Office of
Energy Projects

December 2020

Northern Natural Gas Company | Docket No. CP20-479-000

2021 Auburn A-line Abandonment and Capacity Replacement 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 2
Northern Natural Gas Company
2021 Auburn A-line Abandonment and Capacity Replacement Project
Docket No. CP20-479-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the 2021 Auburn A-line Abandonment and Capacity Replacement Project, proposed by Northern Natural Gas Company (Northern) in the above-referenced docket. Northern requests authorization to construct, own, and operate a pipeline loop[1] and appurtenant aboveground facilities, and abandon-in-place a segment of its A-line pipeline in Nebraska. Northern's purpose for the project is to improve reliability, enable safer long-term operation of Northern's system, and serve the needs of its shippers more effectively by eliminating inefficiencies associated with the operation and maintenance of the A-line segment.

The EA assesses the potential environmental effects of construction, operation, and abandonment activities associated with the 2021 Auburn A-line Abandonment and Capacity Replacement Project in accordance with the requirements of the National Environmental Policy Act (NEPA). The FERC staff concludes that approval of the proposed project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the human environment.

The proposed 2021 Auburn A-line Abandonment and Capacity Replacement Project includes the following:

- construction of approximately 4.4 miles of new 8-inch-diameter pipeline loop in Lancaster and Otoe Counties, Nebraska (proposed B-line);
- installation of a pig[2] launcher and valve station in Lancaster County, Nebraska;
- installation of a regulation station in Otoe County, Nebraska; and
- abandonment in-place of approximately 31.7 miles of 4- and 6-inch-diameter A-line in Lancaster, Otoe, Johnson and Nemaha counties, Nebraska.

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[1] A loop is a pipeline that is constructed adjacent to another pipeline for the purpose of increasing capacity in this portion of the system.

[2] A "pig" is a tool that is inserted into and pushed through the pipeline for cleaning the pipeline, conducting internal inspections, or other purposes.

The Commission mailed a copy of the *Notice of Availability* to federal, state, and local government representatives and agencies; elected officials; Native American tribes; potentially affected landowners and other interested individuals and groups; and newspapers and libraries in the project area. The EA is only available in electronic format. It may be viewed and downloaded from the 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 the FERC's website. Click on the eLibrary link (https://www.ferc.gov/ferc-online/elibrary/overview), select "General Search" and enter the docket number in the "Docket Number" field, excluding the last three digits (i.e. CP20-479). 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 5:00pm Eastern Time on **January 11, 2021.**

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 (CP20-479) on your letter. Submissions sent via the U.S. Postal Service must be addressed to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426. Submissions sent via any other carrier must

be addressed to: Kimberly D. Bose, 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 CFR 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/ferc-online/ferc-online/how-guides.

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.

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.

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TECHNICAL ABBREVIATIONS AND ACRONYMS

APE	area of potential effects
AQCR	Air Quality Control Regions
CAA	Clean Air Act
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
Commission	Federal Energy Regulatory Commission
dB	decibels
dBA	A-weighted decibels
EA	environmental assessment
EI	environmental inspector
EPA	U.S. Environmental Protection Agency
ETWS	extra temporary workspace
FERC	Federal Energy Regulatory Commission
USFWS	U.S. Fish and Wildlife Service
GHG	greenhouse gas
GWP	global warming potential
HCA	high consequence area
HDD	horizontal directional drill
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
MAOP	maximum allowable operating pressure
MBTA	Migratory Bird Treaty Act
MP	milepost
NAAQS	National Ambient Air Quality Standards
NDEE	Nebraska Department of Environment and Energy
NDEQ	Nebraska Department of Environmental Quality
NDOT	Nebraska Department of Transportation
NEPA	National Environmental Policy Act
NGA	Natural Gas Act
NGPC	Nebraska Game and Parks Commission
NHPA	National Historic Preservation Act
NO_x	nitrogen oxides
NOI	*Notice of Intent to Prepare an Environmental Assessment for the Proposed 2021 Auburn A-line Abandonment and Capacity Replacement Project and Request for Comments on Environmental Issues*
Northern	Northern Natural Gas Company
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	noise sensitive area

OEP	Office of Energy Projects
Order	Commission's Order-Issuing Certificate
Pb	lead
PEM	palustrine emergent
Plan	Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan*
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
Project	2021 Auburn A-line Abandonment and Capacity Replacement Project
PSD	Prevention of Significant Deterioration
Procedures	Commission's *Wetland and Waterbody Construction and Mitigation Procedures*
SHPO	State Historic Preservation Officer
SO_2	sulfur dioxide
SPCC Plan	Spill Prevention, Control, and Countermeasure Plan
SWPPP	Stormwater Pollution Prevention Plan
tpy	tons per year
USDOT	U.S. Department of Transportation
USGS	U.S. Geological Survey
VOC	volatile organic compounds

A. PROPOSED ACTION

1. Introduction

The staff of the Federal Energy Regulatory Commission (Commission or FERC) prepared this environmental assessment (EA) to assess the environmental impacts of the abandonment and construction of certain natural gas pipeline facilities proposed by Northern Natural Gas Company (Northern). We[1] prepared this EA in compliance with the requirements of NEPA, Title 40 of the Code of Federal Regulations (CFR), Parts 1500-1508 [40 CFR 1500-1508],[2] and with the Commission's implementing regulations under 18 CFR 380.

FERC is the lead federal agency for authorizing interstate natural gas transmission facilities under the Natural Gas Act (NGA), and the lead federal agency for preparation of this EA. No other federal agencies elected to become cooperating agencies for the preparation of this EA.

On June 11, 2020, Northern filed an application with the Commission in Docket No. CP20-479-000 under sections 7(b) and 7(c) of the NGA and Part 157 of the Commission's regulations. Northern seeks authorization to construct, own, and operate a pipeline loop,[3] a pig[4] launcher station, and a regulation station, and abandon-in-place a segment of its A-line pipeline in Nebraska. The project is referred to as the 2021 Auburn A-line Abandonment and Capacity Replacement Project (Project).

Our EA is an integral part of the Commission's decision on whether to issue Northern a Certificate to construct and operate the proposed facilities and authorization to abandon facilities. Our principal purposes in preparing this EA are to:

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

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1 "We," "us," and "our" refer to environmental staff of the Office of Energy Projects.

2 On July 16, 2020, The Council on Environmental Quality (CEQ) issued a final rule, Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act (Final Rule, 85 Fed. Reg. 43,304), which was effective as of September 14, 2020; however, the NEPA review of this project was in process at that time and was prepared pursuant to the 1978 regulations.

3 A loop is a pipeline that is constructed adjacent to another pipeline for the purpose of increasing capacity in this portion of the system.

4 A "pig" is a tool that is inserted into and pushed through the pipeline for cleaning the pipeline, conducting internal inspections, or other purposes.

2. Purpose and Need

Northern states that the purpose of the Project is to enhance the safety, security, and operational efficiency of Northern's pipeline system through the abandonment of approximately 31.7 miles of the A-line. Northern states that these pipelines were originally placed in-service in 1932 and have substantially escalating maintenance demands for the vintage and mechanically joined or acetylene welded pipeline segments. Northern states that construction of additional natural gas looping pipeline would be required to ensure that Northern is capable of meeting gas transportation requirements and continuing to provide reliable and safe gas deliveries throughout its market area.

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 would not negatively affect the present or future public convenience and necessity.

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. The Commission bases its decisions on both economic issues, including need, and environmental impacts.

3. Proposed Facilities

The Project is in Nebraska (figure 1) and consists of:

- Auburn B-branch line – installation of a 4.4-mile, 8-inch-diameter pipeline loop in Lancaster and Otoe Counties, Nebraska;
- Auburn B-line Launcher – installation of a 12- by 8-inch-diameter pig launcher assembly and valve setting at the proposed B-branch line pipeline loop take-off point south of Princeton Road in Lancaster County, Nebraska;
- Auburn maximum allowable operating pressure (MAOP) Regulation Station – installation of a regulator valve setting at the end of the proposed B-branch line in Otoe County, Nebraska; and
- abandonment in place of 31.7 miles existing 4- and 6-inch-diameter A-branch pipeline in Johnson, Lancaster, Nemaha, and Otoe Counties, Nebraska.

A more detailed map showing the location of the proposed facilities is included in appendix A.

Northern requests a Certificate no later than May 1, 2021, and anticipates commencing construction shortly thereafter for an in-service date of November 1, 2021.

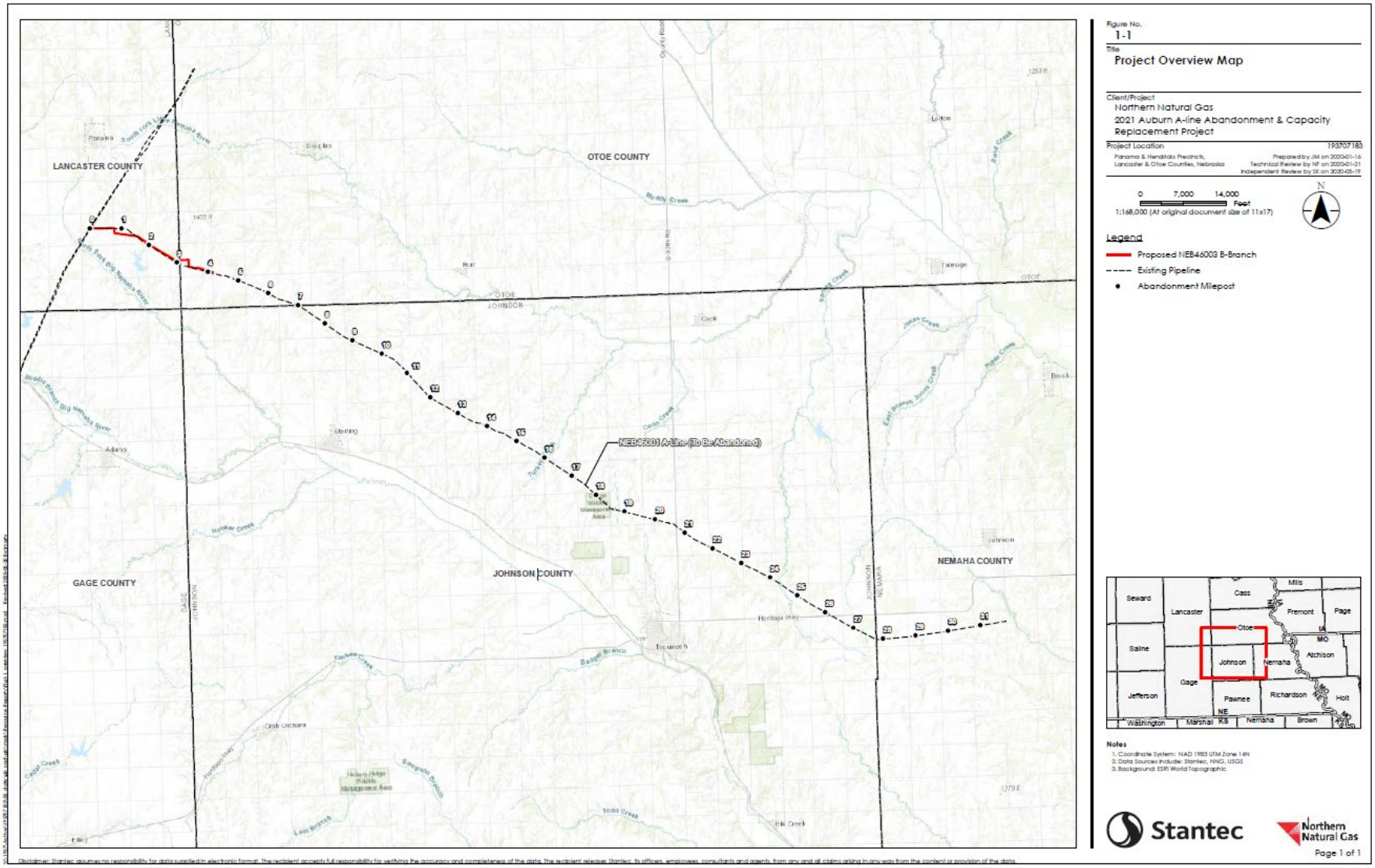

Figure 1: General Project Location

4. Public Participation and Comment

On July 24, 2020, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed 2021 Auburn A-line Abandonment and Capacity Replacement Project and Request for Comments on Environmental Issues* (NOI). The NOI was issued in the *Federal Register* and mailed to interested parties including federal, state, and local officials; agency representatives; Native American tribes; local libraries and newspapers; and property owners affected by the proposed facilities. This notice opened the scoping period for 30 days. We received comments in response to the NOI from the United States Environmental Protection Agency (EPA) Region 7, the Nebraska Department of Environment and Energy (NDEE), and the Nebraska Department of Natural Resources. The primary issues raised by the commenters were permits and authorizations, waste management, jurisdictional wetlands and waterbodies/water quality, floodplains, and air quality. All substantive comments are addressed in the relevant resource sections of the EA.

5. Land Requirements

Northern is proposing a 75-foot-wide construction right-of-way for installation of the proposed branch line loop. In addition to the pipeline construction corridor, Northern would utilize 44 extra temporary workspace (ETWS) areas, three temporary access roads, and three staging areas. The Project would require approximately 74.2 acres during construction, including aboveground facilities. Approximately 81.8 percent (60.7 acres) of the construction footprint for the Project would require new temporary easements while approximately 18.2 percent (13.5 acres) of construction footprint would overlap with existing pipeline right-of-way.

Operational disturbances include the permanently maintained right-of-way centered on the proposed pipeline (50 feet wide in upland areas) along with the two above-grade facilities and one permanent driveway. The majority of the permanently maintained right-of-way would be allowed to revert to pre-construction land use (primarily agricultural use) following construction. The Project would require approximately 22.5 acres for operation, including aboveground facilities. Approximately 68.3 percent (15.4 acres) of the operational footprint would occur outside of existing permanent right-of-way and may require new easements while approximately 31.7 percent (7.1 acres) would overlap with existing pipeline right-of-way and require no new easements.

Pipeline Facilities

Construction of the new Auburn B-branch line would temporarily impact a total of 73.9 acres of land, which includes approximately 22.3 acres of new permanent pipeline right-of-way. Of the 73.9 acres, approximately 33.3 acres of temporary pipeline right-of-way, 19.2 acres of ETWS, 6.8 acres of access roads, and 14.6 acres of staging areas would be temporarily impacted during construction of the pipeline loop and returned to previous condition after construction. The pipeline loop would be installed adjacent to Northern's existing J-line and offset by 25 feet, except between milepost (MP) 0.67 to 0.76 to avoid a wetland, MP 0.76 to 0.90 to avoid a permanent farm structure, MP 1.98 to 2.20 to maintain a straight alignment for the horizontal directional drill (HDD), and MP 2.99 to 3.58 to avoid a large stream complex and forested areas.

Aboveground Facilities

Northern proposes to install a pig launcher at the pipeline loop take-off point south of Princeton Road. The Auburn B-line Launcher site would include a 12- by 8-inch-diameter launcher assembly, as well as a valve setting (above-grade blowdown and isolation valve and associated piping and fittings). The new site would be graveled and surrounded by fencing. The launcher and valve would create a new above-grade facility footprint of approximately 0.2 acre.

Northern would also install a regulator valve setting, or regulation station, along South 2nd Street at MP 4.38. The Auburn MAOP Regulation Station would include 8- by 4-inch-diameter reducers, two regulators, along with four plug valves, two strainers, a ball valve, and a relief valve. The regulator valve would be installed at the end of the proposed B-line and would be tied into the existing 6-inch-diameter J-line. Northern's permanent facility would be installed on an approximately 40 feet by 20 feet gravel pad. The site would be surrounded by a guard rail. The permanent driveway for the regulation station would include a new gravel footprint measuring 40 feet by 45 feet. The regulation station would create a new above-grade facility footprint of approximately 0.05 acre. Table 1 provide a summary of the acreages of land required for construction and new land requirements for operation of the Project.

Access Roads, Staging Area/Pipe Yards, and Additional Temporary Workspace

Three temporary access roads for the construction of the J-line loop, and one permanent access road for the Auburn MAOP regulation station would be required as indicated in table 1. Approximately 0.04 acre of permanent impacts to agricultural land would occur for the permanent access road.

Extra workspaces, including ETWS and staging areas, would be used for pipe and equipment storage, staging of crews, equipment parking, welding and fabricating. Northern identified 44 ETWS areas and 3 staging areas required for the construction of the Project. ETWS vary in size and depend on site-specific conditions and the construction method or need. The area impacted by ETWS for the Project is included in table 1.

After construction is complete, the staging areas would be restored in accordance with the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan), or as requested by the landowner. Although Northern has identified areas where ETWS would be required, additional or alternative areas could be identified in the future due to changes in site-specific construction requirements. Northern would be required to file information on each of those areas for review and approval prior to use.

Table 1: Land Requirements for the 2021 Auburn A-Line Abandonment and Capacity Replacement Project		
Facility	**Construction Impacts (acres)**	**Operation Impacts (acres)**
B-line		
Pipeline right-of-way	33.33[1]	22.26[2]
Extra temporary workspace (ETWS)	19.24	0
Access roads	6.77[3]	0
Staging areas	14.57	0
B-LINE PIPELINE TOTAL	73.91	22.26
Above-grade Facilities		
Auburn B-line launcher	0.20	0.20
Auburn MAOP regulation station	0.05	0.05[4]
ABOVE-GRADE FACILITIES TOTAL	0.25	0.25
TOTAL	74.16	22.51

[1] Temporary workspace based on a 75-foot-wide construction right-of-way. Also includes impacts for the foot traffic travel lanes between horizontal directional drill (HDD) entry and exit points in the pipeline right-of-way calculations.

[2] Operational impacts based on 50-foot-wide permanent right-of-way. No operational acres are included between HDD/bore entry and exit points in riverine or wetland areas.

[3] Temporary impact based on 50-foot-wide access roads.

[4] Includes 0.04 acre of impact as a result of the permanent access road.

6. Construction Procedures

The proposed facilities would be designed, constructed, tested, operated, and maintained in accordance with the U.S. Department of Transportation (USDOT) Minimum Federal Safety Standards in 49 CFR 192. The USDOT's regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. Part 192 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

Northern proposes to follow the construction procedures and mitigation measures contained in the Commission's Plan and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures),[7] with some exceptions. Northern has requested a deviation from section VI.B.1.a and V.B.2.a of our Procedures where two ETWS would be necessary within 50 feet of wetlands and one ETWS would be necessary within 50 feet of a waterbody for the conventional bore at MPs 0.75 and 0.78. We have reviewed these deviations and find them acceptable. In addition, Northern has prepared an acceptable Spill Prevention, Control, and Countermeasures Plan (SPCC Plan) which contains measures to prevent and respond to any inadvertent releases of hazardous materials as well as notification procedures in the event of a

[7] Copies of the Plan and Procedures may be accessed on our website (http://www.ferc.gov/industries/gas/enviro/guidelines.asp) or obtained through our Office of External Affairs at 1-866-208-3372.

release. Northern would also follow its HDD Monitoring, Inadvertent Return Response and Contingency Plan (HDD Plan), which we find acceptable.[8]

In accordance with the FERC Plan, Northern would use at least one full-time environmental inspector (EI) during construction of the Project. The EI would be on site during Project construction activities to ensure compliance with the construction procedures contained in the Plan and Procedures. A full list of the EI's duties is presented in section II.B of the Plan. The EI's responsibilities include:

- ensuring compliance with applicable federal, state, and local environmental permits;
- ordering corrective actions for acts that violate the environmental conditions of the Commission's Certificate, or any other authorizing document;
- ensuring compliance with site-specific construction and restoration plans or other mitigation measures and landowner agreements; and
- maintaining construction status reports.

Northern would conduct environmental training sessions in advance of construction to ensure that all individuals working on the Project are familiar with the environmental mitigation measures appropriate to their jobs and the EI's authority. FERC staff would also conduct compliance inspections during construction and restoration to verify compliance with the Commission's requirements.

Northern has established an Environmental Complaint Resolution Procedure that provides landowners whose properties would be crossed with directions for identifying and resolving their environmental mitigation problems or concerns. Prior to construction, Northern would mail a letter to each landowner whose property Northern would be crossed. The letter would provide procedures for identifying and resolving their environmental mitigation concerns. The letter would include Northern's toll-free telephone number (1-888-367-6671) and instructions on lodging a complaint or question. Northern also would include FERC's Landowner Helpline telephone number (1-877-337-2237) for the landowner to call in the event the landowner is not satisfied with the response using Northern's established environmental complaint resolution process.

Northern anticipates construction to take 185 days or 20 weeks. Pending the receipt of environmental permits and a Certificate, Northern proposes to begin construction in May 2021 with an in-service date of November 1, 2021. Northern would conduct construction activities during daylight hours between 7:00 am and 7:00 pm Monday through Saturday. Some construction activities may require 24-hour construction on a limited basis such as HDD activities, tie-ins, and hydrostatic testing.

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[8] Northern's SPCC Plan can be found as Appendix 2A in Northern's application dated June 11, 2020 (accession number 20200611-5145). Northerns HDD Plan is Appendix 1A in the same filing and accession number.

6.1 Pipeline Construction

Northern would use conventional techniques for buried pipeline construction and aboveground facility construction and follow the requirements set forth in the Plan and Procedures to ensure safe, stable, and reliable transmission facilities consistent with Commission and USDOT specifications. To comply with USDOT specifications, Northern would hydrostatically test all pipeline facilities prior to placing them in service.

Clearing and Grading

Clearing operations involve removing vegetation, including trees, within the construction right-of-way or construction work areas. Northern's proposed B-line right-of-way consists mainly of agricultural land, and some open, forested, and industrial land would also be impacted. Direct impacts to wetlands and waterbodies would be avoided via HDD construction methods. Timber would be removed in accordance with the beneficial reuse sections III.E and V.A.6 of our Plan and in accordance with landowner requests.

After clearing is complete, grading of the construction right-of-way would be necessary for the movement of heavy equipment and safe passage for work crews. In agricultural and residential lands, topsoil would be segregated from subsoil during trenching and would remain segregated during construction to avoid loss due to mixing with subsoil material. Upon completion of backfilling operations, the topsoil would be replaced over the graded area. If rutting occurs on privately owned agricultural land, Northern would restore the affected areas concurrent with other restoration activities.

Following clearing and grading activities, soil erosion and sedimentation control measures would be installed in the temporary construction footprint in accordance with the Stormwater Pollution Prevention Plan (SWPPP) for the Project and our Plan and Procedures.

Trenching

The trench would be excavated to a sufficient depth to allow the typical design depth of 48 inches, in accordance with USDOT regulations. In areas where the new pipeline would be colocated with Northern's existing pipeline, a 25-foot-wide separation would be maintained between the two pipelines to provide sufficient room for the use of standard overland pipeline construction methods and ready access for maintenance operations or in the event of an emergency. Additionally, the depth of the pipeline would be greater where the pipeline would be installed by HDD. In accordance with the Plan, measures such as installing trench plugs would be taken to prevent the flow of water through the trench. Trench dewatering would be performed in accordance with the Plan and Procedures.

Pipe Stringing, Preparation, and Lowering In

Pipe stringing involves moving the pipe into position along the construction right-of-way in a continuous line parallel to the excavated trench in preparation for subsequent lineup and welding operations. The pipe is then bent, where necessary, to conform to changes in the direction of the alignment and natural ground contours. After the pipe has been bent, it would be

lined-up and welded or tied in, and then the welds and pipe coating are inspected. Side-boom tractors are used to lower the pipe into the trench.

Backfilling and Hydrostatic Testing

After the pipe is lowered into the trench, the trench would be backfilled using subsoil originally excavated from the trench, and potentially clean fill and/or protective coating where rocks or other material could damage the pipe coating. Topsoil would not be used for padding the pipeline. In areas where topsoil has been segregated, the subsoil would be placed in the bottom of the trench, followed by replacing the topsoil over the subsoil layer. The surface of the construction work space would be graded to conform to pre-existing contours of the adjoining area, except for a slight crown of soil over the trench to compensate for natural subsidence of the backfill material.

Hydrostatic testing is a process in which a pipeline is tested for leaks using a pressurized medium, such as water, which ensures the integrity of facilities and the pipeline. The process is generally carried out after backfilling and after completion of other construction activities. Northern would be required to hydrostatically test all pipe in accordance with USDOT pipeline safety regulations. A hydrostatic test involves filling the lowered-in pipeline with water and pressurizing the pipeline above its maximum allowable operating pressure. The pressure in the pipeline is then monitored for several hours. If a drop in pressure is recorded, the pipeline is examined to determine if any leaks have occurred. Northern would use approximately 64,000 gallons of water from a municipal source, and after testing is complete, haul the water offsite for disposal at an approved facility. No chemicals would be added to the test water. No permit would be required by NDEE for discharge given the water would be obtained from a local municipal water source and hauled offsite for disposal at an approved facility. Approved facilities in Nebraska are limited to publicly owned treatment works with their own National Pollutant Discharge Elimination System permit, which would treat the water prior to discharge.

Cleanup and Restoration

Weather and soil conditions permitting, final cleanup would occur within 20 days after the trench is backfilled (within 10 days in residential areas). A travel lane may be left open temporarily to allow access by construction traffic for activities such as tie-in locations, hydrostatic testing and other commissioning activities; when access is no longer required, the travel lane would be removed and the right-of-way restored. Delays due to saturated soil conditions may also occur to ensure optimal soil conditions for topsoil handling, recountoring, and decompaction, as necessary. After backfilling is complete, all disturbed areas would be graded to establish stable contours that provide appropriate drainage, and private and public property such as fences, gates, driveways and roads disturbed by pipeline construction would be restored. Any remaining debris would be properly disposed of, permanent erosion controls constructed or installed, and the right-of-way seeded with an appropriate seed mix. Examples of typical erosion control devices include slope breakers, sediment barriers (such as silt fence or straw bales), and mulch. All restoration activities would be completed according to the Plan and Procedures. Seeding would be completed according to the recommendations of the U.S

Department of Agriculture- Natural Resources Conservation Service (NRCS), the applicable County Conservation Districts, and landowner agreements.

Sandblasting and Waste Disposal

Northern would contain sand blasting waste during the actual paint removal process, regardless of the hazardous ranking of the waste. The ground would be protected from all falling waste by use of a plastic liner or other suitable cover. A shrouding system or curtains would contain all airborne particulates generated during the process. The abrasive blasting material and removed paint would be stored in drums, roll-off boxes, or other available suitable containers. Once the materials is tested, Northern would transport and dispose of the material in accordance with Nebraska's non-hazardous waste requirements if it is non-hazardous. If the material is hazardous, Northern would transport and dispose of the material in accordance with applicable hazardous disposal requirements.

Special Pipeline Construction Procedures

Special construction techniques are typically required when constructing across waterbodies, wetlands, roads and railroads, and residential areas. The special construction methods that Northern proposes to use are described below.

Access Roads/Road Approaches

Construction of the Project would require the construction of three new temporary access roads and one new permanent driveway. Existing roads or drives that would be used to access the pipeline construction right-of-way also could require modifications for heavy equipment access. Existing road approaches would be expanded to a minimum width of 30 feet with approximately 6 inches of 3-inch-diameter or greater aggregate. The road approaches would be a minimum of 50 feet in length.

If water flow is present in roadside ditches, Northern would follow required permits to install galvanized culverts to allow flow to continue. The culverts would be covered with geotextile fabric, rock and dirt. These materials would be removed following construction, resulting in the preservation of the original contours of the ditch.

HDD

HDD is a trenchless crossing method involving drilling a hole beneath the waterbody and installing a pre-fabricated pipe segment through the hole. The first step in an HDD is to directionally drill a small-diameter pilot hole from one side of the crossing to the other. The pilot hole is then enlarged by several reaming passes using successively larger reaming tools until the borehole is of sufficient diameter to allow for pullback of the pre-fabricated pipe. Throughout the drilling process, a slurry of non-toxic, bentonite clay and water is pressurized and pumped through the drilling head to lubricate the drill bit, remove drill cuttings, and hold the hole open. Although requiring overall greater land disturbance on either side of a feature to accommodate the drilling and receiving equipment, the HDD method reduces impacts on the feature (e.g., roads; streams; riparian areas).

The successful use of the HDD method results in no planned impact on the banks, bed or water quality of the waterbody (or other feature) being crossed. However, the possibility exists for drilling mud to reach the surface via an inadvertent release. Geotechnical borings were completed to assess the potential for successful HDD and the risk of inadvertent release. Measures included in the HDD Plan to ensure the success of HDD activities include but are not limited to continuously monitoring the HDD activities, walking the HDD path between the entry and exit points, and visually inspecting for inadvertent releases. In areas of open water, at a minimum, visual inspections would be conducted from the waterbody banks. Operations would cease and relevant agencies would be contacted immediately if inadvertent return occurred.

Northern proposes six HDDs, and would cross all waterbodies and wetlands using the HDD or bore methods. Five wetlands, five waterbodies, a private driveway, South 176th Street, and Pella Road would be crossed via HDD techniques.

Conventional Bore

The conventional bore crossing method is similar to an HDD in that it is a trenchless construction technique; however, conventional bores are not directionally drilled and are not typically as deep underground as an HDD. The conventional bore method involves excavating large bell holes on each side of the feature that are deep enough for the bore equipment to auger a hole horizontally from one bell hole to the other. Once the bell hole has been created, the pipeline is then pushed or pulled through the hole. The pipeline would cross Highway 43, South 190th Street, and South 2nd Road via conventional bore methods.

Active Croplands

Construction in agricultural areas would be conducted in accordance with the Plan and Procedures. No drain tiles are known in the Project area, but if found during construction, highly visible flagging would mark locations. All damaged, broken or cracked drain tile would be replaced with new tile. Replacement tile would be supported with a secondary method, such as perforated corrugated steel pipe.

During restoration, Northern would install a minimum of 36 inches of cover over the pipe in agricultural land and a minimum of 48 inches of cover over the pipe in actively irrigated agricultural land. Topsoil and subsoil would be tested for compaction following construction. Northern would remove excess rock from the upper 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, as well as other areas at the landowner's request. The final surface would be examined to verify that native rock visible on the surface is similar in size, density and distribution to that in undisturbed areas adjacent to the right-of-way. Northern would restore contours to provide appropriate drainage, and leave the soil in the proper condition for planting. Seeding is not required in cultivated croplands unless requested by the landowner.

If construction requires the removal of private property features such as gates or fences, the landowner or tenant would be notified prior to the action. If construction requires the removal of trees, the landowner or tenant would be notified prior to the removal. Following

completion of major construction, the grade would be restored, as near as practicable, to the original contours.

Blasting

Although blasting is not anticipated to be required for the Project, if subsurface rock is encountered that cannot be mechanically excavated, blasting for trench excavation could be necessary. In these areas, damage to above and underground structures (e.g., cables, conduits and pipelines), springs, water wells, and other water sources would be avoided to the extent possible. Blasting mats or soil cover would be used as necessary to prevent the scattering of loose rock. Blasting would be conducted during daylight hours and would not begin until occupants of nearby buildings, stores, residences, places of business and farms are notified. Prior to initiation of blasting activities, Northern would file written safety precautions and blasting procedures. Northern's contractor would monitor vibrations and ensure that peak particle velocity at the pipeline does not exceed five inches per second.

Abandonment in Place

Once the new Auburn B-branch line is in service, Northern would disconnect its A-line from its existing pipeline system and abandon the pipeline in-place. Northern would abandon the 31.7 miles of 4- and 6-inch-diameter A-line by shutting, tagging and locking off the existing take-off valves at each end of the abandoned segment. These aboveground valves would not be removed to avoid additional environmental impacts. No ground disturbing activities would occur for this portion of the Project. Northern states that the valves that would be abandoned are not inhibiting land use. In addition, Northern has identified no intended future use or salvage of the A-line segment proposed for abandonment in this proceeding.

6.2 Aboveground/Associated Facility Construction

Construction of the Auburn B-line launcher and Auburn MAOP regulation station would include clearing, grading, installation of foundations, erection of aboveground facilities, installation of piping, testing of equipment, and cleanup and restoration of the temporary workspaces.

During construction, workspaces at the aboveground facilities would be cleared of vegetation, as necessary, and graded. Erosion control devices would be installed as needed to prevent erosion and offsite impacts in accordance with the FERC Plan and any applicable state permit requirements. After construction, all temporary workspaces would be revegetated in accordance with the FERC Plan.

7. Operations and Maintenance Procedures

Operational activity on the pipelines would be limited primarily to maintenance of the right-of-way and inspection, repair, and cleaning of the pipeline. Periodic aerial and ground inspections by pipeline personnel would identify soil erosion that may expose the pipe; dead vegetation that may indicate a leak in the line; conditions of the vegetative cover and erosion control measures; unauthorized encroachment on the right-of-way, such as building and other

substantial structures; and other conditions that could present a safety hazard or require preventative maintenance or repairs.

Cathodic protection would be installed in areas along the pipeline during restoration a year after construction as a separate action under Northern's automatic provisions of its blanket certificate granted in docket CP82-401-000. Cathodic protection protects the pipeline from corrosion. Specific locations where cathodic protection would be installed are not known at this time.

Although vegetation maintenance is not normally required in residential areas, agricultural cropland, or grazing areas, large brush and trees may be periodically removed in accordance with the Plan if trees or deep-rooted shrubs in the area could damage the pipeline's protective coating, obscure periodic surveillance, or interfere with potential repairs. Northern would not conduct any routine vegetation mowing or clearing in wetlands or riverine environments that are between HDD entry and exit points.

Northern would comply with section V.D.2 of our Procedures and would not use herbicides or pesticides within 100 feet of a waterbody except as allowed by the appropriate land use management or state agency. Per USDOT requirements, pole-mounted pipeline markers would be placed along the upland portion of the pipeline.

Upon completion of construction, the above-grade components of the pipeline facilities (i.e., launcher and regulation station) would be painted to be visible from the surrounding area for purposes of security and in compliance with the Homeland Security Act requirements. Northern would perform routine checks of above-grade facilities, including calibration of equipment and instrumentation.

8. Permits, Approvals, and Regulatory Requirements

Table 2 lists the major federal and state permits, approvals, and consultations for the Project and provides the current status of each. Northern would be responsible for obtaining and abiding by all permits and approvals required for the Project. Northern stated that all relevant permits and approvals would be provided to the respective contractors who would be required to be familiar with and adhere to applicable requirements.

9. Non Jurisdictional Facilities

Under Section 7 of the NGA, the Commission is required to consider, as part of the decision to approve facilities under its jurisdiction, all factors bearing on the public interest. Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of the Commission. These "non-jurisdictional" facilities may be integral to the need for the proposed facilities, such as a power plant at the end of a jurisdictional pipeline, or they may be minor, non-integral components of the facilities under the Commission's jurisdiction. There are no non-jurisdictional facilities that would be constructed as a result of this Project.

Table 2: Major Permits and Approvals for the Project			
Issuing Agency	**Permit/Approval**	**Filing Date**	**Receipt Date**
Federal			
Federal Energy Regulatory Commission	Section 7 of the Natural Gas Act, Certificate of Public Convenience and Necessity and Abandonment Authorization	June 11, 2020	*Pending*
U.S. Fish and Wildlife Service- Nebraska Field Office	Endangered Species Act- Section 7 Consultation	May 19, 2020	August 21, 2020
U.S. Department of Agriculture- Natural Resources Conservation Service	Conservation Easement Program and seeding recommendations	January 21, 2020	May 14, 2020
State-Nebraska			
Nebraska Department of Environmental Quality- Water Quality Division- Stormwater	National Pollutant Discharge Elimination System Stormwater	To be obtained prior to construction	To be obtained prior to construction
	National Pollutant Discharge Elimination System Stormwater Pit Trench Dewatering	To be obtained prior to construction	To be obtained prior to construction
Nebraska Natural Heritage Program- Nebraska Game and Parks Commission	Nebraska Nongame and Endangered Species Conservation Act	May 8, 2020	August 19, 2020
Nebraska State Historic Preservation Office	Section 106 of the National Historic Preservation Act	May 20, 2020	May 21, 2020
Local			
Lancaster County	Lancaster County Floodplain Development Permit	*late 2020*	*30-45 days after filing application*

B. ENVIRONMENTAL ANALYSIS

Construction and operation of the Project would have temporary, short-term, long-term, and permanent impacts. As discussed throughout this EA, temporary impacts are defined as occurring only during the construction phase up to a few months after construction. Short-term impacts are defined as lasting up to three years. Long-term impacts would eventually recover, but require more than three years. Permanent impacts are defined as lasting throughout the life of the Project.

1. Geology and Soils

1.1 Geology

Physiographic Settings and Geologic Conditions

The Project is within the Dissected Till Plains section of the Central Lowlands physiographic province (Fenneman, 1928). This section includes a glacial till plain with moderately dissected, flat to rolling plains that slope gently toward the Missouri River valley. During the Pleistocene Epoch, portions of Nebraska, including the Project area, experienced a series of glacial and interglacial periods (U.S. Geological Survey [USGS], 2005). Surficial deposits in the Project area consist of unconsolidated glacial deposits ranging from fine clay to gravel. These unconsolidated deposits are typically less than 150 feet thick in the Project area (USGS, 1994). Windblown sediment (loess) deposits up to 10 feet thick, deposited over earlier glacial deposits (USGS, 1994), are also found in the Project vicinity.

Topography of the Project area generally consists of gently rolling dissected and dendritic terrain with elevations between 1,300 to 1,400 feet above mean sea level.

Mineral Resources

No oil or gas production wells or active, inactive, abandoned, or permitted surface or subsurface coal mines are within 0.25 mile of the Project in Nebraska (Nebraska Oil and Gas Conservation Commission, 2020; East, 2013). The Nebraska Conservation and Survey Division Active Mine Operations database did not identify any mines or quarries within 0.25 mile of the Project (Nebraska Conservation and Survey Division, 2020). Northern did not identify any surficial mines within 0.25 mile of the Project. Based on this assessment, we conclude the Project would not impact mineral resources.

Geologic Hazards

Geologic hazards are natural, physical conditions that can result in damage to land and structures or injury to people. Such hazards typically are seismic-related, including earthquakes, surface faulting, and soil liquefaction. Geologic hazards discussed below also include landslides, ground subsidence (including karst terrain), flood hazards, and the feasibility of utilizing the HDD method based on hydrogeologic conditions present in the Project area.

The shaking during an earthquake can be expressed in terms of the acceleration as a percent of gravity (g), and seismic risk can be quantified by the motions experienced at the ground surface or by structures during a given earthquake expressed in terms of g. USGS National Seismic Hazard Probability Mapping shows that for the Project area, within a 50-year period, there is a 2 percent probability of an earthquake with an effective peak ground acceleration (PGA) of 4 to 6 percent g; and a 10 percent probability of an earthquake with an effective PGA of 1 to 2 percent g being exceeded (USGS, 2018). For reference, PGA of 10 percent g (0.1g) is generally considered the minimum threshold for damage to older structures or structures not constructed to resist earthquakes.

Further, modern pipeline systems have not sustained damage during seismic events except due to permanent ground deformation or traveling ground-wave propagation greater than or equal to a Modified Mercalli Intensity of VIII (similar to a Richter scale magnitude around 6.8 to 7.0) (O'Rourke and Palmer, 1996; USGS, 2020a). According to the USGS Quaternary Fault and Fold Database, no Quaternary-age faults would be crossed by the Project (USGS, 2020b). As such, the risk of a significant earthquake in the Project area damaging Project facilities is low and the risk of seismic ground faulting to occur is also low. Similarly, because the Project area has a low potential for strong prolonged ground shaking associated with seismic events, the soil liquefaction potential is negligible.

Northern completed a slope analysis to identify steep slopes in the Project area. Based on civil surveys, two areas of steep slope (31 to 50 percent) were identified, both less than 15 feet in length and near MP 3.24 of the B-Line. In accordance with our Plan, Northern would install temporary trench plugs and temporary slope breakers during construction. The temporary slope breakers would channel water off the right-of-way through J-hook or other baffling devices to limit water flow down long steep slopes. Temporary trench plugs would reduce the velocity of water flowing along the trench and volume of water that collects at bottoms of slopes. Northern also would install permanent trench breakers and permanent slope breakers in areas of steep slopes. Given Northern's measures and the limited amount of steep slope construction, we conclude that impacts from slope instability would not be significant.

Federal Emergency Management Agency (FEMA) Risk Maps have been prepared for Lancaster and Otoe Counties. A review of these maps identified two locations where a portion of the Project is located within a 100-year flood zone: between MP 1.79 and 1.84; and between MP 2.00 and 2.04 both in Lancaster County. The Project would cross each of these areas via HDD. Additionally, approximately 0.2 acre of ETWS and temporary workspace, near MP 2.05, is within the 100-year flood zone. Northern would restore the original contours of the ETWS and temporary workspaces within the floodplain. No aboveground facilities would be within the 100-year floodplain. The Nebraska Department of Natural Resources commented that portions of the Project are within a regulated (1 percent annual chance) floodplain and/or floodway and that all development within a regulated floodplain and/or floodway needs to comply with local floodplain regulations, including obtaining a floodplain development permit. Northern understands that a floodplain development permit is required for the ETWS within the floodplain in Lancaster County. Northern stated they would submit a floodplain development permit application in late 2020. We conclude the Project would not impact floodplain storage capacity and would not be significantly impacted by flood hazards during construction or operation.

Ground subsidence, involving the localized or regional lowering of the ground surface, may be caused by karst dissolution, sediment compaction, oil and gas extraction, underground mines, and groundwater overpumping. As described above, there are no subsurface mines or oil and gas wells within 0.25 mile of the Project, and a search of publicly available information did not identify incidences of land subsidence from groundwater overpumping in the Project vicinity.

Assessment of the potential for karst terrain was conducted using data available from the USGS. The Project components are underlain by a thick layer of glacial till which significantly reduces the likelihood of the surface expression of bedrock karst features. According to the USGS, the Project is in an area with low probability for karst development (Weary and Doctor, 2014).

Geotechnical Investigations

Length of an HDD alignment, pipeline diameter, and subsurface material are factors in the technical feasibility of an HDD installation. Subsurface conditions that can affect the feasibility of an HDD include excessive rock strength and abrasiveness, unconsolidated gravel and boulder materials, poor bedrock quality, solution cavities and artesian conditions. It is also possible for HDD pipe installations to fail, primarily due to encountering unexpected geologic conditions such as transitioning from coarse unconsolidated materials into bedrock or if the pipe were to become lodged in the hole during pullback operations. During HDD operations, drilling fluid consisting primarily of water and bentonite clay is pumped under pressure through the inside of the drill pipe and flows back (returns) to the drill entry point along an annular space between the outside of the drill pipe and the drilled hole. Because the drilling fluid is pressurized, in certain conditions it can seep into the surrounding rocks and sediment. Formational drilling fluid losses typically occur when the drilling fluid flows through the pore spaces in the soil through which the HDD drilling profile passes or within fractures contained in the rock formation. Inadvertent returns of drilling fluid to the ground surface are more likely to occur in more permeable soils or via fractures or fissures in bedrock. Chances for an inadvertent return to occur are greatest near the drill entry and exit points where the drill path has the least amount of ground cover.

Northern has proposed to use the HDD method to cross infrastructure (roads and driveways) and sensitive resources (wetlands and waterbodies) at six locations. Proposed HDDs range in length from approximately 571 feet to approximately 1,530 feet. The maximum depths of HDD alignments are proposed to be approximately 30 feet below grade (fbg) to 80 fbg. To characterize subsurface geology and to investigate the feasibility of successfully utilizing the HDD method for the Project, for each proposed HDD, Northern drilled two geotechnical borings along the alignment to depths between 55 and 105 fbg. With the exception of HDD P4-6, geotechnical borings were installed to at least the maximum proposed depth of the drill. For HDD P4-6, both geotechnical borings terminated approximately 25 feet above the max depth of the drill. This drill crosses two roads and one 8-foot-wide intermittent waterbody, AUB_s10.

Subsurface geology among all geotechnical borings was generally consistent, being comprised of clays underlain by sandy clay with trace gravel. Depth to groundwater was found

to range between approximately 13 and 60 fbg. A layer of fine to coarse sand 5 to 20 feet thick was also encountered in some borings at depths between 35 and 65 fbg.

Hydrofracture risk assessments were completed for each proposed HDD and determined that the required bore pressure to facilitate installation would be below the allowable bore pressure except in the vicinity of exit locations (generally the last 60 to 150 feet). This condition is common near the entry and exit points, but elevates the likelihood of an inadvertent return in these areas. For HDDs P4-5 and P4-8, sensitive environmental resources (e.g., wetlands, waterbodies) are within identified areas of elevated risk. Based on the results of geotechnical investigations, Northern's geotechnical contractor concluded that the drills would be through favorable subsurface geology, and that crossings are feasible in terms of surface constraints and workspace for operations at the entry/exit locations and pullback section.

Northern's geotechnical contractor also provided general recommendations, including, but not limited to: constructing deeper entry/exit pits; using jetting drilling methodology rather than traditional mechanical drilling practices; adjusting drilling fluid composition with changing soil conditions; reducing pumping for the last portion of the pilot drill; tripping of the drill rod and using minimal mud circulation to clean the pilot hole; and re-evaluation of hydrofracture assessments based on the HDD contractor's execution and fluid management plans.

Northern would provide its geotechnical analysis and the geotechnical consultant's recommendations to the third-party contractor planning and executing the HDD. Northern states that it contractually requires contractors to extend measures to mitigate inadvertent releases and expects that the contractor would follow the consultant's recommendations. Northern would also follow its HDD Plan, which requires use of a down-hole annular pressure tool during the pilot hole drilling phase to ensure that the drilling contractor could detect and respond to a loss or spike in drilling fluid pressure which would be indicative of a potential hydrofracture and inadvertent return. A drilling fluid specialist or mud engineer would review and assess drilling mud properties and recommend changes to these properties based on conditions encountered during drilling. Personnel would be assigned to continuously monitor the HDD activities, including walking the HDD path between the entry and exit points, where practicable, and visually inspecting for inadvertent returns. Drilling operations would be stopped immediately at the first sign of an inadvertent return and Northern would implement response and clean-up efforts specific to the location of the release (e.g., upland, waterbodies or wetlands, other sensitive resource areas). Further, drilling fluids would consist primarily of fresh water and a high yield bentonite clay. A list of any additional proposed additives (and their respective safety data sheets) would be supplied to FERC for review prior to construction. All proposed fluid additives would be compliant with the NSF® International/American National Standards Institute 60 – Drinking Water Treatment Chemicals – Health Effects.

Based on the above analyses, we conclude that subsurface conditions would not render the HDDs infeasible. With consideration of the adopted mitigation measures contained in Northern's HDD Plan, we conclude that potential impacts from HDD construction and potential inadvertent returns would not be significant. We conclude that the impact from geologic hazards on the Project facilities during construction and/or operation would be minimal and the Project would not have significant impacts on geologic resources.

1.2 Soils

Soil characteristics within the Project area were identified and assessed using the NRCS, Soil Survey Geographic Database (NRCS, 2019), which is a digital version of the original county soil surveys developed by the NRCS for use with a geographic information system. Project activities such as clearing, grading, excavation, backfilling, heavy equipment traffic, and restoration have the potential to adversely affect soil characteristics such as water infiltration, storage and routing, and soil nutrient levels, thus reducing soil productivity. Other possible soils impacts include mixing of topsoil and subsoil layers, compaction, rutting, and alteration of drainage characteristics.

Soils were evaluated for characteristics that could affect construction or increase the potential for soil impacts during construction. These characteristics include farmland designation, compaction potential, erodibility by wind, erodibility by water, the presence of shallow bedrock (bedrock within 60 inches of the ground surface), hydric soils, and revegetation potential. Project area soils are not highly erodible by wind, hydric, or highly compaction prone, and are not underlain by shallow bedrock. A description of remaining soil characteristics, including impacts are listed in table 3. Mitigation measures for these soil limitations are described below.

Prime Farmland

The U.S. Department of Agriculture defines prime farmland as land that has the best combination of physical and chemical characteristics for growing food, feed, forage, fiber, and oilseed crops. Unique farmland is land that is used for production of specific high-value food and fiber crops. In addition, soils may be considered of statewide or local importance if those soils are capable of producing a high yield of crops when managed according to accepted farming methods. Construction in agricultural areas and pasture areas would temporarily disrupt ongoing agricultural activities and eliminate use of the land for the duration of construction, with permanently impacted areas converted to industrial use.

Approximately 43.6 acres (58.8 percent) of soils that would be disturbed by the Project are mapped as prime farmland and 8.7 acres (11.8 percent) of soils are mapped as farmland of statewide importance. The Project would result in the permanent loss of 0.25 acre for the installation of the permanent launcher setting along with a regulation station and its permanent driveway.

Table 3: Summary of Major Soil Limitations Crossed by the Project (acres)									
Project Component	Total Acres	Prime Farmland[1]		Farmland of Statewide Importance		Highly Erodible by Water[2]		Revegetation Concerns[3]	
		Acres	%	Acres	%	Acres	%	Acres	%
B-Line	74.2	43.6	58.8	8.7	11.8	29.0	39.1	22.4	30.2

[1] Includes 'all areas are prime farmland' and 'prime farmland if drained,' per the NRCS.
[2] Includes soils that have an Erosion Hazard rating of Severe or Very Severe. Erosion Hazard based on slope and soil erosion factor (K).
[3] Revegetation concerns are based on potential for seed mortality rating class. A rating of low indicates the soil has properties that will decrease the potential for successful revegetation.
% = percent

During construction, potential impacts on agricultural soils would be minimized and mitigated in accordance with our Plan. These include measures to conserve and segregate the upper 12 inches of topsoil, alleviate soil compaction, protect and maintain existing drainage tile and irrigation systems, prevent the introduction of weeds, and retain existing soil productivity. The Plan also includes restoration and revegetation measures, such as seedbed preparation, fertilization, and seeding to actively promote revegetation. Following construction, agricultural activities would be allowed to resume without restrictions except within the fencelines of aboveground facilities. Construction and operation impacts on active agricultural land are further discussed in section B.5.1.1.

Based on the above analysis, we conclude that the majority of impacts on prime farmland and farmland of statewide importance would be temporary. Permanent impacts quantitatively represent less than 0.01 percent of the total area of prime farmland and farmland of local importance within Otoe and Lancaster Counties. Therefore, permanent impacts on the availability of prime farmland and farmland of local importance would not be significant.

Soil Erosion and Revegetation Potential

Soil erosion is the wearing away of physical soil properties by wind and water and could result in a loss of soil structure, organic matter, or nutrients, all of which, when present, contribute to healthy plant growth and ecosystem stability. Clearing removes protective vegetative cover and exposes soils to the effects of wind and water, which can increase soil erosion and the transport of sediment to sensitive resource areas. Increased rainfall in the spring and fall can also result in increased erosion in agriculture areas where vegetation has been cleared.

Soil erosion potential is affected by the soil lithology, including mineralogy, grain size, texture, and organic content and is influenced by slope and exposure to erosion mechanisms. About 29.0 acres (39.1 percent) of soils crossed by the Project are classified as highly erodible by water; none are highly wind erodible.

To minimize soil erosion, Northern would implement measures, as specified in our Plan, their SWPPP, and applicable Project-specific permits. Temporary erosion control measures,

including interceptor diversions (e.g., slope breakers) and sediment filter devices (e.g., straw bales, silt fence, sediment basins), would be installed immediately following initial ground disturbance. As required, temporary trench breakers would be installed immediately following ditch excavation to reduce runoff velocities in the trench during construction. Mulch or erosion control matting may be used on slopes to prevent erosion during construction. Best Management Practices (BMPs), such as routine wetting of the construction workspaces as necessary, would be implemented to minimize wind erosion. Northern would inspect temporary erosion control devices on a regular basis and after each rainfall event of 0.5 inch or greater to ensure proper function. Temporary erosion control devices would be maintained until Project areas are successfully revegetated or permanently stabilized with gravel surfacing. Permanent erosion control devices (e.g., trench breakers, flexible channel liners, turf-reinforcement mats, slope breakers) would be monitored by Northern during the long-term operation and maintenance of the Project.

About 22.4 acres (30.2 percent) of soils within the Project area are anticipated to have low revegetation potential. Northern would re-seed temporary workspaces in accordance with individual landowner requirements, its SWPPP, and/or NRCS recommendations. Depending on site conditions, revegetation could include soil amendments such as lime, fertilizing, seeding, and mulching. Seedbed preparation would not be undertaken when excessively wet soil conditions exist. After a relatively smooth seedbed has been prepared, seed would be applied to all areas with exposed soils using a broadcast spreader, seed drill, or hydroseeder. Northern would use seed mixes and seeding rates recommended by state and local agencies.

Soil Contamination

Northern conducted a search of the EPA Facility Registry Service (EPA, 2020a) database and the NDEE Interactive Mapper (NDEE, 2020) for potential or actual sources of contamination within 500 feet of the Project area. None were identified.

Project-related soil contamination resulting from spills or leaks of fuels, lubricants, and coolant from construction equipment would be minimized by Northern's adherence to its SPCC Plan, which specifies clean-up procedures in the event of spills or leaks of hazardous materials. Should a spill occur, Northern and its contractors would follow the SPCC Plan to contain the spill of any material that may contaminate soils and to ensure that the spill area is cleaned up and the materials are disposed of in an appropriate manner.

Should Northern encounter contaminated soil during construction, it would stop work, complete sampling of the soil, and identify the source for the contamination. Based upon the results, remediation would be determined on a case-by-case basis. Options include over-excavation and containerizing the contaminated soil prior to appropriate disposal. The appropriate action would be determined in consultation with state environmental agencies. Work would resume only when the source of the contamination is determined and the appropriate remediation plan is executed.

Based on the above assessment and Northern's implementation of our Plan, its SPCC Plan, and SWPPP, we conclude that impacts on soils would not be significant.

2. Water Resources

2.1 Groundwater

Major glacial events and sedimentation processes have created two aquifer types that underlie the Project. The Project is directly underlain by an approximately 100-foot thick deposit of silt and clay, which acts as a surficial aquifer. Below this lies the Dorchester-Sterling paleovalley aquifer, the primary aquifer for the Project area. This aquifer consists of a 70-foot to 220-foot thick deposit of coarse, unconsolidated Quaternary material, which sits above the underlying Permian/Pennsylvanian age bedrock (Devine, 2014).

There are no EPA-designated Sole Source Aquifers crossed by the Project (EPA, 2020b). Under the 1986 amendments to the Safe Drinking Water Act, each state is required to develop and implement a Wellhead Protection Program in order to identify the land and recharge areas contributing to public supply wells and protect the recharge areas to prevent the contamination of drinking water supplies.

In Nebraska, the NDEE Interactive Mapper contains the location and details of the wellhead protection areas (WHPA) in the state (NDEE, 2020). Based on the review of the NDEE Interactive Mapper database, a temporary access road and staging area located south of MP 1.35 is located within 150 feet of the Lancaster County rural watershed district (RWD) #1 WHPA boundary. The Project does not cross the Lancaster County RWD #1 WHPA, as Pella Road separates the Project from the WHPA. On January 20, 2020, Northern contacted the Lancaster County RWD, who indicated the WHPA well is located approximately 4,500 feet southwest of MP 0.90 as the NDEE Interactive Mapper has an incorrect location. Additionally, the Lancaster County RWD stated they would not require a permit or ask for restrictions for the Project.

The Nebraska Department of Natural Resources' Groundwater Well Registration (GWR) is the most complete record of public and private well construction and location information for Nebraska. Northern reviewed the Nebraska GWR and identified two private wells within 150 feet of the Project area (Nebraska Department of Natural Resources, 2020). No public wells were identified. Northern will continue consulting with landowners through the remaining easement negotiations to verify mapped well locations. Additional wells discovered during negotiations would be added to the alignment sheets provided to the contractors prior to construction. Table 4 lists the location and type of identified wells.

Per communication with the Nemaha natural resource district, Nebraska does not maintain an inventory or database of spring locations and the Nemaha natural resource district was not aware of any known springs within the Project area. Field surveys did not identify springs within the environmental survey corridor.

Table 4: Water Supply Wells Within 150 Feet of the Project Area				
MP	**Supply Type**	**Feet from Project Boundary and Direction**	**Feet from Center Line and Direction**	**Well Type**
B-Line				
1.87	Private	115, southeast	945, south	Domestic
3.60	Private	142, east	217, east	Inactive irrigation

Northern conducted a search of the EPA's Facility Registry Service (EPA, 2020a) database and the NDEE Interactive Mapper (NDEE, 2020) for potential or actual sources of contamination within 500 feet of the Project area. None were identified.

The proposed pipeline would typically be buried 30 to 48 inches below the ground surface utilizing standard open-trench construction methods. Typical water-bearing aquifers within the Project area are greater than 40 feet below grade, and Northern's subsurface investigations generally encountered groundwater at depths between 13 and 60 fbg. If trench dewatering becomes necessary, we expect any resulting changes in water levels and/or turbidity in these aquifers to be localized and temporary because water levels quickly re-establish equilibrium and turbidity levels rapidly subside. The addition of impervious surfaces at aboveground facilities may affect overland flow patterns and subsurface hydrology. However, these effects would be highly localized and minor. HDDs planned for the Project would likely penetrate below the water table. However, the drilling fluid would be composed of water, bentonite, and other non-toxic drilling fluid additives; therefore, HDD crossings are not expected to affect groundwater quality.

An inadvertent spill or release of fuel or hazardous materials during construction could affect groundwater if not cleaned up appropriately. To minimize the risk of potential fuel or hazardous materials spills, Northern would implement its SPCC Plan. In the event that contaminated groundwater is encountered during construction, measures would be implemented to isolate and contain the suspect contamination. Northern would collect and test samples of the groundwater to identify the contaminants. Once the type, magnitude, and extent of the contamination are determined, a response plan would be developed for crossing or avoiding the site.

Refueling or storage of hazardous liquids would not be allowed within a 200-foot radius of the private wells. Due to the nature of the construction operation, certain equipment (e.g., HDD and boring rigs) cannot be moved for refueling and may therefore be located within a well's set-back radius. In cases where refueling needs to occur within 200 feet of a private well, Northern would have EIs present for the operation and would have spill response equipment onsite and readily available.

With landowner approval, Northern would conduct pre- and post-construction testing for water quality and yield for private and public wells within 150 feet of the Project workspaces. In the event the results indicate the well water quality or yield has been adversely impacted as a result of Project construction, Northern would provide a clean water source to the landowner until a permanent solution is determined.

We conclude that by implementing the measures discussed above, Northern's SPCC Plan, HDD Plan, and our Plan and Procedures, construction activities would not result in significant impacts on groundwater resources.

2.2 Surface Water

The B-line, Auburn B-line Launcher, and the Auburn MAOP Regulation Station are within the Headwaters North Fork Big Nemaha River watershed (HUC 12 –102400080104) and the Big Nemaha River basin (NebraskaMAP, 2020a). The proposed pipeline would cross seven waterbodies. However, direct impacts would not occur with the successful implementation of the proposed HDD methods to cross the waterbodies. Waterbodies crossed by the Project are included in Table 5.

Table 5: Waterbodies Crossed by the Project

MP[1]	Waterbody	County, State	Waterbody Type	Federal Jurisdictional Determination[2]	Crossing Width (feet)	Crossing Method (Contingency)
B-line						
0.96	AUB_S13 (UNT to Upper Big Nemaha Reservoir 21-B)	Lancaster County, Nebraska	Intermittent	Jurisdictional	10	HDD (Re-drill)
1.02	AUB_S12 (UNT to Upper Big Nemaha Reservoir 21-B)	Lancaster County, Nebraska	Intermittent	Jurisdictional	6	HDD (Re-drill)
1.82 - 1.83	AUB_S11 (UNT to Upper Big Nemaha Reservoir 21-B)	Lancaster County, Nebraska	Perennial	Jurisdictional	34	HDD (Re-drill)
2.02	AUB_S10 (UNT to Upper Big Nemaha Reservoir 21-B)	Lancaster County, Nebraska	Intermittent	Jurisdictional	8	HDD (Re-drill)
3.95	AUB_S03 (Unnamed)	Otoe County, Nebraska	Ephemeral	Non-Jurisdictional	5	HDD (Re-drill)
4.04	AUB_S02 (UNT to North Fork Big Nemaha River)	Otoe County, Nebraska	Intermittent	Jurisdictional	5	HDD (Re-drill)
4.16	AUB_S01 (UNT to North Fork Big Nemaha River)	Otoe County, Nebraska	Intermittent	Jurisdictional	6	HDD (Re-drill)

[1] If waterbody is 10 feet or under in width, only one MP is listed.
[2] Jurisdiction determination, as defined by 33 CFR Part 328, per USACE new regulations dated January 23, 2020.

The EPA commented that if jurisdictional waters and/or wetlands of the United States would be impacted by any proposed actions, 404 coordination with their program is required.

Given that all waterbodies and wetlands would be HDD or bored and no direct impacts are proposed, no 404 coordination is necessary.

Waterways crossed are classified by the NDEE as Warmwater B streams, indicating they are used by warm water fish species. No contaminated sediments occur near Project workspaces (EPA, 2020c). No wild, scenic nor recreational waters are crossed by the Project (National Wild and Scenic River System, 2020). None of the waterbodies crossed by the Project are classified for public consumption or have sufficient flow rates to provide a reliable potable surface water supply or be designated as a public water source. No potable surface water supplies exist within three miles of the Project (NebraskaMAP, 2020b). No waters crossed by the Project were assessed or identified as impaired (NDEE, 2018 and 2020).

Trench dewatering would be necessary if precipitation or seepage of groundwater occurs. During trench dewatering, water would be pumped from the trench and discharged into a well vegetated upland area. Dewatering would be conducted in a manner designed to prevent the flow of silt-laden water directly into adjacent waterbodies and in accordance with state permitting requirements.

Northern would conduct hydrostatic testing of the new pipeline loops prior to placing them into service. Northern would obtain approximately 64,500 gallons of water for the testing from a municipal source. The hydrostatic test discharge water would be hauled off for disposal at an offsite facility. Approximately 134,400 gallons of water would be used for the proposed HDD crossings and approximately 35,000 gallons of water would be used to control and mitigate fugitive dust in areas disturbed during construction, all from municipal sources. Water use could vary based on weather conditions during construction, but it is estimated that a total of approximately 233,900 gallons would be used for hydrostatic testing, HDD activities, and dust control.

Although no direct impacts would occur to waterbodies, Project work areas adjacent to waterbodies could result in erosion and sedimentation into the waterbodies. As part of Northern's temporary erosion and sediment control measures for the Project, Northern would construct or install sediment barriers, stormwater diversions, mulch, and seed to establish ground cover to protect waterbodies. Northern would restore slopes and contours to pre-construction conditions and restore vegetation using native grass seed mixes. The temporary and permanent erosion and sediment control measures would be installed as specified in the Plan and Procedures, the SWPPP, and applicable stormwater permits. Construction work areas would be allowed to return to preconstruction vegetation and would be permanently maintained in accordance with the Plan and Procedures. The implementation of these measures would minimize the Project's erosion and sedimentation impacts on waterbodies.

With the implementation of Northern's SPCC Plan, HDD Plan, SWPPP, and our Plan and Procedures, impacts to waterbodies would be sufficiently minimized.

2.3 Wetlands

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of wetland vegetation adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation (U.S. Army Corps of Engineers, 1987). Wetlands can be a source of substantial biodiversity and serve a variety of functions that include providing wildlife habitat, recreational opportunities, flood control, and naturally improving water quality. Five palustrine emergent (PEM) wetlands would be crossed by the Project. PEM wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens.

Northern conducted wetland delineation surveys in November 2019. A total of 16 wetlands were found in the environmental survey area, but only 5 would be crossed by the proposed B-line. Four would be crossed by HDD methods and one would be crossed by the conventional bore method. The wetlands crossed by the Project are shown in table 6.

Northern would complete work near wetlands in accordance with our Procedures, with the exception of two ETWS at MP 0.75 and MP 0.78, which are located within 50 feet of a wetland boundary, as discussed in section A.6.0. Northern would also hand trim 0.02 acre of woody vegetation at both AUB_W10 and AUB_W16 above grade for the HDD and bore walking paths. Northern states that a 401 certification from NDEE and a 404 permit from the Army Corps of Engineers are not required for this activity given soil and root systems would not be disturbed, fill would not occur, and only vegetation would be disturbed.

The NDEE states that no Title 117 streams or wetlands occur in the Project area. The implementation of our Procedures would minimize potential impacts of sedimentation and erosion on wetlands, including wetlands that were identified adjacent to the construction right-of-way. In addition, implementation of Northern's SPCC Plan would minimize the potential for spills to impact wetlands. In the event of an inadvertent release of drilling mud during HDD activities, Northern would implement measures outlined in its HDD Plan. Therefore, we conclude that the Project would not have significant or long-term impacts on wetlands.

3. Vegetation, Wildlife and Fisheries

3.1 Vegetation

The vegetation within the Project area is characterized by the Great Plains Level I Ecoregion (EPA, 2020d and 2020e). The vegetation community the Project crosses consists of agricultural lands, forested lands, and open lands. Common agriculture crops grown in the Project area include corn and soybeans. Hardwood forests dominated by woody coniferous and deciduous vegetation occur in forested areas. Open land consists of non-agricultural fields, PEM wetlands, and mixed weeds and grasses along roadsides. However, the only wetlands that would be impacted are 0.02 acre that would be hand trimmed for HDD travel lanes.

Table 6: Wetlands Crossed by the Project							
Unique Wetland Identifier	Milepost		Field Determined Wetland Classification[1]	Length of Crossing (feet)[2]	Wetland Crossing Method	Area Affected by Construction (acres)	Area Affected by Operation (acres)[3]
	From	To					
B-line							
AUB_W16	0.21	0.23	PEM	97	HDD	0.01	0.00
AUB_W15	0.76	0.76	PEM	30	Bore	0.00	0.00
AUB_W14	0.95	0.96	PEM	43	HDD	0.00	0.00
AUB_W11	1.42	1.44	PEM1C	105	HDD	0.00	0.00
AUB_W10	1.77	1.83	PEM	281	HDD	0.01	0.00
Project Total[4]						**0.02**	**0.00**

[1] Wetland Classification based on Cowardin, Classification of Wetlands and Deepwater Habitats: PEM - Palustrine Emergent (Wet Meadow) and PEM1C - Palustrine Emergent – persistent - seasonally flooded (Shallow Marsh).

[2] Wetland crossing lengths represent HDD or conventional bore length in wetland.

[3] Wetland crossed by the Project via conventional bore or HDD techniques. Northern would not conduct maintenance between the conventional bore or HDD entry and exit pits; therefore, no impacts on the wetland would occur during operation.

[4] This 0.02 acre of wetland impacts is due to proposed hand trimming for conventional bore or HDD travel lanes.

Construction of the Project would impact approximately 74 acres of vegetation and operation would impact 22.5 acres of vegetation. Operational impacts would be related to new right-of-way maintenance and the permanent conversion of 0.9 acre of agricultural and open land to developed land. Approximately 0.01 acre of forest and 0.02 acre of wetlands would be hand cleared for the HDD travel lanes. Table 7 provides the amount of vegetation cover types that would be impacted by the Project.

The primary impact on upland vegetation would be a temporary loss of vegetative cover associated with ground-disturbing activities during construction of the Project. The degree of impact would depend on the type and amount of vegetation affected, the rate at which the vegetation would regenerate after construction, and the frequency of vegetation maintenance during operation. Secondary effects associated with disturbances to vegetation could include increased soil erosion, loss of topsoil, increased potential for the introduction and establishment of invasive weedy species, potential increases in fugitive dust, potential visual resource impacts, and potential wildlife and agricultural productivity impacts.

Noxious weeds and invasive plants can outcompete native vegetation and change the composition of native vegetation communities. Northern obtained lists of noxious weeds and invasive plants by review of federal, state and local sources. No noxious weeds were identified within the Project workspaces during field surveys, but common reed was identified within and adjacent to wetlands and woodlands within the survey area. To prevent, mitigate, and control the introduction and spread of noxious weeds and invasive plants during construction, Northern would implement the following measures:

- All ground disturbing equipment would be clean and free of soil or plant debris prior to arriving onsite;
- The on-site EIs would inspect all equipment upon arrival and maintain a log of such inspections;
- In the event that equipment arrives in a manner not consistent with the above requirement(s), the EIs would direct the contractor to clean the equipment at an offsite location prior to its use on the Project; and
- Clearing and grading activities associated with Project workspaces may include mowing to limit the spread of invasive species due to construction activities.

Table 7: Estimated Disturbance of Vegetation Cover Types

Facility	Agriculture		Forested		Open Land	
	Temporary (acres)[1]	Permanent (acres)[2]	Temporary (acres)[1]	Permanent (acres)[2]	Temporary (acres)[1]	Permanent (acres)[2]
B-line						
Pipeline ROW[1,2]	30.58	20.38	0.16	0.14	2.56	1.74
ETWS[1]	15.32	0.00	0.20	0.00	3.64	0.00
Access Roads	6.28	0.00	0.00	0.00	0.46	0.00
Staging Areas	13.72	0.00	0.00	0.00	0.78	0.00
Auburn MAOP Regulation Station	0.03	0.03	0.00	0.00	0.02	0.02
Auburn B-line Launcher	0.07	0.07	0.00	0.00	0.12	0.12
HDD foot traffic travel lanes[3]	0.00	0.00	0.01	0.00	0.02	0.00
Total[4]	66.00	20.48	0.37	0.14	7.60	1.88

[1] Temporary cleared areas consist of that portion of the construction right-of-way and ETWS that would be allowed to revegetate following construction and includes the permanent right-of-way.
[2] Permanently cleared areas consist of those portions of the permanent right-of-way that would be maintained.
[3] Limited hand clearing of woody vegetation would be required along the walking paths of four HDDs. Where vegetation clearing may not be necessary to lay tracking wires Northern would avoid impacts; however, this estimate assumes full clearing.
[4] The totals shown in this table do not include non-vegetated areas such as Industrial/Commercial land; therefore, these numbers will not equal the total area of disturbance for the Project.

Following construction, disturbed areas would be restored to preconstruction conditions to the extent practicable and consistent with an operational pipeline corridor. The 20.4 acres of permanent impacts to agriculture would return to agricultural use/production once the Project is complete.. However, 0.1 acre of forest and 1.9 acres of open land would be permanently converted to developed land. Northern would seed and stabilize disturbed areas in accordance with the Plan and stormwater permit requirements. Actively cultivated agricultural land would not be seeded by Northern, but could be replanted with crops by the landowner. Open uplands would be seeded using seed mixes recommended by landowners or pursuant to NRCS seeding

recommendations. Given Northern's commitment to implement these measures, we conclude the Project would not result in significant impacts on vegetation.

3.2 Wildlife

Wildlife in the Project area include those typically found in the Great Plains ecoregion and agricultural lands in Nebraska. Representative wildlife include beaver, bobcat, coyote, muskrat, prairie dog, whitetail deer, pintail, northern prairie skink, bullsnake, and jackrabbit. The impact of the Project on wildlife species and their habitats would vary depending on the species and habitat present within the proposed Project workspaces. Construction activities, especially clearing vegetation, would reduce feeding, nesting, and cover habitat for some species until vegetation becomes re-established. Mobile species may be disturbed or displaced temporarily from portions of their habitats, and mortality of individuals of less mobile species, such as some small mammals, reptiles, or amphibians, may occur. Construction noise and increased human activity impacts could include abandoned reproductive efforts, displacement, and avoidance of work areas. All construction impacts on wildlife would generally be temporary.

Significant and sensitive wildlife habitats include large tracts of contiguous forest, migration routes and protected federal, state or private wildlife management areas. The U.S. Fish and Wildlife Service (USFWS) has designated critical habitat for the Salt Creek tiger beetle in northern Lancaster County, Nebraska, which is 15 miles northwest of the Project area. Additionally, the Lancaster County Saline Wetlands, which are classified as an Important Bird Area, are approximately eight miles northwest of the Project. No significant or sensitive wildlife habitats occur in the Project area.

Artificial lighting would only be used if necessary to complete critical activities during construction, such as HDD pull backs or tie-ins, and would not be used during operation. If artificial lighting is used, it would be equipped with shields and aimed downward to minimization impact on wildlife.

Open trenches could block movement of wildlife and livestock and there is the possibility that small animals could become trapped in open trench section. Larger animals could become injured upon falling into an open trench. To protect livestock and wildlife from injury from the open trench, the EI would inspect the trench daily prior to construction for wildlife or livestock. Additionally, in locations where wildlife activity is anticipated, Northern would install ramps in the trench if the trench is left open overnight, and would provide gaps in spoil piles and pipe stringing to allow wildlife to exit the construction corridor. Fencing, ramps, and gaps would be assessed on a site-specific basis with the landowner and would be applied based on the presence or absence of livestock and the amount of wildlife activity in a given area. Northern would implement the Plan and Procedures and would minimize the amount and time of open trench to minimize impacts on wildlife and livestock. For these reasons, we conclude that impacts on wildlife would be temporary and minor.

Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (16 U.S. Code 703-711), and Bald and Golden Eagles are additionally protected under the Bald and Golden Eagle Act (16 U.S. Code 668-668d). The Migratory Bird Treaty Act, as amended, prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. Executive Order 13186 (66 Federal Register 3853) was enacted in 2001 to, among other things, ensure that environmental analyses of federal actions evaluate the impacts of federal actions on migratory birds. Executive Order 13186 directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations; avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the USFWS; emphasize species of concern, priority habitats, and key risk factors, and give particular focus to population-level impacts.

Impacts can occur on birds, especially if construction occurs during the migratory bird nesting season. Examples of potential impacts include habitat loss, disruption of foraging adults, and abandonment or destruction of active nests. Pipeline rights-of-way could fragment large areas of intact forest habitat that many birds require. During active construction, noise and human presence would cause birds to avoid the construction area and relocate to other nearby suitable habitat.

Birds of Conservation Concern were identified in the Project area and are listed in table 8. Important Bird Areas are discrete sites that provide essential habitat for one or more bird species and include habitat for breeding, wintering, and/or migrating birds. The Lancaster County Saline Wetlands are approximately eight miles northwest of the Project area and are the nearest Important Bird Area to the Project area. A variety of migratory bird species may occur seasonally within the vicinity of the Project because these areas are located within the Central and Mississippi Flyways for waterfowl. Many species of migratory birds such as ducks, geese, doves, and pigeons, as well as sandhill and whooping cranes, use the flyways during spring and fall migration between the Gulf of Mexico and central Canada. All of these species use open land and wetland areas and could be sensitive to Project activities.

Northern performed raptor surveys for the Project between November 11 and 14, 2019, which included 0.5-mile line-of-site raptor nest surveys. No bald eagle, golden eagle or raptor nests were observed during these surveys.

In Nebraska, the migratory bird nesting season occurs between April 1 to July 15, generally, according to Nebraska Game and Parks Commission (NGPC). Northern plans to initiate construction in May 2021, during the migratory bird nesting season, and could impact nesting birds. However, Northern would implement the following minimization measures:

- No more than seven days before construction activities commence, pre-construction nest surveys for migratory birds would be completed by a qualified avian biologist. The area surveyed would include the proposed workspaces or areas where potentially suitable habitat has been identified.
- If an occupied raptor nest is observed during the survey, construction activities

would not be permitted within a 660-foot buffer of the raptor nest site during the breeding season or until the fledglings have left the area. Northern would complete consultation with the respective USFWS field office and NGPC if an active raptor nest is observed.

- If a nest, other than a raptor nest, is observed during the survey, construction activities would not be permitted within a 100-foot buffer of the nest until consultation with the respective USFWS field office and NGPC occurs. Northern would implement buffers and practices recommended by agencies during the consultation.
- Upon completion, the survey results would be submitted to the USFWS and NGPC as appropriate. If breeding birds are not present, construction can proceed with no restrictions. If breeding birds or active nests are present, additional consultation would be completed.

The potential loss of nests and adult birds relocating to avoid construction is an impact of limited duration that would not result in a substantial or long-term change in migration patterns through the area nor constitute a population-level impact, as areas not maintained for operation would be allowed to return to preconstruction conditions. Based on this, and that the new pipeline and aboveground facilities are largely collocated with existing rights-of-way, we conclude that the Projects would not have a significant impact on migratory birds. Given no raptors were observed during surveys, nest surveys would be conducted prior to any clearing or construction activity, and buffers and agency recommendations would be implemented if raptor nests were observed, the Project would not have a significant impact on species protected by the Bald and Golden Eagle Act.

Table 8: Birds of Conservation Concern Potentially Occurring in the Project Area	
Bird Conservation Region	**Listed Birds**
	Common Name [a] **Scientific Name**
22 (Eastern Tallgrass Prairie)	Pied-billed grebe *Podilymbus podiceps* Horned grebe (nb) *Podiceps auritus* American bittern *Botaurus lentiginosus* Least bittern *Ixobrychus exilis* Black-crowned night-heron *Nycticorax nycticorax* Bald eagle (b) *Haliaeetus leucocephalus* Peregrine falcon (b) *Falco peregrinus* Black rail *Laterallus jamaicensis* Solitary sandpiper (nb) *Tringa solitaria* Upland sandpiper *Bartramia longicauda* Whimbrel (nb) *Numenius phaeopus* Hudsonian godwit (nb) *Limosa haemastica* Marbled godwit (nb) *Limosa fedoa* Red knot (roselaari ssp.) (nb) *Roselaari ssp.* Red knot (rufa ssp.) (a) (nb) *Rufa ssp.* Buff-breasted sandpiper (nb) *Tryngites subruficollis* Short-billed dowitcher (nb) *Limnodromus griseus* Black tern *Chlidonias niger* Common tern *Sterna hirundo* Black-billed cuckoo *Coccyzus erythropthalmus* Short-eared owl (nb) *Asio flammeus* Whip-poor-will *Caprimulgus vociferous* Red-headed woodpecker *Melanerpes erythrocephalus* Northern flicker *Colaptes auratus* Acadian flycatcher *Empidonax virescens* Loggerhead shrike *Lanius ludovicianus* Bell's vireo (c) *Vireo bellii* Bewick's wren (bewickii ssp.) *Thryomanes bewickii bewickii* Wood thrush *Hylocichla mustelina* Blue-winged warbler *Vermivora cyanoptera* Cerulean warbler *Setophaga cerulea* Prothonotary warbler *Protonotaria citrea* Kentucky warbler *Oporornis formosus* Field sparrow *Spizella pusilla* Grasshopper sparrow *Ammodramus savannarum ammolegus* Henslow's sparrow *Ammodramus henslowii* Smith's longspur (nb) *Calcarius pictus* Dickcissel *Spiza Americana* Rusty blackbird (nb) *Euphagus carolinus*

[a] (a) Endangered Species Act candidate, (b) Endangered Species Act delisted, (c) non-listed subspecies or population of Threatened or Endangered species, (d) Migratory Bird Protection Act protection uncertain or lacking, (nb) non-breeding in this Bird Conservation Region.

3.3 Fisheries

Fisheries and aquatic habitats in the Project area are primarily characterized by water temperature (warmwater or coldwater) and flow (perennial, intermittent, ephemeral). As discussed in section B.2.2 of this EA, Northern identified five intermittent waterbodies, one perennial waterbody, and one ephemeral waterbody that would be crossed by the proposed B-line. All waterbodies crossed are classified as warmwater B streams. All waterbodies would be crossed by HDD and no essential fish habitat was identified within the Project area. However, three federally listed or state-listed fish species have the potential to occur near the Project area including the pallid sturgeon, lake sturgeon, and sturgeon chub. These species are further discussed in section B.3.4.

The successful use of the HDD method results in no impact on the banks, bed or water quality of the waterbody being crossed. However, the possibility exists for drilling mud to reach the surface via an inadvertent release. An inadvertent release into waterbodies could affect fisheries or other aquatic organisms by an increase in turbidity and/or settling and temporarily inundating the habitats used by these species. Increased turbidity in high concentrations could also physically damage fish gills. Turbidity could also affect fish behavior including their ability to hunt or avoid predators. A decrease in water quality due to turbidity would be a short-term effect that may last hours to days before sediment settles. Additionally, bentonite clay from a possible inadvertent release could settle in the interstitial spaces between large substrate particles. These interstitial spaces are important for invertebrates and the egg and fry life stages of fish, fine grain sediment could smother organisms living in these habitats. Northern conducted hydrofracture risk assessments and would refine those assessments based on the HDD contractor's execution and fluid management plans to minimize the risk of an inadvertent return. Northern would also implement measures outlined in its HDD Plan (see discussion in section B.1.1 of this EA) to monitor, report, and remediate inadvertent releases. Those measures include ceasing drilling operations immediately at the first sign of an inadvertent return and implementing response and clean-up efforts.

A release of fuel or hazardous material into a waterbody could cause direct mortality to aquatic organisms and potentially to wildlife that use the waterbody. Northern would implement its SPCC Plan to prevent, contain, and clean-up spills and address necessary precautions during material storage. In addition, to minimize potential erosion and sedimentation into the waterbodies from nearby workareas, Northern would implement temporary and permanent erosion and sediment control measures (see discussion in section B.2.2 of this EA).

Northern would implement measures from the Plan and Procedures, its SWPPP, HDD Plan, and its SPCC Plan to prevent and reduce impacts on nearby waterbodies and fisheries. We have reviewed these measures and find them acceptable. Therefore, we conclude that the Project would not have any significant impacts on fisheries and aquatic resources.

3.4 Special Status Species

Federal

Federal agencies are required under section 7 of the Endangered Species Act, as amended, to ensure that any actions authorized, funded, or carried out by the agency would not jeopardize the continued existence of a federally listed endangered or threatened species, or result in the destruction or adverse modification of the designated critical habitat of a federally listed species. The Project *may affect, but is not likely to adversely affect* the northern long-eared bat (NLEB) and whooping crane. In a letter dated August 21, 2020, the Wood River, Nebraska Ecological Services USFWS Office concurred with these determinations, and stated the Project would be unlikely to have a significant environmental impact on the trust resources under its authority. The Project would have *no effect* on Northern river otter, Southern flying squirrel, interior least tern, piping plover, pallid sturgeon, lake sturgeon, sturgeon chub, Salt Creek tiger beetle, western prairie fringed orchid, saltwort, and American ginseng.

No further Endangered Species Act consultation is necessary for the Project. Table 9 summarizes the status, habitats, and our determinations of effect for all federal and state-listed species that could potentially occur in the Project area.

Whooping cranes

Whooping cranes primarily roost in shallow, seasonally and semi-permanently flooded palustrine wetlands and wide, sandy rivers adjacent to agricultural land. The wild population of whooping cranes that migrate through the Project area breeds in Wood Buffalo National Park in Alberta and the Northwest Territories, Canada. During migration (late March to early May; mid-September to late October), whooping cranes use a variety of habitats to forage and roost. The Project area is located outside of the primary migration corridor and designated critical habitat of the whooping crane in Nebraska; however, there are confirmed occurrence records in Lancaster County, Nebraska.

The Project area crosses agricultural land adjacent to wetlands. These wetlands and adjacent agricultural lands could potentially be used as stopover habitat. Construction of the Project would begin in spring 2021 and finish in the fall, which is within the spring and fall migratory periods for this species. Based on construction occurring within the timeframe of the crane's occupancy, we have determined that the Project *may affect, but is not likely to adversely affect* the whooping crane. The USFWS concurred with this determination on August 21, 2020.

Northern Long-Eared Bat

The NLEB is a habitat generalist, and roost tree selection appears to be opportunistic; the species uses a variety of tree sizes and species. Migration to summer habitat occurs between mid-March and mid-May. The species is most likely to be found in forested wetlands and riparian areas. They are known to be present in the Project area during the summer months, primarily roosting either singly or in colonies under loose bark or in crevices and hollows in both live trees and snags. Potential impacts on individual bats may occur if clearing or construction

Table 9: Special Status Species Potentially Occurring in the Project Area				
Common name (*Scientific Name)*	**Federal Status**	**State Status**	**Habitat description**	**Project Impacts and Habitat Assessment**
Mammals				
Northern long-eared bat (*Myotis septentrionalis*)	Threatened	Threatened	Over winters in caves and mines; summer habitat includes tree cavities and crevices, loose bark of live or dead trees	*May affect, not likely to adversely affect*; habitat present
Northern River Otter (*Lontra Canadensis)*	N/A	Threatened	Rivers that flow through Nebraska's tallgrass, mixed grass, and shortgrass prairies, and Sandhills around streams, lakes, ponds, marshes and swamps	*No impact*; Outside current range, no suitable habitat in Project area
Southern flying squirrel (*Glaucomys volans)*	N/A	Threatened	Existing cavities such as old woodpecker nests and holes in trees found in hardwood forests along the southern portion of the Missouri River	*No impact*; No suitable habitat in Project area
Birds				
Whooping crane (*Grus American*)	Endangered	Endangered	Roosts in shallow, seasonally and semi-permanently flooded palustrine wetlands and wide, sandy rivers adjacent to agricultural land; does not breed in Nebraska	*May affect, not likely to adversely affect;* foraging and roosting habitat present, potential for migrating individuals
Piping plover (*Charadrius melodus)*	Threatened	N/A	Wide, sparsely vegetated beaches and barren river sandbars	*No effect;* No suitable habitat in Project area
Interior least tern *(Sterna antillarum)*	Endangered	Endangered	Nests on barren river sandbars, sand and gravel pits, lake and reservoir shorelines, and occasionally gravel rooftops	*No effect*; No suitable habitat in Project area
Fish				
Pallid sturgeon *(Scaphirhynchus albus)*	Endangered	Endangered	Benthic environment associated with swift waters of large turbid, free-flowing rivers with braided channels, dynamic flow patterns, periodic flooding of terrestrial habitats, and requiring extensive micro habitat diversity	*No effect*; No suitable habitat in Project area
Lake sturgeon (*Acipenser fulvescens)*	N/A	Threatened	Large river and lake systems	*No impact*; No suitable habitat in Project area
Sturgeon Chub *(Macrhybopsis gelida)*	N/A	Endangered	Fast, free flowing rivers with high turbidity and low visibility	*No impact*; No suitable habitat in Project area
Invertebrates				

Table 9: Special Status Species Potentially Occurring in the Project Area				
Common name (*Scientific Name)*	**Federal Status**	**State Status**	**Habitat description**	**Project Impacts and Habitat Assessment**
Salt Creek tiger beetle (*Cicindela nevadica lincolniana*)	Endangered	Endangered	Mesic to wet unplowed tallgrass prairies and meadows, old fields, roadside ditches	*No effect*; No suitable habitat in Project area
Plants				
Western prairie fringed orchid *(Platanthera praeclara)*	Threatened	Threatened	Moist tallgrass prairie and sedge meadows. Big and little bluestem, switchgrass, Indiangrass, and northern reedgrass are common associates	*No effect*; No suitable habitat in Project area
Saltwort (*Panax quinquefolius*)	N/A	Endangered	Saline wetlands with heavy, clay soils. Restricted to the Rock Creek and Salt Creek watersheds	*No impact*; No suitable habitat in Project area
American ginseng *(Panax quinquefolium)*	N/A	Threatened	The understory of eastern deciduous forest with rich soils	*No impact*; No suitable habitat in Project area

takes place when the species is breeding, foraging, or raising pups in its summer habitat. Bats may be injured or killed if occupied trees are cleared during this active window, and the species may be disturbed during clearing or construction activities due to noise or human presence.

Northern proposes to complete tree clearing in May 2021 to avoid potential impacts on bats. Lancaster County, Nebraska is within the White-Nose Syndrome Zone; therefore, the Project falls within the white-nose syndrome buffer zone per the Final 4(d) Rule. The NGPC review did not indicate that the Project is within 0.25 mile of a known, occupied hibernaculum, or within 150 feet of known, occupied maternity roost trees. However, NLEB may occur in the Project area.

We have determined that the Project *may affect but is not likely to adversely affect* the NLEB and would not cause prohibited take. The NLEB 4(d) Rule Streamlined Consultation Form was submitted to the USFWS by Northern on May 20, 2020 and no response was received in 30 days, which completes consultation. Any incidental take of the NLEB is therefore not prohibited by the Final 4(d) Rule. Furthermore, USFWS concurred with our determination on August 21, 2020.

State

Northern used the NGPC Conservation and Environmental Review Tool report and reviewed the Nebraska Natural Heritage Database county lists for the possible presence of state-listed species in the Project area. According to the reports generated on January 18, 2020, the NLEB and western prairie fringed orchid could occur in the Project area.

NGPC recommended Northern avoid clearing trees or roosting structures between June 1 and July 31. Northern would clear trees between April and May. NLEB is further addressed above under federally-listed species.

NGPC recommended that surveys during the flowering period of Jun 15 – July 15 occur for the western prairie fringed orchid. However, on August 19, 2020, NGPC indicated in an email that no adverse effect is likely due to the lack of suitable habitat in the Project area. Field surveys conducted for the Project between November 11 and 14, 2019, did not identify any remnant tallgrass prairie dominated by bluestem, switch grass, Indiangrass or northern reedgrass. No sedge meadows containing appropriate habitat for the western prairie fringed orchid were identified in the Project area. Therefore, impacts on state-listed species would be sufficiently minimized and not significant.

4. Land Use, Recreation, and Visual Resources

4.1 Land Use

Land use categories were identified in the Project area using field observations made in 2019 and 2020 and interpretation of 2018 and 2019 aerial imagery, and consist of agriculture, upland forest/woodland, open land, residential, and industrial/commercial. The land use type that would be predominantly disturbed during construction and operation of the Project is the agricultural land category. The estimated total proposed acreage to be disturbed for construction of all Project facilities is 74.2 acres. The total permanent acreage required for operation of all Project facilities is 22.5 acres, including the pipelines combined with the aboveground facilities. A summary of the land use categories affected by construction and operation of the Project is provided in table 10.

Agricultural

Agriculture is the dominant land use that would be impacted by the Project. About 66.0 acres of agricultural land would be impacted by construction activities, including temporary workspace, ETWS, staging areas, aboveground facilities and the access roads. About 20.5 acres of cropland would be affected by the permanent operation of the pipeline and aboveground facilities with about 0.1 acres permanently converted to industrial/commercial land use. The Project would require a new right-of-way easement of 13.8 acres in agricultural land. No specialty crops, including nurseries, vineyards, orchards, citrus groves, dairies, aquaculture or tree farms were identified near Project facilities. Agricultural activities would be allowed to continue over the permanent pipeline rights-of-way following restoration.

Agricultural land in the construction area generally would be taken out of production for one growing season while Project facilities are constructed. The primary impacts on agricultural land would include temporary reductions in agricultural production in areas of cultivated cropland and potential reduced yields of future crops. Northern would restore disturbed areas to their original condition to the extent practicable and consistent with an operational pipeline right-of-way. Northern would employ the erosion and sediment control and restoration measures (e.g., soil stabilization, topsoil segregation, compaction avoidance) detailed in the Plan to minimize

and mitigate impacts on agricultural lands. Revegetation of agricultural areas would be considered successful when crop growth and vigor are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise. Problems with topsoil replacement, soil-profile compaction, rocks, and drainage and irrigation systems resulting from construction in active agricultural areas would continue to be monitored and corrected until restoration is successful. Resumption of agricultural operations following Project construction and/or planting of a cover crop would aid in the restoration of soil structure and productivity that could take several years to achieve success, depending on site-specific conditions and land use practices. Northern proposes to compensate landowners for temporary or permanent crop loss resulting from construction and operation of the Project. Based on these measures, we conclude impacts on agricultural areas would be minimized to the extent practical.

Forested/Woodland

About 0.4 acre of upland forest would be temporarily impacted by the construction of the Project. No forested land would be impacted by the construction or operation of the Project aboveground facilities.

Limited hand clearing of woody vegetation would be required along the walking paths of four HDDs for guidewire, and includes some riparian hardwoods and fence line vegetation. Northern would minimize impacts and only trim where needed to lay tracking wire, but the estimates included in table 10 include an assumption of full clearing.

While trees would be cleared within the construction workspace, woody vegetation would be allowed to regrow in areas only used as temporary workspace. A total of about 0.1 acre of forested land would be permanently removed by routine vegetation maintenance within the 50-foot-wide easement in upland areas. Based on these measures, we conclude that impacts on forest/woodland areas would not be significant.

Open Land

About 7.6 acres of open land would be temporarily impacted by construction of the Project, including fallow land, or former cropland and/or other disturbed areas. Open land also includes mowed areas of mixed weeds and grass along roadsides and existing access roads. About 1.9 acres of open land would be impacted by the permanent operation of the pipeline during routine maintenance.

Table 10: Acreage Affected by Construction and Operation of the Project

Facility	Agricultural		Forest/ Woodland		Open Land		Residential		Industrial/ Commercial		Total	
	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation
Pipeline ROW[1]	30.58	20.38	0.16	0.14	2.56	1.74	0.00	0.00	0.00	0.00	33.33	22.26
Within Existing Easement	8.18	6.59	0.01	0.05	0.38	0.28	0.00	0.00	0.00	0.00	8.62	6.92
Outside Existing Easement	22.40	13.79	0.11	0.09	2.18	1.46	0.00	0.00	0.00	0.00	24.71	15.34
ETWS	15.32	0.00	0.20	0.00	3.64	0.00	0.00	0.00	0.08	0.00	19.24	0.00
Within Existing Easement	3.50	0.00	0.04	0.00	0.67	0.00	0.00	0.00	0.02	0.00	4.23	0.00
Outside Existing Easement	11.82	0.00	0.16	0.00	2.97	0.00	0.00	0.00	0.06	0.00	15.01	0.00
Temporary Access Roads[2]	6.28	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.03	0.00	6.77	0.00
HDD foot traffic travel lanes[3]	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Staging Areas	13.72	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.07	0.00	14.57	0.00
Within Existing Easement	0.38	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.40	0.00
Outside Existing Easement	13.34	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.07	0.00	14.17	0.00
Auburn MAOP Regulation Station	0.03	0.03	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.05	0.05
Within Existing Easement	0.02	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.03	0.03
Outside Existing Easement	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.02
Auburn B-line Launcher	0.07	0.07	0.00	0.00	0.12	0.12	0.00	0.00	0.01	0.01	0.20	0.20
Within Existing Easement	0.06	0.06	0.00	0.00	0.12	0.12	0.00	0.00	0.01	0.01	0.19	0.19
Outside Existing Easement	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
PROJECT TOTAL												
Within Existing Easement	12.14	6.67	0.10	0.05	1.20	0.41	0.00	0.00	0.03	0.01	13.47	7.14
Outside Existing Easement	53.86	13.81	0.29	0.09	6.38	1.47	0.00	0.00	0.16	0.00	60.69	15.37
Project Total	66.00	20.48	0.39	0.14	7.58	1.88	0.00	0.00	0.19	0.01	74.16	22.51

[1] Construction right-of-way is based on 75-foot-wide corridor in uplands and wetlands. Operational right-of-way is based on 50-foot-wide corridor in uplands and 10-foot-wide corridor in wetlands.
[2] All temporary access roads are located outside of existing easement.
[3] No clearing would be required for HDD foot traffic travel lanes in agricultural and open lands.

Temporary impacts on open land are expected along the proposed construction corridor during pipeline installation due to grading, trenching, backfilling, and restoration. However, Northern's use of its SWPPP and our Plan would minimize impacts on open land crossed by the Project. Temporary workspace and ETWS areas would be allowed to revert to open land use after completion of construction. In upland areas, routine vegetation maintenance would be conducted within a 50-foot-wide strip of the permanent rights-of-way with a frequency of not more than once every three years. In addition, a 10-foot-wide strip over the pipeline could be maintained in an herbaceous state by mowing, cutting and trimming on an annual basis. Based on these measures, we conclude the Project's impacts on open land would not be significant.

Industrial/Commercial Land

The Project's direct impacts on industrial/commercial/roads land use types include impacts within the property lines of existing Northern facilities and existing roads and road rights-of-way during Project construction. Project construction would temporarily affect 0.2 acres of industrial/commercial land and operation would permanently impact 0.01 acre of industrial/ commercial land.

Road crossings would be completed using conventional boring techniques or HDD, which would avoid impacts on the road and road rights-of-way. Industrial land used for ETWS would be restored to pre-construction condition and use. Most impacts on industrial/commercial land would be temporary and minor.

Wetlands

Wetlands crossed by the Project are defined as PEM wetlands. Although these wetlands are within the Project area, they would be crossed by HDD and would not be impacted during construction or operation of the Project so are not included in table 10.

4.2 Residential Areas

No residential land would be affected by construction or operation of the Project facilities. No planned residential or commercial areas were identified in the vicinity of the Project.

4.3 Recreation and Special Interest Areas

No specialized land uses or designated national or state Wild and Scenic Rivers; national parks, national forests, state forests, and other lands owned or managed by federal or state agencies; natural or scenic areas and parks; monuments, memorials, or seashores; Coastal Zone Management areas; or registered natural landmarks, are within the Project area (American Trails 2019; National Park Service 2018; NGPC 2020a, 2020b, 2020c; Wilderness Connect 2020).

A private turf airstrip, Korver Airport, is crossed by the Project at MP 1.40 on the west side of the private driveway (Federal Aviation Administration 2020). The proposed route would not impede use of the airstrip because Northern would utilize HDD construction techniques to

cross the airstrip. The airstrip appears to be occasionally used for aerial fertilization activities. Northern has contacted the airstrip owner to coordinate the proposed crossing.

4.4 Visual Resources

No special or unique features or viewsheds are present in or near the Project area. Lands crossed by the Project are relatively flat with rural development, crop fields, numerous roadways, and utility rights-of-way and facilities. The Project would be on private lands where federal or state visual management standards do not apply.

Visual impacts associated with the Project pipelines would be greatest during construction, with both heavy equipment and disturbed soils present along the rights-of-way. Most impacts would be short-term and temporary, primarily limited to areas requiring extra workspaces, and would be remediated once post-construction restoration and revegetation have been completed. Permanent visual changes would involve cleared permanent pipeline rights-of-way in forested areas, the installation of pipeline markers, and the permanent aboveground facilities along the pipeline rights-of-way. To minimize impacts on visual resources, Northern aligned the proposed pipeline routes, where feasible, adjacent to existing pipeline and road rights-of-way. Northern also attempted to align the pipeline to avoid aesthetic features to the extent possible. Therefore, construction of the pipeline and aboveground would cause temporary and permanent visual impacts, however, impacts would not be significant.

4.5 Road Crossings and Traffic

Overall the project would be constructed in rural areas with typically low-traffic flow patterns. Construction vehicles entering the rural roads from the construction sites would encounter few other vehicles in the area. Northern would avoid distrupting traffic on public roads by boring or HDD construction methods and does not anticipate that road closures or traffic detours would be required. Northern would coordinate with local highway departments in advance of construction of each Project component. Northern does not anticipate the need for any traffic control plans as this time as all public roads would remain open during construction. Construction activities and traffic ingress/egress along the Project would generally take place Monday through Saturday during daylight hours (7 a.m. to 7 p.m.). Additionally, Northern would coordinate with local authorities, as required by local and/or state road permits, before construction begins on the Project to ensure that both Northern and representatives of the local authorities have appropriate contact information.

5. Cultural Resources

In addition to accounting for impacts on cultural resources under NEPA, Section 106 of the National Historic Preservation Act (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), and to afford the Advisory Council on Historic Preservation an opportunity to comment on the undertaking. The Section 106 process is coordinated at the state level by the State Historic Preservation Office (SHPO). Northern, as a non-federal party, is assisting FERC in meeting our obligations under Section 106 and its implementing regulations at

36 CFR 800.

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)). Northern defined the Project APE as the proposed Project area (Auburn A-line), including the new looping pipeline (Auburn B-line). To that end, Northern conducted cultural resources surveys on 325.3 acres, including a 500-foot buffer centered on each facility (Ryan et al. 2020). The APE is sufficient to account for all the potential direct and indirect effects to historic properties by the Project.

5.2 Cultural Resources Investigations

To identify historic properties within the APE and to account for any effects to those properties by the Project, Northern conducted a cultural resources investigation which included background research and a historic architectural survey (Ryan et al. 2020). Background research indicated three previous cultural resources surveys were completed in the Auburn A-line study area. No cultural resources were identified as a result of these investigations. Historic maps and aerial imagery examined during background investigations revealed two unrecorded cultural resources: a cemetery and historic trail. Northern found no trace of the historic trail and recommends the section of pipeline adjacent to the cemetery be abandoned in place. The terms of the abandonment should prohibit ground-disturbing operations within the buffer zone.

There were four cultural resources surveys previously completed in the Auburn B-line study area. None of the studies identified any cultural resources within the Auburn B-Line Project area. Northern conducted a historic architectural survey to identify architectural resources within the Project APE. The field survey included a visual assessment, site walkover, and photographic documentation of historic architectural resources. Field investigations encountered an occupied historic farmstead during survey for Access Road 01. No other historic architectural resources were identified during the survey. Northern recommended that the occupied historic homestead lacked the qualities of significance as an historic property.

On May 20, 2020, Northern recommended a finding of "no historic properties present" for the Project. On May 21, 2020, the SHPO concurred with Northern's assessment by email, determining that no historic properties within the APE would be affected by the Project. We agree.

5.3 Tribal Consultation

Northern contacted the following Native American tribes regarding the Project: Apache Tribe of Oklahoma, Cheyenne and Arapaho Tribes, Iowa Tribe of Kansas and Nebraska, Iowa Tribe of Oklahoma, Omaha Tribe of Nebraska, Otoe-Missouria Tribe of Indians, Pawnee Nation of Oklahoma, Ponca Tribe of Nebraska, Sac & Fox Nation of Missouri in Kansas and Nebraska, Sac and Fox Nation of the Mississippi in Iowa, and the Sac & Fox Nation, Oklahoma. Northern provided to the tribes a Project information package, a cultural resources assessment, and a draft

unanticipated discoveries plan. FERC sent the Project NOI to these same tribes. On August 26, 2020, FERC also sent a letter providing Project details for the proposed action.

On June 25, 2020, the Pawnee Nation of Oklahoma responded by letter indicating that "the proposed project should have no potential to adversely affect the cultural landscape of the Pawnee Nation." On October 6, 2020 the Omaha Tribe of Nebraska commented by email, concurring with the Pawnee Nation of Oklahoma. However, the Omaha had concerns of historical hunting and camping areas in the vicinity and requested an opportunity to conduct a walk-through of the area with tribal monitors. Per Northern's December 7, 2020 filing, a site visit is scheduled for December 10, 2020.

There have been no additional comments to date.

5.4 Unanticipated Discoveries Plan

Northern developed a Project-specific plan titled: Unanticipated Discoveries Plan for Archaeological Resources and Human Remains in Nebraska, which outlines 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 SHPO, and tribes regarding discoveries. The plan was submitted to the SHPO and to FERC. The SHPO found the plan acceptable. FERC requested minor revisions to the plan. Northern provided a revised plan which we find acceptable.

5.5 Compliance with the National Historic Preservation Act

FERC has completed its compliance requirements with Section 106 of the NHPA for the Project.

6. Air Quality and Noise

6.1 Air Quality

Air quality would be affected by construction and operation of the Project. During construction, short-term emissions would be generated from the usage of equipment, land disturbance, and increased traffic from worker and delivery vehicles for all locations. Other than minor fugitive emissions associated with the pipeline and regulator station, no operational emissions would be associated with the Project.

Ambient air quality is protected by federal and state regulations. Under the Clean Air Act (CAA) and its amendments, the EPA has established National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone, particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and sulfur dioxide (SO_2).[9] The Nebraska Department of Environmental Quality (NDEQ) has the authority to implement permit programs under the CAA for the proposed Project facilities.

[9] The NAAQS can be found at the following website: https://www.epa.gov/criteria-air-pollutants/naaqs-table.

These standards incorporate short-term (hourly or daily) levels and long-term (annual) levels to address acute and chronic exposures to the pollutants, as appropriate. The NAAQS include primary standards, which are designed to protect human health, including the health of sensitive subpopulations such as children and those with chronic respiratory problems. The NAAQS also include secondary standards designed to protect public welfare, including economic interests, visibility, vegetation, animal species, and other concerns not related to human health.

Air quality control regions (AQCRs) are areas established by the EPA and local agencies for air quality planning purposes, in which State Implementation Plans describe how the NAAQS would be achieved and maintained. The AQCRs are intra- and interstate regions such as large metropolitan areas where improvement of the air quality in one portion of the AQCR requires emission reductions throughout the AQCR. Each AQCR, or smaller portion within an AQCR (such as a county), is designated, based on compliance with the NAAQS, as attainment, unclassifiable, maintenance, or nonattainment, on a pollutant-by-pollutant basis. Areas in compliance or below the NAAQS are designated as attainment, while areas not in compliance or above the NAAQS are designated as nonattainment. Areas previously designated as nonattainment that have since demonstrated compliance with the NAAQS are designated as maintenance for that pollutant. Maintenance areas may be subject to more stringent regulatory requirements to ensure continued attainment of the NAAQS. Areas that lack sufficient data to determine attainment status are designated unclassifiable and treated as attainment areas. All Project components occur within areas that are designated as attainment for all criteria pollutants.

6.2 Permitting/Regulatory Requirements

Prevention of Significant Deterioration and Nonattainment New Source Review

The Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review air permit programs are designed to protect air quality when air pollutant emissions are increased either through the construction of new major stationary sources or major modifications to existing stationary sources. The NDEQ administers the PSD and Nonattainment New Source Review permitting programs in its state. Operational fugitives from the pipeline and regulator station would be negligible, and therefore, these programs do not apply to the Project.

Title V Permitting

Title V is an operating air permit program run by each state for each facility that is considered a "major source." Emissions associated with the Project would result from construction activities and would not result in any new sources, and thus, this program does not apply to the Project.

New Source Performance Standards

The EPA promulgates New Source Performance Standards to establish emission limits and fuel, monitoring, notification, reporting, and recordkeeping requirements for stationary source types or categories that cause or contribute significantly to air pollution. Emissions

associated with the Project are from construction activities and would not result in any new sources, and therefore, this program does not apply to the Project.

National Emission Standards for Hazardous Air Pollutants

The 1990 CAA Amendments established a list of 189 hazardous air pollutants (HAPs), resulting in the promulgation of National Emission Standards for Hazardous Air Pollutants. The National Emission Standards for Hazardous Air Pollutants regulate HAP emissions from specific source types located at major or area sources of HAPs by setting emission limits, monitoring, testing, record keeping, and notification requirements. This program is not applicable because the emissions associated with the Project are from construction activities and no new permanent sources of emissions are proposed. Only minimal fugitive emissions from the pipeline and ancillary facilities would occur during operation of the Project.

State Regulations and County Ordinances

The NDEE states that Fugitive Dust Title 129 Chapter 32 regulations shall apply to all demolition, grading and construction activities, and a construction permit may be required for equipment. Northern would comply with all permits and regulations. No ordinances from Otoe or Lancaster counties apply to the Project.

General Conformity

The EPA promulgated the General Conformity Rule to implement the conformity provision of Title I, Section 176(c)(1) of CAA. Section 176(c)(1) requires that the federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to, an approved CAA implementation plan.

The General Conformity Rule is codified in Title 40 CFR Part 51, Subpart W and Part 93, Subpart B, Determining Conformity of General Federal Actions to State or Federal Implementation Plans. A conformity determination must be conducted by the lead federal agency if a federal action's construction and operational activities is likely to result in generating direct and indirect emissions that would exceed the conformity threshold (*de minimis*) levels of the pollutant(s) for which an air basin is in nonattainment or maintenance. According to the conformity regulations, emissions from sources that are subject to any Nonattainment New Source Review or PSD permitting/licensing (major or minor) are exempt and are deemed to have conformed.

The General Conformity Rule was developed to ensure that federal actions in nonattainment and maintenance areas do not impede states' attainment of the NAAQS. The lead federal agency must conduct a conformity determination if a federal action's construction and operational activities is likely to result in generating direct and indirect emissions that would exceed the General Conformity Applicability threshold levels of the pollutant(s) for which an air basin is designated nonattainment or maintenance. Section 176(c)(1) states that a federal agency cannot approve or support any activity that does not conform to an approved State

Implementation Plan. Conforming activities or actions should not, through additional air pollutant emissions:

- cause or contribute to new violations of the NAAQS in any area;
- increase the frequency or severity of any existing violation of any NAAQS; or
- delay timely attainment of any NAAQS or interim emission reductions.

The General Conformity Rule entails both an applicability analysis and a subsequent conformity determination, if deemed necessary. A General Conformity Determination must be completed when the total direct and indirect emissions of a project would equal or exceed the specified pollutant thresholds on a calendar year basis for each nonattainment or maintenance area.

As noted earlier, the Project facilities would be constructed and operated within counties in attainment for all criteria pollutants, therefore, a General Conformity Determination would not be required.

Greenhouse Gases

Greenhouse gases (GHGs) occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. GHGs are gases that absorb infrared radiation in the atmosphere, and an increase in emissions of these gasses has been determined by the EPA to endanger public health and welfare by contributing to global climate change. The most common GHGs emitted during fossil fuel combustion and natural gas transportation are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Emissions of GHGs are typically expressed in terms of CO_2 equivalents (CO_{2e}), where the potential of each gas to increase heating in the atmosphere is expressed as a multiple of the heating potential of CO_2 over a specific timeframe, or its global warming potential (GWP).[10] The 100-year GWP of CO_2 is 1, CH_4 is 25, and N_2O is 298. During construction and operation of the Project, these GHGs would be emitted from non-electrical construction and operational equipment, as well as from fugitive CH_4 leaks from the pipeline and aboveground facilities.

On November 8, 2010, the EPA signed a rule that finalizes reporting requirements for the petroleum and natural gas industry under 40 CFR 98. Subpart W of 40 CFR 98 requires petroleum and natural gas facilities that emit 25,000 metric tons or more of CO_{2e} per year to report annual emissions of specified GHGs from various processes within the facility. Construction emissions are not covered under the GHG Reporting Rule, but those related to the proposed Project are expected to be well below the 25,000 metric tons reporting threshold. Operational emissions from the proposed facilities are likewise not expected to exceed this threshold and be reported to the EPA. The EPA has expanded its regulations to include the

[10] These GWPs are based on a 100-year time period. We have selected their use over other published GWPs for other timeframes because these are the GWPs the EPA has established for reporting of GHG emissions and air permitting requirements. This allows for a consistent comparison with these regulatory requirements.

emission of GHGs from major stationary sources under the PSD program. The EPA's current rules require that a stationary source that is major for a non-GHG-regulated New Source Review pollutant must also obtain a PSD permit prior to beginning construction of a new or modified major source with mass-based GHG emissions equal to or greater than 100,000 tons per year (tpy) and significant net emission increases in units of CO_{2e} equal to or greater than 75,000 tpy. There are no NAAQS or other significance thresholds for GHGs.

Construction Emissions

Construction of the Project would result in short-term increases in emissions of some pollutants from the use of fossil fuel-fired equipment and the generation of fugitive dust due to earthmoving activities. Some temporary indirect emissions, attributable to construction workers commuting to and from work sites during construction and from on-road and off-road construction vehicle traffic, could also occur. Large earth-moving equipment and other mobile equipment are sources of combustion-related emissions, including criteria pollutants (i.e., NOx, CO, volatile organic compounds [VOC], SO_2, and PM_{10}).

Northern would mitigate exhaust emissions from construction equipment by requiring contractors to meet all air quality regulations and emission standards associated with each piece of equipment. Fugitive dust emissions during construction would be mitigated by measures outlined in Northern's BMP's, which we reviewed and find acceptable. These measures include spraying water on unpaved areas subject to frequent vehicle traffic, reducing vehicle speed, and removal of material from roadways. Construction related emission estimates were based on a typical construction equipment list, hours of operation, and vehicle miles traveled by the construction equipment and supporting vehicles for each area of the Project. These emission-generating activities would include earthmoving, construction equipment exhaust, on-road vehicle traffic, and off-road vehicle traffic. Northern conservatively utilized emission factors from EPA's AP-42. These emissions present the combined emissions for each facility of construction equipment combustion, on-road vehicle travel, off-road vehicle travel, and earthmoving fugitives. Construction is estimated to occur between May and November 2021. The air quality impacts of Project construction would be considered short-term and would be further minimized by Northern's implementation of fugitive dust control measures. Following construction, air quality would revert back to previous conditions. Construction emissions for the Project are presented in table 11. Given the temporary nature of construction, and the intermittent nature of construction emissions, we find that emissions from construction-related activities for the Project would not be expected to cause or significantly contribute to a violation of any applicable ambient air quality standard, or significantly affect local or regional air quality.

Operational Emissions

Operational emissions would be limited to fugitives from the pipeline and regulator station ancillary facilities. These emissions are provided in table 12.

Description	Table 11: Construction Emissions (tpy)							
	Criteria Pollutants						CO_{2e}	Total HAPS
	NO_x	CO	VOC	SO_2	PM_{10}	$PM_{2.5}$		
Engine Emissions – Pipeline Construction								
Lancaster County, NE	39.9	8.1	2.3	0.0	1.3	1.3	1,846	0.5
Otoe County, NE	12.4	2.5	0.7	0.0	0.4	0.4	574	0.1
Unpaved Roads[1]								
Lancaster County, NE	-	-	-	-	6.8	0.7	-	-
Otoe County, NE	-	-	-	-	2.1	0.2	-	-
Earthmoving[1]								
Lancaster County, NE	-	-	-	-	2.5	0.3	-	-
Otoe County, NE	-	-	-	-	0.6	0.2	-	-
Line Abandonment								
Lancaster County, NE	-	-	1.8	-	-	-	509	-
Otoe County, NE	-	-	0.6	-	-	-	158	-
Engine Emissions – Regulation Station								
Lancaster County, NE	1.4	0.4	0.1	0.0	0.1	0.1	64	0.0
Otoe County, NE	0.4	0.1	0.0	0.0	0.0	0.0	20	0.0
Total Emissions								
Lancaster County, NE	41.3	8.5	2.9	0.0	11.4	2.4	2,419	0.5
Otoe County, NE	12.8	2.6	0.9	-	2.5	0.6	752	0.1
TOTAL PROJECT	54.1	11.1	3.8	-	13.9	3.0	3,171	0.6

[1] Unpaved roads and earthmoving are fugitive dust emissions from these operations; engine emissions from the equipment are included in engine emissions

Table 12: Operational Fugitive Emissions (tpy)		
Description	Annual Emissions (tons per year)	
	VOC	CO2e
Auburn B-line launcher	0.00	20
Auburn MAOP regulation station	0.01	1
Annual total	0.01	21

Considering the minimal operational emissions associated with the Project, we conclude that operational emissions would not have a significant impact on air quality.

6.3 Noise

Construction and operation of the Project would affect the local noise environment in the Project area. The ambient sound level of a region, which is defined by the total noise generated within the specific environment, is usually comprised of sounds emanating from both natural and artificial sources. At any location, both the magnitude and frequency of environmental noise

may vary considerably over the course of the day and throughout the week, in part due to changing weather conditions and the impacts of seasonal vegetative cover.

The EPA published its Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Two measurements used by some federal agencies to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level (L_{eq}) and the day-night sound level (L_{dn}). The L_{eq} is an A-weighted sound level containing the same sound energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Specifically, in the calculation of the L_{dn}, late night to early morning (10:00 p.m. to 7:00 a.m.) noise exposures are penalized +10 decibels (dB), to account for people's greater sensitivity to sound during the nighttime hours. The A-weighted scale (dBA) is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. For an essentially steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, the L_{dn} is approximately 6.4 dB above the measured L_{eq}.

The EPA has indicated that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted this criterion and use it to evaluate the potential noise impacts from the proposed Project at noise sensitive areas (NSAs), such as residences, schools, or hospitals. Also, in general, a person's threshold of perception for a perceivable change in loudness on the A-weighted sound level is about 3 dBA, whereas a 5 dBA change is clearly noticeable, and a 10 dBA change is perceived as either twice or half as loud.

There are no applicable county, or local noise regulations associated with the Project.

Construction Noise

Construction of the facilities would involve operation of general construction equipment and noise would be generated during the installation of the Project components. Construction of the Project would include using the HDD method at six locations. Construction noise would be highly variable because the types of equipment in use at a construction site changes with the construction phase and the types of activities. Noise from construction activities may be noticeable at nearby NSAs. However, construction equipment would be operated on an as-needed basis during the short-term construction period. Further, Northern would limit construction activities to occur during daytime hours, except when required for activities such as hydrostatic testing, operation of pumps at waterbody crossings, and certain HDD activities such as pull back that require continuous work. Noise from HDDs and construction activities would be episodic and temporary lasting between seven and 14 days at each location. FERC staff considers daytime hours to be 7:00 AM to 7:00 PM. If nighttime construction is required, advanced notice would be provided to the residents informing them of the planned activities and duration, or temporary relocation of residents.

Several NSAs were identified by Northern near the HDD entry and exit sites. Predicted noise levels near several NSA's would exceed 55 dBA during construction activities without mitigation (see table 13).

Table 13: Unmitigated HDD Noise Analysis						
HDD	**NSA**	**Distance/Direction to nearest NSA (feet)**	**Ambient Ldn (dBA)**	**HDD Ldn (dBA)**	**Ambient + HDD Ldn (dBA)**	**Increase Above Ambient (dBA)**
P4-1 (HDD-1)	**A**	2,346/ NW	37	50	52	15
	B	2,141/ W	37	51	52	15
	C	1,816/ E	46	53	55	9
P4-3 (HDD-2)	**C**	991/ W	46	60	60	14
	D	638/ SW	46	64	65	19
	E	1,399/ S	46	56	58	12
	F	2,158/ SE	46	51	53	7
	G	2,049/ NE	46	52	54	8
P4-4 (HDD-3)	**F**	901/ S	46	61	62	16
	G	1,060/ N	46	59	61	15
	H	1,378/ SE	46	56	58	12
P4-5 (HDD-4)	**H**	814/ S	46	62	63	17
	I	1,153/ SE	46	58	59	13
	J	1,569/ N	46	55	57	11
P4-6 (HDD-5)	**H**	1,091/ W	46	59	60	14
	I	864/ S	46	61	62	16
	J	1,658/ N	46	54	56	10
P4-8 (HDD-6)	**K**	2,804/ S	42	48	50	8

Measures to mitigate construction noise would include construction of temporary sound barriers between HDD sites and residences, compliance with federal regulations limiting noise from trucks, proper maintenance of equipment, and ensuring that sound muffling devices provided by the manufacturer are kept in good working condition. Additional mitigation measures for affected NSA's during nighttime drilling activities include installing sound barrier walls entry/exit pits and NSA's and providing temporary relocation for landowners if extended workdays are required to complete the HDD crossing. Impacts to NSAs would be minimized with Northern's proposed mitigation measures. Mitigated noise levels for the affected NSA are presented in table 14.

To ensure that noise impacts are adequately minimized at these NSA's during construction, **we recommend that:**

- **<u>Prior to construction</u> of HDDs 2, 3, 4 and 5, Northern should file with the Secretary, for review and written approval by the Director of the Office of Energy Projects (OEP), or the Director's designee, an HDD noise mitigation plan to reduce the projected noise level attributable to drilling operations at the entry and/or exit sites. During drilling**

operations, Northern should implement the approved plan, monitor noise levels, document the noise levels in the biweekly status reports, and make all reasonable efforts to restrict the noise attributable to the drilling operations to no more than a Ldn of 55 dBA at the NSAs.

Based on the proposed mitigation measures, our recommendation, and that construction of the Project would be intermittent and mostly be limited to daytime hours, we conclude that construction noise would not have a significant impact on the environment.

Table 14: Mitigated HDD Noise Levels

HDD	NSA	Distance/Direction to nearest NSA (feet)	Ambient Ldn (dBA)	HDD Ldn (dBA)	Ambient + Mitigated HDD Ldn (dBA)	Increase Above Ambient (dBA)
P4-3 (HDD-2)	C	991/ W	46	60	54	8
	D	638/ SW	46	64	58	12
	E	1,399/ S	46	56	54	8
P4-4 (HDD-3)	F	901/ S	46	51	54	8
	G	1,060/ N	46	52	57	11
P4-5 (HDD-4)	H	814/ S	46	62	55	9
	I	1,153/ SE	46	58	53	7
	J	1,569/ N	46	55	53	7
P4-6 (HDD-5)	H	1,091/ W	46	59	54	8
	I	864/ S	46	61	57	12

Operation

Operational noise impacts would include the Auburn regulation station, which would yield intermittent non-continuous noise. Operational sound levels are presented in table 15.

Based on the duration of construction, proposed mitigation measures during construction activities and that operational noise would represent an imperceptible increase in noise in the surrounding area, we conclude that the Project would not result in significant noise impacts on residents and the surrounding communities.

Table 15: Auburn MAOP Regulation Station Operational Noise Levels

NSA	Distance from Regulation station (feet)	Operational Sound Impact from Regulation station (dBA)	Project Acoustic Impact (dBA)			
			Existing Ldn	Station Ldn	Total Ldn	Net Increase
K	**2,778**	**31**	44	37	45	1

7. Reliability and Safety

The transportation of natural gas by pipeline involves some incremental risk to the public due to the potential for accidental release of natural 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. Methane has an auto-ignition temperature of 1,000 degrees Fahrenheit and is flammable at concentrations between 5.0 percent and 15.0 percent in air. An unconfined mixture of methane and air is not explosive, however it may ignite and burn if there is an ignition source. A flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

7.1 Safety Standards

The USDOT is mandated to prescribe minimum safety standards to protect against risks posed by pipeline facilities under Title 49, U.S.C. Chapter 601. The USDOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. It develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Many of the regulations are written as performance standards which set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve safety. PHMSA's safety mission is to ensure that people and the environment are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the federal, state, and local level.

Title 49, U.S.C. Chapter 601 provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards. A state may also act as USDOT's agent to inspect interstate facilities within its boundaries; however, the USDOT is responsible for enforcement actions.

The USDOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. Part 192 specifically addresses natural gas pipeline safety issues.

The USDOT has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of the 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. Alternatively, an applicant must certify that it has been granted a waiver of the requirements of the safety standards by the USDOT in accordance with Section 3(e) of the Natural Gas Pipeline Safety Act. Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) dated January 15, 1993, between the USDOT and the FERC, the FERC accepts this certification and does not impose

additional safety standards. If the Commission becomes aware of an existing or potential safety problem, there is a provision in the Memorandum to promptly alert USDOT. 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 the Commission's jurisdiction.

The FERC also participates as a member of the USDOT's Technical Pipeline Safety Standards Committee which determines if proposed safety regulations are reasonable, feasible, and practicable.

The pipelines associated with the Project must be designed, constructed, operated, and maintained in accordance with the 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 specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion.

The USDOT also defines area classifications, based on population density in the vicinity of the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined below:

Class 1	Location with 10 or fewer buildings intended for human occupancy.
Class 2	Location with more than 10 but less than 46 buildings intended for human occupancy.
Class 3	Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month period.
Class 4	Location where buildings with four or more stories aboveground are prevalent.

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. For instance, pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve (*e.g.*, 10.0 miles in Class 1, 7.5 miles in Class 2, 4.0 miles in Class 3, and 2.5 miles in Class 4). Pipe wall thickness and pipeline design pressures; hydrostatic test pressures; MAOP; inspection and testing of welds; and frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas. Preliminary class locations for the Project have been

developed based on the relationship of the pipeline centerline to other nearby structures and manmade features.

If a subsequent increase in population density adjacent to the right-of-way results in a change in class location for the pipeline, Northern would conduct a study to determine whether the new class location segments should have a reduction in MAOP, a new hydrostatic test, or replace the segment with pipe of sufficient grade and wall thickness, if required to comply with the USDOT requirements for the new class location.

The USDOT Pipeline Safety Regulations require operators to develop and follow a written integrity management program that contain all the elements described in 49 CFR 192.911 and address the risks on each transmission pipeline segment. The rule establishes an integrity management program which applies to all high consequence areas (HCA).

High Consequence Areas

The USDOT has published rules that define HCAs where a gas pipeline accident could do considerable harm to people and their property and requires an integrity management program to minimize the potential for an accident. This definition satisfies, in part, the Congressional mandate for USDOT to prescribe standards that establish criteria for identifying each gas pipeline facility in a high-density population area.

The HCAs may be defined in one of two ways. In the first method an HCA includes:

- current class 3 and 4 locations;
- any area in Class 1 or 2 where the potential impact radius[11] is greater than 660 feet and there are 20 or more buildings intended for human occupancy within the potential impact circle[12];, or
- any area in Class 1 or 2 where the potential impact circle includes an identified site.

An identified site is an outside area or open structure that is occupied by 20 or more persons on at least 50 days in any 12-month period; a building that is occupied by 20 or more persons on at least 5 days a week for any 10 weeks in any 12-month period; or a facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate.

In the second method, an HCA includes any area within a potential impact circle which contains:

- 20 or more buildings intended for human occupancy; or
- an identified site.

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[11] The potential impact radius is calculated as the product of 0.69 and the square root of: the MAOP of the pipeline in psig multiplied by the square of the pipeline diameter in inches.

[12] The potential impact circle is a circle of radius equal to the potential impact radius.

Once a pipeline operator has determined the HCAs along its pipeline, it must apply the elements of its integrity management program to those segments of the pipeline within HCAs. The USDOT regulations specify the requirements for the integrity management plan at section 192.911. There are no HCAs located near the Project.

The USDOT prescribes the minimum standards for operating and maintaining pipeline facilities, including the requirement to establish a written plan governing these activities. Each pipeline operator is required to establish an emergency plan that includes procedures to minimize the hazards of a natural gas pipeline emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency system shutdown and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property, and making them safe from actual or potential hazards.

The USDOT requires that each operator establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and to coordinate mutual assistance. 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. Northern would provide the appropriate training to local emergency service personnel before the pipeline is placed in service.

On October 1, 2019, the PHMSA issued new regulations modifying and expanding the standard pipeline safety standards under 49 CFR Parts 191 and 192. These regulations, in part, established: new standards for in-line inspections; requirements for newly established moderate consequence areas; explicitly requires consideration of seismicity and geotechnical risks in its integrity management plan for the pipeline; new regulations on pipeline patrol frequency for HCAs, moderate consequence areas and grandfathered pipelines; a policy to reconfirm MAOP for certain pipelines; installation of pressure relief for pig launcher/receivers, and report exceedances of MAOP to PHMSA. Northern would be required to comply with these regulations, which went into effect on July 1, 2020.

7.2 Pipeline Accident Data

The USDOT requires all operators of natural gas transmission pipelines to notify the USDOT of any significant incident and to submit a report within 30 days. Significant incidents are defined as any leaks that:

- caused a death or personal injury requiring hospitalization; or
- involve property damage of more than $50,000 (1984 dollars)[13].

During the 20 year period from 1998 through 2017, a total of 1,365 significant incidents were reported on the more than 300,000 total miles of natural gas transmission pipelines nationwide. Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. Table 16 provides a distribution of the causal factors as well as the number of each incident by cause. The dominant causes of pipeline incidents are corrosion and pipeline material, weld or equipment failure constituting 53.2 percent of all significant incidents. The pipelines included in the data set in table 16 vary widely in terms of age, diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline. The frequency of significant incidents is strongly dependent on pipeline age. Older pipelines have a higher frequency of corrosion incidents and material failure, because corrosion and pipeline stress/strain is a time-dependent process.

Table 16: Natural Gas Transmission Pipeline Significant Incidents by Cause (1998-2017)[a]

Cause	Number of Incidents	Percentage
Pipeline material, weld, or equipment failure	403	29.5
Corrosion	324	23.7
Excavation	198	14.5
All other causes [b]	148	10.8
Natural forces [c]	148	10.8
Outside force [d]	90	6.6
Incorrect operation	54	4.0
Total	1,365	100

[a] All data gathered from PHMSA's Significant Incident files (PHMSA 2018b).
[b] All other causes include miscellaneous, unspecified, or unknown causes.
[c] Natural force damage includes earth movement, heavy rain, floods, landslides, mudslides, lightning, temperature, high winds, and other natural force damage.
[d] Outside force damage includes previous mechanical damage, electrical arcing, static electricity, fire/explosion, fishing/maritime activity, intentional damage, and vehicle damage (not associated with excavation).

The frequency of significant incidents is strongly dependent on pipeline age. Older pipelines have a higher frequency of corrosion incidents, since corrosion is a time-dependent process. The use of both an external protective coating and a cathodic protection system, required on all pipelines installed after July 1971, significantly reduces the corrosion rate compared to unprotected or partially protected pipe.

Outside force, excavation, and natural forces are the cause in 31.9 percent of significant pipeline incidents. These result from the encroachment of mechanical equipment such as bulldozers and backhoes; earth movements due to soil settlement, washouts, or geologic hazards; weather effects such as winds, storms, and thermal strains; and willful damage. Table 17 provides a breakdown of external force incidents by cause.

[13] $50,000 in 1984 dollars is approximately $112,955.73 as of May 2015 (CPI, Bureau of Labor Statistics, 2015)

Older pipelines have a higher frequency of outside forces incidents partly because their location may be less well known and less well marked than newer lines. In addition, the older pipelines include a disproportionate number of smaller diameter pipelines; which have a greater rate of outside forces incidents. Small diameter pipelines are more easily crushed or broken by mechanical equipment or earth movement.

Since 1982, operators have been required to participate in "One Call" public utility programs in populated areas to minimize unauthorized excavation activities in the vicinity of pipelines. The "One Call" program is a service used by public utilities and some private sector companies (e.g., oil pipelines and cable television) to provide preconstruction information to contractors or other maintenance workers on the underground location of pipes, cables, and culverts.

The available data from PHMSA show that natural gas transmission pipelines continue to be a safe, reliable means of energy transportation. The Project would address a PHMSA corrective action order and would improve the safety of Northern's system. The construction and operation of the new pipeline facilities would represent a minimum increase in risk to the nearby public and we are confident that with implementation of the required design criteria for the design of these facilities, that they would be constructed and operated safely.

Table 17: Excavation, Natural Forces, and Outside Force Incidents by Cause (1998-2017) [a]		
Cause	**Number of Excavation, Natural Forces, and Outside Force Incidents**	**Percentage of Outside Force Incidents**
Third party excavation damage	160	36.7
Heavy rain, floods, mudslides, landslides	78	17.9
Vehicle (not engaged with excavation)	52	11.9
Earth movement, earthquakes, subsidence	29	6.7
Lightning, temperature, high winds	30	6.9
Operator/contractor excavation damage	26	6.0
Unspecified excavation damage/previous damage	12	2.8
Other or unspecified natural forces	11	2.5
Fire/explosion	10	2.3
Fishing or maritime activity	9	2.1
Other outside force	11	2.5
Previous mechanical damage	6	1.4
Electrical arcing from other equipment/facility	1	0.2
Intentional damage	1	0.2
Total	436	-

[a] All data gathered from PHMSA's Significant Incident files (PHMSA 2018b).

7.3 Polychlorinated Biphenyls

During abandonment activities, Northern would follow appropriate testing and disposal procedures for abandonment which would follow federal regulations under the Toxic Substances Control Act. When any existing station piping or pipeline is cut, the contractor would follow the EPA issued Polychlorinated Biphenyls (PCB) rules and regulations contained in 40 Code of Federal Regulations Part 761.

Results of PCB wipe sampling taken in 2019 on the existing A-line did not detect levels above regulatory thresholds of PCB's. Tie-in activities for the loop would not encounter liquids containing PCB's of significant concentrations and the new pipeline loop would not contain PCB's. The sampling for and disposal of PCB contaminated facilities would be in accordance with Northern's approved PCB Disposal Requirements. Due to age of the pipeline and previous repair methods, the pipeline to be abandoned in place cannot be cleaned by pigging prior to abandonment.

Based on the PCB sampling results, abandonment procedures and tie-in construction procedures, we conclude that PCB's are not expected to exceed hazardous waste concentration thresholds on any portion of the Project facilities.

8. Cumulative Impacts

In accordance with NEPA and with FERC policy, we identified other actions in the vicinity of the proposed Project facilities and evaluated the potential for a cumulative impact on the environment. As defined by the CEQ, a cumulative effect is the impact on the environment that results from 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. In this analysis, we consider the impacts of past projects within the defined geographic scope as part of the affected environment (environmental baseline) which were described and evaluated in the preceding environmental analysis. However, present effects of past actions that are relevant and useful are also considered. When evaluating cumulative impacts, we establish a geographic scope for each resource affected by the proposed Project, shown in table 18.

This cumulative effects analysis generally follows a method set forth in relevant CEQ and EPA guidance and focuses on potential impacts from a proposed Project on resource areas or issues where the incremental contribution could result in cumulative impacts when added to the potential impacts of other actions. To avoid unnecessary discussions of insignificant impacts and projects and to adequately address and accomplish the purposes of this analysis, an action must first meet the following three criteria to be included in the cumulative analysis:

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

Table 18: Geographic scope of Potential Impact of the Project	
Resource	**Geographic Scope**
Geological Resources and Soils	Limits of Project disturbance
Groundwater	Watershed boundary (Hydrologic Unit Code [HUC]-12)
Vegetation, Wildlife, and Special Status Species	HUC-12
Land Use	1 mile
Visual Resources	For aboveground facilities, distance that the tallest feature at the planned facility would be visible from neighboring communities. For pipelines, 0.25 mile and existing visual access points
Air Quality	Construction: 0.25 mile
Noise	Construction: 0.25 mile for general construction activities, 0.5 mile for drilling activities Operation: 1 mile
Traffic	County

As described in section B of this is EA, constructing and operating the Project would temporarily and permanently impact the environment. The Project could impact geology, soils, groundwater, vegetation, wildlife, land use, visual resources, air quality, and noise. However, throughout section B of this EA, we determined that the proposed Project would have only minimal or temporary impacts on these resources and nearly all of the Project-related impacts would be contained within or adjacent to the temporary construction right-of-way and ETWS. Furthermore, successful implementation of the HDD method would result in no impacts to wetlands or waterbodies, we determined the Project would not affect cultural resources, and the Project does not involve new air emission sources during operation; therefore, these resource areas are not included in table 18 above, and are not accessed further in this cumulative impact analysis.

8.1 Projects Identified within the Geographic Scope

Table 19 below identifies 7 present and reasonably foreseeable projects or actions. These projects are depicted in figure 2, below. These projects were identified by a review of publicly available information; aerial and satellite imagery; and information provided by Northern. FERC jurisdictional projects as well as other, non-jurisdictional projects, that are within the geographic scope are included. The following projects would occur in the same geographic scope.

Table 19: Projects Within Cumulative Geographic Scope Area						
Project Name	**County/State**	**Description**	**Impacts within Geographic Scope**	**Time Frame**	**Distance/direction to proposed project**	**Overlapping Resources**
Clifton to Palmyra – Palmyra Compressor station only	Otoe, NE	Removal of station piping, valves, reducers, tees and other miscellaneous equipment	16.89 acres of industrial/commercial land	2021	14.5 miles north-northeast of MP 1.40	traffic
N-41 Bennet	Lancaster, NE	Mill and resurfacing and bridge deck repair	15 miles of road and road right-of-way	2021-2025	Crosses project at MP 0.70	traffic, construction air emissions, construction noise, and visual
N-41 Bennett	Lancaster,NE	Mill and resurfacing	0.5 mile of road and road right-of-way	2021-2025	2.4 miles north of project at MP 0.70	traffic
Adams West	Gage, NE	Mill and resurfacing and bridge deck overlay	11.26 miles of road and road right-of-way	2020	6.3 miles south of MP 0.70	traffic
Adams-Sterling	Gage, NE	Mill and resurfacing and bridge deck repair	6.7 miles of road and road right-of-way	2020-2025	6.3 miles south of MP 0.70	traffic
Burr Spur	Otoe, NE	Mill and resurfacing and bridge deck repair	6.8 miles of road and road right-of-way	2021-2025	7.4 miles east of MP 4.30	traffic
Princeton N-33	Lancaster, NE	Mill and resurfacing and bridge deck repair	5.9 miles of road and road right-of-way	2020-2025	9.3 miles west of MP 0.00	traffic
Source: https://dot.nebraska.gov/media/1883/programbook2016						

8.2 Cumulative Impact within the Project Area

The projects identified in table 19 do not affect resources in common with the proposed Project except for traffic, and construction air emissions, construction noise, and visual impacts for N-41 Bennett. Therefore, the Project would not contribute to cumulative impacts on other resources (such as geology, soil, groundwater, vegetation, wildlife, land use, and operational noise) when added to the impacts of the projects in table 19; therefore, these resources are not discussed further.

The Palmyra compressor station, a component of the Clifton to Palmyra Project (CP20-460), a FERC-jurisdictional project, would occur in the same county (Otoe) as the Project.[14] A disconnect would occur at the Palmyra compressor station. The disconnect at the Palmyra compressor station would require the removal of station piping, valves, reducers, tees, and other miscellaneous equipment. No other oil and gas development project are currently proposed or ongoing in Lancaster and Otoe counties, Nebraska that would have overlapping impacts on traffic with the proposed Project. However, six Nebraska Department of Transportation (NDOT) projects could potentially have cumulative impacts with the proposed Project. As indicated in table 19 above, the projects would resurface state highways in the Project area and would consist of milling the existing road surface, repairing bridge decks, and resurfacing the roadway. These seven projects would affect the flow of traffic in the Project area and could potentially occur during a similar timeframe as the proposed Project construction. One NDOT project, the N-41 Bennett project, crosses the Project at MP 0.70 and if it occurs during the same timeframe, could contribute to cumulative impacts on construction air, noise, and visual resources.

Northern's work at the Palmyra compressor station for the disconnect would be limited in duration and all construction traffic would park on the compressor station property and would use different local roads than those used for the Auburn project. Given that 15 miles separates the two construction areas, no cumulative impacts from traffic are anticipated.

NDOT plans to repave approximately 11.3 miles of roadway 6.3 miles south of MP 0.70 in Gage, Nebraska. The Adams West project is scheduled to be completed in 2020, and any construction period impacts on traffic would be complete by the time Northern's construction is anticipated to begin in May or June of 2021. NDOT also plans to repave Highway 43 as it crosses the Project at MP 0.70 (Project N-41) between 2020 and the end of 2021. The repaving operation would extend over a period of a few non-consecutive days as the road surface is milled and a new layer of asphalt is installed. Northern plans to bore the 8-inch-diameter line beneath Highway 43, so there would not be any direct impacts to the roadway or traffic on it, should the projects coincide. Northern's construction activity at the pipeline crossing can be expected to cause slowdowns while equipment and personnel are present or accessing the right-of-way. This would add to traffic impacts from the repaving activity. NDOT would have a traffic management plan in place during this operation to minimize impacts to traffic flow. Cumulative impacts at this location would be short term and minor, restricted to the period of time roadway construction activities would be occurring. Furthermore, Northern would work with its contractor to develop travel routes for construction vehicles that would avoid the NDOT construction projects to the extent practicable.

NDOT also has plans for four additional roadway maintenance projects in the Project area. These would involve milling and repaving roadway segments ranging from 0.5-mile to 6.8 miles in length during the 2020 to 2021 period. NDOT would keep at least one lane of traffic open during the repaving operation, resulting in minor traffic slowdowns. If Northern's Project is in construction concurrent with any of these projects, Project-related traffic may contribute to

[14] The Environmental Assessment for the Clifton to Palmyra A-Line Abandoment Project was issued on September 16, 2020 and can be found at accession number 20200916-3008 on FERC's elibrary.

additional congestion caused by repaving, but it would not be significant due to the distance from Northern's Project.

The Project would create an increase in air, noise, and visual impacts during the six to seven month construction period. The N-41 Bennett project overlaps the Project at MP 0.70 and could occur during the same timeframe. Construction of the N-41 Bennett project would likely involve heavy, noisy equipment and an increase in traffic in the area because of deliveries and workers traveling to the worksite. This would create a temporary increase in air, noise, and visual impacts. However, construction impacts from both projects would be temporary and not significant. For cumulative impacts to occur, both projects would need to occur simultaneously. Exact timing for the N-41 project is unknown.

When the impacts of the Project are added to other projects in the vicinity, we conclude that the cumulative impacts would be minimal. Impacts on traffic associated with construction of the Project will be localized, minor and short term. We conclude that impacts would be primarily temporary in nature and no significant cumulative impacts would be incurred from the Project.

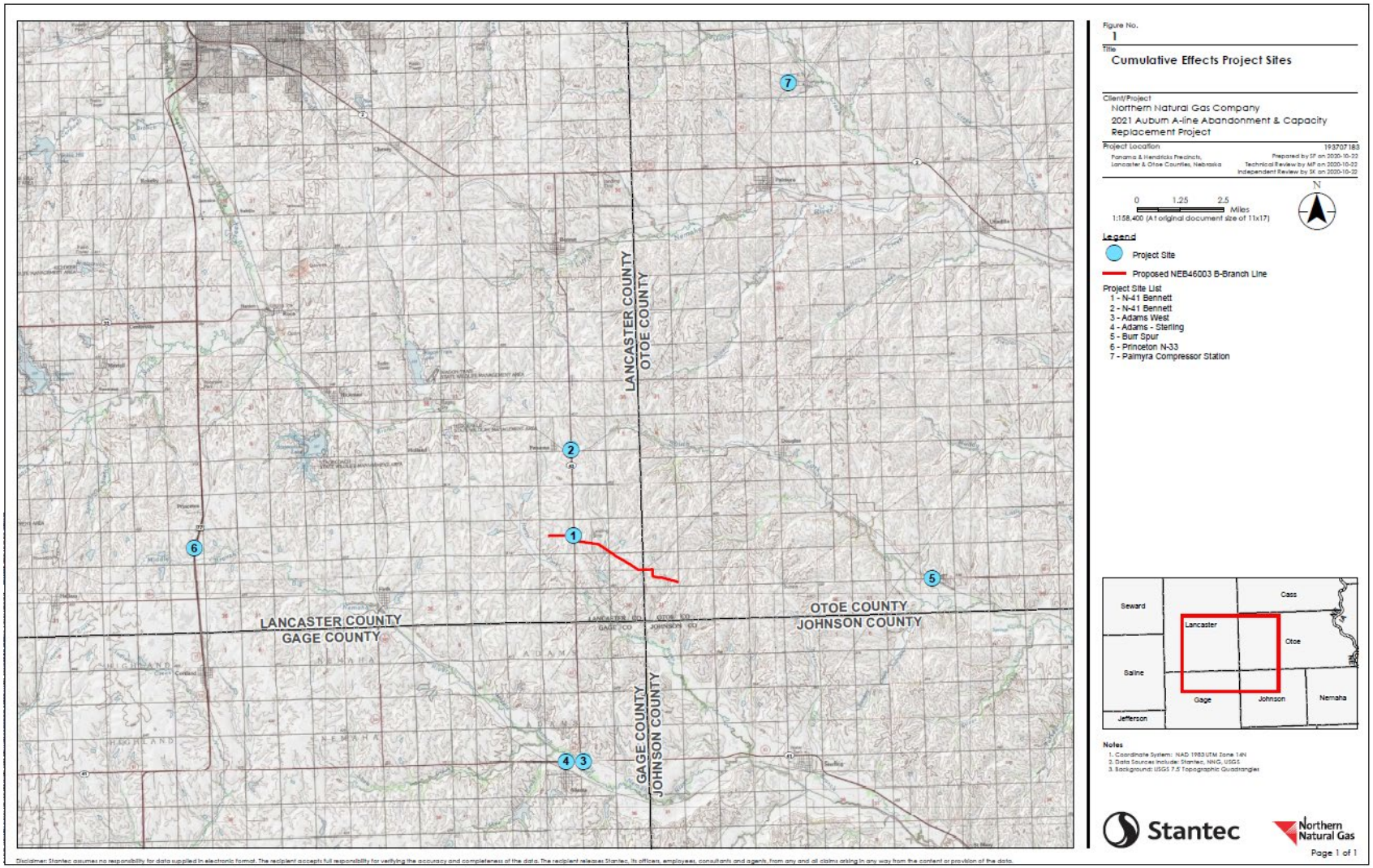

Figure 2: Projects Considered in Cumulative Impacts Analysis

C. ALTERNATIVES

In accordance with NEPA and Commission policy, we identified and evaluated alternatives to the Project to determine whether they would be reasonable and environmentally preferable to the proposed action. These alternatives include the no action alternative, system alternatives, route alternatives, and aboveground facility site alternatives. The criteria used for selecting potentially environmentally preferable alternatives, as discussed in greater detail below, are: the ability to meet the Project's objectives, technical and economic feasibility and practicality, and whether it provides a significant environmental advantage over the Project.

Our evaluation of the identified alternatives is based on project-specific information provided by the applicant; publicly available information; and our expertise and experience regarding the siting, construction, and operation of natural gas transmission facilities and their potential impact on the environment. We did not receive any comments about alternatives from the landowners, stakeholders, or any state or federal resource agencies.

Evaluation Process

Through environmental comparison and application of our professional judgement, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, GIS data, aerial imagery) and assume the same right-of-way widths and general workspace requirements. Where appropriate, we also use site-specific information (e.g., field surveys or detailed designs). As described previously, our environmental analysis and this evaluation only considers quantitative data (e.g., acreage or mileage) and uses common comparative factors such as total length, amount of collocation, and land requirements. Our evaluation also considers impacts on both the natural and human environments. Impacts on the natural environment include wetlands, forested lands, geology, and other common environmental resources. Impacts on the human environment include residences, roads, utilities, and industrial and commercial development near construction workspaces. In recognition of the competing interests and the different nature of impacts resulting from an alternative that sometimes exist (i.e., impacts on the natural environment versus impacts on the human environment), we also consider other factors that are relevant to a particular alternative or discount or eliminate factors that are not relevant or may have less weight or significance.

The purpose of the Project, which is described in greater detail in section A.2, is to ensure safe and efficient operation of Northern's existing pipeline system. Therefore, a preferable alternative must also accomplish the same goal of the proposed action.

Determining if an alternative provides a significant environmental advantage requires a comparison of the impacts on each resource. In comparing the impact between resources (factors), we also considered the degree of impact anticipated on each resource. Ultimately, an alternative that results in equal or minor advantages in terms of environmental impact would not compel us to shift the impacts from the current set of landowners to a new set of landowners.

One of the goals of an alternatives analysis is to identify alternatives that avoid significant impacts. In section B, we evaluated each environmental resource potentially affected by the Project and concluded that constructing and operating the Project would not significantly impact these resources. Consistent with our conclusions, the value gained by further reducing the (not significant) impacts of the Project when considered against the cost of relocating the route/facility to a new set of landowners was also factored into our evaluation.

1. No Action Alternative

The no-action alternative would result in not implementing the proposed action and would avoid the potential environmental impacts associated with the Project; however, the Project objectives would not be met. Northern identified and repaired multiple leaks on the A-line from 2002 to 2019 with the most recent repair occurring January 2019. As a precaution, Northern has reduced operating pressure on the A-line to reduce the likelihood of additional leaks. The no-action alternative is not preferable due to the increased potential environmental impacts and reliability and safety concerns associated with the continued operation of the pipeline segment proposed for abandonment.

2. System Alternatives

The purpose of identifying and evaluating system alternatives is to determine whether the environmental impacts associated with the construction and operation of the Project could be avoided or reduced by using existing, modified, or other proposed facilities rather than constructing new facilities. System alternatives are those able to meet the objectives of the Project but use a different facility (existing or proposed) or are able to otherwise use existing infrastructure to eliminate the need for the proposed facility. However, a viable system alternative must be technically and economically feasible as well as practicable and must satisfy interconnect and service requirements to customers.

Northern reviewed other interstate natural gas pipelines operating within Nebraska as possible alternatives to the Project. Because of distance of the pipelines from the Project area, the widespread delivery points in the Project area, environmental impacts that would be associated with required additional pipeline, delivery stations, and potentially compression, these are not considered to be viable alternatives.

Northern also considered the replacement of the entire 31.7 miles of 4- and 6-inch-diameter A-line proposed for abandonment. No new compression would be required; however, Northern would need to construct approximately 31.0 miles of 6-inch-diameter pipeline replacement. The existing pipeline right-of-way crosses approximately 13 waterways and 38 public roadways and is located within 250 feet of 8 residences and within 500 feet of two Concentrated Animal Feeding Operations. Construction of this alternative would result in greater impacts on landowners and environmental resources than the Project. Therefore, this system alternative was not considered further.

3. Route Alternatives

Route alternatives differ from system alternatives in that they are identified to avoid impacts on sensitive environmental resources, or to address landowner concerns. Route variations tend to be short in length and close to the proposed route. For the Project, route alternatives were considered based on reduced environmental impacts. Northern sought to identify routes that utilize existing easements, fit within their multiple line rights, and maximize co-location with the least impacts to landowners and environmental resources. Northern's proposed B-line is co-located almost entirely with Northern's existing J-line pipeline and A-line to be abandoned, thereby minimizing the amount of new permanent right of way that would be required.

We did not receive any comments on route alternatives and did not identify any sensitive resources that required route alternatives. Therefore, we did not identify any route alternatives that would further minimize impacts on sensitive resources.

4. Aboveground Facility Site Alternatives

Given the launcher and regulation station facilities for the Project are required to be located along the pipeline right-of-way given engineering constraints, no comments were received from affected landowners, and no sensitive environmental features or signficant impacts were identified in our analysis, aboveground facility alternatives were not evaluated. The aboveground facilities would be in agricultural and open lands and would not impact any sensitive features such as waterbodies, wetlands, forests, or species habitats.

5. Pipeline Abandonment

Given no ground disturbance or workspaces would be required for the abandonment in-place of approximately 31.7 miles of its A-line, and no landowners expressed concern or wishes for abandonment by removal, no alternatives to this element of the Project was considered.

Because the impacts associated with the proposed Project are not significant, and no alternative offered a significant environmental advantage, we conclude that the proposed Project is the preferred alternative to meet the Project objectives.

D. CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we have determined that if Northern abandons, constructs, and operates the proposed facilities in accordance with its application and supplements, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Commission's Order contain a finding of no significant impact and include the mitigation measures listed below as conditions to any Certificate/Authorization the Commission may issue.

1. Northern shall follow the construction and abandonment 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 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 abandonment activities and 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 abandonment, construction, and operation.

3. **Prior to any construction**, Northern shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's 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 and restoration activities.

4. The authorized abandonment activities and facility locations 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 workspace 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 Certificate 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 their plan as schedules change. The plan shall identify:

   a. how Northern will 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 will 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 Northern will ensure that sufficient personnel are available to implement the environmental mitigation;
d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
e. the location and dates of the environmental compliance training and instructions Northern will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change);
f. Northern personnel (if known) and specific portion of Northern's organization having responsibility for compliance;
g. the procedures (including use of contract penalties) Northern will follow if noncompliance occurs; and
h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

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

7. Northern shall employ at least one EI per construction spread. The EI(s) 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 will 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 stream crossings or work in other environmentally-sensitive areas;
c. a listing of all problems encountered and each instance of noncompliance observed by the EI 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 which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
g. copies of any correspondence received by Northern from other federal, state, or local permitting agencies concerning instances of noncompliance, and Northern's response.

9. Northern must receive written authorization from the Director of OEP, or the Director's designee, **before commencing construction 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 will be consistent with all applicable conditions; or
    b. identifying which of the conditions of 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. **Prior to construction** of HDDs 2, 3, 4, and 5, Northern shall file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, an HDD noise mitigation plan to reduce the projected noise level attributable to drilling operations at the entry and/or exit sites. During drilling operations, Northern shall implement the approved plan, monitor noise levels, document the noise levels in the biweekly status reports, and make all reasonable efforts to restrict the noise attributable to the drilling operations to no more than a Ldn of 55 dBA at the NSAs.

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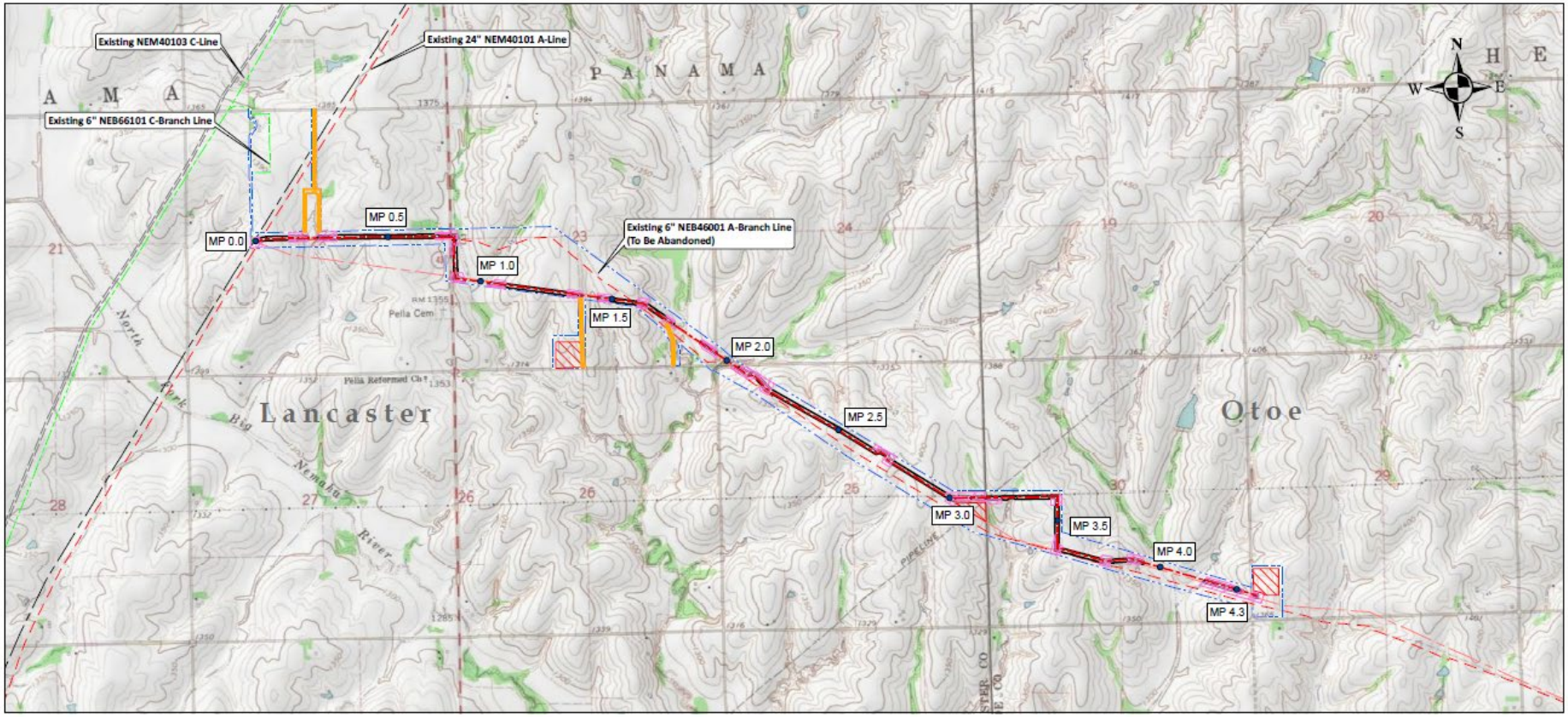
APPENDIX A

PROJECT MAP



Notes
Coordinate System: UTM83-14F
Data Sources include: Stantec, NNG, ESRI

Legend

- Proposed 8" NEB46003 Auburn B-Branch Line
- Existing A-Line
- Existing 24" NEM40102 B-Line
- Existing C-Line
- Existing 6" NEB46002 J-Branch Line
- Other Pipelines
- Temporary Access Road
- Extra Temporary Workspace
- Staging Area
- Temporary Workspace
- Environmental Survey Boundary

N

0 1,000 2,000
Feet

1:24,000 (A1 original document size of 11x17)

Figure No.
Figure 2

Title
Project Location and Topographic Mapbook

Client/Project
Northern Natural Gas
2021 Auburn A-Line Abandonment and Capacity Replacement Project

Project Location
Lancaster County / Otoe County, Nebraska

Stantec
Northern Natural Gas

APPENDIX B

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