

Great Plains Natural Gas Co.

**Application to the
Minnesota Public Utilities Commission
For a Gas Pipeline Route Permit**

**Fergus Falls Pipeline
Replacement Project**

Partial Exemption Process
MPUC Docket No. G004/GP-16-685

October 10, 2016



Application Developed By



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Appendix C	Natural Resources Survey Report
Appendix D	Phase I Archaeological Reconnaissance Survey Report
Appendix E	Unanticipated Discoveries Plan

Acronyms and Abbreviations

AC	Alternating Current
ATWS	Additional temporary workspace
BMPs	Best management practices
CFR	Code of Federal Regulations
CP	Cathodic protection
DOT	U.S. Department of Transportation
FWS	U.S. Fish & Wildlife Service
Great Plains	Great Plains Natural Gas Co.
HDD	Horizontal directional drill
MAOP	Maximum allowable operating pressure
MDA	Minnesota Department of Agriculture
MDNR	Minnesota Department of Natural Resources
MNDOT	Minnesota Department of Transportation
MNOPS	Minnesota Office of Pipeline Safety
MN SHPO	Minnesota State Historic Preservation Office
MP	Milepost
MPCA	Minnesota Pollution Control Agency
MPUC	Minnesota Public Utilities Commission
NHIS	National Heritage Inventory System
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
PHMSA	Pipeline and Hazardous Materials Safety Administration
Project	Fergus Falls Pipeline Replacement Project
psig	pounds per square inch gauge
Route	MPUC area within which the pipeline may be located
SSURGO	Soil Survey Geographic Database
SWPPP	Stormwater Pollution Prevention Plan
TBS	Town border station
TMIP	Transmission Integrity Management Plan
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
WHPA	Well Head Protection Areas
WMA	Wildlife Management Area

Completeness Checklist

Minnesota Rules	Description of Requirement	Page
7852.2100. GENERAL INFORMATION.		
Subpart 1.	Cover letter: Each application must be accompanied by a cover letter signed by an authorized representative or agent of the applicant. The cover letter must specify the type, size, and general characteristics of the pipeline for which an application is submitted.	Cover Letter Attached
Subpart 2.	Title page and table of contents: Each application must contain a title page and a complete table of contents.	Title cover, i-iv
Subpart 3.	Statement of ownership: Each application must include a statement of proposed ownership of the pipeline as of the day of filing and an affidavit authorizing the applicant to act on behalf of those planning to participate in the pipeline project.	3
Subpart 4.	Background information: Each application must contain the following information: <ul style="list-style-type: none"> A. The applicant’s complete name, address, and telephone number; B. The complete, name, title, address, and telephone number of the authorized representative or agent to be contacted concerning the applicant’s filing; C. The signatures and titles of persons authorized to sign the application, and the signature of the preparer of the application if prepared by an outside representative or agent; and D. A brief description of the proposed project which includes: <ul style="list-style-type: none"> 1. General location; 2. Planned use and purpose; 3. Estimated cost; 4. Planned in-service date; and 5. General design and operational specifications for the type of pipeline for which an application is submitted. 	3 - 6
7852.2200. PROPOSED PIPELINE AND ASSOCIATED FACILITIES DESCRIPTION.		
Subpart 1.	Pipeline design specifications: The specifications for pipeline design and construction are assumed to be in compliance with all applicable state and federal rules or regulations unless determined otherwise by the state or federal agency having jurisdiction over the enforcement of such rules or regulations. For public information purposes, the anticipated pipeline design specifications must include but are not limited to: <ul style="list-style-type: none"> A. Pipe size (outside diameter) in inches; B. Pipe type; C. Nominal wall thickness in inches; D. Pipe design factor; E. longitudinal or seam joint factor; F. class location and requirements, where applicable; G. Specified minimum yield strength in pounds per square inch; and H. Tensile strength in pounds per square inch. 	7

Minnesota Rules	Description of Requirement	Page
Subpart 2.	Operating pressure: Operating pressure must include: A. Operating pressure (pounds per square inch gauge [psig]); and B. Maximum allowable operating pressure (psig).	8
Subpart 3.	Description of associated facilities: For public information purposes, the applicant shall provide a general description of all pertinent associated facilities on the right-of-way.	8
Subpart 4.	Product capacity information: The applicant shall provide information on planned minimum and maximum design capacity or throughput in the appropriate unit of measure for the types of product shipped as defined in part 7852.0100.	8
Subpart 5.	Product description: The applicant shall provide a complete listing of products the pipeline is intended to ship and a list of products the pipeline is designed to transport, if different from those intended for shipping.	9
Subpart 6.	Material safety data sheet: For each type of product that will be shipped through the pipeline, the applicant shall provide for public information purposes the material identification, ingredients, physical data, fire and explosive data, reactivity data, occupational exposure limits, health information, emergency and first aid procedures, transportation requirements, and other known regulatory controls.	9, Appendix A
7852.2300. LAND REQUIREMENTS.		
For the proposed pipeline, the applicant shall provide the following information: A. Permanent right-of-way length, average width, and estimated acreage; B. Temporary right-of-way (workspace) length, estimated width, and estimated acreage; C. Estimated range of minimum trench or ditch dimensions including bottom width, top width, depth, and cubic yards of dirt excavated; D. Minimum depth of cover for state and federal requirements; and E. Right-of-way sharing or paralleling: type of facility in the right-of-way, and the estimated length, width, and acreage of the right-of-way.		10 - 11
7852.2400. PROJECT EXPANSION.		
If the pipeline and associated facilities are designed for expansion in the future, the applicant shall provide a description of how the proposed pipeline and associated facilities may be expanded by looping, by additional compressor and pump stations, or by other available methods.		5
7852.2500. RIGHT-OF-WAY PREPARATION PROCEDURES AND CONSTRUCTION ACTIVITY SEQUENCE.		
Each applicant shall provide a description of the general right-of-way preparation procedures and construction activity sequence anticipated for the proposed pipeline and associated facilities.		12 - 18

Minnesota Rules	Description of Requirement	Page
7852.2600. PREFERRED ROUTE LOCATION; ENVIRONMENTAL DESCRIPTION.		
Subpart 1.	<p>Preferred route location: The applicant must identify the Preferred Route for the proposed pipeline and associated facilities on any of the following documents, which must be submitted with the application:</p> <ul style="list-style-type: none"> A. United States Geological Survey topographical maps to the scale of 1:24,000, if available; B. Minnesota Department of Transportation county highway maps; or C. Aerial photos or other appropriate maps of equal or greater detail in items A and B. The maps or photos may be reduced for inclusion in the application. One full-sized set shall be provided to the Commission. 	19, Maps 3 and 4
Subpart 2.	<p>Other route locations: All other route alternatives considered by the applicant must be identified on a separate map or aerial photos or set of maps and photos or identified in correspondence or other documents evidencing consideration of the route by the applicant.</p>	19 - 20
Subpart 3.	<p>Description of environment: The applicant must provide a description of the existing environment along the Preferred Route.</p>	20 - 38
7852.2700. ENVIRONMENTAL IMPACT OF PREFERRED ROUTE.		
The applicant must also submit to the Commission along with the application and analysis of the potential human and environmental impacts that may be expected from pipeline right-of-way preparation and construction practices and operation and maintenance procedures. These impacts include but are not limited to the impacts for which criteria are specified in part 7852.0700 or 7852.1900.		21 - 38
7852.2800. RIGHT-OF-WAY PROTECTION AND RESTORATION MEASURES.		
Subpart 1.	<p>Protection: The applicant must describe what measures will be taken to protect the right-of-way or mitigate the adverse impacts of right-of-way preparation, pipeline construction, and operation and maintenance on the human and natural environment.</p>	40 - 41
Subpart 2.	<p>Restoration: The applicant must describe what measures will be taken to restore the right-of-way and other areas adversely affected by construction of the pipeline.</p>	41
7852.2900. OPERATION AND MAINTENANCE.		
Pipeline operations and maintenance are assumed to be in compliance with all applicable state and federal rules or regulations, unless determined otherwise by the state or federal agency having jurisdiction over the enforcement of such rules or regulations. For public information purposes, the applicant must provide a general description of the anticipated operation and maintenance practices planned for the proposed pipeline.		42 - 45
7852.3000. LIST OF GOVERNMENT AGENCIES AND PERMITS.		
Each application must contain a list of all the known federal, state, and local agencies or authorities and titles of the permits they issue that are required for the proposed pipeline and associated facilities.		46

Introduction

Great Plains Natural Gas Co., a Division of MDU Resources Group, Inc. (Great Plains) is filing this Application with the Minnesota Public Utilities Commission (MPUC) for a Natural Gas Pipeline Route Permit under its partial exemption of pipeline route selection procedures (Minnesota Rules Chapter 7852.0600). The Application describes Great Plains' project in accordance with Minnesota Statutes Chapter 216G and Minnesota Rules Chapter 7852.

Great Plains is a division of MDU Resources Group, Inc. which initially operated under the name of Montana-Dakota Utilities Co. MDU Resources Group, Inc. is a diversified natural resources company based in Bismarck, North Dakota; it provides retail natural gas and/or electric service to parts of Montana, North Dakota, South Dakota, Wyoming, and Minnesota. Great Plains is a Minnesota public utility that operates as both a local distribution company and an intrastate transporter of natural gas to industrial, commercial, and residential customers in 18 Minnesota communities and one North Dakota community. Great Plains began operations in 1966 and serves more than 22,000 customers, and operates an existing high pressure natural gas transmission pipeline which services customers in the towns of Fergus Falls and Breckenridge, Minnesota and Wahpeton, North Dakota.

Through this Application, Great Plains seeks a Route Permit from the MPUC to construct an approximate 3-mile long, 8.625-inch-outside-diameter, high pressure natural gas transmission pipeline from its Fergus Falls Town Border Station (TBS) to its Green Plains Ethanol valve site. Great Plains requests a Route width of 120 to 500 feet as shown on Map 1, Route Location Map.

The project, referred to as the Fergus Falls Pipeline Replacement Project (Project) is being developed to maintain conformance with U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations. In particular, after conducting integrity assessments of its transmission system, Great Plains determined the need to replace a 2.2-mile segment of the existing pipeline between its Fergus Falls TBS and its Green Plains Ethanol valve site. Two High Consequence Areas (HCAs) were identified along this section of the existing pipeline. HCAs are defined by PHMSA in 49 Code of Federal Regulations (CFR), Part 192.903 as locations, based on population density, where a release from a pipeline could have the most significant adverse consequences. PHMSA regulations 49 CFR 192 require that pipelines be tested for structural integrity by either passage of electronic internal inspections tools (also known as "smart pigs") or through direct assessment, i.e. excavation and visual inspection.

The existing section of pipeline to be replaced between the Fergus Falls TBS and the Green Plains Ethanol valve site, is a 6-inch diameter pipeline and cannot accommodate the use of an internal inspection tool. Therefore direct assessment is the only inspection method available for this section of the pipeline where the HCAs are located. The direct assessment method requires Great Plains to assess the pipeline for external and internal corrosion, stress corrosion cracking, pipe material anomalies, defective welds, etc. Cyclical or routine excavations increase the risk for pipeline damage through unintended settlement and potential excavation or mechanical damages (i.e., dents and/or cracks).

The proposed pipeline will be constructed in a new right-of-way more than three-quarters of a mile from the existing pipeline. Approximately 3.0 miles of new steel pipeline will be installed in Sections 27, 28, 29, and 32, Township 133 North, Range 43 West, in Fergus Falls Township, Otter Tail County, Minnesota. A new Route is necessary for the replacement pipeline due to encroachment of business/commercial structures over the years, which precludes Great Plains from building the replacement pipeline along its existing pipeline right-of-way. The Route and proposed pipeline were selected to move the pipeline away from business and commercial development that has occurred as the City of Fergus Falls has grown and expanded to the northwest. The

beginning 0.8 miles of the proposed pipeline are located in the Fergus Falls Wildlife Management Area (WMA) which is owned and managed by the Minnesota Department of Natural Resources (MDNR). Great Plains has coordinated with the MDNR about placing the Route in the WMA. New pig launcher and receiver facilities will be constructed at the beginning and end points of the proposed pipeline.

The proposed pipeline will have an operating pressure range of between 500 to 720 pounds per square inch gauge (psig), with a maximum allowable operating pressure (MAOP) of 720 psig. The existing pipeline will be reclassified and de-rated from transmission to distribution pipeline to allow continued service to customers along its length. This section of pipeline will be operated at a lower pressure, between 150 to 250 psig, with a MAOP of 395 psig, in order to adhere to PHMSA definitions outlined in 49 CFR Part 192.3.

Great Plains proposes to begin construction of the Project in summer 2017.

Great Plains' application describes the location of the Project, the human and environmental setting, proposed construction methods, potential environmental impacts, and proposed mitigation measures and restoration procedures. The application provides information to address the criteria listed in Minnesota Rules Chapter 7852.0700 - Criteria For Partial Exemption From Pipeline Route Selection Procedures, Subpart 3, Criteria, items A – J.

Section 1: General Information (Minn. R. 7852.2100)

Subpart 1. Cover Letter

The cover letter is included with this Route Permit Application.

Subpart 2. Title Page and Table of Contents

The title page and table of contents are both included at the beginning of this Route Permit Application.

Subpart 3. Statement of Ownership

Great Plains will own, construct, and operate the proposed natural gas pipeline. Great Plains began operations in 1966, is headquartered in Fergus Falls, Minnesota, and serves more than 22,000 customers in 18 Minnesota communities and one North Dakota community. Great Plains operates as both a local distribution company and a transporter of natural gas to industrial, commercial, and residential customers. Great Plains is a public utility as defined in Minn. Stat. § 216B.02, Subd. 4. An affidavit of ownership and authority to undertake the Project follows on the next page.

Subpart 4. Background Information

A. Applicant's complete name, address, and telephone number:

Great Plains Natural Gas Co.
705 West Fir Avenue
Fergus Falls, MN 56538

Phone: 218-739-6600

B. Complete, name, title, address, and telephone number of the authorized representative:

Duane Mahlum
District Manager
Great Plains Natural Gas Co.
705 West Fir Avenue
Fergus Falls, MN 56538

Phone: 218-739-6607

Email: Duane.Mahlum@gpng.com

Jesse Volk, P.E.
Region Gas Engineer
Great Plains Natural Gas Co.
705 West Fir Avenue
Fergus Falls, MN 56538

218-739-6616

Jesse.Volk@gpng.com

C. Signatures and titles of persons authorized to sign the application:



Patrick Darras

Vice President of Operations
Great Plains Natural Gas Co., a Division of MDU Resources Group, Inc.

**STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION**

In the Matter of the Application of)
Great Plains Natural Gas Co.) **Docket No. G004/GP-16-685**
For a Natural Gas Pipeline)
Route Permit)

**AFFIDAVIT OF
PATRICK DARRAS**

STATE OF NORTH DAKOTA)
) ss: AFFIDAVIT
COUNTY OF BURLEIGH)

I, Patrick Darras, being duly sworn, do hereby state that I am the Vice President - Operations of Great Plains Natural Gas Co., a division of MDU Resources Group, Inc. (Great Plains) and that I am authorized to act on behalf of Great Plains, which is the only entity participating in the proposed pipeline project, and that all necessary authorizations have been given for me to sign this application for a route permit.



Patrick Darras

Subscribed and sworn to before me
this 10 day of October, 2016.



Notary

DENYS SCHWARTZ
Notary Public
State of North Dakota
My Commission Expires December 31, 2018

D. Brief project description:

General Location:

The proposed pipeline is located at the northwest corner of the City of Fergus Falls, Minnesota in Otter Tail County. The proposed pipeline is located mostly outside of the municipal boundary of Fergus Falls, however, it does cross two parcels of land recently annexed by the City in Section 28 and 29. The Route and proposed pipeline location were selected to move the pipeline away from business and commercial development that has occurred as the City of Fergus Falls has grown and expanded to the northwest. The general location of the Project is shown on Map 1, which identifies the Route and the proposed pipeline location. More detailed Project maps are introduced in Section 5 of this Application.

Planned Use and Purpose:

A Certificate of Need is not required for the Project since it is not classified as a large energy facility under Minnesota Statutes Section 216B.2421, subd. 2 or large pipeline under Minnesota Rules 7851.0010 Subp. 13. Therefore, the Project is exempt from the Certificate of Need requirements. However, information regarding the need for the Project is presented herein.

The Project is integrity and maintenance driven. The purpose of the Project is to replace a section of Great Plains' existing natural gas pipeline that requires replacement according to PHMSA pipeline integrity management regulations. Two HCAs occur near the existing pipeline which can pose a potential safety issue in the identified HCAs due to requirements of the Direct Inspection Methods referred to in 49 CFR 192 under gas pipeline Transmission Integrity Management Plan (TIMP) rules. TIMP requires Great Plains to perform a direct inspection of the two existing HCAs every 7 years for pipelines operating at or above 30% specified minimum yield strength (SMYS), up to 50% SMYS. The direct assessment method requires Great Plains to assess the pipeline for external and internal corrosion, stress corrosion cracking, pipe material anomalies, defective welds, etc. Cyclical or routine excavations to expose the pipeline increase the risk for pipeline damage through unintended settlement and potential excavation or mechanical damages, i.e. dents, cracks.

The existing transmission line will be de-rated and reclassified from transmission to distribution in accordance with CFR Part 192.5 to allow continued service to customers from taps along its length. This section of the pipeline will be operated at a pressure less than 20% SMYS which will allow for the elimination of the current HCA's and any further direct inspection methods.

Project Expansion (Minn. R. 7852.2400)

At this time Great Plains has no plans to expand this existing system in the future by looping or adding additional compressor stations.

Estimated Cost:

Great Plains estimates the total Project cost to be approximately \$2,700,000.

Planned In-service Date:

Great Plains anticipates beginning construction of the Project in summer 2017, with a planned in-service date of October 1, 2017.

General design and operational specifications:

The Project will include the installation of approximately 15,940 feet (3.0 miles) of 8.625-inch outside diameter pipeline (0.250 inch wall thickness, X-52) from Great Plains' Fergus Falls TBS to its Green Plains Ethanol valve site. The proposed pipeline will have an operating pressure range of 500 to 720 pounds psig, with a MAOP of 720 psig.

The existing pipeline section being replaced will not be abandoned, instead it will remain in use as a distribution pipeline, and continue to provide service to customers along its length. This pipeline section will be cut and capped at the Green Plains Ethanol valve site, and reclassified from transmission pipeline to distribution pipeline and operated at a lower pressure, between 150 to 250 psig, with a MAOP of 395 psig, in order to adhere to PHMSA definitions.

Section 2: Proposed Pipeline and Associated Facilities Description (Minn. R. 7852.2200)

Subpart 1. Pipeline Design Specifications

DOT regulations, in Title 49 CFR Part 192, define minimum federal safety standards for construction, operation, and maintenance of natural gas pipelines. Great Plains will comply with these standards while constructing, operating, and maintaining the proposed pipeline. Anticipated design specifications are listed in Table 1 below.

Table 1 Pipeline Design Specifications		
Design Criteria		Specification
A.	Pipe size (outside diameter) in inches	8.625 inch
B.	Pipe type	Steel pipe manufactured to American Petroleum Institute 5L Pipeline System Limited (PSL) 2 Specifications for Line Pipe, Grade X-52
C.	Nominal wall thickness in inches	0.250 inch for line pipe, road crossings, and horizontal directional drills
D.	Pipe design factor	The pipe will meet or exceed a design factor of 0.5
E.	Longitudinal or seam joint factor	1.0, pipe will be seamless or electric resistance welded
F.	Class location and requirements	Pursuant to 49 CFR 192.5, the pipeline will be designed to a minimum of a Class 3 location.
G.	Specified minimum yield strength, in pounds per square inch	A minimum SMYS of 52,000 psig is anticipated to be used, based on current pipeline design.
H.	Tensile strength, in pounds per square inch	66,000 psig minimum, 110,000 psig maximum

The Project is designed to meet a Class 3 location designation. Natural gas transmission pipelines are designed to comply with a “class location designation” as required by 49 CFR 192.5. Class location refers to a regulatory designation for natural gas transmission lines that indicates the level of human population within a certain distance on either side of the pipeline. The class location of a pipeline is a factor in determining the maximum allowable pressure of the pipeline, and is based on the number and type of buildings intended for human occupancy that are situated in an area that extends 220 yards on either side of the centerline of any continuous 1.0-mile length of a gas pipeline. Class locations are specified as Class 1, 2, 3 or 4; with Class 1 representing the least heavily populated of the class locations, and Class 4 representing the most heavily populated of the class locations. The criteria for each of the Class designations follows below:

- Class 1: 0 to 10 buildings;
- Class 2: 10 to 45 buildings;
- Class 3: 46 or more buildings or an area where the pipeline lies within 100 yards (300 feet) of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period; and
- Class 4: Any class location unit where buildings with four or more stories above ground are prevalent.

Subpart 2. Operating Pressure

Planned operating pressure will be 500 to 720 psig; MAOP will be 720 psig.

Subpart 3. Description of Associated Facilities

Associated facilities include a tap connecting to an in-line inspection tool launcher and receiver at each end of the proposed pipeline, cathodic protection, and pipeline markers installed at various locations (e.g., railroad and road crossings). No meter stations or odorizing facilities will be installed with the Project; the gas is odorized upstream of the Project at another existing Great Plains facility located at Vergas, Minnesota.

A. Tap and Launcher/Receiver Facilities

A tap and pig launcher/receiver facility will be constructed at the beginning and ending points of the replacement pipeline section. The tap is welded onto the existing pipeline below ground with a short stub extension and a riser pipe that will connect to the above-ground launcher and receiver facility of the new pipeline. The launcher and receiver facilities allow for the use of in-line internal inspections tools inside the pipeline to comply with PHMSA integrity inspection requirements. The launcher and receiver facilities will be protected within a gravel-covered, fenced enclosure; no structure will be built over these facilities.

B. Cathodic Protection

Great Plains uses a common galvanic anode style system for cathodic protection (CP) to protect its pipelines against corrosion. Galvanic anodes are pre-packaged with backfill to facilitate their installation. Galvanic anodes offer the advantage of more uniformly distributing the cathodic protection current along the pipeline and it is possible to protect the pipeline with a smaller amount of current than would be required with an impressed current system. An additional advantage is that interference with other structures is minimized when galvanic anodes are used. At this time a ground bed system in combination with a rectifier, as seen on some other pipeline systems, would not be used or installed for the Project. The details of the CP system will be determined at the time of final design by a CP specialist. The CP system will be designed in accordance with 49 CFR Part 192, Subpart I.

C. Alternating Current Mitigation

Portions of the proposed pipeline are in proximity to 115 kV or 230 kV electric transmission lines that could potentially result in alternating current (AC) interference effects. After the pipeline is installed, Great Plains will perform a study to evaluate if AC interference from nearby electric powerlines is occurring, and if required, AC mitigation will be designed and installed.

Subpart 4. Product Capacity Information

The planned average natural gas throughput of the Project is approximate 550,000 cubic feet per hour.

Subpart 5. Product Description

The proposed pipeline will carry processed natural gas (methane) from the Viking Gas Transmission pipeline system that Great Plains connects with at Vergas, Minnesota. Viking Gas Transmission in turn receives its gas from the TransCanada Corporation pipeline system. Natural gas is a non-hazardous, but highly flammable substance.

Subpart 6. Product Safety Data Sheets

Safety Data Sheets for natural gas and the gas odorant ethyl mercaptan are enclosed in Appendix A.

Section 3: Land Requirements (Minn. R. 7852.2300)

A. Permanent Right-of-way

Great Plains will acquire new right-of-way in the form of permanent easements and temporary workspace for the proposed pipeline. Landowners crossed by the proposed pipeline include six private landowners, the City of Fergus Falls, and the State of Minnesota. All six private landowners have given verbal approval of their intent to execute easement agreements and Great Plains is preparing final easement documents for signature. Great Plains has met with the City of Fergus Falls, the MN DNR, and the Minnesota Department of Transportation (MNDOT) and all three entities are receptive to the Project plans and are amenable to issuing easements for the proposed pipeline.

Great Plains requires a permanent right-of-way easement of 50 feet (generally oriented with 25 feet on each side of the pipeline). The proposed pipeline is approximately 15,940 feet (3.0 miles) long, requiring an estimated 18.3 acres of permanent right-of-way easement. Great Plains will purchase a 50-foot by 50-foot land parcel in fee for the launcher and a 75-foot by 137-foot land parcel for the receiver facility. Table 2 below presents the land requirements for construction and operation of each component of the Project.

Table 2 Land Requirements			
Project Component	Width (feet)	Length (feet)	Area (acres)
Pipeline Facilities			
Permanent right-of-way	50	15,940	18.3
Temporary construction workspace			
Pipeline	25	14,580	8.4
Additional temporary workspace			
Pipe stringing area near launcher	25	1,600	0.9
Drill workspace on WMA ¹	Irregular	Irregular	0.3
Pipe stringing area west of WMA	50	1,800	2.1
Above Ground Facilities			
Launcher Facility ²	50	50	0.06
Receiver Facility ²	75	137	0.24
Total Acres Impacted			30.3
¹	WMA = Wildlife Management Area		
²	Included within the permanent right-of-way		

B. Temporary Construction Workspace

Construction will require a 75-foot-wide construction workspace, which includes the 50-foot-wide permanent right-of-way, plus 25 feet of temporary construction workspace. The length of the route where the 25 feet of temporary construction workspace is needed is 14,580 feet, which equates to 8.4 acres. The 25 feet of temporary construction workspace is not required along the first 0.27 miles of the proposed pipeline because equipment will not be driving on the construction right-of-way at this location. The locations of 50-foot-wide permanent right-of-way, and the 25-foot-wide temporary construction workspace are shown on Map 2, Construction Methods Map.

Three additional temporary workspace (ATWS) areas are required outside of the typical 75-foot-wide construction workspace to complete the horizontal directional drill (HDD) in these areas. One ATWS is needed for staging drill equipment at MP 0.3, and two ATWS locations are needed for pipe pullback areas; i.e. where a section of the pipeline is assembled in alignment with the drill paths so the section can be pulled through the borehole continuously without stopping. The total land area required for ATWS is estimated to be approximately 3.3 acres. The locations of ATWS are shown on Map 2.

C. Trench Dimensions

The proposed pipeline will be installed using a combination of traditional open-cut trench construction and the HDD method. Trench construction will occur on approximately 1.8 miles of the proposed pipeline and HDD construction will occur on the remaining 1.2 miles. The dimensions of the trench will be 5.5 feet deep in agricultural lands or 5.0 feet deep in non-agricultural lands, with a bottom width of 3.5 feet, and an estimated top opening width of 3.5 feet. The amount of excavated soil is estimated to be 7,000 cubic yards.

D. Minimum Depth of Cover

Depth of cover over the pipeline will be a minimum of 4.5 feet (54 inches) on agricultural lands and 4.0 feet (48 inches) in non-agricultural lands. These cover amounts meet or exceed the requirements set forth in DOT pipeline standards 49 CFR Part 192.327, and are consistent with Minnesota Statute 216G.07, Subdivision 1. This statute requires the proposed pipeline to be buried with a minimum level cover of not less than 4.5 feet in all areas where the pipeline alignment crosses public drainage facilities, county or state highway rights-of-way, and actively cultivated agricultural lands. A minimum depth of 5.0 feet (60 inches) will be used for all state highway crossings, as required by MNDOT. With respect to crossing the Otter Tail Valley Railroad, Great Plains will bore this crossing at a depth in accordance with the requirements of Otter Tail Valley Railroad.

E. Right-of-way Sharing or Paralleling

The proposed pipeline will parallel existing rights-of-way over much of the route. The proposed pipeline parallels 1.2 miles of existing combined road and electric transmission lines, and 1.0 miles of existing electric transmission line, for a total of 2.2 miles of paralleling, or 73 percent of the Project length. The purpose of aligning the pipeline adjacent to existing rights-of-way is to reduce the amount of impacted landowner property due to utility infrastructure.

Section 4: Right-of-way Preparation Procedures and Construction Activity Sequence (Minn. R. 7852.2500)

The proposed pipeline will be installed using trench construction on private lands, and the HDD construction method for crossing the Fergus Falls WMA, roads, and railroads. The locations where trenching or the HDD construction method will be used, and the locations of three ATWS needed for completing longer HDDs are shown on Map 2. The right-of-way preparation procedures and construction sequence for both approaches are described below.

Trench Construction

Conventional overland construction techniques will follow a set of sequential operations in which the construction spread (crew) proceeds along the pipeline right-of-way in one continuous operation. Final restoration will occur once the entire pipeline has been constructed. The process is coordinated in such a manner as to minimize the total time a tract of land is exposed to erosional processes after disturbance.

A. Survey and Staking

The initial step in the preparation of the right-of-way for construction is the pre-construction survey. Affected landowners will be notified before the pre-construction survey and staking commence. After these notifications, a crew will survey and stake the outside limits of the construction workspace and ATWS areas, the centerline of the pipeline, wetlands crossings, highway crossings, and known underground facilities. Existing utility lines (e.g., cables, conduits, and pipelines) will be located and marked with flags, stakes, or other devices to prevent accidental damage during pipeline construction.

B. Clearing and Grading

Following the installation of the staking and flagging, the right-of-way will be cleared and graded to remove brush, trees, roots, and other obstructions such as large rocks and stumps within upland areas. Non-woody vegetation may be mowed and left in place to limit soil erosion. Soil, brush, roots, and rocks removed from the construction workspace will be typically windrowed on the outer edge of the construction workspace and some may be used for reclamation. Large (merchantable) timber, if any, will be salvaged or used for reclamation. Smaller trees and brush may be chipped for use as mulch. Burning of slash, brush, stumps, or other Project debris is prohibited.

After the right-of-way has been cleared and the stumps removed from within upland areas, grading may be necessary to create a smooth surface for safe operation of equipment. Minimal grading will be required in flat terrain. Topsoil will be stored along the outside edge of the construction workspace. To minimize the potential for erosion from wind and water, Great Plains will install temporary erosion control devices as specified in its Storm Water Pollution Prevention Plan (SWPPP) and as required by its National Pollutant Discharge Elimination System (NPDES) construction stormwater permit requirements. Temporary erosion control measures will be installed as needed downstream from planned work areas prior to initiating ground disturbing activities to prevent sedimentation into wetlands or waterbodies. Temporary erosion control measures will include sediment barriers such as silt fence and straw bale structures.

C. Trenching

Great Plains will excavate the trench using a track-mounted hoe. Topsoil will be segregated from subsoil over the trench line area, and stockpiled along the outside edge of the 75-foot-wide construction workspace on the

side of the trench away from the construction traffic and pipe assembly area. Subsoil will be stockpiled separately from topsoil. This segregation of topsoil and subsoil will be maintained throughout the construction of the Project.

Crossing a foreign pipeline will generally require the installed pipeline to be buried at greater depths; a minimum of 1.0 foot of clearance, as required by Great Plains' construction, operation and maintenance standards, when crossing foreign pipelines, drain tile, cables, underground wires (electrical, fiber optic or telephone), or other similar facilities. During trenching, previously unidentified or unknown drain tile may be located. Great Plains will restore the functionality of the drain tile through the relocation, reconfiguration, or replacement of the existing tile.

D. Pipe Laying

After the pipe trench is excavated, sections of externally-coated pipe typically in 40-foot or 60-foot lengths (also referred to as joints) will be transported to the construction workspace by truck and strung along the side of the trench. Pipe joints may be bent by using a track-mounted, hydraulic pipe-bending machine to tailor the shape of the pipe to conform to the contours of the terrain. Sections of pipe that require multiple or complex bends may be pre-fabricated off site.

After the pipe ends are sufficiently cleaned and bending activities have been completed, the pipe joints are lined up and welded together until the joints are securely joined. Welding will be completed by pre-qualified welders in accordance with American Petroleum Institute 1104, the code for "Welding of Pipelines and Related Facilities." Welders will comply with the welding procedures that have been developed and tested to conform to the detailed national industry standards and pipeline regulations. All welds are required to exhibit the same structural integrity with respect to strength and ductility.

Each weld will be inspected by qualified welding inspectors to determine the integrity of each weld. Great Plains completes 100% testing of welds by radiographic examination, a nondestructive testing method of inspecting the inner structure of welds and determining the presence/absence of defects. Contractors specializing in radiographic examination will perform the inspections to ensure structural integrity. Welds that do not meet established specifications will be repaired or replaced with a weld that meets DOT standards. Once the welds are approved, a protective coating will be applied to the welded joints.

PHMSA requires buried pipelines to have an acceptable protective coating to protect against corrosion. The pipe is typically coated with a fusion-bonded epoxy applied at the steel mill prior to delivery. Construction field welds will be coated in the field with an approved material that is compatible with the mill applied coating. The entire coating will be inspected and any defects in the coating will be field-repaired. After this coating is inspected, the pipe will be ready to be lowered into the trench.

Prior to being lowered-in, the trench will be inspected to ensure it does not contain rocks that could damage the pipeline or its coating. If rock conditions are encountered, the trench bottom will first be padded with a layer of rock-free soil (e.g., sand). Padding is not necessary along the entire pipeline and only occurs where rock is encountered. Padding material will be generated on site or will be imported from a local borrow pit or commercial source. No topsoil will be used to pad the pipeline.

Dewatering may be necessary to inspect the bottom of the trench in areas where water has accumulated. Trench dewatering activities would be performed in accordance with MDNR Water Appropriation General Permit MN 97-0005 and erosion control plans developed pursuant to the Minnesota Pollution Control Agency (MPCA) NPDES Construction Storm Water Discharge Permit.

E. Backfilling and Rough Grading

After the pipe is lowered into the trench, the trench will be backfilled by replacing subsoil first, then topsoil using bladed equipment or trackhoes. Where the backfill material contains large rocks or other materials that could damage the pipe or coating, subsoil, clean fill, and/or protective coating (i.e., padding material) will be placed around the pipe prior to backfilling. Rock excavated from the pipeline trench may be used to backfill the trench only to the depth of the existing bedrock profile. Rock that is not returned to the trench will be disposed of onsite per the landowner request or offsite as construction waste.

Great Plains will grade the construction workspaces to as near as practicable to pre-construction conditions. Great Plains will require its contractor to use a proven compaction method to minimize trench settling. Following backfilling, a small crown of material may be left over the trench to account for any potential soil settling.

F. Testing

After the installation of the entire pipeline is complete, Great Plains will hydrostatically test the new pipeline to verify its structural integrity prior to placing the pipeline in service. Hydrostatic testing will be conducted in accordance with PHMSA regulations (49 CFR § 195.300). The test procedure consists of filling the pipeline with water and maintaining a prescribed pressure for a prescribed period of time to establish the maximum allowable operating pressure. Great Plains estimates that about 42,000 gallons of water will be required for the test; water will be purchased from the City of Fergus Falls at a fire hydrant location near the pig launcher facility. When hydrostatic testing is complete, the test water will most likely be discharged to the ground surface through an energy dissipation device. All discharges will be conducted in accordance with the terms and conditions of the MPCA NPDES hydrostatic test water discharge permit.

G. Cleanup and Restoration

The construction contractor will be required to pick up trash throughout the construction process. Final cleanup and restoration of the right-of-way is the final phase of pipeline construction and typically begins immediately after backfilling, or as soon as weather and soil conditions allow. Construction debris and surplus materials will be cleared from the right-of-way and construction debris will be taken to a licensed disposal facility.

After the pipeline has been installed, backfilled, and successfully tested, the construction workspace and ATWS will be graded to its pre-construction contour, topsoil replaced, and in non-agricultural areas seeded, fertilized, and mulched as appropriate to facilitate revegetation. Agricultural areas will not be seeded, fertilized or mulched, as the land will be tilled during the next spring season for re-planting in crops. Work areas will be restored as nearly as practicable to their pre-construction condition and erosion control measures will be installed, as needed.

Pipeline location marker posts will be installed over the pipeline on each side of a railroad and road crossing in accordance with PHMSA regulations, typically at the edge of the road right-of-way where the pipeline crosses under the railroad or road.

HDD Construction

Road and Railroad Crossings. The proposed pipeline will cross several public roadways, including Interstate I-94, and one private railroad, the Otter Tail Valley Railroad. These features will be crossed by completing a HDD to install the pipeline underneath the feature. Great Plains has prepared HDD crossing plans and submitted

applications to the MN DOT and Otter Tail Valley Railroad for the I-94 and railroad crossing. Both entities have given verbal indications of their acceptance of the proposed crossing plan. The HDD method will cause little or no disruption to road or rail traffic at the crossings.

Waterbody and Wetland Crossings. One water body is crossed by the proposed pipeline and it will be crossed by using the HDD method to install the pipeline underneath the waterbody. Large wetlands crossed by the proposed pipeline will be crossed by using the HDD method to install the pipeline underneath the wetlands.

Fergus Falls WMA Crossing. Great Plains will install the proposed pipeline in the Fergus Falls WMA in three HDD segments. Great Plains discussed the concept of routing the Project on the WMA with the MDNR Area Supervisor early in the Project development phase on May 17, 2016. Finding a buildable route near the beginning of the Project was a critical route design step to route the pipeline to the north, away from the developed area of Fergus Falls. During this initial meeting, Great Plains discussed its plans for the HDDs with the MDNR Area Supervisor, who was amenable to the construction plan.

Great Plains submitted an application for a License to Cross Public Lands to the MDNR Northwest Region, Lands and Minerals Office on June 24, 2016. Great Plains began the formal permit application process as a way to further engage the MDNR resource specialists to identify their potential issues with the proposed route design. The application contained a proposed crossing plan describing how Great Plains will complete the HDDs. The MDNR responded on July 27, 2016 that they have completed their review of Great Plains' application materials and proposed crossing plans, and have no major resource concerns with the plans.

The initial steps of locating existing utilities and marking of the pipeline path and construction workspaces on the WMA are the same as the procedures used on private lands described above. However as trenching will be replaced by the HDD method after the clearing operation, the discussion below highlights the key elements of the pipeline installation on the WMA land.

A. Clearing, Grading, and Bell Hole Excavation

Along the north-south drill section between MP 0.0 and 0.3, pipeline assembly for the pipe string will occur on ATWS outside of, and south of the WMA property, parallel to and adjacent to County State Aid Highway (CSAH) 88 (see Map 2). The construction right-of-way for the north-south HDD segment will not need to be cleared of vegetation or graded because no construction traffic will be driving on this section of the workspace. A second ATWS is needed at the north end of this drill section, at MP 0.3, for a drill staging area which will be cleared and graded.

Along the east-west drill section (between MP 0.3 to 1.0), two small areas of trees will be removed along the 50-foot permanent right-of-way within the WMA to create a workspace for pipe assembly equipment. The trees to be removed include a planted tree grove bordering CSAH 88 (containing balsam fir, red maple, Russian olive, Tartarian honeysuckle, and eastern red-cedar), and a row of planted trees and shrubs along Deerfield Drive (containing green ash, white spruce, Tartarian honeysuckle, Russian olive, eastern red-cedar, and common buckthorn). A brush mower will then be used to mow vegetation within the 75-foot-wide construction workspace within the WMA, and at a third ATWS location west of the WMA that will be used for a pipe string assembly area (see Map 2). A tractor or other disking equipment will be used to disk the construction workspace to prevent brush fire during pipe assembly and welding operations. Disposal of timber and slash will be done in accordance with the requests of the MDNR and will be consistent with local regulations.

For both the north-south and the east-west drill segments, excavation of the bell holes for the drills and tie-ins will be completed by stripping off top soil first, then excavating the subsoil, and storing the two spoil piles separately. A typical bell hole size is about 10 feet in diameter for a drill and 20 feet in diameter for a tie-in,

however the actual size needed may be larger depending on the depth of pipe at the tie-in, soil stability, or possible pipe misalignment issues that may need mechanical manipulation to line up the pipe prior to welding.

B. Pipe Delivery and Assembly

Semi-trailer trucks will deliver the pipe to the construction workspace for welding the pipe strings needed to complete the HDDs. For road and railroad drill locations, and part of the east-west drill in the WMA, pipe will be welded together within the 75-foot-wide construction workspace, parallel to the pipeline alignment. Pipe will also be delivered to two ATWS areas (south of the pig launcher, and west of the WMA). The pipe joints are strung along the construction workspace and welded together, as described in the Pipe Laying paragraphs above for trench construction.

C. HDD Operations

The exact style and size of the specialized drilling equipment needed for the HDD operations will be determined by Great Plains' pipeline construction contractor. Based on the relatively small diameter of pipeline, Great Plains anticipates that the size of the drill rigs would be similar to those shown in Figures 1 and 2. Long bores typically over 800 feet may require the use of HDD drill head tracking wires on the ground surface along the length of the drill path. Depending on the size of the drill rig, the drilling process would be conducted in two to three stages. The first stage consists of drilling a small-diameter pilot hole along the path delineated by guide wires, and following a gentle arching vertical path. The second stage involves incrementally enlarging or reaming the pilot hole to a diameter that will accommodate the 8-inch-diameter pipeline. The third stage involves pulling the prefabricated segment of pipeline through the enlarged hole with the drill rig. The depth of cover between the top of the pipe and the ground level or road bed will be between 4 to 5 feet at the ends of the drill path where it will be the most shallow, and then deeper along the middle portion of the drill.

Throughout the process of drilling and enlarging the pilot hole, a bentonite clay slurry, referred to as drilling mud, is created on-site by mixing the clay with water. The drilling mud is circulated through the drilling tools to lubricate the drill bit, remove drill cuttings, and stabilize the open hole. Typical HDD operations use a small bell hole at the point of the drill bit entry into the ground to contain any excess drilling mud during pushing or pullback operations. Excess drilling mud is typically recovered and disposed of by using a Vac-Tron system (a vacuum excavator piece of equipment).

D. Drill Segment Tie-Ins

After the drill segments have been installed, welders will complete the tie-in welds in each corresponding bell-hole. Ground water seepage may occur into the tie-in bell holes, interfering with successful tie-in work. Construction crews will dewater the bell hole using a pump, in accordance with conditions specified in a dewatering permit from the MDNR. Water removed from the bell hole will be discharged through filtration bags or straw bale structure located in an upland area. All discharges will be conducted in accordance with terms and conditions of the NPDES trench dewatering discharge permit issued by the MPCA for the Project. Surveyors will conduct an as-built civil survey prior to the start of backfilling and restoration activities.

E. Backfilling and Rough Grading, Testing, Cleanup and Restoration

Backfilling, rough grading, hydrostatic testing, and cleanup and restoration will proceed as described in the paragraphs above for construction on private lands, except that permanent soil stabilization efforts will consist of revegetation of the construction workspace with a MDNR-approved seed mix.



Figure 1 HDD Drill Rig – Model 220x300 Machine (Long Bores)



Figure 2 HDD Drill Rig – Model 60x90 Machine (Short Bores)

Section 5: Preferred Route Location, Environmental Setting, and Project Impacts (Minn. R. 7852.2600 and 7852.2700)

In developing a preferred route for the proposed pipeline, Great Plains sought to develop a route that balanced the company's need for a constructible, cost-effective route while minimizing impacts to humans and the environment. Great Plains studied the Project area to develop an initial proposed pipeline route that connected the necessary end points using the shortest most efficient route available and avoided potential HCAs as much as possible. The route was then modified to meet the following objectives:

- minimize land use impacts by routing along existing roads and utility rights-of-way;
- minimize use of new rights-of-way; and
- minimize impacts on human, environmental, and sensitive resources.

The proposed pipeline is designed to best minimize overall impacts of the Project while still fulfilling the objectives of Great Plains.

Subpart 1. Preferred Route Location

The Project is located at the northwest corner of the City of Fergus Falls, Minnesota in Otter Tail County. The proposed pipeline will be located in parts of Sections 27, 28, 29, and 32 at Township 133 North, Range 43 West, in Fergus Falls Township. The proposed pipeline originates in Section 27 at the site of the planned pig launcher facility across the street from the Fergus Falls TBS on the east side of CSAH 88. From this point, the proposed pipeline travels north paralleling CSAH 88 and then turns west, just north of the intersection of CSAH 88 and Deerfield Drive. The route then travels west-northwest across Section 28, paralleling Deerfield Drive and the Otter Tail Power electric transmission line, crosses Deerfield Drive, and then begins to travel in a southwesterly direction and crosses the Otter Tail Valley Railroad. Shortly after crossing the Otter Tail Valley Railroad the proposed pipeline turns to the west, crosses Interstate 94, and continues on until it reaches the eastern side of County Highway 116. At this point, the proposed pipeline turns south and parallels County Highway 116 until it reaches the proposed pig receiver facility on the south side of 230th Street in Section 32, near the existing Green Plains Ethanol valve site.

Map 3 shows the proposed pipeline on an aerial photo map base, and Map 4 shows the proposed pipeline on a U.S. Geological Survey (USGS) 7.5 minute topographic base map. Both maps are drawn at a 1 inch = 450 feet, or 1:5,400 map scale, and depict results from Great Plains' wetland and waterbody survey effort.

Subpart 2. Other Route Locations

Great Plains considered two other route locations when developing plans for the Project. The first route location would involve replacing the pipeline segment between the Fergus Falls TBS and the Green Plains Ethanol valve site along the route of the existing pipeline. This route location would make use of an established pipeline right-of-way; however, Great Plains rejected this option because of the amount of business and commercial structures that have encroached on the pipeline over the years. The nearby structures are a primary reason for Great Plains to undertake the Project to address the integrity management thresholds at these locations and its desire to move the pipeline away from structures. In addition, Great Plains expects construction along this route would be difficult because of cramped workspace conditions, take longer to complete, be more costly, and could create logistical complications for maintaining gas supply service to existing customers downstream during construction.

The second route location Great Plains considered was a route located 0.5 mile farther north of the proposed pipeline that follows along Deerfield Drive and 240th Street, after exiting the west side of the Fergus Falls WMA (see Map1). This location was considered because it follows existing road rights-of-way (the proposed pipeline follows more electric transmission line than road right-of way). Two new landowners would be encountered along this route location option. Great Plains rejected this option because it is longer, would take longer to complete, be more costly, and would cross two additional large wetlands that are avoided by the proposed pipeline.

Subpart 3. Description of Existing Environment

A. Communities and Land Use

Land Cover, Land Use, and Zoning

The Project lies within a stagnation glacial moraine associated with the Big Stone Moraine Complex deposited by the Des Moines Lobe approximately 14,000 years ago. Physiography of this area is nearly level to rolling topography with a difference in elevation commonly ranging from 10 to 50 feet. The steeper slopes occur on the sides of drainages and on breaks adjacent to some of the larger tributaries. Drainage in the area is ill-defined and depressions including prairie pothole lakes, ponds, and marshes are common. Most of the area is covered by 100 to 400 feet of glacial drift or till and is underlain by Cretaceous Pierre Shale (U.S. Department of Agriculture, 2006).

Land use is principally rural and agricultural. The total acres of each land use category that will be affected by the Project are shown in Table 3 below.

Land Use Category	75-foot Construction Workspace			50-foot Permanent Right-of-Way		
	Acres Crossed ^a	Acres Impacted	Percentage of Pipeline Route	Acres Crossed	Acres Impacted	Percentage of Pipeline Route
Agriculture	18.1	18.1	60.4	10.6	0.24	58.1
Grassland/Open	5.9	3.0	19.8	4.2	0	23.1
Wetlands/Waterbodies	3.9	0.3	13.0	2.7	0	14.6
Forested/Shrubland	0.7	0.7	2.4	0.5	0.5	2.5
Developed	1.3	1.3	4.4	0.3	0.06	1.7

^a Acreage presented for the construction workspace is inclusive of the 50-foot permanent right-of-way, temporary workspace, and HDD staging areas.
 Source: Ground survey and aerial imagery review.

Residential subdivisions and light industrial and commercial developments are located around the Project on the fringes of the City of Fergus Falls. The Project is located mostly outside of the municipal boundary of Fergus Falls, however, it does cross two parcels of land recently annexed by the City in Section 28 and 29 (see Map 5, City of Fergus Falls Zoning Map). Approximately 1,325 feet of Agricultural-Residence District (R-A) zoned land is crossed, and 1,325 feet of General Industrial District (I-2) zoned land is crossed (City of Fergus Falls, 2016a).

According to information available in the Fergus Falls City Code, Chapter 7, Zoning and Subdividing (§7.03, Subpart D), lands that are recently annexed into the city limits are zoned as R-A until the City Planning Commission recommends an alternate zoning district (City of Fergus Falls, 2016b). Fergus Falls City Code, §7.10, Subpart A1 explains that the R-A zoning district is intended to retain lands in a rural use until such time that these lands are needed for urban purposes. Permitted uses listed for I-2 zoning category include land use for power service structures such as electric, gas, water works, and telephone facilities (Fergus Falls City Code, §7.31, Subpart B 11). According to their websites, Otter Tail County and the City of Fergus Falls have not developed comprehensive land use plans.

Great Plains met with the Engineering Department in the City of Fergus Falls on September 9, 2016, to present draft alignment sheets of the proposed pipeline and to discuss construction plans. Great Plains modified the location of the proposed pipeline after this meeting to accommodate a request from the City. The pipe pullback area located along CSAH 88 (West Fir Avenue) south of the proposed pig launcher, occurs in an area where several commercial properties exist. The pipe pullback area at this location is needed to assemble a pipeline section for the planned north-south HDD under the WMA, so that the pipe can be installed continuously without stopping during the pull-back operation of the HDD. Great Plains will assemble the pipe string, cut a trench in the driveways to the commercial properties, lower the pipeline into the road drainage swale, and place steel plates over the driveway cuts to restore access for the commercial properties. During Great Plains' initial project planning meeting with the Fergus Falls City Engineer, access to a city wastewater lift station near the pig launcher site and a temporary road closure of CSAH 88 were discussed as items for Great Plains to factor into construction plans. Great Plains will coordinate with the commercial property owners to develop the construction plan for this location to minimize impacts on vehicle access to commercial properties and ensuring traffic safety while this work is being completed.

The primary land use impacted by construction of the Project will be agricultural lands. Construction of the Project will temporarily impact approximately 18.1 acres of agricultural lands, or 60.4 percent of the total land impacted. Temporary impacts will include interruption of crop cultivation within the construction workspace during one growing season. After completion of construction and restoration, agricultural activities will be allowed to resume within the construction workspace; therefore, impacts on agricultural lands will be temporary, short-term, and will resolve with the completion of construction. Specific mitigation measures that will be implemented during construction on agricultural land are further discussed under the Soils section.

Approximately 3.0 acres of grasslands on the WMA land will be impacted by Project construction. The 75-foot-wide construction workspace surface on the east-west HDD portion of the WMA will be disked to prevent brush fire during pipe assembly and welding operations. Once construction is complete, these lands will be restored and revegetated.

Nine wetlands and one waterbody will be crossed by the proposed pipeline. Impacts on the one waterbody will be avoided by use of the HDD method to install the pipeline underneath the waterbody. Seven of the nine wetlands are larger in size and impacts will be avoided by use of the HDD method to install the pipeline underneath them. Two small isolated wetlands will be crossed using conventional trenching methods and will be restored to pre-existing conditions.

Project impacts on forested land/shrubland will be minimal; approximately 0.7 acres of forested land/shrubland will be temporarily impacted by construction of the Project. Of these 0.7 acres, 0.5 acres will be permanent impacts as trees and other woody vegetation will not be allowed to regenerate within the permanent right-of-way.

Impacts on residential and commercial areas will be minimal as the proposed pipeline predominantly crosses agricultural land. The residential and commercial areas near the Project may experience short-term impacts as a result of construction due to increased vehicle traffic, noise levels, or dust generated by construction equipment; these impacts will resolve with the completion of construction. No residences are located within 100 feet of the construction workspace.

Public and Designated Lands

The proposed pipeline crosses the Fergus Falls WMA for approximately 0.8 miles (4,241 feet). The MDNR manages the land use on the WMA. Hunting is not allowed anywhere within the WMA. The WMA is bisected by CSAH 88 and is managed for two different purpose on the east versus the west side of CSAH 88. The portion of the WMA on the east side of CSAH 88 is managed as a wildlife sanctuary and no public access is allowed. The portion of the WMA on the west side of CSAH 88 is managed for recreational use, but limited to hiking and nature observation activities such as photography and bird watching.

Construction of the Project on the Fergus Falls WMA will result in temporary impacts on public use of and wildlife within the WMA. Localized disturbances from construction equipment noise, dust, and visual intrusions will result in avoidance of the area by people and wildlife. Following the completion of construction, public use of the WMA will be allowed to resume as before, and wildlife will return; no long-term impacts are anticipated.

The MDNR has completed its review of Great Plains’ application for a Utility Crossing License on the WMA and responded that they have no major resource concerns with the proposed construction plans. MDNR has indicated that their License conditions will include coordination with the Area Wildlife Supervisor on restoration and seeding requirements, and on methods for managing the spread on invasive plants.

No other federal, state, or county parks, forests, or designated recreational areas will be crossed by the proposed pipeline.

Socioeconomics, Industry, and Tourism

Population and Economies within the Route. A comparison of the U.S. Census Bureau (USCB)’s 2010 census data and the 2010 – 2014 American Community Survey 5-year Estimates shows that population levels in the Project area have remained fairly constant (USCB, 2010; 2014). Table 4 presents details about the population levels within the Project area.

Table 4 Population Statistics				
	2010 Census	2010-2014 ACS Estimate	Percent Change	Population Density 2010 Census (persons per square mile)
Minnesota	5,303,925	5,383,661	2% increase	66.6
Otter Tail County	57,303	57,417	<1% increase	29.1
Fergus Falls	13,138	13,215	1% increase	931.0
Sources: USCB, 2010; 2014.				

The top three industries in Otter Tail County and the City of Fergus Falls are educational services, health care, and social assistance; manufacturing; and retail trade (USCB, 2014). Of the top three industries, educational

services, health care, and social assistance employs 25.5 percent of the civilian workforce at the county level and 31.5 percent of the civilian workforce within Fergus Falls. However, the immediate Project area is located just outside the City of Fergus Falls in a more rural setting; as such, the primary industries in the immediate Project area are agriculture and light industrial. Table 5 below provides information about the economic conditions within the Project area.

Table 5 Economic Conditions					
	Median Household Income	Per Capita Income	Percent of Unemployment	Top 3 Industries	Percentage Living Below the Poverty Line (All People)
Minnesota	\$60,828	\$31,642	6.5	E, M, R	11.5
Otter Tail County	\$50,914	\$27,379	5.2	E, M, R	11.0
Fergus Falls	\$41,977	\$24,906	6.9	E, R, M	14.6
Source: USCB, 2014					
Industries:					
E = Educational services, health care, and social assistance					
M = Manufacturing					
R = Retail trade					

Median household income in Otter Tail County is approximately 16 percent lower than the median household income state-wide and per capita income in Otter Tail County is approximately 13 percent lower than per capita incomes state-wide (USCB, 2014). The median household income of residents of Fergus Falls is approximately 31 percent lower than the median income state-wide and the per capita income of residents is approximately 21 percent lower than per capita incomes state-wide.

Unemployment rates in Otter Tail County are approximately one percent lower than rates at the state level and the percentage of the population living below the poverty line is fairly consistent with the poverty levels in the state at large (USCB, 2014). However, in the city of Fergus Falls, unemployment rates are slightly higher than rates at the state level (6.9 percent versus 6.5 percent, respectively) and the percentage of people living below the poverty line is approximately 3.1 percent higher (14.6 percent versus 11.5 percent, respectively).

The Project area was assessed for potential presence of geologic extraction industries. Minnesota is the largest producer of the ferrous minerals iron ore and taconite in the United States. Taconite veins occur on the Mesabi Iron Range in northeastern Minnesota; no taconite resources are present within the Project area. Non-ferrous minerals manganese, copper, nickel, platinum, and titanium exist in Minnesota in minable quantities, but under current market conditions are not being mined.

Industrial minerals include construction aggregate (sand, gravel, and crushed stone), peat, kaolin clay, dimension stone, landscape stone, and silica sand. Aggregate mining operations occur in nearly every county in Minnesota. The MNDOT maintains an Aggregate Source Information System Map which identifies the locations of aggregate sources and mining operations throughout the state. Review of this mapping shows that no aggregate sources are located within the Project area, with the nearest source being located approximately 0.5 mile northeast of the Project (MNDOT, 2016).

Economic benefits to the local economy will be realized during construction resulting from the influx of the labor workforce. These benefits include expenditures for lodging, fuel, grocery, and restaurant sales. Demand for housing and public services from the non-local workers will be incremental and small. Additional local benefits include easement payments and property tax revenues. Construction will create temporary jobs for both local and non-local workers. Operation of the pipeline will not employ any additional permanent staff.

Great Plains reviewed the Minnesota Department of Agriculture’s (MDA) Directory of Minnesota Organic Farms and FieldWatch, Inc.’s Driftwatch website map viewer to assess organic farm locations in the Project area, and determined no organic farms will be crossed. Great Plains corresponded with the MDA on July 22, 2016 regarding identification of special agricultural issues within the Project area; none were noted. A copy Great Plains’ correspondence with MDA is included in Appendix B. Agricultural land along the construction workspace will not be able to be cultivated during construction, and Great Plains will negotiate easements with affected landowners to mitigate any temporary impacts on agricultural production. Following construction, agricultural land can resume cultivation along the right-of-way and no permanent impacts are expected.

Tourism. The proposed pipeline is located adjacent to the I-94 Speedway (I94 Speedway.com, 2016), a privately-owned automobile race track located directly southwest of the intersection of CSAH 88 and Deerfield Drive, where the proposed pipeline parallels both roads. Events at the speedway include dirt track racing events sponsored by the WISSOTA Racing Division (WISSOTA.org, 2016). The dirt track season is May through the first weekend in September; most events are held on Friday evenings with occasional events that run Thursday through Sunday. BMX racing events are also held at the speedway (Fergus Falls.com, 2016) on Saturdays in May and Thursday evenings June through August.

Patrons of the race track may experience a temporary increase in traffic during construction, but impacts are expected to be minimal. Schedules for construction work and Speedway operations are offset from each other; construction will occur Monday through Friday during daytime hours and Speedway events generally occur on Friday evenings, or on Saturday. No long-term impacts on the speedway will occur from the Project.

Existing Infrastructure / Use of Existing Rights-of-ways

The Project is located in a transition area from rural to urban with commercial development and contains a mix of existing infrastructure facilities. The proposed pipeline parallels existing infrastructure for a total of 2.2 miles (73 percent), including a combination corridor of electric transmission lines and public roads (1.2 miles), and standalone electric transmission line (1.0 mile). Table 6 lists the existing rights-of-way that are shared by the proposed pipeline and Table 7 lists the existing infrastructure crossed by the proposed pipeline.

Table 6 Existing Shared Rights-of-Way			
Location of Crossing (MP)	Length of Right-of-Way	Type	Name
0.0 – 0.3	0.3 Miles	Public Road and Electric Powerline	CSAH 88
0.31 – 0.71	0.4 Miles	Public Road and Electric Powerline	Deerfield Drive and Otter Tail Power
1.49 – 2.5	1.0 Miles	Electric Transmission Powerline	Otter Tail Power
2.5 – 2.99	0.5 Miles	Public Road and Electric Powerline	County Highway 116

Table 7 Existing Rights-of-Way Crossed		
Crossing Location (MP)	Type	Name
0.27	Electric Transmission Powerline	Otter Tail Power
0.31	Public Road	CSAH 88
0.77	Electric Transmission Powerline	Otter Tail Power
0.84	Public Road	Deerfield Drive
1.39	Railroad	Otter Tail Valley Railroad
1.42	Electric Transmission Powerline	Otter Tail Power
1.97	Public Road	Interstate 94
2.0	Electric Transmission Powerline	CapX2020
2.99	Public Road	230 th Street

The Project could have temporary traffic impacts on public roads during construction. Great Plains will use the HDD method to install the pipeline under roadways to avoid physical impacts on public roads. Vehicle congestion on roadways may increase during peak rush hour commute times, but congestion is not expected to be significant as Fergus Falls is not a large metropolitan area, and a well-developed system of roadways is in place.

Great Plains is planning to use an existing commercial facility, a stockyard named the Fergus Falls Livestock Auction Market (see Map 2) located on County Highway 116 near MP 2.9, as a contractor/storage yard to stage equipment and materials for the Project. Construction equipment traffic will likely be heaviest around the stockyard from vehicles entering and exiting. Great Plains will implement traffic control measures as necessary to ensure safety of the general public and construction personnel. Great Plains also will implement best management practices (BMPs) during construction as needed to minimize the potential for increased dust and tracking of soil onto public roads by construction equipment. Impacts on the transportation systems will be temporary and short-term in nature and will resolve with the completion of construction. No permanent impacts on transportation systems will occur.

B. Natural Environment

Geology

The uppermost bedrock unit within the Project area is the Precambrian Ottetail batholith, consisting of granite to granodiorite, and is characterized as generally discrete, unfoliated to weakly magmatically foliated or lineated plutons (Jirsa et al., 2011). This Archean bedrock represents the southern exposed extent of the Superior Province and is further defined by presence in the Wawa subprovince, which is a discrete fragment of oceanic and continental crust that was assembled by accretion into the Superior craton.

The Project area was assessed for geologically unstable areas including potential seismic hazards, landslide potential, and areas of karst. The potential seismic hazard was assessed by evaluating the seismic ground motion risk illustrated as a USGS Peak Ground Acceleration Map representing a 2 percent chance of being exceeded within a 50 year period, expressed in percent of gravitational acceleration. This indicates that the Project lies entirely within a region where the peak ground acceleration with a 2 percent chance of being exceeded in 50 years has a value of less than 1 percent gravitational acceleration (USGS, 2014). Ground

movement from an earthquake of this magnitude may cause a light perceived shaking but is not expected to cause any structural damage. The low seismic hazard of the Project area is further corroborated by the relatively low number of earthquakes that have historically occurred in Minnesota.

Landslide potential along the route was evaluated using regional coverage prepared by the USGS that illustrates the relative magnitude of landslide incidence and susceptibility (USGS, 1982). Review of this mapping indicates that no areas with landslide potential exist within 1 mile of the Project.

Karst is defined as terrain with distinctive landforms and hydrology created primarily from the dissolution of soluble rocks. It is characterized by sinkholes, caves, springs, and underground drainage dominated by rapid conduit flow. Karst features in Minnesota are limited primarily to southeastern Minnesota and one area in the northeast in Pine County. Mapping of active karst shown in the *Minnesota Karst Lands* map was reviewed to identify potential for areas of karst within the Project area (Alexander et al., 2006). Based on this review, no known karst features are present within the Project area.

Construction of the Project will have no impact on the geology of the area. The Project area is covered by 100 to 400 feet of glacial drift or till, so no special construction techniques are needed for excavating the relatively shallow pipeline trench. No geologic hazards were identified in the Project areas such as karst, landslides or earthquakes. No mining or quarrying operations occur in the vicinity of the Project.

Soils

The Project is located within Land Resource Region M, Central Feed Grains and Livestock Region and is further defined by its presence within the Rolling Till Prairies – 102A Major Land Resource Area (U.S. Department of Agriculture [USDA] Natural Resource Conservation Service [NRCS], 2006). Well- to moderately-well-drained loamy soils formed in gray calcareous till of Des Moines lobe origin are dominant. This fine-loamy till is characterized by more than 18 percent clay, typically less than 50 percent sand, and a high content of shale.

Soil characteristics in the Project area were identified and assessed using the NRCS, Soil Survey Geographic Database (SSURGO), which is a digital version of the original county soil surveys developed by the NRCS for use with a geographic information system. Most of the area is comprised of Udolls and Aquolls on relatively level topography, generally with 15 feet or less of local relief. Dry prairie soils (primarily Ustolls) are also present on level to gently rolling topography which occupy convex knobs on the landscape (USDA, 2001).

Typical soil impacts that may occur during construction include mixing of top soil and sub soil, compaction, rutting, and erosion. Heavy construction equipment use along the construction workspace has the potential to adversely impact natural soil characteristics (i.e., infiltration, water storage and routing, and nutrient levels), thus reducing soil productivity. Soil characteristics crossed by the construction workspace of the proposed pipeline are listed in Table 8 below. A discussion of the potential impacts of the Project on soils follows below.

Table 8 Soil Characteristics Crossed by the Proposed Pipeline									
Map Unit	Map Unit Name	Temp. Impact (acres)^a	Perm. ROW (acres)	Farmland Designation^b	Drainage Class^c	Wind Erodibility Group^d	Corrosion Potential^e	Rutting Potential^f	Non-Irrigated Land Capability Classification^g
26	Aazdahl clay loam	1.6	1.0	All areas are prime farmland	Moderately well drained	6	High	Severe	-
903C2	Barnes-Buse complex, 6 to 12 percent slopes, moderately eroded	2.4	1.5	Farmland of statewide importance	Well drained	Barnes - 6 Buse - 4L	Low	Severe	3e
494	Darnen loam, moderately wet	0.5	0.4	All areas are prime farmland	Well drained	6	Moderate	Severe	-
497	Hantho silt loam	1.0	0.6	All areas are prime farmland	Moderately well drained	5	High	Severe	-
902B	Hokans-Buse complex, 2 to 6 percent slopes	13.4	9.0	All areas are prime farmland	Well drained	Hokans - 6 Buse - 4L	Moderate	Severe	Hokans - 2e Buse - 3e
1237	Lakepark-Parnell, occasionally ponded, complex, 0 to 2 percent slopes	4.2	2.9	Prime farmland if drained	Poorly drained	6	High	Severe	2w
34	Parnell silty clay loam, occasionally ponded, 0 to 1 percent slopes	1.3	0.8	Prime farmland if drained	Very poorly drained	6	High	Severe	3w
1239	Quam silty clay loam, occasionally ponded, 0 to 1 percent slopes	0.4	0.2	Farmland of statewide importance	Very poorly drained	6	High	Severe	6w
290	Rothsay silt loam	4.1	2.6	All areas are prime farmland	Well drained	5	Low	Severe	2e
1016	Udorthents, loamy (cut and fill land)	0.9	0.0	Not Prime Farmland	Well drained	4L	Low	Severe	6s

Table 8									
Soil Characteristics Crossed by the Proposed Pipeline									
Map Unit	Map Unit Name	Temp. Impact (acres)^a	Perm. ROW (acres)	Farmland Designation^b	Drainage Class^c	Wind Erodibility Group^d	Corrosion Potential^e	Rutting Potential^f	Non-Irrigated Land Capability Classification^g
^a	Temporary impact area includes the permanent right-of-way plus temporary workspace.								
^b	Farmland designations as noted in the Soil Survey Geographic (SSURGO) databases for each county within the Project footprint. The farmland classification designates map units as one of the following categories: prime farmland, prime farmland if a limiting factor is mitigated, farmland of statewide importance, farmland of local importance, or farmland of unique importance.								
^c	Drainage class identifies the natural drainage condition of the soil. The eight natural drainage classes are: excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, very poorly drained, and subaqueous.								
^d	The wind erodibility group is a grouping of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. Values range from 1-8. A rating of 1 is the most susceptible and a rating of 8 is least susceptible to wind erosion.								
^e	Corrosion potential using SSURGO values for the risk of corrosion for uncoated steel. Values include low, moderate, and high.								
^f	Soil rutting potential as noted in the SSURGO databases for each county within the Project footprint. Ratings are based on depth to a water table, rock fragments on or below the surface, the Unified classification of the soil, depth to a restrictive layer, and slope. The hazard is described as slight, moderate, or severe. A rating of "slight" indicates that the soil is subject to little or no rutting. "Moderate" indicates that rutting is likely. "Severe" indicates that ruts form readily.								
^g	Land capability classification is a system of grouping soils primarily on the basis of their capability to produce common cultivated crops and pasture plants without deteriorating over a long period of time. Values range from 1-8. A rating of 1 has slight limitations and a rating of 8 has limitations that preclude their use for commercial plant production. Subclass e is made up of soils for which the susceptibility to erosion is a limitation, subclass w indicates excess water limitation, subclass s has soil limitations within the rooting zone such as shallowness, stones, low moisture-holding capacity, low fertility that is difficult to correct, and salinity or sodium content; subclass c is made up of soils for which the climate (the temperature or lack of moisture) is the major hazard or limitation affecting their use.								

The Project will temporarily impact land classified as prime farmland or farmland of statewide importance by the USDA NRCS. Prime farmland soils are those classified as soils best suited for production of food, feed, fiber, and oilseed crops. These soils generate the highest yields with the least amount of expenditure. Farmland of statewide importance generally include areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Trench construction across actively cultivated lands will temporarily impact approximately 16.5 acres of prime farmland and 2.0 acres of farmland of statewide importance. Following construction, agricultural activities will be allowed to resume without restrictions.

Grading and trenching have the potential to mix topsoil with subsoil, potentially resulting in reduced soil productivity and introduction of subsurface rocks to the soil surface. Great Plains will mitigate soil mixing by segregating subsoil from top soil, and storing the two soil types in separate spoil piles along the edge of the right-of-way. Great Plains is developing an Agricultural Impact Mitigation Plan to describe BMPs it will implement to minimize and mitigate impacts on agricultural soils; Great Plains will continue to coordinate with the MDA on development and review of its Agricultural Impact Mitigation Plan.

During construction under wet conditions, temporary compaction and/or rutting of soils could be caused by heavy equipment traffic over the soil surface. Compaction occurs when moist or wet soil particles are pressed together and the pore spaces between them are reduced. Restricted infiltration results in excessive runoff, erosion, nutrient loss, and potential water-quality degradation. Compaction restricts penetration by plant roots and inhibits plant growth. Compaction-prone soils were identified by querying the SSURGO database for component soil series that have: 1) a surface texture of sandy clay loam or finer; and 2) a drainage class of somewhat poorly, poorly, or very poorly drained. Based on this query, Approximately 5.9 acres of the construction workspace has soils that are compaction-prone. Rutting can occur when equipment is operated on soils that are moist or saturated. All land within the construction workspace area has severe rutting potential. Great Plains will monitor soil moisture conditions during construction during wet weather conditions and suspend construction if soils become too wet until conditions improve.

Clearing removes protective vegetative cover and exposes soil to the effects of wind and water from precipitation, which potentially increases the potential for soil erosion, and the transport of sediment to wetlands or waterbodies. Soil erosion is a form of soil degradation when the soil nutrients and organic matter important for plant growth are lost, most commonly due to water (e.g., rainfall, runoff) and wind erosion. On-site impacts include decreases in agricultural productivity or density and vigor of vegetative cover because of loss of the nutrient-rich upper soil layers; off-site effects include sedimentation of waterways and eutrophication of water bodies. The loss of soil from farmland may be reflected in reduced crop production potential, lower surface water quality, and damaged drainage networks.

Wind erodible soils were identified by querying the SSURGO database for soils that have a Wind Erodibility Group rating of 1 or 2, or which are highly wind erodible. Based on this query, none of the construction workspace is comprised of soils that are highly wind erodible. Soils with a land capability subclass designation of 4e through 8e, which are considered to have severe to extreme erosion limitations for agricultural use, and/or an average slope greater than 8 percent, are considered susceptible to water erosion. None of the construction workspace consists of soils that are water erodible.

To minimize potential for soil erosion from water, Great Plains will install temporary erosion control devices as specified in its SWPPP and stormwater discharge permit. Temporary erosion control measures could include sediment filter devices (e.g., straw bales or silt fence) and will be installed as needed immediately following initial ground disturbance. Great Plains will inspect temporary erosion control devices on a regular basis after each rainfall event of 0.5 inch or greater to ensure controls function properly.

Following construction, the construction workspace in non-agricultural areas will be seeded, mulched, and permanent erosion controls will be installed as needed. Erosion control devices will be maintained until the right-of-way is successfully re-vegetated. Following successful revegetation of construction areas, erosion control devices will be removed.

Vegetation

Agricultural and open grassland are predominate vegetation cover types along the Route. Great Plains conducted environmental field surveys along the proposed pipeline. Field surveys were completed on May 31 and August 15, 2016. Four dominant vegetation cover types were identified during the surveys, including agriculture (cropland), open land (herbaceous pastureland, grassland, and emergent wetland), forest/shrubland (including forested and scrub-shrub wetland), and urban developed land. No unique or sensitive vegetation types are crossed by the proposed pipeline.

Emergent wetlands identified within the environmental survey area were predominantly disturbed and composed of reed canary grass (*Phalaris arundinacea*) and hybrid cattail (*Typha X glauca*). Scrub-shrub wetlands included wild plum (*Prunus americana*) and sandbar willow (*Salix interior*). Forested wetlands consisted of eastern cottonwood (*Populus deltoids*), pussy willow (*Salix discolor*), and sandbar willow. Adjacent uplands were predominantly cultivated cropland planted in corn, with some soybeans. Upland grassland within the environmental survey area consisted primarily of non-native species including smooth brome (*Bromus inermis*) and Kentucky bluegrass (*Poa pratensis*). However, within the Fergus Falls WMA, big bluestem (*Andropogon gerardii*), a native species of grass, was also present.

A planted tree grove is present within the WMA bordering CSAH 88 and consisted of balsam fir, red maple, Russian olive, Tartarian honeysuckle, and eastern red-cedar. A row of planted trees and shrubs were also present within the WMA along Deerfield Drive and consisted of green ash, white spruce, Tartarian honeysuckle, Russian olive, eastern red-cedar, and common buckthorn.

A noxious weed is a plant that has been designated by an agricultural authority as one that is injurious to agricultural or horticultural crops, natural habitats or ecosystems, or humans or livestock. Field surveys confirmed that the following noxious and invasive weeds species occur sporadically within the environmental survey area: Canada thistle (*Cirsium arvense*), common reed (*Phragmites australis* subsp. *Australis*), reed canary grass, smooth brome, common buckthorn, Russian olive, and Tartarian honeysuckle.

Temporary impacts to agricultural crops will occur as crops are removed from within the construction workspace just prior to the start of construction. Landowners will be compensated for the crop loss, and crops will be replant the following spring.

The open grassland vegetation occurs on the Fergus Falls WMA. Great Plains will disk the construction workspace to prevent brush fire during pipe assembly and welding operations, and will use the HDD method to install the pipeline across the WMA to avoid trenching impacts. Great Plains will reseed the construction workspace with a MDNR-approved seed mix upon completion of construction, and coordinate with the MDNR on methods for managing the spread on invasive plants. Impacts on the WMA grassland will be temporary in nature.

Great Plains will conduct routine vegetation maintenance as needed to facilitate aerial and ground inspection of the pipeline and to maintain visibility of pipeline markers located at property lines and road crossings. A 50-foot-wide right-of-way centered over the pipeline will be periodically cleared of brush and trees in wooded areas.

Wildlife and Fisheries

Wildlife

Wildlife species occupying habitats in the Project area are typical of agricultural, grassland, wetland, riparian, woods edge, and human development areas in the Upper Midwest. No sensitive habitats were identified along the proposed pipeline during the environmental filed surveys. Table 9 summarizes the common wildlife that may be present based on habitat types identified within the environmental survey area as well as species observed during field surveys.

Table 9 Wildlife in the Project Area					
Species*	Low Intensity Urban	Agricultural/ Grassland	Aquatic/ Wetland	Upland Deciduous Woodland	Lowland Deciduous Woodland
Reptiles and amphibians					
American Toad	X	X	X	X	X
Western Chorus Frog					
Plains Garter Snake*	X	X	X	X	X
Painted Turtle*			X		
Birds					
Canada Goose*	X	X	X		
American Crow*	X	X		X	X
American Goldfinch*	X	X		X	
American Robin*	X	X		X	X
American White Pelican*			X	X	X
Bald Eagle*			X	X	X
Baltimore Oriole*	X			X	X
Bank Swallow*	X	X	X		
Barn Swallow*	X	X	X		
Blue-winged Teal*		X	X		
Bobolink*		X			
Brown Thrasher*	X			X	
Brown-headed Cowbird*		X		X	
Chipping Sparrow*	X				X
Clay-colored Sparrow*		X		X	X
Common Grackle*	X	X	X		
Common Nighthawk*	X	X			
Common Yellowthroat*		X			
Double-crested Cormorant*		X			
Eurasian Collared-Dove*	X	X			
European Starling*	X	X			

Table 9					
Wildlife in the Project Area					
Species*	Low Intensity Urban	Agricultural/ Grassland	Aquatic/ Wetland	Upland Deciduous Woodland	Lowland Deciduous Woodland
Gadwall*			X		
Grasshopper Sparrow*	X	X	X		
Gray Catbird*	X			X	
Great Blue Heron*			X	X	X
Great Egret*			X		
Green Heron*			X		X
Herring Gull*	X	X	X		
Horned Lark*	X	X			
House Sparrow*	X	X			
House Wren*	X			X	X
Killdeer*	X	X			
Least Flycatcher*				X	X
Mallard*	X	X	X		X
Mourning Dove*	X	X		X	X
Red-tailed Hawk*		X	X	X	
Red-winged Blackbird*		X	X		
Ring-necked Duck*			X		
Rock Pigeon (Feral Pigeon)*		X			
Ruddy Duck*			X		
Sedge Wren*		X	X		
Song Sparrow*			X	X	X
Tree Swallow*	X	X	X		
Trumpeter Swan*			X		
Turkey Vulture*		X			
Yellow Warbler*			X	X	X
Yellow-headed Blackbird*			X		
Mammals					
Coyote	X	X	X	X	X
Red Fox	X	X	X	X	X
Northern Raccoon	X	X	X	X	X
Stripped Skunk	X	X		X	
White-tailed Deer		X		X	X
Eastern Gray Squirrel	X	X		X	X
*Observed during field surveys					

Construction of the proposed pipeline will likely result in minor temporary impacts to wildlife habitat in the immediate vicinity of the construction areas. Vegetation clearing will reduce cover, nesting, and foraging habitat for some wildlife. A total of 0.5 acres of wooded cover will be permanently converted to grassland as part of routine vegetation maintenance.

Construction activities will displace some wildlife during construction and may result in mortality of individuals of less mobile species, such as some small mammals, reptiles, or amphibians. Indirect wildlife impacts associated with construction earthwork, noise, and increased human activity could include abandoned nesting efforts, displacement, and avoidance of work areas. However, both direct and indirect impacts on wildlife along the construction corridor will be of short duration and limited to the period of construction activities. The temporary effects on these habitats should have little or no significant impact on their importance to wildlife given the amount of similar habitats available outside of the construction workspace, and no changes to wildlife populations are anticipated.

Fisheries

One waterbody is crossed by the proposed pipeline, a manmade perennial ditch located at MP 0.27. The ditch is connected to an unnamed pond within the WMA (on the east side of CSAH 88), which is classified as a warm-water fishery. According to the MDNR staff at the WMA, the pond has a maximum depth of 6 feet, is not open to the public for fishing, and does not support game fish (the pond supports minnows and bullheads). Great Plains will use the HDD method for installing the pipeline underneath this ditch, avoiding any disturbance to the waterbody. Construction activities will have no impacts on fisheries.

Threatened and Endangered Species

A desktop analysis and field-based habitat assessment for federally- and state-listed species was conducted for the Project. Prior to initiation of field surveys, the U.S. Fish & Wildlife Service (FWS) Environmental Conservation Online System: *Information for Planning and Conservation* was accessed to obtain information regarding federally-listed species or designated critical habitat that may be present within 1 mile of the Project area (FWS, 2015). The information in the online system is not considered to be comprehensive, but rather acknowledges the potential presence of listed species within a defined area. No federally-designated critical habitat occurs within or near the Project area. One threatened (gray wolf) and one endangered species (northern long-eared bat) have the potential to occur within the Project area (see Table 10).

Review of the most recent MDNR and FWS records dated April 1, 2016 indicate that the Project is not located within any township with known roost trees or hibernacula for the northern long-eared bat (MDNR, 2016b). The Project qualifies under the final 4(d) rule for a determination of "may affect, but take not prohibited" and no permit from the FWS is required. Great Plains provided Project notification to the FWS on May 27, 2016 and requested a review for federally-listed species. The FWS provided a response by phone on July 22, 2016 stating that because there is no federal action for the Project, under the 4(d) rule Great Plains may proceed with the Project, and no permit is needed. A copy of Great Plains' consultation letter to the FWS, and a phone log documenting their response are provided in Appendix B.

The Project will not affect the two federally-listed species that have the potential to occur in the Project area, the gray wolf and the northern long-eared bat. Potentially suitable habitat for the gray wolf occurs within the Project area, however, human activity occurs regularly within this area. Because of the wolf's tendency to avoid human activity, the noise and visual disturbances from construction of the pipeline will deter any wolves that may be nearby from approaching the Project area. No roost trees or hibernacula for the northern long-eared bat occur in the Project area and the small amount of trees that will be cleared for the Project do

not provide suitable habitat for the northern long-eared bat.

Table 10			
Special Status Species that Potentially Occur in the Project Area			
Species Name	Status	Habitat Description	Suitable Habitat Present (Yes/No)
Mollusks			
Black Sandshell <i>Ligumia recta</i>	State Special Concern	Riffle and run areas of medium to large rivers in areas dominated by sand or gravel. Two National Heritage Inventory System (NHIS) records were noted from the Otter Tail River; one live specimen found in 1994, and dead specimens observed in 2004.	No
Fluted-shell <i>Lasmigona costa</i>	State Threatened	Medium to large rivers dominated by gravel substrates in areas with swift currents and water that is at least 0.6 m deep. Two NHIS records were noted from the Otter Tail River; three live specimens found in 1994, and one dead specimen observed in 2004.	No
Mammals			
Northern Long-Eared Bat <i>Myotis septentrionalis</i>	Federal Endangered	Hibernates in caves and mines; roosts and forages in upland forests.	Yes
Gray Wolf <i>Canis lupus</i>	Federal Threatened	Wide range of habitat, including forests, plains, prairies, agricultural areas, swamps, and barren lands.	Yes
Plants			
Small White Lady's-slipper <i>Cypripedium candidum</i>	State Special Concern	Deep-soil mesic prairies and wet prairies, certain types of sedge meadows, and calcareous fens (in the south). Does not occur in habitats with a history of livestock grazing or crop production. The soils are primarily calcareous till or lacustrine clays, or occasionally fibric, sedge-derived peat. One NHI record indicates many <i>C. candidum</i> observed within a FWS Waterfowl Production Area approximately one mile north of the Project area in 1980.	No

Merjent reviewed the MDNR NHIS for information on Minnesota's rare plants, animals, native plant communities, Sites of Biodiversity Significance, and other rare features that are known to occur within 1 mile of the Project area. Three state-listed species have the potential to occur within the Project area: two species of mollusks and one plant, the small white lady's slipper (see Table 10).

Natural resource field surveys conducted for the Project on May 31, 2016 included a survey for the small white lady's slipper. No suitable habitat (mesic or wet prairies, sedge meadows, or calcareous fens) or individual small

white lady’s slipper plants were identified within the Project area. All areas were actively or previously cultivated agricultural land or disturbed by urban development. A copy of the Natural Resources Survey Report is provided in Appendix C.

Great Plains provided Project notification to the MDNR on May 27, 2016 and requested a review for state-listed species. The MDNR responded on June 29, 2016, confirming that live state-listed threatened mussels have been documented in the Otter Tail River as recently as 2004. The MDNR concurred with Great Plains’ assessment that impacts to state-listed species are not anticipated given the separation distance between the Project area and the Otter Tail River, and the erosion and sediment control measures Great Plains will implement. A copy of Great Plains’ consultation letter to the MDNR and their response is provided in Appendix B.

Water Resources

The Project lies within the City of Fergus Falls – Otter Tail River and the Pelican River hydrologic units. The western portion of the Project area is drained by the Pelican River, which flows generally south to its confluence with the Otter Tail River west of the city of Fergus Falls. The eastern 2.5 miles of the Project is drained by the Otter Tail River, which flows generally westward to its confluence with the Red River of the North in the city of Wahpeton, North Dakota.

Waterbodies and Wetlands

The presence of waterbodies and wetlands was confirmed during field surveys conducted on May 31 and August 15, 2016, in accordance with the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetlands Determination Manual: Midwest Region (Version 2.0) (Environmental Laboratory, 2010). One waterbody is crossed by the proposed pipeline, the ditch mentioned above under the Fisheries section. No Minnesota designated Public Waters are located within the 75-foot construction workspace.

A total of 16 wetlands were delineated within the environmental survey area, comprised predominantly of palustrine emergent fresh wet meadow, and shallow to deep marsh. Nine wetlands are crossed by the proposed pipeline; Table 11 contains summary information describing these nine wetlands. Maps 3 and 4 illustrate waterbodies and wetlands identified during field surveys. A copy of the Natural Resources Survey Report, which includes a detailed description of delineated waterbodies and wetlands is provided in Appendix C.

Table 11			
Wetlands Crossed by the Proposed Pipeline			
Feature ID	Cowardin^a	Eggers & Reed^b	Circular 39^c
133n43w27-w01a	PEM	Fresh (Wet) Meadow	Type 2
133n43w27-w01b	PSS	Shrub-Carr	Type 6
133n43w27-w01c	PSS	Shrub-Carr	Type 6
133n43w28-w01a	PEM	Fresh (Wet) Meadow	Type 2
133n43w28-w02a	PEM	Fresh (Wet) Meadow	Type 2
133n43w28-w02b	PEM	Shallow Marsh	Type 3
133n43w28-w04a	PSS	Shrub-Carr	Type 6
133n43w28-w04b	PEM	Deep Marsh	Type 4
133n43w28-w04c	PEM	Fresh (Wet) Meadow	Type 2

Table 11			
Wetlands Crossed by the Proposed Pipeline			
Feature ID	Cowardin^a	Eggers & Reed^b	Circular 39^c
133n43w28-w05a	PEM	Fresh (Wet) Meadow	Type 2
133n43w28-w05d	PUB	Shallow, Open Water	Type 5
133n43w28-w05e	PEM	Deep Marsh	Type 4
133n43w28-w06a	PFO	Hardwood Swamp	Type 7
133n43w28-w06b	PUB	Shallow, Open Water	Type 5
133n43w28-w06c	PEM	Shallow Marsh	Type 3
133n43w29-w01a	PEMC	Fresh (Wet) Meadow	Type 2
133n43w29-w01b	PEMC	Shallow Marsh	Type 3
133n43w29-w02	PEMC	Fresh (Wet) Meadow	Type 2
133n43w29-w03	PEMC	Seasonally Flooded Basin	Type 2
^a	Wetland classifications according to the FWS National Wetlands Inventory (NWI) system - Cowardin (1979); PEM = Palustrine Emergent Wetland; PSS = Palustrine Scrub-Shrub Wetland; PFO = Palustrine Forested Wetland		
^b	Wetland classifications according to the USACE - Eggers and Reed (2011)		
^c	Wetland classifications according to the FWS - Circular 39 eight wetland types system		

Impacts on the waterbody and seven of the wetlands will be avoided by using the HDD method to install the pipeline beneath them. Conventional trenching methods will be used for crossing the remaining two wetlands located at MPs 1.5 and 1.7. These wetlands are small isolated wetlands which will be restored to pre-construction contours and wetland function, no wetland type conversion will occur. Great Plains will minimize the potential for soil erosion into wetlands or waterbodies by installing temporary and permanent erosion control devices as specified in their SWPPP.

Floodplain

The Federal Emergency Management Association has not completed a study to determine flood hazard for the Project area; therefore, a flood map has not been published at this time.

Groundwater

Deep regional groundwater systems are present beneath the Project area. Groundwater within deep regional systems moves laterally westward within coarse- and fine-textured deposits. Aquifers are composed of coarse-textured deposits. Deep regional systems are recharged by water percolating downward from active near-surface systems. In the vicinity of the Project area, recharge of this deep regional groundwater system occurs from Becker County. The general direction of groundwater flow in the regional water table system and in the deep regional system is southwest toward the Otter Tail River.

Surficial aquifers within the vicinity of the Project area occur along the Otter Tail and Pelican Rivers. These aquifers have a saturated thickness of less than 20 feet, and average annual recharge is 3 to 6 inches. Active near-surface groundwater systems are found in much of the Moraine region. There are numerous sand and gravel aquifers within 75 feet of the land surface (Trojan, 1997).

No Sole Source Aquifers or Well Head Protection Areas (WHPA) are located within 1 mile of the Project area. The nearest WHPA is the Fergus Falls WHPA, located approximately 2 miles east of the Project. The City of

Fergus Falls has developed a non-mandatory surface water protection plan. The city receives a major portion of their water supply from Wright Lake, a flowage area of the Otter Tail River. The inner response area is the immediate drainage area of Hoot and Wright lakes and this area is the most critical to protect from contaminants. The Project area is located approximately 2.3 miles west of the inner response area (Bayerl Water Resources, 2014).

No known water wells were found within 200 feet of the proposed pipeline using the County Well Index database that is maintained by the Minnesota Departments of Health and Natural Resources. No surficial aquifers are crossed by the Preferred Route. The shallow pipeline trench will not intersect any drinking water aquifers. Construction of the proposed pipeline will not impact groundwater.

Cultural Resources

The Project area falls within the western edge of the Central Lakes Deciduous Archaeological Region (Region 4) of Minnesota (Gibbon et al., 2005). The Central Lake Deciduous Archaeological Region includes most of the central and east central portions of the state. Drainage in the eastern portion of the region flows to the Mississippi River and the St. Croix River which forms the eastern boundary of the region. The western portion of the region drains into the Red River Valley. Topography in the region is characterized by a patchwork of moraines, till plains, and outwash plains and many lakes are found throughout.

During the contact period, vegetation in the western portion of Region 4 consisted mainly of Big Woods species with some areas of prairie and oak woods. Subsistence resources during the Late Holocene period will have included white-tailed deer, small herds of bison and elk, abundant fish and waterfowl, wild rice beds, and acorns.

Evidence of Early Prehistoric and early Middle Prehistoric period settlements are sparse throughout Region 4, but are generally centered on lakes and major rivers. Evidence of late Middle Prehistoric period settlements is more abundant in the region as the focus in subsistence-settlement patterns and technology became more focused on wild rice cultivation and habitation sites became larger and less nomadic and population numbers increased.

Settlement-subsistence patterns in the region during the Late Prehistoric period continued to be focused on lakes and major rivers with a particular focus on wild rice beds. During this period, evidence of Plains Village ceramics dominate the artifact assemblage in the southwestern portion of the region while Oneota ceramics are most commonly found in the southern half of the region.

During the Contact Period, the western portion of Region 4 was controlled by the Yankton, Yantonai, and other Dakota groups. However, by the mid-1700s and continuing through the 1800s the Ojibwa controlled much of the region. Settlement-subsistence patterns remained fairly consistent with patterns established during the Late Prehistoric period and were focused on large lakes and major rivers that provided access to wild rice beds.

Great Plains conducted a Phase I archaeological reconnaissance survey surveys along the proposed pipeline between May 31 to June 1, and August 16 to 17, 2016. Prior to initiation of the survey, Great Plains requested a file search from the Minnesota State Historic Preservation Office (MN SHPO) to identify previously recorded cultural resources and cultural resource inventories within 2 miles of the Project area. One previously recorded prehistoric lithic scatter and two prehistoric isolated finds were identified within 1 mile of the Project area as a result of the file search; none of the previously recorded sites are located within the area of direct effects for the Project. No archaeological or historic sites were identified as a result of the Phase I survey. Great Plains submitted the survey report to the MN SHPO for review on August 29, 2016 and received a response from the MN SHPO on September 30, 2016 concurring that no archaeological or historic sites will be affected. A copy

Great Plains' consultation letter to the SHPO and their response is included in Appendix B. A copy of the Phase I survey report is provided in Appendix D.

No impacts to archaeological or historic sites are expected; no sites were identified during the Phase I survey along the proposed pipeline. In the event of an unanticipated discovery of cultural material or human skeletal remains during construction, Great Plains will follow the procedures outlined in its Unanticipated Discovery Plan, provided in Appendix F.

Air Quality

The Project area is entirely within Otter Tail County, which is designated as in attainment with all National Ambient Air Quality Standards. Potential impacts on air quality as a result of pipeline construction are limited to fugitive dust emissions as a result of construction activities, such as earth moving operations, and exhaust emissions from construction equipment. These impacts will be minor and of short duration. Great Plains will mitigate fugitive road dust emissions by watering unpaved driving surfaces on an as-needed basis.

Hazardous Waste and Regulated Materials

Properties where hazardous waste or other regulated materials have been stored can present a risk if spills or leaks have occurred or may occur. Contaminated or potentially contaminated properties are of concern for pipeline projects because of the liability associated with acquiring such property through right-of-way purchase, potential cleanup costs, and safety concerns during construction related to exposure to contaminated soil, surface water, or groundwater.

The use, storage, and clean-up of hazardous wastes and petroleum products are regulated by the U.S. Environmental Protection Agency and MPCA. The MPCA's "What's in my neighborhood?" (MPCA, 2016) database identifies information about air quality, hazardous waste, remediation, solid waste, tanks and leak sites, and water quality for regulated facilities and sites in Minnesota. Great Plains reviewed the database to identify sites located within 500 feet of the proposed pipeline; no sites were identified as a result of this review. There are no records of contaminated soils or groundwater in the Project area. Construction of the project will not result in generating hazardous wastes or materials, and it is not expected to encounter contaminated sites along the route.

C. Remaining items from the Partial Exemption Criteria List (Minnesota Rule 7852.0700)

Pipeline Cost and Accessibility

Great Plains estimates that the total cost of the Project will be approximately \$2,700,000. Operation and maintenance costs for the Project will be nominal for several years, since the pipeline will be new and minimal vegetation maintenance will be required. Pipeline access will be required for typical operation and maintenance activities, which will include pipeline patrols, CP reads, and buried utility location requests through the Gopher State One-Call system. Great Plains will use existing roads to access the right-of-way during construction and operation of the pipeline.

Mitigation of Environmental Effects

Great Plains will implement BMPs during right-of-way preparation, pipeline construction, cleanup, and restoration that comply with the requirements outlined in Minnesota Rule 7852.3600. Implementation of BMPs and specific mitigation measures described in this application, combined with the regulatory oversight of the MPUC through its review of this Route Permit application and the requirements of the additional state

permitting agencies listed in Table 11 in Section 8 of this application, will work together to minimize the impacts of the proposed Project on the human and natural environments.

Cumulative Potential Effects

Great Plains is not aware of any plans for additional infrastructure development within the Project area. Construction of the proposed pipeline is not expected to have any effect on the cultural, historic, or aesthetic values of the area. No significant changes in the vegetation, wildlife, wetlands, water quality, geology, or soils are expected to result from the Project. The Project parallels existing electric transmission lines and existing public roadways for the majority of its route. Installation of the pipeline will not significantly change land use patterns in the area. Consequentially, the cumulative potential effect of the Project is expected to be negligible.

Applicable Policies, Rules, and Regulations

A list of known federal, state, and local approvals for construction of the proposed Project is presented in Section 8 of this application. Great Plains will work with regulatory agencies with permitting authority over the proposed Project, and will satisfy the permit requirements of those agencies. Great Plains anticipates that compliance with those permits will be a condition of any permit issued by the MPUC.

The City of Fergus Falls and Otter Tail County do not have any policies, rules, and regulations applicable to construction of natural gas pipelines.

Section 6: Right-of-way Protection and Restoration Measures (Minn. R 7852.2800)

Subpart 1. Protection

Great Plains has integrated right-of-way protection measures and impact mitigation strategies into the routing design phase of the proposed Project. As the Project moves forward, Great Plains will continue to work with applicable state agencies and landowners to minimize adverse impacts on the human and natural environment. BMPs will be implemented to protect the right-of-way and minimize adverse impacts on the local community and the natural environment. Following the completion of construction, Great Plains will work closely with landowners and applicable agencies on clean-up and restoration of the right-of-way.

A. Communities and Land Use

Great Plains has coordinated with affected landowners to obtain permission for survey access to their property and to negotiate easement agreements for construction rights. During construction, necessary protection will be provided by limiting construction activities to the designated areas; marking avoidance areas with signs or lath and ribbon; utilizing approved access to the right-of-way; and following permit conditions. Consistent communication with affected stakeholders during construction, restoration, and operations and maintenance activities will be provided. Great Plains will use the low impact HDD method to install the pipeline on the WMA and beneath roadways to avoid impacts on these features. Traffic control measures will be implemented as necessary to ensure safety of the general public and construction personnel. Construction activities will be conducted during daylight hours. Land use will return to its pre-existing conditions along all areas of the Project, except at two pig launcher and receiver facility locations.

B. Natural Environment

Erosion Control

Great Plains will minimize impacts on soils by implementing BMPs according to its SWPPP and Construction Storm Water Discharge Permit. Temporary and permanent erosion controls (silt fence, straw bales, and mulching) will be installed as necessary to minimize soil erosion and sedimentation. Temporary measures will be properly maintained throughout construction, as necessary, until permanent measures are established. Following construction, application of seed, fertilizer, and mulch will commence in accordance with permit requirements and landowner agreements.

Agricultural Impact Mitigation Plan

Great Plains will implement its Agricultural Impact Mitigation Plan to minimize impacts on agricultural lands. The plan will include, among other things, requirements for segregation of topsoil, drain tile repair, rock removal, and compaction mitigation. Great Plains will continue to coordinate with the MDA on review of its draft Agricultural Impact Mitigation Plan.

Waterbodies and Wetlands

To reduce impacts on waterbodies and wetlands, Great Plains proposes to construct the pipeline across the one waterbody and seven of the nine wetlands using the HDD method. Conventional trenching methods will be used for crossing the remaining two wetlands, which will be restored to pre-construction contours and wetland function, no wetland type conversion will occur. If vehicle access across a wetland is necessary, the

crossing may occur if the wetland is dry; if it is wet such that deep rutting will occur, the crossing would occur on timber matting to minimize rutting and disturbance.

Dewatering

During periods of excessive precipitation or where seepage of groundwater may occur, the excavated trench may collect water and may need to be dewatered. Water removed from the trench will be discharged to a filter bag or dewatering structure placed in a well vegetated upland area; not discharged within a wetland or waterbody. If discharge activities need to be located outside of the right-of-way, landowner consent will be obtained and locations will be chosen that minimize off-right-of-way impacts. Dewatering will be conducted in a manner designed to prevent the flow of silt-laden water directly into adjacent waterbodies and wetlands and will be in accordance with the MPCA Construction Stormwater and Dewatering Permit.

Subpart 2. Restoration

Clean-up and restoration of the construction workspace will commence after the trench is backfilled, subject to weather and soil condition considerations. Construction-related debris and surplus materials will be removed, with debris disposed of at a licensed waste management facility. The areas impacted by construction of the Project will be returned as closely as possible to pre-construction conditions. Restoration will be done in accordance with permit requirements, landowner agreements, and Minnesota Rule 7852.3600 "Permit Conditions for Right-of-Way Preparation, Construction, Cleanup, and Restoration." Restoration efforts will include ground stabilization using erosion control devices; restoration of pre-construction contours; repair of drain tiles damaged during construction; and re-vegetation of areas disturbed by construction through the application of seed, mulch, fertilizer in accordance with permit requirements and landowner agreements.

Following the completion of construction, Project areas will be monitored in accordance with the MPCA NPDES Construction Storm Water Discharge Permit until the area has been stabilized and vegetation has been reestablished. Temporary erosion control measures will be removed after successful ground stabilization and re-vegetation.

Section 7: Operation and Maintenance (Minn. R. 7852.2900)

Great Plains will own and operate the proposed pipeline under the jurisdiction of the DOT PHMSA, the MPUC, and the Minnesota Office of Pipeline Safety (MNOPS). The minimum Federal Safety Standards for natural gas pipelines are contained in 49 CFR, Part 192. Subpart L - Operations specifies minimum requirements for the utility's operations and maintenance plan. Under these rules, Great Plains is required to have the following:

- operation and maintenance plan;
- procedures for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in CP requirements, and other unusual operation and maintenance conditions;
- damage prevention programs;
- emergency plans; and
- procedures for investigation of failures.

The purpose of the regulations defined in 49 CFR Part 192, Minimum Federal Safety Standards, is to ensure safe operation of pipeline and associated facilities. The safety standards in Part 192 require each pipeline operator to:

- develop an emergency plan, working with local fire departments and other agencies to identify personnel to be contacted, equipment to be mobilized, and procedures to be followed to respond to a hazardous condition caused by the pipeline or associated facilities;
- establish and maintain a liaison with the appropriate fire, police, and public officials in order to coordinate mutual assistance when responding to emergencies;
- establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a natural gas pipeline emergency and report it to appropriate public officials;
- use only qualified personnel to operate and maintain the pipeline in accordance with an approved Operator Qualification Plan;
- have, maintain, and implement a Pipeline Integrity Management Plan for gas pipelines in High Consequence Areas; and
- ensure that personnel working on these facilities are part of a random drug and alcohol testing program.

All personnel involved with operating and maintenance responsibilities for the pipeline facilities will be certified under an Operator Qualification Plan and will participate in a Drug and Alcohol Program in compliance with the DOT regulations.

Great Plains has an existing Construction, Operation, and Maintenance Standard on file with MNOPS already because it is an existing operating pipeline. A brief description of the operational components included in the Standard are provided below.

A. Patrolling and Leak Surveys

In accordance with 49 CFR Part 192, Subpart M, the pipeline will be monitored periodically to determine and take appropriate action concerning changes in class locations, gas leakage, erosion, CP requirements, and other conditions affecting safe pipeline operation.

B. Natural Gas Pipeline Markers

Natural gas pipeline markers will be installed and maintained over the buried pipeline at public road and railroad crossings and other locations as defined in 49 CFR Part 192, Subpart M, to identify the location of the pipeline facilities and reduce the risk of inadvertent third-party damage or interference. The markers will identify the owner of the pipeline and convey emergency information in accordance with applicable governmental regulations, including DOT safety requirements outlined in Subpart M.

C. Corrosion Control

The pipeline will be externally coated and cathodically protected to prevent corrosion as required by 49 CFR Part 192, Subpart I—Requirements for Corrosion Control (192.451 through 192.491).

D. Pipeline Valves

The replacement section of pipeline will connect to the existing pipeline at hot tap locations that include a valve. Each valve shall be secured with a locking device to prevent operation by unauthorized personnel and will be checked and serviced as required by applicable regulations.

E. Record Keeping and Maps

Records and maps are maintained and updated to indicate the location and identification of all primary components of the pipeline system. Project alignment sheets and other system maps are provided to public agencies to assist in identifying the presence of the pipeline and/or in preparing for potential emergencies.

F. Safety Considerations

Safety is a prime consideration for employees and contractors who will be operating and maintaining the pipeline system, and also for the general public. Safety code compliance is achieved through adherence to 49 CFR Part 192 as defined by the DOT.

Great Plains general safety procedures include, but are not limited to:

- strict adherence to operations and maintenance plans;
- the pipeline maximum allowable operating pressure is assured through the use of over pressure protection equipment;
- company signs with emergency numbers are posted along the pipeline;
- ignition sources are minimized;
- smoking will be prohibited in and around any structure or area containing gas facilities;
- “No Smoking” signs are posted where appropriate; and

- aboveground facilities will be painted or coated to prevent atmospheric corrosion.

G. Emergency Response

Federal rules require pipeline companies to prepare an emergency procedure plan. The State Fire Marshall has the authority to inspect the proposed pipeline (Minnesota Statutes Section 299 F.63) to ensure compliance with safety requirements pursuant to Minnesota Statutes Section 299 F.57. Great Plains' emergency response plan describes procedures for conducting normal operations and maintenance activities and handling abnormal operations and emergencies. The emergency plan includes procedures for:

- receiving, identifying, and classifying notices of events which require immediate response by the operator;
- establishing and maintaining adequate means of communication with appropriate fire, police, and other public officials;
- prompt and effective response to a notice of each type of emergency;
- the availability of personnel, equipment, tools, and materials, as needed at the scene of an emergency;
- actions directed toward protecting people first, followed by property;
- emergency shutdown and pressure reduction in any section of the operator's pipeline system necessary to minimize hazards to life or property;
- making safe any actual or potential hazard to life or property;
- notifying appropriate fire, police, and other public officials of gas pipeline emergencies and coordinating with them planned responses and actual responses during emergencies;
- safely restoring any service outage; and
- training of personnel, liaison with appropriate fire, police, and other public officials and continuing public education programs.

H. Pipeline Integrity Management Program

Great Plains has an existing Transmission Integrity Management Plan on file with MNOPS already because it is an existing operating pipeline. Great Plains' plan meets the requirements as detailed in 49 CFR Part 192, Subpart O, and any supplemental state regulatory requirements related to pipeline integrity. The permanent pipeline right-of-way will be routinely maintained and patrolled in accordance with these regulations.

I. Training

Great Plains has an existing Operator Qualification Plan on file with MNOPS already because it is an existing operating pipeline. Great Plains' program meets the requirements as detailed in 49 CFR Part 192, Subpart N. The program outlines training, testing, and record keeping for individuals performing operating or maintenance tasks on pipelines or tasks that affect the operation or integrity of the proposed pipeline.

J. Public Awareness Program

Great Plains has an existing public awareness plan on file with MNOPS already because it is an existing operating pipeline. Great Plains' plan meets the requirements as detailed in 49 CFR 192, Subpart L and API RP 1162. A successful public awareness program increases the safety and security of the pipeline facilities. The program will raise public awareness of company facilities, increase the public's understanding of the role of pipelines in transporting energy, inform the public how to recognize and respond to a pipeline emergency, notify the public who to contact in the event of an emergency, and stress the importance of using the state's one-call system before excavating.

K. One-Call

Great Plains is committed to pipeline safety and is a member of the Gopher State One-Call program. The purpose of the One-Call notification center is to reduce third-party damage to underground facilities.

Section 8: List of Government Agencies and Permits (Minn. R. 7852.3000)

Table 12 identifies the federal and state permits and approvals that are anticipated to be required for the Project.

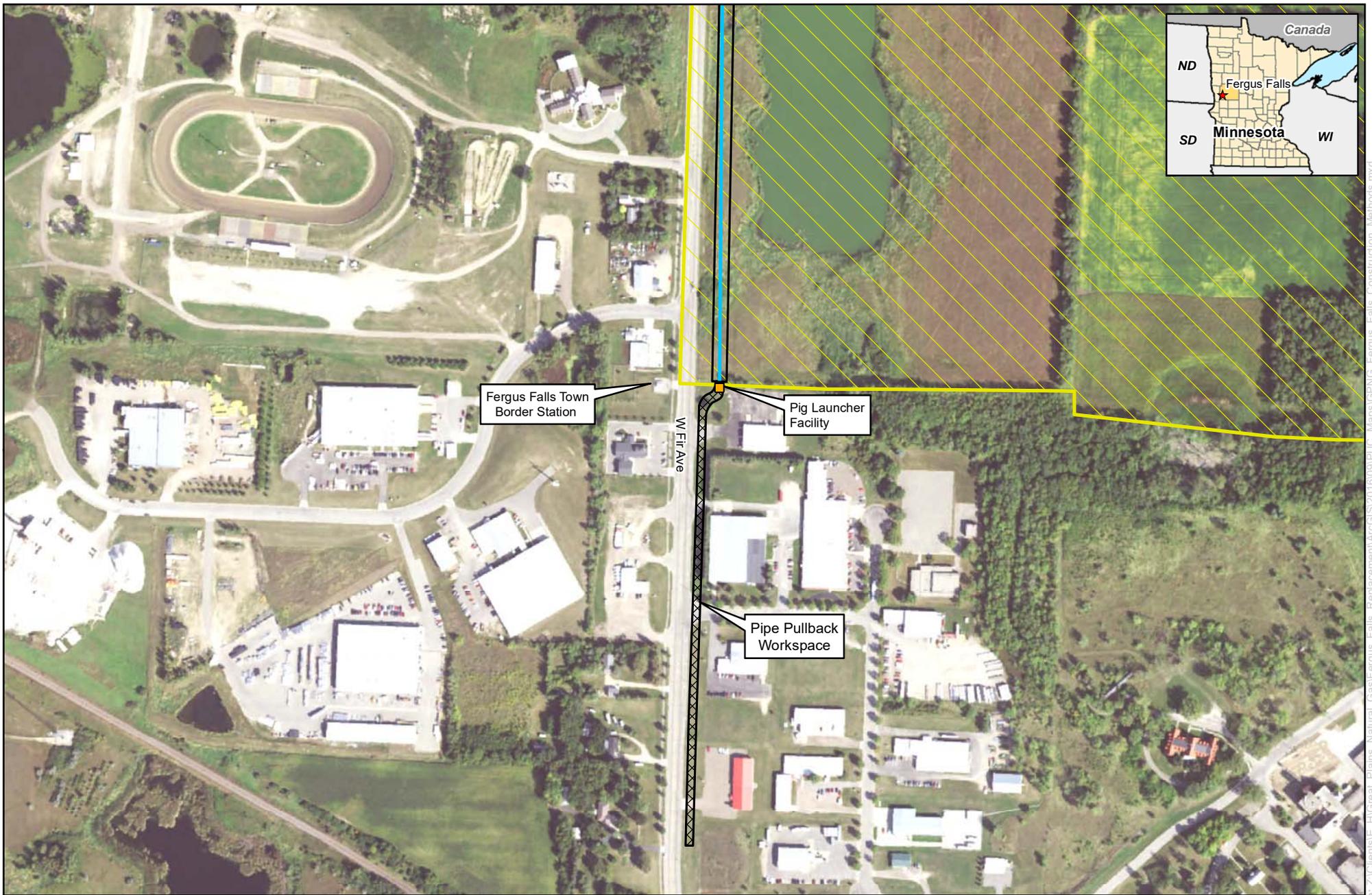
Table 12	
Permit Summary for the Fergus Falls Pipeline Replacement Project	
Name of Agency	Title of Permit/Approval
Federal	
U.S. Fish & Wildlife Service	Endangered Species Act Consultation (federal endangered species)
State	
Minnesota Public Utilities Commission	Pipeline Route Permit
Minnesota Department of Natural Resources	State Endangered Species Consultation
	License to Cross Public Lands
	Water Appropriation General Permit (trench dewatering)
Minnesota State Historic Preservation Office	Cultural Resources Consultation
Minnesota Department of Agriculture	Review of Agricultural Impact Mitigation Plan
Minnesota Department of Transportation	Interstate Highway 94 - Utility Crossing Permit
Minnesota Pollution Control Agency	NPDES Construction Stormwater and Trench Dewatering Discharge Permit; and Hydrostatic Test Discharge Permit Construction
Local	
City of Fergus Falls	Temporary Road Closure Permit

References

- Alexander et al. 2006. Minnesota Karst Lands: online map: Retrieved from <https://www.esci.umn.edu/>
- Audubon Society. 2016. Conservation, Important Bird Areas. Available online at: <http://netapp.audubon.org/IBA/Map/US-MN>. Accessed June 28, 2016
- Bayerl Water Resources. 2014. *Otter Tail County Local Water Management Plan*.
- City of Fergus Falls. 2016a. City of Fergus Falls Minnesota website, Building & Zoning. Available online at: http://www.ci.fergus-falls.mn.us/building_zoning. Accessed July 18, 2016.
- City of Fergus Falls. 2016b. City of Fergus Falls Minnesota website, Building & Zoning, City Code Chapter 7, Zoning and Subdividing. Available online at: [http://www.ci.fergus-falls.mn.us/vertical/sites/%7BC83A9759-035D-4EAB-A39F-EA24B2F5336D%7D/uploads/Chapter_7_Zoning_and_Subdividing_\(Revised_June_2011\).pdf](http://www.ci.fergus-falls.mn.us/vertical/sites/%7BC83A9759-035D-4EAB-A39F-EA24B2F5336D%7D/uploads/Chapter_7_Zoning_and_Subdividing_(Revised_June_2011).pdf). Accessed July 18, 2016.
- Cowardin, et. al. 1979. *Classification of Wetlands and Deepwater Habitats of the United States. Technical Report USFWS/OBS-79/31*. Washington D.C.: U.S. Department of the Interior Fish and Wildlife Service.
- Eggers, S. D. and Reed, D. M. 2011. *Wetland Plants and Plant Communities of Minnesota and Wisconsin, Third Edition*. U.S. Army Corps of Engineers. Regulatory Branch. St. Paul District.
- Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1*. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station.
- Environmental Laboratory. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0). Technical Report ERDC/EL TR-10-16*. Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station.
- Faltesek, J. 2000. *Sensitivity to Pollution of Near-Surface Ground-Water Systems: Regional Hydrogeologic Assessment Series, RHA-3, Part B, Plate 4 of 4*.
- Fergus Falls.com. 2016. Fergus Falls Area Chamber of Commerce, Points of Interest. Available online at: <http://www.fergusfalls.com/pages/PointsofInterest>. Accessed July 19, 2016.
- Gibbon, G.E., C. Johnson, and E. Hobbs. 2005. A Predictive Model of Pre-contact Archaeological Site Location for the State of Minnesota, Chapter 3, Minnesota's Environment and Native American Culture History. Available online at: <http://www.dot.state.mn.us/mnmodel/P3FinalReport/chapter3.html>. Accessed July 22, 2016.
- I94 Speedway.com. 2016. I94 Speedway. Available online at: <http://www.i94speedways.com/>. Accessed July 19, 2016.
- Jirsa, et al. 2011. Geologic Map of Minnesota, Bedrock Geology. University of Minnesota, Minnesota Geological Survey.
- Minnesota Department of Natural Resources (MDNR). 2016a. *Ecological Classification System*. Retrieved from <http://www.dnr.state.mn.us/ecs/index.html>.

- MDNR. 2016b. Rare Species Guide. Retrieved from <http://www.dnr.state.mn.us/rsg/index.html>. Accessed June 2016.
- Minnesota Department of Transportation (MNDOT). 2016. Aggregate Source Information System Map. Retrieved from http://www.dot.state.mn.us/materials/asis_GE.html.
- Minnesota Pollution Control Agency (MPCA). 2016. "What's in My Neighborhood" database. Retrieved from <https://www.pca.state.mn.us/data/whats-my-neighborhood>.
- Trojan, M.D. 1997. *Surficial Hydrogeology: Regional Hydrogeologic Assessment Series*. RHA-3, Part B, Plate 3 of 4. Minnesota Pollution Control Agency.
- U.S. Census Bureau (USCB). 2010. American Fact Finder, Community Facts, 2010 Census. Retrieved from http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed June 28, 2016.
- USCB. 2014. *American Fact Finder, Community Facts, 2010-2014 American Community Survey 5-Year Estimates*. Retrieved from U.S. Census Bureau: http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed June 28, 2016.
- U.S. Department of Agriculture (USDA). 2001. *Otter Tail County Soil Survey*. Retrieved from U.S. Department of Agriculture, Natural Resources Conservation Service.
- USDA. 2006. *Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin*. U.S. Department of Agriculture Handbook 296.
- U.S. Fish & Wildlife Service (FWS). 2015. Retrieved from *U.S. Fish and Wildlife Service Online Information for Planning and Conservation*: <https://ecos.fws.gov/ipac/>
- U.S. Geological Survey (USGS). 1982. Digital Compilation of "*Landslide Overview Map of the Conterminous United States*". Retrieved from <http://landslides.usgs.gov/hazards/nationalmap/>
- USGS. 2014. Retrieved from *Seismic-Hazard Maps for the Conterminous United States, 2014: Peak Horizontal Acceleration with 10 Percent Probability of Exceedance in 50 Years*. Retrieved from http://pubs.usgs.gov/sim/3325/pdf/SIM3325_sheet1.pdf
- WISSOTA.org. 2016. WISSOTA History. Available online at: http://wissota.org/?page_id=47. Accessed July 19, 2016.

Project Maps



0 225 450 Feet
1 inch = 450 feet

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For Environmental Review Purposes Only

Map 2 - Construction Methods Map

Great Plains Natural Gas Co.

Fergus Falls Pipeline Replacement Project

Otter Tail County, Minnesota
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GREAT PLAINS
NATURAL GAS CO.
A member of NCD Resources Group, Inc.
In the Community to Serve

Proposed Pipeline Alignment		Workspace Type	
	Directional Drill		Permanent Right-of-Way
	Trench		Temporary Workspace
	Fergus Falls Wildlife Management Area		Pipe Pullback Workspace

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0 225 450 Feet
1 inch = 450 feet

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Map 2 - Construction Methods Map
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota
Page 2 of 4

Proposed Pipeline Alignment		Workspace Type	
	Directional Drill		Permanent Right-of-Way
	Trench		Temporary Workspace
	Fergus Falls Wildlife Management Area		Pipe Pullback Workspace

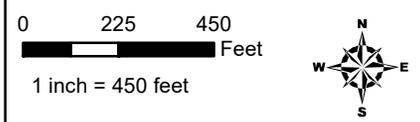
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94

Pipe Pullback
Workspace

Otter Tail Valley
Railroad



Map 2 - Construction Methods Map
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
 Otter Tail County, Minnesota
 Page 3 of 4



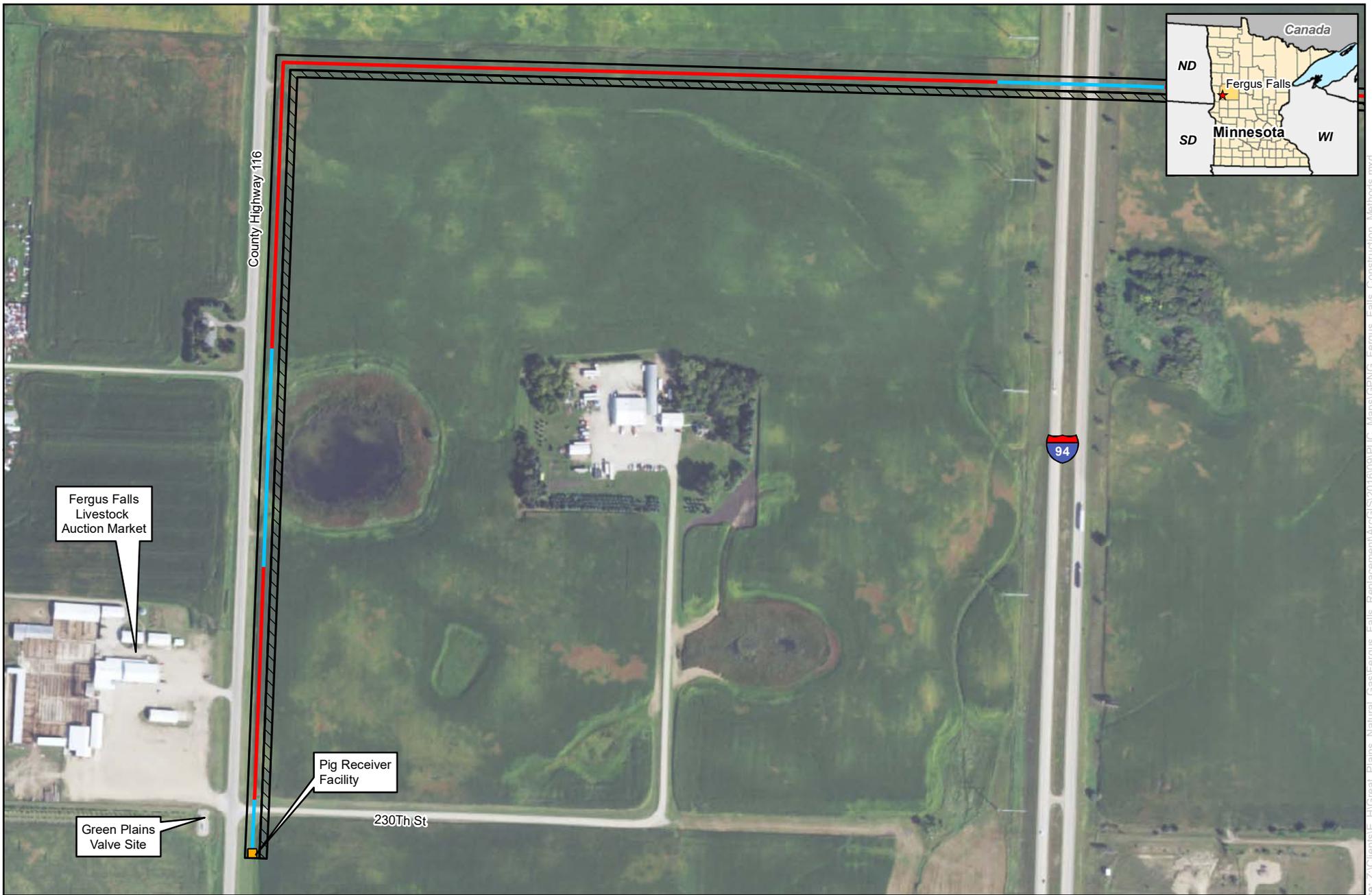
Proposed Pipeline Alignment

-  Directional Drill
-  Trench
-  Fergus Falls Wildlife Management Area

Workspace Type

-  Permanent Right-of-Way
-  Temporary Workspace
-  Pipe Pullback Workspace

Date: (9/29/2016) Source: Z:\Clients\IE_H\Great_Plains_Natural_Gas\Fergus_Falls_Replacement\ArcGIS\20160919\UC_Maps\GP\NG_Fergus_Falls_Construction_Methods.mxd



Fergus Falls Livestock Auction Market

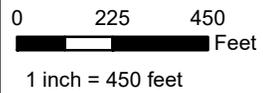
Green Plains Valve Site

Pig Receiver Facility

230th St

County Highway 116

94



Map 2 - Construction Methods Map
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
 Otter Tail County, Minnesota
 Page 4 of 4

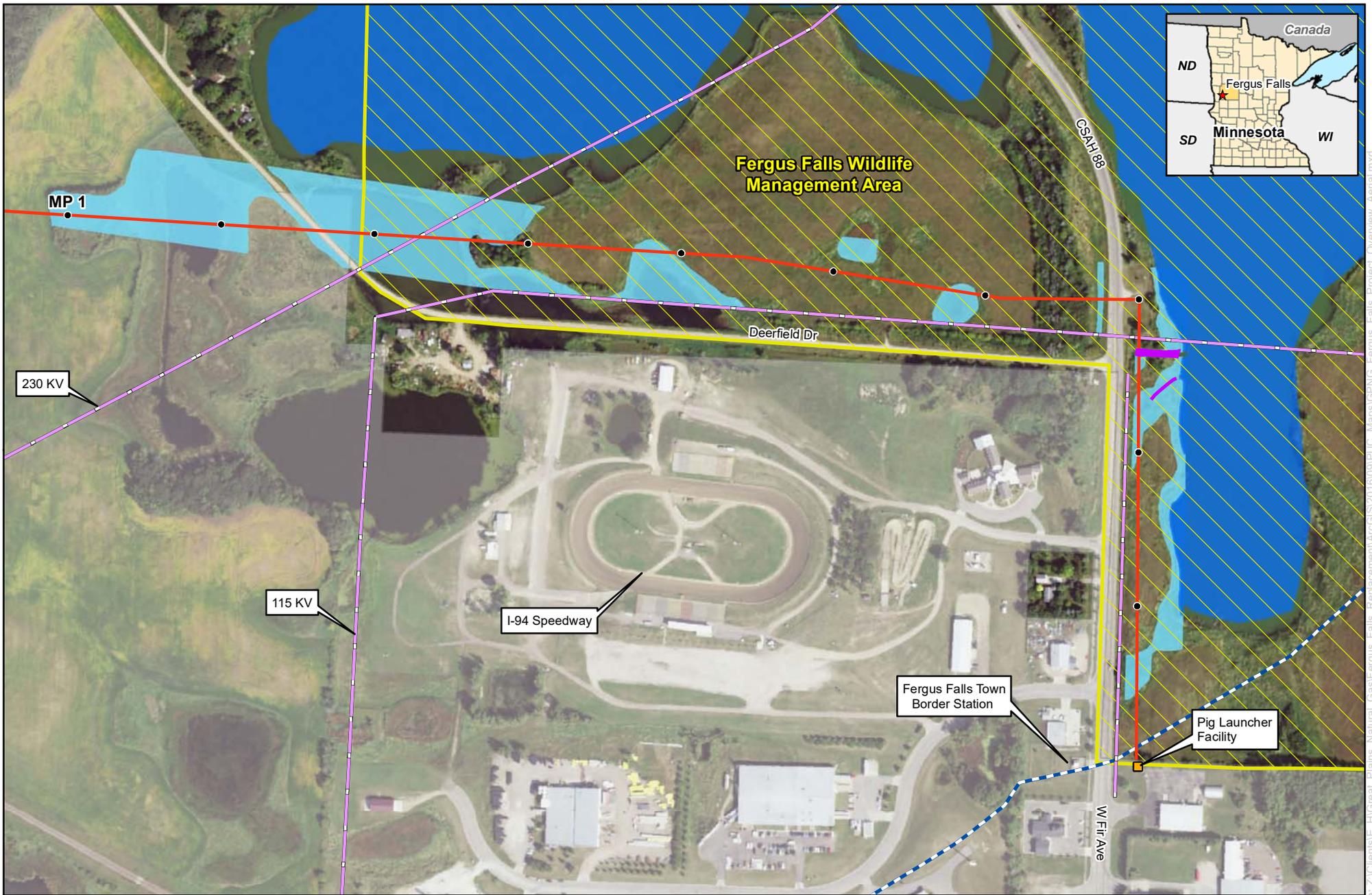


Proposed Pipeline Alignment

-  Directional Drill
-  Trench
-  Fergus Falls Wildlife Management Area

Workspace Type

-  Permanent Right-of-Way
-  Temporary Workspace
-  Pipe Pullback Workspace



0 225 450 Feet
1 inch = 450 feet

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For Environmental Review Purposes Only

Map 3 - Proposed Pipeline on Aerial Photo Map
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota
Page 1 of 3

● Milepost	▭ Fergus Falls Wildlife Management Area
— Proposed Pipeline	▭ Field Delineated Wetland
— Existing Pipeline	▭ PWI Waterbody
— Electric Transmission Line	▭ City of Fergus Falls
— Field Delineated Waterbody	

Date: (9/29/2016) Source: Z:\Clients\IE_H\Great_Plains_Natural_Gas\Fergus_Falls_Replacement\ArcGIS\20160919\UC_Maps\GR\NG_Fergus_Falls_Project_Overview_Aerial.mxd



0 225 450 Feet
1 inch = 450 feet

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For Environmental Review Purposes Only

Map 3 - Proposed Pipeline on Aerial Photo Map

Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota
Page 2 of 3

● Milepost	▨ Fergus Falls Wildlife Management Area
— Proposed Pipeline	▨ Field Delineated Wetland
- - - Existing Pipeline	▨ PWI Waterbody
- - - Electric Transmission Line	▨ City of Fergus Falls
▨ Field Delineated Waterbody	

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0 225 450 Feet
1 inch = 450 feet

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For Environmental Review Purposes Only

Map 3 - Proposed Pipeline on Aerial Photo Map

Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota
Page 3 of 3

- Milepost
- Proposed Pipeline
- - - Existing Pipeline
- Electric Transmission Line
- Field Delineated Waterbody
- ▭ Fergus Falls Wildlife Management Area
- ▭ Field Delineated Wetland
- ▭ PWI Waterbody
- ▭ City of Fergus Falls

Date: 10/4/2016 Source: Z:\Clients\IE_H\Great_Plains_Natural_Gas\Fergus_Falls_Replacement\ArcGIS20160919UC_Maps\GPNG_Fergus_Falls_Project_Overview_Aerial.mxd



0 225 450 Feet
1 inch = 450 feet

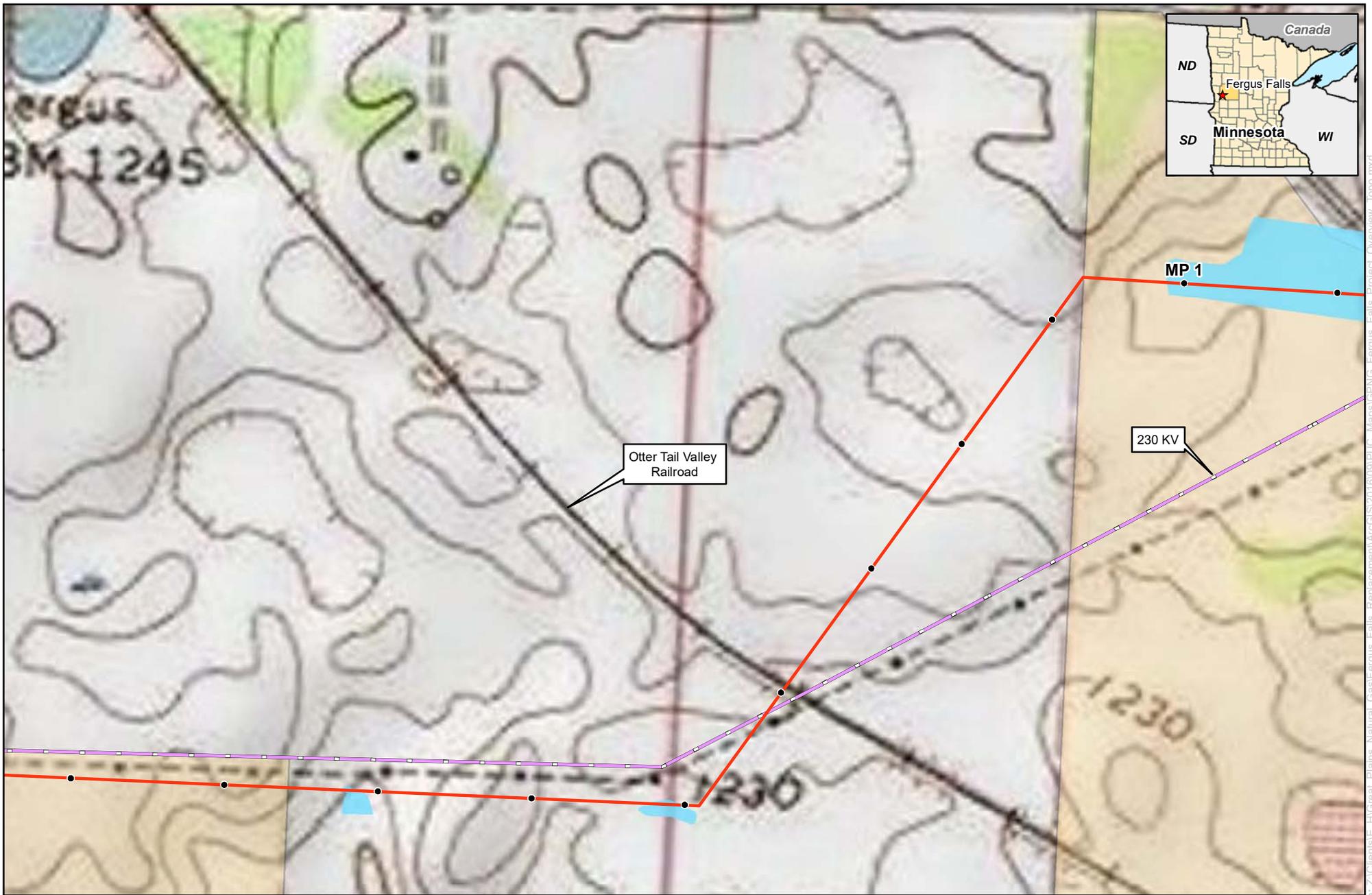
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Map 4 - Proposed Pipeline on Topographic Map

Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota
Page 1 of 3

● Milepost	□ Fergus Falls Wildlife Management Area
— Proposed Pipeline	■ Field Delineated Wetland
- - - Existing Pipeline	■ PWI Waterbody
— Electric Transmission Line	■ City of Fergus Falls
— Field Delineated Waterbody	

Date: (9/29/2016) Source: Z:\Clients\IE_H\Creat_Plans_Natural_Gas\Fergus_Falls_Replacement\ArcGIS\20160919\UC_Maps\GPNG_Fergus_Falls_Project_Overview_topo.mxd



Map 4 - Proposed Pipeline on Topographic Map
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
 Otter Tail County, Minnesota
 Page 2 of 3

- Milepost
- Proposed Pipeline
- Existing Pipeline
- Electric Transmission Line
- Field Delineated Waterbody
- ▭ Fergus Falls Wildlife Management Area
- ▭ Field Delineated Wetland
- ▭ PWI Waterbody
- ▭ City of Fergus Falls

Date: (9/29/2016) Source: Z:\Clients\IE_H\Great_Plains_Natural_Gas\Fergus_Falls_Replacement\ArcGIS20160919\UC_Maps\GPNG_Fergus_Falls_Project_Overview_topo.mxd



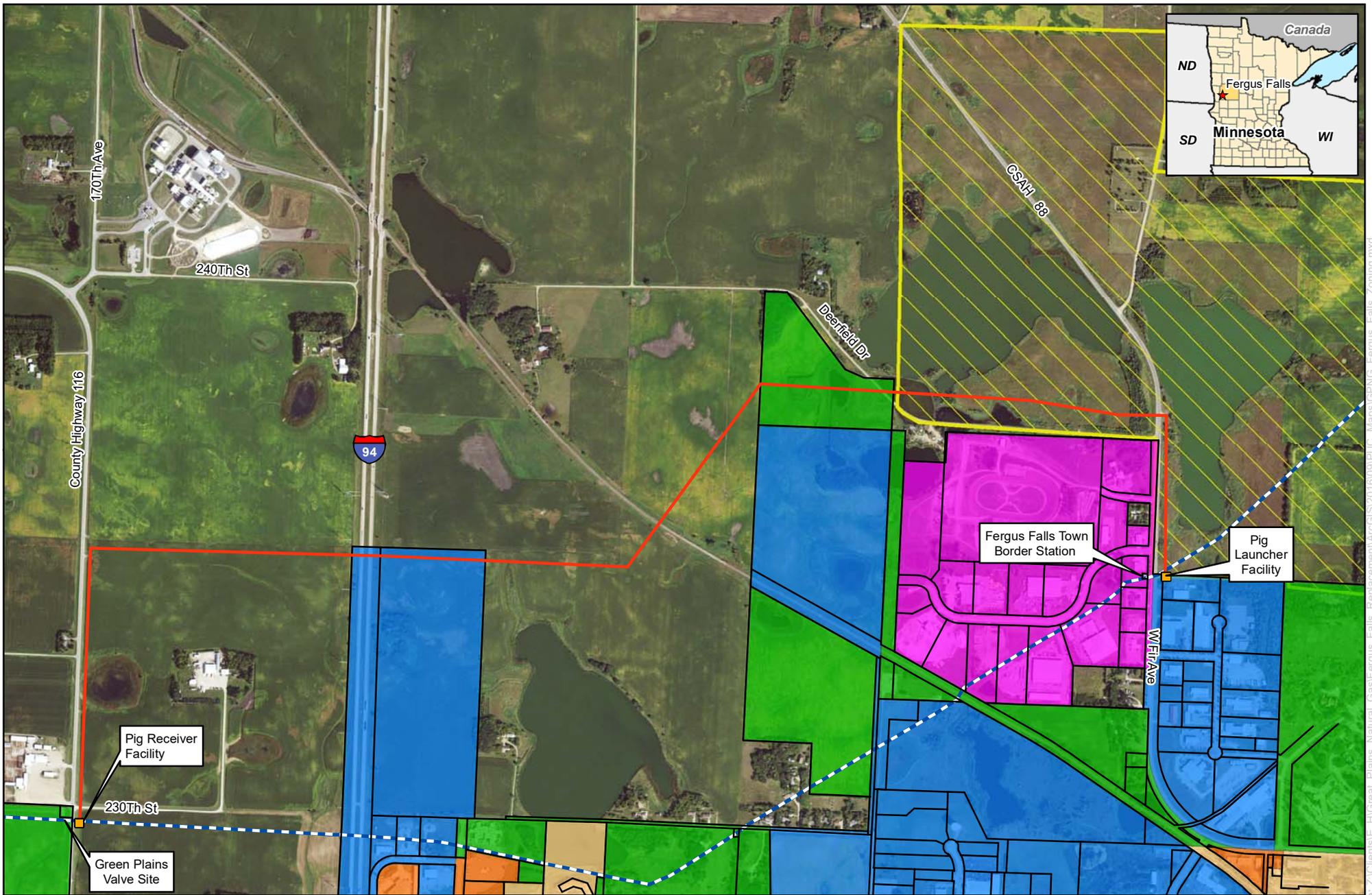
0 225 450 Feet
1 inch = 450 feet

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For Environmental Review Purposes Only

Map 4 - Proposed Pipeline on Topographic Map
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota
Page 3 of 3

● Milepost	□ Fergus Falls Wildlife Management Area
— Proposed Pipeline	■ Field Delineated Wetland
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- - - Electric Transmission Line	■ City of Fergus Falls
— Field Delineated Waterbody	

Date: 10/4/2016 Source: Z:\Clients\IE_H\Great_Plains_Natural_Gas\Fergus_Falls_Replacement\ArcGIS20160319\UC_Maps\GPNG_Fergus_Falls_Project_Overview_topo.mxd



0 650 1,300 Feet
1 inch = 1,300 feet

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For Environmental Review Purposes Only

Map 5 - City of Fergus Falls Zoning Map
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota

- | | | |
|---------------------------------------|---------------------------------------|--|
| Proposed Pipeline | Fergus Falls Wildlife Management Area | R-4 : MULTIPLE FAMILY RESIDENCE DISTRICT |
| Existing Pipeline | Fergus Falls Zoning | B-2 : SERVICE BUSINESS DISTRICT |
| R-A : AGRICULTURAL RESIDENCE DISTRICT | I-2 : GENERAL INDUSTRIAL DISTRICT | I-3 : PLANNED INDUSTRIAL DISTRICT |

Source: Z:\Clients\12_H\Create_Plans_H\Creat_Plans_Natural_Gas\Fergus_Falls_Replacement\ArcGIS20160919\UC_Maps\GPNG_Fergus_Falls_Zoning.mxd Date: (9/29/2016)