CP24-60). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659.

The EA is not a decision document. It presents Commission staff's independent analysis of the environmental issues for the Commission to consider when addressing the merits of all issues in this proceeding. Any person wishing to comment on the EA may do so. Your comments should focus on the EA's disclosure and discussion of potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on this project, it is important that we receive your comments in Washington, DC **on or before 5:00 p.m. Eastern Time on October 15, 2024.**

For your convenience, there are three methods you can use to file your comments to the Commission. The Commission encourages electronic filing of comments and has staff available to assist you at (866) 208-3676 or FercOnlineSupport@ferc.gov. Please carefully follow these instructions so that your comments are properly recorded.

(1) You can file your comments electronically using the eComment feature on the Commission's website (www.ferc.gov) under the link to FERC Online.

This is an easy method for submitting brief, text-only comments on a project;

(2) You can also file your comments electronically using the eFiling feature on the Commission's website (www.ferc.gov) under the link to FERC Online. With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "eRegister." You must select the type of filing you are making. If you are filing a comment on a particular project, please select "Comment on a Filing"; or

(3) You can file a paper copy of your comments by mailing them to the Commission. Be sure to reference the Project docket number (CP24-60-000) on your letter. Submissions sent via the U.S. Postal Service must be addressed to: Debbie-Anne A. Reese, Acting Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426. Submissions sent via any other carrier must be addressed to: Debbie-Anne A. Reese, Acting Secretary, Federal Energy Regulatory Commission, 12225 Wilkins Avenue, Rockville, Maryland 20852.

Filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered. Only intervenors have the right to seek rehearing or judicial review of the Commission's decision. At this point in this proceeding, the timeframe for filing timely intervention requests has expired. Any person seeking to become a party to the proceeding must file a motion to intervene out-of-time pursuant to Rule 214(b)(3) and (d) of the Commission's Rules of Practice and Procedures (18 Code of Federal Regulations 385.214(b)(3) and (d)) and show good cause why the time limitation should be waived. Motions to intervene are more fully described at https://www.ferc.gov/how-intervene.

Additional information about the Project is available from the Commission's Office of External Affairs, at **(866) 208-FERC**, or on the FERC website (www.ferc.gov) using the eLibrary link. The eLibrary link also provides access to the texts of all formal documents issued by the Commission, such as orders, notices, and rulemakings.

The Commission's Office of Public Participation (OPP) supports meaningful public engagement and participation in Commission proceedings. OPP can help members of the public, including landowners, environmental justice communities, tribal members and others, access publicly available information and navigate Commission processes. For public inquiries and assistance with making filings such as interventions, comments, or requests for rehearing, the public is encouraged to contact OPP at (202) 502-6595 or OPP@ferc.gov.

In addition, the Commission offers a free service called eSubscription which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to https://www.ferc.gov/ferc-online/overview to register for eSubscription.

TABLE OF CONTENTS

List of Figures

List of Tables

List of Appendices

TECHNICAL ABBREVIATIONS AND ACRONYMS

ACHP	Advisory Council on Historic Preservation
APE	area of potential effects
Btu	British thermal unit
ATWS	Additional Temporary Workspace
CEQ	Council on Environmental Quality
CESCP	Construction Erosion and Sediment Control Plan
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
Commission	Federal Energy Regulatory Commission
dBA	A-weighted decibel
EA	environmental assessment
EAB	emerald ash borer
EI	environmental inspector
EJScreen	Environmental Justice Screening and Mapping Tool
Environmental Justice Guidance	*Environmental Justice Guidance Under the National Environmental Policy Act*
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
GHG	greenhouse gas
HAP	hazardous air pollutants
HDD	horizontal directional drilling
HDD Plan	*HDD Monitoring, Inadvertent Return Response and Contingency Plan*
HUC	hydrologic unit code
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
LGU	Local Government Unit
MBTA	Migratory Bird Treaty Act
MBtu	thousand British thermal unit

MDA	Minnesota Department of Agriculture
MDNR	Minnesota Department of Natural Resources
MMBtu	million British thermal unit
MNSHPO	Minnesota State Historical Preservation Officer
MP	milepost
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NGA	Natural Gas Act of 1935
NHPA	National Historic Preservation Act
NLEB	Northern long-eared bat
Northern	Northern Natural Gas Company
NO_x	oxides of nitrogen
NOS	*Notice of Scoping Period Requesting Comments on Environmental Issues for the Proposed Northern Lights 2025 Expansion Project*
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSA	Noise Sensitive Area
OEP	Office of Energy Projects
Plan	*Upland Erosion Control, Revegetation, and Maintenance Plan*
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
Procedures	*Wetland and Waterbody Construction and Mitigation Procedures*
Project	*2024 Great Basin Expansion Project*
Promising Practices	*Promising Practices for EJ Methodologies in NEPA Reviews*
RSEA	regionally significant ecological area
Secretary	Secretary of the Commission
SO_2	sulfur dioxide
SPCCP	*Spill Prevention, Control and Countermeasure Plan*
SWPPP	*Stormwater Pollution Prevention Plan*
TAR	temporary access road
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service

USGS	United State Geological Survey
VOC	volatile organic compound
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System
WISHPO	Wisconsin State Historic Preservation Officer

SECTION A – PROPOSED ACTION

1.0 INTRODUCTION

Federal Energy Regulatory Commission (Commission or FERC) staff prepared this environmental assessment (EA) to analyze the impacts associated with the Northern Lights 2025 Expansion Project (Project). On February 16, 2024, Northern Natural Gas Company (Northern) filed an application with the Commission (Docket No. CP24-60-000) pursuant to sections 7(b) and 7(c) of the Natural Gas Act of 1938 (NGA), as amended, and Part 157 of the Commission's regulations. Northern is seeking an authorization to construct and operate about 8.6 miles of pipeline extensions and associated ancillary and auxiliary equipment, and abandon about 275 feet of its 30-inch diameter pipeline in Freeborn, Houston, and Washington Counties, Minnesota, and Monroe County, Wisconsin.

We[i] prepared this EA in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA),[3] the Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40 of the Code of Federal Regulations [CFR] Parts 1500-1508 [40 CFR 1500-1508]), and the Commission's implementing regulations under 18 CFR 380.

The assessment of environmental impacts is an integral part of the Commission's decision-making process on whether to authorize Northern's proposal. Our principal purposes in preparing this EA are to:

- identify and assess potential impacts on the natural and human environment that would result from the implementation of the proposed action;
- describe and evaluate reasonable alternatives to avoid or minimize adverse environmental impacts;
- identify and recommend specific mitigation measures, as necessary, to avoid or minimize Project related environmental impacts; and
- facilitate public involvement in the environmental review process.

[3] National Environmental Policy Act of 1969, as amended (Pub. L. 91-190. 42 U.S.C. §§ 4321–4347, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, Pub. L. 97-258, §4(b), September 13, 1982, Pub. L. 118-5, June 3, 2023).

2.0 PURPOSE AND NEED

Northern's stated purpose of the Project is to provide an additional 46,064 dekatherms per day of firm natural gas transportation capacity to its Market Area.[4] The Project is designed to fulfill Northern's commitment to expand its Market Area capacity in response to customers' future growth requirements through 2026.

Under section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate of Public Convenience and Necessity (Certificate) to construct and operate them. Section 7(b) of the NGA specifies that no natural gas company shall abandon any portion of its facilities subject to the Commission's jurisdiction without the Commission first finding that the abandonment will not negatively affect the present or future public convenience and necessity. The Commission bases its decisions on both economic issues, including need, and environmental impacts.

3.0 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

The topics addressed in section B of this EA include geology and soils; surface water, groundwater, and wetlands; vegetation, wildlife, and special status species; land use and visual resources; cultural resources; environmental justice; air quality and noise; reliability and safety; and cumulative impacts, including climate change. The EA also assesses alternatives to the proposed Project (see section C). This EA describes the affected environment as it currently exists, discusses the environmental consequences of the proposed Project, and identifies measures proposed by Northern to reduce impacts. In section D of this EA, we summarize our conclusions and present additional measures that we recommend the Commission adopt as mandatory environmental conditions of any authorization it may issue to Northern for the Project.

As the lead federal agency for the Project, FERC is required to comply with section 7 of the Endangered Species Act (ESA), as amended, and section 106 of the National Historic Preservation Act (NHPA). These statutes have been considered in the preparation of this EA. FERC will use this document to consider the environmental impacts that could result if it authorizes this Project. In addition to FERC, other federal, state, and local agencies may use this EA in approving or issuing any permits necessary for all or part of the proposed Project (see section A.9 of this EA).

[4] Northern's Market Area is north of the inlet to its Clifton compressor station in Clay County, Kansas. The Market Area includes pipeline configured in a grid system, with gas flowing from third-party interstate pipelines and Northern's own transmission facilities.

4.0 PUBLIC PARTICIPATION AND COMMENT

On February 29, 2024, FERC issued a *Notice of Application and Establishing Intervention Deadline* for Northern's Project in Docket No. CP24-60-000. The notice announced the receipt of Northern's application, identified ways for the public to provide comments on the Project, and established a deadline for submitting a motion to intervene in the proceeding. No comments in response to the Notice of Application were received.

On March 26, 2024, FERC issued a *Notice of Scoping Period Requesting Comments on Environmental Issues for the proposed Northern Lights 2025 Expansion Project* (NOS). The NOS was mailed to affected landowners (as defined in the Commission's regulations); federal, state, and local officials; Native American tribes; and agency representatives; environmental and public interest groups; local libraries; churches; and newspapers. The NOS established a 30-day scoping period and requested comments on specific concerns about the Project or issues that should be considered during the preparation of the environmental document. Comments were received from three federal and state government agencies, two landowners, one non-profit organization, and one labor union. During the scoping period, the U.S. Environmental Protection Agency (EPA) commented that the EA should include an Appendix that summarizes all scoping comments and FERC's response to each comment. Appendix A provides a summary of the comments with the location of FERC's responses.

The EPA commented that FERC should address segmentation regarding the environmental reviews of multiple Northern Lights projects. Although all expansion projects will create firm transportation capacity on Northern's pipeline system, they each have independent utility and can proceed without one another. Additionally, the projects under Northern's blanket certificate would have been completed with or without the Northern Lights 2025 Expansion Project. They include routine maintenance and minor upgrades to facilities on Northern's system that are not connected to this Project's facilities or dependent on the construction of this project.

Jim Leverich commented that the expansion is not necessary and there is sufficient existing capacity through Wisconsin Gas, LLC's (WE Energy) infrastructure. WE Energy is local customer of Northern. Any lines installed by WE would be distribution lines and not able to carry market gas. Mr. Leverich withdrew his comments on July 10, 2024, stating that he has reached an agreement with Northern, and has no concerns.

Christel Johnson commented that the proposed pipeline would create a third right-of-way on her property that would limit her farm business and the ability to plan native trees, shrubs, and wildflowers. Ms. Johnson also commented that the Blanding's turtle and sandhill crane use her property for nesting, nursing, and foraging, and the Project would disrupt that habitat. Ms. Johnson withdrew her comments on August 30, 2024, stating that shed has been assured Northern would use the HDD method to avoid impacts on her property.

The Land Stewardship Project provided multiple comments concerning the transportation of factory farm gases[5] through the proposed pipeline. In response, Northern requested that each shipper answer questions regarding factory farm gas. Northern determined that the capacity created by the Northern Lights 2025 Expansion Project would not be needed to produce or ship factory farm gas and is not in any way related to factory farm gas.

The U.S. Department of Agricultural (USDA) commented that the Natural Resources Conservation Service (NRCS) has found that the Project is not likely to affect USDA easements, and the wetland conservation provisions of the 1985 Food Security act, as amended are not applicable.

A *Notice of Availability of the Environmental Assessment for Northern Lights 2025 Expansion Project* was sent to approximately 209 addressees, including affected landowners, stakeholders, and anyone who submitted comments to the Commission. The public will have another opportunity to provide comments during the EA comment period. All substantive comments received within the EA comment period will be addressed in the Commission's Order.

[5] Methane captured during the process of breaking down cow manure.

5.0 PROPOSED FACILITIES

The Project consists of the following facilities:

- 3.0-mile-long extension of Northern's 36-inch-diameter Lake Mills to Albert Lea E Line;
- 2.43-mile-long extension of Northern's 30-inch-diameter Elk River 3rd Branch Line;
- a non-contiguous 1.91-mile-long extension of Northern's 30-inch-diameter Farmington to Hugo C-Line;
- 1.28-mile-long extension of Northern's 8-inch-diameter Tomah Branch Line Loop;
- one new pig launcher,[6] valves, and piping inside Northern's existing Hugo Compressor Station;
- minor piping modifications within Northern's existing La Crescent Compressor Station;
- relocation of one pig receiver facility along the Tomah Branch Line loop;
- removal of three existing tie-in valve settings along the Lake Mills to Albert Lea E-line, Elk River 3rd Branch line, and Tomah Branch Line loop;
- three new valve settings and associated valves and piping along the Lake Mills to Albert Lea E-line, Elk River 3rd Branch line, and Tomah Branch Line loop;
- and other appurtenant facilities; and
- abandonment and removal of 275 feet of Northern's existing 30-inch diameter Elk River 3rd Branch Line.

Northern would also use temporary staging areas, additional temporary workspace, and temporary access roads during Project construction. Figure 1 shows the general location of Project facilities. Detailed maps of each pipeline spread are provided in appendix B.

[6] A "pig" is a tool that the pipeline company inserts into and pushes through the pipeline for cleaning the pipeline, conducting internal inspections, or other purposes.

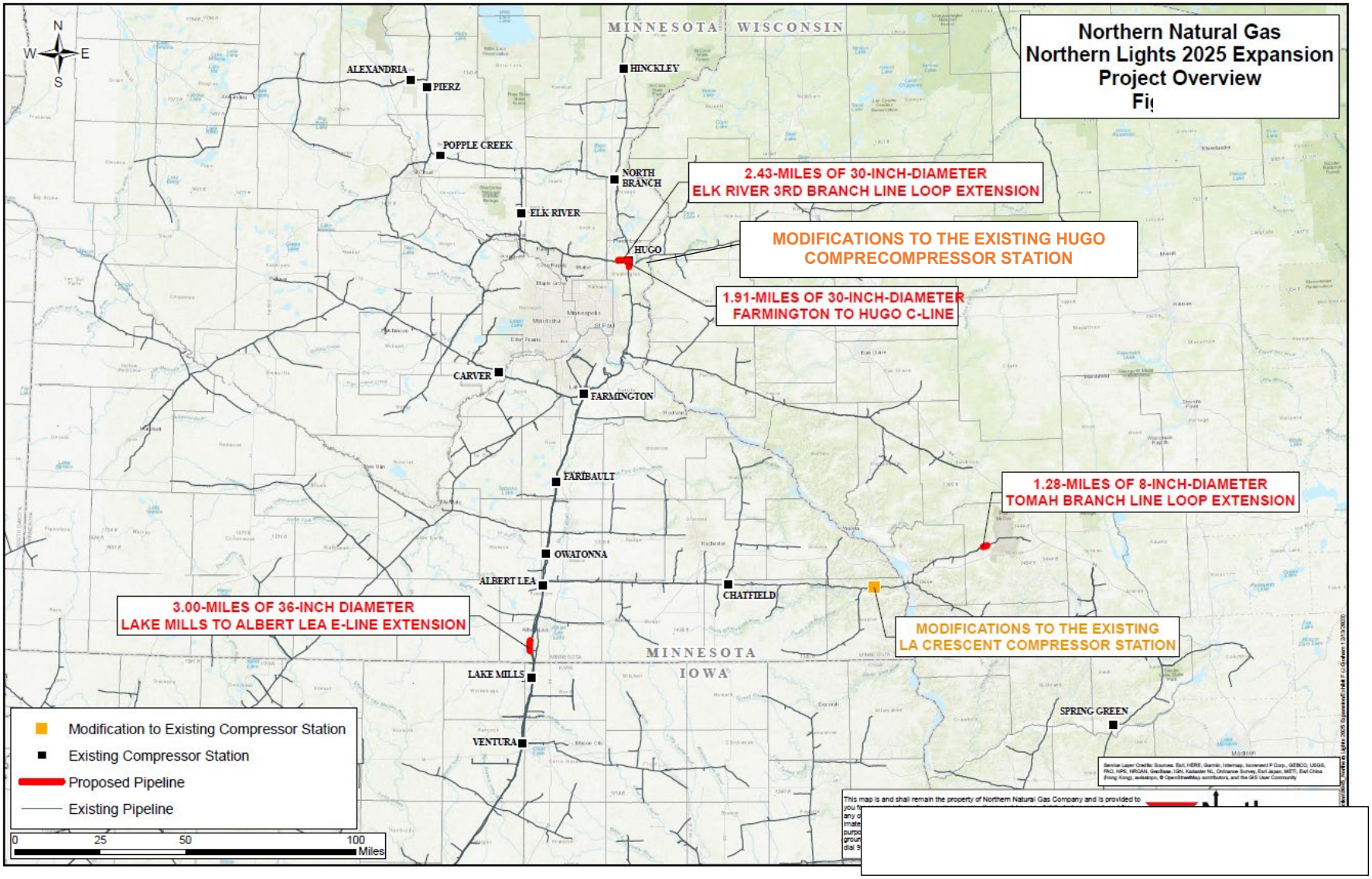


Figure 1: Project Location Map

6.0 LAND REQUIREMENTS

Construction of the Northern Lights 2025 Expansion Project would require 177.2 acres of land during construction and 47.9 acres for operations. Construction workspace would overlap about 37.6 acres (23.4 acres for operations) of existing pipeline rights-of-way or existing Project facilities. Northern would remove one tie over valve setting from each of its existing Lake Mills to Albert Lea E-line, Elk River 3rd Branch line, and Tomah Branch Line loop. Northern would also remove one receiver facility at its Tomah Branch Line loop. About 0.1 acre of land at these facilities would be returned to original grade. Northern would restore all temporary workspaces and these areas may be returned to preconstruction land uses. At the abandoned facilities, Northern would release the facility and access easements but would maintain its pipeline easement.

7.0 CONSTRUCTION PROCEDURES

7.1 Construction Schedule and Workforce

Northern anticipates construction activities would begin in February 2025 for an in-service date no later than November 1, 2025. Northern estimates five spreads would be needed for the Project with a workforce of approximately 150 to 300 workers (30 to 70 per spread). Work would occur Monday through Saturday from 7 a.m. to 7 p.m. Time sensitive activities such as tie-ins, pressure testing and commissioning, inspections, erosion control installation and repairs, and equipment delivery may extend beyond 7 p.m., and on Sundays. Horizontal directional drilling (HDD) operations may be conducted 24 hours per day, including Sundays, during pullback of the pipe into the drill hole.

7.2 Construction, Operation, and Maintenance Procedures

The Project would be designed, constructed, removed, operated, and maintained in accordance with applicable requirements defined by the United States Department of Transportation regulations in 49 CFR 192, Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards; by FERC's Siting and Maintenance Requirements in 18 CFR 380.15; and by other applicable federal and state safety regulations.

Project construction would involve clearing and grading, pipeline installation via trenching or HDD, installation of appurtenant facilities, removal of select facilities, and restoration. Northern would use a 90-foot or 100-foot-wide construction right-of-way to install pipeline via trenching. The rights-of-way would accommodate equipment needed to install large diameter pipes (30-inch and 36-inch). Northern would use special construction techniques including installing road approaches at 13 public roads, 18 temporary access roads, 12 road crossings, and several wetland and waterbody crossings (discussed further throughout section B).

Northern would construct the pipeline and all appurtenant facilities in accordance with FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan); Northern's *Wetland and Waterbody Construction and Mitigation Procedures* (Northern's Procedures)[7]; *HDD Monitoring, Inadvertent Return Response, and Contingency Plan* (HDD Plan); *Spill Prevention, Control, and Countermeasure Plan* (SPCCP); *Stormwater Pollution Prevention Plan* (SWPPP); *Construction Erosion and Sediment Control Plan* (CESCP); *Noxious Weed Control Plan;* and *Unanticipated Discoveries Plan*. Northern has adopted FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) as its own with the exception of 13 modifications where extra workspace would be located within 50 feet of a wetland boundary or the construction right-of-way would be greater than 75 feet wide through a wetland. The modifications with justification are provided in section B.3.2.

7.2.1 Environmental Compliance and Monitoring

Northern would assign environmental inspectors (EI) to ensure all construction activities are completed in compliance with the Plan, Northern's Procedures, all permits, and the requirements and conditions of the Certificate. Northern would provide training for its EIs and would ensure that all construction personnel receive environmental training before they are permitted on the construction site and pipeline right-of-way.

The EIs would oversee construction and restoration activities. The EIs' duties would be consistent with those contained in the Plan and they would have authority to stop activities that violate the environmental conditions of any Certificate that FERC may issue and other federal and state permits or landowner requirements, and to order corrective action.

In addition to Northern's efforts to ensure environmental compliance, FERC staff would maintain compliance oversight of the Project throughout construction and restoration to verify compliance with the Commission's orders.

8.0 NON-JURISDICTIONAL FACILITIES, AUXILIARY AND REPLACEMENT FACILITIES, AND BLANKET FACILITIES

Under section 7 of the NGA, and as part of the decision regarding whether to approve facilities under its jurisdiction, the Commission is required to consider all factors bearing on the public convenience and necessity. Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of FERC. No non-jurisdictional facilities are proposed for this Project.

[7] Accession number 20240216-5267

9.0 PERMITS, APPROVALS, AND REGULATORY CONSULTATIONS

Table 1 lists the major federal, state, and local permits, approvals, and consultations for the Project construction activities, and provides the current status of each. Northern would be responsible for obtaining all permits and approvals required to construct the Project, regardless of whether they appear in this table.

Table 1: List of Permits, Approvals, and Consultations

Agency or Organization	Permit/Approval/Consultation	Submittal/Anticipated Receipt
Federal		
FERC	Certificate of Public Convenience and Necessity	Application filed February 16, 2024
Natural Resources Conservation Service	Consultation for right-of-way restoration and seeding recommendations	Completed January 2022
US. Army Corps of Engineers – St. Paul District	CWA section 404 – Dredge and Fill Permit; Regional General Permit 3	Non-reporting (meets conditions of General Permit 3); no U.S. Army Corps of Engineers review required
U.S. Fish and Wildlife Service – Twin Cities Field Office	ESA and Migratory Bird Treaty Act – consultation clearance request for Minnesota	Initial coordination submitted February 7, 2023; final survey results and request for concurrence anticipated to be submitted September 2024;
State – Minnesota		
Minnesota Pollution Control Agency	Section 401 Water Quality Certification	Automatic - conditions included with Utility Regional General Permit
	National Pollutant Discharge Elimination System Stormwater Permit MNR100001	Anticipated submittal February/March 2025; response anticipated March 2025
	National Pollutant Discharge Elimination System Trench Water Discharge Permit	Authorization included with stormwater permit
Minnesota Department of Natural Resources (MDNR)	MDNR Water Appropriation Permit for Pit Trench Water	Anticipated submittal February/March 2025; response anticipated March 2025
	State Protected Species Consultation	Completed June 2024
State Historical Society of Minnesota	Section 106 Consultation, NHPA	Cultural survey reports submitted February 2024; additional reports requested from agency March 2024 and submitted July 2024; Consultation ongoing
Minnesota Department of Agriculture (MDA)	Comments on Northern's Agricultural mitigation plan and Noxious Weed Mitigation Plan	Completed May 2024
Wisconsin		

Wisconsin Department of Natural Resources (WDNR)	Chapter 30.025, Stream Crossing/Dredging	Application submitted June 2024; anticipated approval August 2024
	WPDES Construction Site Stormwater Runoff General Permit No. WI-S067831-6	Anticipated submittal February/March 2025; response anticipated April 2025
	WPDES Hydrostatic Test Water Discharge Permit No. WI-0057681-5	Anticipated submittal February/March 2025; response anticipated April 2025
	WPDES Pit Trench Water Discharge Permit No. WI- WI- 0049344-6	Authorization included with stormwater permit
	State Protected Species Consultation	Completed March 2024
Wisconsin State Historical Society	Section 106 Consultation, NHPA	Completed February 2024
Local		
Houston County Local Government Unit (LGU)	Notice of Decision for wetland impacts for La Crescent Compressor Station	No wetlands in footprint; completed March 2024
City of Hugo LGU	Notice of Decision for wetland impacts for Elk River 3rd Branch Line	No wetlands in jurisdictional boundary; completed February 2024
Freeborn County LGU	Notice of Decision for wetland impacts for Lake Mills to Albert Lea E-Line	Minor wetland impacts; completed February 2024
May Township LGU	Notice of Decision for wetland impacts for Farmington to Hugo C-line	No wetland loss; completed March 2024
Director of Public Works, Freeborn County, MN	Driveway permits and road crossing permits	Permits would be obtained prior to construction
Washington County, MN	Driveway and road crossing permits	Permit would be obtained prior to construction
Monroe County, WI	Temporary access permits	Permit would be obtained prior to construction

The USDA commented that FERC should consult with all agencies that have federal or state wetlands, floodplain delineation, cultural resources, water quality, air quality or threatened and endangered species jurisdiction in the proposed project area. Additionally, the EPA commented that the EA should include copies of all inter-agency consultation. All inter-agency consultation that is not considered Privileged for the protection of cultural resources has been filed to the docket[8] as "Public" and referenced in the EA. Any outstanding consultation must be filed prior to construction of the Project.

[8] Accession number 202402160-5267; appendix 1E of Resource Report 1

SECTION B – ENVIRONMENTAL ANALYSIS

This section of the EA describes the affected environment as it currently exists and discusses the environmental consequences of the proposed Project. The discussion is organized by resource topic (as state above in section A.3). Based on our review of the Project, the following resources are either not present or would not be affected by the Project, and they are not discussed further:

- paleontological resources;
- sensitive surface waters;
- essential fish habitat;
- national or state Wild and Scenic Rivers, national parks, national forests; and
- coastal zone management areas.

The environmental consequences of facility construction would vary in duration. Four levels of impact duration were considered: temporary, short-term, long-term, and permanent. Temporary impacts generally occur during construction with the resource returning to preconstruction condition almost immediately afterward. Short-term impacts could continue between two to five years following construction. Impacts are considered long-term if the resource would require more than five years to recover. A permanent impact could occur as a result of any activity that modifies a resource to the extent that it would not return to pre-construction conditions. When determining the significance of an impact, we consider the duration of the impact as well as the geographic, biological, and/or social context in which the effects would occur, and the intensity (e.g., severity) of the impact.

It is common for a project proponent to require minor modifications (e.g., minor changes in workspace configurations) during construction activities. Any such modifications for Northern's Project would be subject to review and approval from FERC and any other applicable permitting/authorizing agencies with jurisdiction.

1.0 GEOLOGY

1.1 Mineral Resources

While iron ore mining and peat production occur in the state of Minnesota, there are no iron ore or peat production facilities in the vicinity of the Project. No oil or gas extraction wells or surface mining exist within 0.25 mile of the Project. As a result, we conclude that the availability of, and access to, mineral resources would not be impacted as a result of the Project.

1.2 Geologic Hazards

Geologic hazards are natural, physical conditions that can result in damage to land and structures and injury to people. Such hazards are typically seismic-related, landslides, or ground subsidence, which are discussed below.

Based on United States Geological Survey (USGS) seismic hazard probability mapping, there is a 2 percent probability of an earthquake with an effective peak ground acceleration of between 2 percent and 4 percent of gravity being exceeded in 50 years in the Project area, and a 10 percent probability of an earthquake with an effective peak ground acceleration of less than 2 percent of gravity being exceeded in 50 years in the Project area (Peterson et al., 2019). For reference, a peak ground acceleration of 10 percent of gravity is generally considered the minimum threshold for damage to older structures or structures not constructed to withstand earthquakes.

While there are no active mapped Quaternary faults within Minnesota or Wisconsin (USGS, 2024a), there have been minor, low magnitude earthquakes in these states. The closest recorded earthquake is the Mankato earthquake, which was located about 48 miles from the Project area and had a magnitude of 2.8 on the Richter scale (USGS, 2024b). Based on the infrequency and minor strength of historic earthquakes, we conclude the risk of a significant damage to the proposed Project facilities resulting from an earthquake or seismic ground faulting is low.

According to the USGS, the Project area is in an area of low landslide susceptibility and incidence and there are no known landslides in the area (Radbruch-Hall et al, 1982; USGS, 2024c). Northern would install temporary and permanent trench plugs and slope breakers on slopes greater than five percent. This would help reduce the velocity of water flowing along the trench and volume of water that collects at the bottoms of slopes. Furthermore, no blasting for the Project is anticipated. Based on Northern's mitigation measures and the low incidence of landslides in the Project area, we conclude that landslides are not likely to affect the Project.

Soil liquefaction (associated with seismic activity in which saturated, non-cohesive soils behave like viscous liquid) impact risk is low in the Project area given the low risk of earthquake induced ground movement.

The EPA commented that the Project areas may be underlain by carbonate rock and the EA should identify and discuss issues associated with the construction and operation of the proposed facilities in karst terrain. Much of the Project area is within regions of moderate to low probability for karst features (Adams and Green., 2016; Wisconsin Geological and Natural History Survey, 2019). In addition, the majority of the Project area is underlain by a thick layer of glacial drift that is generally greater than 50 feet in thickness. This reduces the likelihood of near surface karst impacts. While the La Crescent Compressor Station is in an area with carbonate rocks at or near the surface, Northern would not complete any subsurface work at the facility; therefore, we do not expect that karst hazards would impact the Project. Furthermore, USGS mapping does not indicate extensive historical subsidence within the Project area (USGS, 2000). We conclude that the Project would be unlikely to be significantly impacted by ground subsidence and karst hazards.

Based on a review of the Federal Emergency Management Agency (FEMA) flood zones maps, none of the aboveground portions of the existing facilities' footprint fall within a Special Flood Hazard Area (FEMA, 2024). The Project would cross the 100-year floodplain using the HDD method at three separate crossings and would cross one regulated floodway using the HDD method. HDD entry and exit points and associated workspaces would not be in the Special Flood Hazard Areas. Furthermore, Northern would minimize the potential for scour by ensuring that the minimum depth of cover at waterbody crossings would be 25 feet between the top of the pipeline and the bottom of permanent waterbodies. As a result, we conclude that the risk of the Project being significantly affected by flooding or scour or impacting flood storage are low.

Based on the lack of mineral resources and lack of geological hazards, we conclude that the Project is unlikely to affect, or be affected, by geological hazards.

2.0 SOILS

Based on the NRCS Web Soil Survey, the Project would impact about 86.5 acres of prime farmland soils within the workspaces, including about 0.9 acre of permanent conversion for aboveground appurtenant facilities. Prime farmland has the unique combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of crops when properly managed (NRCS, 2023). Because the permanently converted prime farmland represents a very small percent of the available prime farmland in the Project area, and because temporarily affected areas, including temporary access roads, would be restored to their approximate pre-construction conditions, we conclude that the Project's impact on prime farmland soils would be short term and would not be significant. The Project would impact about 44.2 acres of soils that are classified as highly compaction prone and about 67.5 acres of soils that are highly susceptible to erosion by wind or water. Soils that are most susceptible to water erosion include those with bare or sparse vegetative cover, non-cohesive soil particles, low infiltration rates,

and/or moderate to steep slopes. Soils with a high potential for wind erosion are generally in areas that experience wind velocities that are sufficient to lift individual soil particles.

Northern would utilize erosion and sedimentation control measures in accordance with the Project SWPPP and CESCP. Northern would segregate the upper 12 inches of topsoil, test topsoil and subsoil for compaction following construction, and would de-compact soils in accordance with the FERC Plan. Following construction, Northern would seed and mulch disturbed areas. Northern would monitor revegetation efforts after the first and second growing seasons, or until revegetation is complete (in compliance with the Plan). In agricultural areas, revegetation would be considered successful if crop growth and vigor are similar to adjacent undisturbed portions of the same field. Therefore, we conclude that the Project would not have significant impacts on soils that are susceptible to compaction or erosion.

The EPA commented that the EA should discuss the frequency or likelihood of hazardous materials spill events. One release of non-regulated fuel oil was identified approximately 500 feet north of the Elk River 3rd Branch Line at a residential home. The leak was of fuel oil #1 and #2. However, this site was closed in 2018, and the direction of groundwater flow in the area is anticipated to be northeast or easterly. As the site is closed and groundwater from the site would not flow into the Project area, there is minimal potential for groundwater contamination from this site. Based on a review of publicly available databases of contaminated sites, no other potential sources of soil or groundwater contamination were identified within 0.25 mile of the Project area (EPA, 2023a). If Northern encounters any contaminated soil or groundwater during Project construction, contaminated materials would be sampled and Northern would develop a site-specific contaminated soil and/or groundwater plan detailing how it would handle and dispose of contaminated soil and/or water in accordance with applicable regulations. In the event of a spill or leak during construction activities, Northern would implement the measures in its SPCCP.

Based on the small area of permanent soil impacts and Northern's mitigation measures, we conclude impacts on soils would mainly be short-term, lasting until revegetation was successful, and would not be significant.

3.0 WATER RESOURCES

3.1 Groundwater

The Project location occurs over the Cambrian-Ordovician aquifer system (USGS, 2003), which also extends into Iowa, Michigan, Illinois. This aquifer system consists of sandstone units and often is under stress due to water withdrawals. There are no springs within 150 feet of the Project area and no known private or public water supply wells within Project workspace. However, there are 19 private water supply wells within 150 feet of the Project.

The EPA commented that the EA should evaluate impacts on drinking water supply wells and identify mitigation measures. With landowner approval, Northern would conduct water quality testing of the water supply wells within the Project area before and after construction. If construction activities adversely affect a water supply well, Northern would provide a temporary source of potable water and restore the damaged well to its former capacity and quality, to the extent practicable. In addition, refueling or storage of hazardous liquids would not be allowed within a 200-foot radius of the private wells, except for certain necessary equipment that cannot be moved for refueling, in which case refueling would be overseen by the EI.

The EPA oversees the Sole Source Aquifer Protection Program to protect high production aquifers (EPA, 2023b). No EPA-designated sole-source aquifers are within 1 mile of the Project (EPA, 2023b). No significant impacts on groundwater resources are expected to occur from construction and operation of the Project. In the event that shallow groundwater occurs in the pipeline trench, dewatering would be completed according to the CESCP and Northern's Procedures.

Impacts from Project construction could result in increased groundwater turbidity, groundwater table fluctuations, short-term disruption of recharge, localized flow along the pipeline trench, or contamination from a spill or leak of hazardous substances. However, Northern would mitigate these potential impacts through the use of the standard construction methods and mitigation measures described in the FERC Plan and Northern's Procedures and SPCCP. In the event of an inadvertent release of drilling fluid from HDD operation, Northern would follow the measures in its HDD Plan. Given Northern's mitigation measures, we conclude that impacts from Project construction and operation on groundwater resources would not be significant.

3.2 Surface Water and Wetlands

The EPA commented that the EA should include a wetlands and waterbody delineation and U.S. Army Corps of Engineers jurisdictional determination. Northern provided wetland delineation reports[9] for each spread. The reports are part of the docket and referenced herein. The Project qualified for U.S. Army Corps of Engineers non-reporting Regional General Permit 3 and does not require Corps review. Therefore, no jurisdictional determination is available for the Project.

Northern conducted field surveys in August, September, October, and November 2023 to identify waterbodies and wetlands within the Project area. Two intermittent streams at mileposts (MP) 1.67 on the Elk River 3rd Branch line and 3.47 on the Tomah Branch Line loop, and one perennial stream (Hardwood Creek) at MP 2.74 on the Elk River 3rd Branch line would be crossed by the Project. Northern would use the HDD method to cross all three streams, thereby eliminating impacts on the bed and banks of the streams. Northern has committed to immediately responding to inadvertent returns in waterbodies or wetlands, upon discovery. Drilling operations would be suspended until the EI can properly document the release, assess the impact and report the incident. Northern would take necessary actions to eliminate, reduce or control the inadvertent return. Drilling operations would be resumed once the inadvertent return is contained and initial steps to remediate the area are underway. Northern would install the pipeline in accordance with the FERC Plan, Northern's Procedures, and its HDD Plan. Therefore, we conclude no significant impacts on waterbodies would occur from the Project.

Northern identified 0.8 acre of wetlands that would be impacted during construction, including palustrine emergent (0.5 acre), palustrine scrub-shrub (0.1 acre), and palustrine forested (0.2 acre) wetlands. All but one of the pipeline crossings of wetlands would be installed using the HDD method. Northern would maintain a six-foot wide travel lane over the HDD paths during construction. Foot traffic associated with the travel lanes would impact 0.5 acre of wetlands. Northern would require a 100-foot-wide construction right-of-way and extra temporary workspace around MP 1.37 of the Elk River 3rd Branch Line (figure 2). The extra space would accommodate equipment necessary to install the 30-inch-diameter pipe as well as maximize pull-back length for HDD operations. Temporary workspace, and access roads would impact 0.3 acre of wetlands.

[9] Accession number 20240212-5267; Appendix 2B

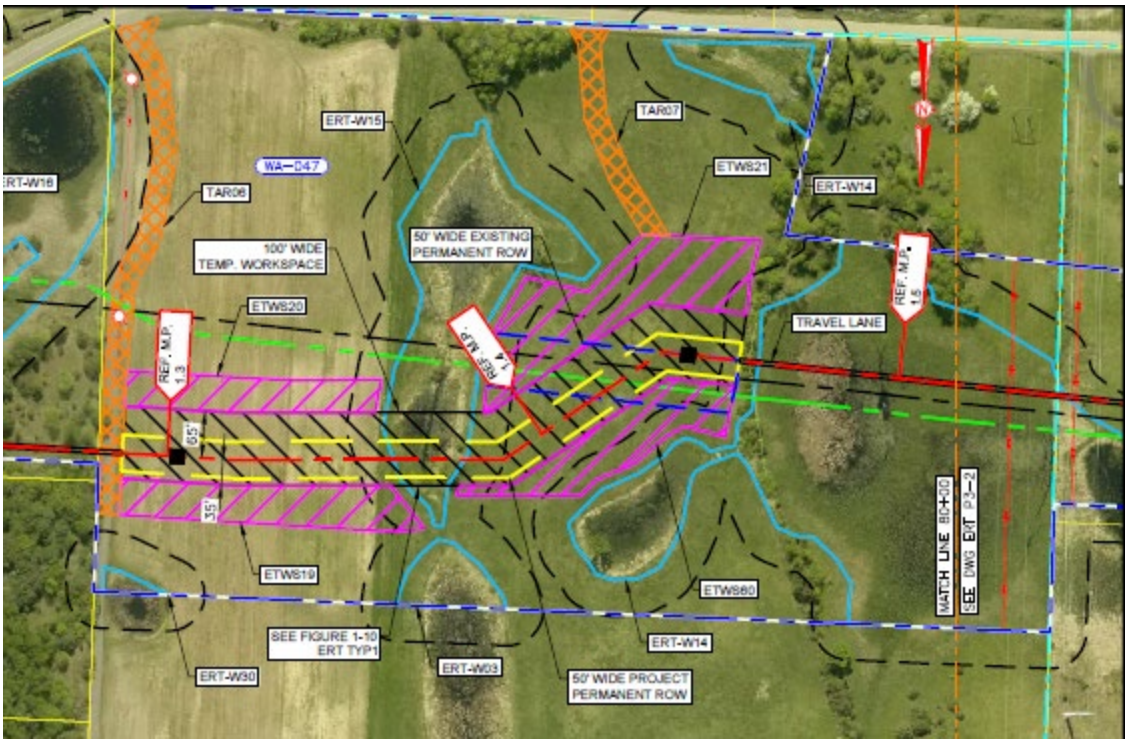


Figure 2: 100-foot Construction Right-of-Way Through Wetland ERT -W15

Northern would install pipeline crossings at wetlands in accordance with its Procedures as described in section A.7.2, with deviations to the FERC Procedures, as described in table C-1 of appendix C. Given the deviations would allow Northern the necessary workspace to complete open trench, and HDD crossings, and all temporary impacts would be restored upon completion, we conclude that all requests to deviate from FERC's Procedures have been adequately justified.

Upon completion of construction activities, Northern would return wetlands, temporarily impacted by the Project to original contours and revegetate in accordance with the Procedures. The Project would permanently convert about 0.1 acre of palustrine forested wetland to palustrine emergent to maintain the rights-of-way in accordance with the FERC Procedures. There would be no net loss of wetlands. We have determined that impacts within the temporary workspaces on wetlands would be short-term and not significant and impacts within the permanent right-of-way would also largely be short-term and not significant given the scope of impact is limited to vegetative maintenance.

3.3 Water Use

The EPA commented that the EA should identify whether hydrostatic testing would occur. Northern expects that approximately 1,742,000 gallons of water would be used for hydrostatic testing of the Project facilities, and about 423,000 gallons of water would be used to pre-test the HDD pipe. Water for the Project would be obtained from local municipal sources. No additives or chemicals would be added to the hydrostatic test water. Hydrostatic test water would be disposed according to each state's regulations and local requirements. In Minnesota, the hydrostatic test water would be disposed at an approved facility. In Wisconsin, the hydrostatic test water would be discharged into a well-vegetated upland area adjacent to the right-of-way or disposed at an approved facility. Discharged waters in a well-vegetated area would be dispersed by a splash plate and filtered through hay or straw bales. Given the proposed mitigation measures, we conclude that the Project's water use would not have significant impacts on groundwater resources.

The Minnesota Department of Natural Resources (MDNR) commented that Northern should avoid the use of dust control products containing chlorides. Northern would use water obtained for hydrostatic testing to control dust as necessary. The amounts of water used would be nominal and not contain additives.

4.0 VEGETATION, FISHERIES, WILDLIFE, AND SPECIAL STATUS SPECIES

4.1 Vegetation

Vegetation types in the Project area are characterized as agricultural land, forest/woodland habitat, wetlands (emergent, forested, and scrub-shrub), open land, residential land, and industrial land. Table D-1 of appendix D summarizes the Project's impacts on each vegetation type.

The primary vegetation cover type affected by the Project is agricultural land (cropland and pasture). No vegetative cover is present at the La Crescent Compressor Station as the entire facility is within a graveled and fenced facility. Across the Project, Northern proposes to clear about 3.5 acres of trees for construction and retain about 1.1 acre of forest/woodland for operation.

Primary impacts on vegetation from the Project would be from cutting, clearing, and/or removal of existing vegetation within construction work areas. Additional effects associated with disturbances to vegetation could include the increased potential for soil erosion and introduction and establishment of invasive weed species.

Invasive Species and Noxious Weeds

Northern conducted noxious and invasive weed surveys between August and November 2023. Noxious and invasive weeds identified within the construction right-of-way included spotted knapweed, Canada thistle, and wild parsnip. Purple loosestrife, listed on the Minnesota State-Control List, was identified in shallow marsh wetland communities within the survey boundary for the Elk River 3rd Branch Line, outside of proposed workspaces. As part of the *Noxious Weed Control Plan*, Northern would mitigate, minimize, and control the spread of invasive plant species in wetlands.

Northern's *Noxious Weed Control Plan* includes (but is not limited to) installing silt fencing around noxious weed areas, placing cleaning stations for equipment along the Project route, and using seed mixes approved by the NRCS.

Unique and Sensitive Vegetation

The MDNR tracks oak wilt in Minnesota, which is caused by an invasive fungus that may affect and kill all species of oak trees (MDNR 2023). All the Minnesota components of the Project are within the oak-wilt infected area. The high-risk time when oaks are most susceptible to infection is from April 1 through July 15. Northern would attempt to limit disturbance to oak stands during this time by clearing trees on the Elk River 3rd Branch Line and Tomah Branch Line loop in February and March 2025, which is outside of the high-risk time when oak species are most susceptible to infection. Northern does not propose clearing on the other Project components. If avoidance of all oak removal from April 1 through July 15 is not possible, Northern would comply with MDNR recommendations to apply water-soluble paint or shellac within 10 minutes to the cuts. If an infected oak tree is cut, Northern would tarp the infected tree to prevent the spread of disease.

The Minnesota Department of Agriculture (MDA) recognizes Dutch elm disease as a fungus that can kill elm trees and other species (MDA, 2023). The MDA does not have regulations or quarantine zones for Dutch elm disease but recommends limiting removal and disposal of elm trees.

The Elk River 3rd Branch Line and Farmington to Hugo C-line cross through three regionally significant ecological areas (RSEA). The Elk River 3rd Branch Line crosses through an RSEA on private land from MP 1.20 to MP 1.27, MP 1.38 to MP 2.79 and from MP 3.30 MP 3.43. Northern would use the HDD method and open cut method to cross these areas (the open cut is at wetland ERT-W15 between MP 1.38 and MP 1.39). The Farmington to Hugo C-line crosses two RSEAs on private land; between MP 0.03 and 0.24, Northern would install the pipeline using open cut and HDD methods and between MP 0.02 and MP 0.86, the pipeline would be installed via HDD only. Impacts on the RSEAs outside of the HDD areas would be on herbaceous pastures, agricultural fields, and residential areas. Northern would restore workspaces and would allow temporary workspaces to return to pre-construction land use and vegetative cover. Northern would coordinate with the MDNR regarding these areas to determine if any specialized restoration is required.

Northern would clear trees in Washington County, Minnesota, which is listed as a quarantine county for Emerald Ash borer (EAB) in accordance with the MDA and Wisconsin Department of Agriculture EAB quarantine regulations and would not transport ash trees (limbs, branches, stumps, or chips) outside of the quarantine zone. Northern would cut trees and haul them off for disposal within the applicable county; however, if requested by the landowner, Northern would leave cut trees on the landowner's property for beneficial reuse. If a landowner requests that Northern remove cut trees, Northern would find a disposal location within each EAB quarantine area to prevent transportation of potentially infected wood outside of the quarantine area. The Lake Mills to Albert Lea E-line and the La Crescent Compressor Station do not contain any wooded areas and Northern would not clear trees on the Farmington to Hugo C-line.

Northern would not conduct maintenance clearing over the full width of the permanent right-of-way more frequently than every three years; however, a corridor approximately 10 feet in width and centered over the pipeline may be maintained annually in an herbaceous state. Northern would not conduct any routine vegetation mowing or clearing between HDD entry and exit points in riparian or wetland environments.

Vegetation impacts by the Project are expected to be mostly short-term and recover relatively quickly (one to two growing seasons). However, impacts on forested lands would take longer to return to pre-construction conditions (typically up to 30 years). Northern would adhere to the FERC Plan, which includes measures to minimize erosion, restoring approximate pre-construction contours in temporary workspaces, increasing the potential for successful revegetation of the workspaces, minimizing impacts on native vegetation, and preventing and controlling the spread of noxious weeds. While implementation of these measures would minimize the length of time to restore the right-of-way, sometimes soils take a few years to recover. Given Northern's

proposed construction and mitigation measures and the limited area of disturbance, we conclude that impacts on vegetation would not be significant.

4.2 Fisheries

The MDNR classifies Hardwood Creek as a warmwater fishery supporting limited species of panfish, bass, catfish, carp, suckers, and pikes. No other stream crossed by the Project is capable of supporting fisheries. Northern would avoid direct impacts on fisheries by crossing all streams using the HDD method. Indirect impacts from sedimentation or inadvertent returns of drilling mud used to conduct the drill may occur. Northern would install the pipeline in accordance with the FERC Plan, Northern's Procedures, and the HDD Plan. Given that no in-stream work is proposed, and the measures that Northern would take to prevent and respond to an inadvertent return, we conclude impacts on fisheries would be temporary and not significant.

4.3 Wildlife

Agricultural and open lands cover over 97 percent of the Project area. The remaining 3 percent contains small, forested areas and wetlands. Wildlife species that are common to the Project area include many large and small game species, and several species of birds and rodents. No unique or sensitive wildlife resources were identified during Northern's consultation with the MDNR or the Wisconsin Department of Natural Resources (WDNR). Construction activities would last two to six months per spread and no more than nine months for the entire Project. The Project would cause a temporary loss of habitat and the displacement of wildlife within the Project area. Direct mortality to smaller mammals that are less mobile, or which take refuge underground in the work area, could occur during the construction activities. Northern would reduce impacts on most forested and aquatic habitats by using the HDD method to install pipeline under these areas. All temporary impacts would be restored in accordance with FERC's Plan and Natural's Procedures. Given the limited Project area, and large tracts of similar habitat adjacent, we conclude that the Project would result in short-term and not significant impacts on wildlife.

Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 U.S. Code [U.S.C.] 703-711); bald and golden eagles are additionally protected under the Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668d). Executive Order 13186 (66 FR 3853) directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the U.S. Fish and Wildlife Service (USFWS). Executive Order 13186 was issued, in part, to ensure that environmental analyses of federal actions assess the impacts of these actions/plans on migratory birds. It also states that emphasis should be placed on species

of concern, priority habitats, and key risk factors, and it prohibits the take of any migratory bird without authorization from the USFWS.

The USFWS Information for Planning and Consultation (IPaC) system identified nine migratory bird species with potential to occur in the Project area. They include the black tern, black-billed cuckoo, bobolink, Canada warbler, chimney swift, golden-winged warbler, Henslow's sparrow, lesser yellowlegs, and pectoral sandpiper. Construction of the Project has the potential to impact birds protected under the MBTA, including bald and golden eagles. The Project may result in mortality of eggs and/or young, because immature birds could not avoid active construction. Ground disturbing activities could cause disturbance during critical breeding and nesting periods, potentially resulting in the loss of nests, eggs, or young.

Although the provisions of the MBTA are applicable throughout the entire year, most migratory bird nesting activity in Minnesota and Wisconsin occurs mid-April to mid-July. Northern plans to conduct tree clearing in February and March 2025, outside the primary nesting season. Additionally, Northern is committed to limit removal or impacts on vegetation during the primary nesting season of breeding birds. In the event that construction work cannot be avoided during the peak breeding season, Northern would conduct a preconstruction nest survey for breeding birds within the Project area. If any nests are observed, Northern would contact the USFWS, MDNR, and/or WDNR to determine any necessary avoidance or mitigation measures.

No bald or golden eagle nests were observed during Northern's field surveys conducted between August and November 2023. In the event a bald or golden eagle or nest is observed prior to or during construction, Northern would coordinate with the MDNR and/or WDNR and adhere to USFWS's National Bald Eagle Management Guidelines.

Given the limited scope of Project impacts and Northern's proposed mitigation measures, we have determined that the Project would not result in population-level impacts on migratory birds or bald and golden eagles, or significant measurable negative impacts on their habitat.

4.4 Special Status Species

FERC, as the lead agency, is required by section 7 of the ESA to ensure that the Project would not jeopardize the continued existence of a federally listed threatened or endangered species or result in the destruction or adverse modification of designated critical habitat. To assess the potential occurrence of federally listed threatened and endangered species and species protected and managed by the states of Minnesota and Wisconsin, Northern referred to the USFWS' IPaC system, reviewed the MDNR Natural Heritage Information System, and completed a WDNR Endangered Resources Review Verification. Table E-1 of appendix E lists all federal and state listed species that may be

affected by the Project. The Project is in the range of six federally endangered species, one non-essential experimental population species, two proposed endangered species, and one candidate species. No suitable habitat exists in the Project area for five species identified in the IPaC, including the whooping crane (non-essential experimental population), higgins eye pearly mussel, winged mapleleaf, salamander mussel, or Karner blue butterfly. Therefore, the Project would have *no effect* on these species and they are not discussed further.

Northern Long-Eared and Tricolored Bats

As summer roosting habitat for the NLEB may be present in the Project area, the potential impacts on individual bats may occur if clearing or construction takes place during the summer. However, Northern would conduct tree clearing in the winter to minimize potential impacts on the species and Northern would consult with the appropriate agencies prior to any removal of trees. In February 2024, Northern used the USFWS determination key for NLEB to determine that the Project *may affect, but is not likely to adversely affect* the NLEB at all spreads except the La Crescent Compressor Station. Construction at the La Crescent Compressor Station would have *no effect* on the NLEB. In an email dated March 6, 2024 the USFWS Minnesota-Wisconsin Ecological Services Field Office concurred with the effects determinations. Consultation is complete.

Because the tricolored bat may be found in similar habitat as the NLEB, we expect the Project would result in similar impacts on the tricolored bat. As discussed above, Northern would restrict proposed tree clearing to occur during the winter to minimize potential impacts to the species; therefore, the Project would not be likely to jeopardize the continued existence of the tricolored bat. The USFWS also concurred that all determinations made for the NLEB would be the same for the tricolored bat.[10]

Gray Wolf

The federally endangered gray wolf is unlikely to occur within the Project area. However, due to the wide range and mobility of this species, the Project *may affect but is not likely to adversely affect* the gray wolf. The USFWS determination key dated February 6, 2024, concurred with this determination. Therefore, no further consultation for this species is necessary.

[10] Accession number 20240313-5057

Monarch Butterfly

The monarch butterfly, a candidate species, has the potential to occur within the Project area. The Project area is within the species' known range and suitable habitat was identified within the Project area. Northern would restore all but about one acre (aboveground facilities associated with the Farmington to Hugo C-line) of the Project to approximate pre-construction conditions. Vegetation would be allowed to re-establish naturally or through post construction restoration. Therefore, we anticipate that the Project *would not likely jeopardize the continued existence* of the monarch butterfly.

Rusty Patch Bumble Bee (RPBB)

Northern is conducting ongoing floristic surveys to determine the presence of the RPBB and its habitat. About 48.9 acres of RPBB habitat exists in and adjacent to the Project area at the Elk River 3rd Branch Line and Tomah Branch Line loop. Project construction would impact about 28 percent (14 acres) of the available RPBB habitat in and immediately adjacent to the Project area. Northern would restore all areas of RPBB habitat to pre-construction conditions following construction. Northern would finalize consultation with the USFWS when the surveys are complete. Northern proposes to implement the following mitigation measures for the RPBB:

- temporary access roads would follow existing trails, gravel roads, or two-track roads, where possible, as they do not provide suitable habitat;
- where approved by landowners, Northern would use a seed mix during restoration that includes a diverse mix of flowering native species, including species that bloom in spring, summer, and fall; and
- Northern would implement periodic vegetation maintenance activities to control invasive shrubs that can reduce potential RPBB habitat.

Given the proposed avoidance measures and Northern's proposed restoration of the construction rights-of-way, we conclude that the Project *may affect,* but is *not likely to adversely affect* the RPBB. However, as consultation is not yet complete, **we recommend that the following measure be included as an environmental condition in the Commission's Order:**

- **Northern shall <u>not begin</u> construction activities <u>until</u>:**
  a) FERC staff receives comments from the USFWS regarding the effects of the proposed action on the rusty patch bumble bee;
  b) FERC staff completes ESA consultation with the USFWS; and
  c) Northern has received written notification from the Director of the Office of Energy Projects (OEP), or the Director's designee, that construction or mitigation measures may begin.

The Project is in range for nineteen state-listed species, five of which include species that are also federally listed (NLEB, tri-colored bat, higgens eye pearlymussel, winged mapleleaf, and salamander mussel) and discussed with the federally listed species. There is no suitable habitat within the Project area for ten state listed species including, the timber rattlesnake, trumpeter swan, common gallinule, narrow-leaved water plantain, rattlebox, fernleaf false foxglove, lance-leaf violet, American ginseng, least darter, and redfin shiner. Therefore, the Project would not impact these species, and they are not discussed further. Additionally, we conclude the Project is not likely to significantly impact three state-listed species of special concern, the wood turtle, purple martin, and autumn fimbry, given that Northern would avoid potential habitat using the HDD method.

Blanding's turtle, a state-listed threatened species, has the potential to be present near the Elk River 3rd Branch Line, Farmington to Hugo C-line, and Tomah Branch Line loop. Northern would limit potential habitat impacts by using the HDD method to cross under all waterbody and wetland complexes with suitable habitat except for ERT-W15, which would be crossed via open-cut trench method. Northern developed a *Blanding's Turtle Avoidance Plan* (Avoidance Plan) based on MDNR's recommendations including, but not limited to:

- Turtles that are in imminent danger should be moved, by hand, out of active Project;
- silt fencing should be used to keep turtles out of construction areas, where necessary, and removed after the area has been revegetated;
- mulch, if used, will not contain synthetic (plastic) fiber additives in areas that drain to a Minnesota public water;
- erosion control mesh, if used, will be limited to bio-netting or natural netting, specifically, Category 3N or 4N in the 2016 and 2018 Minnesota DOT standards; and
- construction areas should be returned to preconstruction conditions.

Therefore, we conclude the Project is not likely to significantly impact Blanding's turtle.

5.0 CULTURAL RESOURCES

In addition to accounting for impacts on cultural resources under NEPA, section 106 of the NHPA, as amended, requires FERC to take into account the effects of its undertakings on historic properties listed, or eligible for listing on the National Register of Historic Places (NRHP),[11] and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. Northern, as a non-federal party, is assisting FERC in meeting our obligations under section 106 and its implementing regulations at 36 CFR 800. The section 106 process is coordinated at the state level with the State Historic Preservation Officer. In Wisconsin, the Wisconsin Historical Society serves as the State Historic Preservation Officer (WISHPO), while in Minnesota, the State Historical Preservation Officer (MNSHPO) fulfills the role.

5.1 Area of Potential Effects

The area of potential effects (APE) is the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16(d)). The direct APE for archaeological sites includes all areas of potential effects where ground-disturbing activities are possible, while the indirect APE is considered to be the geographic areas from which any permanent infrastructure has the potential to impact, diminish, or alter the visual, auditory, vibratory, or atmospheric setting of a NRHP-listed or NRHP-eligible property. An agreement between Northern, the MNSHPO, and the WISHPO established the indirect APE for small pipeline fixtures (not exceeding 10 feet in height) as an area of line of sight extending 500 feet outward from the limits of any planned fixtures or aboveground appurtenant facilities (Ryan et. al., 2024a).

For Project components in Freeborn, Houston, and Washington Counties, Minnesota, the direct APE consists of the proposed Project's footprint, in four distinct locations. The direct APE for the Lake Mills to Albert Lea E-line totals approximately 77.5 acres (Ryan, et. al., 2024a). For the Elk River 3rd Branch Line component, the direct APE totals approximately 32.0 acres (Ryan et. al., 2024b). For the Farmington to Hugo C-line segment, the direct APE is approximately 42.0 acres (Ryan and Dold 2024), while the direct APE for Project components at the La Crescent CS total 1.5 acres, located entirely within the current facility lot and drive (Ryan et. al. 2024c). Project components in Monroe County, Wisconsin consist of the Tomah Branch Line loop. The direct APE for Tomah Branch Line loop totals approximately 25.0 acres (Hodgson, et al., 2004).

[11] In accordance with 36 CFR 800.16(l)(1), a historic property is any prehistoric or historic district, site, building, structure, object, or property of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization, included in, or eligible for inclusion in, the NRHP. This term includes artifacts, records, and remains that are related to and located within such properties.

The APE is sufficient to account for all potential effects to historic properties by the proposed Project.

In its effort to identify historic properties in the Project APE and to account for any effects to those properties by the proposed Project, Northern conducted cultural resources investigations, which included background research and Phase I archaeological surveys.

Survey for the Lake Mills to Albert Lea E-Line Project component determined that a historical drainage ditch crosses a portion of the direct APE. Created in the early twentieth century to drain the area to support the expansion of agriculture, the ditch was improved in the 1970s and again as recently as 2009. Although this portion of the drainage ditch is recommended as not eligible for listing in the NRHP, Northern would use a private driveway that crosses the ditch to avoid any impacts. The desktop analysis of historic structures within the 500-foot buffer identified buildings associated with the Brune Farmstead; however, it was discovered that several of these outbuildings were razed prior to field surveys. Due to the distance of the Brune Farmstead from the APE (approximately 330 feet), and the presence of mature vegetation at the farmstead, the proposed tie-in valve setting would have no effect on the remaining standing structures. In addition, Northern recommends that the individual structures remaining at the farmstead are not eligible for listing in the NRHP (Ryan et al., 2024a).

Northern determined that a portion of Elk River 3rd Branch Line where a slope separates a level area and the floodplain of a creek has a high potential for buried cultural deposits in the mixture of sediment resulting from soil erosion from the higher sections of the slope. While the HDD entry and exit points would be safely away from the area of concern, Northern plans to restrict travel to foot traffic only and anticipates that no ground disturbance would occur in the area of concern. All 12 of the architectural resources recorded in the area of the Elk River 3rd Branch Line were constructed between 1964 and 1990 and were evaluated as either ineligible for listing on the NRHP or proved to be built too recently and were not analyzed (Ryan et al., 2024b).

Northern would construct a majority of the Farmington to Hugo C-Line using the HDD method. Two historic inventory resources were initially identified by Northern during pre-field background research. Both would be avoided through boring, and no impacts are anticipated (Ryan and Dold, 2024a). Northern conducted a desktop survey and field survey of potential architectural resources within 500 feet of the existing Hugo Compressor Station. No architectural resources were identified. As such, the proposed Hugo Compressor Station modifications would not substantively alter the viewshed.

Northern's surveys within the APE of the existing La Crescent Compressor Station in Houston County, Minnesota did not identify any cultural resources. Therefore,

Northern determined the proposed compressor station modifications would not substantively alter the viewshed (Ryan et al., 2024c).

Pre-field background investigations in Monroe County, Wisconsin for the Tomah Branch Line Loop did not identify any previously reported NRHP-listed properties, archaeological sites, cemeteries, standing structures, or other locations of historical interest. Likewise, Northern's field surveys did not uncover any cultural resources within either the direct or indirect APE (Hodgson et al., 2024).

As a result of the investigations in Monroe County, Wisconsin, on February 24, 2024, Northern recommended a finding of "No Historic Properties Affected" by Project implementation and suggested no further investigations were warranted. On February 26, 2024, the WISHPO agreed with the recommendation by email, writing that "[w]e have completed our review of…Northern Natural Lights Expansion Project and concur with your findings that no historic or cultural resources eligible for, or inclusion on the National Register were encountered. Or our office concurs with the assessment that no historic properties will be affected by this project. Our office has no further concerns for this project." We agree.

Northern has finalized the cultural resources survey reports for the La Crescent Compressor Station and the Farmington to Hugo C-Line; however, the Elk River 3rd Branch Line and Lake Mills to Albert Lea E-line reports are still in draft form. On March 22, 2024 the MNSHPO informed Northern that "[w]e cannot concur with your agency's finding of 'no historic properties affected' at this time due to missing information… We will comment on archaeological survey work after the addendum reports are received."[12]

[12] Accession Number 20240605-5033

5.2 Tribal Outreach

On February 14, 2024, Northern contacted the following federally recognized Tribes regarding the Project: Sokaogon Chippewa Community, Wisconsin; Red Cliff Band of Lake Superior Chippewa Indians of Wisconsin; Leech Lake Band of the Minnesota Chippewa Tribe; Lac du Flambeau Tribe, Lac du Flambeau Band of Lake Superior Chippewa Indians; Keweenaw Bay Indian Community, Michigan; Grand Portage Band of the Minnesota Chippewa Tribe; Fond du Lac Band of the Minnesota Chippewa Tribe; Bad River Band of the Lake Superior Tribe of Chippewa Indians of the Bad River Reservation, Wisconsin; Winnebago Tribe of Nebraska; Miami Tribe of Oklahoma; Lac Vieux Desert Band of Lake Superior Chippewa Indians of Michigan; Kickapoo Tribe of Oklahoma; Ho-Chunk Nation of Wisconsin; Upper Sioux Community, Minnesota; Spirit Lake Tribe, North Dakota; Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota; Santee Sioux Nation, Nebraska; Prairie Island Indian Community in the State of Minnesota; Menominee Indian Tribe of Wisconsin; Lower Sioux Indian Community in the State of Minnesota; Iowa Tribe of Kansas and Nebraska; Fort Belknap Indian Community of the Fort Belknap Reservation of Montana; Flandreau Santee Sioux Tribe of South Dakota; Cheyenne and Arapaho Tribes, Oklahoma; Apache Tribe of Oklahoma; and White Earth Band of Minnesota Chippewa.

Northern provided a Project information package, which included Project description and location maps. On March 26, 2024, we sent our Notice to those same Tribes. There have been no comments from any of the Tribes to date.

5.3 Unanticipated Discoveries Plan

Northern developed Project-specific plans titled *Northern Lights 2025 Expansion Project—Minnesota* and *Northern Lights 2025 Expansion Project—Wisconsin* (Unanticipated Discovery Plan), which outline the procedures to follow, in accordance with state and federal laws, in the event that unanticipated cultural resources or human remains are discovered during construction of the Project, including consultation with FERC, the MNSHPO and WISHPO, and Tribes regarding discoveries. The Unanticipated Discovery Plan was submitted to FERC, the MNSHPO, and the WISHPO. We find the Unanticipated Discovery Plan acceptable.

5.4 Compliance with the National Historic Preservation Act

Northern has not completed consultation with the MNSHPO and other appropriate parties regarding the potential for the proposed Project to affect historic properties.

Therefore, we recommend the following measure be included as an environmental condition in the Commission's Order:

- **Northern shall not begin construction of facilities and/or use of all staging, storage, or temporary work areas and new or to-be-improved access roads until:**

  a. **Northern files with the Secretary of the Commission (Secretary) comments on the cultural resources reports and plans from the MNSHPO;**
  b. **the ACHP is afforded an opportunity to comment if historic properties would be adversely affected; and**
  c. **FERC staff reviews and the Director of OEP, or the Director's designee, approves the cultural resources reports and plans, and notifies Northern in writing that treatment plans/mitigation measures may be implemented and/or construction may proceed.**

  All materials filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "CUI//PRIV- DO NOT RELEASE."

6.0 LAND USE, RECREATION, AND VISUAL RESOURCES

The land within the Project area is characterized as agricultural, forest/woodland, wetlands, open land, residential, and industrial land. The Project would impact a total of 177.2 acres for construction and require 47.9 acres for operation. Approximately 21.2 percent (37.6 acres) of the construction footprint would overlap with existing pipeline right-of-way or existing Northern facilities, while 48.8 percent (23.4 acres) of the operational footprint would overlap with existing rights-of-way. Appendix F summarizes the Project's land use impacts.

Northern would build temporary construction entrances from existing public and private roads to gain access to construction workspaces. In addition, Northern would construct and use, or improve, 18 temporary access roads, which would result in 6.9 acres of temporary impact on primarily agricultural, open, and residential land.

Northern also would construct six new permanent access roads to the new aboveground appurtenant facilities that would result in 3.4 acres of impact primarily on agricultural land, open land, industrial land, and residential land. The open land and residential land consists of an existing landowner driveway (PD05) that Northern would use during operations to access the proposed Farmington tie-in valve setting. The new permanent driveways also would be used for the tie-over valve setting on the Lake Mills to Albert Lea E-line (three driveways), the Elk River 3rd Branch Line, and the Tomah Branch Line loop.

Six existing permanent access roads at the La Crescent Compressor Station, the E-line tie-over valve setting (Lake Mills to Albert Lea E-line), the Elk River tie-over valve setting (Elk River 3rd Branch Line), the Hugo compressor station (Farmington to Hugo C-line), and the Tomah Branch Line loop receiver facility and tie-over valve setting (Tomah Branch Line loop) would be used for temporary access; two of these would remain in place for operation.

Following construction, Northern would remove gravel and geotextile from any temporary access roads or construction entrances that required placement of new gravel. Northern would decompact soil in agricultural land and restore contours to approximate preconstruction conditions in accordance with the FERC Plan.

Northern would use nine staging areas for construction within agricultural and open land. Staging areas would either undergo full right-of-way topsoil removal, be overlain by timber mats, or be covered with rock underlain with geotextile fabric. After construction, Northern would decompact soil in agricultural areas and restore contours to preconstruction conditions.

6.1 Residential Areas and Planned Developments

Planned Residential and Commercial Areas

Northern contacted the Planning and Zoning Administrator for Freeborn County, Minnesota regarding any planned developments, and received a response on May 29, 2024 stating that there are no future plans for the Project area. According to the Freeborn County Land Use and Cover map, the Lake Mills to Albert Lea E-Line is primarily in cultivated land. Freeborn County does not appear to have a comprehensive plan or land use plan beyond the County Land Use and Cover map.

The Tomah Branch Line loop is in Monroe County, Wisconsin. Wisconsin Department of Transportation has no nearby projects planned for 2025 or 2026. The Monroe County zoning director is not aware of any proposed actions in the vicinity of the Tomah Branch Line loop. The Zoning director did indicate that there is a property for sale over 0.4 mile east of the tie-in for the Tomah Branch Line loop. However, no permits have been received by the county.

Given the Project would not cross any planned residential or commercial areas, we conclude that impacts would be minimal and not significant.

Existing Residences

The current alignment for Lake Mills to Albert Lea E-line shows no residence or sheds within 50 feet of associated workspaces; the closest residence to that component is approximately 85 feet west of temporary access road (TAR) 02 near MP 31.21. There are no residences or buildings within 50 feet of the La Crescent Compressor Station; the closest residence to that component is a residence about 0.13 mile northwest of the existing compressor station. The other three pipelines have residents or sheds within 50 feet of the workspaces as described table 2.

Table 2: Residences within 50 feet of the Project

Building Type	MP	Workspace Type	Distance from Workspace (feet)	Direction from Workspace
Elk River 3rd Branch Line				
Shed [1]	2.75	TWS	32	North
Shed	2.79	TWS	39	North
Single-family residence	3.41	ATWS	45	Southeast
Farmington to Hugo C-line				
Shed	0.55	TAR	Within 1 foot	Surrounded – all directions
Single-family residence	0.55	TAR	44	South
Tomah Branch Line loop				
Shed	2.27	ATWS	17	South
Single-family residence	2.51	TWS	6	North
Single-family residence	2.56	TWS	31	South
Shed	2.58	ATWS	10	North

[1] The two sheds are within 50 feet of an HDD foot-traffic travel lane; no other workspaces are within 50 feet of these buildings.

Northern would implement mitigation measures for impacts on residences including (but not limited to):

- Minimize the duration of open trench and construction disturbance time near the residences (anticipate one to two weeks). Northern would secure the trench within residential areas with safety fencing at the end of each day of construction.
- Northern would restrict vehicle speeds on the right-of-way to ten miles per hour in the vicinity of the residences.
- Northern would fence the edge of the construction workspace with safety fencing extending a minimum of 100 feet either side of the residence and remain in place until final cleanup is complete.
- Northern would ensure residential access is maintained throughout construction.
- Northern would restore all lawn and landscape areas in the construction workspace immediately after cleanup operations, or as specified in landowner agreements, consistent with the FERC Plan.

Overall construction of the Project facilities could result in short-term impacts on nearby residential areas, including increased construction-related traffic on local roads, as well as dust and noise generated during construction. Nearby residences and buildings may experience temporary increased noise levels and traffic during Project construction, but typically restricted to daytime hours. Northern developed a site-specific plan for the residence at MP 2.51 on the Tomah Branch line Loop, which can be found in appendix B. The residence would be about six feet from the temporary workspace. **To ensure the property owner has adequate input to a construction activity in close proximity to their residence, we recommend the following measure be included as an environmental condition in the Commission's Order:**

- **Prior to construction, Northern shall file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, evidence of landowner concurrence with the site-specific construction plan for construction workspace within 10 feet of the residence at MP 2.51 on the Tomah Branch line Loop. If Northern is unable to obtain concurrence, Northern shall file a revised site-specific construction plan that maintains a 10-foot buffer between the residence and the project workspace.**

Once facility modifications are completed and placed into service, operational impacts are expected to be like those currently at the existing Project facilities.

Given Northern's proposed mitigation measures for residences near Project workspaces, and our recommended condition above, we conclude that impacts on residences would not be significant.

6.2 Public Land, Recreation, and Special Interest Areas

The Brush Hill Cemetery is about 0.7 mile east of the take off for the Lake Mills to Albert Lea E-line, located at MP 31.21. Northern would remove the minor aboveground component at the take-off. At MP 33.18, a cemetery associated with Bear Lake Church is about 0.2 mile west of a staging area. There are no aboveground facilities proposed at this location. Northern would remove the small tie-over valve setting at this location to minimize long term impacts. No other public land, recreational or special interest areas would occur within 0.25 mile from the Project. Given that the impacts on these areas would be limited to construction, we conclude that impacts would be short term (length of construction), and not significant.

6.3 Visual Resources

Pipeline

Temporary visual impacts would occur from construction equipment and clearing of vegetation and grading of workspaces. Visual impacts from construction would cease once the pipeline has been installed and the land has reverted to its original uses (one to two growing seasons). Permanent impacts include forest clearing at the Elk River 3rd Branch Line, Farmington to Hugo C-Line and Tomah branch Line Loop.

Aboveground Facilities

The Lake Mills to Albert Lea E-line and Elk River 3rd Branch Line consist largely of buried pipeline except for a new valve setting. Northern would remove the existing aboveground valve setting, guardrail, and gravel, and restore the area to previous conditions. The proposed valve setting measures about 90 feet by 75 feet for the Lake Mills to Albert Lea E-line, and 70 feet by 90 feet for the Elk River 3rd Branch Line, and Northern would use guardrail around it.

The Farmington to Hugo C-line consists largely of buried pipeline except for a new launcher and associated valves and piping within the existing Hugo Compressor Station and a new valve setting at the tie in. The proposed valve setting measures approximately 50 feet by 50 feet and Northern would use guardrail around it. No visual receptors would occur within 50 feet from the Hugo Compressor Station.

The Tomah Branch Line loop consists largely of buried pipeline except for relocating the receiver and associated valves and piping. Northern would remove the

existing aboveground receiver facility and tie-over value setting, fence, guardrail, and gravel, and restore the area to previous conditions. The proposed relocated receiver facility and associated valves measures approximately 175 feet by 150 feet and would be surrounded by a fence. No visual receptors would occur within 50 feet from the Tomah aboveground facilities for the Tomah Branch Line loop. Northern would plant native grasses and the seeds of butterfly-friendly foliage within an approximate 10-foot buffer around the four sides.

Northern would not require ground disturbance at the La Crescent Compressor Station and the work would occur within the existing facility.

Given the limited ground disturbance that would be required for pipeline installation, modifications, and installation of aboveground facilities at locations where similar infrastructure defines the existing viewshed, and because the areas are characterized in part by industrial land, we conclude that visual impacts would be temporary and minor during construction and operation.

7.0 AIR QUALITY

Federal and state air quality standards are designed to protect human health. The EPA has developed National Ambient Air Quality Standards (NAAQS) for criteria air pollutants such as oxides of nitrogen (NO_x) and carbon monoxide (CO), sulfur dioxide (SO_2), and inhalable particulate matter ($PM_{2.5}$ and PM_{10}). $PM_{2.5}$ includes particles with an aerodynamic diameter less than or equal to 2.5 micrometers, and PM_{10} includes particles with an aerodynamic diameter less than or equal to 10 micrometers. The NAAQS were set at levels the EPA believes are necessary to protect human health and welfare. Volatile organic compounds (VOC) are regulated by EPA mostly to prevent the formation of ozone, a constituent of photochemical smog. Many VOCs form ground-level ozone by reacting with sources of oxygen molecules such as NO_x in the atmosphere in the presence of sunlight. NO_x and VOCs are referred to as ozone precursors. Hazardous air pollutants (HAP) are also emitted during fossil fuel combustion and are suspected or known to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects.

Greenhouse Gases (GHG) produced by fossil-fuel combustion are carbon dioxide, methane, and nitrous oxide (N_2O). GHGs status as a pollutant is not related to toxicity. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHG under the Clean Air Act. During construction and operation of the Project, GHGs would be emitted from construction equipment and line heaters. Emissions of GHGs are typically expressed in terms of carbon dioxide (CO_2) equivalents (CO_2e).

If measured ambient air pollutant concentrations for a subject area remain below the NAAQS criteria, the area is considered to be in attainment with the NAAQS. All of the Project areas are in attainment for all NAAQS.

The Clean Air Act is the basic federal statute governing air pollution in the United States. We have reviewed the following federal requirements and determined that they are not applicable to the proposed Project:

- New Source Review;
- Title V;
- National Emissions Standards for Hazardous Air Pollutants;
- New Source Performance Standards;
- Greenhouse Gas Reporting Rule; and
- General Conformity of Federal Actions.

During construction, a temporary reduction in ambient air quality may result from criteria pollutant emissions and fugitive dust generated by construction equipment. The

quantity of fugitive dust emissions would depend on the moisture content and texture of the soils that would be disturbed. Fugitive dust and other emissions due to construction activities generally do not pose a significant increase in regional pollutant levels; however, local pollutant levels could increase. Dust suppression techniques, such as watering the right-of-way may be used as necessary in construction zones near residential and commercial areas to minimize the impacts of fugitive dust on sensitive areas. Table 3 identifies the construction emissions for the Project.

Table 3: Construction Emissions

Description and County/State	Emissions (tons)								
	Criteria Pollutants						CO_{2e}	Formaldehyde	Total for All HAPs
	NO_x	CO	VOC	SO_2	PM_{10}	$PM_{2.5}$			
Engine Emissions									
Freeborn/MN	36.7	7.5	2.1	0.01	1.2	1.2	1,697	0.2	0.4
Washington/ MN	67.6	13.6	3.7	0.02	2.2	2.1	3,120	0.4	0.8
Monroe/WI	33.3	6.6	1.8	0.01	1.1	1.0	1,528	0.2	0.3
Unpaved Roads[1,2]									
Freeborn/MN	-	-	-	-	7.2	0.7	-	-	-
Washington/ MN	-	-	-	-	11.6	1.2	-	-	-
Monroe/WI	-	-	-	-	4.8	0.5	-	-	-
Earthmoving[1,2]									
Freeborn/MN	-	-	-	-	4.6	0.5	-	-	-
Washington/ MN	-	-	-	-	7.6	0.8	-	-	-
Monroe/WI	-	-	-	-	2.1	0.2	-	-	-
Venting for Tie-ins[1,2]									
Freeborn/MN	-	-	0.2	-	-	-	64	-	-
Washington/ MN	-	-	0.4	-	-	-	105	-	-
Monroe/WI	-	-	0.5	-	-	-	146	-	-
Total emissions									
Freeborn/MN	36.7	7.5	2.3	0.01	13	2.4	1,761	0.2	0.4
Washington/ MN	67.6	13.6	4.1	0.02	21.4	4.1	3,225	0.4	0.8
Monroe/WI	33.3	6.6	2.3	0.01	8	1.7	1,674	0.2	0.3
Project Total	**137.6**	**27.7**	**8.7**	**0.04**	**42.4**	**8.2**	**6,660**	**0.8**	**1.5**

Based on the short duration and limited emission caused by Project construction activities, we do not believe there would be regionally significant impacts on air quality.

Table 4: Fugitive Emissions During Operation		
Facility Description and County/State	**Annualized Emissions (tons per year)**	
	Methane	**CO_2e**
Launcher/Receiver		
Freeborn/MN	-	-
Washington/MN	3.6	91.1
Monroe/WI	0.2	5.7
Subtotals for Launcher/Receiver	**3.8**	**96.8**
Other Appurtenant Facility Fugitives[2]		
Freeborn/MN	0.4	10.9
Washington/MN	1.3	32.8
Monroe/WI	0.4	10.9
Subtotals for Other Appurtenant Facilities	**2.1**	**54.6**
Project Total	**5.9**	**151.4**

There would be no new sources of operational emissions associated with the Project. Based on the lack of operational emissions, and that any fugitive pipeline emissions occurring during operation would be negligible (see table 4), we further conclude that operation of the Project would not have a significant impact on air quality in the Project area.

8.0 NOISE

The noise environment can be affected both during construction and operation of pipeline projects. The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across seasons, in part due to changing weather conditions and the effects of seasonal vegetative cover. Two measures to relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level (L_{eq}) and day-night sound level (L_{dn}). The L_{eq} is the level of steady sound with the same total (equivalent) energy as the time-varying sound of interest, averaged over a 24-hour period. The L_{dn} is the L_{eq} plus 10 decibels on the A-weighted scale (dBA) added to account for people's greater sensitivity to nighttime sound levels during late evening and early morning hours (between the hours of 10:00 p.m. and 7:00 a.m.). The A-weighted scale is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear, and 10 dBA is perceived as a doubling of noise.

Construction noise is highly variable. Many construction machines operate intermittently, and the types of machines in use at a construction site change with the construction phase. The sound level impacts on residences along the pipeline right-of-way due the construction activities would depend on the type of equipment used, the duration of use for each piece of equipment, the number of construction vehicles and machines used simultaneously, and the distance between the sound source and receptor. Nighttime noise due to construction would be limited because construction generally occurs during daylight hours, Monday through Saturday. Noise due to HDDs is discussed in further detail below. There would be no substantial change to operational noise associated with the Project.

HDD Noise

Northern would comply with FERC guidelines, which restrict HDDs occurring between 10 p.m. and 7 a.m. to a drilling noise impact at any pre-existing noise sensitive area (NSA) to an L_{dn} of no more than 55 dBA. Most of the pipeline construction, including HDD operations, would occur primarily during daytime hours only (7 a.m. to 7 p.m.); however, tie-ins, pressure testing, commissioning, inspections, erosion control installation and repairs, and equipment delivery could extend beyond daytime hours (7 a.m. to 7 p.m.) and into Sundays, as necessary.

The EPA commented that the EA should specify if HDDs are expected to occur outside of normal daylight hours. HDDs could be conducted continuously (24 hours per day) and into Sunday at critical times such as during pullback of the pipe into the drill hole on longer drills, in complex drill setups, or drills that require welding pipe sections together during pullback.

Northern anticipates that six HDDs would require continuous operation beyond daytime hours to complete: ERT P4-1, ERT P4-2, ERT P4-3, ERT P4-5, FAR P4-1 and FAR P4-2. Northern conducted a noise analysis that predicts the noise levels that would be experienced at nearby NSAs. The EPA commented that FERC should determine if noise from HDD would impact any NSAs, and the EA should discuss any mitigation measures that would be implemented. A table of the expected noise increases at each NSA is given in appendix G. For the six HDDs listed above, Northern would reduce noise impacts on each NSA to below 55 dBA between the hours of 7 p.m. and 7 a.m. As shown in appendix G, the noise analysis shows that some of these NSAs would experience noise levels above 55 dBA L_{dn}. We note, however, that these estimates are conservative and the actual equipment to be utilized may have lower sound impacts. Moreover, Northern has committed to monitor the actual sound impact levels at the HDD locations and to implement appropriate noise mitigation to comply with FERC guidelines which restrict HDDs occurring between 10 p.m. and 7 a.m. to a drilling noise impact at any NSA to an L_{dn} of no more than 55 dBA.[13] To verify that Northern's noise

[13] Resource Report 9 at 9-15.

mitigations are effective in reducing noise to below an L_{dn} of 55 dBA, **we recommend that, as an environmental condition in the Commission's Order, Northern include the noise measurements taken during any nighttime drilling activity in its construction status reports filed with the Commission. We have included this measure in Environmental Condition No. 8 in section D of the EA.**

Noise mitigation would include positioning equipment so noise propagates away from the NSA; locating the entry pit to maximize distance to NSAs; installing temporary sound barriers between the HDD sites and nearby residences; using smaller and quieter HDD equipment; installing sound enclosures around critical equipment such as the drill rig and shaker; or offering to temporary relocate the residents, especially those residents within approximately 400 feet of the entry or exit pit, if HDD operations continue past 7 pm.

Northern's noise estimates provided in appendix G also indicate that daytime HDD construction may result in noise levels above 70 dBA L_{dn} at two NSAs near P4-2 on the Tomah Branch Line Loop, and no mitigation is proposed based on drilling being restricted to daytime only. We note that the EPA has determined that for purposes of hearing conservation, a level which is protective of the population is an L_{eq} of 70 dBA.[14] Unlike typical daytime construction noise that is episodic and variable, HDD activities can result in sustained elevated noise levels that may extend several weeks. **Therefore, we recommend the following measure be included as an environmental condition in the Commission's Order**:

- **<u>Prior to construction</u>, Northern shall file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, a noise mitigation plan for HDD P4-2 to reduce the noise level attributable to drilling operations at NSAs where predicted noise levels are above 70 dBA L_{dn}.**

Because of the temporary nature of construction activities, Northern's proposed mitigation for nighttime HDD construction, and our recommended conditions, we conclude that no significant noise impacts are anticipated from construction of the proposed Project.

The proposed modifications at existing above-ground facilities would not result in any changes in operational noise. Therefore, we conclude that there would be no long-term impacts from operation of the Project.

[14] EPA 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare. https://nepis.epa.gov/Exe/ZyPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.PDF

9.0 ENVIRONMENTAL JUSTICE

In conducting NEPA reviews of proposed natural gas projects, the Commission follows Executive Order 12898 and Executive Order 14096, which direct federal agencies to identify and address disproportionate and adverse human health or environmental effects of their actions on minority and low-income populations (i.e., environmental justice communities).[15] Executive Order 14008 also directs agencies to develop "programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts."[16] Environmental justice is "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[17] The term "environmental justice community" includes disadvantaged communities that have been historically marginalized and overburdened by pollution.[18]

Commission staff used *Promising Practices for EJ Methodologies in NEPA Reviews* (*Promising Practices*)[19] which provides methodologies for conducting environmental justice analyses throughout the NEPA process for this Project. Additionally, consistent with EPA recommendations, Commission staff used EPA's Environmental Justice Screening and Mapping Tool (EJScreen) as an initial screening tool to better understand locations that require further review or additional information regarding minority and/or low-income populations; potential environmental quality issues; environmental and demographic indicators; and other important factors.[20]

---

[15] Exec. Order No. 12,898, 59 Fed. Reg. 7629, at 7629, 7632 (Feb. 11, 1994); Exec. Order No. 14,096, 88, Fed. Reg. 25251, 25253 (Apr. 21, 2023).

[16] Exec. Order No. 14,008, 86 Fed. Reg. 7619, 7629 (Jan. 27, 2021).

[17] EPA, *EJ 2020 Glossary* (July 31, 2023) https://www.epa.gov/system/files/documents/2024-02/ej-2020-glossary.pdf. Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. *Id*. Meaningful involvement of potentially affected environmental justice community residents means: (1) people have an appropriate opportunity to participate in decisions about a proposed activity that may affect their environment and/or health; (2) the public's contributions can influence the regulatory agency's decision; (3) community concerns will be considered in the decision-making process; and (4) decision makers will seek out and facilitate the involvement of those potentially affected. *Id*.

[18] Environmental justice communities include, but may not be limited to minority populations, low-income populations, or indigenous peoples. *See EPA*, *EJ 2020 Glossary* (July 31, 2023), https://www.epa.gov/system/files/documents/2024-02/ej-2020-glossary.pdf.

[19] Federal Interagency Working Group on Environmental Justice & NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews* (Mar. 2016) (*Promising Practices*), https://www.epa.gov/environmentaljustice/ej-iwg-promising-practices-ej-methodologies-nepa-reviews.

[20] The EPA recommends that screening tools, such as EJScreen, be used for a "screening-level" look and a useful first step in understanding or highlighting locations that may require further review.

9.1 Meaningful Engagement and Public Involvement

The CEQ's *Environmental Justice Guidance Under the National Environmental Policy Act* (CEQ *Environmental Justice Guidance*)[21] and *Promising Practices* recommend that federal agencies provide opportunities for effective community participation in the NEPA decision-making process, including: identifying potential effects and mitigation measures in consultation with affected communities; improving accessibility of public meetings, crucial documents, and notices; and using adaptive approaches to overcome potential barriers to effective participation. In addition, Executive Order 13985 and Executive Order 14096 strongly encourage independent agencies to "consult with members of communities that have been historically underrepresented in the Federal Government and underserved by, or subject to discrimination in, federal policies and programs,"[22] and "provide opportunities for the meaningful engagement of persons and communities with environmental justice concerns who are potentially affected by Federal activities."[23]

The EPA commented during scoping that FERC describe past activities and future plans to engage minority populations, low-income populations, and Tribes during the environmental review and planning phase, and, if the Project commences, during construction and operations. There have been opportunities for public involvement during the Commission's environmental review processes. FERC issued a Notice of Application and a Notice of Scoping, which were published in the *Federal Register* on February 29, 2024 and March 26, 2024, respectively. The Notice of Application was mailed to affected landowners and the Notice of Scoping was mailed to the parties on FERC's environmental mailing list, which included federal and state resource agencies; elected officials; environmental groups and non-governmental organizations; Native American Tribes; potentially affected landowners; local libraries; churches; and newspapers; and other stakeholders who had indicated an interest in the Project. Issuance of the notices opened separate 21-day and 30-day formal scoping periods that expired on March 21, 2024 and April 25, 2024, respectively. Due to the short duration (60-180 days) of the Project activities within environmental justice communities, no future outreach activities are planned.

We recognize that not everyone has internet access in order to file electronic comments. The Notice of Scoping was physically mailed to all parties on the environmental mailing list and made available at Sparta Free Library, Hardwood Creek Library, Albert Lea Public Library, Elk River Public Library, and La Crescent Public

[21] CEQ, *Environmental Justice: Guidance Under the National Environmental Policy Act 4* (Dec. 1997) (CEQ's *Environmental Justice Guidance*), https://ceq.doe.gov/docs/ceq-regulations-and-guidance/regs/ej/justice.pdf.
[22] Exec. Order No. 13,985, 86 Fed. Reg. 7009, 7011 (Jan. 20, 2021).
[23] Exec. Order No. 14,096, 88, Fed. Reg. 25251, 25254 (Apr. 21, 2023).

Library. All documents that form the administrative record for these proceedings are available to the public electronically through the internet on the FERC's website (www.ferc.gov). Anyone may comment to FERC about the Project, either in writing or electronically.[24] All substantive environmental comments received prior to issuance of this EA have been addressed within this document.

FERC received comments addressing air quality, noise, and health impacts in the environmental justice community from the EPA during the scoping period. EPA comments are addressed in sections B.9.1, B.9.2, B.9.3, B.9.4 and B.9.5. Comments from the EPA that are not addressed in these sections are addressed in sections B.7.0, B.8.0, and B.11.4.

9.2 Identification of Environmental Justice Communities

According to the CEQ's Environmental Justice Guidance and *Promising Practices*, minority populations are those groups that include: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Following the recommendations set forth in Promising Practices, FERC uses the **50 percent** and the **meaningfully greater analysis** methods to identify minority populations. Using this methodology, minority populations are defined in this EA where either: (a) the aggregate minority population of the block groups in the affected area exceeds 50 percent; or (b) the aggregate minority population in the block group affected is 10 percent higher than the aggregate minority population percentage in the county. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Using *Promising Practices'* **low-income threshold criteria** method, low-income populations are identified as block groups where the percent of low-income population in the identified block group is equal to or greater than that of the county. Here the Commission staff selected Freeborn, Washington, and Houston Counties, Minnesota, and Monroe County, Wisconsin as the comparable reference communities to ensure that affected environmental justice communities are properly identified. A reference community may vary according to the characteristics of the particular project and the surrounding communities.

EPA commented during scoping that the FERC identify the presence of low-income and/or minority communities within the Project area and within the broader area that could experience environmental impacts from the proposed Project. Table H-1 of appendix H identifies the minority populations (by race and ethnicity) and low-income populations within Freeborn, Washington, and Houston Counties in Minnesota and

[24] The Office of Public Participation (OPP) provides members of the public, including environmental justice communities, landowners, Tribal citizens, and consumer advocates, with assistance in FERC proceedings—including navigating Commission processes and activities relating to the Project. For assistance with interventions, comments, requests for rehearing, or other filings, and for information about any applicable deadlines for such filings, members of the public are encouraged to contact OPP directly at 202-502-6595 or OPP@ferc.gov for further information.

Monroe County, Wisconsin affected by the Project; and it identifies census block groups[25] crossed by pipelines, and within 1-mile of the Hugo Compressor Station, La Crescent Compressor Station, and contractor parking lots. For the purposes of analyzing impacts of the proposed construction modifications on environmental justice communities, this EA considers a 1-mile radius from the compressor stations as the appropriate unit of geographical analysis due to no change to operational emissions at the facilities and limited spatial impacts on other resources. To ensure we are using the most recent available data, we use the U.S. Census American Community Survey[26] as the source for race, ethnicity data, and poverty data at the census block group level.

As presented in table H-1 of appendix H, there are minority and low-income communities within the Project area. The Elk River tie-in valve, a portion of the pipeline, and contractor yard is in a block group that is an environmental justice community (Census Tract 702.08, Block Group 1) based on the low-income threshold. The La Crescent Compressor Station is in a block group that is an environmental justice community (Census Tract 2020, Block Group 3) based on minority thresholds. Based on the 1-mile radius around the Hugo Compressor Station, contractor parking lot and contractor yard, we identified one environmental justice community (Census Tract 702.08, Block Group 1) based on the low-income threshold. The Lake Mills contractor yard and contractor parking lot are not in or within 1-mile of an environmental justice community and will not be discussed further. Also, the Tomah Branch Line loop receiver facility and contractor facility are not in or within 1-mile of an environmental justice community and will not be discussed further.

9.3 Impacts on Environmental Justice Communities

Promising Practices provides methodologies for evaluating environmental justice impacts related to human health or environmental hazards; the natural physical environment; and associated social, economic, and cultural factors. Consistent with *Promising Practices*, Executive Order 12898, and Executive Order 14096, we reviewed the Project to determine if its resulting impacts would be disproportionate and adverse on minority and low-income populations and also whether impacts would be significant.[27]

---

[25]Census block groups are statistical divisions of census tracts that generally contain between 600 and 3,000 people. U.S. Census Bureau. 2022. Glossary: Block Group. Available online at: https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_4. Accessed June 2024.

[26] U.S. Census Bureau, American Community Survey 2022 ACS 5-Year Estimates Detailed Tables, File# B17017, *Poverty Status in the Past 12 Months by Household Type by Age of Householder*, https://data.census.gov/cedsci/table?q=B17017; File #B03002 *Hispanic or Latino Origin By Race*, https://data.census.gov/cedsci/table?q=b03002.

[27] *See Promising Practices* at 33 (stating that an agency may determine that impacts are disproportionate and adverse, but not significant within the meaning of NEPA and in other circumstances an agency may determine that an impact is both disproportionate and adverse and significant within the meaning of

Promising Practices provides that agencies can consider any of a number of conditions in this determination and the presence of any of these factors could indicate a potential disproportionate and adverse impact. For this Project, a disproportionate and adverse effect on an environmental justice community means the adverse effect is predominantly borne by such population. Relevant considerations include the location of Project facilities and the Project's human health and environmental impacts on identified environmental justice communities, including direct, indirect and cumulative impacts.

EPA commented that FERC should evaluate the impacts of this proposal on low-income and/or minority communities and sensitive receptors. Project actions within the identified environmental justice communities includes modifications to the La Crescent Compressor Station and pipeline construction and contractor yard on the Elk River 3rd Branch Line at MP 3.29 to 3.45. Modifications at the Hugo Compressor station and the contractor parking lot are within 1-mile of an environmental justice community. Impacts on the natural and human environment from construction and operation of Project facilities are identified and discussed throughout this document. Factors that could affect environmental justice communities within geographic analysis of the Project facilities include visual impacts (see section B.6.3), socioeconomics impacts (see section B.9.3), traffic impacts (see section B.9.3), and air and noise impacts from construction and operations (see sections B.7.0 and B.8.0).

Potentially adverse environmental effects on surrounding communities associated with the Project, including environmental justice communities, would be minimized and/or mitigated. In general, the magnitude and intensity of the aforementioned impacts would be greater for individuals and residences closest to the Project's facilities and would diminish with distance.

Visual Resources

A detailed discussion of Project visual impacts may be found in section B.6.3. Project impacts on environmental justice populations may include impacts on visual resources. Temporary visual impacts would occur during construction of the pipeline and appurtenant facilities, including vehicle and equipment movement, vegetation clearing and grading, trenching and equipment storge at the nearby contractor yard. Construction timeframe is approximately 60 to 180 days per spread.

The contractor yard and Elk River tie-in valve, at MP 3.44, is 120 feet from the nearest residence in the environmental justice community. Construction timeframe for this portion of the Project is anticipated to be about 60 to 180 days. Temporary

NEPA); *see also Promising Practices* at 45-46 (explaining that there are various approaches to determining whether an impact will cause a disproportionate and adverse impact). We recognize that CEQ and USEPA are in the process of updating their guidance regarding environmental justice and we will review and incorporate that anticipated guidance in our future analysis, as appropriate.

construction activity, vehicle and equipment movement, would be visible from these residences. However, visual impacts from construction on the environmental justice community would not be significant.

The Elk River 3rd Branch Line consists largely of buried pipeline except for the new valve setting. Permanent visual impacts may occur along the pipeline right-of-way from periodic vegetation clearing to allow for visual pipeline inspection. However, visual impacts on the environmental justice community would not be significant.

The closest residence in the environmental justice community to the Hugo Compressor Station is approximately 0.6 mile east of the station. Construction would not be visible from this residence. Given the distance, we conclude that there would not be a visual impact on the environmental justice community.

The closest residence in the environmental justice community to the contractor parking lot and contractor yard in Census Tract 702.06, Block Group 1 is approximately 0.41 mile and 0.43, respectively. Construction activities would not be visible from this residence. Therefore, there would not be a visual impact on the environmental justice community.

The La Crescent Compressor Station is in an environmental justice community. Modifications to the La Crescent Compressor Station facility would occur within the existing facility. There are two residences, 666 feet and 702 feet, respectively, that are closest to the station. Some temporary construction activity, vehicle and equipment movement, would be visible from these residences. There would be no change to the permanent visual impacts. Visual impacts on the environmental justice community would be temporary and not significant.

Socioeconomics

Northern estimates that the average workforce would consist of approximately 150 to 300 non-local workers, including inspection personnel. The workforce would be divided among the components and would consist of 30 to 70 non-local construction workers per pipeline spread, including the La Crescent Compressor Station. Increased spending on lodging, food, and services would boost local economic activity.

Each county crossed by the Project has at least 315 vacant rental housing units (including seasonal, recreational, or occasional use), in additional to hotels, motels and campgrounds near the Project. Given that sufficient housing exists in the study area to accommodate the non-local workers and no permanent workers would relocate to the geographic area, we conclude that the Project would result in a temporary impact on

housing in the geographic area and housing impacts on environmental justice communities would be less than significant. [28]

The non-local workforce of 30 to 70 per spread would be relatively small compared to the existing local populations in areas impacted by the Project and would not result in major impacts on the availability of local public services.[29] Multiple local fire departments, as well as at least one sheriff's department or police department and one medical facility could handle emergencies that may arise within each county affected by the Project. We conclude that the Project would result in a temporary impact on public services in the geographic area and public services impacts on environmental justice communities would be less than significant. No new operations personnel would be required; therefore, no socioeconomic impacts on environmental justice communities from operations are anticipated.

Traffic

Throughout the construction phase of the Project, Northern would utilize existing public roads to access the Project. The contractor yard and Elk River tie-in valve is in environmental justice community Census Tract 702.08, Block Group 1, and Project construction would generate about 91 round trips per day.

The Hugo Compressor Station is approximately 0.6 mile from the nearest residence in environmental justice community Census Tract 702.08, Block Group 1, and Project construction would generate about 67 round trips per day. The primary roadway would be 170th Street. The roadway intersects the environmental justice community.

The La Crescent Compressor Station is in environmental justice community Census Tract 202, Block Group 3, and Project construction would generate about 7 round trips per day. The round trips during construction for the Project would generate temporary increased traffic volume in the environmental justice communities during construction. We conclude that traffic impacts within the environmental justice communities would be less than significant. Furthermore, no effects on traffic would occur during operations.

Air Quality

A detailed discussion of Project air quality impacts is in section B.7.0. Emissions from construction equipment would depend on the duration, number, and type of vehicles/equipment. Emissions from equipment would be temporary and localized at each of the Project work areas. Some temporary indirect emissions, attributable to

[28] See FERC Accession No. 20240605-5032 Table 5.1-2.
[29] See FERC Accession No. 20240216-5267 Table 5.1-3.

construction workers commuting to and from work sites during construction and from on-road and off-road construction vehicle traffic, could also occur.

Given the temporary and intermittent nature of construction emissions, and adherence to applicable thresholds, we find that the Project would not cause or significantly contribute to a violation of any applicable ambient air quality standard, or significantly affect local or regional air quality in the environmental justice communities in the geographic scopes of the pipeline and compressor stations.

The proposed activities at the compressor stations would not contribute to operational emissions, and therefore impact on environmental justice communities would be limited to fugitive emissions and less than significant.

Noise

A detailed discussion of Project noise impacts may be found in section B.8.0. Noise would be generated during construction of the pipeline and aboveground facility modifications for the Project. Noise levels would be highest in the immediate vicinity of construction activities and would diminish with distance from each work area. These impacts would be localized and temporary. Sound level changes would depend on the type of equipment used, the duration of use for each piece of equipment, the number of construction vehicles and machines used simultaneously, and the distance between the sound source and receptor.

The contractor yard and Elk River tie-in valve, at MP 3.44, is 120 feet from the nearest residence in the environmental justice community. Construction noise would be audible at the residence; however, it would be limited to daytime hours. Given the limitation to daytime only construction, we conclude that construction noise impacts on the environmental justice community would be less than significant. No operational noise impacts would occur at this location.

The nearest residence to the Hugo Compressor Station in the environmental justice community is 0.6 mile east of the station. Construction noise would be minimal at the residence. Construction noise impacts on the environmental justice community near the Hugo Compressor Station would be less than significant. There will be no change in operational noise impacts.

The La Crescent Compressor Station is in an environmental justice community. There are two residences, 666 feet and 702 feet respectively, that are closest to the station. Given the distance and minimal activity at this location, we conclude construction noise would be less than significant at the residences. There will be no change in operational noise impacts.

9.4 Environmental Justice Impact Mitigation

As described in *Promising Practices*, when an agency identifies potential adverse impacts it may wish to evaluate practicable mitigating measures. Northern has committed to several minimization and mitigation measures to reduce impacts. Though not specifically targeted at mitigating impacts on environmental justice communities, mitigation measures would be implemented across the Project area, including within the identified environmental justice communities. Northern has committed to:

- employ noise mitigation measures;
- implement fugitive dust mitigation measures;
- implement vehicle speed restrictions on unpaved roadways; and
- usage of flagmen and signage to control traffic.

9.5 Determination of Disproportionate and Adverse Impacts on Environmental Justice Communities

As described throughout this EA, the proposed Project would have a range of impacts on the environment and on individuals living in the vicinity of the Project, including environmental justice populations. As highlighted in table H-1 of appendix H, two block groups out of seven block groups within the geographic scope of the Project are considered environmental justice communities. As previously stated, Project work within the identified environmental justice communities includes the Elk River tie-in valve, pipeline construction, contractor yard, and modifications at the La Crescent Compressor Station. Impacts associated with the construction of the Elk River tie-in and La Crescent Compressor Station on environmental justice communities would be disproportionate and adverse as they would be predominately borne by an environmental justice community. The Hugo Compressor Station, contractor yard, and contractor parking lot are within 1 mile of an environmental justice community, impacts on these communities associated with the construction would not be disproportionate and adverse. Construction impacts associated with traffic, visual resources, air quality, and noise for all Project facilities would be less than significant and mostly temporary.

10.0 RELIABILITY AND SAFETY

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture. Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

The pipeline and aboveground facilities associated with the project must be designed, constructed, operated, and maintained in accordance with the U.S. Department

of Transportation (USDOT) Minimum Federal Safety Standards in 49 CFR 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures.

The USDOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. For example, Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues, prescribes the minimum standards for operating and maintaining pipeline facilities, and incorporates compressor station design, including emergency shutdowns and safety equipment. Part 192 also requires a pipeline operator to establish a written emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency.

The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials.

Facilities associated with Northern's Project must be designed, constructed, operated, and maintained in accordance with USDOT standards, including the provisions for written emergency plans and emergency shutdowns. Northern would provide the appropriate training to local emergency service personnel before the facilities are placed in service.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) administers the USDOT's national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. Under a Memorandum of Understanding with FERC on Natural Gas Transportation Facilities dated January 15, 1993, PHMSA has the exclusive authority to promulgate federal safety standards in the transportation of natural gas. Section 157.14(a)(10)(vi) of FERC's regulations require that an applicant certify that it would design, install, inspect, test, construct, operate, replace, and maintain the facility for which a Certificate is requested in accordance with federal safety standards and plans for maintenance and inspection. FERC accepts this certification and does not impose additional safety standards. If FERC becomes aware of an existing or potential safety problem, there is a provision within the Memorandum to promptly alert PHMSA. The Memorandum also provides for referring complaints and inquiries made by state and local governments and the general public involving safety matters related to pipelines under FERC's jurisdiction. FERC also participates as a member of PHMSA's Technical Pipeline Safety Standards Committee, which determines if proposed safety regulations are reasonable, feasible, and practicable.

Based on Northern's compliance with federal design and safety standards and their implementation of safety measures, we conclude that constructing and operating the Project facilities would not significantly impact public safety.

11.0 CUMULATIVE IMPACTS

In accordance with NEPA, Commission staff evaluated the Project's potential for cumulative impacts. Cumulative impacts represent the incremental effects of a proposed action when added to other past, present, or reasonably foreseeable future actions, regardless of the agency or party undertaking such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time. Commission staff's cumulative impact analysis in this proceeding generally follows a method set forth in relevant CEQ and EPA guidance and focuses on the proposed Project's potential impacts on resources or areas of concern where incremental contributions could be potentially significant when added to the potential impacts of other actions. To be included in this cumulative impacts analysis, an action must:

- affect a resource potentially affected by the proposed Project;
- cause this impact within all, or part, of the Project's geographic scope; and
- cause this impact with in all, or part, of the time span for the potential impact of the Project.

These actions include (but are not limited to) actions that are being implemented, have been funded, are under review by a regulatory agency, or are being considered by state and local planners. Actions that have not progressed beyond the planning and feasibility stages of development are not included in the analysis due to the uncertainty of whether the projects would be implemented. While recent past actions that continue to contribute to discernable impacts on a resource are included the impacts of completed/past actions are considered part of the baseline environmental conditions (included in sections B-1 to B-10 above) and are not included in the cumulative impact analysis.

Geographic Scope of Cumulative Impacts

Our cumulative impacts analysis considers actions that impact environmental resources within all or part of the Project area affected by the proposed action (i.e., geographic scope), and within all or part of the time span of the Project's impacts. Actions outside the temporal and geographic scope are generally not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project. Table 5 lists the resource-specific geographic areas that we determined are appropriate to assess cumulative impacts. The Project would not have impacts on operational air quality or operational noise; therefore these resources are not included in table 5 and are not discussed further below.

Table 5: Geographic Scope for Cumulative Impact Analysis		
Environmental Resource	**Geographic Scope**	**Justification**
Geology and Soils	Construction workspaces and immediately adjacent areas	Impacts on soils and surficial geology would be highly localized and are not expected to extend much beyond the area of direct disturbance associated with the Project.
Groundwater, Surface Water, Wetlands, Aquatic Resources	Hydrologic Unit Code (HUC)-12 watersheds	Watersheds are natural, well-defined boundaries for surface water flow, and commonly contribute to the recharge of groundwater resources. Impacts on groundwater, surface water resources, wetlands, and aquatic resources could reasonably extend throughout a HUC-12 watershed (i.e., a detailed hydrologic unit that can accept surface water directly from upstream drainage areas and indirectly from associated surface areas such as remnant, noncontributing, and diversions to form a drainage area with single or multiple outlet points, as could the related impacts on aquatic resources and fisheries)
Vegetation, Wildlife, Special Status Species	HUC-12 watersheds	Consideration of impacts within a HUC-12 watershed sufficiently accounts for impacts on vegetation and wildlife (including protected species) that would be directly affected by construction activities and for indirect impacts such as changes in habitat availability and displacement of transient species.
Land Use, visual resources	0.25-mile radius	Impacts on general land uses would be restricted to the construction workspaces and the immediate surrounding vicinity up to 0.25 mile.
Environmental Justice	Affected Environmental Justice census block groups	The geographic scope covers all environmental justice communities affected by the Project that would be susceptible to potential cumulative impacts from other projects within the geographic scope of the facility.
Cultural Resources	APE, which typically includes overlapping impacts within the Project's footprint (direct) and within 0.25 mile of aboveground facilities (indirect)	The impact area for direct effects (physical) includes areas subject to ground disturbance, while indirect effects (visual or audible) include aboveground ancillary facilities or other project elements that are visible from historic properties in which the setting contributes to their NRHP eligibility.
Air Quality – Construction	0.25 mile from aboveground facility	Air emissions during construction would be limited to vehicle and construction equipment emissions and dust and would be localized to the Amendment construction sites.
Noise - Construction	0.25 mile of any construction and within 0.5 mile of HDD activities	Areas in the immediate proximity of pipeline or aboveground facility construction activities would have the potential to be affected by construction noise. NSAs within 0.5 mile of an HDD could be cumulatively affected if other projects had a concurrent impact on the NSA.

One proposed project was identified within the geographic scope of the proposed Project. [30] Specifically, the Elk River Odorization Project, would be constructed by Northern during the same time as the Project. The Elk River Odorization Project would be within the geographic scope of the Farmington to Hugo C-Line pipeline extension and Hugo Compressor Station. Table 6 provides a description of the Elk River Odorization Project.

[30] We took into consideration all of the projects being conducted under Northern's blanket certificate (see Table 1.1-2 in Northern's application from February 16, 2024. Accession number 20240216-5267) and found that no other projects would fall within the geographic or temporal scope of this Project.

Table 6: Project within the Geographic Scope of the Northern Lights 2025 Expansion Project						
Project	**County/ State**	**Description**	**Approximate Project Footprint and Land Use**	**Estimated Construction Timeframe**	**Distance/ Direction to Proposed Project**	**Resources Considered**
Elk River Odorization Project	Washington County, MN	Install a new facility including an approximately 10,000-gallon odorant storage tank that would be installed in a new concrete secondary containment. A new 10-foot by 20-foot building and meters, by-pass valves and piping would also be installed.	2.3 acres of open land with three existing natural gas pipelines, 0.2 acre of wooded/forested land	May 2025 through October 2025	Directly north of Hugo Compressor Station, part of the Farmington to Hugo C-line	Geologic Resources, Soils, Vegetation, Wildlife, Land Use, Visual Resources, Environmental Justice, Noise - Construction, Air Quality - Construction

11.1 Geology and Soils

The Elk River Odorization Project would require ground disturbance adjacent (north) of the Hugo Compressor Station. Washington County would install a 10,000-gallon odorant storage tank in a new concrete secondary containment, and a new 10-foot by 20-foot building and meters, by-pass valves and piping. Northern would implement erosion and sedimentation control measures in accordance with the Project SWPPP and CESCP to mitigate cumulative impacts on geologic resources and soils. We conclude the cumulative actions would not significantly impact the character of the geologic resources or soils within the geographic scope.

11.2 Vegetation, Wildlife, and Special Status Species

The Elk River Odorization and the Farmington to Hugo C-line would both be located within the Big Marine Lake HUC-12 (070300050906) watershed. The watershed encompasses about 19,663 acres in Washington County, Minnesota. Most of the landcover in the watershed is pastures and cultivated crops mixed with forests and wetlands (USGS, 2024d). Construction of the Elk River Odorization would impact about 2.3 acres of open land and 0.2 acre of forested land. The Farmington to Hugo C-line contains about 4.5 acres of open land in the shared HUC-12. Therefore, the cumulative impacts on vegetation would be limited to about 6.8 acres of combined open land impacts during construction. Construction of the projects would have minor impacts on wildlife habitat, causing localized impacts on wildlife populations during construction and result in a temporary loss of vegetative cover. Northern would restore the temporarily impacted areas to pre-construction conditions using the FERC Plan and Procedures; therefore, the cumulative impacts would largely be short-term (i.e., until vegetation is reestablished for the Project).

Given that both Projects account for less than 0.1 percent of the available habitat within the watershed and impacts from the Project would be short term, we conclude cumulative impacts on vegetation and wildlife, including special status species, would not be significant.

11.3 Land Use and Visual Impacts

The Elk River Odorization would create a new facility footprint of 2.5 acres. The Farmington to Hugo C-line would temporarily impact land use within one mile of the new odorization facility. While the Elk River Odorization would convert forested and open lands to an industrial facility, Northern would restore Project workspaces disturbed during construction in accordance with the FERC Plan and Northern's Procedures and the Project SWPPP. The permanent valve setting being constructed on the Farmington to Hugo C-line is approximately 1.9 miles south of the Elk River Odorization Project (outside of the geographic scope for cumulative impacts on land use or visual impacts). The Farmington to Hugo C-line would increase the amount of right-of-way that Northern

would maintain; however, the increased right-of-way maintenance would not significantly affect land use as the forested land on this pipeline segment is being crossed via HDD. Therefore, all cumulative land use and visual impacts would be short-term (until vegetation is reestablished for the Project).

We conclude that the cumulative actions would not significantly change the character of the land, and the land use types impacted are abundant in the geographic scope.

11.4 Air Quality and Noise

Construction emissions from construction of the Elk River Odorization and the Farmington to Hugo C-line would be temporary and minor. Neither of the actions would require construction or operations permits for air emissions. Simultaneous construction of the two projects may result in cumulative air quality impacts from fugitive dust generation due to soil disturbance and the operation of vehicles and equipment.

The cumulative impact contribution to air quality from the proposed construction activities and the other action is expected to be minimal for the following reasons:

- Project construction activities would occur over a short duration (approximately nine months, of which the Elk River Odorization would only take five months).
- Fugitive emissions would be intermittent, generally low-level releases, and consist of larger dust particles that are expected to settle out of the atmosphere within proximity to their release point (i.e., long-range transport of fugitive dust emissions is not anticipated).
- Vehicle equipment and fugitive dust emissions are not expected to exceed ambient air quality standards.

Construction of the Elk River Odorization would take approximately five months and would utilize the following equipment: two excavators, one bulldozer, one telehandler, two track loaders, two welding rigs and a lowboy tractor trailer. Northern's work within the north 0.25 mile of the Farmington to Hugo C-line would consist of the installation of a launcher inside the Hugo compressor station and the exit side of an HDD. Noise impacts from the proposed Project and the Elk River Odorization project could overlap; however, noise impacts associated with construction of the projects would be temporary. Northern would comply with FERC's noise requirements in 18 CFR 380.12. Based on short-term construction windows, and Northern's proposed noise mitigation, no significant cumulative noise impacts are anticipated.

11.5 Climate Change

Climate change is the variation in the Earth's climate (including temperature, precipitation, humidity, wind, and other meteorological variables) over time. Climate change is driven by accumulation of GHG in the atmosphere due to the increased consumption of fossil fuels (e.g., coal, petroleum, and natural gas) since the early beginnings of the industrial age and accelerating in the mid- to late-20th century.[31] The GHG produced by fossil-fuel combustion are CO_2, methane, and N_2O.

In 2017 and 2018, the U.S. Global Change Research Program (USGCRP) issued its Climate Science Special Report: Fourth National Climate Assessment, Volumes I and II.[32] This report and the more recently released report by the Intergovernmental Panel on Climate Change, Climate Change 2021: The Physical Science Basis, states that climate change has resulted in a wide range of impacts across every region of the country and the globe.[33] Those impacts extend beyond atmospheric climate change alone and include changes to water resources, agriculture, ecosystems, human health, and ocean systems.[34] According to the Fourth Assessment Report, the United States and the world are warming; global sea level is rising and oceans are acidifying; and certain weather events are becoming more frequent and more severe.[35] These impacts have accelerated throughout the end of the 20th and into the 21st century.[36]

GHG emissions do not result in proportional local and immediate impacts; it is the combined concentration in the atmosphere that affects the global climate. These are fundamentally global impacts that feed back to local and regional climate change impacts. Thus, the geographic scope for cumulative analysis of GHG emissions is global rather than local or regional. For example, a project 1 mile away emitting 1 ton of GHG

---

[31] Intergovernmental Panel on Climate Change, United Nations, Summary for Policymakers of Climate Change 2021: The Physical Science Basis (Valerie Masson-Delmotte et al., eds.) (2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf (IPCC Report) at SPM-5. Other forces contribute to climate change, such as agriculture, forest clearing, and other anthropogenically driven sources.

[32] U.S. Global Change Research Program. Climate Science Special Report: Fourth National Climate Assessment, Volume 1, Chapter 3 Detection and Attribution of Climate Change (2017), available at: https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf (accessed June 3, 2021).

[33] IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

[34] 6 IPCC Report at SPM-5 to SPM-10.

[35] USGCRP Report Volume II at 73-75.

[36] See, e.g., USGCRP Report Volume II at 99 (describing accelerating flooding rates in Atlantic and Gulf Coast cities).

would contribute to climate change in a similar manner as a project 2,000 miles distant also emitting 1 ton of GHG.

Climate change is a global phenomenon; however, for this discussion, we will focus on the existing and potential climate change impacts in the general Project area. The USGCRP's Fourth Assessment Report notes the following observations of environmental impacts attributed to climate change in the Midwest region of the United States (USGCRP, 2017 and 2018):

- an increased frequency of late-growing-season drought conditions, is worsening the effects of invasive species, insect pests, and plant disease as trees experience periodic moisture stress.
- warming winters have increased the survival and reproduction of existing insect pests and already are enabling a northward range expansion of new insect pests and crop pathogens into the Midwest.
- lake surface temperatures are increasing, lake ice cover is declining, the seasonal stratification of temperatures in the lakes is occurring earlier in the year, and summer evaporation rates are increasing.
- land conversion, and a wide range of other stressors, has already greatly reduced biodiversity in many of the region's prairies, wetlands, forests, and freshwater systems.
- increasing precipitation, especially heavy rain events, has increased the overall flood risk, causing disruption to transportation and damage to property and infrastructure.

The USGCRP's Fourth Assessment Report notes the following projections of climate change impacts in the Midwest Region with a high or very high level of confidence:[37]

- increases in growing-season temperature in the Midwest are projected to be the largest contributing factor to declines in the productivity of U.S. agriculture.
- increases in humidity in spring through mid-century are expected to increase rainfall, which will increase the potential for soil erosion and further reduce planting-season workdays due to waterlogged soil.
- ground-level ozone concentrations are projected to increase across most of

[37] USGCRP Report Volume II.

the Midwest, resulting in an additional 200–550 premature deaths in the region per year by 2050.

- agricultural productivity (the ratio of outputs to inputs) is projected to decline by 2050 to levels of the 1980s (that is, yields may increase but at the cost of substantial increases in inputs).

- warm-season temperatures are projected to increase more in the Midwest than any other region of the United States.

- the frost-free season is projected to increase 10 days by early this century (2016–2045), 20 days by mid-century (2036–2065), and possibly a month by late century (2070–2099) compared to the period 1976–2005 according to the higher scenario.

- effects of insect pests and tree pathogens are anticipated to intensify as winters warm, increasing winter survival of pests and allowing expansion into new regions.

It should be noted that while the impacts described above taken individually may be manageable for certain communities, the impacts of compound events (such as simultaneous heat and drought, wildfires associated with hot and dry conditions, or flooding associated with high precipitation on top of saturated soils) can be greater than the sum of the parts.[38]

The GHG emissions associated with construction and operation of the Project were identified and quantified in section B.7 of the EA. Emissions of GHG are typically expressed in terms of CO_2e.[39] Construction CO_2e emissions from the Project are estimated to be 6,042 metric tons.[40] Operational CO_2e emissions from the Project are limited to minor fugitives estimated to be 137 metric tons; there would be no new sources of operational emissions associated with the Project.[41] We have also determined that downstream emissions associated with end-use would reasonably foreseeable effects of the Project. We estimate the downstream GHG emissions from the Project assuming 100 percent utilization of the subscribed capacity of 46,064 equivalent dekatherms per day. Combustion of 46,064 equivalent dekatherms per day would result in 889,595 metric tons

[38] USGCRP Report Volume II.

[39] GHG gases are converted to CO2e by means of the GWP; the measure of a particular GHG's ability to absorb solar radiation; and its residence time within the atmosphere, consistent with the EPA's established method for reporting GHG emissions for air permitting requirements that allows a consistent comparison with federal regulatory requirements.

[40] See table 3. Figures presented here are converted from U.S. tons to metric tons.

[41] See table 4. Figures presented here are converted from U.S. tons to metric tons.

per year of CO_2e emissions. We note that this represents an upper bound estimate of end-use combustion that could result from the subscribed natural gas transported by the Project. This estimate assumes that the maximum subscribed capacity is transported 365 days per year.

Construction and operation of the Project would increase the atmospheric concentration of GHG in combination with past, current, and future emissions from all other sources globally, and would contribute incrementally to future climate change impacts. To assess impacts on climate change associated with the Project, Commission staff considered whether it could identify discrete physical impacts resulting from the Project's GHG emissions or compare the Project's GHG emissions to established targets designed to combat climate change.

To date, Commission staff have not identified a methodology to attribute discrete, quantifiable, physical effects on the environment resulting from the Project's incremental contribution to GHGs. Without the ability to determine discrete resource impacts, Commission staff are unable to assess the Project's contribution to climate change through any objective analysis of physical impact attributable to the Project. Additionally, Commission staff have not been able to find an established threshold for determining the Project's significance when compared to established GHG reduction targets at the state or federal level. Ultimately, this EA is not characterizing the Project's GHG emissions as significant or insignificant.[42] However, as we have done in prior NEPA analyses, we disclose the Project's GHG emissions in comparison to national and state GHG emission inventories.

In order to provide context of the Project GHG emissions on a national level, we compare the Project GHG emissions to the total current GHG emissions inventory for the United States as a whole. At a national level, 5,489 million metric tons of CO_2e were emitted in 2022 (inclusive of CO_2e sources and sinks) (EPA, 2024g). Construction emissions from the Project could potentially increase CO_2e emissions based on the national 2022 levels by 0.00011 percent. Operational and downstream emissions from the Project could potentially increase CO_2e emissions based on the national 2022 levels by 0.016 percent.

To provide context on a state level, we compare the Project's estimated GHG emissions to the state emission inventories. The Project's construction emissions occur in Minnesota and Wisconsin, and we assume downstream end use would also be in those states, based on the service areas of the shippers identified in the Project precedent agreements. Construction emissions would be 4,986 metric tons in Minnesota and 1,674 metric tons in Wisconsin. Operational and downstream emissions would be 754,081

[42] *See e.g.*, *Driftwood Pipeline LLC*, 183 FERC ¶ 61,049, at P 63 (2023) ("…there currently are no accepted tools or methods for the Commission to use to determine significance, therefore the Commission is not herein characterizing these emissions as significant or insignificant.").

metric tons in Minnesota and 135,817 metric tons in Wisconsin. At a state level, 117.8 million metric tons and 99.7 million metric tons of CO_2e were emitted in 2022 Minnesota and Wisconsin, respectively.[43] Project construction could potentially increase CO_2e emissions based on the Minnesota 2022 levels by 0.004 percent; in subsequent years, the operational and downstream emissions from the Project could potentially increase emissions by 1 percent. Project construction could potentially increase CO_2e emissions based on the Wisconsin 2022 levels by 0.002 percent; in subsequent years, the operational and downstream emissions from the Project could potentially increase emissions by 0.1 percent.

When states have GHG emissions reduction targets, we compare the project's operational and downstream GHG emissions to those state goals to provide additional context. Minnesota enacted legislative targets in 2007 to reduce GHG emissions 30% below 2005 levels by 2025 and 80% below 2005 levels by 2050. [44] Minnesota's CO_2e emissions in 2005 were 154.1 million metric tons; therefore, we consider the 2030 GHG emission target to be 77.1 million metric tons CO_2e. Based on the operational and downstream emissions for the Project in Minnesota, the Project would contribute about 1 percent of the state's 2030 goals. Wisconsin has not set statewide goals for GHG emissions reduction targets. [45]

Below, we include a disclosure of the social cost of GHG (SC-GHG), also referred to as the social cost of carbon (SCC). Calculating the SC-GHGs does not enable the Commission to determine whether the reasonably foreseeable GHG emissions associated with the Project are significant or not significant in terms of their impact on global climate change.[46] In addition, there are no criteria to identify what monetized values are significant for NEPA purposes, and we are currently unable to identify any such appropriate criteria.[47]

---

[43] https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals. Accessed August 2024.

[44] We reviewed the U.S. State Greenhouse Emission Targets site for individual state requirements at: https://www.c2es.org/document/greenhouse-gas-emissions-targets/.

[45] We reviewed the U.S. State Greenhouse Emission Targets site for individual state requirements at: https://www.c2es.org/document/greenhouse-gas-emissions-targets/.

[46] See Ala. Mun. Distribs. Grp. v. FERC, 100 F.4th 207, 214 (D.C. Cir. 2024); Cntr. for Bio. Diversity v. FERC 67 F.4th 1176, 1184 (D.C. Cir. 2023);; Del. Riverkeeper v. FERC, 45 F.th 104, 111 (D.C. Cir. 2022); and Driftwood Pipeline LLC, 183 FERC ¶ 61,049, at P 61 (2023). The Social Cost of GHGs tool merely converts GHG emissions estimates into a range of dollar-denominated figures; it does not, in itself, provide a mechanism or standard for judging "significance."

[47] *Tenn. Gas Pipeline Co., L.L.C.*, 181 FERC ¶ 61,051 at P 37; *see also Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043 at P 296, *order on reh'g*, 163 FERC ¶ 61,197, at PP 275-297 (2018), *aff'd*, *Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199, at 2 (D.C. Cir. Feb. 19, 2019) (unpublished) ("[The Commission] gave several reasons why it believed petitioners' preferred metric, the Social Cost of Carbon tool, is not an appropriate measure of project-level climate change impacts and their significance under NEPA or the Natural Gas Act. That is all that is required for NEPA purposes.");

As both the EPA and CEQ participate in the Interagency Working Group on the Social Cost of Greenhouse Gases (IWG), Commission staff used the methods and values contained in the IWG's current draft guidance but note that different values would res ult from the use of other methods.[48] Accordingly, Commission staff calculated the SC-GHG for CO_2, methane, and N_2O. For the calculation, staff assumed discount rates of 5 percent, 3 percent, and 2.5 percent.[49]

Commission staff assumed that construction emissions would take place in 2025, the Project would begin service in 2025, and the Project's emissions would be at a constant rate throughout a 10 or 20-year period, based on the terms of the precedent agreements for the Project. Noting these assumptions, the emissions from increased GHGs disclosed are calculated to result in a total SC-GHG equal to $139,816,790, $499,446,280, and $745,032,781, respectively (all in 2020 dollars).[50] Using the 95th percentile of the SCC using the 3 percent discount rate,[51] the total SCC from the Project is calculated to be $1,510,280,090 (in 2020 dollars).

EarthReports, 828 F.3d 949, 956 (D.C. Cir. 2016) (accepting the Commission's explanation why the social cost of carbon tool would not be appropriate or informative for project-specific review, including because "there are no established criteria identifying the monetized values that are to be considered significant for NEPA purposes"); *Tenn. Gas Pipeline Co., L.L.C*., 180 FERC ¶ 61,205, at P 75 (2022); *See, e.g., LA Storage, LLC*, 182 FERC ¶ 61,026, at P 14 (2023); *Columbia Gulf Transmission, LLC*, 180 FERC ¶ 61,206, at P 91 (2022); and *Driftwood Pipeline LLC*, 183 FERC ¶ 61,049, at P 61 (2023).

[48] *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990*, Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, February 2021 (IWG Interim Estimates Technical Support Document).

[49] IWG Interim Estimates Technical Support Document at 24. To quantify the potential damages associated with estimated emissions, the IWG methodology applies consumption discount rates to estimated emissions costs. The IWG's discount rates are a function of the rate of economic growth where higher growth scenarios lead to higher discount rates. For example, IWG's method includes the 2.5 percent discount rate to address the concern that interest rates are highly uncertain over time; the 3 percent value to be consistent with the U.S. Office of Management and Budget circular A-4 (2003) and the real rate of return on 10-year Treasury Securities from the prior 30 years (1973 through 2002); and the 5 percent discount rate to represent the possibility that climate related damages may be positively correlated with market returns. Thus, higher discount rates further discount future impacts based on estimated economic growth. Values based on lower discount rates are consistent with studies of discounting approaches relevant for intergenerational analysis. *Id*. at 18-19, 23-24.

[50] The IWG draft guidance identifies costs in 2020 dollars. *Id*. at 5 (Table ES-1).

[51] This value represents "higher-than-expected economic impacts from climate change further out in the tails of the [social cost of CO2] distribution." *Id*. at 11. In other words, it represents a higher impact scenario with a lower probability of occurring.

SECTION C – ALTERNATIVES

In accordance with NEPA and Commission policy, we considered alternatives to the proposed action, including the no-action alternative, to determine whether an alternative would be environmentally preferable to the proposed action while meeting the Project objective. Our evaluation criteria for developing and reviewing alternatives were:

- ability to meet the Project's stated objective;
- reasonableness, practicality, and technical and economic feasibility; and
- significant environmental advantage over the proposed action.

Our evaluation of the alternatives for the Project is based on information provided by the applicant, input from stakeholders, publicly available information, our consultations with federal and state resource agencies, and our expertise and experience regarding the siting, construction, and operation of natural gas transmission facilities and their potential impact on the environment.

The EPA commented that the EA should (1) ensure that the project's need coincides with energy conservation trends and demonstrate how the project follows Minnesota's Climate Action Framework; (2) discuss whether Northern's customers can make changes to their distribution systems and operating practices to obviate the need for increased capacity and ensure that all potential incentives for decarbonizing are being considered; (3) explain if the desired outcome of the proposed Project can be achieved by using existing infrastructure, particularly from Northern's previous Northern Lights expansion projects; (4) ensure that any rejection of alternatives other than Northern's preferred alternative as proposed is based on accurate and complete information, considering the cumulative Northern Lights projects that have been previously evaluated by the Commission; (5) include a detailed assessment of other potential alternatives that might make the project unnecessary (e.g., ways that the project's customers make system changes that might demonstrate that Northern's project would meet demand and reliability needs at a lower capacity, or not be needed at all); and (6) ensure the project's purpose and need is defined in sufficiently broad terms to avoid making the selection of Northern's preferred alternative inevitable.[52]

[52] Accession number 20240424-5249

We have satisfied the procedural requirements of NEPA, by considering Northern's specific proposal, needs, and Project goals. We recognize that a project's purpose and need may not be so narrowly defined as to preclude consideration of reasonable alternatives. Nonetheless, an agency need only consider alternatives that will bring about the ends of the proposed action, and the evaluation is "shaped by the application at issue and by the function that the agency plays in the decisional process."[53] Moreover, because the alternatives considered under NEPA are informed both by "the project sponsor's goals," [54] as well as "the goals that Congress has set for the agency,"[55] *i.e.*, the goals set in enacting the NGA, our consideration of alternatives includes the no-action alternative and alternatives that achieve the purpose of the project, that is to serve the firm transportation requirements of its shippers due to increased energy needs. Energy efficiency and non-gas alternatives were excluded because these alternatives do not provide for the transportation of natural gas, and would not feasibly achieve the Project's aims, nor were they supported by any detail.[56] Also, the Commission and Northern cannot require end users to install energy efficient improvements in their homes.

1.0 NO-ACTION ALTERNATIVE

NEPA requires the Commission to consider and evaluate the No-Action Alternative. According to CEQ guidance, in instances involving federal decisions on proposals for projects, no-action would mean the proposed activity would not take place and the resulting environmental effects from taking no-action would be compared with the effects of permitting the proposed activity. Further, the No-Action Alternative provides a benchmark for decisionmakers to compare the magnitude of environmental effects of the proposed activity and alternatives.

[53] *Id.* at 199; *see also Sierra Club v. U.S. Forest Serv*., 897 F.3d 582, 598-99 (4th Cir. 2018) (*Sierra Club*) (finding the statement of purpose and need for a Commission-jurisdictional natural gas pipeline project that explained where the gas must come from, where it will go, and how much the project would deliver, allowed for a sufficiently wide range of alternatives but was narrow enough that there were not an infinite number of alternatives).

[54] Citizens Against Burlington, 938 F.2d at 196.

[55] *Sierra Club*, 897 F.3d at 598-99.

[56] In its application Northern also notes that there is no infrastructure in place to meet the incremental heating needs of the individuals, families, schools, and businesses to be served by the project through alternative fuel or renewable energy, and that an infusion of such infrastructure would not be able to meet the heating requirements of a cold-weather event in a cost-effective or timely manner. Northern Application at 9.

Under the No-Action Alternative, Northern's existing natural gas transmission pipeline system in Minnesota and Wisconsin would continue to operate at its current capacity. It would not be able to support the demand of additional incremental natural gas transportation capacity to serve customers. The No-Action Alternative would eliminate the permanent, temporary, and short-term environmental impacts from construction activities, but would not address the purpose and need of the Project. Negative environmental impacts of implementing the no-action alternative would be associated with loss of incremental increases in firm capacity. The Commission decision, in its Certificate, will determine the Project need and could choose the No-Action alternative.

2.0 SYSTEM ALTERNATIVES

There are currently no existing infrastructure owned by other entities that can provide the increased transportation capacity without installing pipeline to reach the service area. Northern's pipeline is currently the closest to the delivery points that would be served by the proposed Project. To meet Northern's compression needs, the nearest system would need to replicate Northern's current system, which would require at least one new greenfield compressor station and additional pipeline because much of the system is already at maximum allowable operating pressure. Therefore, we conclude that use of existing infrastructure, and increasing compression are not feasible and would result in more environmental impacts than the proposed Project.

Northern developed a system alternative "Alternative A" that would add one loop and five extensions to existing loops along the pipeline system. Alternative A would require installation of 18.7 miles of pipeline as shown on mapping in Appendix I. Alternative A would increase the total mileage of the project, but it would have less impacts on forests (1.6 acres) and forested wetlands (0.7 acre). Conversely it would have more impacts to non-forested wetlands (1.6 acres), and six more minor waterbody crossings than the proposed Project (as detailed in Appendix I). This system alternative includes locations in higher density residential areas. It is a viable alternative but would lead to more resources impacts overall.

3.0 ALTERNATIVES CONCLUSION

We considered the No-Action Alternative and System Alternatives to Northern's proposed action and conclude that the alternatives would not provide a significant environmental advantage over the Project as proposed. Therefore, we conclude that the proposed action, with our recommended environmental conditions listed in section D of this EA, is the preferred alternative to meet the Project objectives.

SECTION D – CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we have determined that if Northern constructs and operates the proposed facilities in accordance with its application and supplements and our additional recommended mitigation measures detailed below, approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Commission Order contain a finding of no significant impact and that the following environmental conditions be included as conditions to any Certificate the Commission may issue:

1. Northern shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Northern must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
    b. justify each modification relative to site-specific conditions;
    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
    d. receive approval in writing from the Director of the Office of Energy Projects (OEP), or the Director's designee, before using that modification.

2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the Project. This authority shall allow:

    a. the modification of conditions of the Order;
    b. stop-work authority; and
    c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction and operation.

3. **Prior to any construction activities**, Northern shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel shall be informed of the EIs' authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction, abandonment, and restoration activities.

4. The authorized facility location shall be as shown in the EA, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Northern shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

   Northern's exercise of eminent domain authority granted under NGA section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Northern's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Northern shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP, or the Director's designee, **before construction in or near that area**.

   This requirement does not apply to extra workspaces allowed by the Commission's Plan and/or minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

a. implementation of cultural resources mitigation measures;
b. implementation of endangered, threatened, or special concern species mitigation measures;
c. recommendations by state regulatory authorities; and
d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of the authorization and before construction begins**, Northern shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP, or the Director's designee. Northern must file revisions to the plan as schedules change. The plan shall identify:

a. how Northern would implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
b. how Northern would incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
c. the number of EIs assigned, and how the company would ensure that sufficient personnel are available to implement the environmental mitigation;
d. company personnel, including EIs and contractors, who would receive copies of the appropriate material;
e. the location and dates of the environmental compliance training and instructions Northern would give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change);
f. the company personnel (if known) and specific portion of Northern's organization having responsibility for compliance;
g. the procedures (including use of contract penalties) Northern would follow if noncompliance occurs; and
h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for the:

i. completion of all required surveys and reports;
ii. environmental compliance training of onsite personnel;
iii. start of construction; and
iv. start and completion of restoration.

7. Northern shall employ at least one EI for the Project. The EI shall be:

   a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
   b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
   c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
   d. a full-time position, separate from all other activity inspectors);
   e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
   f. responsible for maintaining status reports.

8. Beginning with the filing of its Implementation Plan, Northern shall file updated status reports with the Secretary on a **biweekly** basis until all construction and restoration activities are complete. On request, these status reports shall also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

   a. an update on Northern's efforts to obtain the necessary federal authorizations;
   b. the construction status of the Project, work planned for the following reporting period, and any schedule changes for work in environmentally sensitive areas;
   c. a listing of all problems encountered, and each instance of noncompliance observed by the EI(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
   d. a description of the corrective actions implemented in response to all instances of noncompliance;
   e. the effectiveness of all corrective actions implemented;
   f. a description of any landowner/resident complaints that may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns;
   g. copies of any correspondence received by Northern from other federal, state, or local permitting agencies concerning instances of noncompliance, and Northern's response; and
   h. noise measurements taken during nighttime (between 10 p.m. and 7 a.m.) horizontal directional drilling to demonstrate that noise levels at nearby NSAs are no more than 55 dBA L_{dn}.

9. Northern must receive written authorization from the Director of OEP, or the Director's designee, **before commencing construction or abandonment by removal of any project facilities.** To obtain such authorization, Northern must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

10. Northern must receive written authorization from the Director of OEP, or the Director's designee, **before placing the project into service.** Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the project are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, Northern shall file an affirmative statement with the Secretary, certified by a senior company official:

    a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities would be consistent with all applicable conditions; or
    b. identifying which of the conditions in the Order Northern has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

12. All conditions attached to the water quality certification issued by the Minnesota Pollution Control Agency constitute mandatory conditions of the Commission's Order**. Prior to construction,** Northern shall file, for review and written approval of the Director of OEP, or the Director's designee, any revisions to its Project design necessary to comply with the water quality certification conditions.

13. Northern shall **not begin** construction activities **until**:
    a. FERC staff receives comments from the USFWS regarding the effects of the proposed action on the rusty patch bumble bee;
    b. FERC staff completes ESA consultation with the USFWS; and
    c. Northern has received written notification from the Director of OEP, or the Director's designee, that construction or use of mitigation may begin.

14. Northern shall **not begin** construction of facilities and/or use of all staging, storage, or temporary work areas and new or to-be-improved access roads **until**:

    a. Northern files with the Secretary comments on the cultural resources reports and plans from the MNSHPO;
    b. the ACHP is afforded an opportunity to comment if historic properties would be adversely affected; and
    c. FERC staff reviews and the Director of OEP, or the Director's designee, approves the cultural resources reports and plans, and notifies Northern in writing that treatment plans/mitigation measures may be implemented and/or construction may proceed.

    All materials filed with the Commission containing **location, character, and ownership** information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "**CUI//PRIV- DO NOT RELEASE**."

15. **Prior to construction**, Northern shall file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, evidence of landowner concurrence with the site-specific construction plan for construction workspace within 10 feet of the residence at MP 2.51 on the Tomah Branch line Loop. If Northern is unable to obtain concurrence, Northern shall file a revised site-specific construction plan that maintains a 10-foot buffer between the residence and the project workspace.

16. **Prior to construction**, Northern shall file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, a noise mitigation plan for HDD P4-2 to reduce the noise level attributable to drilling operations at NSAs where predicted noise levels are above 70 dBA L_{dn}.

SECTION E – LIST OF PREPARERS

Miller, Jessica – Project Manager, Project Description, Surface Waters, Wetlands, Alternatives Analysis, and Cumulative Impacts
B.S., Ecology/Environmental Biology and Marine Biology, 2007, Lock Haven University of Pennsylvania

Altamimi, Najeyah – Wildlife, Migratory Birds, Special Status Species
M.S., Environmental Biology, 2022, Hood College
B.S., Environmental Science, 2021, Washington College

Bloomfield, Andrea – Vegetation, Land Use, Visual Resources
B.S. Environmental Management, 2018, University of Maryland

Das-Toke, Shyam – Geology, Groundwater, Soils
M.S., Geology, 2019, Oregon State University
B.A, Geology, 2017, Whitman College

Monib, Kareem – Air Quality, Noise, and Reliability and Safety
M.S., Chemical Engineering, 2000, Pennsylvania State University
B.S., Chemical Engineering, 1998, University of Delaware

Wazaney, Bradford – Cultural Resources
Ph.D., Anthropology, 2006, Washington State University
M.A. American Studies, 2000, University of Wyoming
B.A., History, 1995, Old Dominion University

Willis, Pamela – Environmental Justice
B.S., Business, 1990, University of Pittsburgh

SECTION F – REFERENCES

Adams, R. Barry and J. Green. 2016. Minnesota regions prone to surface karst feature development, MDNR Ecological and Water Resources Division, Series GW-01, St. Paul, Minnesota.

CEQ. 1997. Environmental Justice: Guidance Under the National Environmental Policy Act. https://ceq.doe.gov/nepa-practice/justice.html. Accessed June 2024.

EPA. 2023a. Superfund Sites Where You Live. https://www.epa.gov/superfund/search-superfundsites-where-you-live. Accessed December 28, 2023.

_____ 2023b. Sole Source Aquifer Locations. https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b. Accessed December 2023.

EPA (2024). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2022 U.S. Environmental Protection Agency, EPA 430R-24004. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2022.

FEMA. 2024. FEMA Flood Map Service Center. https://msc.fema.gov/portal/home. Accessed January 8, 2024.

Hodgson, J. G.; Sullivan, T.; and Hernandez M.L. 2024. *Phase I Cultural Resource Investigation Results for the Northern Natural Gas Tomah Branch Line Loop Project, Rural Sparta Township, Monroe County, Wisconsin. Reconnaissance Cultural Resources Survey of the Proposed Northern Natural Gas Tomah Branch Line Loop Project, Rural Sparta Township, Monroe County, Wisconsin*. Prepared by Phase One Archaeological Services Inc.

MDA 2023. Dutch Elm Disease. Available at https://www.mda.state.mn.us/dutch-elm-disease. Accessed July 2024.

MDNR 2023. Oak Wilt Management. Available at https://www.dnr.state.mn.us/treecare/forest_health/oakwilt/index.html. Accessed July 2024

NRCS. 2023. Prime Farmland. Available online at https://www.nrcs.usda.gov/publications/Legend%20and%20Prime%20 Farmland%20-%20Query%20by%20Soil%20Survey%20Area.html. Accessed December 22, 2023.

Petersen, Shumway, A., Powers, P., Mueller, C., Moschetti, M., Frankel, A., Razaeleian, S., McNamara, D., Luco, N., and Owen Boyd. 2019. The 2018 Update to the U.S. National Seismic Hazard Model: Overview of Model and Implications. https://doi.org/10.1177/8755293019878199. Accessed January 9, 2024.

Radbruch-Hall, D. H; R. B. Colton; W. E. Davies; I. Lucchitta; B. A. Skipp; D. J. Varnes. 1982. Landslide Overview Map of the Conterminous United States. USGS Professional Paper 1183. https://pubs.usgs.gov/pp/p1183/. Accessed January 2022.

Ryan, S.R.; Dold, K.Y.; Potter, A.R.; Holland, E.M.; Chowning, A.S.; McLean, J.A. 2024a. *Reconnaissance Cultural Resources Survey of the Proposed Northern Natural Gas Lake Mills to Albert Lea E-Line Project (Northern Lights 2025), Freeborn County, Minnesota*. Prepared by R. Christopher Goodwin & Associates, Inc.

Ryan, S.R.; Chowning, A.S, Dold, K.Y.; McLean, J.A. Potter, A.R.; Sebastian, K.L.; Conard, R.W.; and Soffietti, M.L. 2024b. *Reconnaissance Cultural Resources Survey of the Proposed Northern Natural Gas Elk River 3rd Branch Line Project (Northern Lights 2025), Washington County, Minnesota*. Prepared by R. Christopher Goodwin & Associates, Inc.

Ryan, S.R.; Guiterrez, G.D.; and Potter, A.R. 2024c. *Reconnaissance Cultural Resources Survey of the Proposed Northern Natural Gas La Crescent Compressor Modifications Project (Northern Lights 2025), Houston County, Minnesota*. Prepared by R. Christopher Goodwin & Associates, Inc.

Ryan, Shannon R. and Dold, Kennedy Younger. 2024 *Reconnaissance Cultural Resources Survey of the Proposed Northern Natural Gas Farmington to Hugo C-Line Project (Northern Lights 2025), Washington County, Minnesota*. Prepared by R. Christopher Good win & Associates, Inc.

U.S. Census Bureau. 2022a. American Community Survey 2022 ACS 5-Year Estimates Detailed Tables, File #B03002 Hispanic or Latino Origin By Race, https://data.census.gov/cedsci/table?q=b03002.

_____2022b. American Community Survey 2022 ACS 5-Year Estimates Detailed Tables, File# B17017, Poverty Status in the Past 12 Months by Household Type by Age of Householder, https://data.census.gov/cedsci/table?q=B17017.

USGS. 2000. Fact Sheet-165-00, Land Subsidence in the United States. https://water.usgs.gov/ogw/pubs/fs00165. Accessed January 9, 2024.USGS, 2003. United States Principal Aquifer Map. https://www.usgs.gov/mission-

areas/waterresources/science/principal-aquifers-united-states. Accessed December 28, 2023.

USGS. 2024a. Quaternary Fault and Fold Database of the US, https://www.usgs.gov/programs/earthquake-hazards/faults. Accessed January 8, 2024.

_____ 2024b. Seismic Hazard Maps and Site-Specific Data for Minnesota. https://www.usgs.gov/programs/earthquake-hazards/science/information-region-minnesota?qt-science_center_objects=0#qt-science_center_objects. Accessed January 8, 2024.

_____ 2024c. U.S. Landslide Inventory – Interactive Web Map.https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=ae120962f459434b8c904b 456c82669d. Accessed January 8, 2024.

_____ 2024d. Watershed Boundary Dataset. Available at: https://apps.nationalmap.gov/viewer/. Accessed July 10, 2024.

WGNHS. 2019. Karst and shallow bedrock in Wisconsin. Factsheet 02. https://dnr.wisconsin.gov/sites/default/files/topic/Nonpoint/ShallowCarbonateWIfs.pdf. Accessed January 9, 2024.

Appendix A: Summary of Scoping Comments

Table A-1: Summary of Scoping Comments				
Commentor	Accession Number	Comment	Response	EA Section
U.S. Environmental Protection Agency	20240424-5249	Purpose and Need/Alternatives: Current demand does not equal future demand. Ensure the Project's needs coincides with energy conservation trends and demonstrate how the Project follows Minnesota's Climate Action Framework.	NEPA provides that agencies include "a detailed statement" of "a reasonable range of alternatives to the proposed agency action, including an analysis of any negative environmental impacts of not implementing the proposed agency action in the case of a no action alternative, that are technically and economically feasible, and meet the purpose and need of the proposal."[57] The Commission has satisfied these procedural requirements. The EA is not a decision document. It presents Commission staff's independent analysis of the environmental issues for the Commission to consider when addressing the merits of all issues in this proceeding. The Commission will ultimately determine the Project need in its Order.	
		Provide a detailed assessment of alternatives that might make the Project unnecessary. Consider changes to distribution systems that customers can make, using existing infrastructure, and incentives for decarbonizing energy framework.		
		Ensure the Project's purpose and need is defined in sufficiently broad terms to avoid making the selection of Northern's preferred alternative inevitable.		C.1
		Fully quantify and adequately disclose the impacts of greenhouse gas emissions from the no action alternative and all alternatives. Include upstream and downstream emissions.	We acknowledge the new regulation in 40 CFR section 1502.16, effective on July 1, 2024. The subject NEPA review was largely complete prior to the effective date of that regulation. The EA considers the reasonably foreseeable effects of climate change on the proposed action.	B.11.5

[57] 42 U.S.C. § 4332(c)(iii).

		Apply EPA's interim guidance on greenhouse gas emissions as appropriate to ensure robust consideration of potential climate impacts, mitigation and adaptation issues.	The EA quantifies the reasonably foreseeable direct, indirect, and cumulative GHG emissions of the proposed action. It also provide context for these emissions by calculating the social cost of GHGs and a comparing to the state and national inventories of GHGs.	B11.5
		Analyze cumulative impacts of all alternatives.	Impacts for each alternative were quantified and compared to the preferred alternative. In most cases, these impacts would be greater than the Project impacts.	C
		Provide justification and an explanation of direct, indirect, and cumulative impacts of the Project as well as all other projects Northern has undertaken including, but not limited to all expansion projects, and project covered under blanket authorization.	No projects from Northern would occur within geographic scopes (for all resources). Cumulative Impacts Analysis included in EA	B.11
		Provide a discussion of surface water and groundwater that looks at water quality, installation techniques, and mitigation.	Included in EA	B.3
		Specify if horizontal directional drilling (HDD) is expected to occur outside of normal daylight hours. Determine if noise from HDD would impact any noise sensitive areas and discuss any mitigation measures that would be implemented.	Included in EA	B.8
		Discuss impacts to both state and federally listed threatened and endangered species.	Included in EA	B.4

			One release of non-regulated fuel oil was identified approximately 500 feet north of the Elk River 3rd Branch Line at a residential home. The leak was of fuel oil #1 and #2. However, this site was closed in 2018, and the direction of groundwater flow in the area is anticipated to be northeast or easterly. As the site is closed and groundwater from the site would not flow into the Project area, there is minimal potential for groundwater contamination from this site. Based on a review of publicly available databases of contaminated sites, no other potential sources of soil or groundwater contamination were identified within 0.25 mile of the Project area (EPA, 2023a). If Northern encounters any contaminated soil or groundwater during Project construction, contaminated materials would be sampled and Northern would develop a site-specific contaminated soil and/or groundwater plan detailing how it proposes to handle and dispose of contaminated soil and/or water in accordance with applicable regulations.	
		The EA should discuss the frequency or likelihood of hazardous materials spill events		B.2
		Identify environmental justice (EJ) groups within the vicinity of the project area. Discuss past, present, and future engagements with EJ communities. Analyze impacts to EJ communities and identify efforts to minimize and avoid adverse or disproportionate impacts to EJ communities.	Included in EA	B.10

		Establish material hauling routes away from places where children live, learn, and play.	Traffic routes were considered in the analysis of the Project and impacts were found to be less than significant.	B.10.3
		The EA should include a wetlands and waterbody delineation and U.S. Army Corps of Engineers jurisdictional determination.	Wetlands and waterbody delineation was submitted as part of the application[58]. The Project qualified for U.S. Army Corps of Engineers Regional General Permit 3.	B.3.2
		EA should include copies of all inter-agency consultation.	All inter-agency consultation that is not considered Privileged for the protection of cultural resources has been filed to the docket as "Public" and referenced in the EA. Any outstanding consultation must be filed prior to construction of the Project	A.9
		The EA should include an appendix that summarizes all scoping comments and FERC's response to each comment.	Included in EA	Appendix A
Teamsters National Pipeline Labor Management Cooperations Trust	20240425-0006	The Teamsters support this project. The project would lead to employment of Teamster Pipeliners.	Comment noted	N/A
Minnesota Department of Natural Resources	20240425-5051	The EA should identify Minnesota Biological Survey & Native Plant Communities. Corries Swamp is in the vicinity of the Elk River 3rd Branch Line. The Project should be designed to avoid impacts to the native plant communities.	The Project would not impact Corries Swamp or any native plant communities.	B.4.1
		The EA should identify measures to avoid impacts on state-listed species such as the Blanding's turtle, fernleaf false foxglove, and lance-leaf violet.	Northern would follow MDNR recommendations for Blanding's turtle. Further the Project has been designed to avoid impacts on other state listed species.	B.4.4

[58] Accession number 20240212-5267; Appendix 2B

		Dust control measures should avoid the use of products containing chlorides.	Northern would use the same water, without additives, obtained for hydrostatic testing.	B.3.3
		The Project should use wildlife friendly erosion control.	Northern committed to MDNR's recommendations	B.4.4
Land Stewardship Project	20240425-5177	The Commission must investigate, evaluate, and consider the extent to which the Project would facilitate the expansion of factory-farm gas, and must account for the environmental effects of any expansion of factory-farm gas caused by the Project including:	Northern requested that each shipper answer questions regarding factory farm gas. Northern determined that the capacity created by the Northern Lights 2025 Expansion Project is not needed to produce or ship factory farm gas and is not in any way related to factory farm gas.	A.4
		Increased methane emissions from enteric fermentation;		
		increased localized air pollution;		
		induced changes in the pattern of land use; and		
		environmental effects from concentrated heavy metals		
		Does CenterPoint Energy Minnesota Gas (CenterPoint), or any other shipper identified in Northern Natural Gas's application, require the additional capacity this Project would provide to ship factory-farm gas?		
		To what extent do CenterPoint's, or any other shipper's, plans to produce, acquire, ship, and/or sell factory-farm gas depend upon the approval of the Project?		
		What and where are the sources of any factory-farm gas that would be shipped using the additional capacity provided by the Project?		
		Identify the status of anaerobic digester use by any shippers of factory farm gas.		

		Identify any plans for future herd growth, manure management plans, monitoring plans, and mitigation plans for each factory farm.		
		The Commission should open a supplemental scoping period and a supplemental period to timely intervene if the Project is found to cause the production of additional factory-farm gas.		
United States Department of Agriculture	20240503-5095	The Natural Resources Conservation Service has found that the Project is not likely to affect U.S. Department of Agriculture easements	Comment Noted	A.4
		the wetland conservation provisions of the 1985 Food Security act, as amended are not applicable.	Comment Noted	A.4
		consult with all agencies that have federal or state wetlands, floodplain delineation, cultural resources, water quality, air quality or threatened and endangered species jurisdiction in the proposed project area.	Northern has consulted with all appropriate agencies.	Table 2 of Section A.9
		Ensure the Project is compliant with, or exempt from the Farmland Protection Policy Act.	Comment Noted	A.4

Appendix B: Project Mapping and Site-Specific Residential Construction Plan

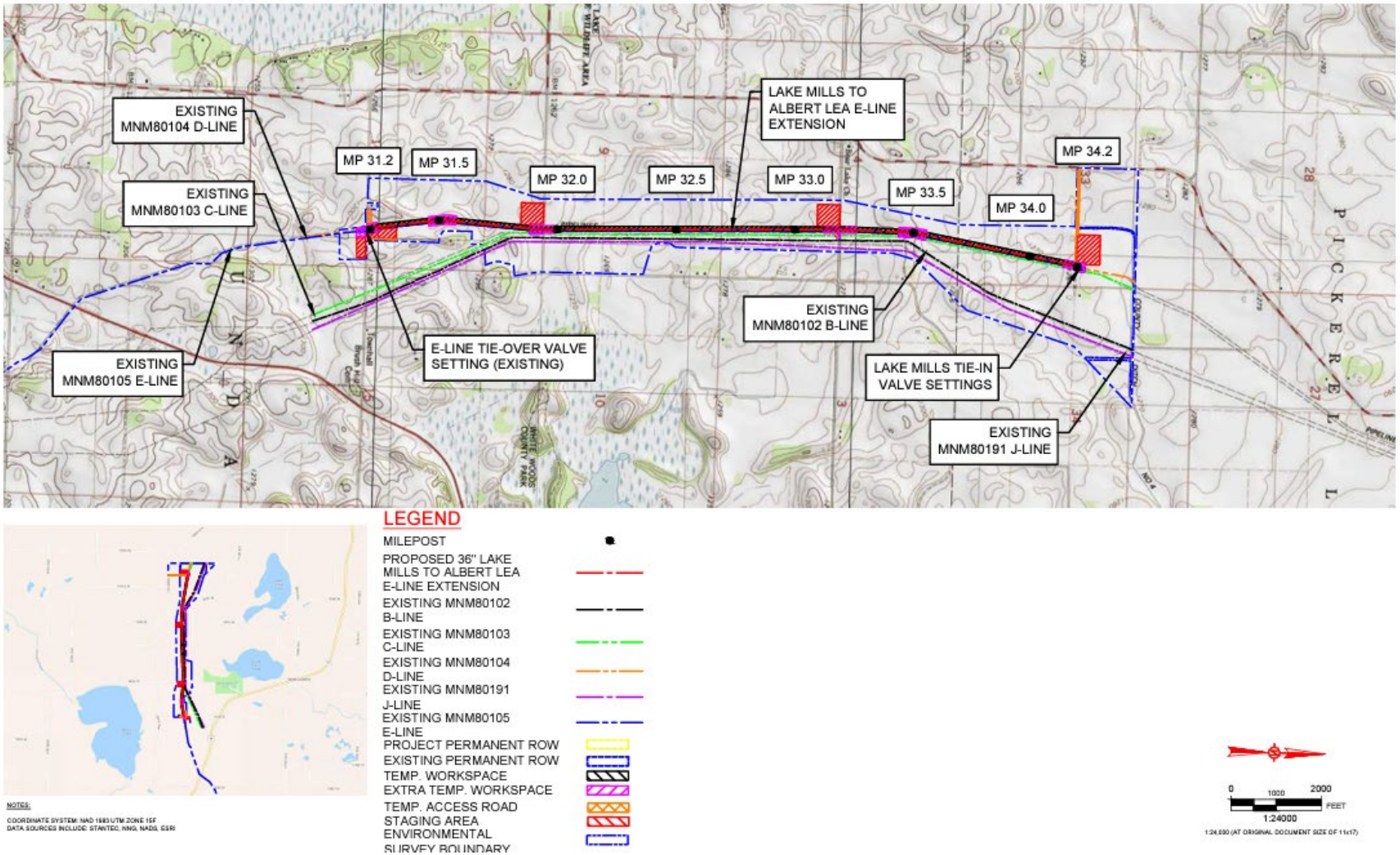


Figure B-1: Project Map - Lake Mills to Albert Lea E-Line Extension

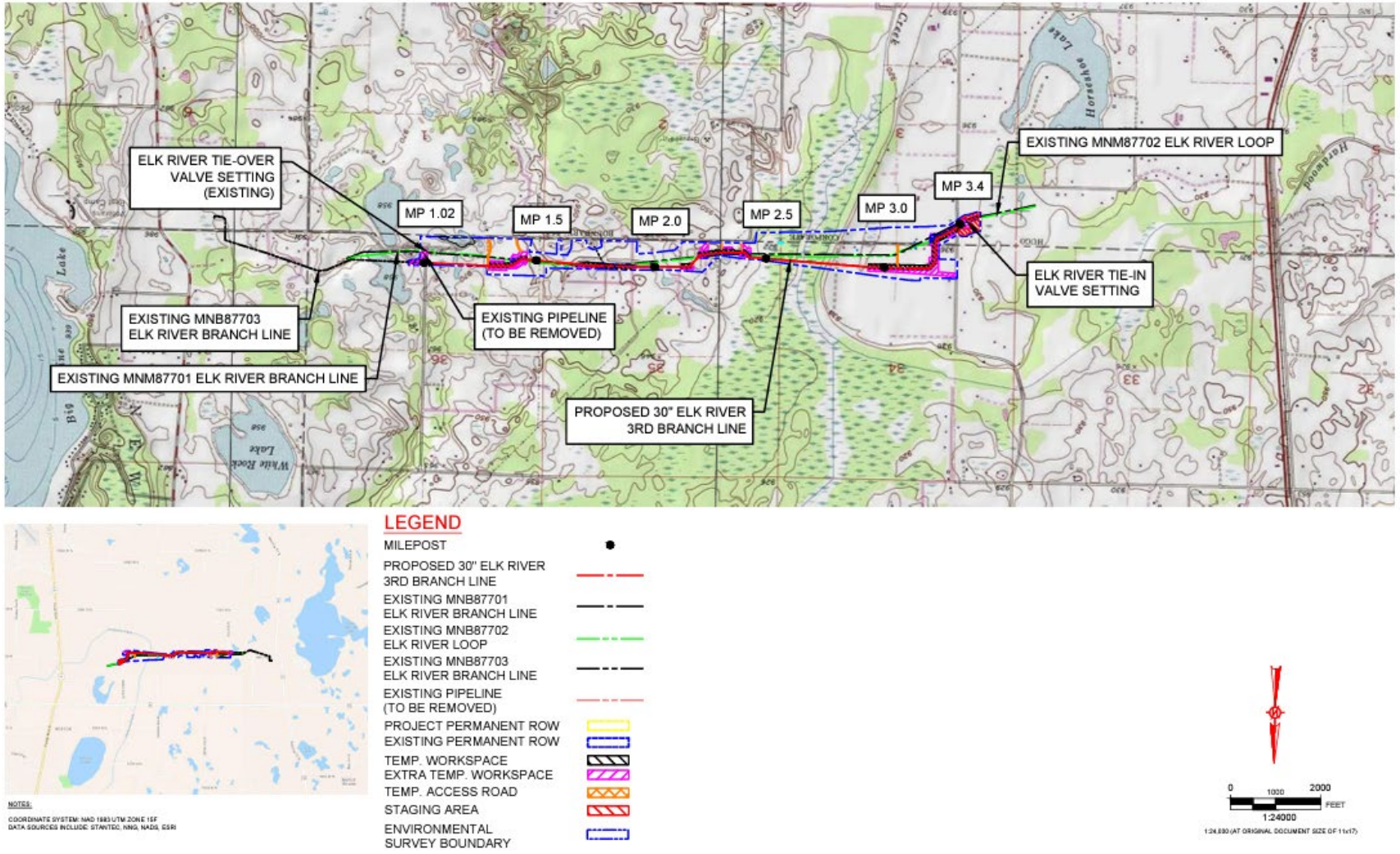


Figure B-2: Project Map - Elk River to 3rd Branch Line

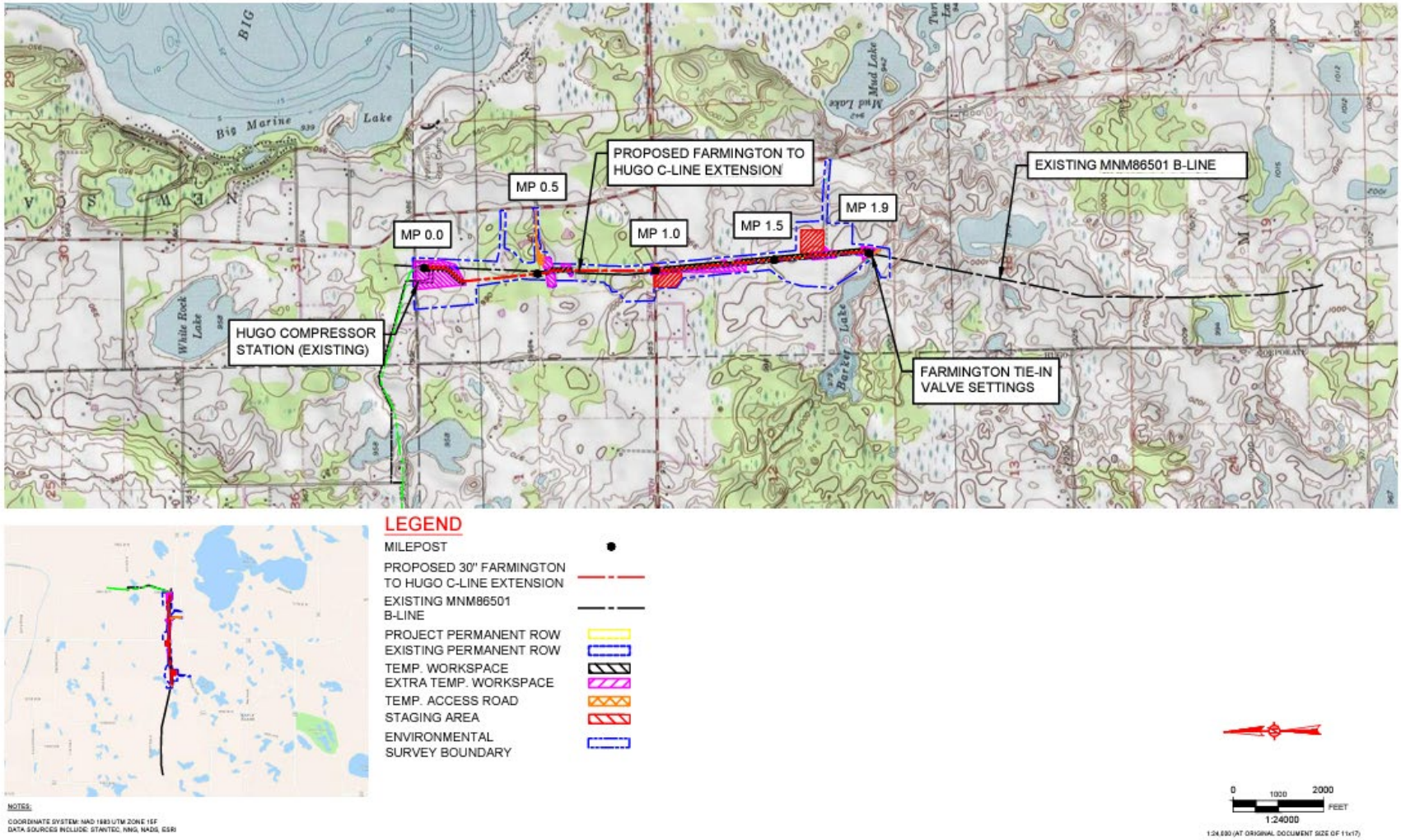


Figure B-3: Project Map - Farmington to Hugo C-Line Extension

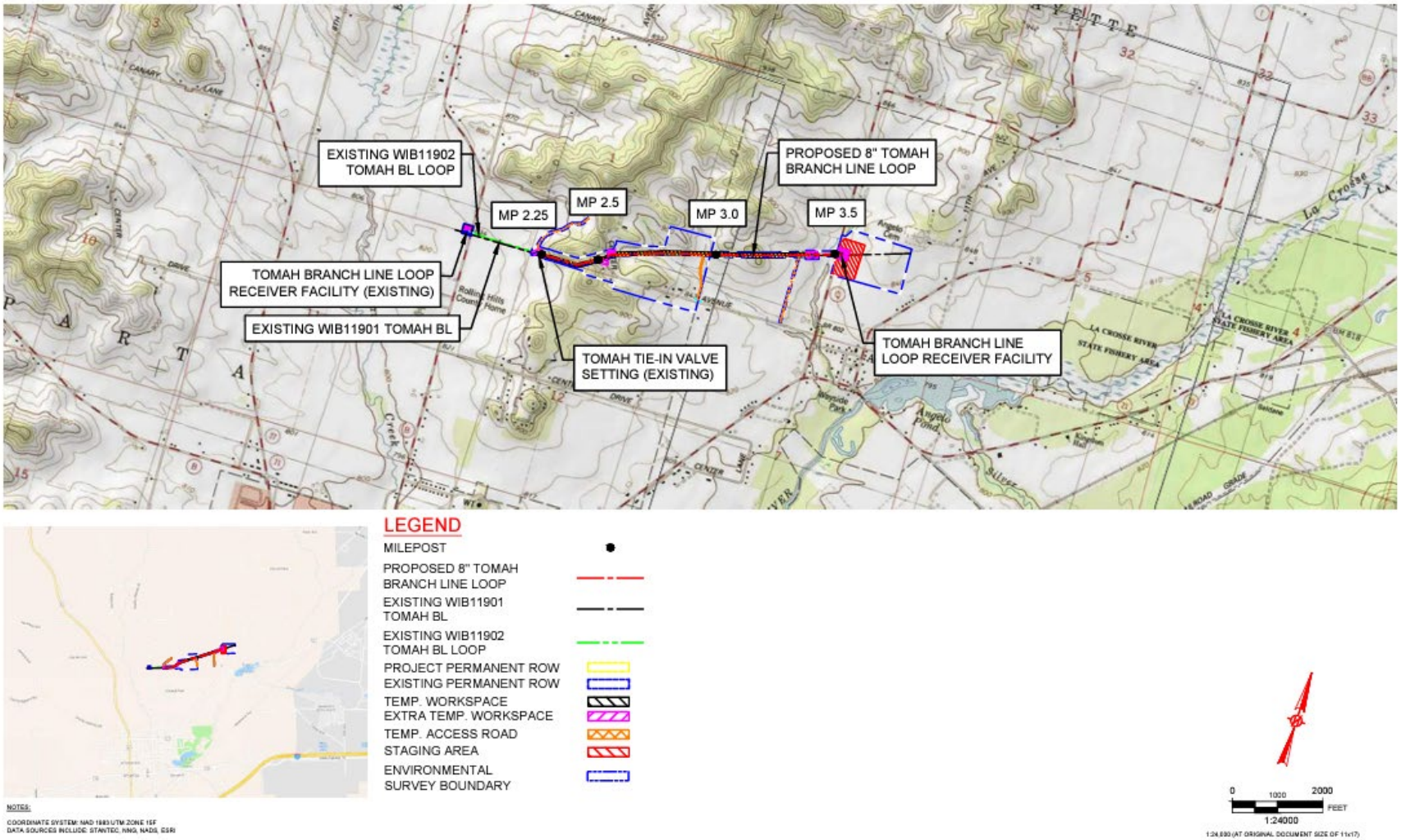


Figure B-4: Project Map - Tomah Branch Line Loop

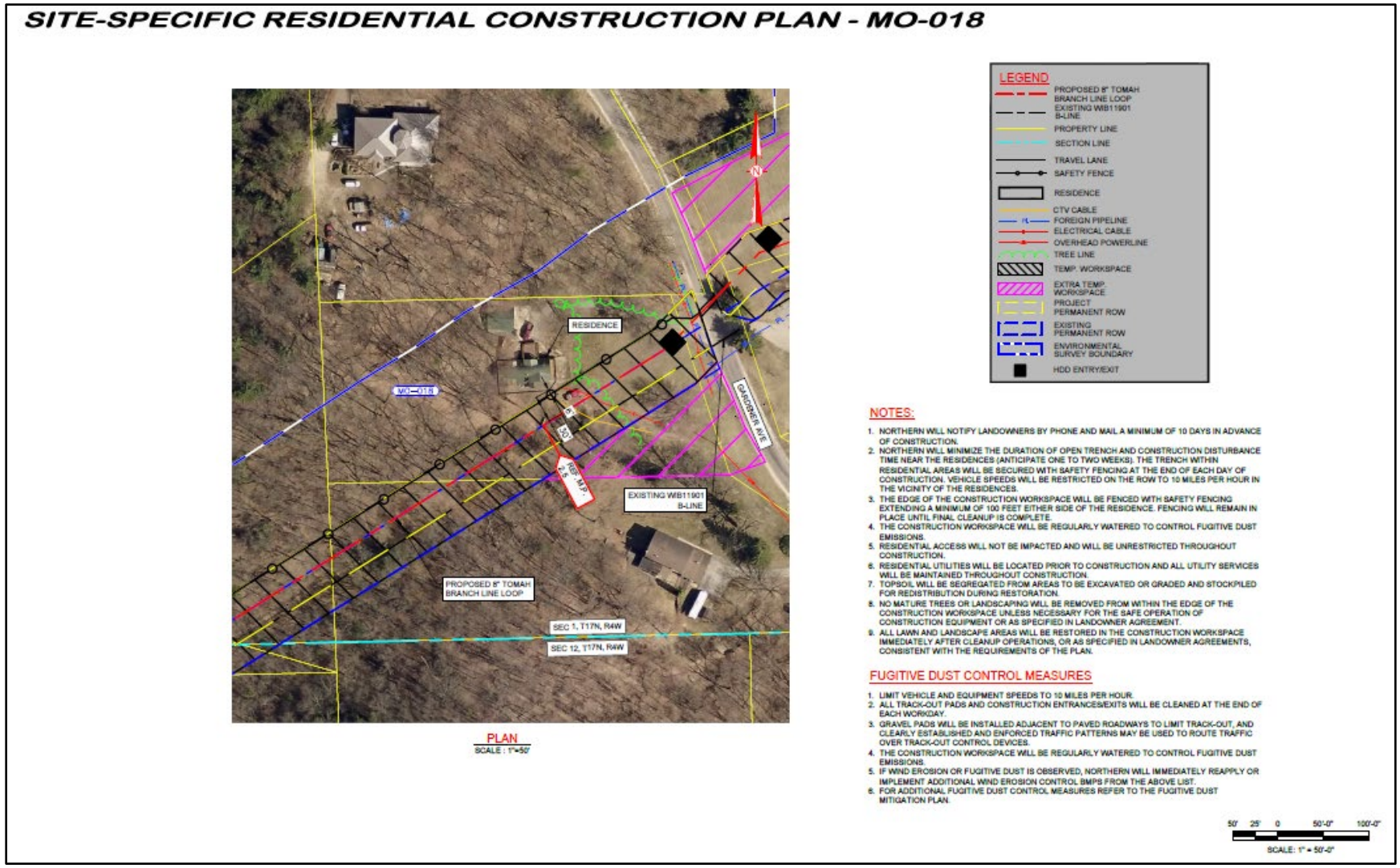


Figure B-5: Site Specific Residential Plan

Appendix C: Deviations to FERC's *Wetland and Waterbody Construction and Mitigation Procedures*

Table C-1: Proposed Deviations to FERC's Procedures			
Location [by Milepost (MP)]	**Variance Requested**	**Distance to Wetland/Width of Construction Right-of-Way (ROW) (feet)**	**Justification**
Lake Mills to Albert Lea E-line			
33.18	Extra work area within 50 feet of wetland	0-1	Using existing road for temporary access to reduce impacts on resources.
Elk River 3rd Branch Line			
1.37	Construction ROW greater than 75 feet through wetland	100 feet wide; 98 feet long	Pipeline will be installed using an open cut; crossing is also midway between two HDD locations; space required to accommodate trenching equipment and maximize pull-back length for HDD and minimize the amount of welding needed during pullback activities.
1.36	Extra work area within 50 feet of wetland	16 and 25	Space required to safely complete HDD
1.38	Extra work area within 50 feet of wetland	14	Space required to safely complete HDD
1.46	Extra work area within 50 feet of wetland	15 and 21	Space required to safely complete HDD
1.92	Extra work area within 50 feet of wetland	17, 39 and 33	Additional temporary workspace (ATWS) required for potential potholes to expose existing utilities during HDD crossing of Ivywood Ave North.
2.15	Extra work area within 50 feet of wetland	15	Space required to safely complete HDD
2.20	Extra work area within 50 feet of wetland	15	Space required to safely complete HDD
2.38	Extra work area within 50 feet of wetland	31	Using existing road for temporary access to reduce impacts on resources.
2.43	Extra work area within 50 feet of wetland	17	Space required to safely complete HDD
Farmington to Hugo C-line			
0.5	Extra work area within 50 feet of wetland	5	Using existing road for temporary access to reduce impacts on resources.
Tomah Branch Line Loop			
3.50	Extra work area within 50 feet of wetland	25	ATWS required for potential potholes to expose existing utilities during HDD crossing of County Hwy Q.
3.51	Extra work area within 50 feet of wetland	45	Proposed facility driveway required up to edge of pavement on County Hwy Q.

Appendix D: Vegetation Impacts Table

Table D-1: Vegetation Types Impacted by the Project (acres)								
Facility	**Agricultural**		**Forest/ Woodland**		**Wetland**		**Open Land[6]**	
	Const	**Oper**	**Const**	**Oper**	**Const**	**Oper**	**Const**	**Oper**
Lake Mills to Albert Lea E-line								
Pipeline ROW[1,2]	36.3	18.1	0.0	0.0	<0.1	0.0	0.0	0.0
ATWS	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Staging Area[3]	23.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Access Roads	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aboveground Appurtenances[4]	<0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Proposed Aboveground Appurtenances	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**70.4**	**19.0**	**0.0**	**0.0**	**<0.1**	**0.0**	**0.0**	**0.0**
Elk River 3rd Branch Line								
Pipeline ROW[1,2]	5.1	2.6	0.6	0.1	0.7	0.1	6.5	3.2
ATWS	5.7	0.0	0.	0.0	0.0	0.0	4.9	0.0
Staging Area	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Access Roads[3]	0.5	0.0	<0.1	0.0	0.0	0.0	0.2	0.0
Existing Aboveground Facilities[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proposed Aboveground Appurtenances	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**14.6**	**2.7**	**0.9**	**0.1**	**0.7**	**0.1**	**11.6**	**3.2**
Farmington to Hugo C-line								
Pipeline ROW[1,2]	1.4	0.7	0.3	0.0	0.1	0.0	12.8	6.3
ATWS	3.2	0.0	0.0	0.0	0.0	0.0	12.0	0.0
Staging Area[3]	0.0	0.0	0.0	0.0	0.0	0.0	9.8	0.0
Access Roads	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0
Existing Aboveground appurtenances[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proposed Aboveground Appurtenances	0.2	0.0	0.0	0.0	0.0	0.0	1.0	1.0
Subtotal	**4.5**	**0.7**	**0.4**	**0.0**	**0.1**	**0.0**	**35.8**	**7.4**

Table D-1: Vegetation Types Impacted by the Project (acres)

Facility	Agricultural		Forest/ Woodland		Wetland		Open Land[6]	
	Const	Oper	Const	Oper	Const	Oper	Const	Oper
Tomah Branch Line loop								
Pipeline ROW[1,2]	3.9	2.7	2.2	1.0	<0.1	0.0	3.7	2.9
ATWS	1.7	0.0	0.1	0.0	0.0	0.0	0.5	0.0
Staging Area[3]	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Access Roads	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Existing Aboveground Appurtenances[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proposed Aboveground Appurtenances	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**15.5**	**3.3**	**2.3**	**1.0**	**<0.1**	**0.0**	**4.3**	**2.9**
Project Within Existing Easement	*19.5*	*11.2*	*0.3*	*0.1*	*0.0*	*0.0*	*11.7*	*7.3*
Project Outside of Existing Easement	*85.6*	*14.5*	*3.3*	*1.0*	*0.8*	*0.1*	*39.9*	*6.1*
PROJECT TOTAL	**105.1**	**25.7**	**3.5**	**1.1**	**0.8**	**0.1**	**51.6**	**13.4**

[1] Construction right-of-way is based on 100-foot-wide, 90-foot-wide, or 75-foot-wide corridors in uplands and a 75-foot-wide corridor in wetlands, with the exception of a 100-foot-wide corridor in wetland ERT-W15 on the Elk River 3rd Branch Line. Operational right-of-way is based on 50-foot-wide corridor in uplands and 10-foot-wide corridor in wetlands.
[2] Northern also included impacts for a 6-foot-wide or two 3-foot-wide parallel travel lanes between HDD entry and exit points in the pipeline right-of-way calculations.
[3] Outside existing easement.
[4] Within existing easement.
[5] Residential, industrial land, and open water land use types are excluded from this table as they typically do not contain vegetation.
[6] Open land within the Project areas consists of hay fields, fallow land, and pastureland.

Appendix E: Federal and State Listed Species

Table E-1: Federal and State Listed Species Potentially Impacted by the Project				
Common Name	**Federal Status**	**State Status**	**Habitat Presence**	**Determination**
Reptiles				
Blanding's turtle	None	Threatened	Habitat may be present near the Elk River 3rd Branch Line, Farmington to Hugo C-line, and Tomah Branch Line loop.	Not likely to significantly impact
Wood turtle	None	Threatened	Prefers rivers and streams with adjacent riparian wetlands and upland deciduous forests. Habitat may be present near the Elk River 3rd Branch Line, Farmington to Hugo C-line, and Tomah Branch Line loop	Not likely to adversely affect
Mammals				
Northern long-eared bat (NLEB)	Endangered	Threatened	Summer roosting habitat for the species may be present. Suitable habitat was identified within the Elk River 3rd Branch Line, Farmington to Hugo C-line, and the Tomah Branch line loop.	*May affect, but not likely to adversely affect*
Tricolored bat	Proposed Endangered	Threatened	Similar habitat as NLEB, can be found within forested habitat roosting in live or recently dead hardwood trees; and winters in caves, abandoned mines, and road-associated culverts.	*May affect, but not likely to adversely affect*
Gray wolf	Endangered	None	Habitat primarily includes temperate forests, mountains, tundra, taiga, grasslands, and deserts. Due to the fragmented forested areas and developed surrounding land use, the gray wolf is unlikely to occur within the Project area.	*May affect, but not likely to adversely affect*
Insects				
Rusty patched bumble bee	Endangered	None	Overwintering habitat consists of woodland edges, upland forest, and woodland interiors. Nesting habitat includes grasslands, shrublands, upland forest, and woodland edges; has the potential to occur within the Elk River 3rd Branch Line and the Tomah Branch Line loop.	*Not likely to adversely affect*
Monarch butterfly	Candidate	None	The Project area is within the species known range and suitable habitat was identified within the Project area.	*Would not likely jeopardize the continued existence*

Table E-1: Federal and State Listed Species Potentially Impacted by the Project				
Common Name	**Federal Status**	**State Status**	**Habitat Presence**	**Determination**
Plants				
Autumn fimbry	None	Special Concern	Autumn fimbry grows along the margins of shallow lakes and ponds with a sandy substrate particularly in the Anoka Sand Plain Region of Minnesota. These habitats fluctuate with seasonal ground water tables. Potential to occur within the Farmington to Hugo C-line	Not likely to significantly impact
Birds				
Purple martin	None	Special Concern	The Farmington to Hugo C-line contains suitable foraging habitat for the purple martin, including open fields, residential areas, and wetlands and the species may occur within the Project area.	Not likely to significantly impact

Appendix F: Land Use Impacts Table

Table F-1: Impacts to Land Use														
Facility	**Agricultural**		**Forest/ Woodland**		**Wetland**		**Open Land**		**Residential**		**Industrial**		**Total**	
	Const	**Oper**	**Const**	**Oper**	**Const**	**Oper**	**Const**	**Oper**	**Const**	**Oper**	**Const**	**Oper**	**Const**	**Oper**
Lake Mills to Albert Lea E-line														
Pipeline Right-of-way [1,2]	36.3	18.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.3	18.1
Within Existing Easement	*12.7*	*9.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*12.7*	*9.1*
Outside of Existing Easement	*23.6*	*9.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*23.6*	*9.0*
ATWS	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0
Within Existing Easement	*2.8*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*2.8*	*0.0*
Outside of Existing Easement	*4.7*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*4.7*	*0.0*
Staging Area[3]	23.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.8	0.0
Access Roads[3]	1.9	0.0	*0.0*	*0.0*	*<0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	2.0	0.0
Existing Aboveground appurtenances	<0.1	<0.1	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	<0.1	<0.1
Within Existing Easement	*<0.1*	*<0.1*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*<0.1*	*<0.1*
Outside of Existing Easement	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Proposed Aboveground appurtenance and driveway	0.9	0.9	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	0.9	0.9
Within Existing Easement	*0.1*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*0.1*	*0.1*
Outside of Existing Easement	*0.7*	0.7	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.7*	*0.7*
Subtotal	**70.4**	**19.0**	**0.0**	**0.0**	**<0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**70.5**	**19.0**
Pipeline Right-of-way [1,2]	5.1	2.6	0.6	0.1	0.7	0.1	6.5	3.2	1.9	0.9	0.3	0.1	15.1	7.0

Within Existing Easement	*0.4*	*0.3*	*<0.1*	*<0.1*	*0.0*	*0.0*	*2.6*	*1.7*	*0.1*	*0.1*	*<0.1*	*<0.1*	*3.3*	*2.1*
Outside of Existing Easement	*4.7*	*2.3*	*0.6*	*0.1*	*0.7*	*0.1*	*3.9*	*1.5*	*1.8*	*0.8*	*0.2*	*0.1*	*11.8*	*4.8*
ATWS	5.7	0.0	0.2	0.0	0.0	0.0	4.9	0.0	1.3	0.0	0.2	0.0	12.2	0.0
Within Existing Easement	*0.6*	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.9*	*0.0*	*0.1*	*0.0*	*<0.1*	*0.0*	*1.7*	*0.0*
Outside of Existing Easement	*5.1*	*0.0*	*0.2*	*0.0*	*0.0*	*0.0*	*4.0*	*0.0*	*1.2*	*0.0*	*0.1*	*0.0*	*10.5*	*0.0*
Staging Area	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	3.2	0.0
Within Existing Easement	*0.5*	0.0	*0.0*	0.0	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*	*0.0*
Outside of Existing Easement	*2.7*	0.0	*0.0*	0.0	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*<0.1*	*0.0*	*2.7*	*0.0*
Access Roads[3]	0.5	0.0	<0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.3	0.0	1.1	0.0
Existing Aboveground facilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Within Existing Easement	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*
Outside of Existing Easement	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Proposed Aboveground appurtenance and driveway	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.2	0.2
Within Existing Easement	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*
Outside of Existing Easement	*<0.1*	*<0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*<0.*	*<0.1*	*<0.*	*<0.1*
Subtotal	**14.6**	**2.7**	**0.9**	**0.1**	**0.7**	**0.1**	**11.6**	**3.2**	**3.3**	**0.9**	**0.8**	**0.2**	**31.8**	**7.2**

Facility	Agricultural		Forest/ Woodland		Wetland		Open Land		Residential		Industrial		Total	
	Const	Const	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper
Farmington to Hugo C-line														
Pipeline Right-of-Way[1,2]	1.4	0.7	0.3	0.0	0.1	0.0	12.8	6.3	<0.1	<0.1	<0.1	<0.1	14.7	7.1
Within Existing Easement	*0.3*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*4.2*	*3.0*	*<0.1*	*<0.1*	*0.0*	*0.0*	*4.5*	*3.2*
Outside of Existing Easement	*1.4*	*0.5*	*0.3*	*0.0*	*0.1*	*0.0*	*8.6*	*3.4*	*0.1*	*<0.1*	*<0.1*	*<0.1*	*10.2*	*3.9*
ATWS	3.2	0.0	0.0	0.0	0.0	0.0	12.0	*0.0*	0.1	*0.0*	0.4	0.0	15.6	0.0
Within Existing Easement	*0.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*1.0*	0.0	*0.0*	0.0	*<0.1*	*0.0*	*1.4*	*0.0*
Outside of Existing Easement	*2.8*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*11.0*	*0.0*	*0.1*	*0.0*	*0.3*	*0.0*	*14.2*	*0.0*
Staging Area[3]	0.0	0.0	0.0	0.0	0.0	0.0	9.8	*0.0*	0.1	*0.0*	0.1	0.0	10.0	0.0
Access Roads[3]	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	1.1	0.0	<0.1	0.0	1.4	0.0
Existing Aboveground appurtenances	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	4.2	4.2	4.2
Within Existing Easement	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	0.0	*0.0*	0.0	*4.2*	*4.2*	*4.2*	*4.2*
Outside of Existing Easement	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Proposed Aboveground appurtenance	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.7	1.7	<0.1	<0.1	2.7	2.7
Within Existing Easement	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*1.0*	1.0	*<0.1*	*<0.1*	*0.0*	*0.0*	*1.0*	*1.0*
Outside of Existing Easement	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*1.7*	*1.7*	*<0.1*	*<0.1*	*1.8*	*1.8*
Subtotal	**4.5**	**0.7**	**0.4**	**0.0**	**0.1**	**0.0**	**35.8**	**7.4**	**2.9**	**1.7**	**4.8**	**4.3**	**48.6**	**14.1**
Tomah Branch Line loop														
Pipeline Right-of-way [1,2]	3.9	2.7	2.2	1.0	<0.1	0.0	3.7	2.9	0.6	0.5	0.1	<0.1	10.6	7.0
Within Existing Easement	*1.4*	*1.4*	*0.1*	*0.1*	*0.0*	*0.0*	*1.7*	*1.7*	*0.2*	*0.2*	*<0.1*	*<0.1*	*3.5*	*3.4*

Outside of Existing Easement	*2.5*	*1.3*	*2.1*	*0.9*	*<0.1*	*0.0*	*2.0*	*1.2*	*0.4*	*0.2*	*<0.1*	*0.0*	*7.1*	*3.6*
ATWS	1.7	0.0	0.1	0.0	0.0	0.0	0.5	0.0	0.9	0.0	0.2	0.0	3.4	0.0
Within Existing Easement	*0.1*	*0.0*	*<0.1*	*0.0*	*0.0*	*0.0*	*0.3*	*0.0*	*0.2*	*0.0*	*0.1*	*0.0*	*0.8*	*0.0*
Outside of Existing Easement	*1.6*	*0.0*	*<0.1*	*0.0*	*0.0*	*0.0*	*0.2*	*0.0*	*0.7*	*0.0*	*0.2*	*0.0*	*2.6*	*0.0*
Staging Area[3]	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	8.4	*0.0*
Access Roads[3]	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.8	0.0	2.5	*0.0*
Existing Aboveground appurtenances	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proposed Aboveground appurtenance and driveway	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.6	0.6
Within Existing Easement	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Outside of Existing Easement	*0.6*	*0.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*<0.1*	*<0.1*	*0.6*	*0.6*
Subtotal	**15.5**	**3.3**	**2.3**	**1.0**	**<0.1**	**0.0**	**4.3**	**2.9**	**2.0**	**0.5**	**1.3**	**<0.1**	**25.4**	**7.7**
La Crescent Compressor Station														
ATWS[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0
Access Roads[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0
Subtotal	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**0.0**
Project Within Existing Easement	*19.5*	*11.2*	*0.3*	*0.1*	*0.0*	*0.0*	*11.7*	*7.3*	*0.7*	*0.4*	*5.5*	*4.3*	*37.6*	*23.4*
Project Outside of Existing Easement	*85.6*	*14.5*	*3.3*	*1.0*	*0.8*	*0.1*	*39.9*	*6.1*	*7.5*	*2.7*	*2.5*	*0.2*	*139.6*	*24.5*
PROJECT TOTAL	**105.1**	**25.7**	**3.5**	**1.1**	**0.8**	**0.1**	**51.6**	**13.4**	**8.2**	**3.1**	**7.9**	**4.5**	**177.2**	**47.9**

Appendix G: Estimated Increase in Noise Related to Horizontal Directional Drilling (HDD) Operations

Table G-1: Estimated Noise Impact due to Project HDDs

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
Elk River 3rd Branch Line									
P4-1 (Nighttime operations expected for pullback activities)									
NSA01	45.2114	-92.9065	255 ft. Southeast	37	70	66	C	**66**	29
NSA02	45.2126	-92.9066	265 ft. Northeast	37	70	62	C	**62**	25
NSA03	45.2109	-92.9085	531 ft. Southwest	37	64	47	C	48	11
NSA04	45.2118	-92.9083	308 ft. West	37	69	51	C	51	14
NSA05	45.2124	-92.9086	409 ft. West	37	66	49	C	50	13
NSA06	45.2132	-92.9081	511 ft. Northwest	37	64	52	C	52	15
NSA07	45.2118	-92.9110	450 ft. East	37	61	46	C	47	10
NSA08	45.2100	-92.9127	771 ft. South	37	56	54	A	54	17
NSA09	45.2142	-92.9117	789 ft. North	37	56	53	A	53	16
NSA10	45.2146	-92.9142	980 ft. North	37	53	51	-	51	14
NSA11	45.2109	-92.9180	647 ft. Southwest	37	50	50	-	50	13

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA12	45.2110	-92.9189	518 ft. Southeast	37	49	48	-	49	12
NSA13	45.2126	-92.9200	278 ft. Northeast	37	48	47	-	48	11
NSA14	45.2127	-92.9222	533 ft. Northwest	37	45	45	-	45	8
NSA15	45.2108	-92.9216	506 ft. Southwest	37	46	45	-	46	9
NSA16	45.2089	-92.9163	1017 ft. South	37	50	49	-	50	13
NSA17	45.2136	-92.9241	623 ft. Northeast	37	44	43	-	44	7
NSA18	45.2127	-92.9260	335 ft. North	37	42	39	-	41	4
NSA19	45.2109	-92.9259	452 ft. South	37	42	39	-	41	4
NSA20	45.2136	-92.9260	607 ft. North	37	42	39	-	41	4
NSA21	45.2124	-92.9287	237 ft. Northeast	37	40	37	-	40	3
NSA22	45.2102	-92.9292	568 ft. South	37	40	37	-	40	3
NSA23	45.2094	-92.9272	1108 ft. Southwest	37	41	38	-	40	3
NSA24	45.2091	-92.9242	1104 ft. Southeast	37	43	42	-	43	6

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA25	45.2149	-92.9292	1069 ft. North	37	40	37	-	40	3
NSA26	45.2147	-92.9302	1002 ft. North	37	39	36	-	40	3
NSA27	45.2140	-92.9320	891 ft. Northwest	37	38	35	-	39	2
NSA28	45.2118	-92.9340	335 ft. East	37	34	34	-	39	2
NSA29	45.2088	-92.9342	964 ft. South	37	33	33	-	38	1
P4-2 (Nighttime operations expected for pullback activities)									
NSA01	45.2114	-92.9065	255 ft. Southeast	37	48	50	-	50	13
NSA02	45.2126	-92.9066	265 ft. Northeast	37	48	50	-	50	13
NSA03	45.2109	-92.9085	531 ft. Southwest	37	51	52	-	53	16
NSA04	45.2118	-92.9083	308 ft. West	37	51	52	-	52	15
NSA05	45.2124	-92.9086	409 ft. West	37	51	53	-	53	16
NSA06	45.2132	-92.9081	511 ft. Northwest	37	50	52	-	52	15
NSA07	45.2118	-92.9110	450 ft. East	37	55	55	A	**57**	20
NSA08	45.2100	-92.9127	771 ft. South	37	57	55	A	**57**	20

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA09	45.2142	-92.9117	789 ft. North	37	54	56	-	**56**	19
NSA10	45.2146	-92.9142	980 ft. North	37	56	59	D	**59**	22
NSA11	45.2109	-92.9180	647 ft. Southwest	37	62	47	D	47	10
NSA12	45.2110	-92.9189	518 ft. Southeast	37	61	47	D	48	11
NSA13	45.2126	-92.9200	278 ft. Northeast	37	64	52	D	52	15
NSA14	45.2127	-92.9222	533 ft. Northwest	37	58	59	D	**59**	22
NSA15	45.2108	-92.9216	506 ft. Southwest	37	59	54	D	54	17
NSA16	45.2089	-92.9163	1017 ft. South	37	57	43	D	44	7
NSA17	45.2136	-92.9241	623 ft. Northeast	37	52	53	-	53	16
NSA18	45.2127	-92.9260	335 ft. North	37	50	50	-	50	13
NSA19	45.2109	-92.9259	452 ft. South	37	50	48	-	48	11
NSA20	45.2136	-92.9260	607 ft. North	37	50	50	-	50	13
NSA21	45.2124	-92.9287	237 ft. Northeast	37	47	46	-	46	9

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA22	45.2102	-92.9292	568 ft. South	37	46	44	-	44	7
NSA23	45.2094	-92.9272	1108 ft. Southwest	37	48	43	-	44	7
NSA24	45.2091	-92.9242	1104 ft. Southeast	37	51	41	-	43	6
NSA25	45.2149	-92.9292	1069 ft. North	37	46	44	-	45	8
NSA26	45.2147	-92.9302	1002 ft. North	37	45	44	-	45	8
NSA27	45.2140	-92.9320	891 ft. Northwest	37	44	43	-	44	7
NSA28	45.2118	-92.9340	335 ft. East	37	42	39	-	41	4
NSA29	45.2088	-92.9342	964 ft. South	37	42	39	-	41	4
NSA30	45.2117	-92.9426	758 ft. East	37	33	33	-	38	1
NSA31	45.2108	-92.9433	691 ft. Southeast	37	33	33	-	38	1
NSA32	45.2108	-92.9442	495 ft. Southeast	37	32	32	-	38	1
P4-3 (Nighttime operations expected for pullback activities)									
NSA01	45.2114	-92.9065	255 ft. Southeast	37	39	36	-	39	2
NSA02	45.2126	-92.9066	265 ft. Northeast	37	39	35	-	39	2
NSA03	45.2109	-92.9085	531 ft. Southwest	37	40	37	-	40	3

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA04	45.2118	-92.9083	308 ft. West	37	40	36	-	40	3
NSA05	45.2124	-92.9086	409 ft. West	37	40	37	-	40	3
NSA06	45.2132	-92.9081	511 ft. Northwest	37	40	37	-	40	3
NSA07	45.2118	-92.9110	450 ft. East	37	42	38	-	41	4
NSA08	45.2100	-92.9127	771 ft. South	37	43	40	-	42	5
NSA09	45.2142	-92.9117	789 ft. North	37	42	39	-	41	4
NSA10	45.2146	-92.9142	980 ft. North	37	44	41	-	43	6
NSA11	45.2109	-92.9180	647 ft. Southwest	37	48	47	-	48	11
NSA12	45.2110	-92.9189	518 ft. Southeast	37	49	49	-	49	12
NSA13	45.2126	-92.9200	278 ft. Northeast	37	51	50	-	50	13
NSA14	45.2127	-92.9222	533 ft. Northwest	37	55	53	-	53	16
NSA15	45.2108	-92.9216	506 ft. Southwest	37	53	54	-	54	17
NSA16	45.2089	-92.9163	1017 ft. South	37	46	45	-	46	9
NSA17	45.2136	-92.9241	623 ft. Northeast	37	57	42	D	43	6

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA18	45.2127	-92.9260	335 ft. North	37	63	46	D	47	10
NSA19	45.2109	-92.9259	452 ft. South	37	61	54	D	54	17
NSA20	45.2136	-92.9260	607 ft. North	37	59	43	D	44	7
NSA21	45.2124	-92.9287	237 ft. Northeast	37	71	54	D	54	17
NSA22	45.2102	-92.9292	568 ft. South	37	62	63	D	**63**	26
NSA23	45.2094	-92.9272	1108 ft. Southwest	37	57	52	D	52	15
NSA24	45.2091	-92.9242	1104 ft. Southeast	37	54	52	-	52	15
NSA25	45.2149	-92.9292	1069 ft. North	37	57	42	A	43	6
NSA26	45.2147	-92.9302	1002 ft. North	37	57	43	A	44	7
NSA27	45.2140	-92.9320	891 ft. Northwest	37	58	55	A	57	20
NSA28	45.2118	-92.9340	335 ft. East	37	56	55	A	57	20
NSA29	45.2088	-92.9342	964 ft. South	37	52	55	-	55	18
NSA30	45.2117	-92.9426	758 ft. East	37	44	44	-	45	8

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA31	45.2108	-92.9433	691 ft. Southeast	37	44	43	-	44	7
NSA32	45.2108	-92.9442	495 ft. Southeast	37	43	42	-	43	6
NSA33	45.2110	-92.9484	733 ft. Southwest	37	40	39	-	41	4
NSA34	45.2106	-92.9503	235 ft. East	37	39	38	-	40	3
NSA35	45.2090	-92.9527	170 ft. Southeast	37	36	36	-	40	3
NSA36	45.2101	-92.9499	363 ft. East	37	39	38	-	41	4
NSA37	45.2113	-92.9535	641 ft. East	37	36	36	-	40	3
NSA38	45.2126	-92.9523	778 ft. West	37	35	35	-	39	2
P4-4 (Daytime only)									
NSA01	45.2114	-92.9065	255 ft. Southeast	37	38	38	N/A – Daytime only	40	3
NSA02	45.2126	-92.9066	265 ft. Northeast	37	38	38	N/A – Daytime only	40	3
NSA03	45.2109	-92.9085	531 ft. Southwest	37	39	39	N/A – Daytime only	41	4
NSA04	45.2118	-92.9083	308 ft. West	37	39	39	N/A – Daytime only	41	4
NSA05	45.2124	-92.9086	409 ft. West	37	39	39	N/A – Daytime only	41	4
			511 ft.				N/A – Daytime only		

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA06	45.2132	-92.9081	Nortwest	37	39	39		41	4
NSA07	45.2118	-92.9110	450 ft. East	37	40	40	N/A – Daytime only	42	5
NSA08	45.2100	-92.9127	771 ft. South	37	41	41	N/A – Daytime only	43	6
NSA09	45.2142	-92.9117	789 ft. North	37	41	41	N/A – Daytime only	42	5
NSA10	45.2146	-92.9142	980 ft. North	37	42	42	N/A – Daytime only	43	6
NSA11	45.2109	-92.9180	647 ft. Southwest	37	46	46	N/A – Daytime only	46	9
NSA12	45.2110	-92.9189	518 ft. Southeast	37	47	47	N/A – Daytime only	47	10
NSA13	45.2126	-92.9200	278 ft. Northeast	37	48	48	N/A – Daytime only	48	11
NSA14	45.2127	-92.9222	533 ft. Northwest	37	51	51	N/A – Daytime only	51	14
NSA15	45.2108	-92.9216	506 ft. Southwest	37	50	50	N/A – Daytime only	50	13
NSA16	45.2089	-92.9163	1017 ft. South	37	44	44	N/A – Daytime only	45	8
NSA17	45.2136	-92.9241	623 ft. Northeast	37	53	53	N/A – Daytime only	53	16
NSA18	45.2127	-92.9260	335 ft. North	37	57	57	N/A – Daytime only	57	20
NSA19	45.2109	-92.9259	452 ft. South	37	57	57	N/A – Daytime only	57	20
NSA20	45.2136	-92.9260	607 ft. North	37	56	56	N/A – Daytime only	56	19

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA21	45.2124	-92.9287	237 ft. Northeast	37	67	67	N/A – Daytime only	67	30
NSA22	45.2102	-92.9292	568 ft. South	37	62	62	N/A – Daytime only	62	25
NSA23	45.2094	-92.9272	1108 ft. Southwest	37	56	56	N/A – Daytime only	56	19
NSA24	45.2091	-92.9242	1104 ft. Southeast	37	52	52	N/A – Daytime only	52	15
NSA25	45.2149	-92.9292	1069 ft. North	37	57	57	N/A – Daytime only	57	20
NSA26	45.2147	-92.9302	1002 ft. North	37	58	58	N/A – Daytime only	58	21
NSA27	45.2140	-92.9320	891 ft. Northwest	37	59	59	N/A – Daytime only	59	22
NSA28	45.2118	-92.9340	335 ft. East	37	58	58	N/A – Daytime only	58	21
NSA29	45.2088	-92.9342	964 ft. South	37	54	54	N/A – Daytime only	54	17
NSA30	45.2117	-92.9426	758 ft. East	37	46	46	N/A – Daytime only	46	9
NSA31	45.2108	-92.9433	691 ft. Southeast	37	45	45	N/A – Daytime only	46	9
NSA32	45.2108	-92.9442	495 ft. Southeast	37	44	44	N/A – Daytime only	45	8
NSA33	45.2110	-92.9484	733 ft. Southwest	37	41	41	N/A – Daytime only	43	6
NSA34	45.2106	-92.9503	235 ft. East	37	40	40	N/A – Daytime only	42	5

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA35	45.2090	-92.9527	170 ft. Southeast	37	38	38	N/A – Daytime only	41	4
NSA36	45.2101	-92.9499	363 ft. East	37	40	40	N/A – Daytime only	42	5
NSA37	45.2113	-92.9535	641 ft. East	37	38	38	N/A – Daytime only	40	3
NSA38	45.2126	-92.9523	778 ft. West	37	36	36	N/A – Daytime only	40	3
P4-5 (Nighttime operations expected for pullback activities)									
NSA07	45.2118	-92.9110	450 ft. East	37	36	27	-	37	-
NSA08	45.2100	-92.9127	771 ft. South	37	37	27	-	37	-
NSA09	45.2142	-92.9117	789 ft. North	37	36	27	-	37	-
NSA10	45.2146	-92.9142	980 ft. North	37	38	28	-	37	-
NSA11	45.2109	-92.9180	647 ft. Southwest	37	40	29	-	38	1
NSA12	45.2110	-92.9189	518 ft. Southeast	37	41	30	-	38	1
NSA13	45.2126	-92.9200	278 ft. Northeast	37	42	30	-	38	1
NSA14	45.2127	-92.9222	533 ft. Northwest	37	44	32	-	38	1
NSA15	45.2108	-92.9216	506 ft. Southwest	37	44	31	-	38	1

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA16	45.2089	-92.9163	1017 ft. South	37	39	29	-	38	1
NSA17	45.2136	-92.9241	623 ft. Northeast	37	46	33	-	38	1
NSA18	45.2127	-92.9260	335 ft. North	37	48	34	-	39	2
NSA19	45.2109	-92.9259	452 ft. South	37	48	34	-	39	2
NSA20	45.2136	-92.9260	607 ft. North	37	48	34	-	39	2
NSA21	45.2124	-92.9287	237 ft. Northeast	37	52	37	-	40	3
NSA22	45.2102	-92.9292	568 ft. South	37	52	37	-	40	3
NSA23	45.2094	-92.9272	1108 ft. Southwest	37	49	35	-	39	2
NSA24	45.2091	-92.9242	1104 ft. Southeast	37	46	33	-	38	1
NSA25	45.2149	-92.9292	1069 ft. North	37	50	36	-	40	3
NSA26	45.2147	-92.9302	1002 ft. North	37	51	38	-	40	3
NSA27	45.2140	-92.9320	891 ft. Northwest	37	55	41	-	42	5
NSA28	45.2118	-92.9340	335 ft. East	37	68	51	D	51	14

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA29	45.2088	-92.9342	964 ft. South	37	58	58	D	58	21
NSA30	45.2117	-92.9426	758 ft. East	37	55	52	D	52	15
NSA31	45.2108	-92.9433	691 ft. Southeast	37	56	51	D	52	15
NSA32	45.2108	-92.9442	495 ft. Southeast	37	58	51	D	51	14
NSA33	45.2110	-92.9484	733 ft. Southwest	37	53	54	-	54	17
NSA34	45.2106	-92.9503	235 ft. East	37	49	50	-	50	13
NSA35	45.2090	-92.9527	170 ft. Southeast	37	45	46	-	46	9
NSA36	45.2101	-92.9499	363 ft. East	37	50	50	-	50	13
NSA37	45.2113	-92.9535	641 ft. East	37	45	47	-	47	10
NSA38	45.2126	-92.9523	778 ft. West	37	43	44	-	45	8
P4-6 (Daytime only)									
NSA18	45.2127	-92.9260	335 ft. North	37	37	35	N/A – Daytime only	39	2
NSA19	45.2109	-92.9259	452 ft. South	37	37	37	N/A – Daytime only	40	3
NSA20	45.2136	-92.9260	607 ft. North	37	37	37	N/A – Daytime only	37	-

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA21	45.2124	-92.9287	237 ft. Northeast	37	38	38	N/A – Daytime only	41	4
NSA22	45.2102	-92.9292	568 ft. South	37	39	39	N/A – Daytime only	41	4
NSA23	45.2094	-92.9272	1108 ft. Southwest	37	38	38	N/A – Daytime only	40	3
NSA24	45.2091	-92.9242	1104 ft. Southeast	37	36	36	N/A – Daytime only	37	-
NSA25	45.2149	-92.9292	1069 ft. North	37	38	38	N/A – Daytime only	41	4
NSA26	45.2147	-92.9302	1002 ft. North	37	39	39	N/A – Daytime only	41	4
NSA27	45.2140	-92.9320	891 ft. Northwest	37	40	40	N/A – Daytime only	42	5
NSA28	45.2118	-92.9340	335 ft. East	37	42	42	N/A – Daytime only	43	6
NSA29	45.2088	-92.9342	964 ft. South	37	42	42	N/A – Daytime only	43	6
NSA30	45.2117	-92.9426	758 ft. East	37	50	50	N/A – Daytime only	50	13
NSA31	45.2108	-92.9433	691 ft. Southeast	37	51	51	N/A – Daytime only	51	14
NSA32	45.2108	-92.9442	495 ft. Southeast	37	52	52	N/A – Daytime only	52	15
NSA33	45.2110	-92.9484	733 ft. Southwest	37	61	61	N/A – Daytime only	**61**	24
NSA34	45.2106	-92.9503	235 ft. East	37	72	72	Daytime mitigation required to meet MPCA L_{10} 65 dBA criteria - C	**72**	35

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA35	45.2090	-92.9527	170 ft. Southeast	37	62	62	N/A – Daytime only	**62**	25
NSA36	45.2101	-92.9499	363 ft. East	37	67	67	N/A – Daytime only	**67**	30
NSA37	45.2113	-92.9535	641 ft. East	37	62	62	N/A – Daytime only	**62**	25
NSA38	45.2126	-92.9523	778 ft. West	37	59	59	N/A – Daytime only	**59**	22
P4-7 (Daytime only)									
NSA18	45.2127	-92.9260	335 ft. North	37	36	36	N/A – Daytime only	39	2
NSA19	45.2109	-92.9259	452 ft. South	37	36	36	N/A – Daytime only	39	2
NSA20	45.2136	-92.9260	607 ft. North	37	36	36	N/A – Daytime only	39	2
NSA21	45.2124	-92.9287	237 ft. Northeast	37	37	37	N/A – Daytime only	40	3
NSA22	45.2102	-92.9292	568 ft. South	37	38	38	N/A – Daytime only	40	3
NSA23	45.2094	-92.9272	1108 ft. Southwest	37	37	37	N/A – Daytime only	40	3
NSA24	45.2091	-92.9242	1104 ft. Southeast	37	35	35	N/A – Daytime only	39	2
NSA25	45.2149	-92.9292	1069 ft. North	37	37	37	N/A – Daytime only	40	3
NSA26	45.2147	-92.9302	1002 ft. North	37	38	38	N/A – Daytime only	40	3

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA27	45.2140	-92.9320	891 ft. Northwest	37	39	39	N/A – Daytime only	41	4
NSA28	45.2118	-92.9340	335 ft. East	37	40	40	N/A – Daytime only	42	5
NSA29	45.2088	-92.9342	964 ft. South	37	41	41	N/A – Daytime only	42	5
NSA30	45.2117	-92.9426	758 ft. East	37	47	47	N/A – Daytime only	48	11
NSA31	45.2108	-92.9433	691 ft. Southeast	37	48	48	N/A – Daytime only	49	12
NSA32	45.2108	-92.9442	495 ft. Southeast	37	50	50	N/A – Daytime only	50	13
NSA33	45.2110	-92.9484	733 ft. Southwest	37	56	56	N/A – Daytime only	56	19
NSA34	45.2106	-92.9503	235 ft. East	37	60	60	Mitigation	60	23
NSA35	45.2090	-92.9527	170 ft. Southeast	37	75	68	Daytime mitigation required to meet MPCA L10 65 dBA criteria - C	75	38
NSA36	45.2101	-92.9499	363 ft. East	37	60	60	N/A – Daytime only	60	23
NSA37	45.2113	-92.9535	641 ft. East	37	62	62	N/A – Daytime only	62	25
NSA38	45.2126	-92.9523	778 ft. West	37	55	55	N/A – Daytime only	55	18
NSA10	45.1951	-92.8917	591 ft. West	44	56	55	N/A – Daytime only	39	2
NSA11	45.1936	-92.8916	864 ft. Southwest	44	53	54	N/A – Daytime only	39	2
NSA12	45.1760	-92.8980	7430 ft. Southwest	44	33	33	N/A – Daytime only	39	2
			7480 ft.	51	33	33	N/A – Daytime only		

Location	Latitude of Noise Sensitve Area (NSA)	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} decibels on the A-weighted scale (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA13	45.1769	-92.8770	Southeast					40	3

[a] Noise Mitigation Measures:

A. Institute work practices such as reduced idling, fitting equipment with residential mufflers
B. Utilize a small and more modern HDD rig than was utilized for the noise model
C. Install sound barrier walls between entry pit and NSA
D. Install sound barrier walls between entry and exit pits and NSAs

[1] L10 sound levels from construction activities have been estimated based on a 3 dB correction factor to the modelled hourly Leq

[2] Noise barrier walls will have a minimum height of 20 feet

Estimated Noise Impact due to Project HDDs – Farmington to Hugo C-Line									
Location	Latitude of NSA	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Estimated L_{dn} due to Project Construction with Proposed Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
P4-1 (Nighttime operations expected for pullback activities)									
NSA01	45.2071	-92.8865	905 ft. East	39	54	52	-	52	13
NSA02	45.2058	-92.8887	645 ft. Southeast	39	58	55	C	55	16

NSA03	45.2078	-92.8935	929 ft. West	38	53	52	-	52	14
NSA04	45.2107	-92.8868	1464 ft. Northeast	38	49	48	-	48	10
NSA05	45.2024	-92.8876	472 ft. East	39	65	54	C	54	15
NSA06	45.2025	-92.8932	978 ft. West	39	58	50	C	51	12
NSA07	45.1971	-92.8902	624 ft. Northeast	44	51	53	-	54	10
NSA08	45.1973	-92.8864	1026 ft. Northeast	44	50	51	-	52	8
NSA09	45.1976	-92.8941	1419 ft. Northwest	44	50	51	-	52	8
NSA10	45.1951	-92.8917	591 ft. West	44	47	48	-	50	6
NSA11	45.1936	-92.8916	864 ft. Southwest	44	45	46	-	48	4
NSA12	45.1760	-92.8980	7430 ft. Southwest	44	30	30	-	44	-
NSA13	45.1769	-92.8770	7480 ft. Southeast	51	30	30	-	51	-
P4-2 (Nighttime operations expected for pullback activities)									
NSA01	45.2071	-92.8865	905 ft. East	39	48	41	-	43	4
NSA02	45.2058	-92.8887	645 ft. Southeast	39	51	43	-	44	5

NSA03	45.2078	-92.8935	929 ft. West	38	47	47	-	47	9
NSA04	45.2107	-92.8868	1464 ft. Northeast	38	43	38	-	41	3
NSA05	45.2024	-92.8876	472 ft. East	39	60	50	C	50	11
NSA06	45.2025	-92.8932	978 ft. West	39	56	55	A	**56**	17
NSA07	45.1971	-92.8902	624 ft. Northeast	44	58	55	C	**59**	15
NSA08	45.1973	-92.8864	1026 ft. Northeast	44	55	55	-	**56**	12
NSA09	45.1976	-92.8941	1419 ft. Northwest	44	53	54	-	54	10
NSA10	45.1951	-92.8917	591 ft. West	44	56	55	A	57	13
NSA11	45.1936	-92.8916	864 ft. Southwest	44	53	54	-	54	10
NSA12	45.1760	-92.8980	7430 ft. Southwest	44	33	33	-	44	-
NSA13	45.1769	-92.8770	7480 ft. Southeast	51	33	33	-	51	-

[a] Noise Mitigation Measures:

A. Institute work practices such as reduced idling, fitting equipment with residential mufflers
B. Utilize a small and more modern HDD rig than was utilized for the noise model
C. Install sound barrier walls between entry pit and NSA
D. Install sound barrier walls between entry and exit pits and NSAs

[1] L10 sound levels from construction activities have been estimated based on a 3 dB correction factor to the modelled hourly Leq

[2] Noise barrier walls will have a minimum height of 20 feet

Estimated Noise Impact due to Project HDDs – Tomah Branch Line Loop								
Location	**Latitude of NSA**	**Longitude of NSA**	**Distance and Direction to closest – NSA**	**Existing Ambient L_{dn} (dBA)**	**Estimated L_{dn} due to Project Construction without Mitigation (dBA)**	**Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]**	**L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)**	**Potential Increase Above Ambient (dB)**
P4-1 (Daytime Only)								
NSA01	43.9711	-90.8054	1543 ft. Southwest	44	27	N/A – Daytime only	44	-
NSA02	43.9712	-90.8038	1113 ft. Southwest	44	38	N/A – Daytime only	45	1
NSA03	43.9722	-90.8020	576 ft. West	44	39	N/A – Daytime only	45	1
NSA04	43.9724	-90.7992	103 ft. Southeast	44	41	N/A – Daytime only	46	2
NSA05	43.9722	-90.8004	149 ft. West	44	40	N/A – Daytime only	45	1
NSA06	43.9717	-90.7999	217 ft. South	44	40	N/A – Daytime only	45	1
NSA07	43.9719	-90.7973	627 ft. East	44	42	N/A – Daytime only	46	2
NSA08	43.9732	-90.8030	895 ft. West	44	39	N/A – Daytime only	45	1
NSA09	43.9739	-90.7977	674 ft. Northeast	44	42	N/A – Daytime only	46	2
NSA10	43.9720	-90.7957	1007 ft. East	44	43	N/A – Daytime only	46	2
NSA11	43.9746	-90.8016	922 ft. Northwest	44	40	N/A – Daytime only	45	1

Location	Latitude of NSA	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA12	43.9720	-90.7936	1546 ft. East	44	44	N/A – Daytime only	47	3
NSA13	43.9712	-90.7937	1590 ft. East	44	44	N/A – Daytime only	47	3
NSA14	43.9721	-90.7920	1968 ft. East	44	46	N/A – Daytime only	48	4
NSA15	43.9711	-90.7904	2442 ft. East	44	46	N/A – Daytime only	48	4
NSA16	43.9719	-90.7836	1534 ft. South	49	52	N/A – Daytime only	54	5
NSA17	43.9742	-90.8009	704 ft. Northwest	44	40	N/A – Daytime only	45	1
NSA18	43.9706	-90.8052	1552 ft. Southwest	44	27	N/A – Daytime only	44	-
NSA19	43.9709	-90.8045	1346 ft. Southwest	44	35	N/A – Daytime only	44	-
NSA20	43.9700	-90.8053	1666 ft. Southwest	44	27	N/A – Daytime only	44	-
NSA21	43.9702	-90.8045	1444 ft. Southwest	44	27	N/A – Daytime only	44	-
NSA22	43.9703	-90.8035	1204 ft. Southwest	44	35	N/A – Daytime only	45	1
NSA23	43.9710	-90.8030	969 ft. Southwest	44	38	N/A – Daytime only	45	1

Location	Latitude of NSA	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA24	43.9708	-90.8027	925 ft. Southwest	44	38	N/A – Daytime only	45	1
NSA25	43.9702	-90.8027	1085 ft. Southwest	44	38	N/A – Daytime only	45	1
NSA26	43.9697	-90.8026	1207 ft. Southwest	44	38	N/A – Daytime only	45	1
NSA27	43.9695	-90.8041	1511 ft. Southwest	44	27	N/A – Daytime only	44	-
NSA28	43.9695	-90.8056	1832 ft. Southwest	44	27	N/A – Daytime only	44	-
NSA29	43.9711	-90.7981	634 ft. Southeast	44	41	N/A – Daytime only	46	2
NSA30	43.9711	-90.7968	890 ft. Southeast	44	42	N/A – Daytime only	46	2
NSA31	43.9711	-90.7953	1206 ft. Southeast	44	43	N/A – Daytime only	46	2
NSA32	43.9737	-90.8000	424 ft. North	44	40	N/A – Daytime only	46	2
NSA33	43.9705	-90.7956	1275 ft. Southeast	44	42	N/A – Daytime only	46	2
NSA34	43.9788	-90.7819	862 ft. North	49	59	N/A – Daytime only	60	11

P4-2 (Daytime only)								
Location	**Latitude of NSA**	**Longitude of NSA**	**Distance and Direction to closest – NSA**	**Existing Ambient L_{dn} (dBA)**	**Estimated L_{dn} due to Project Construction without Mitigation (dBA)**	**Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]**	**L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)**	**Potential Increase Above Ambient (dB)**
NSA01	43.9711	-90.8054	1543 ft. Southwest	44	48	N/A – Daytime only	50	6
NSA02	43.9712	-90.8038	1113 ft. Southwest	44	56	N/A – Daytime only	56	12
NSA03	43.9722	-90.8020	576 ft. West	44	59	N/A – Daytime only	59	15
NSA04	43.9724	-90.7992	103 ft. Southeast	44	79	N/A – Daytime only	79	35
NSA05	43.9722	-90.8004	149 ft. West	44	72	N/A – Daytime only	72	28
NSA06	43.9717	-90.7999	217 ft. South	44	70	N/A – Daytime only	70	26
NSA07	43.9719	-90.7973	627 ft. East	44	63	N/A – Daytime only	63	19
NSA08	43.9732	-90.8030	895 ft. West	44	41	N/A – Daytime only	46	2
NSA09	43.9739	-90.7977	674 ft. Northeast	44	62	N/A – Daytime only	62	18
NSA10	43.9720	-90.7957	1007 ft. East	44	58	N/A – Daytime only	58	14
NSA11	43.9746	-90.8016	922 ft. Northwest	44	59	N/A – Daytime only	59	15
NSA12	43.9720	-90.7936	1546 ft. East	44	54	N/A – Daytime only	54	10

Location	Latitude of NSA	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient L_{dn} (dBA)	Estimated L_{dn} due to Project Construction without Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	L_{dn} of Mitigated Construction plus Ambient L_{dn} (dBA)	Potential Increase Above Ambient (dB)
NSA13	43.9712	-90.7937	1590 ft. East	44	53	N/A – Daytime only	54	10
NSA14	43.9721	-90.7920	1968 ft. East	44	51	N/A – Daytime only	52	8
NSA15	43.9711	-90.7904	2442 ft. East	44	49	N/A – Daytime only	50	6
NSA16	43.9719	-90.7836	1534 ft. South	49	42	N/A – Daytime only	50	1
NSA17	43.9742	-90.8009	704 ft. Northwest	44	61	N/A – Daytime only	61	17
NSA18	43.9706	-90.8052	1552 ft. Southwest	44	51	N/A – Daytime only	52	8
NSA19	43.9709	-90.8045	1346 ft. Southwest	44	53	N/A – Daytime only	53	9
NSA20	43.9700	-90.8053	1666 ft. Southwest	44	50	N/A – Daytime only	51	7
NSA21	43.9702	-90.8045	1444 ft. Southwest	44	52	N/A – Daytime only	52	8
NSA22	43.9703	-90.8035	1204 ft. Southwest	44	54	N/A – Daytime only	54	10
NSA23	43.9710	-90.8030	969 ft. Southwest	44	57	N/A – Daytime only	57	13
NSA24	43.9708	-90.8027	925 ft. Southwest	44	58	N/A – Daytime only	58	14

Location	Latitude of NSA	Longitude of NSA	Distance and Direction to closest – NSA	Existing Ambient Ldn (dBA)	Estimated Ldn due to Project Construction without Mitigation (dBA)	Specific Mitigation Measures Proposed for Nighttime Drilling[a,2]	Ldn of Mitigated Construction plus Ambient Ldn (dBA)	Potential Increase Above Ambient (dB)
NSA25	43.9702	-90.8027	1085 ft. Southwest	44	56	N/A – Daytime only	57	13
NSA26	43.9697	-90.8026	1207 ft. Southwest	44	55	N/A – Daytime only	56	12
NSA27	43.9695	-90.8041	1511 ft. Southwest	44	51	N/A – Daytime only	52	8
NSA28	43.9695	-90.8056	1832 ft. Southwest	44	49	N/A – Daytime only	50	6
NSA29	43.9711	-90.7981	634 ft. Southeast	44	62	N/A – Daytime only	62	18
NSA30	43.9711	-90.7968	890 ft. Southeast	44	59	N/A – Daytime only	59	15
NSA31	43.9711	-90.7953	1206 ft. Southeast	44	56	N/A – Daytime only	56	12
NSA32	43.9737	-90.8000	424 ft. North	44	66	N/A – Daytime only	66	22
NSA33	43.9705	-90.7956	1275 ft. Southeast	44	56	N/A – Daytime only	56	12
NSA34	43.9788	-90.7819	862 ft. North	49	40	N/A – Daytime only	50	1

[1] L10 sound levels from construction activities have been estimated based on a 3 dB correction factor to the modelled hourly Leq

[2] Noise barrier walls will have a minimum height of 20 feet

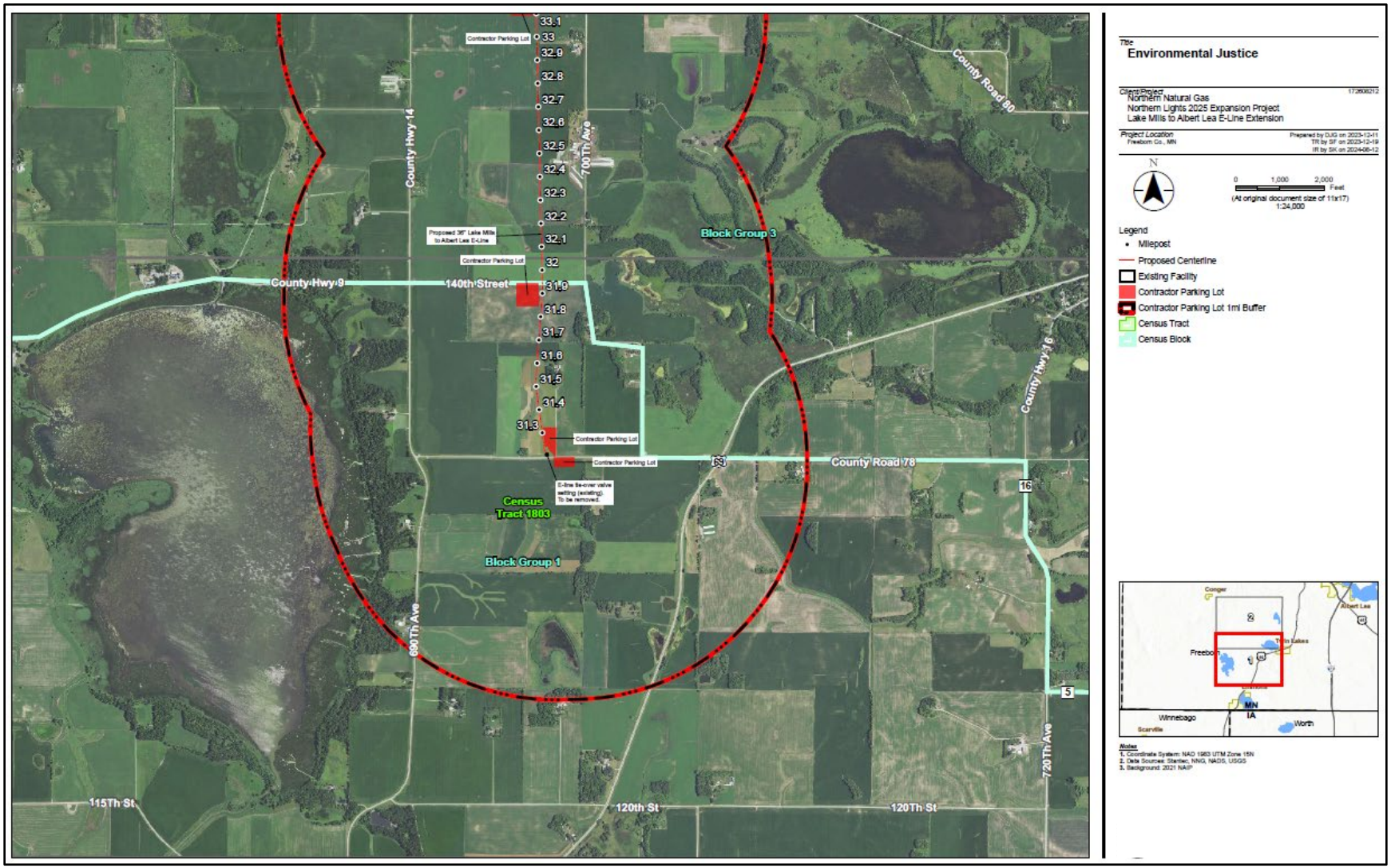
Appendix H: Environmental Justice Table and Figures

Table H-1: Minority Populations by Race and Ethnicity and Low-Income Populations in the Project Area												
	RACE AND ETHNICITY COLUMNS											LOW-INCOME COLUMN
State/County/Census Tract/ Block Group	Total Population	White Alone Not Hispanic (%)	African American (%)	Native American/ Alaska Native (%)	Asian (%)	Native Hawaiian & Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority [a] (%)		Below Poverty Level[b] (%)
Minnesota	**5,670,472**	**77.7**	**6.6**	**0.8**	**5.0**	**0.0**	**0.3**	**3.8**	**5.7**	**22.3**		**9.4**
Lake Mills Contractor Parking Lot and Contractor Yard												
Freeborn County	**30,857**	**82.8**	**1.1**	**0.1**	**3.0**	**0.0**	**0.0**	**2.3**	**10.6**	**17.2**		**9.7**
Census Tract 1803, Block Group 1[d,e]	691	93.3	0.9	0.0	0.6	0.0	0.0	2.9	2.3	6.7		8.3
Elk River Tie-in Valve Contractor Yard (1 out of 1 block groups)												
Washington County	**268,651**	**79.8**	**4.8**	**0.2**	**6.9**	**0.0**	**0.3**	**3.3**	**4.7**	**20.1**		**5.2**
Census Tract 702.08, Block Group 1[e]	857	89.6	0.0	0.0	7.5	0.0	0.0	2.9	0.0	10.4		**9.7**
Hugo Compressor Station Contractor Parking Lot and Contractor Yard (1 out of 2 block groups)												
Census Tract 702.06, Block Group 1[d,e]	1,026	91.1	0.0	0.0	2.1	0.0	0.6	5.8	0.4	8.9		2.4
Census Tract 702.08, Block Group 1	857	89.6	0.0	0.0	7.5	0.0	0.0	2.9	0.0	10.4		**9.7**

Table H-1: Minority Populations by Race and Ethnicity and Low-Income Populations in the Project Area												
	RACE AND ETHNICITY COLUMNS											LOW-INCOME COLUMN
State/County/Census Tract/ Block Group	Total Population	White Alone Not Hispanic (%)	African American (%)	Native American/ Alaska Native (%)	Asian (%)	Native Hawaiian & Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority [a] (%)		Below Poverty Level[b] (%)
Hugo Compressor Station (1 out of 4 block groups)												
Washington County	**268,651**	**79.8**	**4.8**	**0.2**	**6.9**	**0.0**	**0.3**	**3.3**	**4.7**	**20.1**		**5.2**
Census Tract 701.08, Block Group 3	484	89.9	0.0	0.0	1.5	0.0	0.0	8.7	0.0	10.1		0.0
Census Tract 702.05, Block Group 2	1,320	96.3	0.0	1.2	0.0	0.0	0.0	1.4	1.0	3.6		1.6
Census Tract 702.06, Block Group 1[c]	1,026	91.1	0.0	0.0	2.1	0.0	0.6	5.8	0.4	8.9		2.4
Census Tract 702.08, Block Group 1	857	89.6	0.0	0.0	7.5	0.0	0.0	2.9	0.0	10.4		**9.7**
La Crescent Compressor Station (1 out of 1 block group)												
Houston County	**18,826**	**94.0**	**0.6**	**0.2**	**0.5**	**0.0**	**0.0**	**3.3**	**1.4**	**6.0**		**8.0**
Census Tract 2020, Block Group 3[c]	1,640	91.9	3.8	0.2	0.9	0.0	0.0	2.5	0.8	**8.1**		4.8
Tomah Branch Line Loop Receiver Facility and Contract Yard												

Table H-1: Minority Populations by Race and Ethnicity and Low-Income Populations in the Project Area												
	RACE AND ETHNICITY COLUMNS											LOW-INCOME COLUMN
State/County/Census Tract/ Block Group	**Total Population**	**White Alone Not Hispanic (%)**	**African American (%)**	**Native American/ Alaska Native (%)**	**Asian (%)**	**Native Hawaiian & Other Pacific Islander (%)**	**Some Other Race (%)**	**Two or More Races (%)**	**Hispanic or Latino (%)**	**Total Minority [a] (%)**		**Below Poverty Level[b] (%)**
Wisconsin	**5,882,128**	**79.9**	**6.1**	**0.6**	**2.9**	**0.0**	**0.3**	**3.0**	**7.3**	**20.1**		**10.6**
Monroe County	**46,208**	**89.1**	**1.5**	**0.8**	**0.7**	**0.0**	**0.1**	**2.7**	**5.1**	**10.9**		**10.8**
Census Tract 9502, Block Group 1[c,e]	1,339	92.0	1.9	0.1	0.5	0.0	0.0	1.5	4.1	8.0		2.8

Source: American Community Survey, 2022, File # B17017 and File # B03002.
a "Minority" refers to people who reported their ethnicity and race as something other than non-Hispanic White.
b Low-income or minority populations exceeding the established thresholds are indicated in red, bold, type and blue shading.
c Facility is located within this block group
d Contractor Parking Lot is located within this block group.
e Contractor Yard is located within this block group.
Due to rounding differences in the dataset, the totals may not reflect the sum of the addends.


Environmental Justice
Northern Natural Gas
Northern Lights 2025 Expansion Project
Lake Mills to Albert Lea E-Line Extension
Project Location
Freeborn Co., MN
Legend
Milepost
Proposed Centerline
Existing Facility
Contractor Parking Lot
Contractor Parking Lot 1mi Buffer
Census Tract
Census Block
Block Group 3
Block Group 1
Census Tract 1803
County Hwy 9
140th Street
County Road 78
County Road 80
County Hwy 14
700Th Ave
690Th Ave
720Th Ave
County Hwy 16
115Th St
120th St
120Th St
Contractor Parking Lot
Proposed 36" Lake Mills to Albert Lea E-Line
E-line Be-over valve setting (existing). To be removed.
Conger
Albert Lea
Freeborn
Twin Lakes
Interstate
MN
IA
Winnebago
Worth
Scarville
Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, NNG, NADS, USGS
3. Background: 2021 NAIP

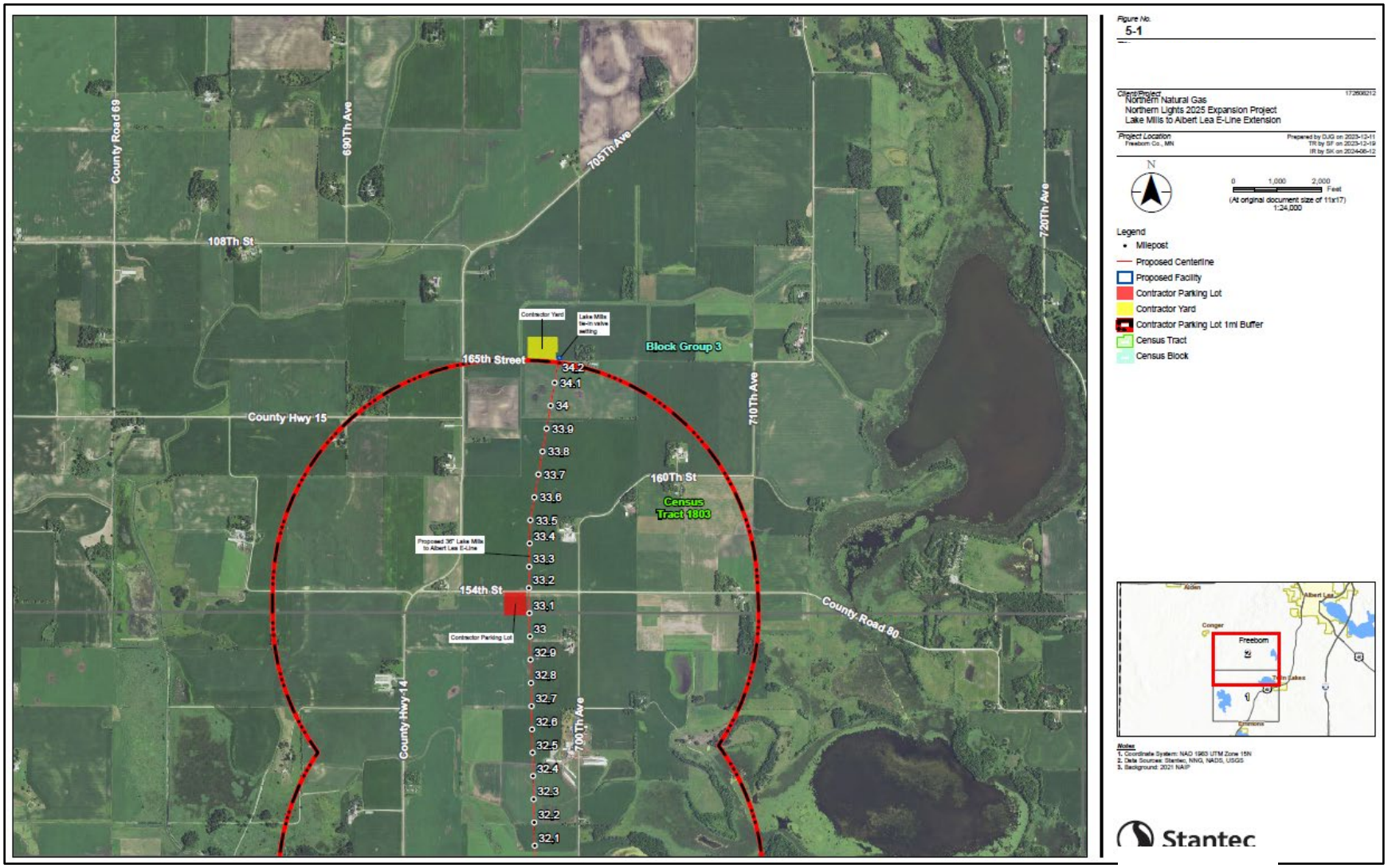
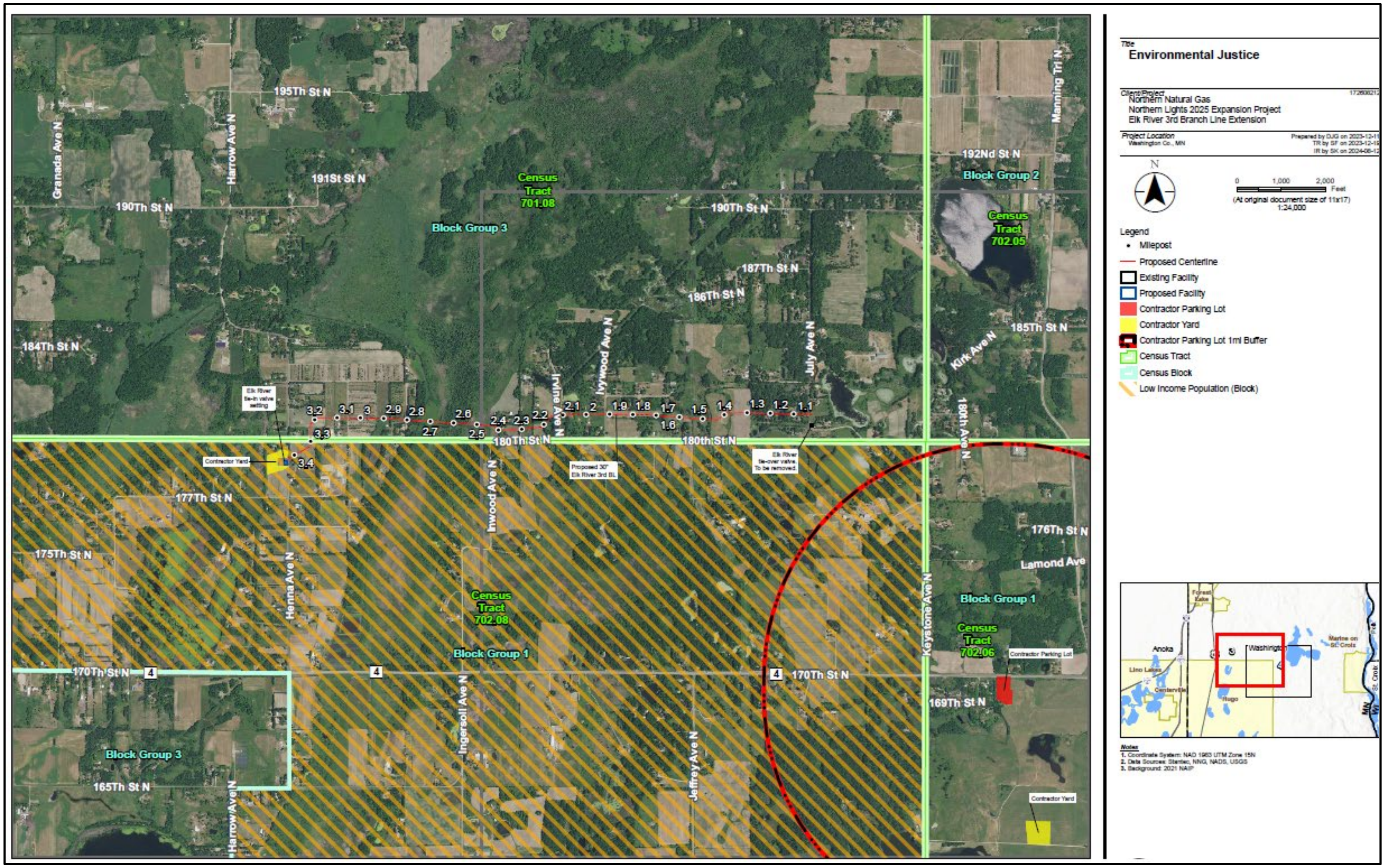


Figure No.
5-1
Client/Project
Northern Natural Gas
Northern Lights 2025 Expansion Project
Lake Mills to Albert Lea E-Line Extension
Project Location
Freeborn Co., MN
Legend
Milepost
Proposed Centerline
Proposed Facility
Contractor Parking Lot
Contractor Yard
Contractor Parking Lot 1mi Buffer
Census Tract
Census Block
Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, NNG, NADS, USGS
3. Background: 2021 NAIP
Stantec
County Road 69
690Th Ave
705Th Ave
720Th Ave
108Th St
Contractor Yard
Lake Mills tie-in valve setting
165th Street
Block Group 3
710Th Ave
County Hwy 15
160Th St
Census Tract 1803
Proposed 36" Lake Mills to Albert Lea E-Line
154th St
Contractor Parking Lot
County Road 80
County Hwy 14
700Th Ave
34.2
34.1
34
33.9
33.8
33.7
33.6
33.5
33.4
33.3
33.2
33.1
33
32.9
32.8
32.7
32.6
32.5
32.4
32.3
32.2
32.1


Title
Environmental Justice
Client/Project
Northern Natural Gas
Northern Lights 2025 Expansion Project
Elk River 3rd Branch Line Extension
Project Location
Washington Co., MN
Prepared by DJG on 2023-12-11
TR by SF on 2023-12-19
IR by SK on 2024-08-12
N
0
1,000
2,000
Feet
(At original document size of 11x17)
1:24,000
Legend
Milepost
Proposed Centerline
Existing Facility
Proposed Facility
Contractor Parking Lot
Contractor Yard
Contractor Parking Lot 1mi Buffer
Census Tract
Census Block
Low Income Population (Block)
Census Tract 701.08
Block Group 3
Census Tract 702.05
Block Group 2
Census Tract 702.08
Block Group 1
Census Tract 702.06
Block Group 1
Block Group 3
195Th St N
191St St N
190Th St N
192Nd St N
187Th St N
186Th St N
185Th St N
184Th St N
180Th St N
180th St N
177Th St N
176Th St N
175Th St N
170Th St N
169Th St N
165Th St N
Granada Ave N
Harrow Ave N
Irvine Ave N
Ivywood Ave N
July Ave N
Kirk Ave N
Manning Trl N
180th Ave N
Inwood Ave N
Henna Ave N
Ingersoll Ave N
Jeffrey Ave N
Keystone Ave N
Lamond Ave
Contractor Yard
Contractor Parking Lot
Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, NNG, NADS, USGS
3. Background: 2021 NAIP

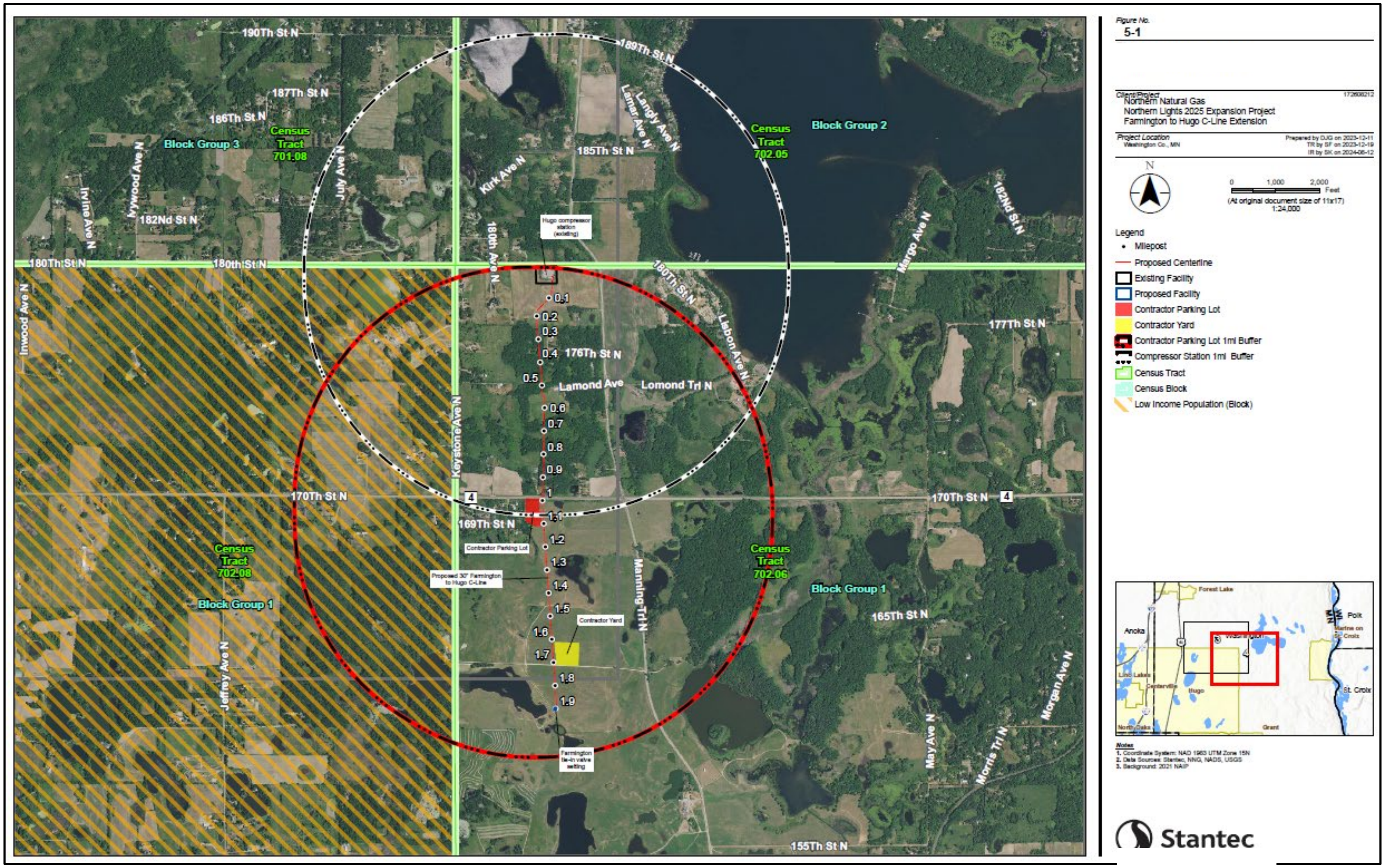


Figure No.
5-1
Client/Project
172608212
Northern Natural Gas
Northern Lights 2025 Expansion Project
Farmington to Hugo C-Line Extension
Project Location
Washington Co., MN
Prepared by DJG on 2023-12-11
TR by SF on 2023-12-19
IR by SK on 2024-06-12
N
0 1,000 2,000 Feet
(At original document size of 11x17)
1:24,000
Legend
Milepost
Proposed Centerline
Existing Facility
Proposed Facility
Contractor Parking Lot
Contractor Yard
Contractor Parking Lot 1mi Buffer
Compressor Station 1mi Buffer
Census Tract
Census Block
Low Income Population (Block)
Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, NNG, NADS, USGS
3. Background: 2021 NAIP
Stantec
190Th St N
189Th St N
187Th St N
186Th St N
185Th St N
182Nd St N
180Th St N
180th St N
180Th St N
177Th St N
176Th St N
170Th St N
169Th St N
165Th St N
155Th St N
Census Tract 701.08
Census Tract 702.05
Census Tract 702.08
Census Tract 702.06
Block Group 3
Block Group 2
Block Group 1
Block Group 1
Irvine Ave N
Ivywood Ave N
July Ave N
Kirk Ave N
180th Ave N
Keystone Ave N
Lamar Ave N
Langly Ave N
Lisbon Ave N
Lamond Ave
Lomond Trl N
Manning Trl N
Inwood Ave N
Jeffrey Ave N
Margo Ave N
182Nd St N
May Ave N
Morris Trl N
Morgan Ave N
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
Forest Lake
Anoka
Washington
Polk
Marine on St. Croix
Lino Lakes
Centerville
Hugo
North Oaks
Grant
St. Croix

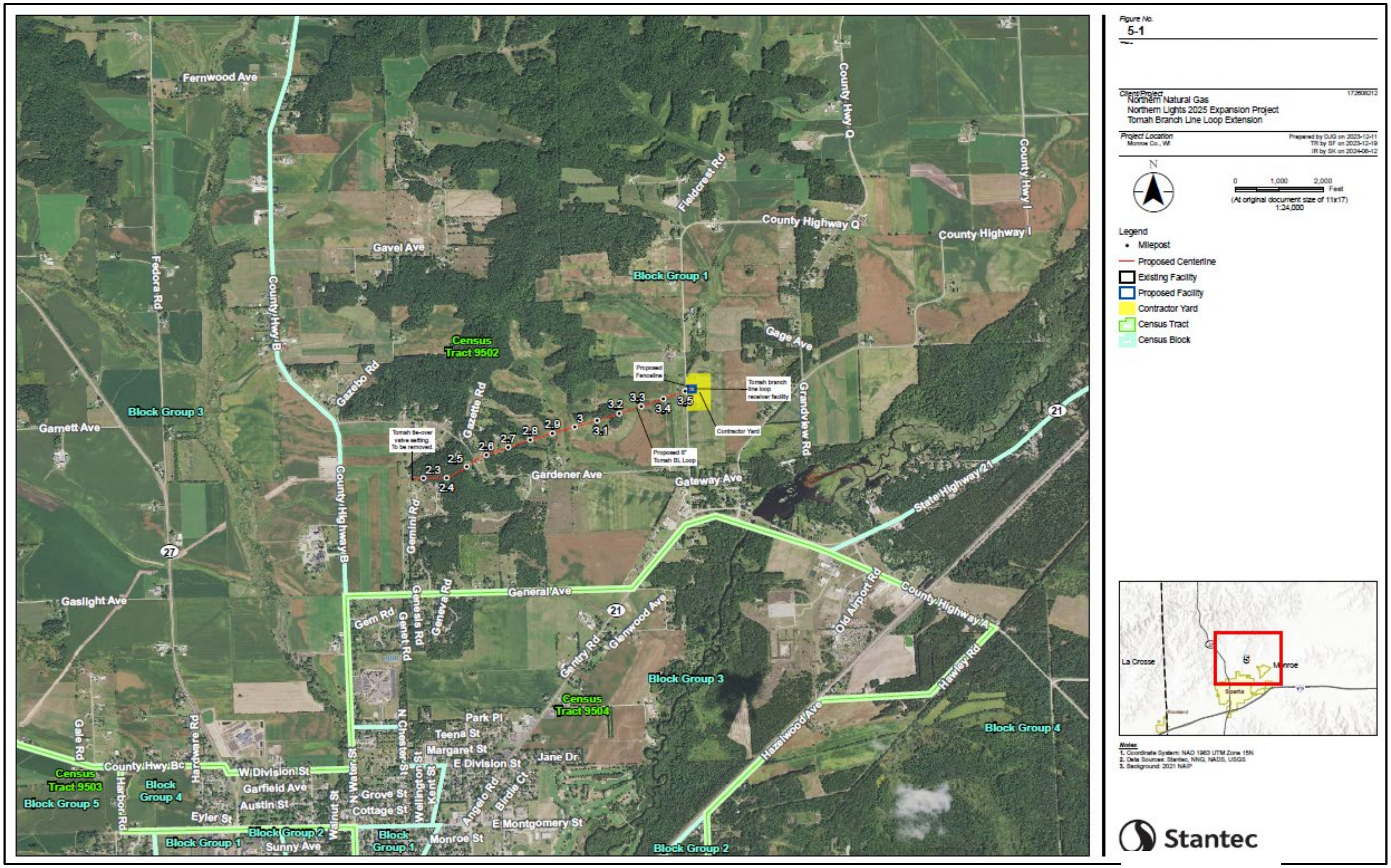


Figure No.
5-1
Client/Project
172608212
Northern Natural Gas
Northern Lights 2025 Expansion Project
Tomah Branch Line Loop Extension
Project Location
Monroe Co., WI
Prepared by DJG on 2023-12-11
TR by SF on 2023-12-19
IR by SK on 2024-08-12
N
0 1,000 2,000 Feet
(At original document size of 11x17)
1:24,000
Legend
Milepost
Proposed Centerline
Existing Facility
Proposed Facility
Contractor Yard
Census Tract
Census Block
Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, NNG, NADS, USGS
3. Background: 2021 NAIP
Fernwood Ave
Gavel Ave
County Hwy B
County Highway B
Fedora Rd
Gazebo Rd
Gazette Rd
Census Tract 9502
Block Group 3
Block Group 1
Garnett Ave
Gaslight Ave
Fieldcrest Rd
County Hwy Q
County Highway Q
County Hwy I
County Highway I
Gage Ave
Grandview Rd
Gardener Ave
Gateway Ave
State Highway 21
Tomah tie-over valve setting To be removed
Proposed Fenceline
Tomah branch line loop receiver facility
Contractor Yard
Proposed 8" Tomah BL Loop
2.3
2.4
2.5
2.6
2.7
2.8
2.9
3
3.1
3.2
3.3
3.4
3.5
27
21
Gemini Rd
General Ave
Gem Rd
Genesis Rd
Genet Rd
Geneva Rd
Gentry Rd
Glenwood Ave
Old Airport Rd
County Highway A
Hawley Rd
Hazelwood Ave
Block Group 3
Census Tract 9504
Block Group 4
Block Group 2
Gale Rd
Harbor Rd
Hardware Rd
Census Tract 9503
Block Group 5
Block Group 4
County Hwy Bc
W Division St
Garfield Ave
Austin St
Eyler St
Block Group 1
Block Group 2
Sunny Ave
Walnut St
N Water St
Grove St
Cottage St
Block Group 1
N Chester St
Wellington St
Kent St
Park Pl
Teena St
Margaret St
E Division St
Monroe St
Angelo Rd
Birdie Ct
Jane Dr
E Montgomery St
La Crosse
Monroe
Sparta
Stantec

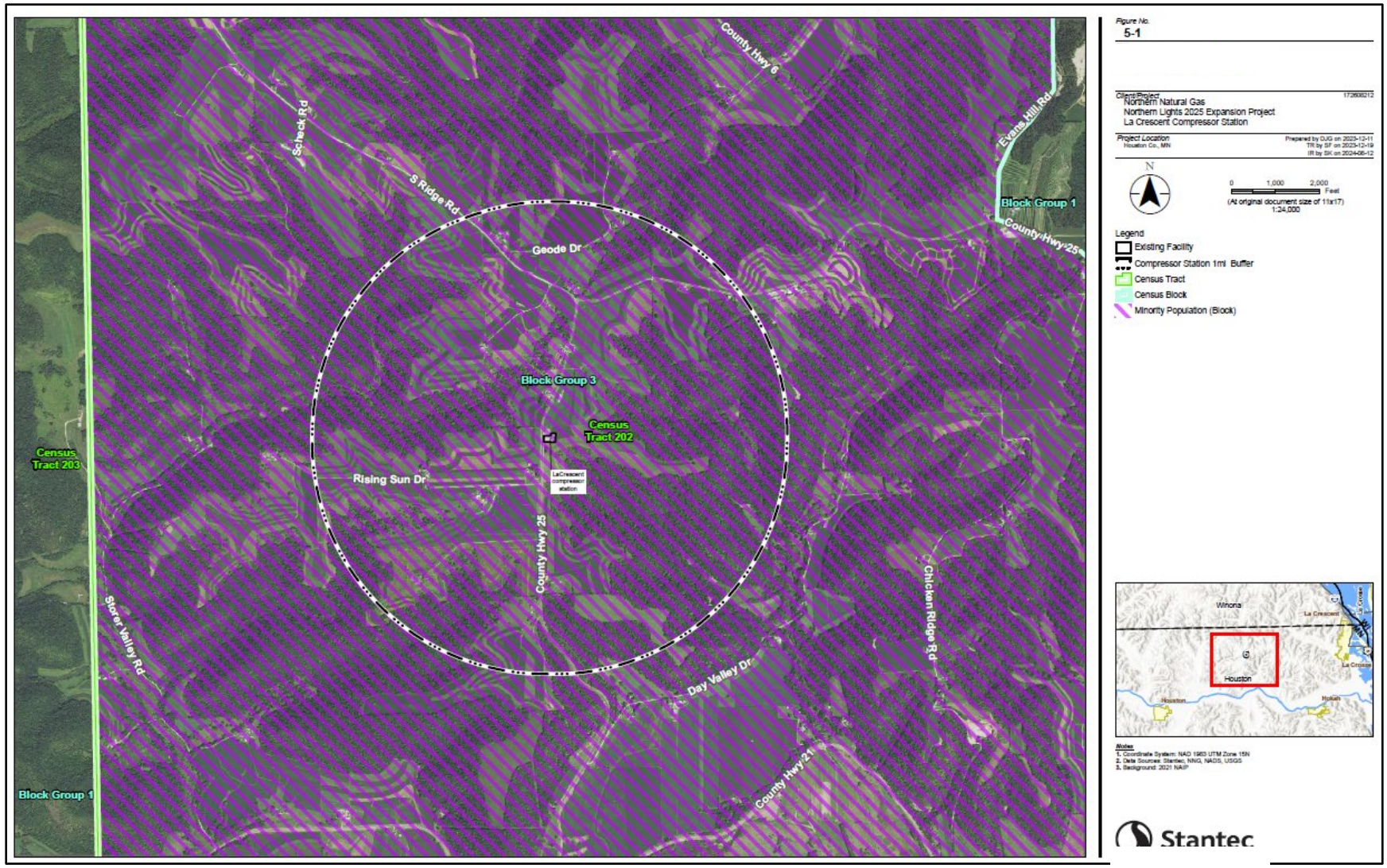


Figure No.
5-1
Client/Project
Northern Natural Gas
Northern Lights 2025 Expansion Project
La Crescent Compressor Station
Project Location
Houston Co., MN
N
0 1,000 2,000 Feet
(At original document size of 11x17)
1:24,000
Legend
Existing Facility
Compressor Station 1mi Buffer
Census Tract
Census Block
Minority Population (Block)
Winona
La Crescent
Houston
Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, NNG, NADS, USGS
3. Background: 2021 NAIP
Stantec
Block Group 1
Census Tract 203
Schack Rd
S Ridge Rd
County Hwy 6
Evans Hill Rd
Block Group 1
County Hwy 25
Geode Dr
Block Group 3
Census Tract 202
Rising Sun Dr
LaCrescent compressor station
County Hwy 25
Shorer Valley Rd
Chicken Ridge Rd
Day Valley Dr
County Hwy 21
Block Group 1

Appendix I: System Alternatives

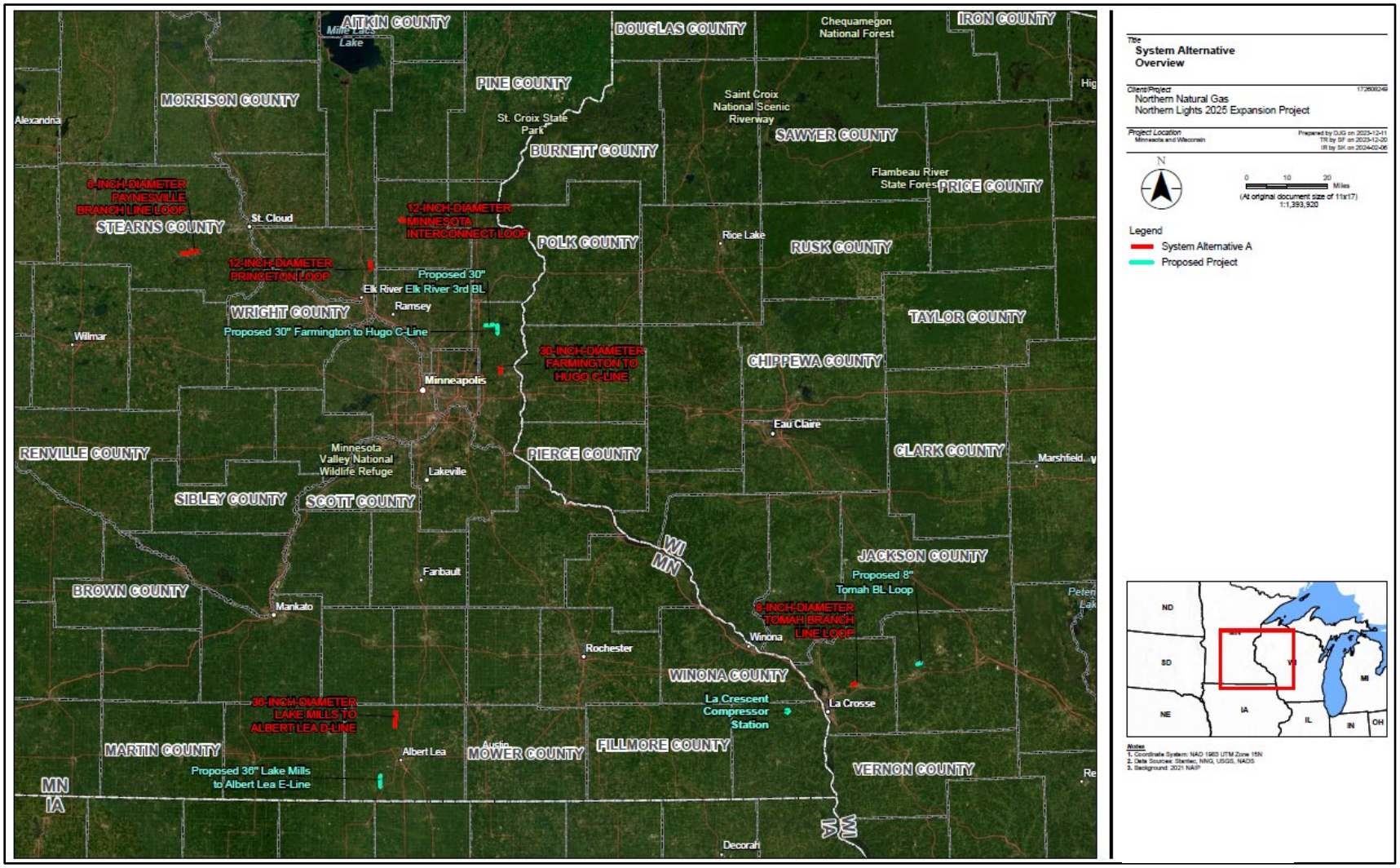


Figure I-1: System Alternatives Overview Map

Table I-1: Comparison of Environmental Impacts of Proposed Project and System Alternative				
Factor		**Unit**	**Proposed Project**	**System Alternative A**
Length		miles	8.6	18.7
Additional compression		Yes/No	No	No
Pipeline diameter	6-inch-diameter [a]	miles	N/A	4.2
	8-inch-diameter [a]	miles	1.3	1.8
	12-inch-diameter [a]	miles	N/A	6.4
	30-inch-diameter [b]	miles	4.3	2.0
	36-inch-diameter [b]	miles	3.0	4.3
Nominal construction right-of-way width [a,b]		feet	75/100	75/100
Construction right-of-way [a,b]		acres	100.5	193.3
Permanent right-of-way [c]		acres	52.2	115.9
Construction impact on forest		acres	11.8	10.3
Operation impact on forest		acres	6.5	6.1
Construction impact on non-forest wetlands		acres	6.0	7.6
Operation impact on non-forest wetlands		acres	3.0	4.5
Construction impact on forested wetlands		acres	2.12	1.43
Operation impact on forested wetlands		acres	1.1	1.0
Waterbody crossings	Major	number	0	0
	Intermediate	number	1	1
	Minor	number	5	11
Critical habitat crossed		miles	0	0
Recreation and special interest areas crossed		number/miles	0	0
Residential areas within 50 feet of the centerline		acres	0	0
Road crossings		number	12	27
Railroad crossings		number	0	0

[a] Based on a 75-foot-wide construction ROW
[b] Based on a 100-foot-wide construction ROW
[c] Based on a 50-foot-wide permanent ROW

[i] "We," "us," and "our" refers to environmental staff of the Commission's Office of Energy Projects (OEP).

Document Accession #: 20240913-3007 **Filed Date: 09/13/2024**

Document Content(s)