

**North Dakota Public Service Commission
Consolidated Application
Certificate of Corridor Compatibility and Route
Permit
Bison Pipeline Project**

Prepared for:

Plains Pipeline, L.P.

Prepared by:

E3 Environmental, LLC

January 2015



E3 ENVIRONMENTAL
Enhancing Execution with Experience



North Dakota Public Service Commission

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INTRODUCTION

Plains All American Pipeline, LP (Plains), owns and operates crude oil assets in the United States. Plains is proposing the Bison Pipeline Project (Project), located in Mountrail County, North Dakota. The Project scope includes a new approximately 10 mile, 8-inch outside diameter crude oil pipeline that would originate at the Robinson Lake Facility (RLF) and extend southward to connect with Plains' Van Hook Rail Facility (VHRF). The Project is needed to address transportation of growing volumes of crude oil from the Bakken Formation to refining centers in the eastern United States and southward to Houston, Texas.

Plains submits to the North Dakota Public Service Commission (PSC or Commission) a single consolidated application for a Certificate of Corridor Compatibility and Route Permit for the Project.

The application provides the requisite information as stipulated by:

- North Dakota Century Code, Energy Conversion and Transmission Facility Siting Act, Chapter 49-22-08; and,
- PCS Administrative Code, Chapter 69-06-05, Certificate of Site or Corridor Compatibility.

SECTION 1: DESCRIPTION

1.1 TYPE AND SIZE OF FACILITY

1.1.1 TYPE

The proposed Project would result in a new crude oil transmission pipeline. The steel pipeline would meet U.S. Department of Transportation (DOT) regulations, specifically the design, construction, and operation and maintenance criteria outlined in 49 CFR 195.

1.1.2 SIZE

The Project pipeline specifications are the following:

- 8-inch outside diameter steel pipe
- 0.250-inch wall thickness
- Normal Operating Pressure: 1,440 pounds per square inch gauge (psig)
- Maximum Operating Pressure: 1,480 psig
- Normal Throughput: approximately 15,000 barrels per day (bpd)
- Maximum Throughput: approximately 25,000 bpd
- Maximum Operating Temperature: 100 degrees Fahrenheit

1.1.3 LENGTH

The proposed Project is approximately 10 miles in length.

1.2 PURPOSE OF FACILITY

The purpose of the Project is to transport crude oil from the RLF to the VHRF for distribution to refineries in the eastern United States and southward to Houston, Texas.

1.3 LOCATION

The pipeline would be located in Mountrail County, North Dakota. The Project would result in a transmission pipeline originating at the existing RLF, located approximately eight miles northeast of New Town, North Dakota. The pipeline would extend in a southerly direction to its terminus at the VHRF, located approximately five miles east of New Town, North Dakota. Refer to Project maps provided in Appendix B.

1.4 ABOVEGROUND FACILITIES

It is not anticipated the proposed Project would include additional above ground facilities. Refer to Appendix A for engineering documents related to typical pipeline installation.

1.5 PROJECT SCHEDULE

1.5.1 CERTIFICATE OF CORRIDOR COMPATIBILITY

Plains seeks a Certificate of Corridor Compatibility by or before April 2015.

1.5.2 ROUTE PERMIT

Plains seeks a Route Permit by or before April 2015.

1.5.3 CONSTRUCTION SCHEDULE

Plains has scheduled construction activities to commence the second quarter of 2015. The construction activities would take approximately three months to complete. Commissioning and restoration activities would commence immediately after construction is complete.

SECTION 2: STUDIES

2.1 CORRIDOR

Plains selected the proposed corridor based upon several criteria designed to conform to the PSC's siting requirements and to avoid and minimize socioeconomic and environmental impacts, while maximizing the benefits to local resource developers in the Williston Basin. The location of existing assets were also considered during the selection process. Plains process of selecting a corridor to site a pipeline between two fixed assets was influenced by the opportunity to parallel with other utility corridors.

The proposed corridor is a one-mile-wide area centered upon a proposed alignment which was selected utilizing web-based mapping tools (*i.e.*, one-half mile on either side of the proposed alignment) (Corridor). The Corridor is illustrated on the maps in Appendix B.

A comprehensive desktop analysis of the Corridor included consultations with the federal and state agencies identified below. The results of this environmental analysis are summarized in Section 2.2 of this document. Records of the agency consultations are provided in Appendix C.

- U.S. Fish and Wildlife Service (USFWS)
- North Dakota Game and Fish Department (NDGFD)
- North Dakota Parks and Recreation - Natural Heritage Program (NDPRD)
- North Dakota Department of Trust Lands (NDDTL)
- North Dakota State Preservation Office (NDSHPO)
- North Dakota Department of Health (NDDoH)
- United States Air Force Cable Affairs (USAF Cable Affairs)

2.2 ENVIRONMENTAL DESKTOP ANALYSIS

2.2.1 WILDLIFE INVENTORY

Approximately 160 wildlife species are residents or seasonal visitors to the greater Missouri River ecosystem, and hundreds of native fish species live in the mainstream and its tributaries. Some of these animal species include fur-bearing mammals (*e.g.* beaver, muskrat, moose, eastern cottontail, elk, moose and mule deer), birds and waterfowl species (*e.g.*, mallard, Canada goose, sharp-tailed grouse and golden and bald eagles). Species classified as threatened or endangered by the Endangered Species Act (ESA) may occur within the Project counties.

Plains engaged federal and state agencies in consultations to identify potential occurrences of sensitive species or their critical habitats. Refer to Appendix C for complete record of agency consultations.

2.2.2 WETLAND AND WATERBODIES ANALYSIS

To evaluate the location and extent of mapped wetlands and waterbodies within the Corridor a desktop analysis of aerial photography, National Hydrography Data set (NHD) and National Wetland Inventory (NWI) maps was completed. Desktop analysis identified two waterbodies, 11 streams, and approximately 154 wetland features within the Corridor. Plains commissioned field studies to augment the desktop analysis, the field study results are discussed in the Route Permit Application.

2.2.3 TREE/SAPLING/SHRUB ANALYSIS

The density of the woody cover in this region is generally sparse, and typically associated with significant topographic relief such as defined banks or incised drainage channels or agricultural windrows. Plains commissioned field studies to inventory the Project survey corridor for woody vegetation. The survey corridor was typically a 200 foot corridor centered upon the preferred alignment. The results of these studies are documented in Appendix D and proposed mitigation measures are detailed in the Route Permit Application.

2.3 AGENCY CONSULTATIONS

2.3.1 U.S. FISH AND WILDLIFE SERVICE

The USFWS administers several programs designed to identify and protect special status plant and animal species, critical habitats and lands managed by the agency. E3 Environmental, LLC (E3), on behalf of Plains, sent a Project consultation letter with maps of the Corridor on November 10, 2014. A response from the USFWS is pending. Refer to Appendix C for a record of this consultation.

2.3.1.1 FEDERALLY PROTECTED SPECIES REVIEW

The USFWS identifies and maintains a list of species and critical habitats that have been afforded protection by the ESA. The ESA provides a program for the conservation of threatened and endangered plants and animals and the critical habitats.

E3 reviewed USFWS published data and identified the following listed species and the potential for the species to occur within the Corridor.

- Whooping crane (*Grus americana*) – Endangered
- Least tern (*Sternula antillarum*) – Endangered
- Pallid sturgeon (*Scaphirhynchus albus*) – Endangered
- Gray wolf (*Canis lupus*) – Endangered
- Piping plover (*Charadrius melodus*) – Threatened, and final designated critical habitat
- Dakota skipper (*Hesperia dacotae*) – Threatened, and proposed critical habitat

E3 reviewed available information describing the life history, critical habitats, and conservation measures associated with each species to assess the potential effects of the Project on these resources. The results of the assessment are provided below.

Whooping crane: The Aransas Wood Buffalo Population of Whooping Cranes engages in semi-annual migration through North Dakota. This flock breeds in the Wood Buffalo National Park in Alberta and Northwest Territories, Canada, and winters in the Aransas National Wildlife Refuge in Texas. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. During migration, the species is most closely associated with larger wetland complexes for roosting habitat, typically using adjacent uplands to forage. Desktop screening identified potential foraging habitat for the whooping crane within the Corridor.

Least tern: The interior populations of the least tern have historically been associated with large river systems for breeding and migratory habitats. Breeding birds are known to congregate in colonies, utilizing sandbar habitat common to larger rivers. Regionally, the Missouri River is known to host remnant breeding populations of terns. The Project is approximately 0.9 miles south of the Missouri River, and no suitable habitat is present within the Corridor; therefore, impacts to the least tern are not anticipated.

Pallid sturgeon: The preferred habitat of the pallid sturgeon includes the benthic environment associated with swift waters of large turbid, free-flowing rivers with braided channels; dynamic flow patterns; periodic flooding of terrestrial habitats; and requires extensive microhabitat diversity. Portions of the Missouri River are thought to provide the required habitat for the pallid sturgeon though much of the habitat has been compromised due to channelization, installation of impoundments and altered flow regimes. The proposed Project is approximately 0.9 miles south of the Missouri River and Lake Sakakewea. Therefore, the Project is not likely to impact the species.

Gray wolf: The gray wolf uses a variety of habitats that support a large prey base including montane and low-elevation forests, grasslands and desert scrub. The Corridor generally lacks forested habitat and is a great distance from the known Minnesota and Manitoba populations. This species is not tolerant of human disturbance and would tend to avoid interaction with humans. The activities associated with construction and later operations would likely serve as a deterrent to this species. Therefore, impacts to the gray wolf are not anticipated.

Piping plover: The piping plover is a small shorebird, which nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands and on beaches, sand bars and dredged material islands of major river systems. The shorelines of the Missouri River and Lake Sakakewea provide suitable habitat. Designated critical habitat for the piping plover is located approximately 0.9 miles south of the proposed Project. The Project would not intersect any prairie pothole wetlands which may provide suitable alkali wetland habitat. Thus, the proposed Project is not likely to impact this species.

Dakota skipper: Dakota skippers require untilled, high-quality prairie. Habitat preferred by the skipper is wet-mesic prairie with little topographic relief on near-shore glacial lake deposits and in rolling native-prairie terrain over gravelly glacial moraine

deposits. Larvae feed on grasses, favoring little bluestem (*Schizachyrium scoparium*). Adults commonly feed on nectar of flowering native forbs such as harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*). This species is not known to disperse widely and has low mobility, dispersing a maximum of 0.6 miles. The species is threatened by conversion of native prairie to cultivated agriculture or shrublands, over-grazing, invasive species, gravel mining, and inbreeding. Review of aerial photos and soil survey data indicate that untilled, high-quality prairie dominated by native grasses that contain a high diversity of native forbs are not present within the Corridor. Desktop analyses supported with field studies have concluded that no suitable habitat is present within the Corridor; therefore, impacts to the Dakota skipper are not anticipated.

On November 10, 2014, E3, on behalf of Plains, submitted project consultation to the USFWS providing a comprehensive project description and environmental analysis. A response from the USFWS is pending. See Appendix C for a copy of the correspondence.

2.3.1.2 MIGRATORY BIRD TREATY ACT CONSULTATION

On November 10, 2014, E3, on behalf of Plains, initiated consultations with the USFWS; the consultation addressed several topics which fall under the purview of the USFWS including the Migratory Bird Treaty Act (MBTA). The management of MBTA concerns correspond with the regional timing associated with annual phenology of migratory species. In North Dakota, generally it is acknowledged MBTA species of concern may be present and active in North Dakota from February 1st through July 15th annually. The proposed Project construction is scheduled to commence the second quarter of 2015 and take approximately three months to reach completion. According to the Project schedule, MBTA mitigation may be required. Plains would continue to consult with agencies as necessary and shall develop MBTA mitigation as appropriate.

2.3.1.3 BALD AND GOLDEN EAGLE PROTECTION ACT CONSULTATION

The Bald and Golden Eagle Act (BGEA) prohibits anyone without a permit from taking a bald or golden eagle including their parts, nests or eggs. The BGEA defines “take” as to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The BGEA also addresses impacts resulting from human-induced alterations occurring around previously used nesting sites.

On November 10, 2014, E3, on behalf of Plains, sent a Project consultation letter with maps of the Corridor to the USFWS, which addressed the topic of BGEA. To date, no response has been received from the USFWS regarding the BGEA. Refer to Appendix C for a copy of the correspondence.

2.3.1.4 U.S. FISH AND WILDLIFE SERVICE MANAGED LANDS

The USFWS administers National Wildlife Refuges and Waterfowl Production Areas (WPAs) as well as wetland and grassland easements throughout North Dakota. A desktop review of information available in the public domain, including U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps, USGS PAD-US dataset, and the USFWS Information, Planning, and Conservation System (IPaC) has been completed for the Corridor. Desktop analysis indicates no USFWS managed lands are located within the Corridor.

A notification was provided to the USFWS providing opportunity for the Agency to identify any additional USFWS managed lands which may be impacted by the Project. A response from the USFWS is pending. Refer to Appendix C for a copy of the correspondence.

2.3.2 NORTH DAKOTA GAME AND FISH DEPARTMENT

The NDGFD has oversight of the State's game species. On November 10, 2014, on behalf of Plains, E3 initiated consultations with the NDGFD requesting information regarding the presence or absence of State Conservation Priority Species within the Corridor. The NDGFD provided a written response on December 5, 2014 stating the Project would not have significant adverse effects on wildlife or wildlife habitat. Refer to Appendix C for a copy of this correspondence.

2.3.3 NORTH DAKOTA PARKS AND RECREATION DEPARTMENT

The NDPRD Natural Resource Division's scope of authority and expertise covers recreation and biological resources (in particular, rare species and ecological communities). The NDPRD also maintains a database comprised of the location and recorded occurrences of plant and animal species of special concern. The NDPRD authority includes management of state park lands and Land and Water Conservation funded recreation projects.

On November 10, 2014, on behalf of Plains, E3 initiated consultations with the NDPRD seeking confirmation regarding the presence or absence of managed lands, ecological resources, rare species or their critical habitats within the Corridor. The NDPRD responded on December 10, 2014 indicating there are no documented occurrences of plant or animal species of concern or other significant ecological communities within the Corridor. See Appendix C for a copy of the correspondence.

2.3.4 NORTH DAKOTA DEPARTMENT OF TRUST LANDS, MINERALS AND SURFACE MANAGEMENT

The NDDTL is in charge of managing surface acres and mineral interests held in trust for various schools and institutions. Based on review of publically available information, no state trust land is crossed by the Corridor.

On November 10, 2014, E3, on behalf of Plains, initiated consultations with the NDDTL Surface Management Division requesting comments regarding the presence of School Trust Lands within the Corridor; the NDDTL responded on November 13, 2014

confirming no North Dakota School Trust lands are located within the Corridor. Refer to Appendix C for a copy of this correspondence.

On November 10, 2014, E3, on behalf of Plains, initiated consultations with the NDDTL Minerals Management Division requesting comments regarding the presence or absence of State Mineral Trust lands within the Corridor. The NDDTL responded on November 12, 2014 confirming the presence of Mineral Trust land tracts within the Corridor as depicted in the consultation map. See Appendix C for a copy of the correspondence.

2.3.5 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

The NDSHPO is responsible for managing the historic and archaeological resources of the state; as such, the NDSHPO maintains records of all previously recorded cultural resources within the state.

On March 11, 2014, October 29 and November 19, 2014, SWCA Environmental Consultants (SWCA) conducted a Class I cultural resources inventory (literature review) of records from the State Historical Society of North Dakota to identify previously completed cultural resource investigations and recorded cultural resources within one mile of the Corridor. The Class I cultural resources inventory identified ten recorded cultural resources within the Corridor (32MN699, 32MN700, 32MN1035, 32MN1036, 32MN818, 32MN896, 32MN873, 32MNX60, 32MNX112, and 32MNX113). Of the ten previously recorded cultural resources, three are recommended not eligible for inclusion into the National Register of Historic Places (NRHP) (32MN869, 32MN1035, and 32MN1036), one is a non-contributing element of an NRHP-eligible site (32MN818), and six remain unevaluated with regard to their NRHP eligibility (32MN699, 32MN700, 32MN873, 32MNX60, 32MNX112, and 32MNX113).

The results of this Class I study are documented in Appendix E. To augment this Class I effort SWCA also conducted a Class III field investigation, the details of this effort are included in Appendix E and in the Route Permit Application.

2.3.6 NORTH DAKOTA DEPARTMENT OF HEALTH

The NDDoH administers various water quality regulatory programs. These programs include construction stormwater permitting, hydrostatic test water discharges and other water discharges.

2.3.6.1 NDDOH POLLUTION DISCHARGE ELIMINATION SYSTEM

The North Dakota Pollution Discharge Elimination System (NDPDES) is the regulatory program for water discharges such as construction stormwater, site dewatering, and hydrostatic water discharges. Plains would procure the following NDPDES permits from the NDDoH as described below.

Construction Stormwater: Plains would seek coverage under NDR10-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System* general permit for construction activities. A Storm Water Pollution Prevention Plan (SWPPP) would be prepared and maintained on-site for the duration of the

Project. Plains would properly implement the SWPPP, which would be designed to manage run-off and trench dewatering discharges in a manner that would minimize exposure to chemicals, waste and petroleum products, and to describe erosion control measures designed to minimize off-site transfer of sediments.

Hydrostatic test water discharges: Plains would seek coverage under NDG07-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination* general permit for various temporary discharges including both construction site dewatering and hydrostatic test water discharges.

2.3.7 UNITED STATES AIR FORCE CABLE AFFAIRS

The USAF Cable Affairs division at the Minot Air Force Base maintains a fleet of 150 Minuteman III missiles/launch facilities and associated underground communication network cable system.

On January 12, 2015, on behalf of Plains, E3 initiated consultations with the USAF Cable Affairs division seeking confirmation regarding the presence or absence of any Minuteman Intercontinental Ballistic Missile (ICBM) related systems within the Corridor. A response from the USAF Cable Affairs division is pending. See Appendix C for a copy of the correspondence.

SECTION 3: NEED FOR FACILITY

3.1 ANALYSIS OF NEED BASED ON PRESENT AND PROJECTED DEMAND, INCLUDING SYSTEM STUDIES

The development of hydrocarbon production in the Williston Basin has increased significantly in recent years due to advancements in deep horizontal directional drilling techniques and subsequent oil extraction in the Bakken and Three Forks Shale formations. The total recoverable amount of Bakken Shale and Three Forks oil reserves are subject to interpretation and speculation. Studies conducted by the North Dakota Department of Mineral Resources and the USGS in 2010 estimated mean undiscovered volumes of 3.65 billion barrels of recoverable crude oil reserves may be available in North Dakota's deep shale formations. From March of 2007 to March of 2013, oil production in North Dakota has surged by 564 percent. In March of 2007, North Dakota produced 118,000 barrels of oil per day. That figure has increased to 783,000 barrels per day in March of 2013. In 2007, North Dakota accounted for roughly 2.5 percent of all the oil produced in the United States. In 2013, North Dakota accounted for roughly 11 percent of all the oil produced in the country.

A major constraint in transporting hydrocarbons from North Dakota to distribution centers and eventual end users in the United States is the lack of pipeline capacity. To relieve the pipeline constraints, several projects have been planned to address the growing volumes of crude oil, natural gas and natural gas liquids. However, pipeline capacity is not expected to keep pace with production, leaving incremental volumes to find alternative transportation methods, primarily rail or other surface transportation alternatives.

Construction of the proposed project would provide firm, reliable transport of 15,000 bpd of crude oil between the RLF and the VHRF. From the VHRF, the product would be shipped via rail to refineries in the eastern United States and southward to Houston, Texas.

SECTION 4: CORRIDOR LOCATION AND CRITERIA EVALUATION

Plains has conducted a thorough inventory of the Corridor and evaluated the resources within it to assess the compatibility of the Project with the PSC's siting criteria. The following sections identify and discuss the presence or absence of siting criteria within the Corridor. Where siting criteria are identified, the location of each is shown on the maps in Appendix B.

4.1 CORRIDOR LOCATION

Plains identified a preferred Corridor, which is a one mile-wide area centered upon the preferred pipeline alignment. The selection of the proposed Corridor was a multi-disciplinary effort, which included socioeconomic, environmental, logistics, engineering, and financial considerations. The Corridor described in this application provides Plains with the opportunity to utilize existing assets, and minimize landowner and environmental impacts.

Plains initiated landowner negotiations, agency consultations, and performed internet-based research and desktop analysis of the Corridor. These efforts were augmented by field studies, including natural and cultural resource field surveys. The results the field studies are discussed in detail in the Route Permit Application.

4.2 FACTORS TO BE CONSIDERED IN EVALUATING APPLICATIONS AND DESIGNATION OF CORRIDORS AND ROUTES (NDCC 49-22-09)

4.2.1 FEASIBLE ALTERNATIVES TO THE PROPOSED CORRIDOR OR ROUTE

Construction of the proposed Project would provide firm, reliable service for 15,000 barrels of crude oil per day from the RLF to the VHRF. From the VHRF the crude would be available for transport to refineries in the south central and southwestern United States. Plains identified and evaluated several project alternatives; however, none of these alternatives effectively satisfied the Project objective. These alternatives included:

- No-Action Alternative;
- Trucking Alternative; and
- Rail Alternative

4.2.1.1 No Action Alternative

This alternative would leave the region constrained by limited transport capacity for safe and reliable transmission of crude oil products to markets. A no action alternative could result in the curtailment of crude oil production. For these reasons, Plains rejected a *No Action Alternative*.

4.2.1.2 Trucking Alternative

This alternative was reviewed and eliminated due to the volume of crude oil to be transported. The normal daily throughput of the proposed Project would be approximately 15,000 barrels or 630,000 gallons of crude oil. The average load for a truck carrying crude oil is approximately 178 barrels (approximately 7,500 gallons) per truck. Thus, it would require 85 trucks per day, an average of 3.5 trucks every hour for 24 hours a day to transport the volume of product the pipeline would transport to the VHRF. This level of truck activity is not logistically feasible as it would cause significant amounts of heavy vehicle traffic for area residents, as well as additional wear and tear on the infrastructure. Disruption in the trucking capacity due to seasonal load restrictions on roads, inclement weather or road repairs would cause a delay in delivering this valuable resource to market. This alternative is not desirable; therefore, Plains rejected a *Trucking Alternative*.

4.2.1.3 Rail Alternative

This analysis included the evaluation of developing a rail spur to connect to the RLF at the northern terminus of the Project. There are several factors that dissuaded the pursuit of this alternative. First, there is not sufficient space available at the RLF to site a rail loading rack. Secondly, the siting and construction of approximately nine miles of rail spur would result in permanent environmental impacts associated with the construction and operation of this above-ground feature. Finally, the combination of financial, logistic, and timing constraints are not compatible with the proposed Project. Plains determined that to maximize the benefits of the Project while minimizing impacts, it is advantageous to make use of existing infrastructure where available. This alternative is not desirable; therefore, Plains rejected a *Rail Alternative*.

4.2.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF NATURAL RESOURCES SHOULD THE PROPOSED CORRIDOR BE DESIGNATED

Plains is not aware of any irreversible or irretrievable commitments of natural resources that would result from the requested approvals.

4.2.3 EXISTING PLANS OF THE STATE, LOCAL GOVERNMENT AND PRIVATE ENTITIES FOR OTHER DEVELOPMENTS AT OR IN THE VICINITY OF THE PROPOSED ROUTE

Plains is aware of future development plans within in close proximity to the Project; however, the Project route has been designed to accommodate these developments.

4.2.4 PROBLEMS RAISED BY FEDERAL AGENCIES, OTHER STATE AGENCIES AND LOCAL ENTITIES

Plains has consulted with federal and state agencies to identify possible environmental resources within the Corridor and any related agency concerns. A complete record of these consultations is provided in Appendix C.

4.3 EXCLUSION AREAS (NAC 69-06-08-02.1)

Exclusion areas are geographical areas that must be excluded from consideration when siting an energy transmission facility. A proposed corridor may contain exclusion areas; however, exclusion areas may not encompass more than 50 percent of the corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss exclusion areas identified within the Corridor.

Exclusion Area	Within Corridor
Federal	
National Parks or Memorial Parks	No
Historic Sites, or Landmarks	Yes
Natural Landmarks or Monuments	No
Wilderness Areas	No
State	
Historic Sites, Monuments, or Historical Markers	No
Archaeological Sites	Yes
Parks	No
Nature Preserves	No
County	
Parks	No
Recreation Areas	No
Municipal Parks	No
Other	
Areas critical to the life stages of Threatened and Endangered animal or plant species	No
Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged	No
Areas within 1,200 feet of a geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	No
Areas within 30 feet on either side of a direct line between ICBM launch or launch control facilities to avoid microwave interference.	Yes

4.3.1 FEDERAL RESOURCE REVIEW

Plains has initiated consultations with federal and state agencies and conducted a comprehensive review of published information. Plains concluded no national or memorial parks, natural landmarks or monuments, or wilderness areas would be crossed or affected by the Project.

Plains commissioned a Class I inventory of the Corridor. These efforts identified previously recorded historic properties and cultural resources. Plains confirmed the presence of six historic sites within the Corridor (cultural resources unevaluated for

inclusion into the NRHP). Refer to Section 2.3.5 for more information on these resources, Section 2 for a comprehensive discussion of Plains agency consultations, and Appendix C for a record of the consultations. Mitigation details are discussed in the Route Permit Application.

4.3.2 STATE RESOURCE REVIEW

Plains has initiated consultations with federal and state agencies and conducted a comprehensive review of published information. Plains confirmed the absence of state parks, monuments, historical markers, or nature preserves within the proposed Corridor.

Plains commissioned a Class I inventory of the Corridor. These efforts identified previously recorded historic properties and cultural resources. Plains confirmed the presence of four previously recorded archaeological sites within the Corridor (cultural resources determined to be not eligible for inclusion into the NRHP). Refer to Section 2.3.5 and the Cultural Resources Report in Appendix E for more information on these resources, Section 2 for a comprehensive discussion of Plains agency consultations, and Appendix C for a record of the consultations. Mitigation details are discussed in the Route Permit Application.

4.3.3 COUNTY RESOURCE REVIEW

Plains has confirmed through a combination of agency consultations and review of publicly available information the absence of county parks or recreation areas, municipal parks, or parks owned by other subdivisions of government bodies within the proposed Corridor. Refer to Section 2 of this document for a comprehensive discussion of Plains consultations, and Appendix C for documentation of agency consultations.

4.3.4 AREAS CRITICAL TO THE LIFE STAGES OF THREATENED AND ENDANGERED ANIMAL OR PLANT SPECIES

Plains conducted a comprehensive desktop review of the Corridor; these efforts were augmented with agency consultations and additional field surveys to confirm the presence or absence of critical habitat.

Refer to Appendix C for documentation of the agency consultations, and Section 2 of the Route Permit Application for details of the field studies.

4.3.5 AREAS WHERE ANIMAL OR PLANT SPECIES THAT ARE UNIQUE OR RARE TO THIS STATE WOULD BE IRREVERSIBLY DAMAGED

Plains has engaged in federal and state agency consultations, reviewed published information and conducted a desktop analysis of the Corridor to determine if areas of critical animal or plant habitat may occur. Based on these studies, Plains has confirmed the absence of protected species and/or their critical habitats. Refer to Appendix C for supporting documentation of agency consultations.

4.3.6 AREAS WITHIN 1,200 FEET OF THE GEOGRAPHIC CENTER OF AN ICBM LAUNCH OR LAUNCH CONTROL FACILITY

Based upon information compiled by the University of Wyoming regarding current and historic missile site locations, which was comprised of both tabular data describing these sites and supported with additional aerial imagery for each Minot Air Force Base ICBM site, Plains has confirmed the absence of ICBM launch or launch control facilities located within 1,200 feet of the Corridor.

4.3.7 AREAS WITHIN 30 FEET ON EITHER SIDE OF A DIRECT LINE BETWEEN ICBM LAUNCH OR LAUNCH CONTROL FACILITIES TO AVOID MICROWAVE INTERFERENCE

Based upon information compiled by the University of Wyoming regarding current and historic missile site locations, which was comprised of both tabular data describing these sites and supported with additional aerial imagery for each Minot Air Force Base ICBM site, Plains has confirmed the presence of areas within 30 feet on either side of a direct line between ICBM launch or launch control facilities.

On January 12, 2015, on behalf of Plains, E3 initiated consultation with the USAF Cable Affairs division seeking confirmation regarding the presence or absence of any ICBM related systems within the Corridor. A response from the USAF Cable Affairs division is pending. See Appendix C for a copy of the correspondence.

4.4 AVOIDANCE AREAS (NAC 69-06-08-02.2)

Avoidance areas are geographic areas that may not be considered in the routing of a transmission facility unless it is shown there is no reasonable alternative under the circumstances. A proposed corridor may contain avoidance areas; however, avoidance areas may not encompass more than 50 percent of the corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss avoidance areas within the proposed Corridor.

Avoidance Area	Within Corridor
Federal	
Historic Districts	No
Wildlife Areas	No
Wild, Scenic or Recreational Rivers	No
Wildlife Refuges	No
Grasslands	No
State	
Wild, Scenic, or Recreational Rivers	No
Game Refuges or Game Management Areas	No
Forests or Forest Management Areas	No
Grasslands	No
Other	
Other Historic Resources not meeting Exclusion	No

Avoidance Area	Within Corridor
Areas criteria	
Areas of Known Geologic Instability	No
Areas within 500 Feet of a Residence, School, or Place of Business	Yes
Reservoirs and Municipal Water Supplies	No
Water Sources for Organized Rural Water Districts	No
Irrigated Land (not applicable to underground facilities)	N/A
Areas of Recreational Significance which are not designated as Exclusion Areas	No

4.4.1 FEDERAL RESOURCE REVIEW

Plains conducted agency consultations and a comprehensive review of publicly available information. This review indicated the absence of designated or registered historic districts, refuges, grasslands, and wild, scenic or recreational rivers within the Corridor. Refer to Appendix C for documentation of agency consultations.

4.4.2 STATE RESOURCE REVIEW

Plains conducted a review of publicly available information and initiated project specific agency consultations and through these efforts has concluded there are no designated or registered management areas, forests, forest management lands, grasslands or wild, scenic, or recreational rivers within the Corridor. Refer to Appendix C for documentation of agency consultations.

4.4.3 HISTORICAL RESOURCES NOT MEETING EXCLUSION AREA CRITERIA

Plains conducted a review of publicly available information, initiated project specific agency consultations, and augmented agency review with field studies. Through these efforts, Plains has concluded there are no historic resources not meeting exclusion areas criteria within the Corridor. Refer to Appendix C for documentation of agency consultations and Appendix E for the Cultural Resources Report.

4.4.4 AREAS OF KNOWN GEOLOGIC INSTABILITY

Geologic instability generally refers to surface geology and areas where landslides have occurred. The North Dakota Geological Survey (NDGS) landslide mapping data was consulted for information regarding areas of landslides near the Project area. Review of *Areas of Landslides, Belden SE and Shell Creek Bay, 24K Sheet, North Dakota* indicated the absence of landslide deposits within the Corridor.

North Dakota has not experienced an earthquake of sufficient magnitude to damage steel welded pipe or structural steel structures in recorded history. Sinkholes are known to occur in the region, but these are related to subsurface mining activities as opposed to limestone dissolution. According to review of PSC abandoned mine data, no mining activities are located in the Corridor.

4.4.5 AREAS WITHIN 500 FEET OF A RESIDENCE, SCHOOL OR PLACE OF BUSINESS

Aerial photography was utilized to identify structures located within the Corridor. Approximately 67 potentially occupied structures were identified within the Corridor. Refer to the Route Permit Application regarding potentially occupied structures within 500 feet of the Route.

4.4.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES

Plains has confirmed the Corridor does not contain reservoirs or municipal source water protection areas used for community water supply sources. Two wells were identified within the Corridor; these wells are used for domestic, stock or observation purposes. The maps in Appendix B depict the location of these resources.

4.4.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS

Desktop analysis confirmed the Corridor is not located within the boundaries of an organized rural water district. There are no documented source water protection areas for community and non-community water supplies within the proposed Corridor.

4.4.8 IRRIGATED LAND

This criterion does not apply to underground transmission facilities; as such, it is not applicable to this Project.

4.4.9 AREAS OF RECREATIONAL SIGNIFICANCE WHICH ARE NOT DESIGNATED AS EXCLUSION AREAS

Plains confirmed the Corridor does not contain any other areas of recreational significance.

4.5 SELECTION CRITERIA (NAC 69.06-08-02.3)

The selection criteria require assessment of the environmental impacts and alterations to land use that may result from the siting of the proposed project. Through this process, Plains believes the Project would successfully avoid or minimize these effects to the maximum extent practicable.

4.5.1 AGRICULTURAL IMPACT

Agricultural Production: The Project would temporarily affect approximately 114 acres of private land in North Dakota. Once construction is complete, the land would be restored to its pre-construction contours and land use. Plains would provide settlements to landowners for crop loss resulting from Project construction.

Family Farms and Ranches: The Project would temporarily affect approximately 114 acres of private land in North Dakota. Once construction is complete, the land would be restored to its pre-construction contours and land use. Plains would negotiate easements with all affected landowners. The Project would have no permanent impacts to lifestyle or farm/ranch operations once construction is completed.

Lands Suitable for Irrigation: This section is not applicable to buried pipelines (69-06-08-02.2h).

Surface Drainage: Standard construction techniques would be employed; significant modifications to surface drainage patterns are not anticipated. Care would be taken throughout the construction process to minimize environmental impacts, including modification of drainage patterns. During restoration, those areas that were disturbed during construction would be restored, the local topography would be restored to its original contours, vegetation would be reestablished and impacts shall be minimal and temporary. BMPs would be implemented in accordance with the project-specific SWPPP, which would comply with the NDDoH Construction Stormwater General Permit requirements.

Ground Water: Well data, recorded by the State Water Commission, has been reviewed for the Project area. Well data indicates groundwater in upland areas is located between 20-50 feet below the surface. Typical subsurface excavations associated with the Project would not extend to more than ten feet below the ground surface. At that depth, the Project would not intersect the groundwater table, nor would the Project alter recharge rates or the infiltration, permeability, or percolation of water into the groundwater reservoir. Additionally, construction would not affect the lateral movement and groundwater quality.

4.5.2 THE IMPACTS UPON OTHER RESOURCES

Noise-Sensitive Land Uses: The Project is located in a rural setting, effectively isolating it from the majority of sensitive receptors. Construction of the proposed Project would temporarily affect the local noise environment. The ambient sound level of a region is defined by the total noise generated within the specific environment and is usually comprised of sounds emanating from natural and artificial sources.

Construction of the proposed Project would be conducted during typical working hours and is expected to cause temporary increases in ambient sound within and adjacent to the Project area. The use of heavy equipment or trucks would be the primary noise source during construction and excavation. The level of impact may vary by equipment type, duration of construction activity, and the distance between the noise source and the receptor. Once constructed and in-service, normal pipeline operations are not audible.

Visual Effect on Adjacent Areas: Above ground facilities that would visually effect the Project area are not anticipated for the proposed Project.

Extractive and Storage Resources: This Project would not affect any extractive or storage resources.

Wetlands, Woodlands and Wooded Areas: A comprehensive desktop review of published data, including aerial photography and NWI data, was conducted to assess the presence or absence of wetlands, woodlands and wooded areas. The review of the proposed Corridor confirmed the presence of these resources. Plains commissioned

field surveys to identify and record the locations of these resources along the proposed Route. Refer to Section 2 in this document for a comprehensive discussion of the field studies results, as well as Appendix C for copies of the consultations. Mitigation details are discussed in the Route Permit Application.

Radio and Television Reception, and other Communication or Electronic Control Facilities: Plains does not anticipate the Project would affect radio, television, or other electronic control facilities.

Human Health and Safety: Plains corporate Health and Safety Policy meets or exceeds federal and state laws, rules and regulations, and is enforced equally with respect to both Plains and contractor employees. The implementation of this policy promotes a safe and healthy workplace during construction and operation of all Plains assets. In addition, the operation of the pipeline would be monitored in accordance with DOT regulations.

Animal Health and Safety: The wildlife currently inhabiting the Corridor is common and is generally mobile. The local wildlife inhabitants would not be displaced by the Project and no measurable impact to the viability of these populations would occur. Plains does not anticipate species of special concern to experience direct impacts due to construction or operation of the proposed Project.

Plant Life: There would be no impacts to plant life associated with the construction or operation of the pipeline. No species of special concern would be impacted by the Project.

4.6 POLICY CRITERIA

4.6.1 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

Plains is committed to conducting its business in compliance with all applicable environmental laws and regulations. These laws, regulations and standards are designed to safeguard the environment, human health, wildlife and natural resources. Plains would conduct its activities with the objectives of providing a healthful and safe workplace for its employees, and preventing accidents and environmental incidents. All persons and firms providing service to Plains are required to conduct their work in compliance with environmental conditions, permit authorizations, and applicable regulations, and would be held accountable for their actions in that regard.

4.6.2 LOCATION AND DESIGN

The proposed pipeline would be located in Mountrail County, North Dakota. The Project would result in a transmission pipeline originating at the existing RLF, located approximately eight miles northeast of New Town, North Dakota. The pipeline would extend in a southerly direction to its terminus at the Plains' VHRF, located approximately five miles east of New Town, ND. Refer to the Project maps provided in Appendix B.

The pipeline would be approximately 10 miles in length constructed of steel, and would be a nominal 8-inch outside diameter pipe. The pipe installed would have a nominal wall thickness of 0.250 inches denoted as API Code 5L specification GR B pipeline pipe. The maximum operating pressure of the pipeline would be 1,480 psig.

The proposed pipeline would meet US Department of Transportation regulations, specifically the design criteria outlined in 49 CFR 195.100, constructed per 49 CFR 195.200 operated and maintained per 49 CFR 195.400.

4.6.3 TRAINING AND UTILIZATION OF AVAILABLE LABOR IN THIS STATE FOR THE GENERAL AND SPECIALIZED SKILLS REQUIRED

Pipeline construction is a specialized niche construction market and the labor force needed to build the Project would be primarily comprised of a specialized workforce. The primary contractor would be a contractor, supplying specialized skilled labor. The workforce is anticipated to reach a peak of approximately 100 personnel.

4.6.4 ECONOMIES OF CONSTRUCTION AND OPERATION

Plains would invest approximately \$9 million in North Dakota to develop this Project, generating approximately \$60,700 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the proposed pipeline are minimal.

4.6.5 USE OF CITIZEN COORDINATING COMMITTEES

Plains has established and maintains a good relationship with the local community officials and the local population. These relationships provide multiple grass roots communication channels to inform local residents regarding the developments associated with the Project.

4.6.6 COMMITMENT OF A PORTION OF THE TRANSMITTED PRODUCT FOR USE IN THIS STATE

The proposed Project would interconnect with existing facilities. The products handled, transferred and shipped at these facilities are currently delivered to markets both in and out of state.

4.6.7 LABOR RELATIONS

Plains maintains positive labor relations with its staff and contract work force and does not anticipate encountering any adverse labor relations on this Project. The labor market in the region is generally supportive of the oil and gas industry.

4.6.8 THE COORDINATION OF FACILITIES

Plains owns and operates all of the affected facilities; thus, coordination would be seamless and executed from within Plains' internal management systems.

4.6.9 MONITORING OF IMPACTS

Plains has established and maintained positive landowner and community relationships throughout the region through its open communication and commitment

to corporate citizenship standards that are based on integrity. Plains would monitor landowner concerns through its right-of-way (ROW) department and would respond to all reasonable requests. In a similar manner, Plains would monitor community concerns and would respond to all reasonable concerns brought to its attention by local community leaders. Plains would select a contractor for construction of the Project and would coordinate the oversight responsibilities for construction activities with this contractor throughout the Project. Environmental responsibilities shall be coordinated in the same manner.

4.6.10 UTILIZATION OF EXISTING AND PROPOSED RIGHTS-OF-WAY AND CORRIDORS

Plains chose the preferred Project alignment in an effort to maximize the use of existing utility corridors.

4.6.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

Appendix F contains Plains' 10-Year Plan, which contains details regarding existing and planned Plains assets.

SECTION 5: MITIGATIVE MEASURES

5.1 LOCATION

The selection of the proposed Corridor was a multi-disciplinary effort, which included socioeconomic, environmental, logistics, engineering, and financial considerations. The Corridor described in this application meets the citing criteria, and provides Plains with the opportunity to utilize existing assets, and minimize landowner and environmental impacts.

Landowner considerations also factored into the Corridor selection. The proposed Corridor limits the number of potentially affected landowners while providing potential routing opportunities that would further minimize individual impacts to current land practices. All affected landowners would be compensated for Project impacts through negotiated easement agreements and settlements for seasonal crop losses.

The proposed Corridor selection was also influenced by environmental studies that suggested the area lacked sensitive features such as critical wildlife habitat, major wetlands or waterbodies, or other unique environmental features. The proposed Corridor would allow routing options that would further minimize waterbody crossings and potentially avoid all the wetland crossings entirely. In addition to these routing considerations, compliance with environmental permits procured for the Project would effectively mitigate the impacts of construction along with the final approved route. Standard pipeline construction techniques would involve temporary impacts, but long term or permanent impacts would be avoided through implementation of modern construction techniques, adherence to permit requirements, and avoidance of sensitive features identified during routing studies.

Plains and its affiliates own and operate other assets in the region. Planning and development of these assets are conducted in a manner that maximizes the benefits to the region's resources. The proposed Corridor and Route would allow Plains to draw upon existing pipeline and facility assets in the region.

5.2 CONSTRUCTION

The proposed construction of the Pipeline would be conducted in an orderly sequence designed to complete the Project in the minimum amount of time required to safely prepare the site, install the pipeline and restore the areas disturbed by construction.

Construction is estimated to require a minimum of three months to complete. Construction techniques would be employed that minimize the area of ground disturbance, off site deposition of sediments and long-term impacts to agricultural productivity. Construction activities shall conform to all applicable permit stipulations; these requirements are mandated by the agency and implemented by the project sponsor for minimizing impacts to the environment.

Restoration would immediately follow pipeline construction. Final grading would restore the original contours of the land. Disturbed areas would be prepared for re-seeding and restoration would be coordinated to meet landowner specifications.

5.3 OPERATION

Once put into service, the proposed Project would operate continuously, delivering crude oil from the RLF to the VHRF. Normal pipeline operations are imperceptible to the public, as they are silent, buried and therefore not visible, and require only minimal aboveground activity. Standard operating procedures would conform to applicable DOT requirements, which include regular pipeline monitoring and periodic inspection; additionally, routine maintenance of the ROW would likely be required to remain in compliance.

SECTION 6: LIST OF PREPARERS

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North Dakota Public Service Commission
Application for Route Permit
Plains Pipeline, L.P.
Bison Pipeline Project

Prepared by:

E3 Environmental, LLC

January 2015



E3 ENVIRONMENTAL
Enhancing Execution with Experience

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INTRODUCTION

Plains All American Pipeline, LP (Plains), owns and operates crude oil assets in the United States. Plains is proposing the Bison Pipeline Project (Project), located in Mountrail County, North Dakota. The proposed Project scope includes a new approximately 10 mile, 8-inch outside diameter crude oil pipeline that would originate at the Robinson Lake Facility (RLF) and extend southward to connect with Plains' Van Hook Rail Facility (VHRF). The Project is needed to address transportation of growing volumes of crude oil from the Bakken Formation to refining centers in the eastern United States and southward to Houston, Texas.

Plains submits to the North Dakota Public Service Commission (PSC) a single consolidated application for a Certificate of Corridor Compatibility and Route Permit for the Project.

The application provides the requisite information as stipulated by:

- North Dakota Century Code, Energy Conversion and Transmission Facility Siting Act, Chapter 49-22-08.1 and,
- North Dakota Administrative Code, Chapter 69-06-05, Transmission Facility Permit.

SECTION 1: DESCRIPTION

1.1 TYPE OF TRANSMISSION FACILITY

The proposed Project would result in a new crude oil transmission pipeline. The steel pipeline would meet U.S. Department of Transportation (DOT) regulations, specifically the design, construction, and operation and maintenance criteria outlined in 49 CFR 195.

1.2 PURPOSE OF TRANSMISSION FACILITY

The purpose of the Project is to transport crude oil from the RLF to the VHRF for distribution to refineries in the eastern United States and southward to Houston, Texas.

Plains estimates the Project would cost approximately \$9 million to develop.

1.3 LENGTH, SIZE AND DESIGN OF PIPELINE FACILITY

1.3.1 LENGTH OF FACILITY

The proposed Project is approximately 10 miles in length.

1.3.2 PIPE SIZE

The Project pipeline specifications are detailed below:

- 8-inch outside diameter steel pipe
- 0.250-inch wall thickness

1.3.3 OPERATING PRESSURE AND THROUGHPUT

The Project has been designed with the following design parameters listed below:

- Normal Operating Pressure: 1,440 pounds per square inch gauge (psig)
- Maximum Operating Pressure: 1,480 psig
- Normal Throughput: approximately 15,000 barrels per day (bpd)
- Maximum Throughput: approximately 25,000 bpd
- Maximum Operating Temperature: 100 degrees Fahrenheit

1.4 ABOVEGROUND FACILITIES

It is not anticipated the proposed Project would include additional above ground facilities.

1.5 WIDTH OF RIGHT-OF-WAY

The Project would be constructed utilizing a 100-foot construction right-of-way (ROW). Plains would maintain an average 50-foot permanent ROW along the entire length of the pipeline.

1.6 LOCATION

The Project would be located in Mountrail County, North Dakota and result in a transmission pipeline originating at the existing RLF, located approximately eight miles northeast of New Town, North Dakota. The pipeline would extend in a southerly direction to its terminus at the VHRF, located approximately five miles east of New Town, North Dakota. Refer to the Project maps provided in Appendix B.

1.7 PROJECT SCHEDULE

1.7.1 ROUTE PERMIT

Plains is seeking a Route Permit by or before April 2015.

1.7.2 CERTIFICATE OF CORRIDOR COMPATIBILITY

Plains seeks a Certificate of Corridor Compatibility by or before April 2015.

1.7.3 CONSTRUCTION SCHEDULE

Plains has scheduled construction activities to commence in the second quarter of 2015. The construction activities would take approximately three months to complete. Commissioning and restoration activities would commence immediately after construction is complete.

SECTION 2: ROUTE ANALYSIS AND ENVIRONMENTAL STUDIES

2.1 PIPELINE ROUTE

Plains has conducted a thorough analysis of the proposed Corridor as reported in the Application for a Certificate of Corridor Compatibility. This analysis was a broad based study of the proposed Corridor (a one-mile corridor centered upon a proposed route). The purpose of this analysis was to confirm the proposed Project Corridor is suitable and would cause minimal environmental impacts, thus conforming to the PSC siting criteria.

In conjunction with these efforts, Plains studied routing alternatives and developed the proposed Project alignment (Route). Plains chose this Route to meet landowner requests and to minimize impacts to environmental features. The Route meets the Project's objectives while conforming to the PSC's transmission route siting requirements. In support of Plains' route selection, the desktop studies from the Corridor were refined and augmented with field studies of the Route.

Trained natural and cultural resource specialists conducted field studies on April 10-11, May 6, October 1, November 7, and December 2, 2014. The purpose of the field studies was two-fold: (1) to definitively identify any potential resource issues (*e.g.*, wetlands, waterbodies, protected species, critical habitats or cultural resources) within the survey corridor; and (2) to provide the baseline field data necessary to prescribe alternative routing or mitigation as necessary to minimize environmental impacts. The environmental survey corridor was a minimum of 200 feet centered on the proposed Route. The results of these field surveys are summarized in the following sections; the Natural Resources Report is located in Appendix D, and the Class I and Class III Cultural Resources Report can be found in Appendix E. The survey corridor is depicted on the maps in Appendix B.

2.2 ROUTE ALTERNATIVES

Construction of the proposed Project would provide firm, reliable service for 15,000 bpd of crude oil from the RLF to the VHRF. From the VHRF the crude would be available for transport to refineries in the eastern United States and occasionally southward to Houston, Texas. Plains identified and evaluated several project alternatives; however, none of these alternatives effectively satisfied the Project objective. These alternatives included:

- No Action Alternative;
- Trucking Alternative
- Rail Alternative

No Action Alternative:

This alternative would leave the region constrained by limited transport capacity for safe and reliable transmission of crude oil products to markets. A no action alternative

could result in the curtailment of crude oil production. For these reasons, Plains rejected a *No Action Alternative*.

Trucking Alternative:

This alternative was reviewed and eliminated due to the volume of crude oil to be transported. The normal daily throughput of the proposed Project would be approximately 15,000 barrels or 630,000 gallons of crude oil. The average load for a truck carrying crude oil is approximately 178 barrels (approximately 7,500 gallons) per truck. Thus, it would require 85 trucks per day, an average of 3.5 trucks every hour for 24 hours a day to transport this volume of product. This level of truck activity is not logistically feasible as it would cause significant amounts of heavy vehicle traffic for area residents, as well as additional wear and tear on the infrastructure. Disruption in the trucking capacity due to seasonal load restrictions on roads, inclement weather, or road repairs would cause a delay in delivering this valuable resource to market. This alternative is not desirable; therefore, Plains rejected a *Trucking Alternative*.

Rail Alternative:

This analysis included the evaluation of developing a rail spur to connect to the RLF at the northern terminus of the Project. There are several factors that dissuaded the pursuit of this alternative. First, there is not sufficient space available at the RLF to site a rail loading rack. Secondly, the siting and construction of approximately nine miles of rail spur would result in permanent environmental impacts associated with the construction and operation of this above-ground feature. Finally, the combination of financial, logistic, and timing constraints are not compatible with the proposed Project. Plains determined that to maximize the benefits of the Project while minimizing impacts, it is advantageous to make use of existing infrastructure where available. This alternative is not desirable; therefore, Plains rejected a *Rail Alternative*.

2.3 ENVIRONMENTAL SURVEY.

Field surveys were conducted on April 10-11, May 6, October 1, November 7, and December 2, 2014. The survey corridor was typically a 200-foot corridor centered upon the proposed Route. The survey corridor is depicted on the maps in Appendix B.

2.3.1 NOXIOUS WEEDS

“Noxious weed” is a general term used to describe fast-spreading, non-native plant species in a given area. Noxious weeds have adverse ecological and economic impacts due to their ability to outcompete native plant species for habitat and resources. No noxious weeds were identified within the survey corridor during field surveys. Refer to Appendix D for the Natural Resource Report and Section 5 for proposed mitigation procedures.

2.3.2 TREE/SAPLING/SHRUB SURVEY

During field survey, crews performed a detailed tree/shrub inventory. This inventory recorded the pre-construction status of these resources, which would form the baseline for restoration and mitigation reconciliation. Based on this effort, nine tree and shrub areas were located within the survey corridor and six areas were located within the construction ROW. In total, 179 trees were identified within the 200-foot wide survey corridor; nine of these features were located within the planned 100-foot wide construction ROW. See Appendix D for the complete Natural Resources Report and Section 5 for planned mitigation measures.

2.3.3 WETLAND AND WATERBODIES SURVEY

The survey corridor was inventoried for wetland and waterbody features (*i.e.*, creek, pond, streams, rivers) features. Field crews identified features, characterized these features as a wetland or waterbody and recorded feature boundaries relative to the proposed Route to facilitate avoidance mitigation where practicable. Appendix D contains the Natural Resources Report, which outlines the results of these field studies.

2.3.3.1 WETLAND SURVEY

Field surveys identified 11 wetland features. Of these features only one potentially jurisdictional wetland was identified within the construction ROW. Plains would implement appropriate construction mitigation measures at this feature, which may include avoidance (*e.g.*, workspace modification or horizontal directional drill) or use of construction mats and other best management practices (BMPs), to minimize impacts. Refer to the Project maps in Appendix B for the mapped location of each feature, and Appendix D for the Natural Resources Report.

2.3.3.2 WATERBODIES SURVEY

No waterbodies were identified during field surveys. See Appendix D for the Natural Resources Report and Section 5 for planned mitigation measures.

2.3.4 WILDLIFE INVENTORY

Approximately 160 wildlife species are resident or seasonal visitors to the Project area. These include common mammals (*i.e.*, white-tailed deer, mule deer, raccoon and pronghorn antelope); various song birds (*i.e.*, western meadowlark, LeConte's sparrow, horned lark); raptors (*i.e.*, bald eagle, golden eagle, red-tailed hawk, rough-legged hawk) and numerous other fauna. The survey corridor was inventoried for sensitive species and their critical habitat. Piping plovers were observed during field surveys and nesting behavior was noted. No other threatened or endangered species or their critical habitats were observed by field biologists. Appendix D contains the Natural Resources Report, which outlines the results of these field studies.

2.3.4.1 FEDERALLY PROTECTED SPECIES SURVEY

Under authority of the Endangered Species Act (ESA), the U.S. Fish and Wildlife Service (USFWS) and the Fisheries Service division of the National Oceanic and Atmospheric Administration (NOAA) have identified and maintain a list of species and critical habitats that have been afforded protection under the ESA. The ESA also provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they live.

On November 10, 2014, E3 Environmental, LLC (E3), on behalf of Plains, requested a USFWS review of the Project, requesting information relating to the presence or absence of threatened and endangered species within the project area. A response from the USFWS is pending. Refer to Appendix C for agency correspondence.

Plains commissioned field studies to confirm the presence or absence of these species and/or their critical habitats along the proposed pipeline Route. The results of this assessment are provided below. Refer to Appendix D for the Natural Resources Report, which outlines the results of these field studies, and Section 5 for proposed mitigation measures.

Whooping crane: The Aransas Wood Buffalo Population of Whooping Cranes engages in semi-annual migration through North Dakota. This flock breeds in the Wood Buffalo National Park in Alberta and Northwest Territories, Canada, and winters in the Aransas National Wildlife Refuge in Texas. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. During migration, the species is most closely associated with larger wetland complexes for roosting habitat, typically using adjacent uplands to forage. Suitable foraging habitat (*i.e.*, cultivated cropland and wetlands) was observed within the survey corridor. Additionally the Project is located within the migratory corridor for the whooping crane. The proposed project may impact but is not likely to impact the whooping crane.

Piping plover: Suitable shoreline habitat for breeding and nesting does not occur in the survey corridor. The nearest habitat occurs approximately 0.9 miles south of the Project near the Missouri River and Lake Sakakewea. The piping plover may occur within the project area as a migrant, however adverse impacts to the least terns as a result of the Project are not anticipated.

Least tern: Suitable shoreline habitat for breeding and nesting terns does not occur in the survey corridor. The nearest habitat occurs approximately 0.9 miles south of the Project near the Missouri River and Lake Sakakewea. Terns may transition through the Project area during migration, however impacts to the least terns as a result of the Project are not anticipated.

Pallid sturgeon: The preferred habitat of the pallid sturgeon does not occur in the survey corridor. The nearest habitat occurs approximately 0.9 miles south of the

Project near the Missouri River and Lake Sakakewea. Therefore, impacts to the pallid sturgeon are not anticipated.

Dakota skipper: Suitable habitat is not present within the survey corridor; therefore, impacts to the Dakota skipper are not anticipated.

Gray wolf: Suitable habitat for the gray wolf does not occur in the survey corridor and the activities associated with construction and later operations would likely serve as a deterrent to this species. Therefore, impacts to the gray wolf are not anticipated.

Bald Eagle: Field studies confirmed the absence of nesting or roosting habitat within 0.5 miles of the centerline of the survey corridor. Refer to Section 5 for mitigation measures should a bald eagle be observed during construction.

Golden Eagle: Field studies confirmed the absence of nesting or roosting habitat within 0.5 miles of the centerline of the survey corridor. Refer to Section 5 for mitigation measures should a golden eagle be observed during construction.

2.3.5 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

The North Dakota State Historic Preservation Office (NDSHPO) is responsible for managing the historic and archaeological resources of the state; as such, the NDSHPO maintains records of all previously recorded cultural resources within the state.

On March 11, 2014, October 29 and November 19, 2014, SWCA Environmental Consultants (SWCA) conducted a Class I cultural resources inventory (literature review) of records from the State Historical Society of North Dakota to identify previously completed cultural resource investigations and recorded cultural resources within one mile of the Corridor.

The Class I cultural resources inventory identified ten recorded cultural resources within the Corridor (32MN699, 32MN700, 32MN1035, 32MN1036, 32MN818, 32MN896, 32MN873, 32MNX60, 32MNX112, and 32MNX113). Of the ten previously recorded cultural resources, three are recommended not eligible for inclusion into the National Register of Historic Places (NRHP) (32MN869, 32MN1035, and 32MN1036), one is a non-contributing element of an NRHP-eligible site (32MN818), and six remain unevaluated with regard to their NRHP eligibility (32MN699, 32MN700, 32MN873, 32MNX60, 32MNX112, and 32MNX113). Four of the previously recorded cultural resources are identified within the survey corridor.

The ensuing Class III cultural resource inventory of the survey corridor was completed on April 10-11, May 6, October 1, and November 7 and 22, 2014 by SWCA. During the inventory, archaeologists attempted to relocate two previously recorded site leads (32MNX60 and 32MNX113); and revisited two previously recorded sites (32MN818 and 32MN873) within the survey corridor. 32MN818 is a portion of a documented segment of the Soo Line Railroad. 32MN873 is a cairn site of unknown cultural or temporal origin. No additional resources were identified in association with the previously recorded sites during the course of survey. 32MNX60 is a cultural material scatter site

lead of unknown cultural or temporal affiliation. 32MNX113 is a site lead of an unknown type and cultural affiliation. In addition, SWCA recorded a new site (32MN1316), which consists of a depression and stone feature site.

Both site leads remain unevaluated with regard to their NRHP eligibility. Because site leads are recorded with quarter-section site boundaries, their exact location is unknown. SWCA archaeologists did not relocate the previously recorded resources during the Class III inventory, and determined the sites do not occur within the current survey area. 32MN818 had been previously determined to be a non-contributing (and therefore not eligible) portion of an eligible historic district. 32MN873 remains unevaluated with regard to its eligibility for inclusion to the NRHP. SWCA recommended that the resource be avoided by 50 feet. 32MN1316 is a depression and stone feature of unknown cultural or temporal nature, and remains unevaluated with regard to its NRHP eligibility. It was therefore recommended that the site be avoided by 50 feet. Plains has avoided the resource by 50 feet and based on the inventory results, SWCA recommended that a determination of *No Significant Sites Affected* and *No Historic Properties Affected* be granted for the Project to proceed as planned.

On December 19, 2014, Plains submitted SWCA's Cultural Resources Report to the NDSHPO. The NDSHPO responded on December 22, 2014 providing concurrence with SWCA's recommendation of *No Significant Sites Affected* for the Project. Refer to Appendix C for related agency consultations, and Appendix E for the Cultural Resources Report.

2.3.6 U.S. FISH AND WILDLIFE SERVICE MANAGED LANDS

On November 10, 2014, on behalf of Plains, E3 requested a USFWS review of the Project and information relating to the presence or absence of USFWS managed land within the survey corridor. The USFWS response is pending. Refer to Appendix C for a record of this correspondence.

SECTION 3: ANALYSIS OF NEED BASED ON PRESENT AND PROJECTED DEMAND, INCLUDING SYSTEM STUDIES

The development of hydrocarbon production in the Williston Basin has increased significantly in recent years due to advancements in deep horizontal directional drilling techniques and subsequent oil extraction in the Bakken and Three Forks Shale formations. Studies conducted by the North Dakota Department of Mineral Resources and the USGS in 2010 estimated mean undiscovered volumes of 3.65 billion barrels of recoverable crude oil reserves may be available in North Dakota's deep shale formations. From March of 2007 to March of 2013, oil production in North Dakota has surged by 564 percent. In March of 2007, North Dakota produced 118,000 barrels of oil per day. That figure has increased to 783,000 barrels per day in March of 2013. In 2007, North Dakota accounted for roughly 2.5 percent of all the oil produced in the United States. In 2013, North Dakota accounted for roughly 11 percent of all the oil produced in the country.

A major constraint in transporting hydrocarbons from North Dakota to distribution centers and eventual end users in the United States is the lack of pipeline capacity. To relieve the pipeline constraints, several projects have been planned to address the growing volumes of crude oil, natural gas and natural gas liquids. However, pipeline capacity is not expected to keep pace with production, leaving incremental volumes to find alternative transportation methods, primarily rail or other surface transportation alternatives.

Construction of the proposed project would provide firm, reliable transport of 15,000 bpd of crude oil between the RLF and the VHRF. From the VHRF, the product would be shipped via rail to refineries in the eastern United States and southward to Houston, Texas.

SECTION 4: SITING CRITERIA ANALYSIS

4.1 FACTORS TO BE CONSIDERED IN EVALUATING APPLICATIONS AND DESIGNATIONS OF SITES, CORRIDORS AND ROUTES (NDCC 49-22-09)

4.1.1 AVAILABLE RESEARCH AND INVESTIGATION RELATING TO THE EFFECTS OF THE LOCATION, CONSTRUCTION, AND OPERATION OF THE PROPOSED FACILITY ON PUBLIC HEALTH AND WELFARE, NATURAL RESOURCES AND THE ENVIRONMENT:

The proposed Project is designed to provide delivery throughput from the RLF to the VHRF from which the product would be distributed to market hubs/centers markets nationwide. As such, all routing was anchored from the RLF to potential destinations. Plains owns and operates the VHRF, an existing rail line that currently handles crude oil products produced in the region. The VHRF was determined to be the preferred destination for RLF products due its capacity to handle product and provide greater access to more markets, as well as its proximity to the RLF.

Route planning between the RLF and the VHRF identified and evaluated several options for routing this Project. These studies were designed to define a preferred route that achieves project objectives, is technologically and economically feasible to construct, and minimizes impacts on landowners and the environment. The key logistical considerations included the location of the VHRF, identification of existing utility corridors for collocation, and acquisition of pipeline ROW from area landowners.

Field studies were conducted to identify environmental, biological and cultural resources along the Route; the results of this effort are discussed in Section 2 of this document, and full reports are provided in Appendices D and E. The sections below discuss possible effects on the public health and welfare.

4.1.2 THE EFFECTS OF NEW ENERGY CONVERSION AND TRANSMISSION TECHNOLOGIES AND SYSTEMS DESIGNED TO MINIMIZE ADVERSE ENVIRONMENTAL EFFECTS:

The Project does not include energy conversion or transmission technologies/systems specifically designed to minimize adverse environmental impacts.

The Project would be constructed in compliance with environmental permits; the conditions of these permits are designed to minimize adverse environmental impacts. Refer to Section 5 of this document for a full description of the mitigation measures.

4.1.3 ADVERSE DIRECT AND INDIRECT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSED SITE OR ROUTE BE DESIGNATED:

Unavoidable adverse direct and indirect environmental effects would be temporary and minimized through compliance with environmental permits. The potential impacts to resources including vegetation, wildlife, agricultural operations, transportation and

noise levels are discussed in the following sections. Plains would mitigate these temporary impacts to the maximum extent possible.

The Project would be constructed in compliance with environmental permits; the conditions of these permits are designed to minimize adverse environmental impacts. Refer to Section 5 for a full description of the mitigative measures planned to minimize impacts resulting from the Project's location, construction and operation.

4.1.4 ALTERNATIVES TO THE PROPOSED CORRIDOR OR ROUTE WHICH ARE DEVELOPED DURING THE HEARING PROCESS AND WHICH MINIMIZE ADVERSE EFFECTS:

Plains would fully participate in the hearing process and would address any alternatives developed during the hearing process, as applicable.

4.1.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF NATURAL RESOURCES SHOULD THE PROPOSED CORRIDOR AND ROUTE BE DESIGNATED:

Plains is not aware of any irreversible or irretrievable commitments of natural resources that would result from the requested approvals.

4.1.6 DIRECT AND INDIRECT ECONOMIC IMPACTS OF THE PROPOSED FACILITY:

Plains would invest approximately \$9 million in North Dakota to develop this Project, generating approximately \$60,700 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the proposed Project are minimal. While the pipeline itself would not generate any direct tariff revenues for the state of North Dakota, it is estimated the gross product value produced and transported through the Project would be in excess of \$100 million annually, generating significant producer, royalty and state tax revenues in the most efficient and minimally intrusive way possible.

4.1.7 EXISTING PLANS OF THE STATE, LOCAL GOVERNMENT, AND PRIVATE ENTITIES FOR OTHER DEVELOPMENTS AT OR IN THE VICINITY OF THE PROPOSED ROUTE:

Plains is aware of future development plans within in close proximity to the Project; however, the Project route has been designed to accommodate these developments.

4.1.8 THE EFFECT OF THE PROPOSED ROUTE ON EXISTING SCENIC AREAS, HISTORIC SITES AND STRUCTURES AND PALEONTOLOGICAL OR ARCHAEOLOGICAL SITES:

Plains commissioned Class I and Class III cultural resource inventories. Plains developed mitigation plans for registered or eligible sites that encroach on the proposed construction corridor. The proposed mitigation measures are detailed in Section 5 of this document. All related agency consultations can be found in Appendix C, and supporting documentation of field studies can be found in Appendix E.

Project-specific consultation with various federal, state and local agencies did not identify any scenic areas within the Route. Refer to Appendix C for a record of these consultations.

4.1.9 THE EFFECT OF THE PROPOSED ROUTE ON AREAS WHICH ARE UNIQUE BECAUSE OF BIOLOGICAL WEALTH OR BECAUSE THEY ARE HABITATS FOR RARE AND ENDANGERED SPECIES:

The proposed Route is not anticipated to result in permanent impacts to the environment. See Section 2 for a comprehensive discussion of Plains' effort to identify sensitive environmental resources within the proposed Route and Section 5 for a comprehensive discussion of proposed mitigation. Plains has worked with agencies to develop a route that avoids or minimizes environmental impacts. Provided the mitigation plans are fully implemented and environmental permit conditions are executed, the Project would not result in any impact to listed or sensitive species or their habitats. See Appendix C for complete federal and state agency consultations. Detailed survey results can be found in Appendix D.

4.1.10 PROBLEMS RAISED BY FEDERAL AGENCIES, OTHER STATE AGENCIES AND LOCAL ENTITIES:

Plains provided Project specific consultations to various federal, state and local agencies; through this consultations process, these agencies had the opportunity to identify possible sensitive environmental resources within the Route and any related agency concerns. A summary of these concerns is below; a complete record of these communications can be found in Appendix C; mitigation measures to address these concerns are discussed in Section 5 of this document.

- NDGFD: The Department's primary concern is with the disturbance to native prairie and wooded draws associated with construction of the pipeline and associated access roads. Avoidance of these areas is recommended, if avoidance cannot be achieved areas should be reclaimed to pre-project conditions. In addition, the Department recommended steps be taken to protect any wetlands that cannot be avoided and that no alterations should be made to existing drainage patterns.

Plains incorporated this feedback into the Route selection process, and as appropriate, into field survey protocols. If field studies confirmed the presence of these items, Plains refined the proposed alignment or developed mitigation strategies to avoid or minimize direct impacts. Further discussion on agency coordination can be found in Section 2 of the Certificate of Corridor Compatibility application and discussions of avoidance and mitigation measures are found in Section 5 of this document. See Appendix C for complete federal and state agency consultations. Detailed survey results can be found in Appendix D and E.

4.2 EXCLUSION AREAS (NAC 69-06-08-02.1)

Exclusion areas are geographical areas that must be excluded in the consideration of a route for a transmission facility. The following table and text identify and discuss exclusion areas within the survey corridor.

Exclusion Area	Within Survey Corridor
Federal	
National Parks or Memorial Parks	No
Historic Sites or Landmarks	Yes
Natural Landmarks or Monuments	No
Wilderness Areas	No
State	
Historic Sites, Monuments, or Historical Markers;	No
Archaeological Sites	Yes
Parks	No
Nature Preserves	No
County	
Parks	No
Recreation Areas	No
Municipal Parks	No
Other	
Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species	No
Areas where Animal or Plant Species that are Unique or Rare to this State would be Irreversibly Damaged	No
Areas within 1,200 feet of a geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	No
Areas within 30 feet on either side of a direct line between (ICBM) launch or launch control facilities to avoid microwave interference.	Yes

4.2.1 FEDERAL RESOURCE REVIEW

Plains has initiated consultations with federal and state agencies and conducted a comprehensive review of published information. Plains confirmed no national parks, memorial parks, landmarks, natural landmarks, historic sites, monuments, or wilderness areas within the survey corridor.

Plains confirmed the presence of one previously recorded historic site within the survey corridor (cultural resource unevaluated for inclusion into the NRHP). Refer to Section 2.3.5 for more information on this resource, Appendix C for a record of agency

consultation, Appendix E for the Cultural Resources Report, and Section 5 for proposed mitigation.

4.2.2 STATE RESOURCE REVIEW

Plains has initiated consultations with federal and state agencies and conducted a comprehensive review of published information. Plains confirmed the absence of state parks, monuments, historical markers, or nature preserves within the survey corridor.

Plains confirmed the presence of one previously recorded archaeological site within the survey corridor (cultural resource determined to be not eligible for inclusion into the NRHP). Refer to Section 2.3.5 for more information on this resource, Appendix C for a record of agency consultation, Appendix E for the Cultural Resources Report, and Section 5 for proposed mitigation.

4.2.3 COUNTY RESOURCE REVIEW

Plains has confirmed through a combination of agency coordination, review of publicly available information and field studies that no county parks, recreation areas, municipal parks, or parks owned by other subdivisions of government bodies are located within the survey corridor. Refer Appendix C for documentation of agency correspondence.

4.2.4 AREAS CRITICAL TO THE LIFE STAGES OF THREATENED AND ENDANGERED ANIMAL OR PLANT SPECIES

Plains commissioned natural resource surveys of the proposed Route. The scope of the surveys included documentation for the presence or absence of federally listed and state listed species of concern or evidence of suitable habitats for these species. Emphasis was placed on those species identified through project consultations for the Corridor analysis that agencies indicated had the potential to occur within the Corridor and therefore, the Route. The results of these field efforts are detailed in Section 2.3 and planned mitigative measures are discussed in Section 5 of this document. Refer to Appendix D for the complete Natural Resources Report.

4.2.5 AREAS WHERE ANIMAL OR PLANT SPECIES THAT ARE UNIQUE OR RARE TO THIS STATE WOULD BE IRREVERSIBLY DAMAGED

Based upon agency consultations and subsequent field surveys, the proposed Project would not result in irreversible impacts that would be detrimental to sensitive plant and animal species or their habitats. The implementation of the proposed mitigation plans and full compliance with environmental permits would fully mitigate the potential for irreversible damage.

4.2.6 AREAS WITHIN 1,200 FEET OF THE GEOGRAPHIC CENTER OF AN ICBM LAUNCH OR LAUNCH CONTROL FACILITY

Based upon information compiled by the University of Wyoming regarding current and historic missile site locations, which was comprised of both tabular data describing these sites and supported with additional aerial imagery for each Minot Air Force Base Minuteman Intercontinental Ballistic Missile (ICBM) site, Plains has confirmed the

absence of ICBM launch or launch control facility is located within 1,200 feet of the Route.

4.2.7 AREAS WITHIN 30 FEET ON EITHER SIDE OF A DIRECT LINE BETWEEN ICBM LAUNCH OR LAUNCH CONTROL FACILITIES TO AVOID MICROWAVE INTERFERENCE

Based upon information compiled by the University of Wyoming regarding current and historic missile site locations, which was comprised of both tabular data describing these sites and supported with additional aerial imagery for each Minot Air Force Base ICBM site, Plains has confirmed the presence of areas within 30 feet on either side of a direct line between ICBM launch or launch control facilities.

On January 12, 2015, on behalf of Plains, E3 initiated consultations with the USAF Cable Affairs division seeking confirmation regarding the presence or absence of any ICBM related systems within the Corridor. A response from the USAF Cable Affairs division is pending. See Appendix C for a copy of the correspondence.

4.3 AVOIDANCE AREAS (NAC 69-06-08-02.2)

Avoidance areas are geographical areas that must not be considered in the routing of a transmission facility unless, under the circumstances, it is shown there is no reasonable alternative. The following table and text identify and discuss avoidance areas within the survey corridor.

Avoidance Area	Within Survey Corridor
Federal	
Historic Districts	No
Wildlife Areas	No
Wild, Scenic or Recreational Rivers	No
Wildlife Refuges	No
Grasslands	No
State	
Wild, Scenic or Recreational Rivers	No
Game Refuges or Game Management Areas	No
Forests or Forest Management Lands	No
Grasslands	No
Other	
Historic Resources not meeting Exclusion Areas criteria	No
Areas of Known Geologic Instability	No
Areas within 500 Feet of a Residence, School, or Place of Business	Yes
Reservoirs and Municipal Water Supplies	No

Water Sources for Organized Rural Water Districts	No
Irrigated Land (not applicable to underground facilities)	N/A
Areas of Recreational Significance which are not designated as Exclusion Areas	No

4.3.1 FEDERAL RESOURCE REVIEW

Plains conducted agency consultations, a comprehensive review of publicly available information, and field studies of the survey corridor. This review indicated the absence of designated or registered historic districts, refuges, grasslands, and wild, scenic or recreational rivers in the survey corridor.

4.3.2 STATE RESOURCE REVIEW

Plains conducted a review of publicly available resources and concluded no designated or registered state wild, scenic or recreational rivers, game refuges, game management areas, management areas, forests, forest management lands, or grasslands are crossed by the survey corridor.

4.3.3 HISTORICAL RESOURCES NOT MEETING EXCLUSION AREA CRITERIA

Plains conducted a review of publicly available information, initiated project specific agency consultations, and augmented agency review with field studies. Through these efforts, Plains has concluded there are no historic resources not meeting exclusion areas criteria within the survey corridor. Refer to Appendix C for documentation of agency consultations and Appendix E for the Cultural Resources Report.

4.3.4 AREAS OF KNOWN GEOLOGIC INSTABILITY

Geologic instability generally refers to surface geology and areas where landslides have occurred. The North Dakota Geological Survey (NDGS) landslide mapping data was consulted for information regarding areas of landslides near the Project area. Review of *Areas of Landslides, Belden SE and Shell Creek Bay, 24K Sheet, North Dakota* indicated the absence of landslide deposits within the Route.

North Dakota has not experienced an earthquake of sufficient magnitude to damage steel welded pipe or structural steel structures in recorded history. Sinkholes are known to occur in the region, but these are related to subsurface mining activities as opposed to limestone dissolution. According to review of PSC abandoned mine data, no mining activities are located within the survey corridor.

4.3.5 AREAS WITHIN 500 FEET OF A RESIDENCE, SCHOOL OR PLACE OF BUSINESS

Aerial photography was utilized to identify structures located within 500 feet of the proposed pipeline alignment. Three potentially occupied structures were identified within 500 feet of the Route. Plains is in the process of obtaining landowner waivers from those residences within 500 feet of the Project. Executed landowner waivers can be found in Appendix G.

4.3.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES

Plains has confirmed the survey corridor does not contain reservoirs or municipal source water protection areas for community water supply sources. While a number of wells were identified within the Corridor, these wells are used for either local domestic, stock, or irrigation purposes and none were located directly within or near the 100-foot wide construction ROW. The maps in Appendix B depict the location of these resources.

4.3.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS

Desktop analysis confirmed the Route is not located within any Rural Water District and there are no known water sources used by the Association within the proposed Route. The maps in Appendix B depict the location of these resources.

4.3.8 IRRIGATED LAND

This criterion does not apply to underground transmission facilities; as such, it is not applicable to this project.

4.3.9 AREAS OF RECREATIONAL SIGNIFICANCE WHICH ARE NOT DESIGNATED AS EXCLUSION AREAS

Plains has confirmed the Route does not traverse areas of recreational significance.

4.4 SELECTION CRITERIA (NAC 69-06-08-02.3)

The selection criteria require assessment of the environmental impacts and alterations to land use that may result from the siting of the proposed project. Through this process, Plains believes the Project would successfully avoid or minimize these effects to the maximum extent practicable.

4.4.1 AGRICULTURAL IMPACTS

Agricultural Production: The Project would temporarily affect approximately 114 acres of private land in North Dakota. Once construction is complete, the land would be restored to its pre-construction contours and land use. Plains would provide settlements to landowners for crop loss resulting from Project construction.

Family Farms and Ranches: The Project would temporarily affect approximately 114 acres of private land in North Dakota. Once construction is complete, the land would be restored to its pre-construction contours and land use. Plains would negotiate easements with all affected landowners. The Project would have no permanent impacts to lifestyle or farm/ranch operations once construction is completed.

The location of pipeline markers is defined under 49 CFR 195 for pipelines. Plains works with local landowners and county officials to ensure pipeline markers are located where required but also in an acceptable location for these parties. These markers are to be placed in full view so they are not accidentally damaged by or cause damage to landowner or county equipment.

Lands Suitable for Irrigation: This section is not applicable to buried pipelines (69-06-08-02.2h).

Surface Drainage: Standard construction techniques would be employed; significant modifications to surface drainage patterns are not anticipated. Care would be taken throughout the construction process to minimize environmental impacts, including modification of drainage patterns. During restoration, those areas that were disturbed during construction would be restored, the local topography shall be restored to its original contours, vegetation shall be reestablished, and impacts shall be minimal and temporary. BMPs would be implemented in accordance with the project-specific Stormwater Pollution Prevention Plan (SWPPP), which would comply with the NDDoH Construction Stormwater General Permit requirements. Permanent impacts to surface drainage would be minimized to the maximum extent possible.

Ground Water: Well data, recorded by the State Water Commission, has been reviewed for the Project area. Well data indicates groundwater in upland areas is located between 20-50 feet below the surface. Typical subsurface excavations associated with the Project would not extend to more than ten feet below the ground surface. At that depth, the Project would not intersect the groundwater table, nor would the Project alter recharge rates or the infiltration, permeability, or percolation of water into the groundwater reservoir. Additionally, construction would not affect the lateral movement and groundwater quality.

4.4.2 THE IMPACTS UPON OTHER RESOURCES

Noise-Sensitive Land Uses: The Project is located in a rural setting, effectively isolating it from the majority of sensitive receptors. Construction of the proposed Project would temporarily affect the local noise environment. The ambient sound level of a region is defined by the total noise generated within the specific environment and is usually comprised of sounds emanating from natural and artificial sources. Construction of the proposed Project would be conducted during typical working hours and is expected to cause temporary increases in ambient sound within and adjacent to the Project. The use of heavy equipment or trucks would be the primary noise source during construction and excavation. The level of impact may vary by equipment type, duration of construction activity, and the distance between the noise source and the receptor. Once constructed and in-service, normal pipeline operations are not audible.

Visual Effect on Adjacent Areas: Above ground facilities that would visually effect the Project area are not anticipated for the proposed Project.

Extractive and Storage Resources: This Project would not affect any extractive or storage resources.

Wetlands, Woodlands and Wooded Areas: Plains commissioned field surveys to identify and record the locations of these resources along the proposed Route. Refer to

Section 2 for a comprehensive discussion of the field studies results, Appendix C for copies of related correspondence, and Section 5 for proposed mitigation.

Radio and Television Reception, and other Communication or Electronic Control Facilities: Plains does not anticipate the Project would affect radio, television, or other electronic control facilities.

Human Health and Safety: Plains' corporate Health and Safety Policy meets or exceeds federal and state laws, rules and regulations, and is enforced equally with respect to both Plains and contractor employees. The implementation of this policy promotes a safe and healthy workplace during construction and operation of all Plains' assets. In addition, the operation of the pipeline would be monitored in accordance with DOT regulations.

Animal Health and Safety: The wildlife currently inhabiting the survey corridor is common and is generally mobile. The local wildlife inhabitants would not be permanently displaced by the Project and no measurable impact to the viability of these populations would occur. Plains does not anticipate species of special concern to experience direct impacts due to construction or operation of the proposed Project.

Plant Life: There would be no impacts to plant life associated with the construction or operation of the pipeline. No species of special concern would be impacted by the Project.

4.5 POLICY CRITERIA (NAC 69-06-08-02.4)

4.5.1 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

Plains is committed to conducting its business in compliance with all applicable environmental laws and regulations. These laws, regulations and standards are designed to safeguard the environment, human health, wildlife and natural resources. Plains would conduct its activities with the objectives of providing a healthful and safe workplace for its employees, and preventing accidents and environmental incidents. All persons and firms providing service to Plains are required to conduct their work in compliance with environmental conditions, permit authorizations, and applicable regulations, and would be held accountable for their actions in that regard.

4.5.2 LOCATION AND DESIGN

The proposed Project is designed to provide delivery throughput from the RLF to the VHRF from which the product would be distributed to market hubs/centers markets nationwide. As such, all routing was anchored from the RLF to potential destinations. Plains owns and operates the VHRF, an existing rail line that currently handles crude oil products produced in the region. The VHRF was determined to be the preferred destination for RLF products due its capacity to handle product and provide greater access to more markets, as well as its proximity to the RLF.

The proposed pipeline would be approximately 10 miles in length, constructed of steel, and would be a nominal 8-inch outside diameter pipe. The pipe installed would have a

nominal wall thickness of 0.250 inches denoted as API Code 5L specification GR B pipeline pipe. The maximum operating pressure of the pipeline would be 1,480 psig.

The proposed Pipeline would meet US Department of Transportation regulations, specifically the design, construction, and operation and maintenance criteria outlined in 49 CFR 195.

4.5.3 TRAINING AND UTILIZATION OF AVAILABLE LABOR IN THIS STATE FOR THE GENERAL AND SPECIALIZED SKILLS REQUIRED

Pipeline construction is a specialized niche construction market. The primary contractor would be supplying specialized skilled labor. Plains would draw upon the local labor force to supply as appropriate. The workforce is anticipated to reach a peak of approximately 100 personnel.

4.5.4 ECONOMIES OF CONSTRUCTION AND OPERATION

Plains would invest approximately \$9 million in North Dakota to develop this Project, generating approximately \$60,724 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the proposed pipeline are minimal. While the Project itself would not generate any direct tariff revenues, it is estimated the gross crude oil product value produced at the Plant and transported through the Project would be in excess of \$100 million annually, generating significant producer, royalty and state tax revenues in the most efficient and minimally intrusive way possible.

4.5.5 USE OF CITIZEN COORDINATING COMMITTEES

Plains has established and maintained a good relationship with the local residents through its long-term regional presence operating various assets in the area. Through these relationships, Plains has maintained several grass roots communication channels to inform local residents regarding the developments associated with the Project. Plains would continue to maintain contact with local government officials. Through this contact, project related information would be exchanged and should concerns arise, Plains would work with officials to resolve those issues.

4.5.6 COMMITMENT OF A PORTION OF THE TRANSMITTED PRODUCT FOR USE IN THIS STATE

The proposed Project would interconnect with existing facilities. The products currently handled, transferred, and shipped at these facilities are currently delivered to markets located in and out of the state.

4.5.7 LABOR RELATIONS

Plains maintains positive labor relations with its staff and contract work force and does not anticipate encountering any adverse labor relations on this Project. The labor market in the region is generally supportive of the oil and gas industry.

4.5.8 THE COORDINATION OF FACILITIES

Plains owns and operates the affected facilities, and operations would be coordinate by its management.

4.5.9 MONITORING OF IMPACTS

Plains has established and maintained positive landowner and community relationships throughout the region. Plains' operations reflect its commitment to corporate citizenship standards founded on integrity. Plains would monitor landowner concerns, if any, through its Land Department and would respond to all reasonable concerns. Similarly, Plains would monitor community concerns and would respond to all reasonable concerns brought to its attention by local community leaders.

4.5.10 UTILIZATION OF EXISTING AND PROPOSED ROW AND CORRIDORS

This Project would not be co-located with other utilities; however, the Project would parallel existing utility and road corridors. Refer to Appendix B for maps depicting the Project.

4.5.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

Appendix F contains Plains' 10-Year Plan, which contains details regarding existing and planned Plains assets.

SECTION 5: MITIGATIVE MEASURES

5.1 LOCATION

The proposed Project is a new approximately 10 mile, 8-inch diameter crude pipeline originating at the existing RLF, located approximately eight miles northeast of New Town, North Dakota. The pipeline would extend in a southerly direction to its terminus at the Plains' VHRF, located approximately five miles east of New Town, North Dakota. Refer to the project maps provided in Appendix B.

Trees and shrubs: Plains would comply with the Commission's tree and shrub mitigation specifications. Field surveys included a pre-construction tree and shrub inventory. The clearing or removal of trees or shrubs would be done selectively, in a manner that minimizes the disturbance to woody vegetation and in compliance with the Commission's specifications. The replacement of trees and shrubs would be based upon actual impacts due to construction, shall meet the 2:1 ratio specified, and shall be fully documented.

Wetlands and Waterbodies: Plains would minimize impacts to wetland and waterbodies by minimizing workspace through these features and by utilizing low-impact crossing methods such as horizontal directional drilling where appropriate. Furthermore, Plains would conduct all regulated crossings in compliance with the U.S. Army Corps of Engineers (USACE) Nationwide Permit #12. Features would be returned to their pre-construction condition and contours.

Whooping crane: The whooping crane is federally listed as an endangered species. It is present in North Dakota on a semi-annual basis during the spring and fall migration between breeding grounds in Wood Buffalo National Park in Alberta and Northwest Territories, Canada, winter grounds in the Aransas National Wildlife Refuge in the Gulf of Mexico. Field surveys identified potential migratory foraging and roosting habitat in the survey corridor.

In North Dakota, the cranes will typically pass through the state during the spring migration occurring March through early May. Construction activities for the proposed Project are scheduled to begin during the second quarter of 2015, and would occur during the migration period. To mitigate any adverse effects on migratory cranes, Plains would suspend heavy equipment operations if whooping cranes are found within 0.5 miles (line of sight) of the construction corridor. Suspended activities would resume in the absence of whooping cranes. See Appendix C for Plains' consultation with the USFWS.

Least tern: The interior populations of the least tern have historically been associated with large river systems for breeding and migratory habitats. Breeding birds are known to congregate in colonies, utilizing sandbar habitat common to larger rivers. The interior least tern may occur within the Project area as a migrant. Plains would suspend heavy equipment operations when least terns are found within 0.5 miles (line

of sight) of the construction corridor. Suspended activities would resume in the absence of the interior lease terns.

Piping plover: The piping plover is associated with shorelines along small alkaline lakes, large reservoir beaches, river islands and adjacent sand pits. Breeding birds select wide beaches with highly clumped vegetation covering less than 25 percent of the area. The piping plover's current breeding range on the Northern Great Plains extends south along major prairie rivers including the Yellowstone and Missouri, and in alkali wetlands including those in northeastern Montana and North Dakota. The piping plover may occur within the project area as a migrant. Plains would suspend heavy equipment operations when piping plovers are found within 0.5 miles (line of sight) of the construction corridor. Suspended activities would resume in the absence of the piping plovers.

Bald and Golden Eagle: Field surveys conducted April 10-11, May 6, October 1, and November 7, and December 2, 2014 confirmed the absence of nests or nesting activities where habitat was suitable along the Route.

To mitigate potential adverse effects on nesting and breeding eagles, the USFWS generally recommends maintaining a nest buffer of at least 0.5 miles for any eagles nesting in the area. Plains would work with the USFWS as necessary if an eagle nest is identified within 0.5 miles of the proposed pipeline route.

Migratory Bird Treaty Act: The commonly observed timeframe for migration of protected species in North Dakota is February 15th to July 15th. Construction activities for the propose project are planned to be initiated in the second quarter of 2015 and take approximately three months to complete. Based on the project schedule, construction activities would occur during the recognized migration/breeding season. Plains would develop and implement a mitigation plan which may include conducting survey for nesting birds prior to the commencement of ground disturbing activities and implementing avoidance and monitoring measures of any active nests.

Cultural Resources: On December 22, 2014, Plains received concurrence of *No Significant Sites Affected* for the Project from the SHPO, provided there are no changes to the nature or location of the proposed Project. Resources identified during field surveys are summarized below. Refer to Appendix C for a complete record of this correspondence.

32MN873: This is a prehistoric cairn site located on a prominent rise within the survey corridor. The site is unevaluated for inclusion on the NRHP and it is recommended all ground disturbing activities avoid the site by 50 feet. Plains has proposed to shift the Route to the west to ensure proper avoidance. Therefore, the Project would have no effect on the resource and no further work is recommended.

32MN818: This is a previously recorded section of railroad within the survey corridor that has been previously determined as a non-contributing portion of an eligible historic district. The site is therefore considered not eligible for inclusion into the NRHP. The site is an active railroad and should be avoided through the use of a horizontal directional drill beneath the site.

32MN1316: This newly recorded site consists of a depression and stone feature. Due to limited information and the possibility of buried deposits, the site is recommended to remain unevaluated for inclusion into the NRHP and that all ground-disturbing activities avoid the site by 50 feet. Plains has shifted the Route to the east to ensure proper avoidance. Therefore, the Project would have no effect on the resource and no further work is recommended.

Noxious Weeds: No noxious weeds were identified within the survey corridor during field surveys. If noxious weeds are later discovered, equipment leaving infested areas would be inspected visually prior to leaving the area, vegetation and soils shall be cleaned from vehicles and equipment. The vehicles and equipment shall be cleaned (*e.g.*; power washed) to remove remaining soils and vegetation prior to entering uninfected tracts.

5.2 CONSTRUCTION

The proposed construction of the Pipeline would be conducted in an orderly sequence designed to complete the Project in the minimum amount of time required to safely prepare the site, install the pipeline and restore the areas disturbed by construction.

Construction is estimated to require approximately three months. Construction techniques would be employed to minimize the area of ground disturbance, off site deposition of sediments and long-term impacts to agricultural productivity. Construction activities shall conform to all applicable permit stipulations; these requirements are mandated by the agency and implemented by the Project sponsor for minimizing impacts to the environment.

Restoration would immediately follow pipeline construction. Final grading would restore the original contours of the land. Disturbed areas would be prepared for re-seeding and restoration would be coordinated to meet landowner specifications.

5.3 OPERATION

Once put into service, the proposed Project would operate continuously, delivering crude oil from the RLF to the VHRF. Normal pipeline operations are imperceptible to the public, as they are buried and therefore not visible, and require only minimal aboveground activity. Standard operating procedures would conform to applicable DOT requirements, which include regular pipeline monitoring and periodic inspection; additionally, routine maintenance of the ROW would likely be required to remain in compliance.

SECTION 6: DESCRIPTION OF RIGHT-OF-WAY PREPARATION, CONSTRUCTION AND RECLAMATION PROCEDURES

6.1 PIPELINE CONSTRUCTION

Construction would be an assembly-line process and would include the following general tasks: surveying and staking, clearing and grading, trenching, pipe stringing, pipe bending, welding, coating, hydrostatic testing, lowering in, tie-ins, backfilling, rough grading, and final restoration (*e.g.*, topsoil replacement, final grading, seeding and mulching, where required). The Pipeline may be placed into service before final restoration has been completed in all areas.

At any location in the Project area, construction activities would require approximately three months to complete from start to finish, except when weather-related delays affect the schedule. However, construction activity at any location would not be continual but occurs in distinct phases with several days or weeks between each phase. For example, clearing and grading may require ten hours to progress for one mile along the pipeline ROW, but trenching may not follow in the area for several weeks. During the interim, activity in the area may be completely lacking or limited to occasional vehicular or pedestrian traffic.

Surveying and Staking: Prior to construction activities, Plains would stake the centerline and establish the boundaries of the approved work areas (*e.g.*, the construction ROW boundaries and temporary extra workspace areas), and flag the location of approved access roads and foreign utility lines. Wetland boundaries and other environmentally sensitive areas also would be marked or fenced for protection at this time.

Clearing and Grading: Prior to clearing, landowner fences would be braced and cut, and temporary gates and fences would be installed to control livestock where necessary. A clearing crew would clear the work area of vegetation and obstacles that may be encountered (*e.g.*, remaining trees, stumps, logs, brush, and rocks) in the work area.

The ROW would be graded, where necessary, to provide a reasonably level work surface and to segregate topsoil. Topsoil would be carefully removed and stored along the edge(s) of the ROW in a manner that allows for a haul road and trench line. The topsoil depth in the area is variable, but generally, the topsoil is between two and nine inches deep with the deepest topsoil in valleys and the thinnest topsoil on the hillsides and hilltops. The topsoil depth and the layer removed would be determined in the field; upon completion of pipeline construction, the trench would be backfilled and topsoil would be returned to the upper soil horizon. All disturbed areas shall be graded to restore the original contours.

Where steep slopes or side slopes are encountered, the construction contractor may re-grade the slope, or in areas of side slopes, two-tone the area to create level working surface. At these locations, excess spoil would be pushed to the side of the

construction ROW, distributed over the working area and travel lane, or stored in alternative temporary workspace (ATWS.) This material would be returned to the original location and preconstruction contours reestablished during restoration.

Concurrent with grading, erosion and sediment control devices would be installed as required by state stormwater permit conditions. Waterbodies may be bored using horizontal directional drilling (HDD) methods to place pipe under the waterbody without disturbing it. The pipeline would be placed such that adequate cover from the bottom of the waterbody would be in place. This would be individual to the waterbody but would be no closer than five feet to the bottom of the waterbody. Construction mats would also be installed across saturated wetlands to prevent rutting as equipment traveled the ROW. Erosion and sediment control devices, which may include silt fences, straw wattles, straw bales and road access pads, would be installed where necessary to prevent soil and sediment from leaving the construction work area.

Following installation of the pipe and backfilling of subsoil in the trench, the ROW would be returned to the original grade and the topsoil would be redistributed over the work area.

Trenching: The trench would be excavated by using backhoes to a depth that provides sufficient cover over the pipeline after backfilling. The bottom width of the trench would be sufficient to accommodate the 8-inch diameter pipeline. Typically, the trench would be excavated to a depth of about five feet deep to allow for a minimum of four feet of cover after construction. In cultivated areas, the depth of cover would be sufficient and safely below the maximum tillage depth. Additional cover requirements may be applicable at public road crossings.

Trench spoil would be stored adjacent to but would not be mixed with topsoil on the non-working side of the ROW. In some cases, however, where sufficient space would be lacking on the non-working side, trench spoil may be side cast on the travel lane and spread over the working side of the ROW.

Pipe Stringing, Bending, and Welding: Sections of externally coated pipe up to 60-foot long (*e.g.*, joints) would be transported over public roads to the ROW by truck and placed or “strung” along the ROW parallel to the trench in a continuous line. After the pipe sections are strung along the trench and before they are welded together, individual sections of the pipe may be bent, where necessary, so the finished pipeline sections conform to the natural contours of the land. Typically, a track-mounted, hydraulic pipe-bending machine would be used. Where multiple or complex bends greater than what can be properly bent in the field are required, a factory made “fitting” would be used.

After the pipe sections are bent, the joints would be welded together into sections and placed on temporary supports. Welding would comply with requirements listed in Title 49 CFR Part 195 and API Standard 1104 *Welding of Pipelines and Related Facilities*. Each weld would be tested by using radiographic non-destructive examination to ensure no defective welds were present and Plains engineering standards were met.

Welds that do not meet standards and specifications would be removed and/or repaired.

A third-party contractor certified in non-destructive inspection would be used and inspections would be performed as outlined in Title 49 CFR Part 195. After the welds were approved, a protective epoxy coating would be applied to the welded joints. The pipeline would subsequently be electronically and visually inspected for defects in the epoxy coating. Damage to or defects in the coating would be repaired prior to lowering-in the pipeline. Cathodic protection systems would also be directly bonded to the pipe at that time.

Lowering-in and Backfilling: The trench would be inspected for the presence of rocks and other debris, which could damage the pipe or protective coating. If rocks or other obstructions were observed, these would be removed or the pipeline trench bottom would be padded with subsoil or sand prior to the pipeline lowered into the trench.

If the trench bottom were obscured by water, the trench would be dewatered. Where dewatering may be required, Plains would pump water from the trench into well-vegetated upland areas or into sediment filtration/energy dissipation devices.

In areas of steep slopes, breakers consisting of sand bags or foam would be installed to prevent 'piping' from occurring along the pipe in the trench after the area was backfilled.

The trench would be backfilled using the native material removed and compacted; however, the trench may be crowned slightly to accommodate settling.

Hydrostatic Testing: Plains would hydrostatically test the pipeline. Hydrostatic testing would conform to DOT standards and would establish the maximum operating pressure (MOP) for the pipeline when it was operational. Testing involves installation of test headers, which control the pressure applied. The test headers would be later removed upon the completion of a successful pressure test. The test procedures are a function of pressure and time, once the desired test pressure has been achieved, the test section must hold the pressure for an eight hour period, without a significant change in pressure. Once testing was completed, the test water would be evacuated; the line is dried, and prepared for commissioning. Plains would either procure discharge permit(s) from the NDDOH and the ensuing discharge would conform to the conditions stipulated in the permit, or capture the water and transport it offsite for disposal.

Final Tie-in and Commissioning: Following successful pressure testing, test manifolds would be removed and the final pipeline tie-ins would be made. After final tie-ins were complete, the tie-in welds were inspected and the line was sufficiently dried, the pipeline would be commissioned. Commissioning involves activities to verify equipment is properly installed and working, the controls and communications systems are functional, and the pipeline is ready for service. The pipeline would be

cleaned and dried using mechanical devices; the line would be purged of air and then loaded with product.

Cleanup and Restoration: Final cleanup would begin after backfilling as soon as weather and site conditions permitted. During cleanup, construction debris remaining on the ROW would be collected and disposed of properly. Work areas would be graded and restored to preconstruction contours as closely as practical.

During restoration, segregated topsoil would be spread over the surface after final grading and permanent erosion controls would be installed. After permanent erosion control devices were installed, disturbed, non-cultivated areas would be seeded and slopes mulched where required. Seed mixes would be approved in advanced by the landowner, and seeding would occur within the recommended seeding dates for the Project area.

For cultivated areas, no seed or mulch would be applied after the topsoil was replaced unless specifically requested by the landowner.

Every reasonable effort would be made to complete final cleanup (including final grading and installation of erosion control devices) in accordance with landowner requests or permit conditions within 21 days of backfilling.

Markers showing the location of the pipeline would be installed at fence and road crossings in order to identify the owner of the pipeline and convey emergency information in accordance with applicable governmental regulations, including DOT safety requirements. Special markers providing information and guidance to aerial patrol pilots would also be installed.

The horizontal directional drilling bore method involves setting a horizontal drill rig at one or both ends of the bore area. If the drill rig was located on or near the stream bank, erosion countermeasures would be installed to minimize bank disturbance and prevent further erosion during the drilling operation. The drill bores underneath the waterbody and the main pipe, known as the string pipe, would be pulled into place once the bore has been completed. The string pipe would then be connected to the main pipeline.

Following installation of the pipeline crossing, the stream bank would be restored as necessary. Plains would compact the banks and install erosion and sediment control blankets on the banks after seeding to prevent scour and a discharge of sediment to the waterbody. In addition, sediment control barriers would be installed on the top of the banks to prevent sediment generated from the ROW from entering the waterbody. These barriers would remain in place until the ROW approaches were adequately vegetated.

The Project is not anticipated to cross waterbodies. However, if flowing waterbodies would need to be crossed, Plains would do so using methods, which would minimize the length of time necessary to install the pipes and restore the stream bank, as well

as to prevent sediment from entering the waterbody during construction to reduce the impacts on the waterbody. For all ephemeral, intermittent and perennial crossings, Plains would implement the following mitigative measures:

- Temporary extra workspaces would be located at least 50 feet from the edges of the waterbody, unless a ten foot setback was identified for waterbodies located in actively cultivated agricultural fields.
- Temporary extra workspaces would be limited to the minimum size needed to construct the waterbody crossing.
- Riparian vegetation would be preserved by limiting clearing of vegetation between temporary extra workspace areas and waterbody edges;
- Temporary sediment and erosion control devices would be installed across the width of the ROW after clearing but before ground disturbance. These devices would remain in place throughout construction until stream banks and adjacent upland areas were stabilized.
- Trench spoil placement would be restricted to at least ten feet from the water's edge on the ROW, or in temporary extra workspace areas.
- Waterbody buffers would be maintained (*e.g.*, temporary extra workspace area setbacks, refueling restrictions) in the field with signs until construction, related ground-disturbing activities were complete.
- The use of equipment operating in the waterbody would be limited to that needed to construct the crossing.
- Construction would be completed across minor waterbodies (*i.e.*, less than or equal to ten feet wide) within a single 24-hour time period.
- Storage and refueling activities would be restricted near surface waters and procedures in the Spill Prevention, Containment and Countermeasure (SPCC) Plan would be promptly implemented if a spill or leak occurs during construction.
- Bank stabilization and re-establishment of streambed and bank contours would be required after construction.
- A permanent slope breaker would be installed across the ROW at the base of slopes greater than five percent that are less than 50 feet from the water's edge.

Wetland Restoration: Following pipeline installation, the trench would be backfilled with the material excavated and, to the maximum extent possible, restored to pre-construction contours. Replacing the wetland soil and restoring pre-construction hydrology would promote the rapid re-establishment of hydrophytic vegetation.

Plains would also take precautionary measures outside wetland boundaries to prevent construction in uplands from having an impact on wetlands. These measures include:

- Installing sediment barriers across the entire construction ROW immediately upslope of the wetland boundary where necessary to prevent sediment flow into the wetlands.
- Installing sediment barriers along the edge of the construction work area where wetlands are adjacent to the construction ROW and the ground surface slopes toward the wetland.

Following backfilling, topsoil segregated before trenching would be returned to the area from which it was stripped. If timber mats or riprap were used, Plains would remove the supports from the wetland. No lime, mulch or fertilizer would be used in wetlands, but Plains would apply annual ryegrass in wetlands without standing water.

All materials used for equipment crossings in wetlands would be removed in their entirety following construction, and the area would be restored and stabilized according to the relevant permit authorizations.

Agricultural Land Restoration: Extensive portions of the Project would involve heavy construction through agricultural areas. These areas consist of active croplands predominately used to grow durum, hard red spring wheat, red winter wheat, barley, sunflowers and canola. Additionally, agricultural lands are used as range or pasture land used for livestock production. Plains would utilize the following general construction methods in agricultural areas, consistent with the requirements of landowners:

- Prior to construction, landowners would be contacted and irrigation facilities, and wells, waterlines and other and livestock watering systems would be located.
- Water flow would be maintained in supply systems unless shutoff was coordinated with the affected parties.
- Existing fences would be cut and braced along the ROW, and temporary gates and fences, if necessary, would be installed to control livestock and limit public access.
- On all active agricultural lands, which include fallow or rotated cropland, hayfields, improved pastures and rangeland, Plains would remove the topsoil removal and segregate the soil from subsoil.
- Plains would decompact the travel lane on the ROW if requested by the landowner.
- On all actively cultivated lands free of shallow bedrock, the trench would be excavated to sufficient depth to allow a minimum of four feet of soil cover between the top of the pipe and the final land surface after backfilling.
- Restoration and revegetation practices (*i.e.*, seeding) would comply with the requirements outlined in the landowner line list.
- Plains would not plant an annual cover crop on actively cultivated land unless requested by the landowner.

- Weed-free mulch would be used on steep slopes to control erosion unless the landowner requests mulch not be applied. Mulch would be crimped into the soil.
- Earthen diversion berms would be constructed to reduce runoff on steep slopes only when the landowner approves.
- No erosion control fabric would be used in rangeland without having landowner approval.
- Fences and gates would be replaced in accordance with landowner agreements.
- Private roads would be restored to equal pre-construction condition.
- Plains would respond promptly to landowner concerns following construction to mitigate areas of subsidence and erosion problems should they occur.
- Plains would require the contractor to clean thoroughly the equipment and materials (*e.g.*, timber mates, bridges, etc.) at the contractor yard prior to mobilization to the ROW to prevent spread of nuisance weeds.

**SECTION 7: EASEMENT, ACQUISITION, LANDOWNER NOTIFICATION AND
EASEMENT COMPENSATION PLAN**

**7.1 LANDOWNER INFORMATION REGARDING EASEMENT ACQUISITION, AND
NECESSARY EASEMENT CONDITIONS AND RESTRICTIONS**

Once a preliminary route has been established, a title review would be conducted of courthouse records for the purpose of identifying the current landowner. Plains initiates contacts with affected landowners via telephone to be followed with personal visits and e-mail correspondence. Contact by surface mail may be used as a last resort if no other means of landowner contact is successful.

The refinement of the Route includes adjustments made per landowner request. Plains, at all times, negotiates in good faith and necessary easement conditions and restrictions are presented and discussed. All fee land easements for the proposed Route have been acquired.

7.2 COMPENSATION POLICY

Plains' practice for determining landowner compensation for easements is based on research of comparable fair market pricing and prior experience negotiating easements locally.

SECTION 8: LIST OF PREPARERS

William McCarthy, C.W.B.

Senior Environmental Compliance Analyst

E3 Environmental, LLC, 871 Jefferson Avenue, St. Paul, MN 55102

M.S. Wildlife Biology, University of Minnesota – Twin Cities; and B.S. Wildlife Biology, Michigan State University. Mr. McCarthy is an environmental compliance analyst with 15 years of environmental consulting experience working with various energy assets and regulatory agencies. As a compliance analyst, he has managed the environmental requirements for facility siting, pipeline routing, federal licensing and various federal, state and local permits. Mr. McCarthy is a certified wildlife biologist, and in this role conducts and coordinates field studies, agency consultations, mitigation and avoidance plans.

Katie Schmidt, EIT

Environmental Engineer and Senior Consultant

E3 Environmental, LLC, 871 West Jefferson Avenue, St. Paul, MN 55102

B.S. Civil Engineering with an emphasis in Environmental Engineering-Iowa State University. Ms. Schmidt is a Senior Environmental Consultant with eight years of experience working with various energy assets and regulatory agencies. As a consultant, she has managed multiple pipeline projects supporting clients through the construction permitting and siting processes, which included coordination with various federal, state and local agencies.

Melissa Schmit

Consultant

E3 Environmental, LLC, 871 Jefferson Avenue, St. Paul, MN 55102

B.A. in Environmental Studies and Geography, Gustavus Adolphus College; and J.D., Hamline University School of Law. Ms. Schmit has over six years of environmental consulting experience. Ms. Schmit has pursued a career focused on regulatory compliance and supports energy clients by providing regulatory review and permitting services. Ms. Schmit's experience includes authoring technical reports in compliance with NEPA requirements for a variety of infrastructure projects across the Midwest and coordination with federal, state, and local agencies.

Dan Woodward, RPA

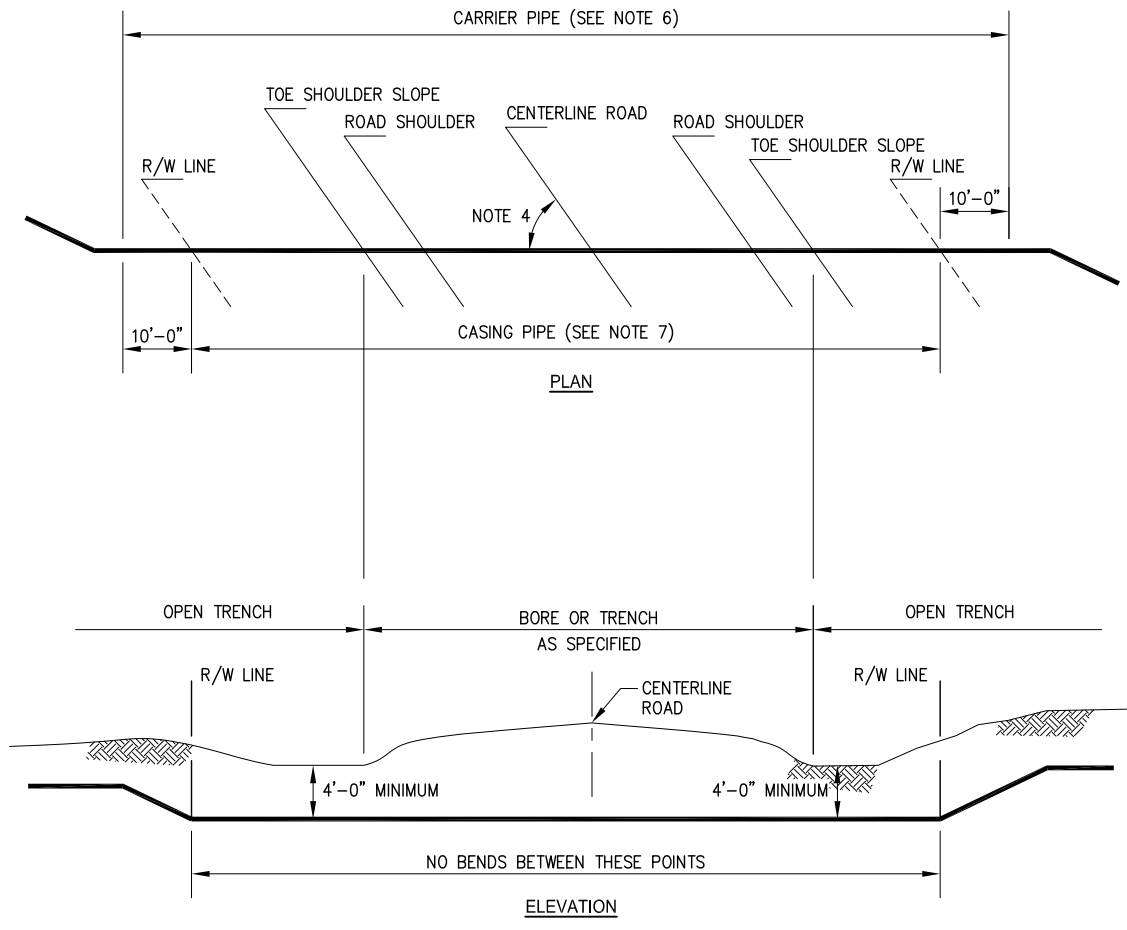
Senior Archaeologist

E3 Environmental, LLC, 871 Jefferson Ave St Paul, MN 55102

M.A. Anthropology (archaeology focus), California State University -- Fullerton; and B.A. History, University of Florida. Mr. Woodward is a secretary of the interior qualified archaeologist with 15 years of environmental consulting experience working with various energy assets and regulatory agencies. As a senior archaeologist, he has overseen all phases of archaeological fieldwork from class I record searches and class III intensive surveys to detailed excavations and archaeological damage assessments. He has authored dozens of cultural resource technical reports fulfilling NHPA and NEPA cultural resource requirements. Mr. Woodward has also coordinated with multiple Native American groups and has met with interested Tribal representatives in the field to address project concerns. Mr. Woodward has performed historic building analysis and authored built-environment technical reports. Mr. Woodward has also assisted with extensive paleontological fieldwork including paleontological surveys, monitoring, and salvage activities.

Appendix A

Engineering Documents



GENERAL SPECIFICATIONS:

1. CONTRACTOR TO INSTALL PIPELINE UNDER ALL PUBLIC ROADS AS SHOWN IN THE SKETCH ABOVE, OR AS SHOWN ON APPROVED CONSTRUCTION DRAWINGS.
2. ALL VOIDS DEVELOPED BY BORING UNDER SURFACE OF ROAD BED SHALL BE REPAIRED.
 - a. VOIDS DEVELOPED UNDER HARD SURFACE ROADS (BITUMINOUS MAT OR CONCRETE) SHALL BE FILLED BY PRESSURE GROUTING. GROUT SHALL CONSIST OF A SAND-CEMENT SLURRY OF AT LEAST 2 SACKS OF CEMENT PER CUBIC YARD.
 - b. VOIDS DEVELOPED UNDER NON-HARD SURFACE ROADS (GRADED GRAVEL OR CRUSHED ROCK AND DIRT) SHALL BE FILLED BY REMOVAL OF ROAD BED AND BACKFILLING WITH SUITABLE MATERIAL PNEUMATICALLY TAMPED IN 6" LAYERS TO DENSITY OF SURROUNDING UNDISTURBED EARTH AND REPLACING SURFACE MATERIAL TO ORIGINAL CONDITION.
3. PIPELINE UNDERCROSSINGS OF ALL ROADS SHALL BE INSTALLED IN ACCORDANCE WITH ENGINEERING STANDARDS AND/OR PERMIT REQUIREMENTS OR SPECIFICATIONS PROVIDED BY THE COMPANY.
4. THE PIPELINE SHOULD CROSS AS NEAR TO RIGHT ANGLES AS POSSIBLE AND ECONOMICALLY PRACTICAL.
5. FOR ROADS NOT HAVING A DRAINAGE DITCH, THE MINIMUM COVER FROM THE TOP OF THE ROAD BED OR THE LOWEST ELEVATION WITHIN THE R/W SHALL BE 4'-0" OR AS SPECIFIED BY THE PERMITTING AUTHORITIES.
6. FOR UNCASSED ROAD CROSSINGS, THE DESIGN FACTOR FOR THE CARRIER PIPE SHALL EXTEND 10'-0" BEYOND EACH R/W LINE.
7. WHEN CASING PIPE IS REQUIRED, IT SHALL BE INSTALLED AS REQUIRED BY THE PERMIT OR EXTEND FROM R/W TO R/W. CARRIER PIPE FOR CASSED ROAD CROSSINGS SHALL MEET THE DOT DESIGN REQUIREMENTS.
8. ALL UNDERCROSSINGS SHALL BE BORED UNLESS SPECIFIED OTHERWISE IN THE CONSTRUCTION DRAWINGS OR SPECIFICATIONS.

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A	ISSUED FOR CLIENT REVIEW	RJV	MJS	01/13/15
NO.	DESCRIPTION	BY	APPR	DATE

REVISIONS

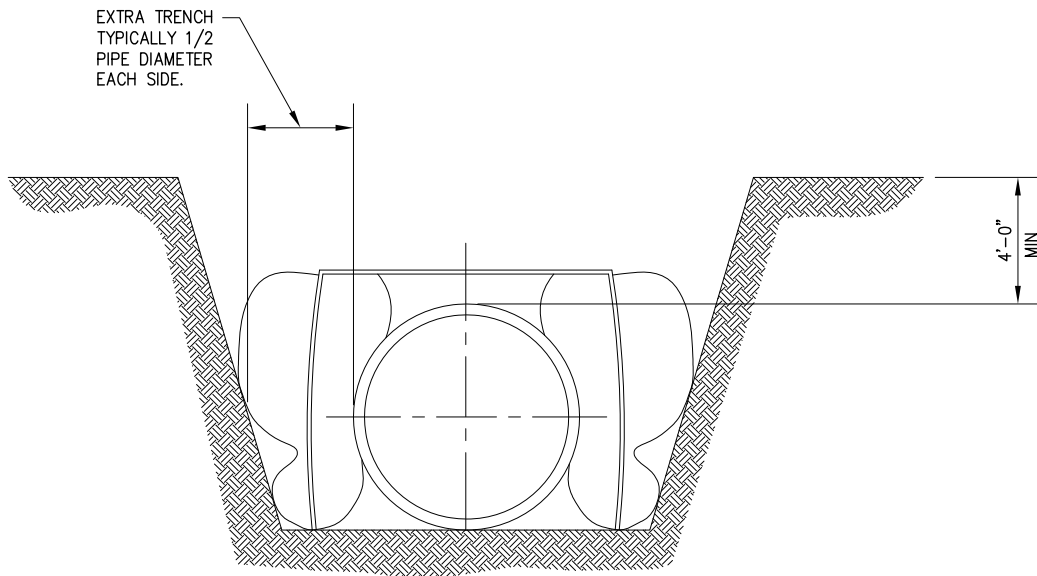
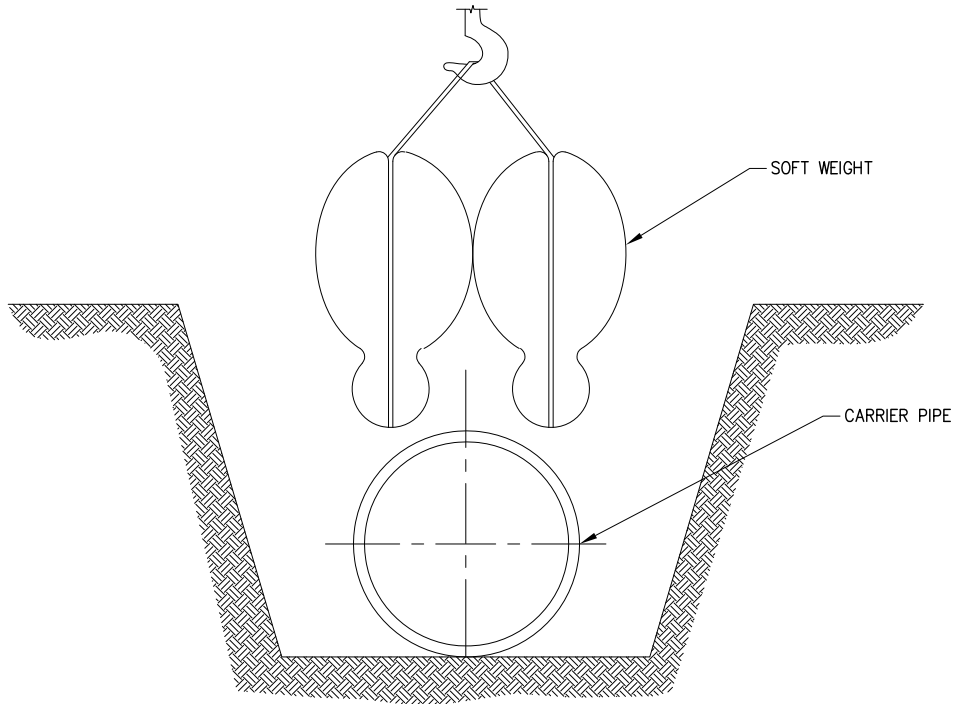
PLAINS ALL AMERICAN PIPELINE L.P.

BISON PIPELINE AFE#19074

TYPICAL UNDERCROSSING
ALL ROADS

CHKD. -	DRWN. RJV	PROJECT NO. -
APPR. -	DATE 01/13/15	DWG. NO.
SCALE N.T.S.		A19074-A-0001

	NORWEST ENGINEERING	N.E. #
	CONSULTING ENGINEERS 503-254-0110	4110 NE 122ND AVE #207 PORTLAND, OREGON



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A	ISSUED FOR CLIENT REVIEW	RJV	MJS	01/13/15
NO.	DESCRIPTION	BY	APPR	DATE

REVISIONS

 **PLAINS ALL AMERICAN PIPELINE L.P.**

BISON PIPELINE AFE#19074

TYPICAL INSTALLATION DRAWING

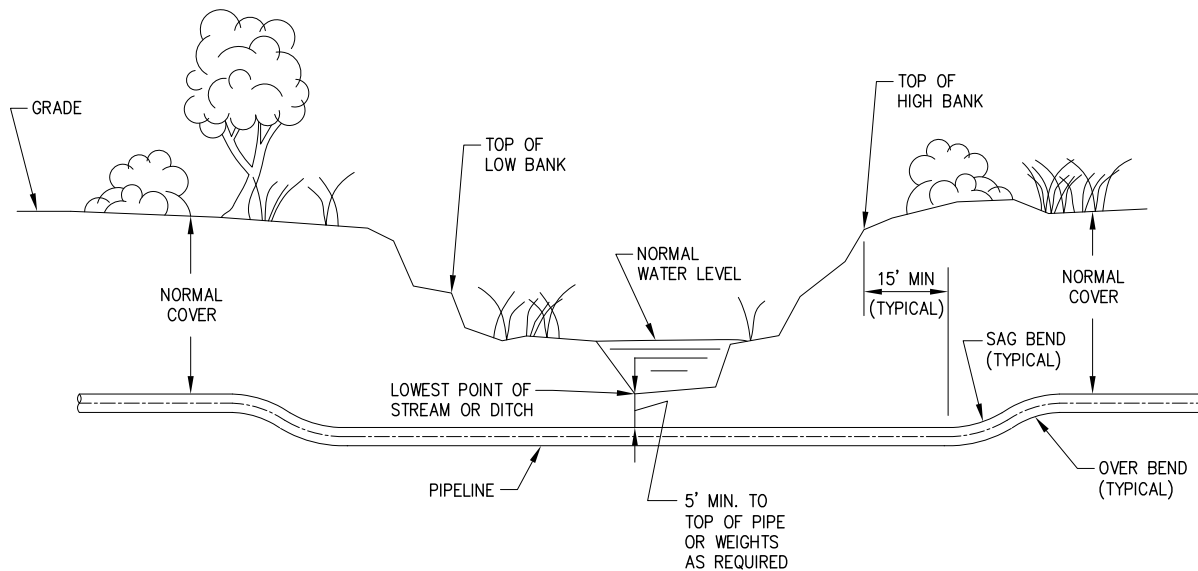
 **NORWEST ENGINEERING**
 CONSULTING ENGINEERS
 503-254-0110

N.E. #
 RV0414

4110 NE 122ND AVE #207
 PORTLAND, OREGON

CHKD. -	DRWN. RJV	PROJECT NO. -
APPR. -	DATE 01/13/15	DWG. NO.
SCALE N.T.S.		A19074-A-0002

REV.
A



NOTES:

1. THIS DRAWING IS APPLICABLE TO ALL STREAM OR DITCH CROSSINGS NOT SHOWN INDIVIDUALLY DESIGNED ON OTHER CONSTRUCTION DRAWINGS.
2. ALL NEW CONSTRUCTION TO BE DONE BY CONTRACTOR.
3. WEIGHTS OR ANCHORS TO BE INSTALLED AS DIRECTED BY THE COMPANY.

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A	ISSUED FOR CLIENT REVIEW	RJV	MJS	01/13/15
NO.	DESCRIPTION	BY	APPR	DATE

REVISIONS

PLAINS ALL AMERICAN PIPELINE L.P.

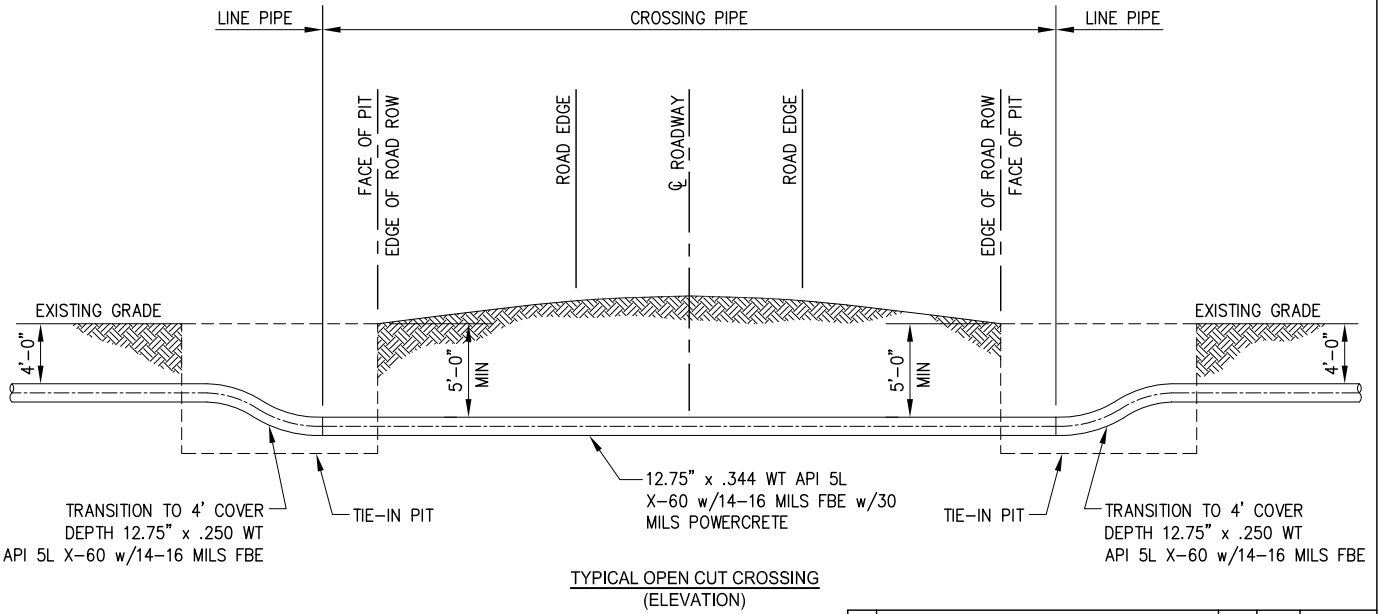
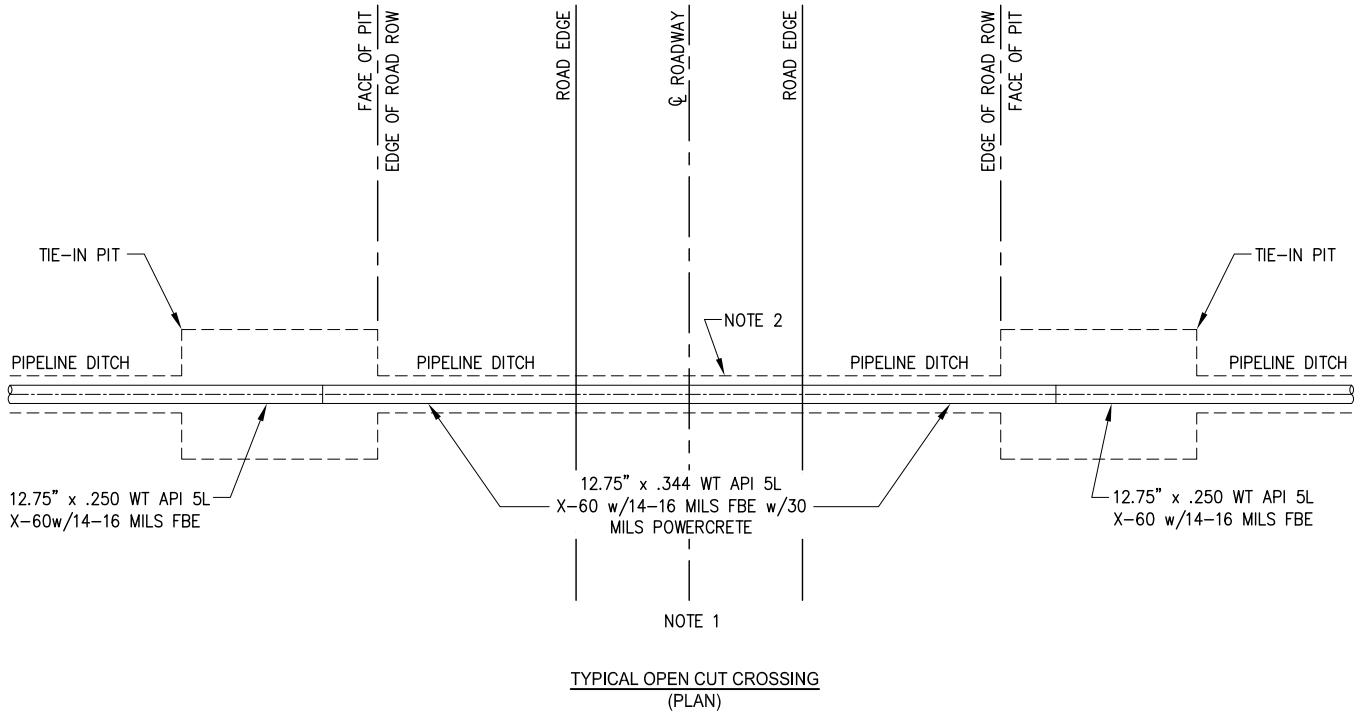
BISON PIPELINE AFE#19074

STREAM OR DITCH
PIPELINE UNDERCROSSING

	NORWEST ENGINEERING CONSULTING ENGINEERS 503-254-0110	4110 NE 122ND AVE #207 PORTLAND, OREGON	N.E. #
			RVO414

CHKD. -	DRWN. RJV	PROJECT NO. -
APPR. -	DATE 01/13/15	DWG. NO.
SCALE N.T.S.		A19074-A-0003

REV. A



- NOTES:
1. TRAFFIC CONTROL PLAN BY CONTRACTOR AS REQUIRED BY CROSSING PERMIT.
 2. ROAD SHALL BE RESTORED AS REQUIRED BY CROSSING PERMIT.

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A	ISSUED FOR CLIENT REVIEW	RJV	MJS	01/13/15
NO.	DESCRIPTION	BY	APPR	DATE

REVISIONS

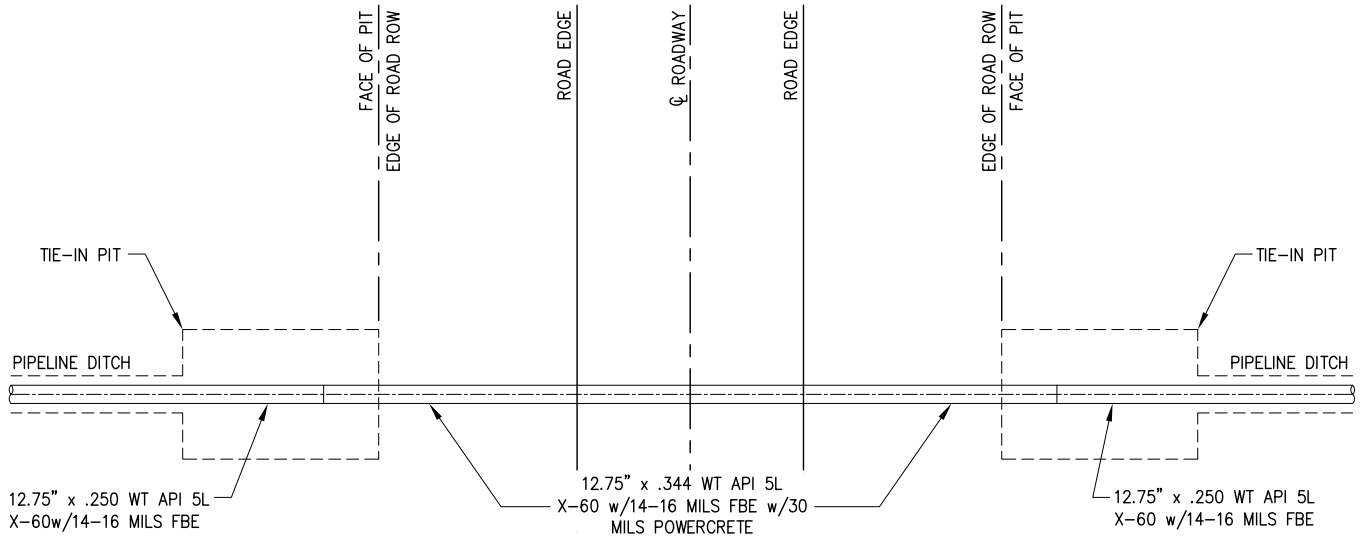
PLAINS ALL AMERICAN PIPELINE L.P.

BISON PIPELINE AFE#19074

OPEN CUT CROSSING FOR UNIMPROVED ROADS

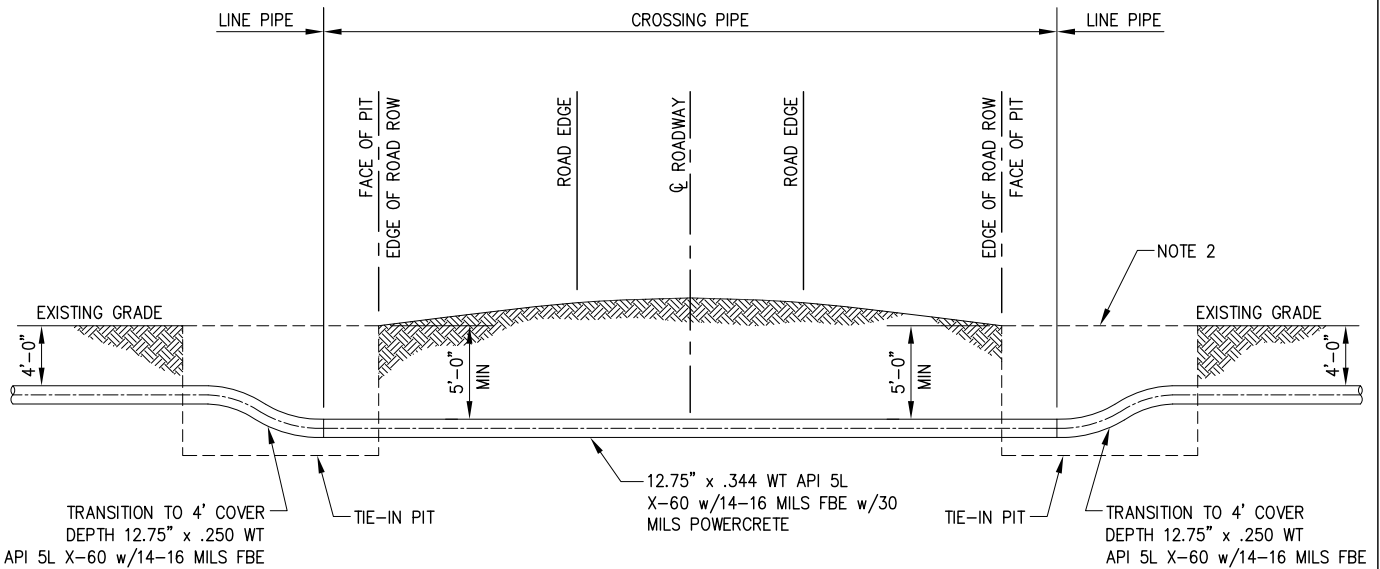
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APPR. -	DATE 01/13/15	DWG. NO.
SCALE N.T.S.		A19074-A-0004

	NORWEST ENGINEERING	N.E. #
	CONSULTING ENGINEERS 503-254-0110	4110 NE 122ND AVE #207 PORTLAND, OREGON



NOTE 1

TYPICAL BORED CROSSING
(PLAN)



NOTE 2

TYPICAL BORED CROSSING
(ELEVATION)

NOTES:

1. TRAFFIC CONTROL PLAN BY CONTRACTOR AS REQUIRED BY CROSSING PERMIT.
2. DISTURBED AREA SHALL BE RESTORED AS REQUIRED BY CROSSING PERMIT.

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A	ISSUED FOR CLIENT REVIEW	RJV	MJS	01/13/15
NO.	DESCRIPTION	BY	APPR	DATE

REVISIONS

PLAINS ALL AMERICAN PIPELINE L.P.

BISON PIPELINE AFE#19074

BORED CROSSING FOR
UNIMPROVED ROADS



NORWEST ENGINEERING

CONSULTING ENGINEERS
503-254-0110

4110 NE 122ND AVE #207
PORTLAND, OREGON

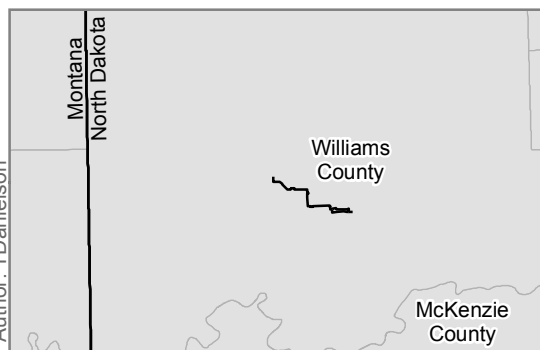
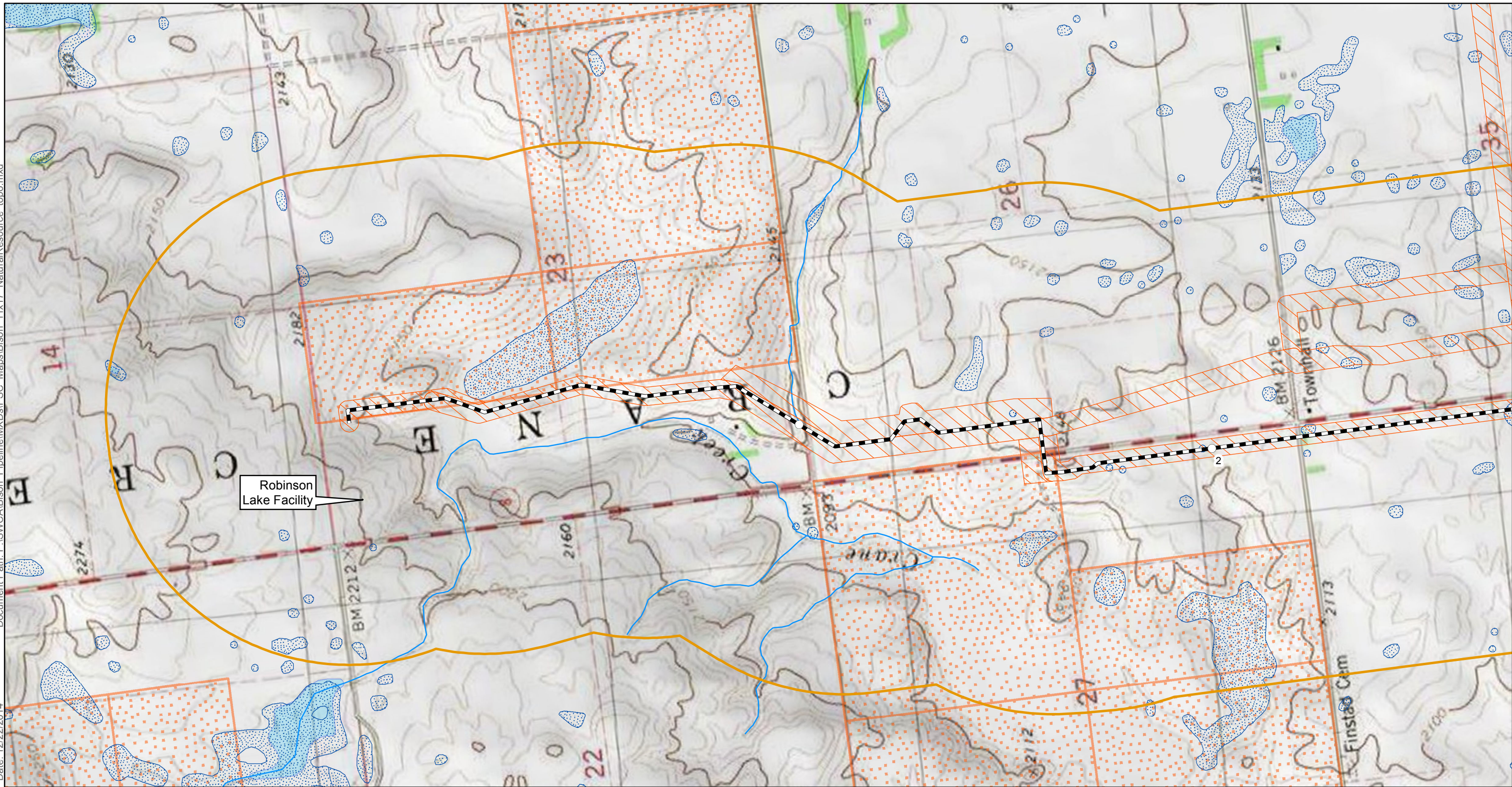
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RVO414

CHKD. -	DRWN. RJV	PROJECT NO. -
APPR. -	DATE 01/13/15	DWG. NO.
SCALE N.T.S.		A19074-A-0005
		REV. A

Appendix B

Project Maps



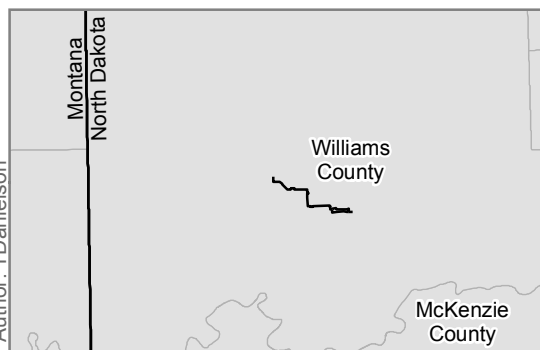
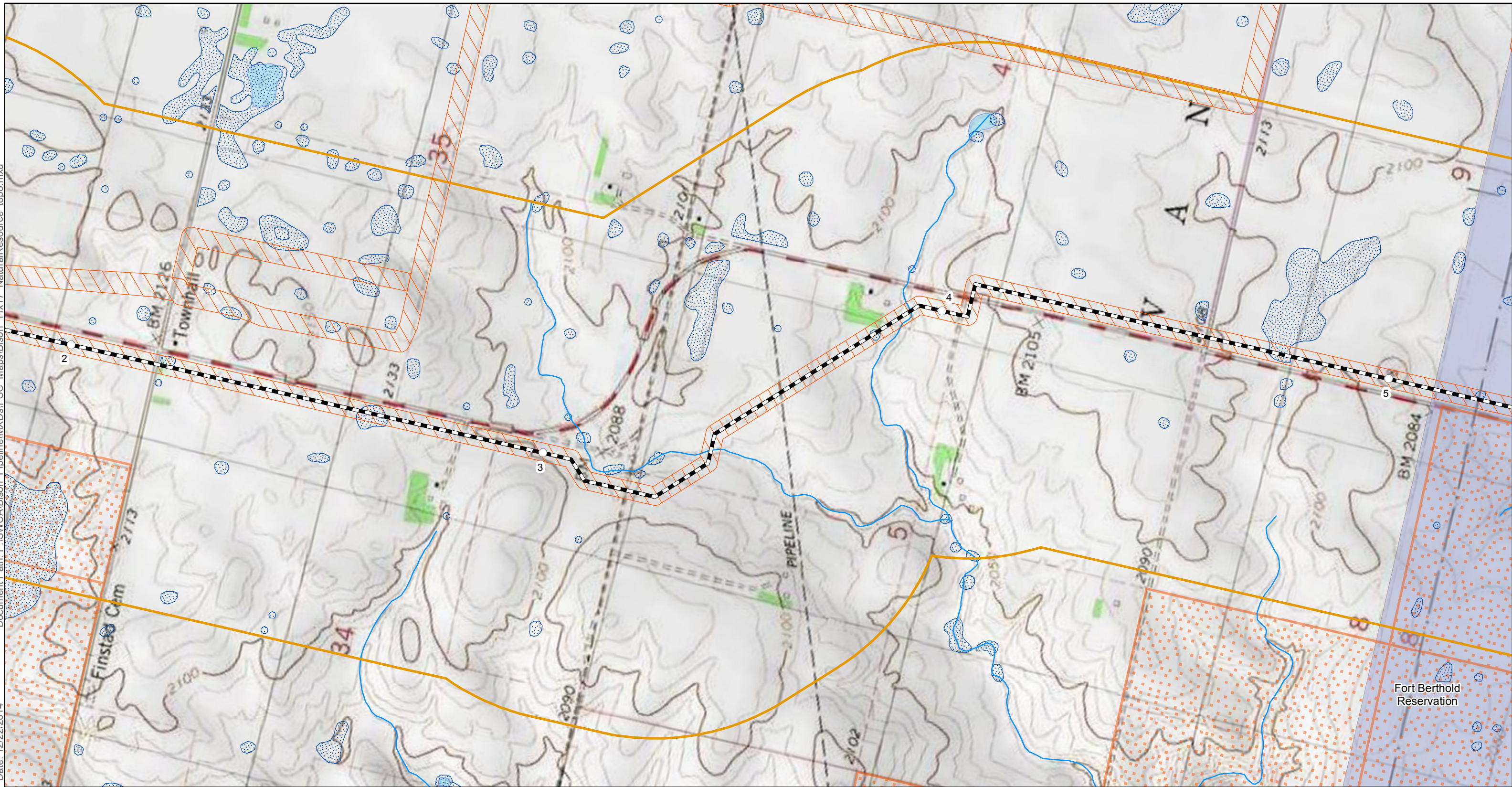
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Milepost	NDGS Landslide Deposits	Private Conservation Land
Centerline	North Dakota Mineral Trust Lands	State Land
Survey Corridor	Criteria Data	PLOTS Land
Corridor (1 mile)	Federal Land	Abandoned Mine
NHD Waterway	Joint Ownership	
NWI Wetland	Local Land	

1:12,000

Map not to scale, for environmental review purposes only.



Plains Pipeline, L.P.
 Bison Pipeline
 Siting Criteria
 Cultural Resource
 Page 1 of 4
 Mountrail County, North Dakota



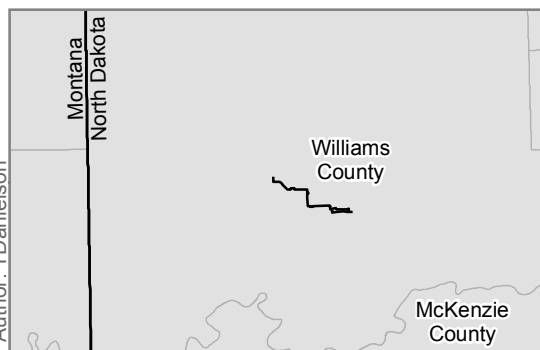
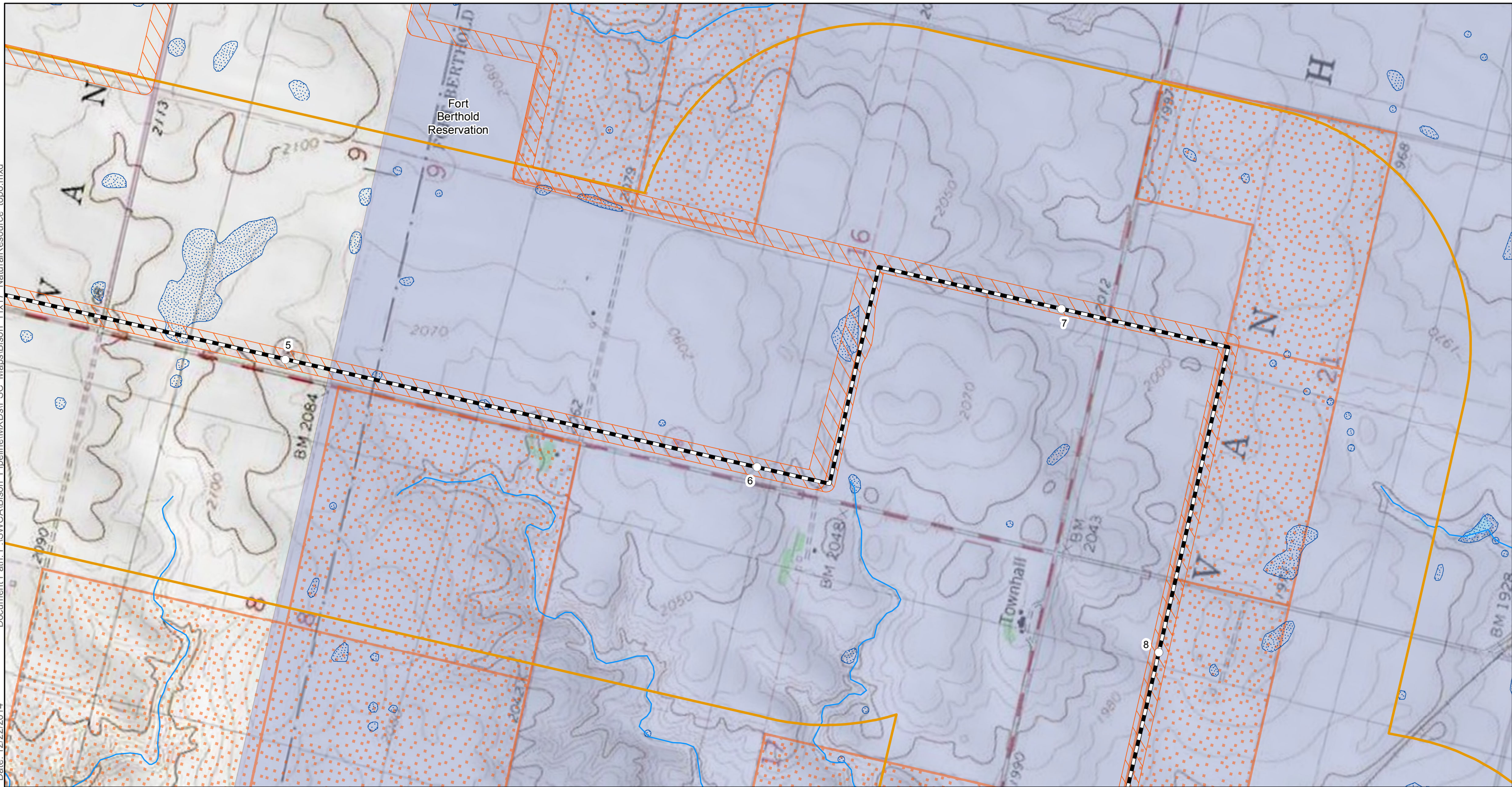
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Milepost	NDGS Landslide Deposits	Private Conservation Land
Centerline	North Dakota Mineral Trust Lands	State Land
Survey Corridor	Criteria Data	PLOTS Land
Corridor (1 mile)	Federal Land	Abandoned Mine
NHD Waterway	Joint Ownership	
NWI Wetland	Local Land	

1:12,000

Map not to scale, for environmental review purposes only.

E3 ENVIRONMENTAL
Enhancing Execution with Experience

Plains Pipeline, L.P.
Bison Pipeline
Siting Criteria
Cultural Resource
Page 2 of 4
Mountrail County, North Dakota



Valve	NHD Waterbody	Native American Land
Milepost	NDGS Landslide Deposits	Private Conservation Land
Centerline	North Dakota Mineral Trust Lands	State Land
Survey Corridor	Criteria Data	PLOTS Land
Corridor (1 mile)	Federal Land	Abandoned Mine
NHD Waterway	Joint Ownership	
NWI Wetland	Local Land	

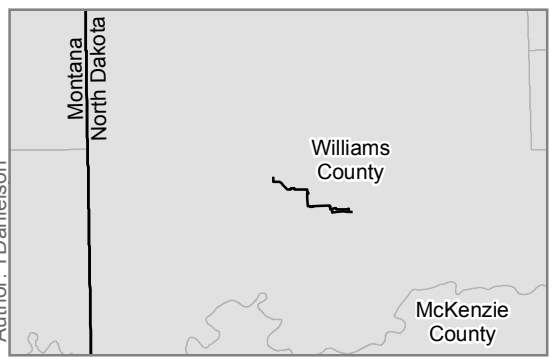
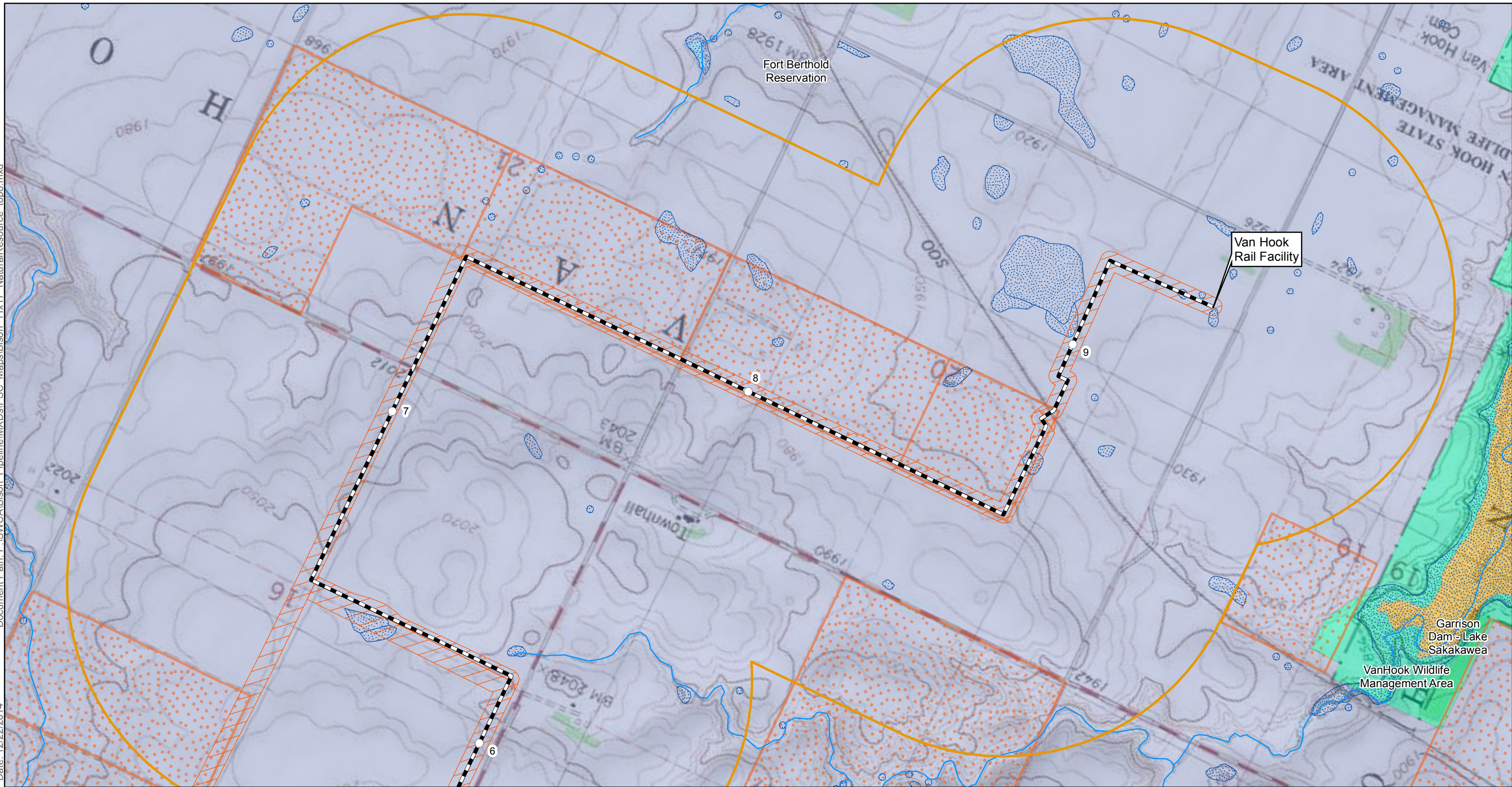
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Map not to scale, for environmental review purposes only.



Plains Pipeline, L.P.
 Bison Pipeline
 Siting Criteria
 Cultural Resource
Page 3 of 4
 Mountrail County, North Dakota

Date: 12/22/2014
 Author: TDanielson
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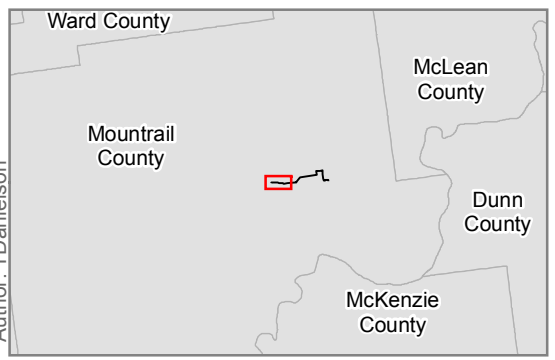


Valve	NHD Waterbody	Native American Land
Milepost	NDGS Landslide Deposits	Private Conservation Land
Centerline	North Dakota Mineral Trust Lands	State Land
Survey Corridor	Criteria Data	PLOTS Land
Corridor (1 mile)	Federal Land	Abandoned Mine
NHD Waterway	Joint Ownership	
NWI Wetland	Local Land	

1:12,000

Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.
Bison Pipeline
 Siting Criteria
 Cultural Resource
Page 4 of 4
 Mountrail County, North Dakota



Centerline	Abandoned Mine	Wetland
Milepost	NDWC Well	Woody Vegetation
Survey Corridor	NWI Wetland	Noxious Weed
Corridor (1 mile)	ICBM	
Potentially Occupied Structure	Natural Resource Survey	
Potentially Occupied Structure (w/in 500ft)	Stream	

E3 ENVIRONMENTAL
Enhancing Execution with Experience

0 625 1,250 2,500 Feet

1:15,000

Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.
Bison Pipeline
Siting Criteria
Natural Resource - Aerial Map
Page 1 of 4
Mountrail County, North Dakota



Centerline	Abandoned Mine	Wetland
Milepost	NDWC Well	Woody Vegetation
Survey Corridor	NWI Wetland	Noxious Weed
Corridor (1 mile)	ICBM	
Potentially Occupied Structure	Natural Resource Survey	
Potentially Occupied Structure (w/in 500ft)	Stream	

E3 ENVIRONMENTAL
Enhancing Execution with Experience

0 625 1,250 2,500
Feet

1:15,000

Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.
Bison Pipeline
 Siting Criteria
 Natural Resource - Aerial Map
Page 2 of 4
 Mountrail County, North Dakota



Centerline	Abandoned Mine	Wetland
Milepost	NDWC Well	Woody Vegetation
Survey Corridor	NWI Wetland	Noxious Weed
Corridor (1 mile)	ICBM	
Potentially Occupied Structure	Natural Resource Survey	
Potentially Occupied Structure (w/in 500ft)	Stream	

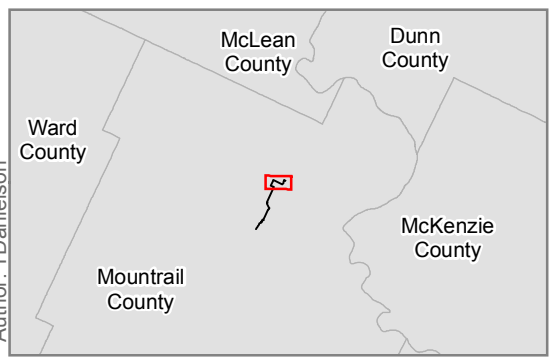
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Enhancing Execution with Experience

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Feet

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Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.
Bison Pipeline
 Siting Criteria
 Natural Resource - Aerial Map
Page 3 of 4
 Mountrail County, North Dakota



Centerline	Abandoned Mine	Wetland
Milepost	NDWC Well	Woody Vegetation
Survey Corridor	NWI Wetland	Noxious Weed
Corridor (1 mile)	ICBM	
Potentially Occupied Structure	Natural Resource Survey	
Potentially Occupied Structure (w/in 500ft)	Stream	

E3 ENVIRONMENTAL
Enhancing Execution with Experience

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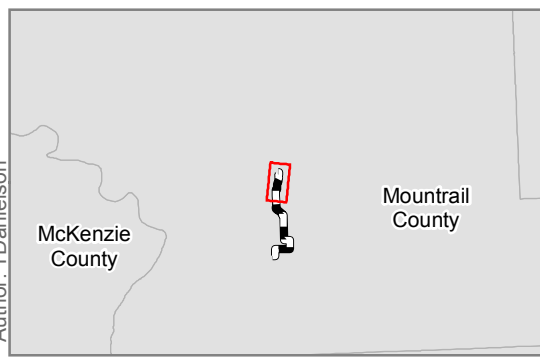
Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.
Bison Pipeline
Siting Criteria
Natural Resource - Aerial Map
Page 4 of 4
Mountrail County, North Dakota



Robinson Lake Facility

32MN873

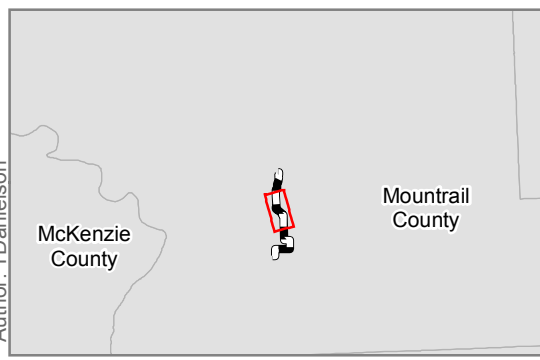


NHD Waterway	Corridor (1 mile)
Milepost	Cultural Avoidance
Centerline	
Survey Corridor	

Note: Class III survey efforts confirmed the that the site leads do not occur within the Inventory Corridor.
Map not to scale, for environmental review purposes only.

1:12,000

Plains Pipeline, L.P.
 Bison Pipeline
 Siting Criteria
 Cultural Resource
Page 1 of 4
 Mountrail County, North Dakota



NHD Waterway	Corridor (1 mile)
Milepost	Cultural Avoidance
Centerline	
Survey Corridor	

E3 ENVIRONMENTAL
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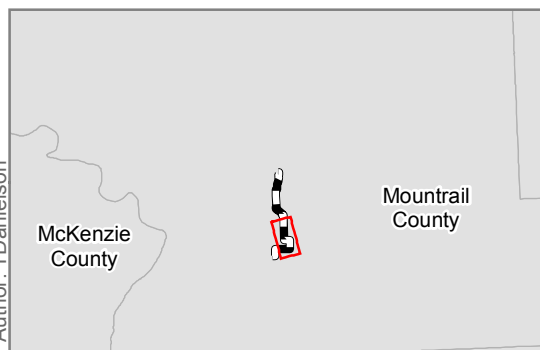
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 Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.
Bison Pipeline
 Siting Criteria
 Cultural Resource
Page 2 of 4
 Mountrail County, North Dakota

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Date: 12/23/2014

Author: TDanielson



NHD Waterway	Corridor (1 mile)
Milepost	Cultural Avoidance
Centerline	
Survey Corridor	

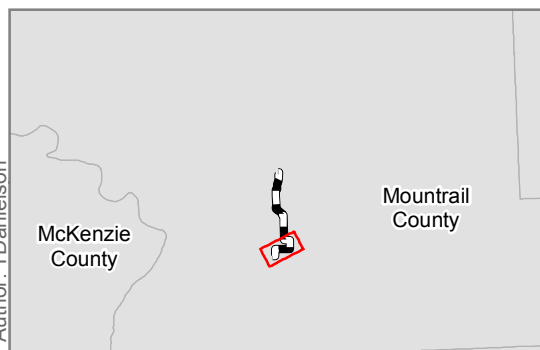
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Note: Class III survey efforts confirmed the that the site leads do not occur within the Inventory Corridor.
 Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.
 Bison Pipeline
 Siting Criteria
 Cultural Resource
Page 3 of 4
 Mountrail County, North Dakota

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Date: 12/23/2014

Author: TDanielson



NHD Waterway	Corridor (1 mile)
Milepost	Cultural Avoidance
Centerline	
Survey Corridor	

Note: Class III survey efforts confirmed the that the site leads do not occur within the Inventory Corridor.
Map not to scale, for environmental review purposes only.

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Plains Pipeline, L.P.
 Bison Pipeline
 Siting Criteria
 Cultural Resource
Page 4 of 4
 Mountrail County, North Dakota

Appendix C

Consultations

U.S. Fish and Wildlife Service
Consultation



November 10, 2014

Mr. Scott Larson, Field Supervisor
U.S. Fish and Wildlife Service
North Dakota Field Office
3425 Miriam Avenue
Bismarck, ND 58501-7926

**Plains Pipeline, L.P. – Bison Pipeline Project
Federally Listed Species, USFWS Managed Lands, and Migratory Bird
Consultation**

Plains Pipeline, L.P (Plains) has proposed the construction of the Bison Pipeline (Project). The Project is a new 9.39 mile, 12-inch outside diameter crude oil pipeline that will originate from the Plains Pipeline Van Hook Rail Facility and extends northward to connect with their Robison Lake Facility. The Project is needed to address transportation of growing volumes of crude oil from the Bakken Formation to refining centers in the Midwest and Southwest. Pipeline construction activities would typically occupy a 70-foot right-of-way. Following construction, the pipeline would be operated within a 30-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Site preparation and associated construction activities for the project under consideration would be initiated during the 2nd quarter of 2015, requiring approximately two months to place into service with restoration to immediately follow. To satisfy state siting authority requirements, Plains is providing this project notification for your consideration.

The location of the proposed Project is described below and depicted on the attached maps. The enclosed topographic map and aerial photo depict the Project site and associated Study Area.

In Mountrail County, North Dakota the pipeline crosses:

- Township 152N, Range 91W, Sections 4, 5, 9, 16, 20 and 21
- Township 153N, Range 91W, Sections 23, 26, 27 and 34

The purpose of this request is to provide the U.S. Fish and Wildlife Service (USFWS) with notification of the proposed Project and to share Plains analysis of the environmental topics relevant to the North Dakota Public Service Commission's siting requirements for Energy Conversion Facilities. On November 10, 2014, E3 Environmental, LLC (E3) conducted a web-based consultation using USFWS's Information Planning and Conservation System (IPaC) database, at <http://ecos.fws.gov/ipac>.

Federally Listed Species Analysis:

The results of the search listed the following species to be considered in an effects analysis for the Project:

- Least tern – endangered
- Piping plover – threatened, and designated critical habitat
- Rufa red knot – proposed threatened
- Sprague’s pipit – candidate
- Whooping crane – endangered
- Pallid sturgeon – endangered
- Dakota skipper – threatened, and proposed critical habitat
- Gray wolf – endangered
- Northern long-eared bat – proposed endangered

E3 has reviewed the available data describing the life history, critical habitat, and conservation measures associated with each species to evaluate the potential effects of the Project on these resources. The results of this analysis are as follows:

Least Tern

The interior populations of the Least Tern have historically been associated with large river systems for breeding and migratory habitats. Breeding birds are known to congregate in colonies, utilizing sandbar habitat common to larger rivers. The Least Tern is found in North Dakota during the late spring and summer breeding season (mid-May through late August, with the peak of the nesting season occurring from mid-June to mid-July). Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore, impacts to the Least Tern are not anticipated.

Piping plover

The Piping plover is associated with shorelines along small alkaline lakes, large reservoir beaches, and river islands and adjacent sand pits. Breeding birds select wide beaches with highly clumped vegetation covering less than 25 percent of the area. Breeding season in North Dakota occurs mid-April through August. The Missouri River and Lake Sakakawea, are designated critical habitats for the Piping plover. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore, impacts to the Piping plover or its designated critical habitat are not anticipated.

Rufa red knot

The Rufa red knot migrates between breeding grounds in Canada and wintering grounds in South America. A significant factor threatening the Rufa red knot is destruction and modification of its habitat due to beach erosion and shoreline protection and stabilization projects. Migratory behavior and habitat requirements of this species are poorly understood particularly for those populations occupying the midcontinent flyways. Inland stopovers include the Mississippi Valley, Great Lakes,

and Great Plains. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore impacts to the Rufa red knot are not anticipated.

Sprague's pipit

The Sprague's pipit is a small passerine, 10–15 centimeters in length, endemic to the Northern Great Plains (USFWS, 2010). In North Dakota, the Sprague's pipit breeds throughout the state except for the easternmost counties. During the breeding season, they prefer large patches of well-drained, open, unplowed native grassland with a minimum size of 358.3 acres (range = 170–776 acres). They have not been observed in areas smaller than 71.6 acres on their breeding grounds (USFWS, 2010). Sprague's pipits are sensitive to patch size and avoid edges between grasslands and other habitat features. They may avoid non-grassland features including roads, trails, oil wells, croplands, woody vegetation, and wetlands. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore, impacts to the Sprague's pipit are not anticipated.

Whooping crane

The whooping crane is a large bodied marsh species that breeds primarily in Canada and winters in the Gulf of Mexico. This species has been closely studied and monitored in recent years due to its small population. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. This species prefers larger wetland complexes for roosting habitat, typically using adjacent uplands for foraging opportunities.

Precautionary measures will be implemented if whooping cranes are sighted in or near the Project area. Plains will voluntarily suspend all heavy equipment operation activities and notify the USFWS should a whooping crane be spotted within 0.5 mile of the Project area. Heavy equipment activities will resume upon the departure of the individual(s). The Project under consideration will not result in a loss of crane habitat. The project schedule would avoid typical migration periods coupled with restoration of disturbed areas to their original land use will largely avoid and minimize impacts to this species.

Pallid Sturgeon

The pallid sturgeon's preferred habitat includes the benthic environment associated with swift waters of large turbid, free-flowing rivers with braided channels, dynamic flow patterns, periodic flooding of terrestrial habitats, and requiring extensive micro habitat diversity. The species inhabits the Missouri and Mississippi Rivers from Montana to Louisiana. In North Dakota, reaches of the Missouri River have been cited as providing suitable habitat for the pallid sturgeon. However, there is no suitable sturgeon habitat in the Project area as the Missouri River does not intersect the project corridor; as such, impacts to the pallid sturgeon are not anticipated.

Dakota skipper

Dakota skippers require untilled, high-quality prairie. Habitat preferred by the skipper is wet-mesic prairie with little topographic relief on near-shore glacial lake deposits and in rolling native-prairie terrain over gravelly glacial moraine deposits. Larvae feed

on grasses, favoring little bluestem (*Schizachyrium scoparium*). Adults commonly feed on nectar of flowering native forbs such as harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*). This species is not known to disperse widely and has low mobility, dispersing a maximum of 0.6-mile. The species is threatened by conversion of native prairie to cultivated agriculture or shrublands, over-grazing, invasive species, gravel mining, and inbreeding. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore, impacts to the Dakota skipper are not anticipated.

Gray wolf

The gray wolf is a large carnivore that through conservation measures has experienced strong population recovery, particularly in the Great Lakes states of the upper Midwest. As populations rebound, individuals may break from packs to explore opportunities to establish packs in unoccupied territory. Roaming individuals can cover great distances without establishing viable breeding populations in previously unoccupied habitat(s). This species is not tolerant of human disturbance and will tend to avoid interaction with humans. The activities associated with construction and later plant operations would likely serve as a deterrent to this species. Therefore, this Project will have no impact on the gray wolf.

Northern long-eared bat

The northern long-eared bat roost underneath bark, in cavities, or in crevices of both live and dead trees. Populations have also been found in cool environments such as caves and mines and prefer to spend winter hibernating in locations with high humidity and no air currents. Breeding occurs in late summer or early fall in maternity colonies where females give birth around the same time, which may occur anywhere from late May to late July. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore, impacts to the northern long-eared bat are not anticipated.

USFWS Managed Lands:

Conservation programs such as Waterfowl Production Areas and wetland and grassland easements represent an important tool used by USFWS to identify and manage high quality wildlife habitat. A review of public records failed to identify any of these USFWS managed lands in the Project study area. Plains requests that USFWS notify Plains of any USFWS managed lands located within the proposed Project area.

Migratory Bird Consultation:

USFWS administers various wildlife related mandates of national concern including the Migratory Bird Treaty Act (MBTA). Plains understands that unlike the Endangered Species Act, the MBTA has no provisions for the allowance of a take and therefore compliance may best be achieved by avoiding or minimizing the potential to interact with migratory species during the active breeding season. Plains also understands that in North Dakota, the breeding season is typically defined as occurring annually from February 1 through July 15.

Plains Pipeline, L.P.
Bison Pipeline Project
November 10, 2014



E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

In recognition of these facts, Plains has proposed to initiate construction during the 2nd quarter of 2015, requiring approximately two months to complete. The proposed project schedule would overlap with the 2015 breeding season; however Plains would implement its MBTA Conservation Plan to avoid impacts to breeding birds. Conservation measures would include such actions as habitat manipulation (e.g. brushing and/or topsoiling); physical screening for presence/absence of breeding birds; and buffering of active nest sites. Furthermore, construction activities one initiated would serve as an effective deterrent for breeding birds.

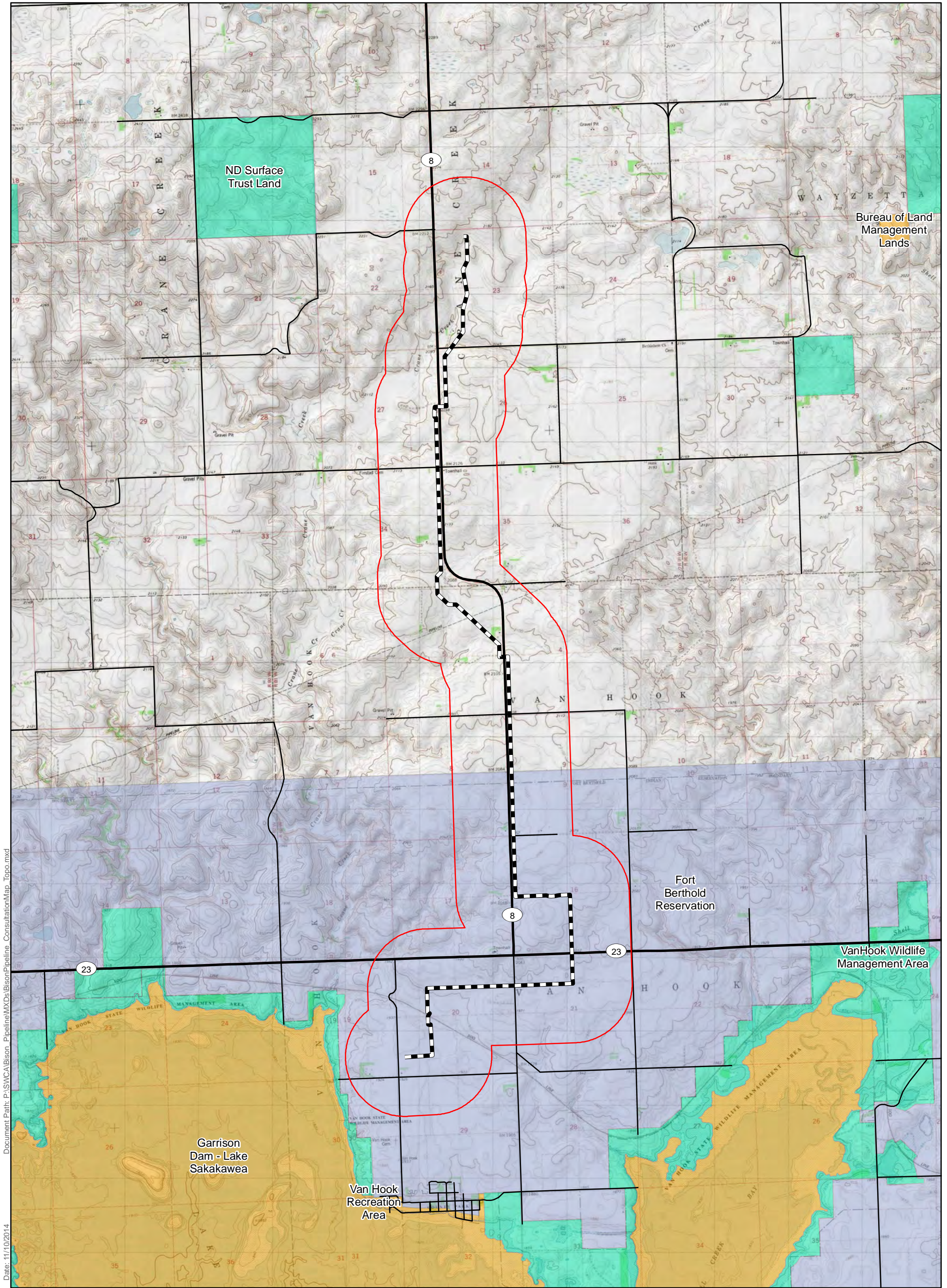
In closing, E3 has been retained by SWCA Environmental Consultants to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Sincerely,

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures: Project Map – USGS topographic
Project Map - Aerial photography

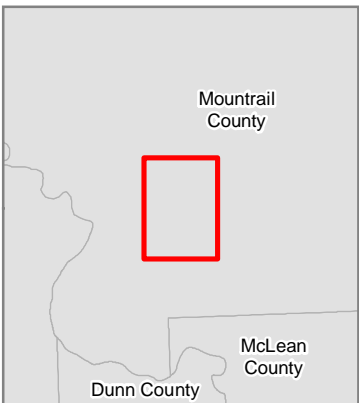
cc: E3 Project Files



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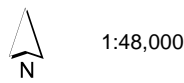
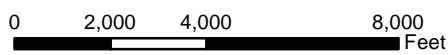
Date: 11/10/2014

Author: LDanielson



Legend

- Centerline
- Corridor (1 Mile)
- Federal Land
- Native American Land
- State Land



Map not to scale, for environmental review purposes only.

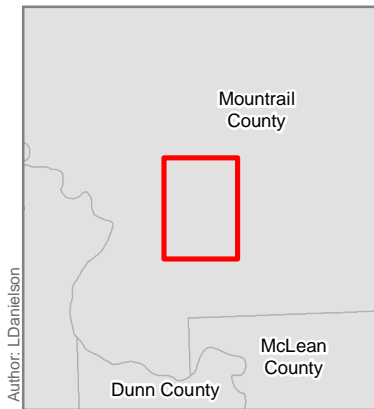
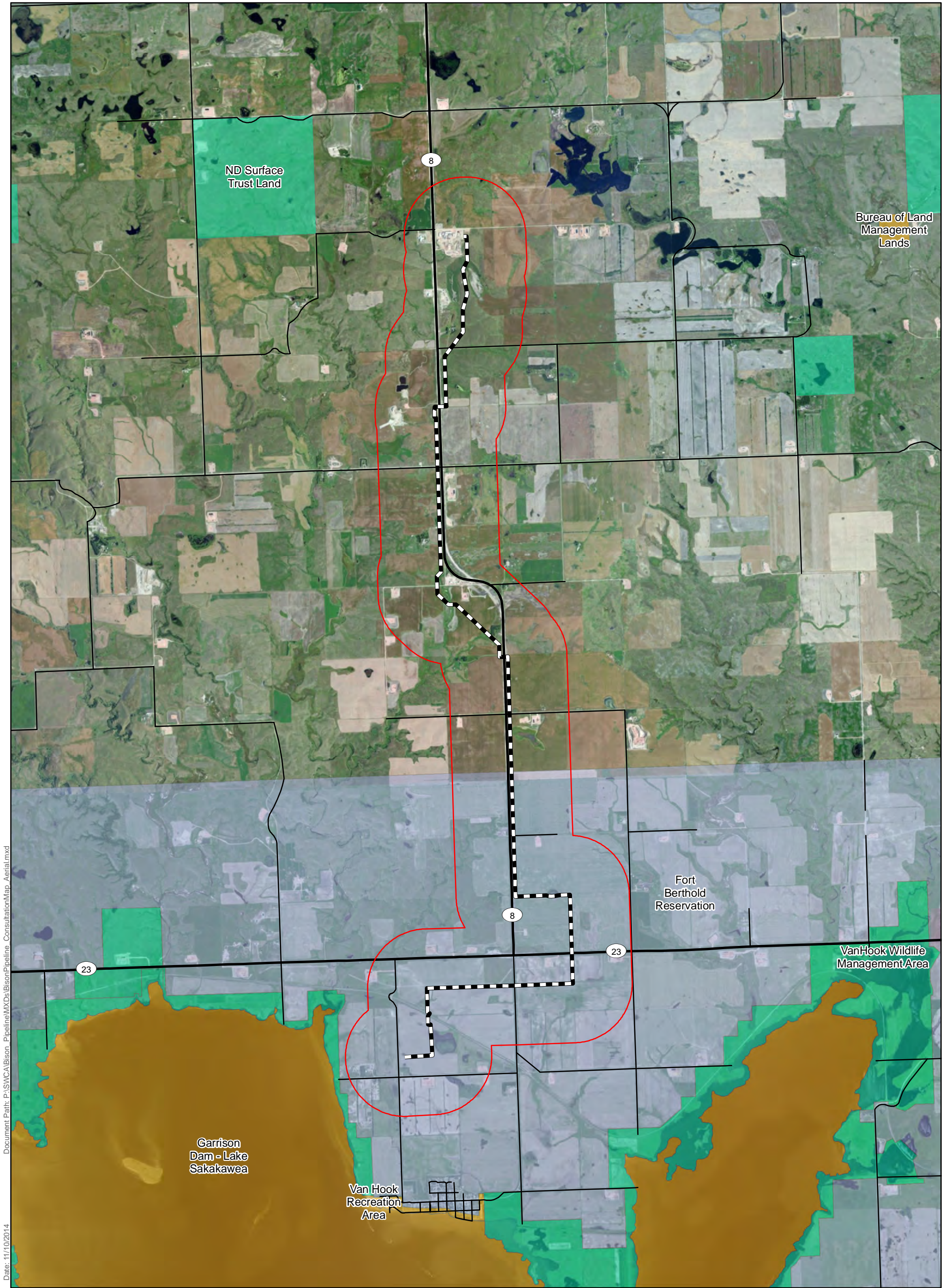
Plains Pipeline, L.P.

Bison Pipeline

Consultation Map - Topo

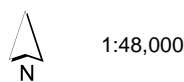
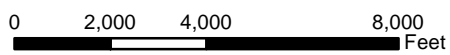
Mountrail County, North Dakota

Document Path: P:\SWCA\Bison_Pipeline\MXD\BisonPipeline_ConsultationMap_Aerial.mxd
Date: 11/10/2014



Legend

- Centerline
- Corridor (1 Mile)
- Federal Land
- Native American Land
- State Land



Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.

Bison Pipeline

Consultation Map - Aerial

Mountrail County, North Dakota

Author: LDanielson

North Dakota Game and Fish Department

Consultation



November 10, 2014

Mr. Greg Link, Chief
Conservation and Communication Division
North Dakota Game and Fish Department
100 N. Bismarck Expressway
Bismarck, ND 58501-5095

**Plains Pipeline, L.P. – Bison Pipeline Project
State Conservation Priority Species Consultation, State Plots Land Review**

Plains Pipeline, L.P (Plains) has proposed the construction of the Bison Pipeline (Project). The Project is a new 9.39 mile, 12-inch outside diameter crude oil pipeline that will originate from the Plains Pipeline Van Hook Rail Facility and extends northward to connect with their Robison Lake Facility. The Project is needed to address transportation of growing volumes of crude oil from the Bakken Formation to refining centers in the Midwest and Southwest. Pipeline construction activities would typically occupy a 70-foot right-of-way. Following construction, the pipeline would be operated within a 30-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Site preparation and associated construction activities for the project under consideration would be initiated during the 2nd quarter of 2015, requiring approximately two months to place into service with restoration to immediately follow. To satisfy state siting authority requirements, Plains is providing this project notification for your consideration.

The purpose of this correspondence is twofold: to afford the North Dakota Game and Fish Department (Department) the opportunity to assess the Project and associated Study Area for the presence or absence of State Conservation Priority Species; and to assess the Project and associated Study Area for the presence or absence of Department managed PLOTS Lands.

The location of the proposed Project is described below and depicted on the attached maps. The enclosed topographic map and aerial photo depict the Project site and associated Study Area. These have been provided to assist the Department's review of the Project.

In Mountrail County, North Dakota the pipeline crosses:

- Township 152N, Range 91W, Sections 4, 5, 9, 16, 20 and 21
- Township 153N, Range 91W, Sections 23, 26, 27 and 34

In closing, E3 Environmental, LLC (E3) has been retained by SWCA Environmental Consultants to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Plains Pipeline, L.P.
Bison Pipeline Project
November 10, 2014



E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

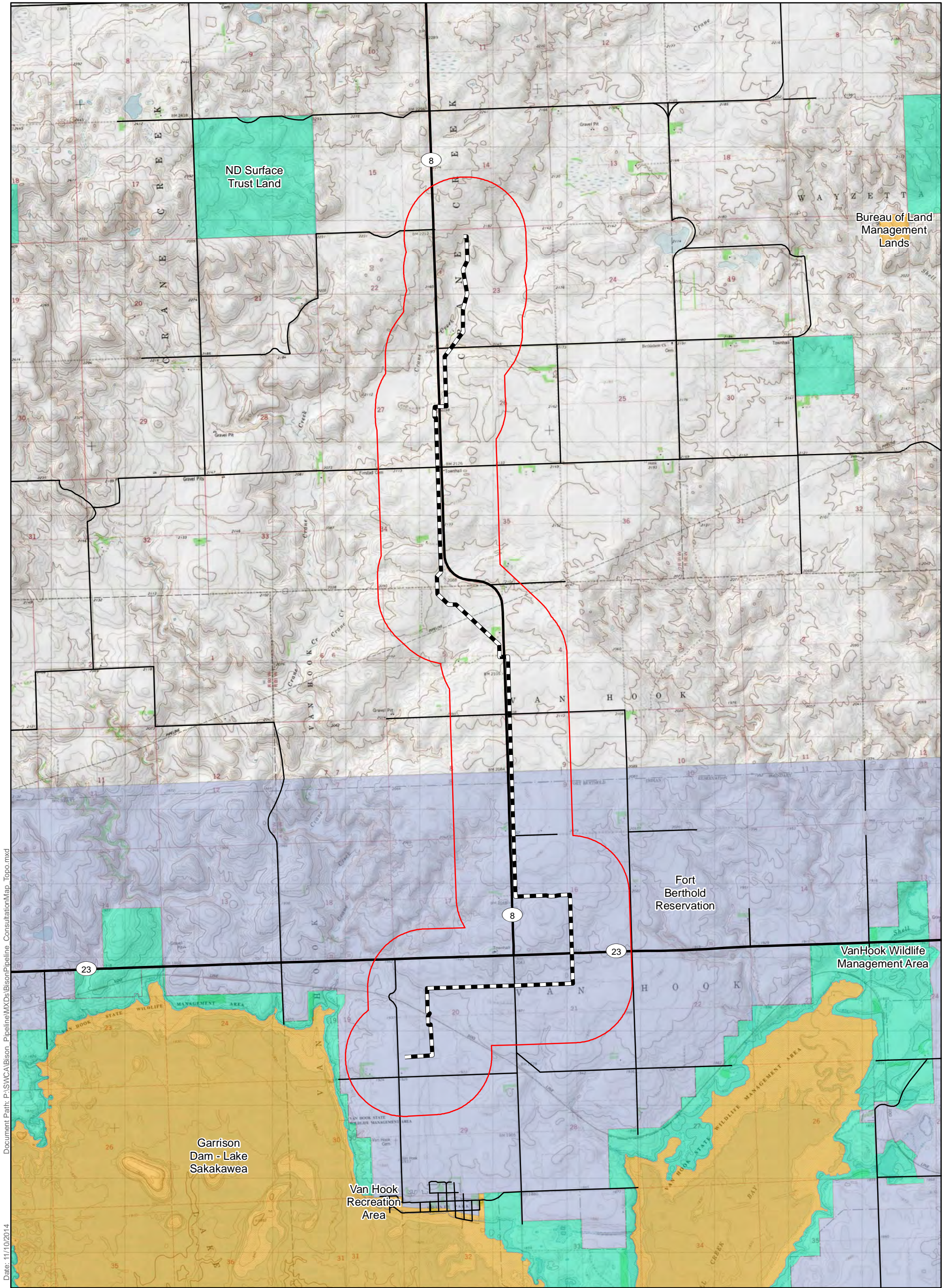
Sincerely,

A handwritten signature in black ink that reads "Katie Schmidt". The signature is fluid and cursive.

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures: Project map – USGS topographic
Project map – Aerial photograph

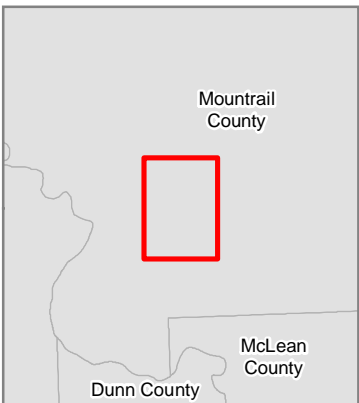
cc: E3 Project Files



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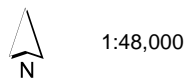
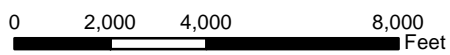
Date: 11/10/2014

Author: LDanielson



Legend

- Centerline
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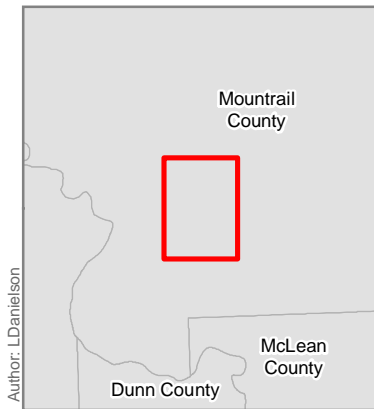
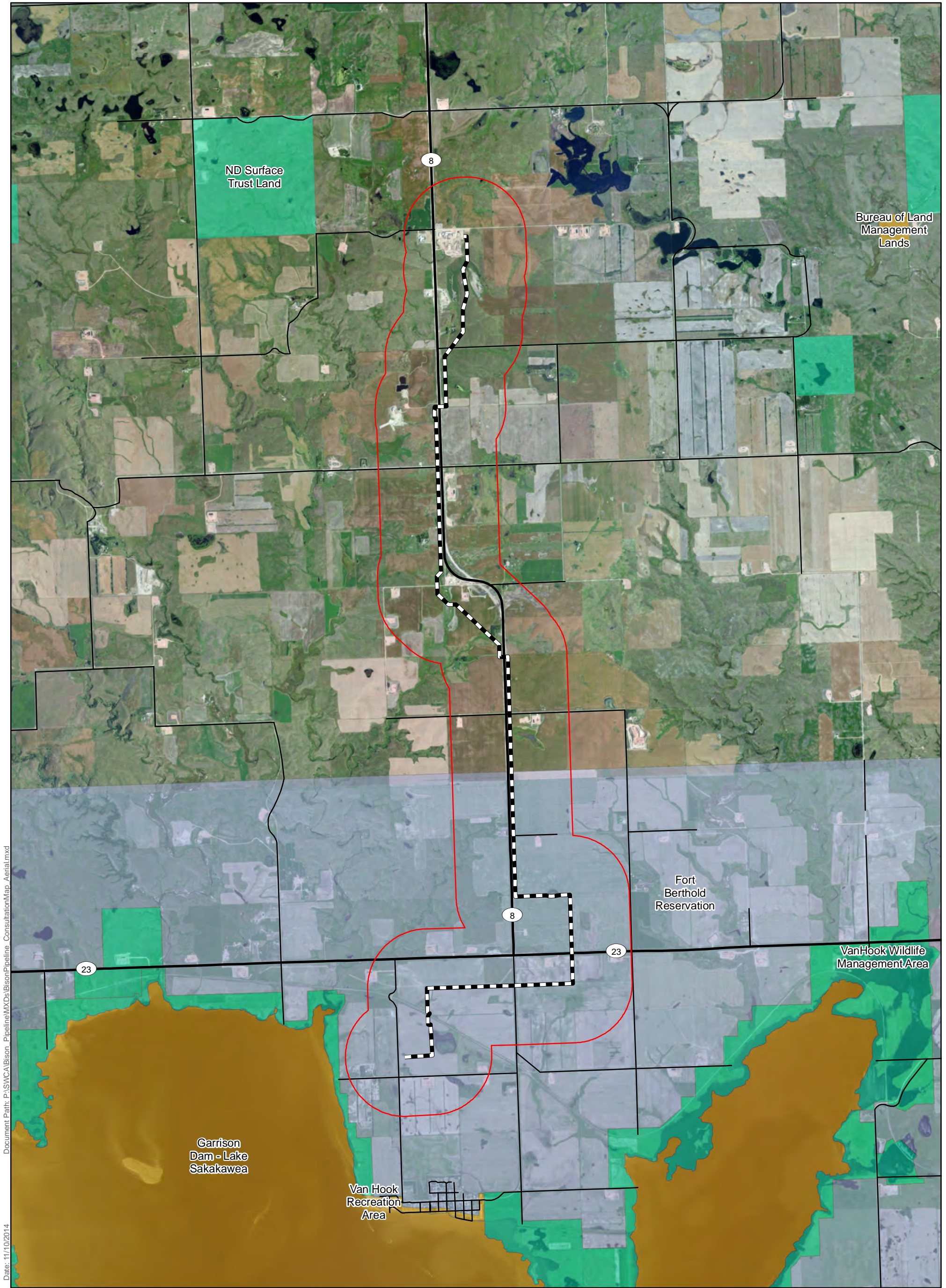
Plains Pipeline, L.P.

Bison Pipeline

Consultation Map - Topo

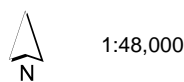
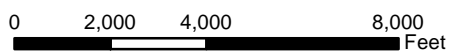
Mountrail County, North Dakota

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Date: 11/10/2014



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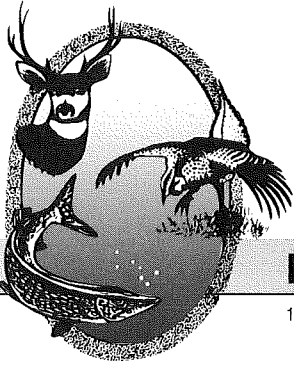
Plains Pipeline, L.P.

Bison Pipeline

Consultation Map - Aerial

Mountrail County, North Dakota

Author: LDanielson



"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

December 5, 2014

Katie Schmidt
Senior Consultant
E3 Environmental, LLC
871 Jefferson Avenue
St. Paul, MN 55102

Dear Ms. Schmidt:

RE: Plains Pipeline, L.P. — Bison Pipeline Project

Plains Pipeline, L.P. has proposed the construction of the Bison Pipeline, a new 9.39-mile 12-inch outside diameter crude oil pipeline that will originate from the Plains Pipeline Van Hook Rail Facility and extend northward to connect with their Robison Lake Facility. The ND Game and Fish Department (NDGF) has reviewed this project for wildlife concerns.

A primary concern with this project is the possible disturbance of native prairie and wooded draws associated with construction of the pipeline and access roads. We ask that work within these areas be avoided to the extent possible, every effort be made to prevent destruction of woody vegetation, and disturbed areas be reclaimed to pre-project conditions.

The National Wetland Inventory indicates various wetlands within the proposed project corridor. Steps should be taken to protect any wetlands that cannot be avoided, no alterations should be made to existing drainage patterns, and above-ground appurtenances should not be placed in wetland areas.

We do not believe this project will have significant adverse effects on wildlife or wildlife habitat, including species of conservation priority, provided these recommendations are implemented where appropriate.

Private Lands Open to Sportsmen (PLOTS) is a public access program which cost-shares with private landowners to help conserve fish and wildlife habitat. PLOTS lands are not owned or managed by the NDGF. Information regarding PLOTS locations is available at: <http://gf.nd.gov/hunting/private-land-open-sportsmen>. This page is updated to reflect changes as tracts are added or removed.

Sincerely,

A handwritten signature in black ink, appearing to read "Greg Link". The signature is stylized and cursive.

Greg Link
Chief

Conservation & Communication Division

js

North Dakota Parks and Recreation Department

Consultation



November 10, 2014

Ms. Kathy Duttonhefner, Coordinator
Natural Resources Division
North Dakota Department of Parks and Recreation
1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649

**Plains Pipeline, L.P. – Bison Pipeline Project
Natural Heritage Inventory Review
State Park Lands; and Land and Water Conservation Fund Review**

Plains Pipeline, L.P (Plains) has proposed the construction of the Bison Pipeline (Project). The Project is a new 9.39 mile, 12-inch outside diameter crude oil pipeline that will originate from the Plains Pipeline Van Hook Rail Facility and extends northward to connect with their Robison Lake Facility. The Project is needed to address transportation of growing volumes of crude oil from the Bakken Formation to refining centers in the Midwest and Southwest. Pipeline construction activities would typically occupy a 70-foot right-of-way. Following construction, the pipeline would be operated within a 30-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Site preparation and associated construction activities for the project under consideration would be initiated during the 2nd quarter of 2015, requiring approximately two months to place into service with restoration to immediately follow. To satisfy state siting authority requirements, Plains is providing this project notification for your consideration.

The purpose of this request is to provide the North Dakota Parks and Recreation Department's (Department) notice of the Project such that the environmental topics that fall under the purview of the Department that are also relevant to the North Dakota Public Service Commission's siting requirements for Energy Conversion facilities are administrated properly. It is our understanding that the Department administers the following state programs:

- State Park Lands
- Land and Water Conservation Fund
- Natural Heritage Inventory

The location of the proposed Project is described below and depicted on the attached maps. The enclosed topographic map and aerial photo depict the Project site and associated Study Area. These have been provided to assist the Department's review of the Project for the presence or absence of any lands, projects, and sensitive species.

In Mountrail County, North Dakota the pipeline crosses:

- Township 152N, Range 91W, Sections 4, 5, 9, 16, 20 and 21
- Township 153N, Range 91W, Sections 23, 26, 27 and 34

Plains Pipeline, L.P.
Bison Pipeline Project
November 10, 2014



E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

In closing, E3 Environmental, LLC has been retained by SWCA Environmental Consultants to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

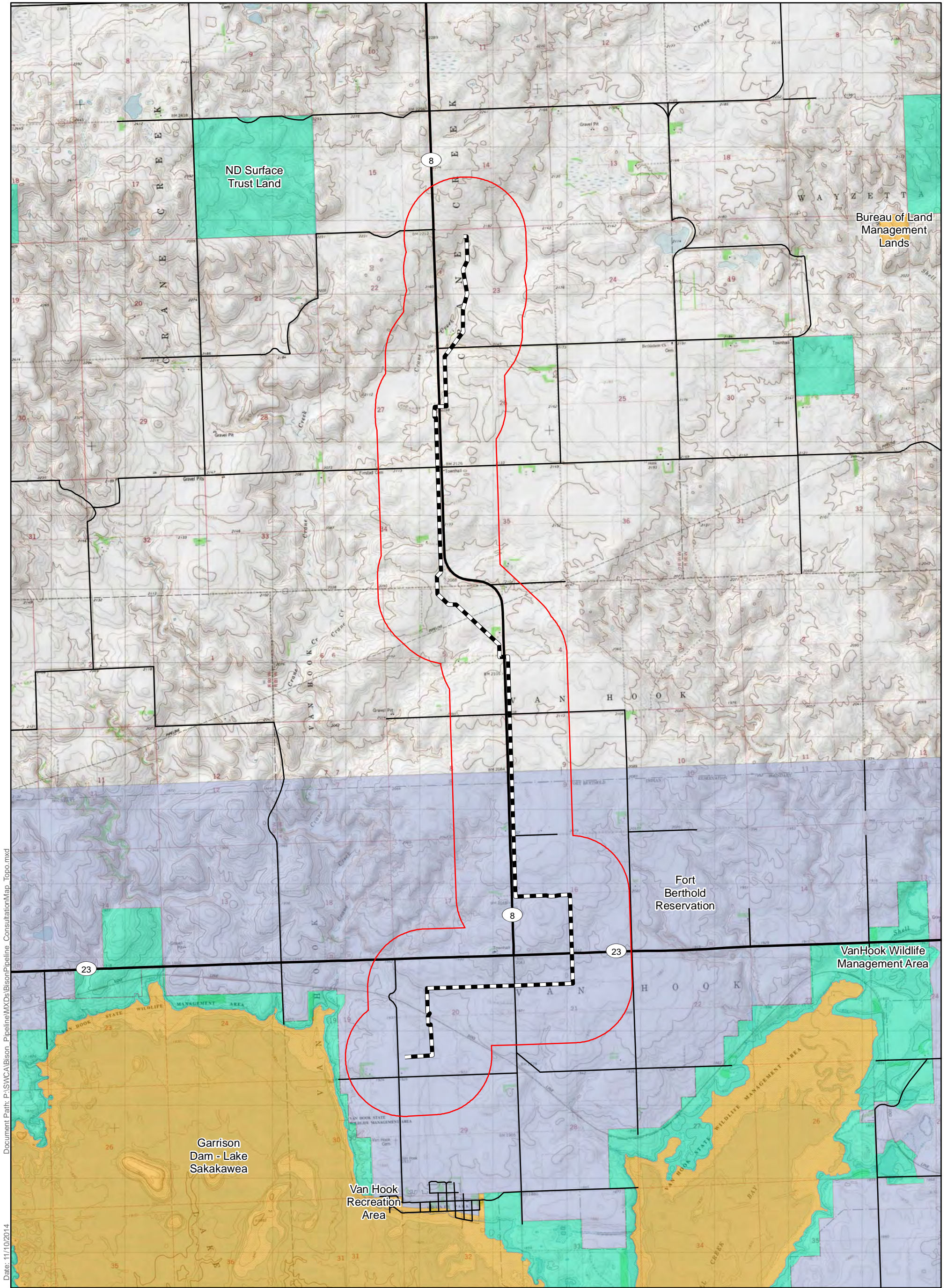
Sincerely,

Katie Schmitt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures: Project Map – USGS topographic
Project Map – Aerial photograph

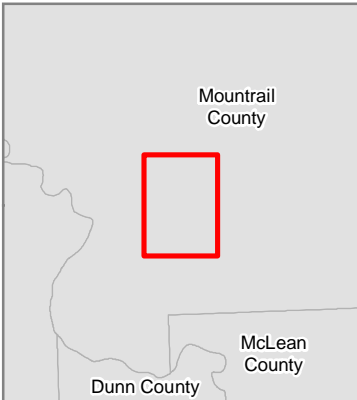
cc: E3 Project Files



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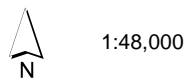
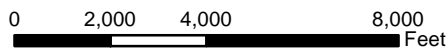
Date: 11/10/2014

Author: LDanielson



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- Centerline
- Corridor (1 Mile)
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- Native American Land
- State Land



Map not to scale, for environmental review purposes only.

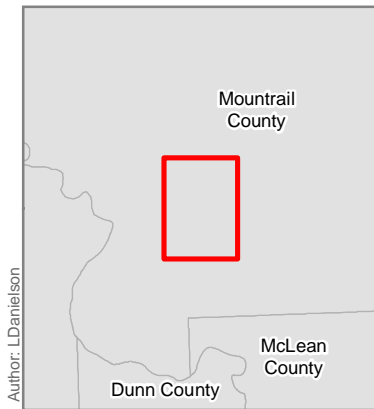
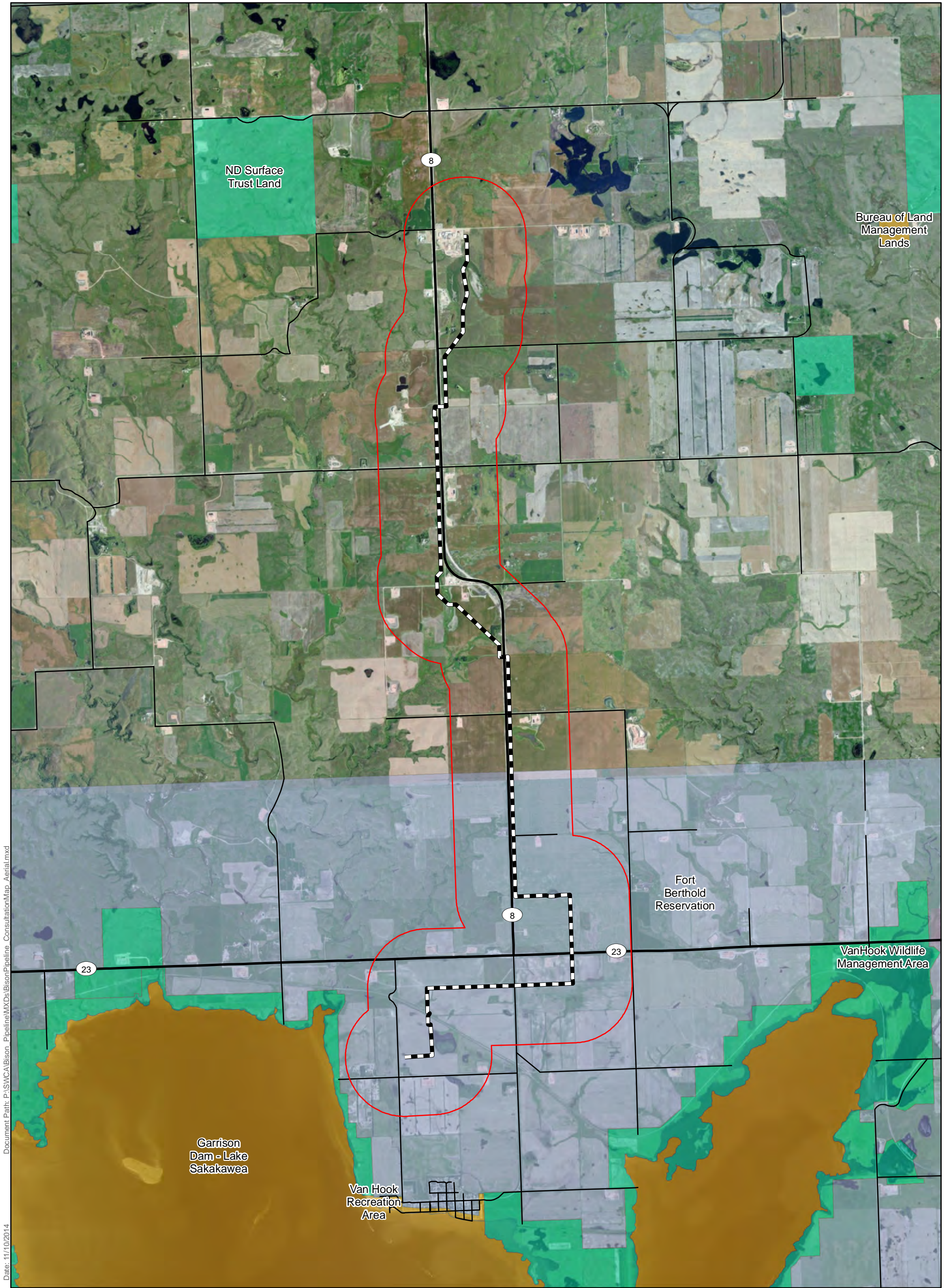
Plains Pipeline, L.P.

Bison Pipeline

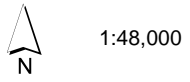
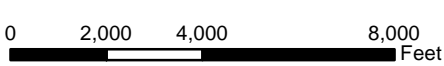
Consultation Map - Topo

Mountrail County, North Dakota

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Date: 11/10/2014



- Legend**
- Centerline
 - Corridor (1 Mile)
 - Federal Land
 - Native American Land
 - State Land



Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.
Bison Pipeline
Consultation Map - Aerial
Mountrail County, North Dakota

Author: LDanielson



Jack Dalrymple, Governor
Mark A. Zimmerman, Director
1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649
Phone 701-328-5357
Fax 701-328-5363
E-mail parkrec@nd.gov
www.parkrec.nd.gov

December 10, 2014

Katie Schmitt
E3 Environmental, LLC
871 Jefferson Ave.
St. Paul, MN 55102

Re: Plains Pipeline, LP – Bison Pipeline Project

Dear Ms. Schmitt:

The North Dakota Parks and Recreation Department (the Department) has reviewed the above referenced project for the proposed construction of the Bison Pipeline project in Mountrail County, North Dakota.

Our agency scope of authority and expertise covers recreation and biological resources (in particular rare plants and ecological communities). The project as defined does not affect state park lands that we manage or Land and Water Conservation Fund recreation projects that we coordinate.

The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, there are no documented occurrences in our database within project area. Because this information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

The Department recommends that the project be accomplished with minimal impacts and that all efforts be made to ensure that critical habitats not be disturbed in the project area to help secure rare species conservation in North Dakota. Regarding any reclamation efforts, we recommend that any impacted areas be revegetated with species native to the project area.

It is our policy to charge for data services including data retrieval, data analysis, manual and computer searches, packaging and collection of data. An invoice for services provided has been enclosed.

We appreciate your commitment to rare plant, animal and ecological community conservation, management and inter-agency cooperation to date. For additional information please contact me at (701-328-5370 or kgduttonhefner@nd.gov). Thank you for the opportunity to comment on this proposed project.

Sincerely,

Kathy Duttonhefner

Kathy Duttonhefner, Coordinator
Natural Resources Division

R.USNDNHI*2014-202KD12/10/2014KD12/10/2014

• • • • •
Play in our backyard!

North Dakota Department of Trust Lands – Surface Management

Consultation



November 10, 2014

Mr. Michael Haupt, Land Management Professional
North Dakota Department of Trust Lands
Surface Management Division
1707 North 9th Street, P.O. Box 5523
Bismarck, ND 58506-5523

**Plains Pipeline, L.P. – Bison Pipeline Project
School Trust Lands Consultation**

Plains Pipeline, L.P (Plains) has proposed the construction of the Bison Pipeline (Project). The Project is a new 9.39 mile, 12-inch outside diameter crude oil pipeline that will originate from the Plains Pipeline Van Hook Rail Facility and extends northward to connect with their Robison Lake Facility. The Project is needed to address transportation of growing volumes of crude oil from the Bakken Formation to refining centers in the Midwest and Southwest. Pipeline construction activities would typically occupy a 70-foot right-of-way. Following construction, the pipeline would be operated within a 30-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Site preparation and associated construction activities for the project under consideration would be initiated during the 2nd quarter of 2015, requiring approximately two months to place into service with restoration to immediately follow. To satisfy state siting authority requirements, Plains is providing this project notification for your consideration.

The purpose of this correspondence is to request a review of the Project and associated Study Area (see attached) for the presence or absence of State School Trust Lands. This information will be included in a North Dakota Public Service Commission application for the Project.

The location of the proposed Project is described below and depicted on the attached maps. The enclosed topographic map and aerial photo depict the Project site and associated Study Area. These have been provided to assist the Department's review of the Project.

In Mountrail County, North Dakota the pipeline crosses:

- Township 152N, Range 91W, Sections 4, 5, 9, 16, 20 and 21
- Township 153N, Range 91W, Sections 23, 26, 27 and 34

In closing, E3 Environmental, LLC has been retained by SWCA Environmental Consultants to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Plains Pipeline, L.P.
Bison Pipeline Project
November 10, 2014



E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

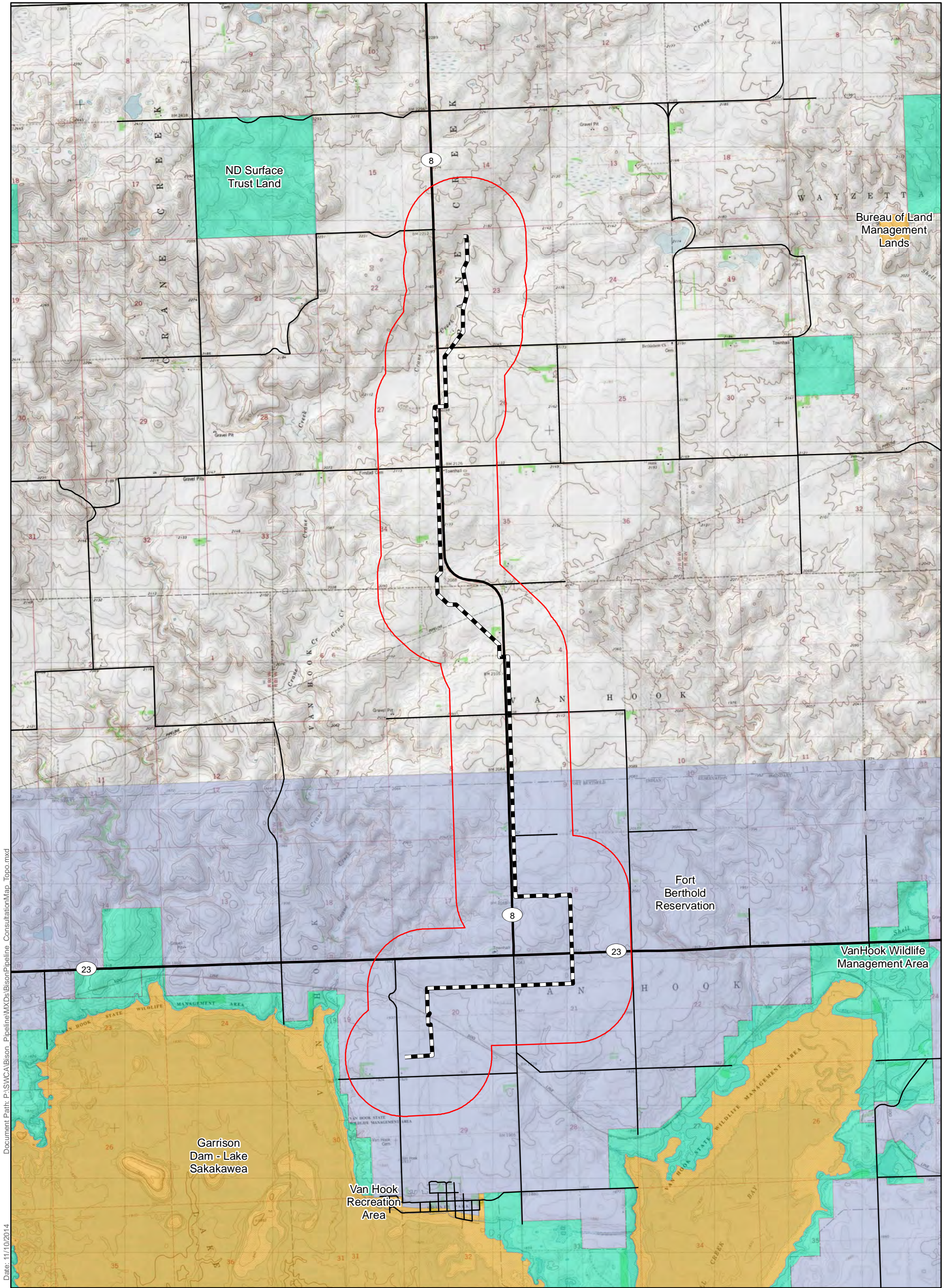
Sincerely,

A handwritten signature in black ink that reads "Katie Schmidt".

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures: Project Map – USGS topographic
Project Map – Aerial photograph

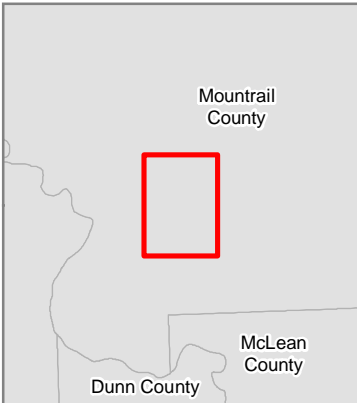
cc: E3 Project Files



Document Path: P:\SWCA\Bison_Pipeline\MXD\BisonPipeline_ConsultationMap_Topo.mxd

Date: 11/10/2014

Author: LDanielson



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- Centerline
- Corridor (1 Mile)
- Federal Land
- Native American Land
- State Land

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Map not to scale, for environmental review purposes only.

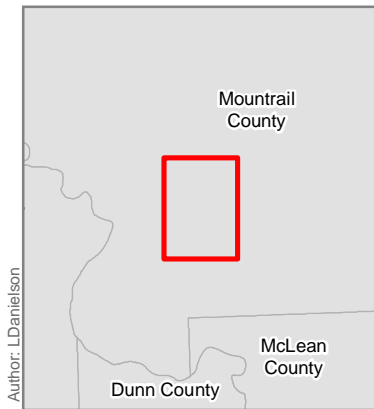
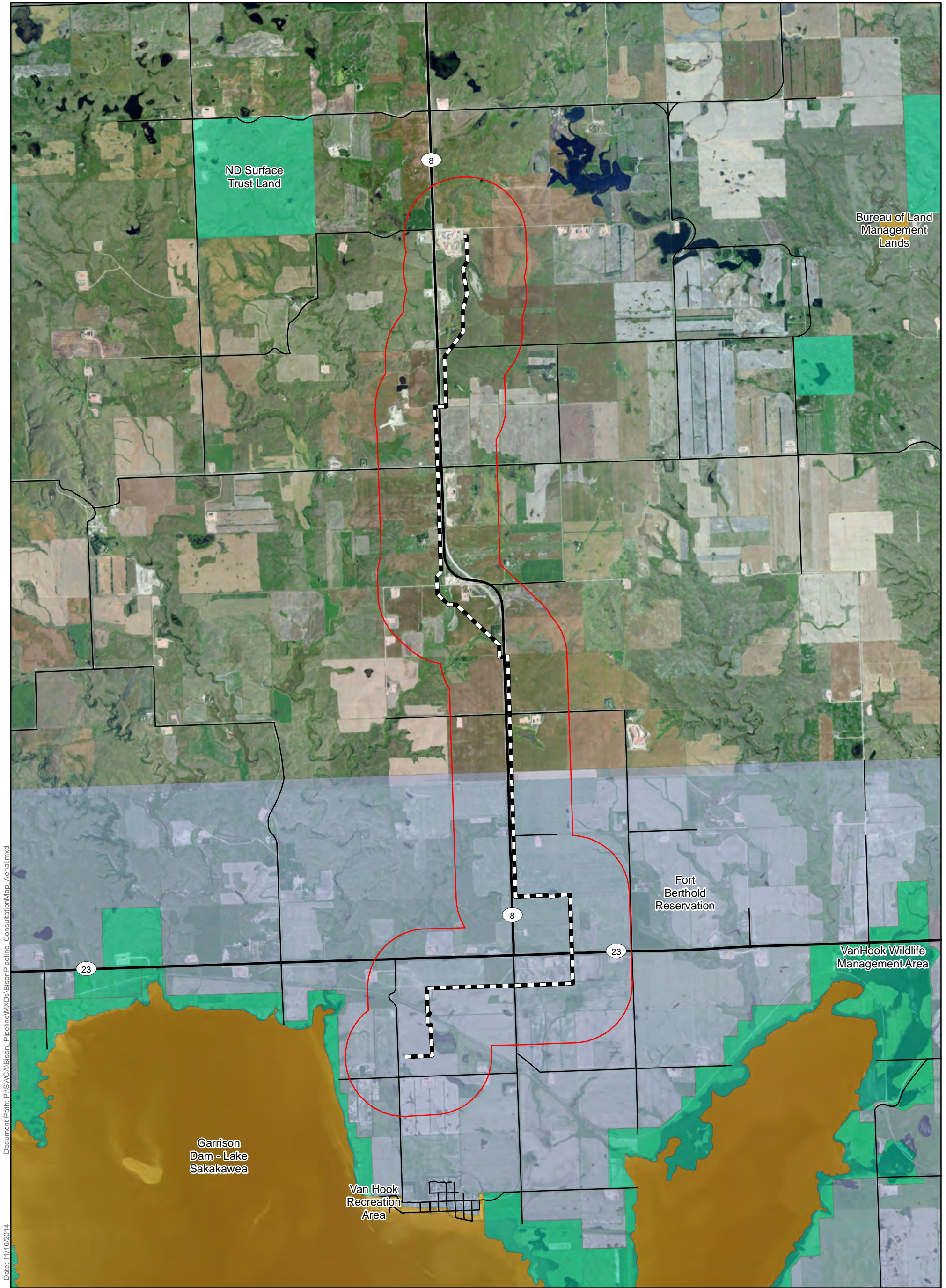
Plains Pipeline, L.P.

Bison Pipeline

Consultation Map - Topo

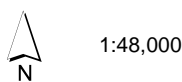
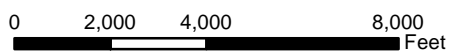
Mountrail County, North Dakota

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Date: 11/10/2014



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- State Land



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Plains Pipeline, L.P.

Bison Pipeline

Consultation Map - Aerial

Mountrail County, North Dakota

Author: LDanielson

From: [Haupt, Michael L.](#)
To: [Melissa Schmit](#)
Cc: [Katie Schmidt](#)
Subject: RE: Plains Pipeline, L.P. - Bison Pipeline Project & School Trust Lands Consultation
Date: Thursday, November 13, 2014 7:41:40 AM
Attachments: [image001.png](#)

Melissa,

Good morning! It appears there is no ND School Trust land involved in this project. Thanks.

Michael L. Haupt

Land Management Professional, CPRM
North Dakota Department of Trust lands
1707 Nth 9th Street
Bismarck ND 58506-5523
701-328-1916
mhaupt@nd.gov

Note: You can track the real time status of your right-of-way application 24/7 at <http://www.land.nd.gov/surface/right-of-way.aspx> using either the ROW number or by entering at least the first three letters of the company name. By checking this site you can find the name, telephone number and email address of the person working on the application as well as its current status in real time.

From: Melissa Schmit [mailto:MSchmit@go2e3.com]
Sent: Tuesday, November 11, 2014 9:18 AM
To: Haupt, Michael L.
Cc: Katie Schmidt
Subject: RE: Plains Pipeline, L.P. - Bison Pipeline Project & School Trust Lands Consultation

Dear Mr. Haupt:

E3 Environmental, LLC has been retained by SWCA Environmental Consultants to provide environmental consulting support for the Bison Pipeline Project (see attached). For your convenience, E3 is submitting an electronic copy of the project notification letter and maps to assist in your review of the Project.

Please let me know if I can be of further assistance, or if you have any questions or concerns regarding the attached files.

Thank you for your time and consideration.

Sincerely,

Melissa Schmit
Consultant

E3 Environmental, LLC
mschmit@go2e3.com
O: 651.282.0656
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com



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North Dakota Department of Trust Lands – Minerals Management

Consultation



November 10, 2014

Mr. Keith Bayley, Land Professional
North Dakota Department of Trust Lands
Mineral Management Division
1707 North 9th Street, P.O. Box 5523
Bismarck, ND 58506-5523

**Plains Pipeline, L.P. – Bison Pipeline Project
State Mineral Trust Lands Consultation**

Plains Pipeline, L.P (Plains) has proposed the construction of the Bison Pipeline (Project). The Project is a new 9.39 mile, 12-inch outside diameter crude oil pipeline that will originate from the Plains Pipeline Van Hook Rail Facility and extends northward to connect with their Robison Lake Facility. The Project is needed to address transportation of growing volumes of crude oil from the Bakken Formation to refining centers in the Midwest and Southwest. Pipeline construction activities would typically occupy a 70-foot right-of-way. Following construction, the pipeline would be operated within a 30-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Site preparation and associated construction activities for the project under consideration would be initiated during the 2nd quarter of 2015, requiring approximately two months to place into service with restoration to immediately follow. To satisfy state siting authority requirements, Plains is providing this project notification for your consideration.

The location of the proposed Project is described below and depicted on the attached maps. The enclosed topographic map and aerial photo depict the Project site and associated Study Area.

In Mountrail County, North Dakota the pipeline crosses:

- Township 152N, Range 91W, Sections 4, 5, 9, 16, 20 and 21
- Township 153N, Range 91W, Sections 23, 26, 27 and 34

A review of the Project and associated Study Area (see attached) for the presence of State Mineral Trust Lands was conducted using available information at www.land.nd.gov. The results of this search concluded that Township 152N, Range 91W, Sections 8, 9, 16, 17, 20, 21 and Township 153N, Range 91W, Sections 23 and 27 intersect State Lands in Mountrail County, which fall within the Study Area of the Project. The enclosed topographic map depicts the Project site and associated Study Area, and State Mineral Trust Lands within the Study Area. This has been provided to assist the Department's review of the Project.

The purpose of this correspondence is to seek your concurrence with this analysis. This information will be included in a North Dakota Public Service Commission



application for the project. For your convenience, an electronic copy of this letter, attached map, and shapefiles have been submitted concurrently with this mailing.

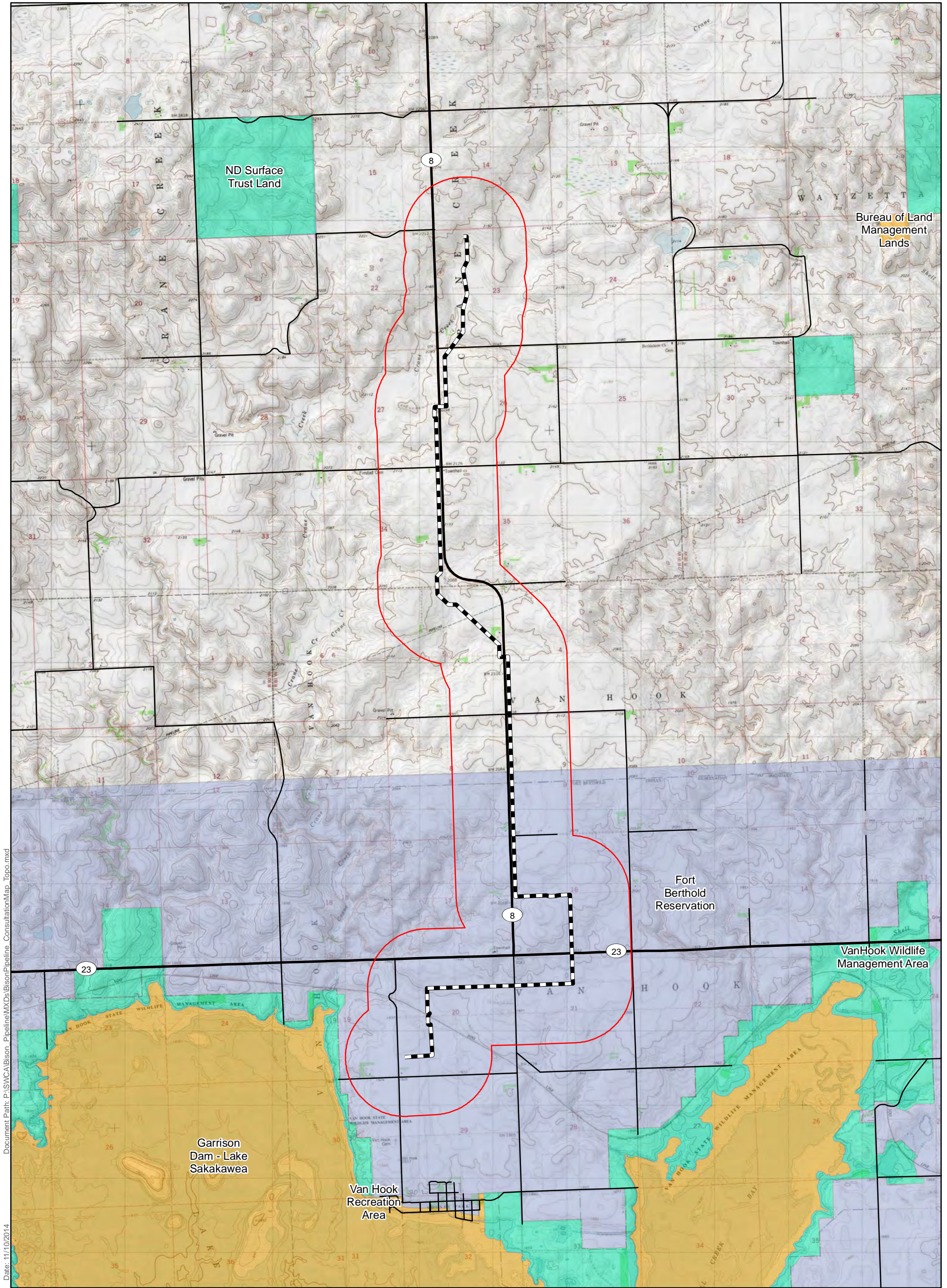
In closing, E3 Environmental, LLC has been retained by SWCA Environmental Consultants to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Sincerely,

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures: Project Map – USGS topographic
Project Map – Aerial photograph
Project Map – Mineral Trust Land Overview

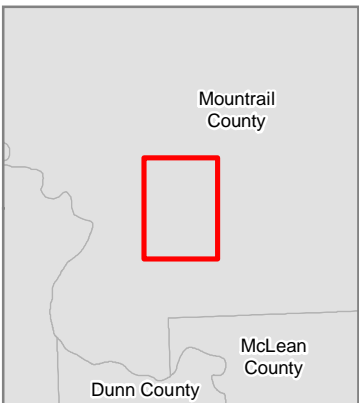
cc: E3 Project Files



Document Path: P:\SWCA\Bison_Pipeline\MXD\BisonPipeline_ConsultationMap_Topo.mxd

Date: 11/10/2014

Author: LDanielson



Legend

- Centerline
- Corridor (1 Mile)
- Federal Land
- Native American Land
- State Land

E3 ENVIRONMENTAL
Enhancing Execution with Experience

0 2,000 4,000 8,000 Feet

1:48,000

Map not to scale, for environmental review purposes only.

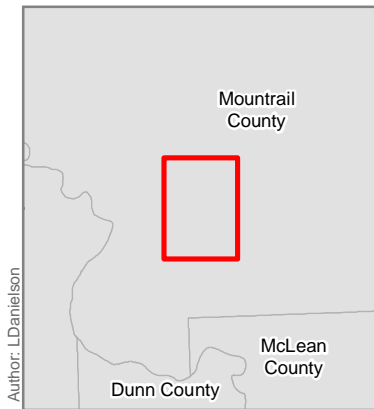
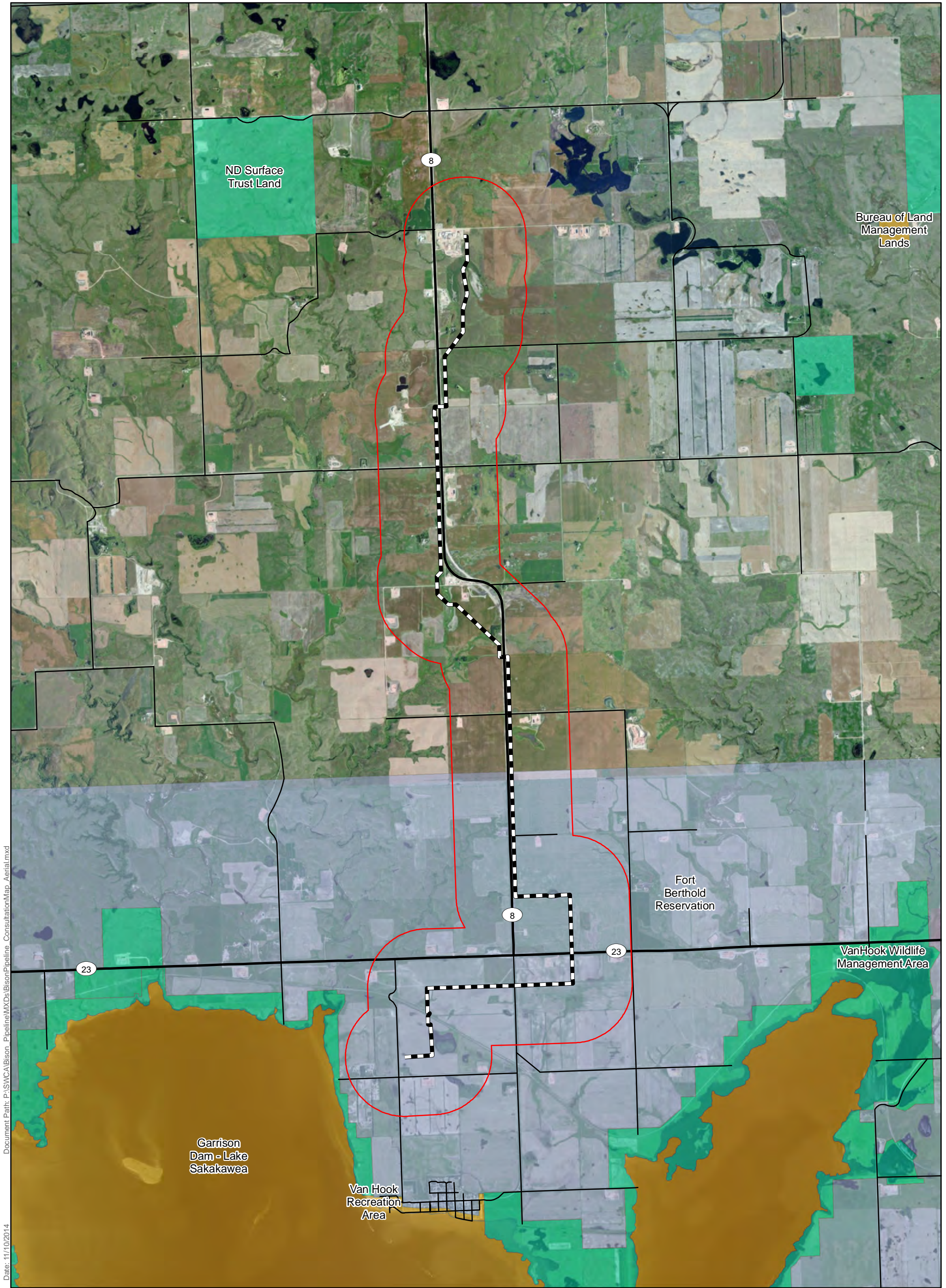
Plains Pipeline, L.P.

Bison Pipeline

Consultation Map - Topo

Mountrail County, North Dakota

Document Path: P:\SWCA\Bison_Pipeline\MXD\BisonPipeline_ConsultationMap_Aerial.mxd
Date: 11/10/2014



Legend

- Centerline
- Corridor (1 Mile)
- Federal Land
- Native American Land
- State Land

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0 2,000 4,000 8,000 Feet

1:48,000

Map not to scale, for environmental review purposes only.

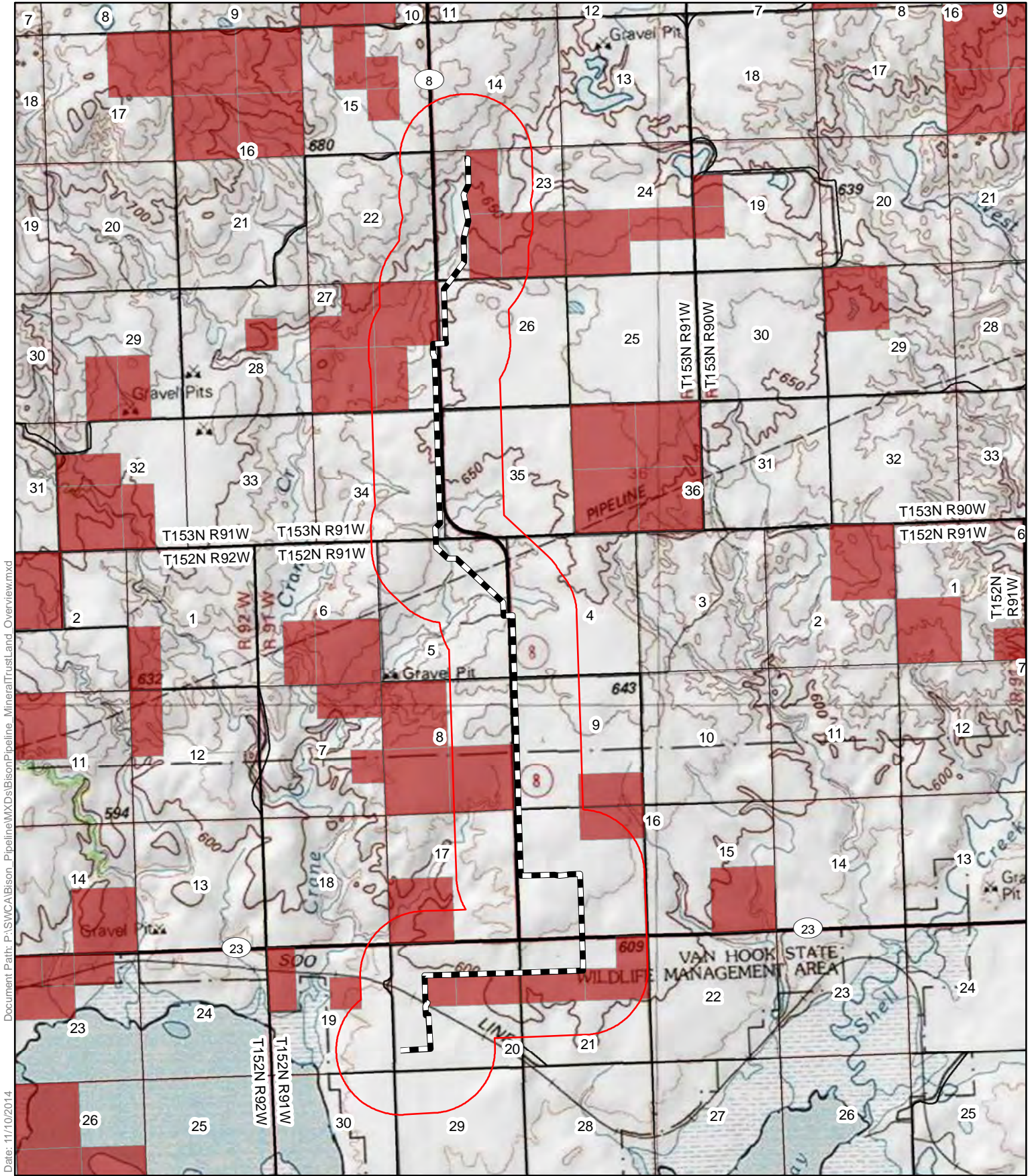
Plains Pipeline, L.P.

Bison Pipeline

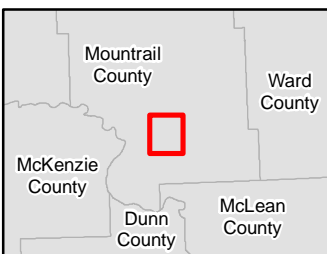
Consultation Map - Aerial




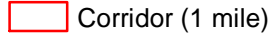
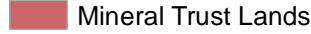
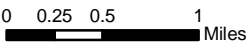
Mountrail County, North Dakota

Author: LDanielson



Document Path: P:\SWCA\Bison_Pipeline\MXD\BisonPipeline_MineralTrustLand_Overview.mxd
 Date: 11/10/2014
 Author: LDanielson



	Pipeline	  ES ENVIRONMENTAL <small>Evaluating. Executing. with Experience.</small>
	Corridor (1 mile)	
	Mineral Trust Lands	
 1:63,360		
Map not to scale, for environmental review purposes only		

**Plains All American
 Pipeline, LP**
 Bison Pipeline Project
 Mineral Trust Lands Overview
 Mountrail County,
 North Dakota

From: [Bement, Allisen C.](#)
To: [Melissa Schmit](#)
Cc: [Katie Schmidt](#)
Subject: RE: Plains Pipeline, L.P. - Bison Pipeline Project & Mineral Trust Lands Consultation
Date: Wednesday, November 12, 2014 10:05:55 AM
Attachments: [image001.png](#)

Melissa,

We agree that the data provided fairly represents the approximate location of the pipeline route as indicated by E3 Environmental and the proximity of mineral interests managed by this office to that pipeline, for use in a filing with the PSC in the state of North Dakota.

Allisen Bement

Land Professional
ND Department of Trust Lands
701.328.1952
abement@nd.gov

From: Melissa Schmit [mailto:MSchmit@go2e3.com]
Sent: Tuesday, November 11, 2014 9:12 AM
To: Bayley, Keith W.
Cc: Katie Schmidt; Bement, Allisen C.
Subject: RE: Plains Pipeline, L.P. - Bison Pipeline Project & Mineral Trust Lands Consultation

Dear Mr. Bayley:

E3 Environmental, LLC has been retained by SWCA Environmental Consultants to provide environmental consulting support for the Bison Pipeline Project (see attached). For your convenience, E3 is submitting an electronic copy of the project notification letter, maps, and shapefiles to assist in your review of the Project.

Please let me know if I can be of further assistance, or if you have any questions or concerns regarding the attached files.

Thank you for your time and consideration.

Sincerely,

Melissa Schmit
Consultant
E3 Environmental, LLC
mschmit@go2e3.com
O: 651.282.0656
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

North Dakota State Historic Preservation Office

Consultation



Bismarck Office
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501
Tel 701.258.6622 Fax 701.258.5957
www.swca.com

December 19, 2014

Paul Picha
Chief Archaeologist
State Historical Society of North Dakota
Archeology & Historic Preservation Division
North Dakota Heritage Center
612 East Boulevard Avenue
Bismarck, ND 58505-0830

Dear Mr. Picha:

I have attached to this letter one (1) copy of a cultural resources report prepared by SWCA Environmental Consultants on behalf of Plains Pipeline, L.P., entitled *A Class I and Class III Cultural Resource Inventory of the Bison Pipeline—Robinson Lake to Van Hook Rail Facility, Mountrail County, North Dakota* prepared to comply with Public Service Commission requirements. The report documents the results of a Class I and Class III cultural resources inventory performed in Mountrail County in 2014, in support of the Plains Bison Pipeline project. The 9.40 mile-long pipeline project is located on privately-owned lands within, and just outside of, the exterior boundaries of the Fort Berthold Indian Reservation in Mountrail County, North Dakota. During the source of the inventory, SWCA newly recorded 32MN1316, a depression site of unknown temporal or cultural affiliation.

Please let me know if you have any questions regarding the attached report.

Sincerely,

A handwritten signature in cursive script that reads "William M. Harding".

William M. Harding
Principal Investigator

WMH:am
Enclosures: 1





STATE
HISTORICAL
SOCIETY
OF NORTH DAKOTA

December 22, 2014

Jack Dalrymple
Governor of North Dakota

North Dakota
State Historical Board

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Parks and Recreation
Department

Grant Levi
Director
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Claudia J. Berg
Director

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William M. Harding
Principal Investigator
SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501

NDSHPO REF.: 15-0413 PSC Bison Pipeline—Robinson Lake to Van Hook
Rail Facility, Mountrail County, North Dakota, Class I and III CRI Report

Dear Bill:

We have reviewed correspondence and project document, "Class I and Class III Cultural Resource Inventory of the Bison Pipeline—Robinson Lake to Van Hook Rail Facility, Mountrail County, North Dakota," by Scott Yost and Aidan McCarty (SWCA 14-671, December 2014), and find it acceptable.

We concur with a "No Significant Sites Affected" determination provided the project is of the nature stated, and that it takes place in the locations surveyed, and as plotted and mapped, and that sites 32MN873 and 32MN11316 are avoided from impacts as outlined in the report and in project documentation (p. 46).

Thank you for the opportunity to review this project. If you have questions please contact either Paul Picha at ppicha@nd.gov or (701) 328-3574 or Susan Quinnell at squinnell@nd.gov or (701) 328-3576.

Sincerely,

Claudia J. Berg
Director, State Historical Society of North Dakota

c: Elgin Crows Breast, MHAN THPO

USAF Cable Affairs Division

Consultation



January 12, 2015

Mr. Cy Munos,
91 MMXS Cable Affairs
300 Minuteman Drive
Minot Air Force Base, ND 58705

**Plains Pipeline, L.P. – Bison Pipeline Project
United States Air Force-Minot Air Force Base, Cable Affairs Office Consultation**

Plains Pipeline, L.P (Plains) has proposed the construction of a new 9.39 mile, 12-inch outside diameter crude oil pipeline, referred to as the Bison Pipeline (Project). The Project is located in Mountrail County, originates at the Plains Pipeline Van Hook Rail Facility, and extends northward to connect with their Robison Lake Facility. Site preparation and associated construction activities for the proposed Project would be initiated during mid-2015, pending agency approval, and would require approximately two months to complete. Upon Project completion, Plains will restore original contours and land use to the maximum extent practicable. To satisfy state siting authority requirements, Plains is providing this Project notification for your consideration.

The purpose of this correspondence is two-fold:

1) to provide Minot Air Force Base Cable Affairs Office (Cable Affairs) with notification of the Project; and 2) to afford Cable Affairs the opportunity to assess the Project area for the presence of any Intercontinental Ballistic Missile (ICBM) related systems that could potentially be impacted, and provide comments. This information will be included in a North Dakota Public Service Commission application for the Project.

A desktop review of the Project area was conducted using publicly available information for the presence of ICBM sites, and to confirm that the Project meets or exceeds established easement requirements. The location of the proposed Project is described below and depicted in the attached map and shapefiles. In addition, ICBM Facility locations relative to the Project area and the direct line between the ICBM facilities and the command center are also provided (see attached) to assist Cable Affairs' review of the Project.

In Mountrail County, North Dakota the pipeline crosses:

- Township 152N, Range 91W, Sections 4, 5, 9, 16, 20 and 21
- Township 153N, Range 91W, Sections 23, 26, 27 and 34

Plains Pipeline, L.P.
Bison Pipeline Project
January 12, 2015



E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

In closing, E3 Environmental, LLC has been retained by SWCA Environmental Consultants to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0650 or WMcCarthy@go2e3.com.

Sincerely,

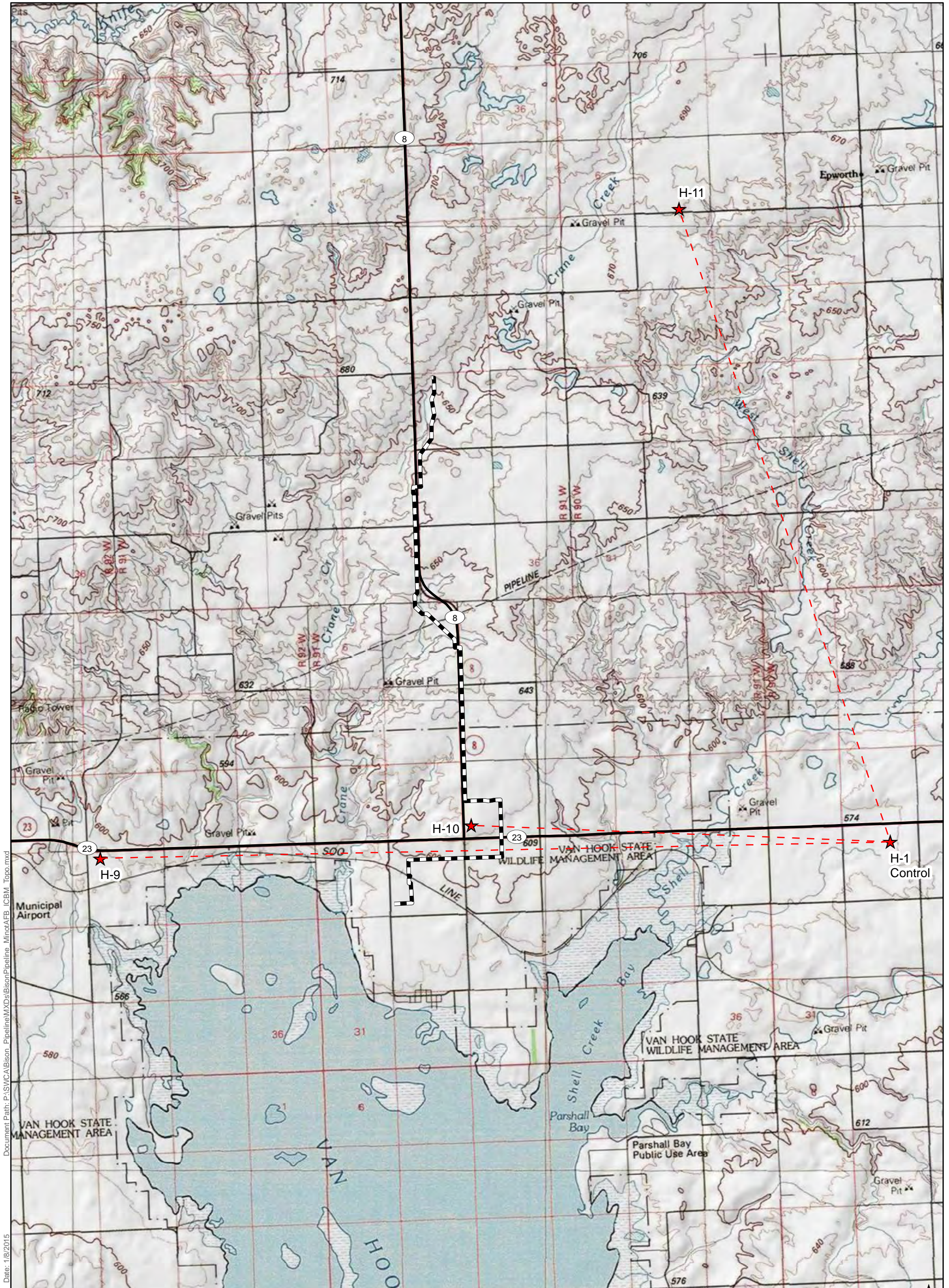
A handwritten signature in black ink, appearing to read 'William F. McCarthy'. The signature is fluid and cursive, written over the printed name below.

William F. McCarthy, CWB
E3 Environmental, LLC

Enclosures (email attachments):

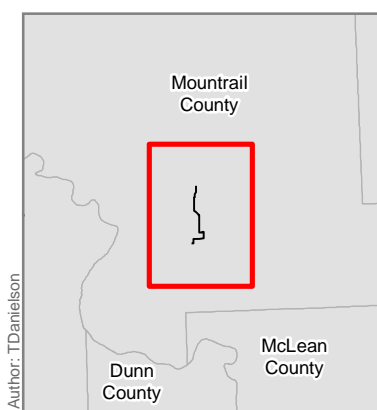
Project-Minot AFB ICBM Proximity Map – USGS topographic
Shapefiles

cc: E3 Project Files



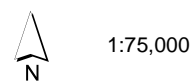
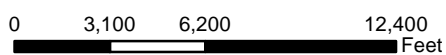
Date: 1/8/2015
 Document Path: P:\SWCA\Bison_Pipeline\MXDs\BisonPipeline_MinotAFB_ICBM_Topo.mxd

Author: TDanielson



Legend

- Project Centerline
- ICBM Direct Line to Command Center
- ICBM Facility



Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.

Bison Pipeline

Minot AFB - ICBM
Proximity Map

Mountrail County, North Dakota

Erica Davis

From: Erica Davis
Sent: Monday, January 12, 2015 2:51 PM
To: 'MUNOS, CY I GS-09 USAF AFGSC 91 MMXS/MMXSFK'
Cc: Melissa Schmit; William McCarthy; Katie Schmidt
Subject: Re: Bison Pipeline project consultation
Attachments: Minot AFB Cable Affairs Office Consultation Letter_Bison Pipeline_1-12-15.pdf; BisonPipeline_MinotAFB_ICBM_Topo.pdf; BisonPipeline_20141217_CL.cpg; BisonPipeline_20141217_CL.dbf; BisonPipeline_20141217_CL.prj; BisonPipeline_20141217_CL.sbn; BisonPipeline_20141217_CL.sbx; BisonPipeline_20141217_CL.shp; BisonPipeline_20141217_CL.shx

Cy,

Thank you for sending your mailing address on Friday. Per your request, a letter describing the pipeline project, a project map, and shapefiles are attached for your review. Please let us know if you have any questions or require additional information. Thank you, Cy. Your time is very much appreciated. I look forward to receiving your response.

Best Regards,

Erica Davis
Associate Consultant
E3 Environmental, LLC
edavis@go2e3.com
O: 651.272.1151
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com



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-----Original Message-----

From: MUNOS, CY I GS-09 USAF AFGSC 91 MMXS/MMXSFK [mailto:cy.munos@us.af.mil]
Sent: Friday, January 09, 2015 3:14 PM
To: Erica Davis
Subject: RE: USAF Cable Affairs

Erica,

My address as requested
Mr. Cy Munos
91st MMXS Cable Affairs
300 Minuteman Drive

Minot AFB, ND 58705

-----Original Message-----

From: Erica Davis [mailto:EDavis@go2e3.com]
Sent: Thursday, January 08, 2015 1:43 PM
To: MUNOS, CY I GS-09 USAF AFGSC 91 MMXS/MMXSFK
Subject: RE: USAF Cable Affairs

Cy,

Thank you for taking the time for a phone discussion this morning. If you would please provide your complete mailing address and title (for purposes of the consultation letter), I'll send you an email with the letter, project map and shapefiles attached.

Many thanks for your assistance!

Erica Davis
Associate Consultant
E3 Environmental, LLC
edavis@go2e3.com
O: 651.272.1151
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

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It was great talking to you. I'll be looking forward to reviewing your project.

Cy Munos
Cable Affairs, 91 MMXS/MMXSFK
Minot AFB, ND
701-723-6053
701-720-8274

From: Erica Davis
Sent: Wednesday, January 07, 2015 2:17 PM
To: 'apryl.hall@us.af.mil'
Cc: Melissa Schmit
Subject: Inquiry regarding proposed pipeline project in Mountrail County

Good Afternoon, Apryl,

Thank you for taking the time to answer my questions by phone this afternoon. As I mentioned earlier today, E3 is a consulting firm working with the oil & gas industry. My reason for contacting you is in regards to a proposed pipeline corridor and route that would cross a direct line between a control station and ICBM pad(s). Consultation with all appropriate agencies is required by the North Dakota Public Service Commission. As such, I would like to request the appropriate Minot AFB contact and determine the process for project related inquiries and coordination.

Thank you, your time and assistance are much appreciated.

Sincerely,

Erica Davis

Associate Consultant

E3 Environmental, LLC

edavis@go2e3.com

O: 651.272.1151

871 Jefferson Avenue

St. Paul, MN 55102

www.go2e3.com



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Appendix D

Natural Resources Report

**Natural Resources and Wetland
Delineation Report for the
PAA Bison Pipeline,
Mountrail County, North Dakota**

Prepared for

Plains All-American Pipeline Company, L.P.

Prepared by

SWCA Environmental Consultants

December 2014

**Natural Resources and Wetland Delineation Report for the
PAA Bison Pipeline, Mountrail County, North Dakota**

Prepared for:

**Plains All-American Pipeline, L.P.
333 Clay Street, Suite 1600
Houston, Texas 77002**

Prepared by:

**Jason Bivens, B.S., and Ashley Persinger, B.S.
Environmental Specialists**

Reviewed by:

**Richard Wadleigh
Natural Resources Lead**

**SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501
Phone (701) 258-6622, Fax (701) 258-5957**

SWCA Project No. 28514

December 18, 2014

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1.0 INTRODUCTION

1.1 BACKGROUND

Plains All-American Pipeline, L.P. (PAA) proposes to construct an approximate 9.4-mile-long petroleum pipeline in Mountrail County, North Dakota. SWCA Environmental Consultants (SWCA) conducted natural resources field surveys in order to identify exclusion and avoidance areas as specified in North Dakota Administrative Code 69-06-08-02 for the proposed Bison Pipeline project.

As proposed, the Bison Pipeline is approximately 9.4 miles long, spanning private lands in North Dakota (Appendix A). The North Dakota Public Service Commission (NDPSC) has claimed jurisdiction over the survey area and is requiring a certificate of corridor compatibility and route permit be obtained prior to the commencement of construction activities.

SWCA conducted field surveys, including reroutes, of a 200- to 400-foot-wide corridor on April 10 and 11, May 6, October 1, November 7, and December 2, 2014 to determine the potential presence and extent of wetlands and waterbodies, including jurisdictional waters of the U.S., within the proposed survey area. Concurrently with the wetland determinations, SWCA conducted a cursory threatened and endangered species survey and habitat assessment; a tree, sapling, and shrub enumeration survey; and a noxious weed survey. Site layout maps of the survey area and natural resource features identified during the field surveys are provided in Appendix A.

This report outlines the methodology used by SWCA's ecologists to complete each of the aforementioned surveys. Additionally, this report presents the results of the completed field surveys and regulatory recommendations to ensure compliance with the NDPSC and the U.S. Army Corps of Engineers (USACE) Nationwide Permit 12.

1.2 REGULATORY BACKGROUND

1.2.1 Clean Water Act, Section 404

Section 404 of the Clean Water Act prohibits the discharge of fill material into waters of the U.S., also known as jurisdictional waters, without a permit from the USACE.

1.2.2 USACE Nationwide Permit 12

The USACE Nationwide Permit 12 authorizes the construction of utility lines and associated facilities in waters of the U.S., provided the activity does not result in the permanent loss of greater than 0.5 acre of waters of the U.S., including wetlands.

Nationwide Permit 12 requires that the permittee submit a pre-construction notification prior to commencing construction if any of the following criteria are met.

- The activity involves mechanized land clearing in a forested wetland.
- A Section 10 permit is required to cross a navigable waterbody (Rivers and Harbors Act).

- The utility line exceeds 500 feet in length through any single crossing of a water of the U.S.
- The utility line is placed within a jurisdictional area (i.e., water of the U.S.) and it runs parallel to a stream bed that is within that jurisdictional area.
- Discharges result in the permanent loss of greater than 0.1 acre of waters of the U.S.
- Permanent access roads are constructed above grade in waters of the U.S. for a distance of more than 500 feet.
- Permanent access roads are constructed in waters of the U.S. with impervious materials.

1.2.3 USACE Regional Conditions

The USACE has published several regional conditions for projects operating under Nationwide Permits in North Dakota. The regional conditions apply to wetlands classified as “fens,” waters adjacent to natural springs, the Missouri River, historic properties, and fish spawning areas.

2.0 METHODS

2.1 SURVEY AREA

Overall, northwest North Dakota is characterized by a moderate to cool climate, with cold, dry winters and mild to warm summers. Mean annual precipitation for the area is 14 to 16 inches (Bryce et al. 1998).

The proposed project is located in the Great Plains (level I) ecoregion. Further, the alignment is in the West-Central Semi-Arid Prairies (level II ecoregion). The northern portion of the alignment is located in the Northwestern Glaciated Plains (level III) and Glaciated Dark Brown Prairie (level IV ecoregion) region and the southern extent of the alignment is located in the Northwestern Great Plains (level III ecoregion) and River Breaks (level IV ecoregion) ecoregion.

The Northwestern Glaciated Plains marks the westernmost extent of glacial activity and contains significant surface irregularity, characteristic of a youthful morainal landscape, with hills and depressions and high concentrations of wetlands (Bryce et al. 1998). Further, the Glaciated Dark Brown Prairie ecoregion has a well-defined drainage system and fewer wetlands compared to the more recently glaciated ecoregions to the east (Bryce et al. 1998). The Northwest Great Plains are characterized by unglaciated topography, complex stream drainage systems, and susceptibility to erosion. Figure 1 is an overview of the project area facing south. Primary land uses are grazing, small-grain agriculture, and recreation (Bryce et al. 1998).



Figure 1. Project area overview depicting general topography towards southern half of pipeline corridor, facing south.

The proposed project corridor that was surveyed on April 10 and 11, May 6, October 1, November 7, and December 2, 2014, encompasses portions of 6 sections within 2 townships and ranges.

- Sections 27, 34, Township (T) 153 North (N), Range (R) 91 West (W)
- Sections 4, 5, 9 and 16, T152N, R91W

2.2 WETLANDS

National Wetland Inventory (NWI) mapping for the region indicates the presence of wetlands (U.S. Fish and Wildlife Service [USFWS] 2012a). SWCA ecologists conducted wetland delineations within the survey area based on the principles and guidelines provided in the 1987 Corps of Engineers Wetlands Delineation Manual (Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Determination Manual: Great Plains Region Version 2.0* (Supplement) (USACE 2010). According to the Manual, an area is a wetland if three mandatory wetland indicators are present in a given area, with special exceptions. These criteria include the presence of hydrophytic vegetation,

wetland hydrology, and hydric soils. All wetlands and waterbodies geographically referenced within the survey area during field survey are depicted on the site layout maps in Appendix A.

2.2.1 Hydrophytic Vegetation

Ecologists recorded all plants within the vegetative community based on the respective stratum in which each species occupied. A tree is defined by the Supplement to be a woody-stemmed plant with a trunk diameter at breast height (DBH) of equal to or greater than 3 inches, regardless of height. The sapling and shrub stratum is defined by the Supplement to be composed of woody-stemmed plants with a trunk DBH of less than 3 inches, regardless of height. The herbaceous stratum includes all non-woody-stemmed plants regardless of height. Finally, the woody vine stratum includes all woody-stemmed vines, regardless of diameter.

SWCA recorded the binomial scientific name and percent cover of all plants within a 30-foot radius for the tree stratum, a 15-foot radius for the sapling/shrub stratum, a 5-foot radius for the herbaceous stratum, and a 30-foot radius for the woody vine stratum. SWCA ecologists noted each plant species' respective USFWS indicator status (i.e., upland [UPL], facultative upland [FACU], facultative [FAC], facultative wetland [FACW], and obligate [OBL]). Vegetation communities met the hydrophytic vegetation criterion for wetlands if greater than 50% of dominant species had an indicator status of FAC, FACW, and OBL. SWCA also noted and geospatially referenced all populations of North Dakota state- or county-listed noxious weeds identified within the survey area.

2.2.2 Wetland Hydrology

A wetland was determined to contain wetland hydrology if at least one primary indicator or at least two secondary indicators of wetland hydrology were present, as defined by the Manual and Supplement. Common hydrologic indicators include the presence of surface water, high water table, soil saturation, water marks on trees or other objects, sediment deposits, water-stained leaves, and oxidized rhizospheres on living roots.

2.2.3 Hydric Soil

Ecologists recorded detailed notes regarding soil profiles including the hue, value, and chroma (i.e., color) of the soil (using Munsell Soil Color Charts), the depth and extent of that soil color within the entire soil profile, the concentration of any redoximorphic concentrations or depletions, and the texture of the soil at each depth where a color change was observed. Soil pits were excavated to a minimum depth of 20 inches at each data point. Due to timing of year, soils in some locations were frozen below the first 6 inches. Common hydric soil indicators of the Northern Great Plains subregion include the presence of hydrogen sulfide gas within the soil pit, redox depressions, redox dark surfaces, and depleted matrix.

2.3 WATERBODIES

Waterbodies (i.e., ponds, creeks, streams, rivers) were identified by the presence of an ordinary high water mark (OHWM). Common identifiable indicators of an OHWM include open water or evidence of a clear, natural line visible on the bank; shelving; changes in soil characteristics; the destruction of terrestrial vegetation; the presence of litter and debris; and watermarks on structures that are inundated during normal high water conditions. The

OHWL typically represents the potential limits of the USACE jurisdiction. Please note that the USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies.

SWCA classified streams as perennial, intermittent, or ephemeral based on field observations. During a typical year, a perennial stream contains flowing water year-round and the water table is located above the stream bed. Groundwater is the primary water source for stream flow while precipitation runoff is supplemental. Ecologists classified streams that showed significant flow during the field survey or were named or designated as solid blue lines on the U.S. Geological Survey topographic maps as perennial.

An intermittent stream has flowing water for only portions of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

2.4 TREE, SAPLING, AND SHRUB COUNT

SWCA ecologists determined the total number of trees, saplings, and shrubs present within the survey area by employing several different techniques depending on the type of woody vegetation habitat (i.e., forested upland, shrubland, or shelterbelt) encountered and the overall extent of each habitat within the right-of-way (ROW). The boundary of all forested upland, shrubland, and shelterbelt habitat was geographically referenced using a Trimble GeoXT series handheld global positioning system (GPS) unit. In forested upland and shrubland habitat, SWCA counted the number of all woody-stemmed vegetation with a DBH of ≥ 1 inch. In shelterbelt areas, all woody-stemmed vegetation, regardless of DBH, was inventoried via direct count. Ecologists taxonomically identified all recorded individuals to the species level within each habitat type.

2.5 NOXIOUS WEED SURVEYS

SWCA conducted a noxious weed survey of all populations of North Dakota state- or county-listed noxious weeds within the project area. Results can be affected by the timing of survey and it is possible for small isolated patches to be missed early in the growing season. PAA will monitor and control noxious weeds within their ROW prior to and subsequent to construction.

2.6 WILDLIFE INCLUDING THREATENED AND ENDANGERED SPECIES

Prior to conducting field surveys, SWCA reviewed information obtained from the USFWS list of threatened and endangered species by North Dakota county (USFWS 2014) regarding the presence of threatened or endangered species that may occur within the survey area. This document does not represent a comprehensive survey, but rather acknowledges the past and/or

current presence of listed species. The lack of discovery of threatened or endangered species does not signify their non-existence within the area, but only that no primary or secondary indications of these species were recorded. SWCA completed a random survey for all listed species and suitable habitat.

A line-of-sight binocular survey for raptor species was also conducted for a distance of approximately 0.5 mile. SWCA ecologists noted all wildlife observed during the field survey. Wildlife sightings can involve primary observations (i.e., actual sighting of an animal) or secondary observations (i.e., observation of scat, tracks, or fur deposits).

2.7 MAPPING

The boundaries of each wetland, waterbody, woody vegetation habitat, and noxious weed assemblage were geographically recorded using a Trimble GeoXT GPS unit. The aforementioned GPS unit is capable of recording geographic data with sub-meter accuracy. SWCA used Universal Transverse Mercator Zone 13 North as the projected coordinate system and North American Datum 1983 as the datum. ArcGIS v10.0 (ESRI Redlands, California) was used to analyze recorded features, calculate areas, and generate the maps provided in Appendix A. Please note that all data collected using the GPS unit, and displayed on the attached maps, are for review purposes only and do not represent a professional civil survey.

3.0 RESULTS

3.1 VEGETATION

During the field survey, SWCA ecologists identified four general types of vegetative communities within the survey area. These vegetative communities were classified as herbaceous upland, shrubland and upland woody vegetation, cropland, and palustrine emergent (PEM) wetland. PEM wetlands are characterized by the presence of herbaceous hydrophytic or submergent aquatic macrophytes. Photographs of the survey area are provided in Appendix C.

Vegetation communities met the hydrophytic vegetation criterion for wetlands if greater than 50% of dominant species had an indicator status of FAC, FACW, or OBL. The upland communities failed to meet at least one of the three assessed wetland criteria.

3.1.1 Herbaceous Upland

The herbaceous upland community consists of areas dominated by non-woody vegetation such as grasses and forbs. Two types of herbaceous upland communities were observed during the survey. The northernmost 2 miles of the proposed pipeline is native mixed grass prairie comprised of blue grama (*Bouteloua gracilis*), little bluestem (*Schizachyrium scoparium*), sideoats grama (*Bouteloua curtipendula*), white sagebrush (*Artemisia ludoviciana*), curlycup gumweed (*Grindelia squarrosa*), prairie coneflower (*Ratibida columnifera*), prairie rose (*Rosa arkansana*), purple coneflower (*Echinacea angustifolia*), and American licorice (*Glycyrrhiza lepidota*). The remaining herbaceous upland communities consisted of nonnative grasses and forbs including smooth brome (*Bromus inermis*), western

wheatgrass (*Pascopyrum smithii*), crested wheatgrass (*Agropyron cristatum*), sweetclover (*Melilotus* spp.), stiff sunflower (*Helianthus pauciflorus*), and Kentucky bluegrass (*Poa pratensis*).

3.1.2 Shrubland and Woody Vegetation

Shrubland communities occurring throughout the survey area consisted of upland areas dominated by woody-stemmed vegetation including primarily western snowberry (*Symphoricarpos occidentalis*).

Forested upland vegetation consisted of Siberian elm (*Ulmus pumila*), chokecherry (*Prunus virginiana*), and western snowberry.

3.1.3 Cropland

Cropland was confirmed in the survey area and classified as wheat (*Triticum aestivum*). Other common crops in the area include flax (*Linum usitatissimum*), canola (*Brassica napus*), and sunflowers (*Eriophyllum* sp.).

3.1.4 Hydrophytic Vegetation

Hydrophytic vegetation species confirmed during the survey included reed canarygrass (*Phalaris arundinacea*), prairie cordgrass (*Spartina pectinata*), water smartweed (*Polygonum amphibium*), curly dock (*Rumex crispus*), and broad-leaf cattail (*Typha latifolia*).

3.2 HYDROLOGY

Wetland communities, observed during the determination effort, displayed at least one primary or two secondary indicators of wetland hydrology, as defined by the Manual and Supplement. Upland communities either failed to display hydrologic indicators or failed to meet the hydrophytic vegetation and hydric soils criterion, as defined by the Manual and Supplement. In some instances, the presence of above average precipitation obscured the wetland/waterbody boundary and OHWM usually present during normal hydrologic conditions. Common indicators of wetland hydrology observed during field surveys include Surface Water (A1), High Water Table (A2), Saturation (A3), Water-Stained Leaves (B9), Algal Mat or Crust (B4), Inundation Visible on Aerial Imagery (B7), and Geomorphic Position (D2).

Prior to and during the original surveys (February 1 through May 6, 2014), National Weather Service preliminary climatological data for Williston, North Dakota, recorded 2.53 inches of precipitation (Table 1). This amount is 0.09 inch below normal for this time period. Prior to and during the reroute surveys (August 1 through December 2), 4.47 inches of precipitation was recorded in Williston, 0.39 inch above normal. Williston is approximately 60 miles west of the project area.

Table 1. Monthly Recorded Rainfall at National Weather Service Station in Williston, North Dakota.

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
February 2014	0.26	0.39	-0.13
March 2013	0.32	0.71	-0.39
April 2014	1.71	1.00	0.71
May 1–6, 2014	0.24	0.34	-0.10
Total	2.53	2.44	-0.09
August 2014	2.24	1.45	0.79
September 2014	1.35	1.06	0.29
October 2014	0.25	0.92	-0.67
November – December 1, 2014	0.63	0.65	-0.02
Total	4.47	4.08	0.39

Source: National Oceanic and Atmospheric Administration 2014

According to National Weather Service preliminary climatological data for Minot, North Dakota, 2.44 inches of precipitation were recorded from February 1 through May 6, 2014.(Table 2). This amount is 0.36 inch below normal for this time period. Prior to and during the reroute surveys (August 1 through December 2), 5.08 inches of precipitation was recorded in Minot, 0.33 inch below normal. Minot is approximately 50 miles east-northeast of the project area.

Table 2. Monthly Recorded Rainfall at National Weather Service Station in Minot, North Dakota.

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
February 2014	0.17	0.40	-0.23
March 2013	0.05	0.84	-0.79
April 2014	1.80	1.14	0.66
May 1–6, 2014	0.42	0.42	0.00
Total	2.44	2.80	-0.36
August 2014	3.77	2.04	1.73
September 2014	0.85	1.46	-0.61
October 2014	0.28	1.16	-0.88
November – December 1, 2014	0.18	0.75	-0.57
Total	5.08	5.41	-0.33

Source: National Oceanic and Atmospheric Administration 2014

Although there is available precipitation data for the exact project area, it is likely analogous to Williston’s and Minot’s precipitation data for that same timeframe. Precipitation was relatively normal prior to and during all field surveys.

3.3 WETLANDS

SWCA recorded eleven PEM wetlands within the survey area, totaling approximately 2.48 acres. In total, approximately 0.85 acre of PEM wetlands are proposed to be temporarily impacted in the 100-foot-wide construction ROW (Table 3). One potentially jurisdictional wetland may be temporarily impacted; however, the USACE has the final authority to determine jurisdictional status. The proposed pipeline would be in compliance with the terms and conditions of NWP 12. Further, a PCN would not likely be required due to the project design conforming to the thresholds outlined in Section 1.2.2.

Table 3. PEM Wetland Acreage within the Final ROW .

Feature ID	Location	USACE Jurisdiction*	Temporarily Impacted Area within 100-foot-wide ROW (acres)	Total Wetland Size (acres)	Length of Required Crossing (feet)
AWET1	Drainage	Jurisdictional	0.16	0.79	185
AWET2	Road ditch	Isolated	0	0.14	0
AWET3	Depression	Isolated	0	0.07	0
AWET4	Drainage	Jurisdictional	0	0.11	0
AWET5	Depression	Isolated	0	0.74	0
BWET1	Depression	Isolated	0.13	0.31	148
BWET2	Depression	Isolated	0.43	0.63	199
BWET3	Depression	Isolated	0.08	0.19	48
BWET4	Depression	Isolated	0.05	0.05	37
BWET5	Depression	Isolated	<0.01	0.41	0
CWET1	Depression	Isolated	<0.01	0.10	0
Total			0.85	2.48	617

* The USACE has the final authority on the jurisdictional status of a waterbody.

PEM = palustrine emergent

ROW = right-of-way

USACE = U.S. Army Corps of Engineers

3.4 WATERBODIES

No waterbodies were identified by SWCA ecologists within the survey area.

3.5 SOILS

Fourteen soil types are present in the project construction corridor, based on Natural Resources Conservation Service mapping (NRCS 2014). The project area analyzed for soils covers the 100-foot-wide construction corridor. Table 5 lists all soil units within the project

area. The following soil component descriptions represent the most prevalent soil series found within the survey area (NRCS 2014).

Table 4. NRCS Derived Soil Series Present within the Final ROW.

Soil Type	Map Unit Symbol	Slopes (%)	Acres within 100-foot-wide ROW	Percent within Map Unit
Williams-Zahl loams	C132B	3 to 6	30.33	26.60%
Williams-Bowbells loams	C210A	0 to 3	27.11	23.78%
Williams-Zahl-Zahill complex	C132C	6 to 9	17.38	15.24%
Zahl-Williams loams	C135D	9 to 15	14.26	12.51%
Wabek-Lehr-Appam complex	C870E	9 to 25	6.57	5.76%
Lehr loam	C816B	2 to 6	5.75	5.05%
Bowdle loam	C810A	0 to 2	3.30	2.90%
Vebar-Flasher-Zahl complex	C959E	6 to 25	2.67	2.34%
Parnell silty clay loam	C3A	0 to 1	2.12	1.85%
Tonka silt loam	C2A	0 to 1	1.49	1.30%
Bowbells loam	C201A	0 to 3	1.28	1.12%
Wabek-Appam complex	C874C	6 to 9	0.84	0.73%
Bowbells-Tonka complex	C205A	0 to 3	0.47	0.41%
Divide loam	C825A	0 to 2	0.47	0.41%
Total			114.03	100.00

Source: NRCS 2013.
ROW = right-of-way

3.5.1 Williams

The Williams series consists of very deep, slowly permeable, well-drained soils found on glacial till plains and moraines with slopes at approximately 0 to 25 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 42°F. This soil type is largely used for cultivation. Native vegetation species common to this soil type include western wheatgrass (*Pascopyrum smithii*), needle and thread (*Hesperostipa comata*), blue grama (*Bouteloua gracilis*), and green needlegrass (*Nasella viridula*) (NRCS 2014).

3.5.2 Zahl

The Zahl series consists of very deep, slowly permeable, well-drained soils found on glacial till plains, moraines, and valley side slopes at approximately 1 to 60 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 40°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass (*Pascopyrum smithii*), little bluestem (*Schizachyrium scoparium*), and needle and thread (*Hesperostipa comata*) (NRCS 2014).

3.5.3 Zahill

The Zahill series consists of very deep, well-drained soils that formed in till and are found on till plains, hills, moraines and escarpments. Slopes are 0 to 65 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 13 inches and mean annual air temperature is approximately 42°F. This soil type is used in mainly range and dryland crops. Native vegetation species common to this soil type include western wheatgrass, needle and thread, green needlegrass, little bluestem, prairie sandreed (*Calamovilfa longifolia*), bluebunch wheatgrass (*Pseudoroegneria spicata*), prairie junegrass (*Koeleria macrantha*), blue grama, sedges and other forbs (NRCS 2014).

3.5.4 Wabek

The Wabek series consists of very deep, excessively drained, rapidly and very rapidly permeable soils formed in sand and gravel glaciofluvial deposits. These soils are on outwash plains, beach ridges, terraces, and terrace escarpments and have slopes of 0 to 45 percent. The mean annual precipitation found throughout the spatial extent of this soil type is 16 inches and mean annual air temperature is 42°F. These soils are used mainly for range and pasture. Native vegetation is blue grama (*Bouteloua gracilis*), upland sedges (*Carex* spp.), western wheatgrass (*Pascopyrum smithii*), needle and thread (*Hesperostipa comata*), and forbs (NRCS 2014).

3.6 TREE, SAPLING, AND SHRUB COUNT

During SWCA’s field survey, eight tree and shrubland areas were geographically referenced within the survey area. Table 5 summarizes the number of trees SWCA enumerated that may be impacted by the project as currently proposed. The NDPSR requires a 2:1 post- to pre-construction mitigation for all trees, saplings, and shrubs impacted during the construction of the proposed pipeline. Therefore, SWCA estimates approximately eighteen 2-year-old sapling individuals would need to be replanted in order to fulfill the 2:1 mitigation requirement.

Table 5. Tree, Sapling, and Shrub Count for Final Alignment.

Woody Vegetation (WV) ID	Species	Type	Number of Trees		Estimated Mitigation Commitment
			Survey Corridor	100-foot-wide Construction ROW	
AWV1	<i>Ulmus pumila</i>	Tree	9	0	0
AWV2	<i>Prunus virginiana</i>	Shrub	30	0	0
AWV3	<i>Caragana arborescens</i>	Shrub	100	0	0
AWV4	<i>Caragana arborescens</i>	Shrub	20	5	10
BWV1	<i>Fraxinus pennsylvanica</i>	Tree	3	2	4
BWV2	<i>Ulmus pumila</i>	Tree	1	0	0
BWV3	<i>Fraxinus pennsylvanica</i>	Shrub	1	1	2
BWV4	<i>Fraxinus pennsylvanica</i>	Tree	10	0	0
BWV5	<i>Prunus virginiana</i>	Shrub	5	1	2

Woody Vegetation (WV) ID	Species	Type	Number of Trees		Estimated Mitigation Commitment
			Survey Corridor	100-foot-wide Construction ROW	
Total			179	9	18

3.7 NOXIOUS WEEDS

North Dakota Century Code Chapter 63-01.1 and the North Dakota Department of Agriculture recognize 11 species as noxious weeds. The species include absinth wormwood (*Artemisia absinthium*), Canada thistle (*Cirsium arvense*), diffuse knapweed (*Centaurea diffusa*), leafy spurge (*Euphorbia esula*), musk thistle (*Carduus nutans*), purple loosestrife (*Lythrum salicaria*), Russian knapweed (*Acroptilon repens*), spotted knapweed (*Centaurea stoebe*), yellow toadflax (*Linaria vulgaris*), dalmatian toadflax (*Linaria dalmatica*), and salt cedar (*Tamarix ramosissima*). No noxious weeds were identified during the surveys.

3.8 WILDLIFE

Several wildlife species that may exist in Mountrail County are listed as threatened or endangered under the Endangered Species Act (ESA) (16 United States Code 1531 et seq.). According to the USFWS, listed species in Mountrail County, North Dakota, include the Dakota skipper (*Hesperia dacotae*), gray wolf (*Canis lupus*), whooping crane (*Grus americana*), piping plover (*Charadrius melodus*), interior least tern (*Sterna antillarum*), pallid sturgeon (*Scaphirhynchus albus*) and rufa red knot (*Calidris canutus rufa*). Candidate species include the Sprague’s pipit (*Anthus spragueii*) and Proposed species include the northern long-eared bat (*Myotis septentrionalis*) (USFWS 2014). SWCA conducted a cursory threatened and endangered species survey concurrently with the wetland determination. Ecologists did not observe any primary (i.e., actual sighting) or secondary (i.e., tracks, scat, fur) indication of the presence of threatened or endangered species.

The proposed project would have no effect on gray wolf. Interior least tern, whooping crane, Dakota skipper, and piping plover have the potential to occur within the project area as migrants. As a result, these species may be, but are not likely to be adversely affected by the proposed project. Additionally, the proposed project occurs within the same watershed as Lake Sakakawea and therefore may affect, but is not likely to adversely affect the pallid sturgeon or designated critical habitat for piping plover. The proposed project is not likely to jeopardize the Sprague’s pipit, northern long-eared bat, and rufa red knot.

3.8.1 Gray Wolf

Federal Status: Endangered

Affects Determination: No effect

The gray wolf, listed as endangered in the United States in 1978, was believed extirpated from North Dakota in the 1920s and 1930s, with only sporadic reports from the 1930s to present (Licht and Huffman 1996; USFWS 1978). The presence of wolves in most of North Dakota consists of occasional dispersing animals from Minnesota and Manitoba (Licht and Fritts

1994; Licht and Huffman 1996). Most documented gray wolf sightings within western North Dakota are believed to be young males seeking to establish territory (Hagen et al. 2005). The Turtle Mountain region of north-central North Dakota provides marginal habitat that may be able to support a very small population of wolves. The closest known pack of wolves is the Minnesota population located approximately 17 miles (28 kilometers [km]) from the northeast corner of North Dakota.

The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desert scrub (USFWS 2013b). Due to a lack of forested habitat and distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves and their vulnerability to being shot in open habitats (Licht and Huffman 1996), the re-establishment of gray wolf populations in North Dakota is unlikely. Additionally, habitat fragmentation may further act as a barrier against wolf recolonization in western North Dakota. Therefore, the proposed project would have **no effect** on the gray wolf.

3.8.2 Whooping Crane

Federal Status: Endangered

Affect Determination: May affect, is not likely to adversely affect

The whooping crane was listed as endangered in 1970 in the United States by the USFWS and in 1978 in Canada. Historically, population declines were caused by shooting and destruction of nesting habitat in the prairies from agricultural development. Current threats to the species include habitat destruction, especially suitable wetland habitats that support breeding and nesting, as well as feeding and roosting during their fall and spring migration (Canadian Wildlife Service and USFWS 2007).

The July 2010 total wild population was estimated at 383 (USFWS 2013c). There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada, where approximately 83% of the wild nesting sites occur (Canadian Wildlife Service and USFWS 2007; USFWS 2013c). Mountrail County, including the project area, is within the primary migratory flyway of whooping cranes.

Whooping cranes probe the soil subsurface with their bills for foods on the soil or vegetation substrate (Canadian Wildlife Service and USFWS 2007). Whooping cranes are omnivores and foods typically include agricultural grains, as well as insects, frogs, rodents, small birds, minnows, berries, and plant tubers. The largest amount of time during migration is spent feeding in harvested grain fields (Canadian Wildlife Service and USFWS 2007). Studies indicate that whooping cranes use a variety of habitats during migration, in addition to cultivated croplands, and generally roost in small palustrine (marshy) wetlands within 0.6 mile (1 km) of suitable feeding areas (Howe 1987, 1989). Whooping cranes have been recorded in riverine habitats during their migration, with eight sightings along the Missouri River in North Dakota (Canadian Wildlife Service and USFWS 2007:18). In these cases, they roost on submerged sandbars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

Suitable whooping crane foraging habitat (i.e., cultivated cropland and wetlands >0.04 hectare) was observed within the survey area. In addition, the project area is located within the migratory corridor for the whooping crane, with the nearest sighting approximately 5 miles to the southwest of the westernmost bend of the pipeline (USFWS, M. Tarcha, unpublished data). Therefore, the proposed project **may affect, but is not likely to adversely affect** the endangered whooping crane.

3.8.3 Piping Plover

Federal Status: Threatened

Affect Determination: May affect, is not likely to adversely affect

The piping plover is a small shorebird which breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes. Piping plover populations were federally listed as threatened and endangered in 1985, with the Northern Great Plains and Atlantic Coast populations listed as threatened, and the Great Lakes population listed as endangered (USFWS 1985a).

Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands, and on beaches, sand bars, and dredged material islands of major river systems (USFWS 2002, 2012b). The shorelines of lakes of the Missouri River constitute significant nesting areas for the bird. Piping plovers nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988b). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2012b). The birds fly south by mid to late August to areas along the Texas coast and Mexico (USFWS 2002). The Northern Great Plains population has continued to decline despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. Low survival of adult birds has been identified as a factor (Root et al. 1992). Current conservation strategies include identification and preservation of known nesting sites, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988b, 2012b).

Suitable shoreline habitat for breeding and nesting plovers does not occur within the project area and Lake Sakakawea is approximately 0.9 mile south from the proposed project area. It is unlikely but possible that migrating plovers may traverse the project area during their migration. Therefore, the proposed project **may affect, but is not likely to adversely affect** piping plovers.

3.8.4 Designated Critical Habitat of Piping Plover

Affect Determination: May affect, is not likely to adversely affect

The USFWS has designated critical habitat for the Great Lakes and Northern Great Plains populations of piping plover (USFWS 2002). Designated critical habitat for the piping plover includes 183,422 acres and 1,207.5 river miles of habitat including the shoreline of Lake Sakakawea in Mountrail County, North Dakota (USFWS 2002).

Since the proposed project would not modify, alter, disturb, or affect the shoreline of Lake Sakakawea or the Missouri River, but is within the same watershed as Lake Sakakawea or the Missouri River, the proposed project **may affect, but is not likely to adversely affect** designated critical habitat of the piping plover.

3.8.5 Interior Least Tern

Federal Status: Endangered

Affect Determination: May affect, is not likely to adversely affect

The interior population of the least tern is listed as endangered by the USFWS (1985b). This bird is the smallest member of the gull and tern family, measuring approximately 9 inches in length. Terns remain near flowing water, where they feed by hovering over and diving into standing or flowing water to catch small fish (USFWS 2013d).

The interior population of least terns breeds in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems, where they nest in small colonies. From late April to August, terns nest in a shallow hole scraped in an open sandy area, gravel patch, or exposed flat and bare sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. The adults continue to care for chicks after they hatch. Least terns in North Dakota will often be found sharing sandbars with the piping plover, a threatened species (USFWS 2013d).

Census data indicate over 8,000 least terns in the interior population. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe, and on the Missouri and Yellowstone Rivers upstream of Lake Sakakawea (USFWS 1990a, 2013d). Approximately 100 pairs breed in North Dakota (USFWS 2013d). Details of their migration are not known, but their winter range is reported to include the Gulf of Mexico and Caribbean Islands (USFWS 1990a, 2013d).

Loss of suitable breeding and nesting habitat for terns has resulted from dam construction and river channelization on major rivers throughout the Mississippi, Missouri, and Rio Grande river systems. River and reservoir changes have led to reduced sandbar formation and other shoreline habitats for breeding, resulting in population declines. In addition, other human shoreline disturbances affect the species (USFWS 1990a). Critical habitat has not been designated for the species (USFWS 2013d). Current conservation strategies include identification and avoidance of known nesting areas, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 2013d).

Suitable shoreline habitat for breeding and nesting terns does not occur in the project area, and Lake Sakakawea is approximately 0.9 mile south from the survey area. It is unlikely that terns would visit the upland or wetland habitats present in the survey area. Therefore, the proposed project **may affect, but is not likely to adversely affect** endangered least terns.

3.8.6 Pallid Sturgeon

Federal Status: Endangered

Affect Determination: May affect, is not likely to adversely affect

The pallid sturgeon was listed as endangered in 1990 in the United States by the USFWS (1990b). The primary factor leading to the decline of this species is the alteration of habitat

through river channelization, creation of impoundments, and alteration of flow regimes (USFWS 1990b). These alterations within the Missouri River have blocked movements to spawning, feeding, and rearing areas; destroyed spawning habitat; altered flow conditions which can delay spawning cues; and reduced food sources by lowering productivity (USFWS 2007a). The fundamental elements of pallid sturgeon habitat are defined as the bottom of swift waters of large, turbid, free-flowing rivers with braided channels, dynamic flow patterns, flooding of terrestrial habitats, and extensive microhabitat diversity (USFWS 1990b).

The pallid sturgeon populations occur in the Missouri River below Fort Peck Dam to the headwaters of Lake Sakakawea and the lower Yellowstone River up the confluence of the Tongue River, Montana (USFWS 2007a). This population consists of approximately 136 wild adult pallid sturgeon (USFWS 2007a). Hatchery-reared sturgeon have also been stocked since 1998. The pallid sturgeon has been found to utilize the 15.5 miles (25 km) of riverine habitat that would be inundated by Lake Sakakawea at full pool (Bramblett 1996 per USFWS 2007a). Larval pallid sturgeons have also been found to drift into Lake Sakakawea. While the majority of pallid sturgeons are found in the headwaters of Lake Sakakawea, the North Dakota Game and Fish Department has caught and released pallid sturgeon in nets set in 80 to 90 feet of water between the New Town and Van Hook areas. Based on this information, pallid sturgeon could be found throughout Lake Sakakawea (personal communication, email from Steve Krentz, Pallid Sturgeon Project Lead, U.S. Fish and Wildlife Service to SWCA Environmental Consultants, September 3, 2010).

Suitable habitat for pallid sturgeon is not present in the survey area and Lake Sakakawea is approximately 0.9 mile south from the project area. Potential pollution occurring as a result of construction activities, hydrostatic testing, and pipeline operations is a concern for downstream populations of endangered pallid sturgeon. Activities associated with the proposed project are not anticipated to adversely affect water quality and subsequently the pallid sturgeon. Therefore, the proposed project **may affect, but is not likely to adversely affect** pallid sturgeon.

3.8.7 Dakota Skipper

Federal Status: Threatened

Affect Determination: May affect, is not likely to adversely affect

On October 24, 2014, the USFWS proposed the Dakota skipper as threatened under the ESA (USFWS 2014b). The rule became effective November 23, 2014, after a 30-day comment period closed. The Dakota skipper is a small butterfly with a 1-inch wingspan and is found primarily in undisturbed native tall grass and upland dry Northern mixed grass prairie areas with a high diversity of wildflowers and grasses (Committee on the Status of Endangered Wildlife in Canada 2003). The Dakota skipper appears to require a range of precipitation-evaporation ratios between 60 and 105 and a soil pH between 7.20 and 7.90 (McCabe 1981). Larvae feed on grasses, favoring little bluestem. Adults commonly feed on nectar of flowering native forbs such as harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower. The species is threatened by conversion of native prairie to cultivated agriculture or shrublands, over-grazing, invasive species, gravel mining, and inbreeding (USFWS 2005). Suitable habitat does not exist within the proposed project area. It is not

anticipated that construction activities would negatively impact the species as long as reclamation is conducted as soon as the construction phase is complete. In addition, the use of existing access roads to reach the proposed pipeline location reduces the potential fragmentation of suitable habitat. Lastly, the implementation of a noxious weed management program significantly reduces any potential impacts on the Dakota skipper and its habitat. Therefore, the proposed project **may affect, is not likely to adversely affect** this species. The use of best management practices and conservation guidelines (USFWS 2007b) during construction and operation and immediate reclamation of short-term disturbance should decrease direct, indirect, and cumulative impacts to this species.

3.8.8 Rufa Red Knot

Federal Status: Threatened

Affect Determination: No effect

The rufa red knot is a robin-sized shorebird that migrates long distances annually between its breeding grounds in the Canadian Arctic and several wintering regions, including the southeast United States, the northeast Gulf of Mexico, northern Brazil, and Tierra del Fuego at the southern tip of South America (USFWS 2013g). During migration, rufa red knots use key staging and stopover areas to rest and feed. In North Dakota, the red knot is a very rare migrant (USFWS 2013g). There are no known records of rufa red knot in the project vicinity; however, this species could use habitat along Lake Sakakawea as a stopover during migration.

Potential habitat along the lake is approximately 0.9 straight-line mile from the proposed project. Potential spills and sedimentation occurring within the project area are concerns for downstream water quality and could indirectly affect suitable stopover habitat for the rufa red knot. Activities associated with the construction, production, or reclamation of the proposed project are not anticipated to adversely affect suitable stopover habitat for the rufa red knot. Therefore, the proposed project would have **no effect** on the rufa red knot.

3.8.9 Sprague's Pipit

Federal Status: Candidate

Affect Determination: Not likely to jeopardize

The Sprague's pipit is a small passerine, 10 to 15 centimeters in length, endemic to the Northern Great Plains (USFWS 2011). The Sprague's pipit requires large tracts of native prairie habitat, unplowed, throughout their life cycle. Because native grasslands are disturbance-dependent, Sprague's pipit prefers grassland habitats that are regularly disturbed. The frequency of disturbance required for habitat maintenance depends on how quickly grasses grow to an intermediate height (4 to 12 inches) following a disturbance event.

In North Dakota, Sprague's pipit has been found in areas of moderate grazing. Sprague's pipits are sensitive to patch size and avoid edges between grasslands and other habitat features (USFWS 2011). They may avoid non-grassland features including roads, trails, oil wells, croplands, woody vegetation, and wetlands. The Sprague's pipit is reported to stay up to 350 m away from anthropogenic features such as roads, oil wells, and wind turbines (USFWS 2011). The USFWS has estimated that each new oil well and associated road in North Dakota results in potential impacts to approximately 51 acres of pipit habitat due to avoidance and

habitat fragmentation (USFWS 2011). Because of increasing habitat fragmentation, especially by energy development, throughout the Sprague's pipit range, and the loss of native prairie habitat, the Sprague's pipit was listed as a Candidate Species under the ESA in 2010 (USFWS 2011).

In North Dakota, Sprague's pipit breeds throughout the state except for the easternmost counties. During the breeding season they prefer large patches of well drained, open native grassland with a minimum size of 358.3 acres (range = 170 to 776 acres). They have not been observed in areas smaller than 71.6 acres on their breeding grounds (USFWS 2011).

Native prairie habitat with grasses of intermediate height does occur within the northern portion of the project area. However, the habitat within and surrounding the project area has been previously disturbed by agriculture, roads, and oil and gas development. The proposed project is unlikely to directly affect habitat due to lack of adequate patch sizes required by the Sprague's pipit for breeding grounds in the immediate project area, but may indirectly contribute to reduced use of any nearby suitable grassland habitat patches within 350 meters of the proposed project. Therefore, the proposed project **is not likely to jeopardize the** Sprague's pipit.

3.8.10 Northern Long-eared Bat

Federal Status: Proposed

Affect Determination: Not likely to jeopardize

On October 2, 2013, the USFWS proposed the northern long-eared bat for listing as endangered under the ESA (USFWS 2013e). This medium-sized bat ranges across the eastern and north central United States and all of the Canadian provinces (USFWS 2013e). Throughout most of this species' range, populations are patchily distributed. They emerge at dusk to fly through the understory of forested hillsides and ridges, feeding on moths, flies, leafhoppers, caddisflies, and beetles.

Most records of northern long-eared bats are from winter hibernacula surveys, with more than 780 hibernacula identified within the United States. No known hibernacula are located in North Dakota, due to either no suitable hibernacula present or a lack of survey effort (USFWS 2013f). This bat species occupies a wide range of rocky and forested habitats. Suitable winter habitat contains large caves and mines (USFWS 2013e). Summer day roosts include abandoned buildings, bridges, hollow trees, stumps, under loose bark, and rock fissures (Jones and Choate 1978).

Northern long-eared bats are not known to occur in the project area. Suitable winter habitat for northern long-eared bats does not occur within the project area. Nearby trees and rocky outcrops can act as suitable summer day roosts. Due to the low likelihood of northern long-eared bat occurrence in the project area, the proposed project **is not likely to jeopardize the** species.

3.8.11 Migratory Birds

Status: Not listed, protected under the Migratory Bird Treaty Act

Effects of Project: No adverse effects anticipated

Suitable habitat for migratory birds exists in the entire project area. Specifically, grassland nesting birds have the potential to occur and nest in the project area, especially during the migratory bird breeding season between February 1 and July 15. Suitable woodland nesting habitat is minimal, but also occurs in the project area. The proposed project is unlikely to cause any adverse effects to migratory birds due to the implementation of recommended measures discussed in Section 4.0.

3.8.12 Bald Eagle

Federal Status: Delisted in 2007; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

Effects of Project: No adverse effects anticipated

The bald eagle (*Haliaeetus leucocephalus*) feeds on fish and carrion and typically roosts in large trees near a water source. Bald eagle nesting habitat is typically any mature stands of conifer or cottonwood trees in association with rivers, streams, reservoirs, lakes, or any significant body of water. Bald eagles are uncommon in North Dakota and are usually observed along the Missouri River (Gomes n.d.) and Yellowstone River. Bald eagles frequently migrate through the grassland habitats; however, no bald eagles or nests were observed during the field surveys. Therefore, **no adverse effects** to bald eagles are anticipated.

3.8.13 Golden Eagle

Federal Status: Unlisted; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

Effects of Project: No adverse effects anticipated

The golden eagle (*Aquila chrysaetos*) prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs which provide suitable nesting habitat. Golden eagles may occur within or near the survey area; however, no golden eagles or nests were observed during the field surveys. Therefore, **no adverse effects** to golden eagles are anticipated.

3.8.14 Wildlife Observed

During the field survey, SWCA ecologists observed various wildlife species which utilize wetlands and other habitat within the survey area (Table 6). Common wildlife species may be affected both directly via incidents with construction equipment or indirectly through the temporary fragmentation of habitat as a result of construction activities.

Table 6. Wildlife Observed during Field Surveys at the Proposed Pipeline Route.

Common Name	Scientific Name	Observation Type
Red-winged blackbird	<i>Agelaius phoeniceus</i>	Primary
Western meadowlark	<i>Sturnella neglecta</i>	Primary
Horned lark	<i>Eremophila alpestris</i>	Primary
Franklin's gull	<i>Leucophaeus pipixcan</i>	Primary
Mallard	<i>Anas platyrhynchos</i>	Primary

Common Name	Scientific Name	Observation Type
Ring-billed gull	<i>Larus delawarensis</i>	Primary
Chipping sparrow	<i>Spizella passerina</i>	Primary
Canada goose	<i>Branta Canadensis</i>	Primary
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Primary
White-tailed Jackrabbit	<i>Lepus townsendii</i>	Secondary
White-tailed Deer	<i>Odocoileus virginianus</i>	Secondary

4.0 CONCLUSIONS AND RECOMMENDATIONS

1. SWCA ecologists recorded approximately 2.48 acres of wetlands within the 200 to 400-foot-wide survey area.
2. In total, approximately 0.85 acre of PEM wetland *may* be temporarily impacted by construction activities.
3. No waterbodies were recorded within the survey corridor.
4. SWCA enumerated four trees communities (9 trees total) within the proposed construction ROW which may be impacted by construction activities. Therefore, approximately eighteen 2-year-old saplings may need to be replanted to fulfill the 2:1 mitigation requirement.
5. According to the recommendations of the North Dakota Forest Service, tree species selection for replacement should be accomplished through collaboration with a reputable area nursery. This will allow for species to be selected based on various factors including species hardiness and area soil type.
6. No threatened or endangered species were observed during the field survey. Suitable roosting and foraging habitat exists within the project area for the whooping crane, and there have been several previous sightings within 10 miles of the project area. SWCA recommends that if construction is to occur within whooping crane spring and fall migration periods, and a whooping crane is observed within 1 mile of the project, to stop construction and notify the USFWS.

Suitable nesting and foraging habitat for piping plover and interior least tern exist less than 1-mile from the project area along the shorelines of Lake Sakakawea. Additionally, Lake Sakakawea is suitable habitat for pallid sturgeon. With proper best management practices in place, the proposed project is not likely to affect Lake Sakakawea and subsequently piping plover, interior least tern, and pallid sturgeon.

The other listed threatened and endangered species which occur in Mountrail County are not likely to be detrimentally impacted by construction activities.

7. Migratory birds and habitat were observed throughout the entire project area and a 0.5-mile line-of-sight raptor survey was conducted throughout the survey area.

No active raptor nests or other species of raptor were observed. In order to reduce impacts to migratory birds, SWCA recommends conducting all construction outside of the migratory bird breeding season. If construction occurs during the bird breeding season, SWCA recommends to mow, maintain, or completely remove vegetation within the project construction area, or conduct an avian survey of the project area no greater than 5 days before construction begins. If active nests are discovered, notify the USFWS.

8. No noxious weeds were discovered within the surveyed areas. If noxious weeds are confirmed during construction activities, actions should be taken to reduce the potential to spread any state listed noxious weed species, especially to native areas.

5.0 LITERATURE CITED

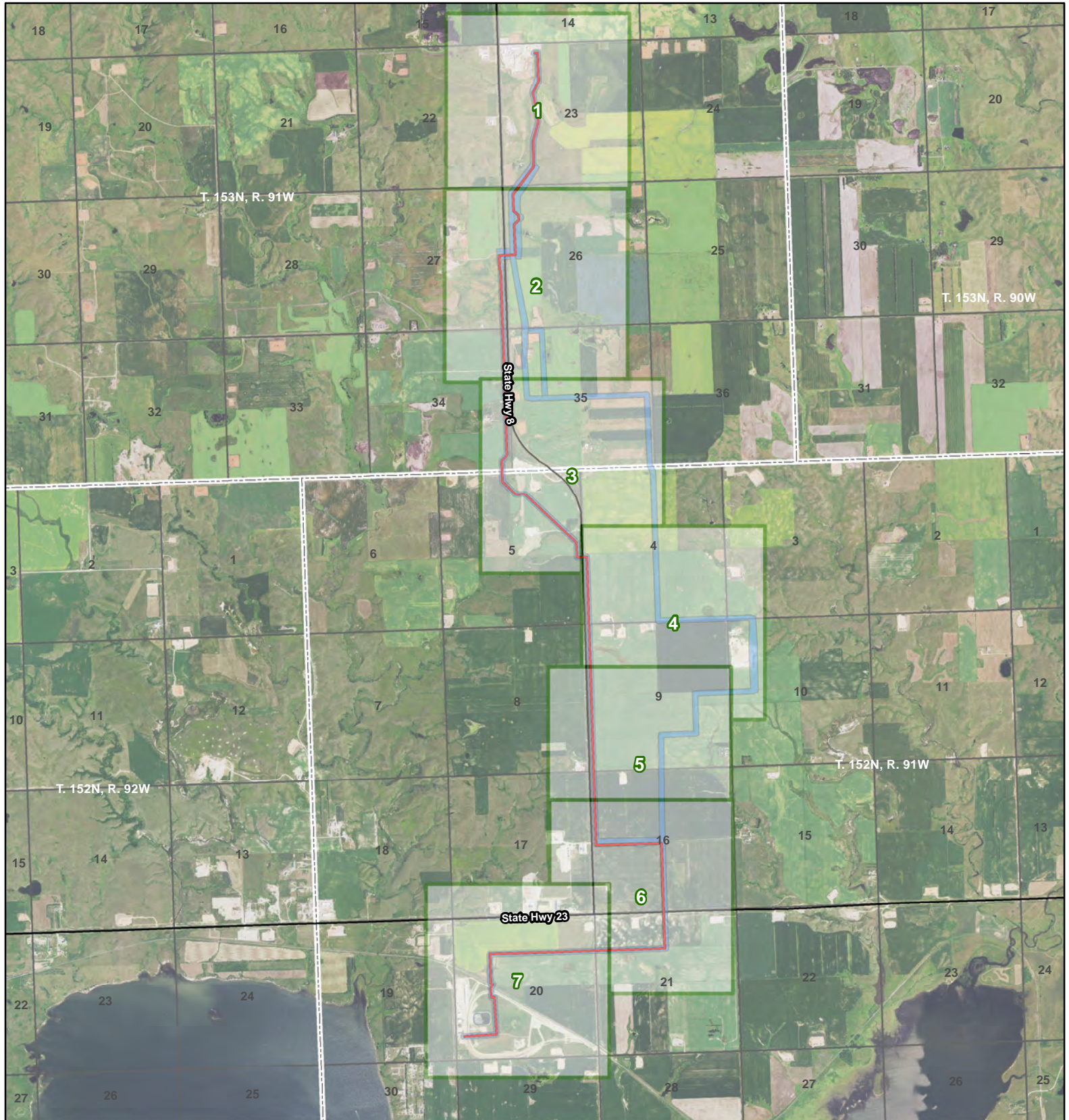
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APPENDIX A
Vicinity Maps and Site Layout Maps



Bison Pipeline

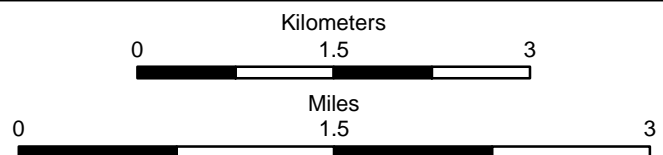
- Proposed Pipeline
- Existing Road
- Survey Area
- Township/Range Boundary
- Section Boundary



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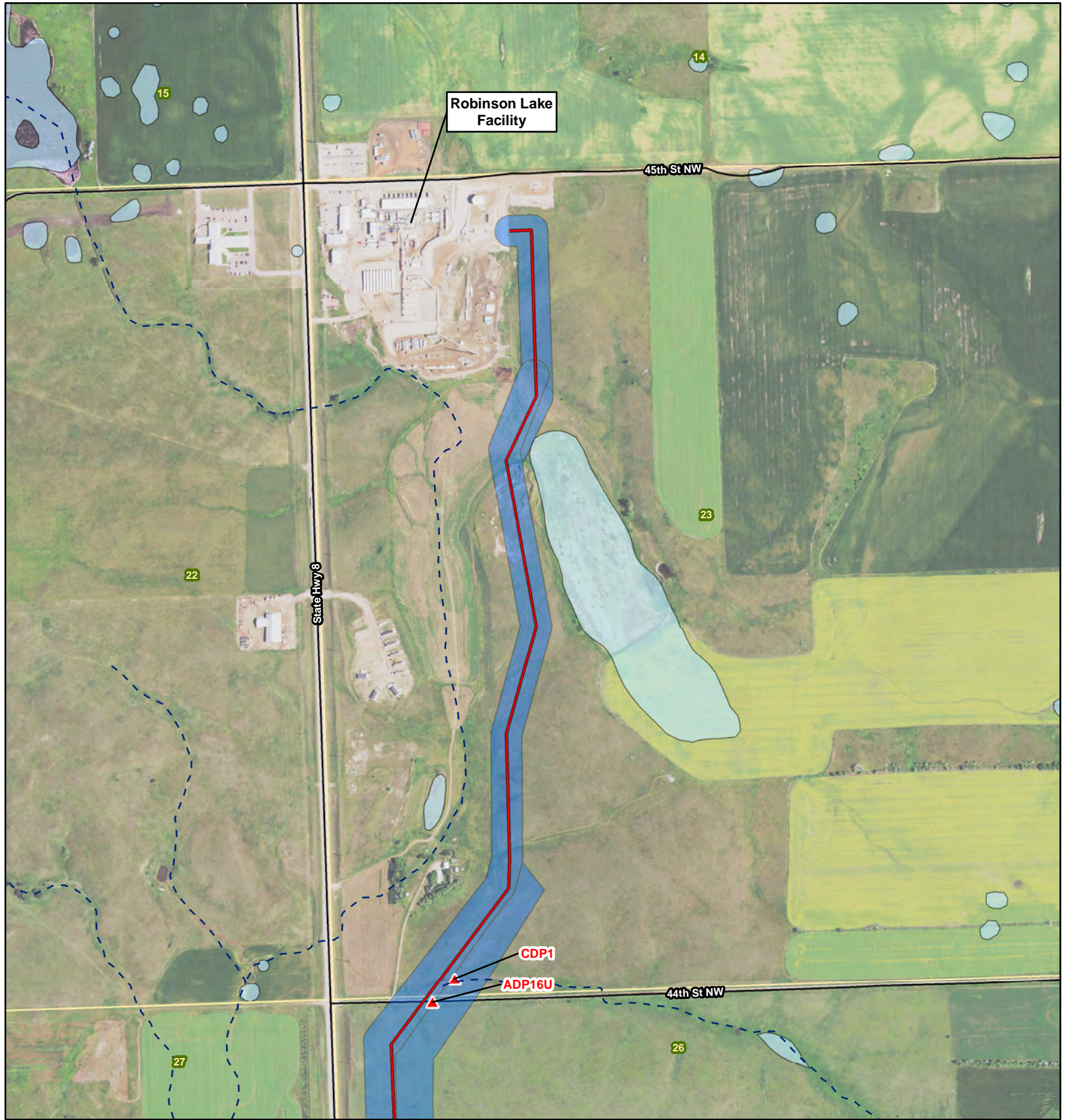
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Base Map: 2014 Aerial Imagery
Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: Belden SE (1981), Shell Creek Bay (1981)
Township/Range: T. 153N, R. 91W & T. 152N, R. 91W
Mountrail County, North Dakota



Projection: NAD 1983 UTM Zone 13N



Bison Pipeline

- ▲ Upland Data Point
- ▲ Wetland Data Point
- Proposed Pipeline
- Stream
- Existing Road
- Flowline
- Wetland
- Woody Vegetation
- NWI Wetland
- Survey Area
- Township/Range Boundary
- Section Boundary



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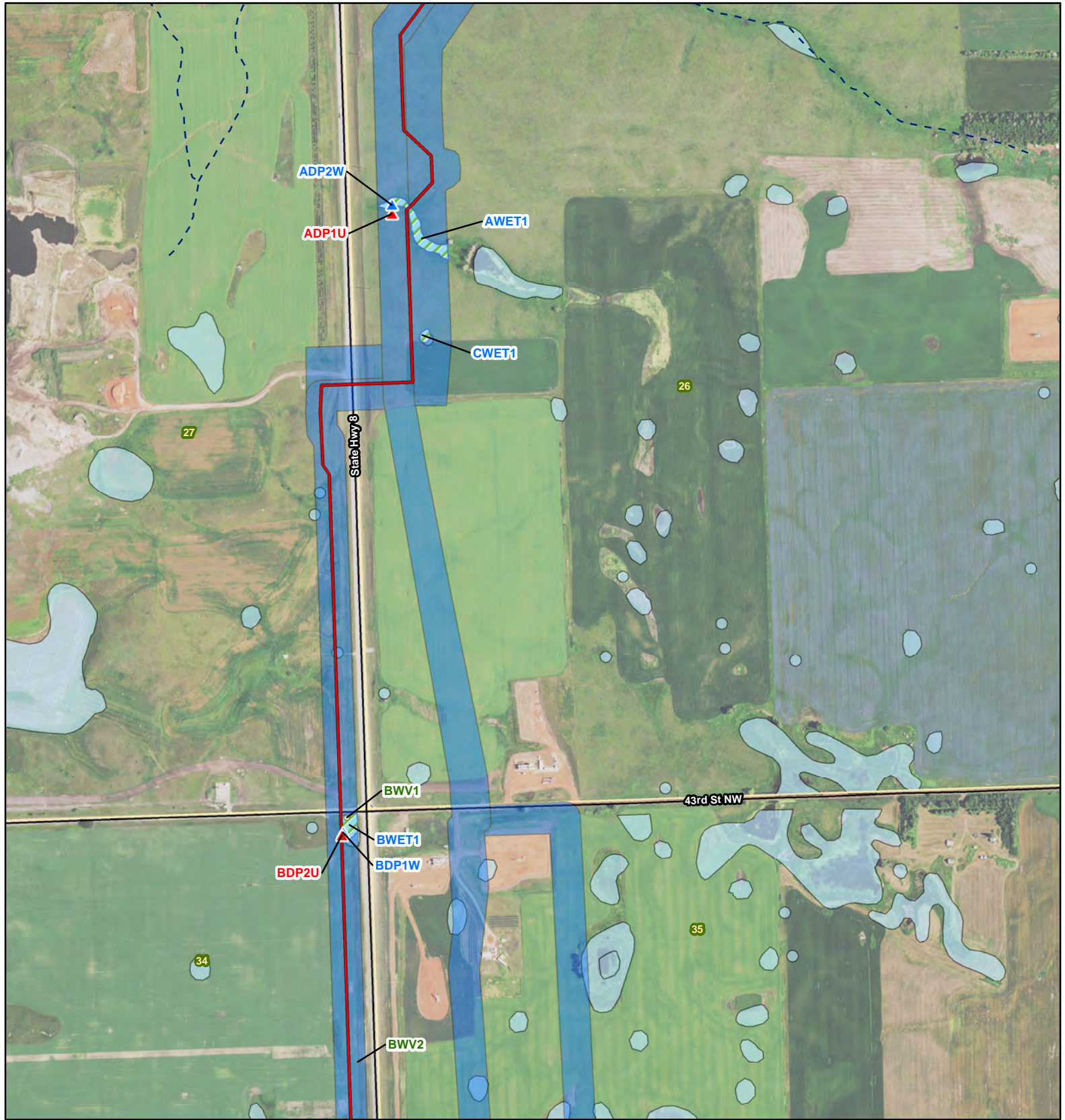
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Source: USDA/FSA - Aerial Photography Field Office
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Township/Range: T153N, R91W

Mountrail County, North Dakota

Projection: NAD 1983 UTM Zone 13N





Bison Pipeline

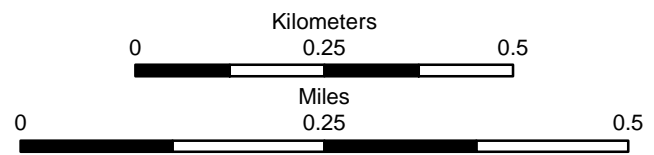
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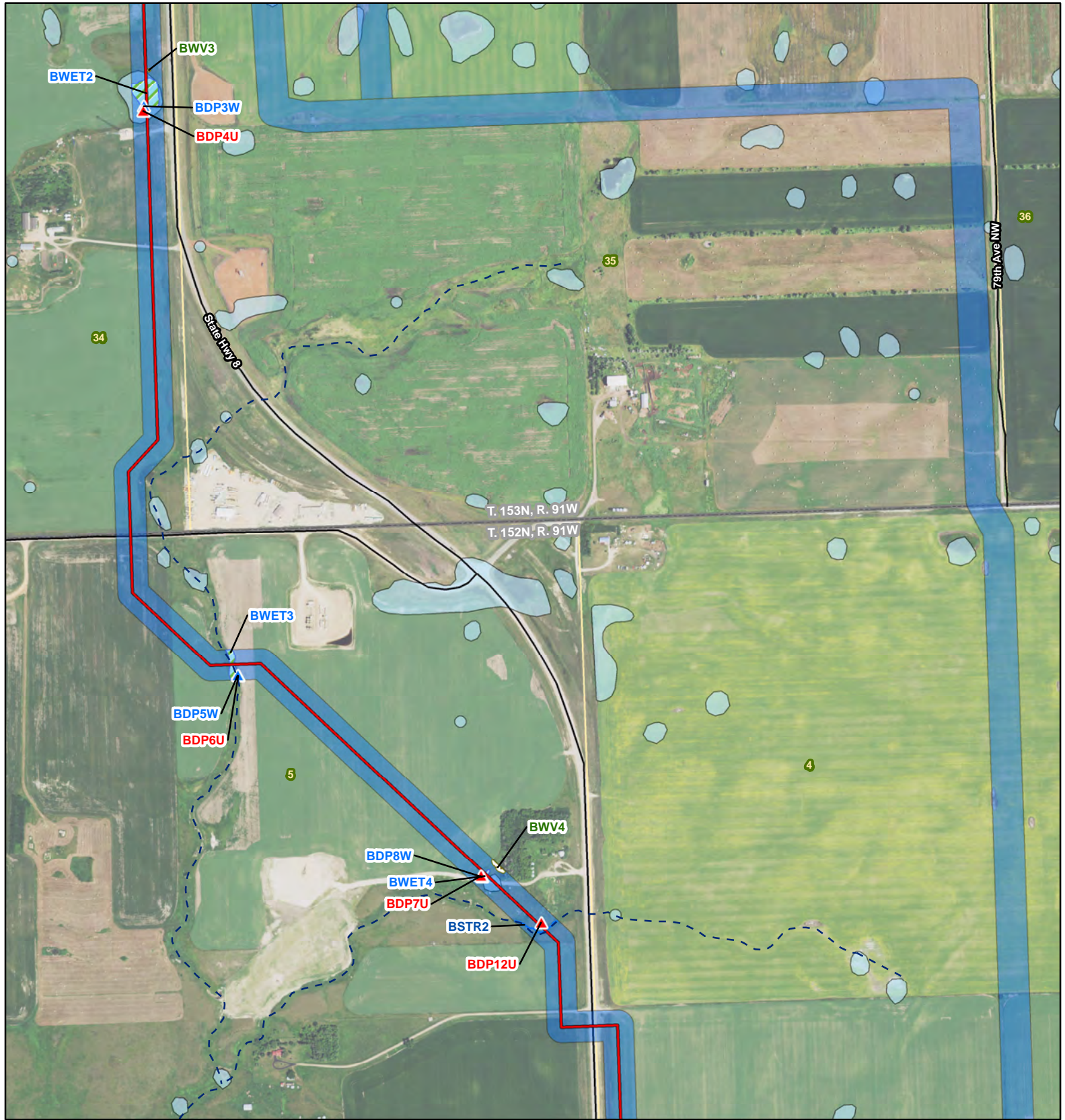
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Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: Belden SE (1981)

Township/Range: T153N, R91W

Mountrail County, North Dakota

Projection: NAD 1983 UTM Zone 13N





Bison Pipeline

- ▲ Upland Data Point
- ▲ Wetland Data Point
- Proposed Pipeline
- Stream
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Kilometers

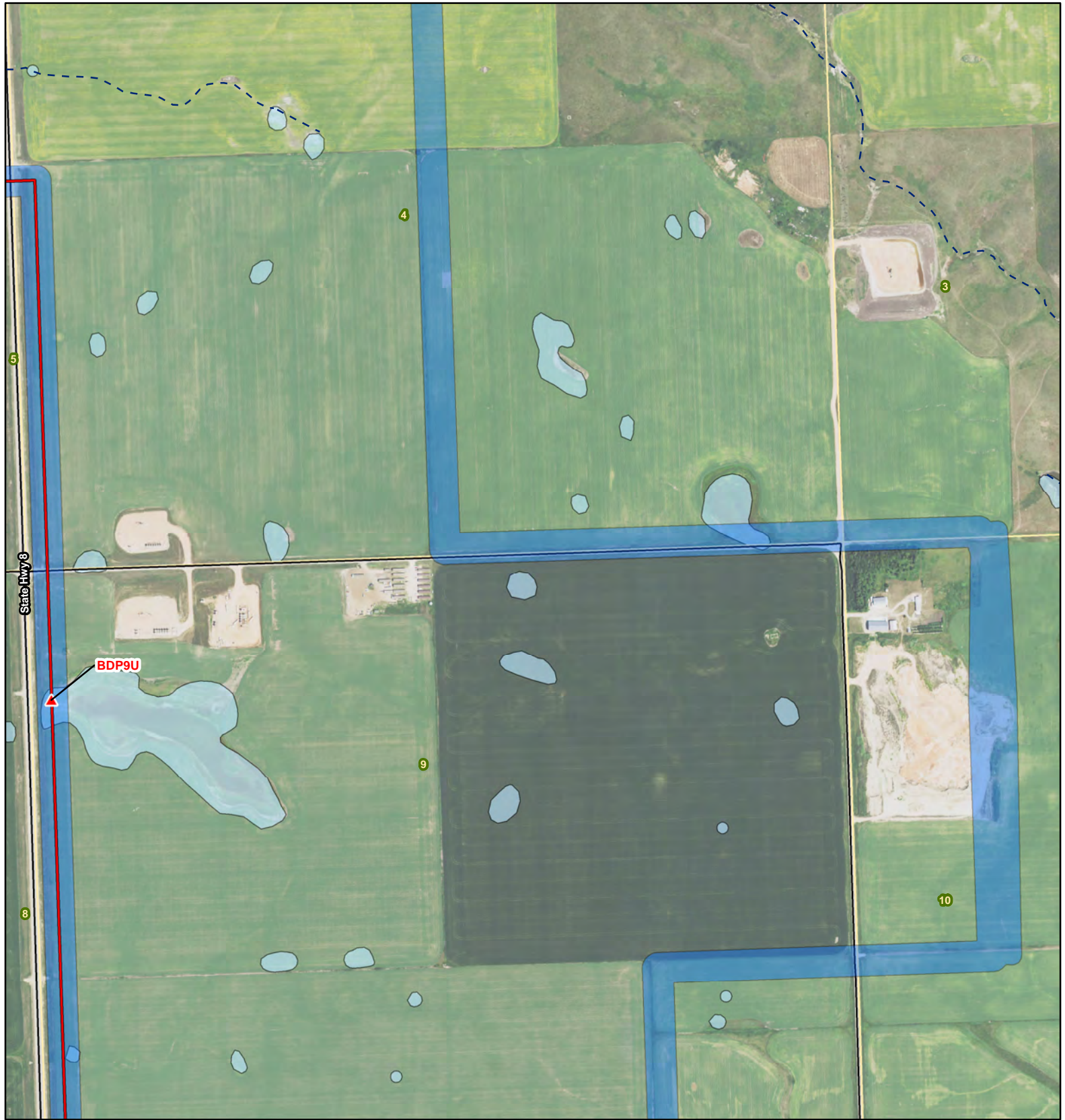
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Quadrangle: Belden SE (1981)

Township/Range: T153N, R91W &
T152N, R91W
Mountrail County, North Dakota

Projection: NAD 1983 UTM Zone 13N





Bison Pipeline

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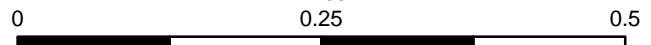
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Kilometers
0 0.25 0.5



Miles

0 0.25 0.5



Base Map: 2014 Aerial Imagery
Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: Belden SE (1981),
Shell Creek Bay (1981)
Township/Range: T152N, R91W

Mountrail County, North Dakota

Projection: NAD 1983 UTM Zone 13N





Bison Pipeline

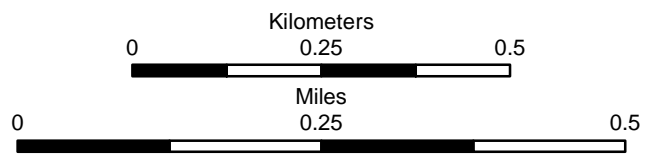
- ▲ Upland Data Point
- ▲ Wetland Data Point
- Proposed Pipeline
- Stream
- Existing Road
- Flowline
- Wetland
- Woody Vegetation
- NWI Wetland
- Survey Area
- Township/Range Boundary
- Section Boundary



116 North 4th Street
Suite 200
Bismarck, ND 58501

Phone: 701.258.6622
Fax: 701.258.5957

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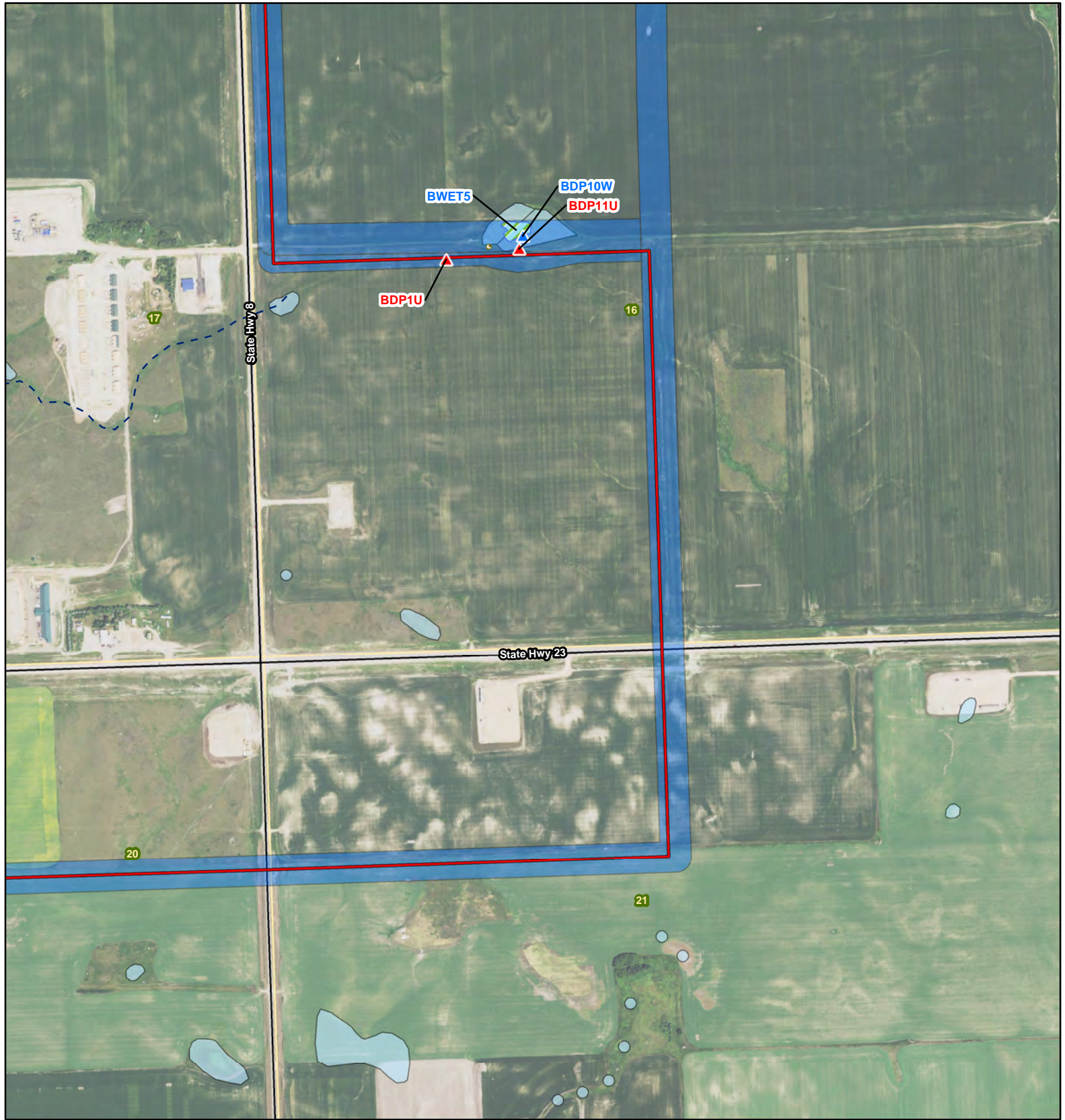


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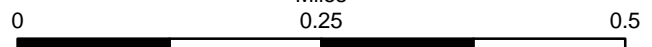
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Kilometers
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Miles

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Base Map: 2014 Aerial Imagery
Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: Shell Creek Bay (1981)

Township/Range: T152N, R91W

Mountrail County, North Dakota

Projection: NAD 1983 UTM Zone 13N





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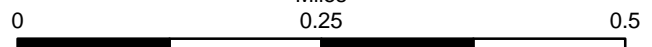
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Kilometers
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Miles

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Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: Shell Creek Bay (1981)

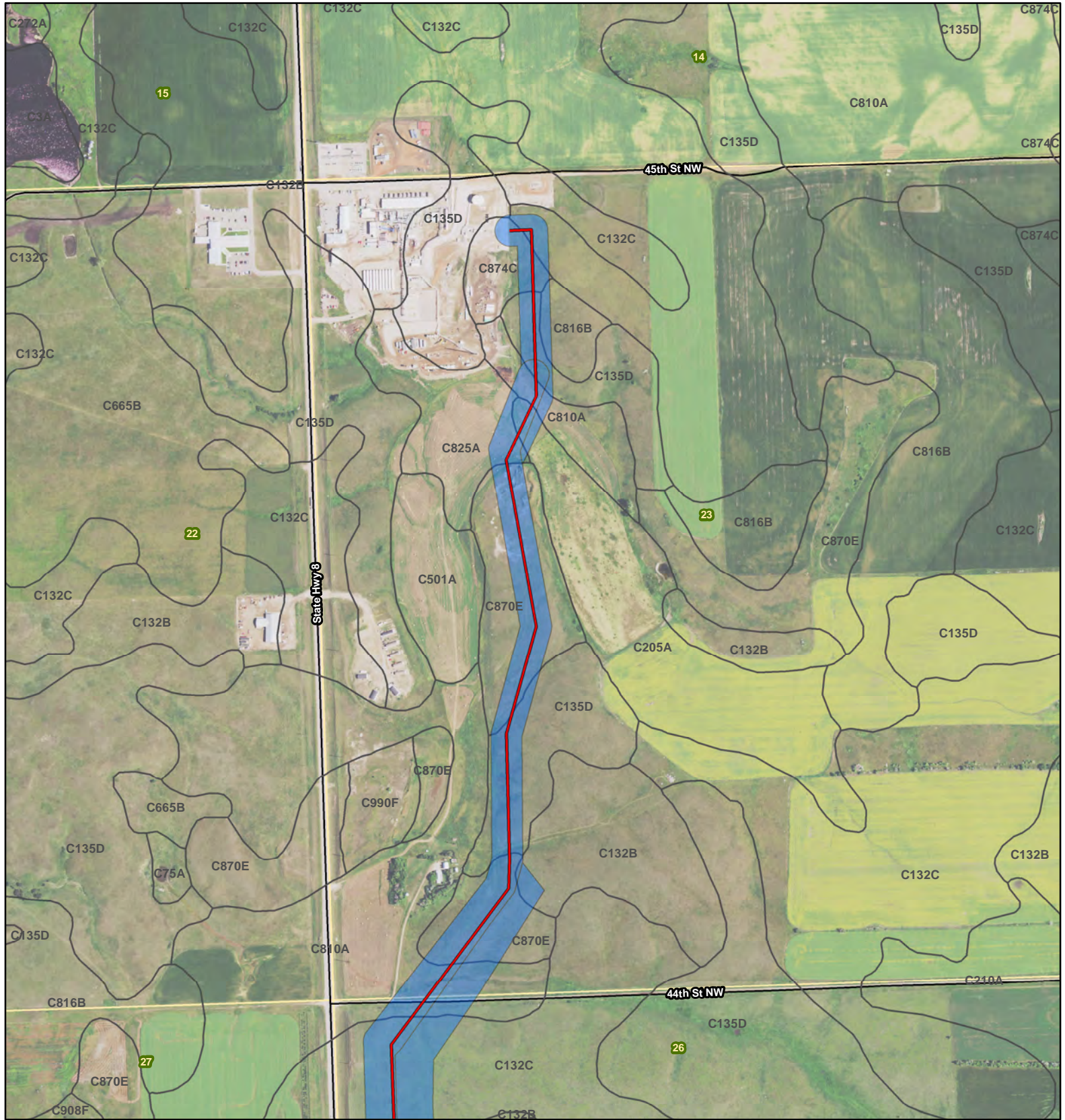
Township/Range: T152N, R91W

Mountrail County, North Dakota







Projection: NAD 1983 UTM Zone 13N



APPENDIX B
Survey Area Soils Series Map



Bison Pipeline

-  Proposed Pipeline
-  Existing Road
-  Soil Unit Boundary
-  Survey Area
-  Township/Range Boundary
-  Section Boundary



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Kilometers

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Miles

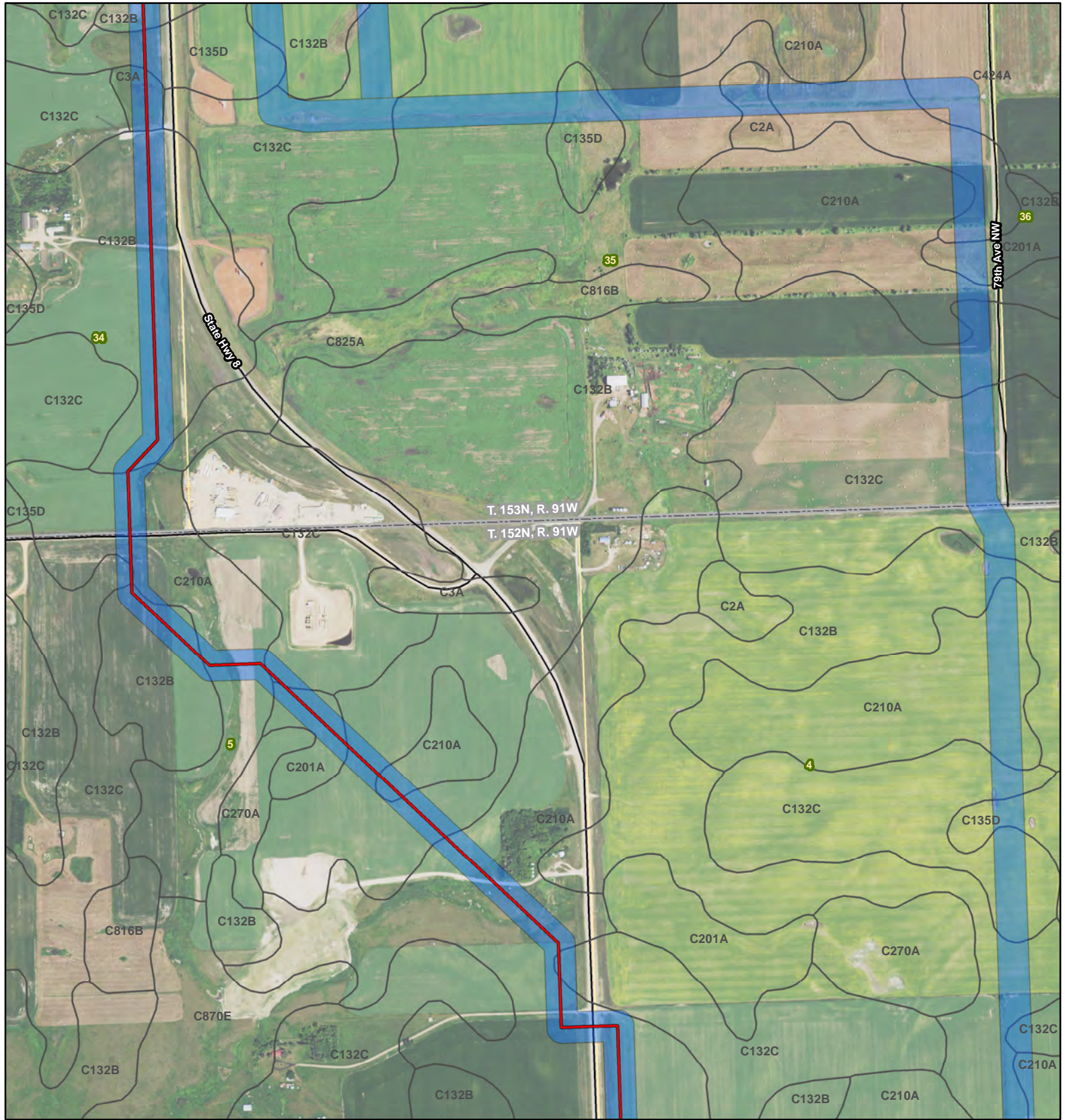
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Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: Belden SE (1981)

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


Mountrail County, North Dakota

Projection: NAD 1983 UTM Zone 13N





Bison Pipeline

-  Proposed Pipeline
-  Existing Road
-  Soil Unit Boundary
-  Survey Area
-  Township/Range Boundary
-  Section Boundary



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0 0.25 0.5
Kilometers

0 0.25 0.5
Miles

Base Map: 2014 Aerial Imagery
Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: Belden SE (1981)







Township/Range: T153N, R91W &
T152N, R91W
Mountrail County, North Dakota

Projection: NAD 1983 UTM Zone 13N





Bison Pipeline

-  Proposed Pipeline
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-  Soil Unit Boundary
-  Survey Area
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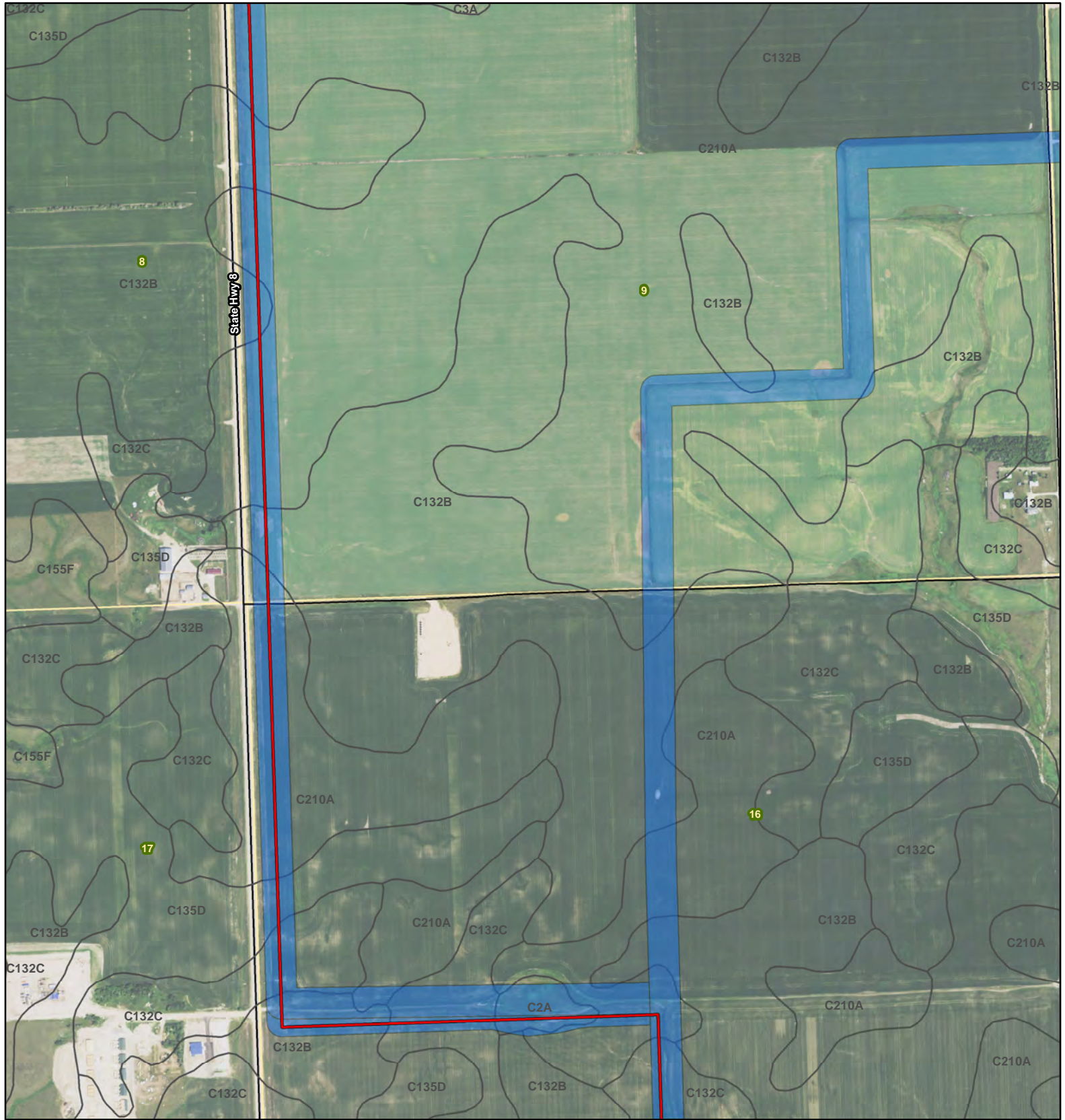


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Township/Range: T152N, R91W







Mountrail County, North Dakota

Projection: NAD 1983 UTM Zone 13N





Bison Pipeline

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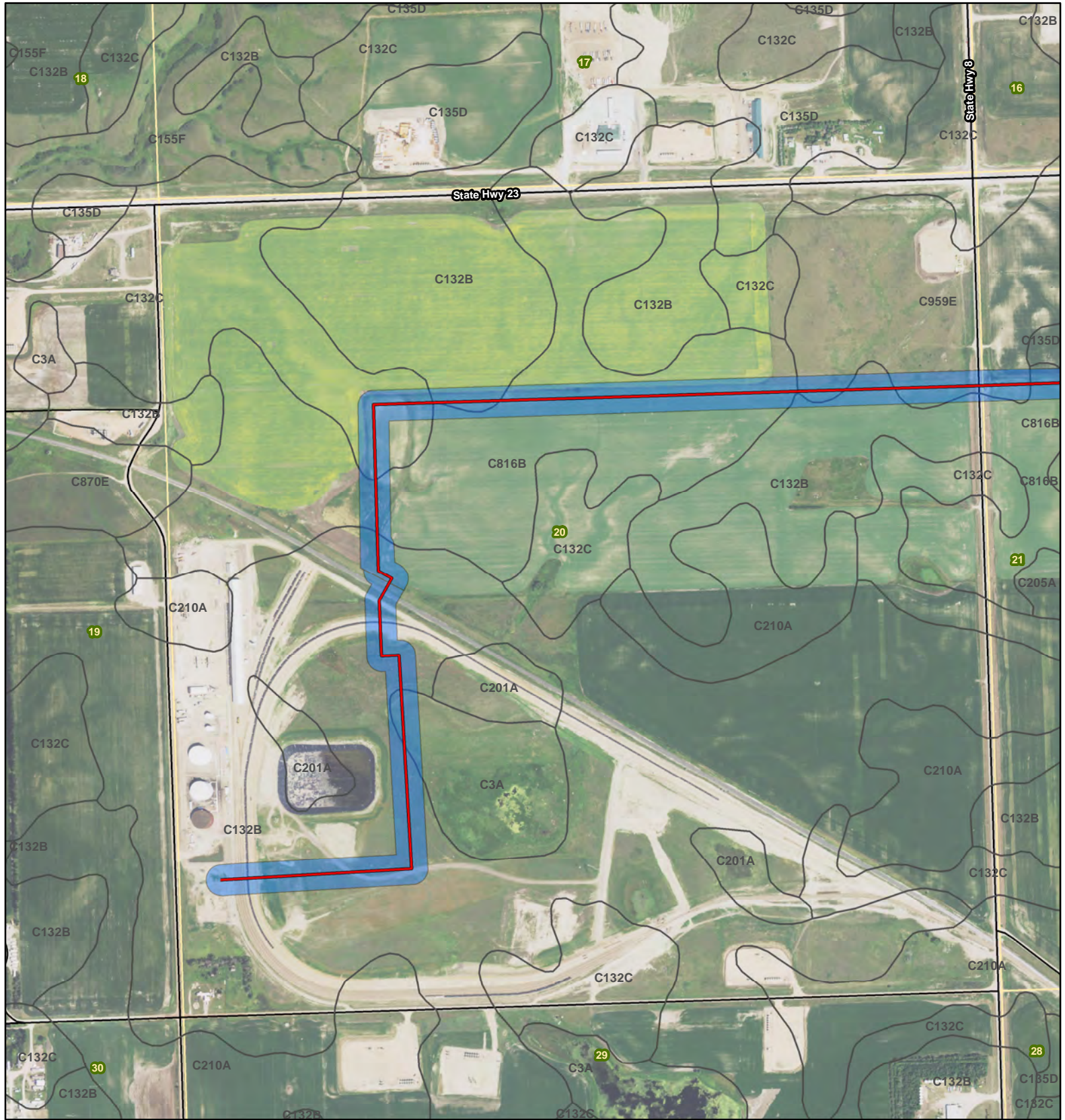
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Kilometers

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Miles







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Mountrail County, North Dakota
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0 0.25 0.5
Kilometers

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Township/Range: T152N, R91W

Mountrail County, North Dakota

Projection: NAD 1983 UTM Zone 13N



NRCS Derived Soil Series Present within the ROW

Soil Type	Map Unit Symbol	Slopes (%)	Acres within 100-foot-wide ROW	Percent within Map Unit
Williams-Zahl loams	C132B	3 to 6	30.33	26.60%
Williams-Bowbells loams	C210A	0 to 3	27.11	23.78%
Williams-Zahl-Zahill complex	C132C	6 to 9	17.38	15.24%
Zahl-Williams loams	C135D	9 to 15	14.26	12.51%
Wabek-Lehr-Appam complex	C870E	9 to 25	6.57	5.76%
Lehr loam	C816B	2 to 6	5.75	5.05%
Bowdle loam	C810A	0 to 2	3.30	2.90%
Vebar-Flasher-Zahl complex	C959E	6 to 25	2.67	2.34%
Parnell silty clay loam	C3A	0 to 1	2.12	1.85%
Tonka silt loam	C2A	0 to 1	1.49	1.30%
Bowbells loam	C201A	0 to 3	1.28	1.12%
Wabek-Appam complex	C874C	6 to 9	0.84	0.73%
Bowbells-Tonka complex	C205A	0 to 3	0.47	0.41%
Divide loam	C825A	0 to 2	0.47	0.41%
Total			114.03	100.00

APPENDIX C
Photographs of Project Area



Figure C.1. Semi-permanent wetland (BWET1), facing north (photo taken October 1, 2014).



Figure C.2. Semi-permanent wetland (BWET2), facing north (photo taken October 1, 2014).



Figure C.3. Semi-permanent wetland (BWET3), facing northwest (photo taken October 1, 2014).



Figure C.4. Semi-permanent wetland (BWET4), facing southwest (photo taken October 1, 2014).



Figure C.5. Semi-permanent wetland (BWET5), facing east (photo taken October 1, 2014).



Figure C.6. Woody vegetation consisting of Green Ash (*Fraxanus pennsylvanica*) (BWV1), facing north (photo taken October 1, 2014).



Figure C.7. Woody vegetation consisting of Siberian Elm (*Ulmus pumilla*) (BWV2), facing south (photo taken October 1, 2014).



Figure C.8. Woody vegetation consisting of Green Ash (*Fraxinus pennsylvanica*) (BWV3), facing north (photo taken October 1, 2014).



Figure C.9. Woody vegetation consisting of chokecherry (*Prunus virginiana*) (AWV4), facing northwest (photo taken May 6, 2014).

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Appendix E

Cultural Resources Report

APPENDIX B
(Detached)
North Dakota Site Forms

APPENDIX C

**(Detached)
Resource Location Map**

Appendix F

10-Year Plan



PLAINS
PIPELINE, L.P.

P. O. Box 708
Belfield, ND 58622



Jun. 24, 2014

Public Service Commission
State Capitol Building
Bismarck, ND 58505

Re: Ten-Year Plan

To Whom It May Concern:

Enclosed are ten copies of our Ten-Year Plan for filing with the Commission as required by law. Notice of filing to State Agencies and Officers has been completed and one copy of our plan has been mailed to respective County Auditors.

Please call me at 701-575-4349 if you have any inquiries regarding the contents of our plan.

Sincerely,

Ed Shypkoski
District Manager

Enclosure

1 **PU-14-502** Filed: 6/30/2014 Pages: 8
2014 Ten Year Plan

Plains Pipeline, L.P.

Ed Shypkoski, District Manager

PLAINS PIPELINE, L.P.
2014
TEN-YEAR PLAN

Introduction

Plains Pipeline, L.P. [hereafter known as "Plains"] controls various pipeline transmission facilities in the State of North Dakota subject to the provisions of N.D.C.C. § 49-22-04. The 2014 ten-year plan of Plains Pipeline, L.P. is as follows:

(NOTE: The following assets were formerly owned by the following entities:

Koch Gathering Systems, Inc. and/or Koch Pipelines, Inc.(previous to December 1, 1998), EOTT Energy Pipeline Limited Partnership (December 1, 1998 – October 1, 2003), and Link Energy Pipeline Limited Partnership (October 1, 2003 -- April 1, 2004).

Plains acquired the Link Energy Pipeline Limited Partnership assets on April 1, 2004.

In late December 2010, Plains acquired Nexen USA assets. In Dec 2011, Bridger Pipeline acquired the Fryburg Dodge and Killdeer Pipeline systems from Plains PL. Those segments have been removed from Plains' Ten Year Plan.

• **Whitetail Gathering Facilities (Pipeline)**

1. Whitetail Gathering System
 - a. Product type: crude oil
 - b. Length of facility: 17 miles
 - c. Pipe size: 4"
 - d. Maximum design operating pressure: 1440 PSI
 - e. Maximum design flow rate: 6720 BPD
 - f. Pump station specifications: field gathering injection pumps move product to Whitetail Station.
 - g. Minimum cover over pipe: 48" (more or less)
 - h. The Whitetail gathering line was placed in service in 1982.
 - i. An internal line inspection tool was run in 2010. Several anomaly digs were done as a result of the tool run.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT FIVE YEARS.

1. There are no plans for the next 5 years on this pipeline.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT TEN YEARS.

1. See above 5 year proposed plans.

• **Baker/Rhame Gathering Facilities (Pipeline)**

1. Harding Station (South Dakota) to Rhame Station, ND (Looped)
 - a. Product type: crude oil
 - b. Length of facility: approx. 30 miles (with 15 miles in South Dakota)
 - c. Pipe Size: The pipeline consists of parallel pipelines running the entire distance. The line size in North Dakota is 2", 3" and 4". The line size in South Dakota is 4" and 6".
 - d. Maximum design operating pressure: 1400 PSI
 - e. Maximum design flow rate: 4800 BPD at 1100 PSI
 - f. Pump station specifications: field pumps with low design flow rates.
 - g. Minimum cover over pipe: 48" (more or less)
 - h. The 2" ND line has been purged and idled. The 4" SD to Rhame Station line has had an internal inspection done in 2014 with anomaly repairs pending. No immediate repair conditions exist on this line.

2. Rhame Station to Baker Station (Montana) (Looped)
 - a. Product type: crude oil
 - b. Length of facility: 47.5 miles
 - c. Pipe Size: The Rhame Station to Baker facility consists of parallel pipelines running the entire distance with an intermediate Marmarth Station. The line size in North Dakota is 6", 4", and 8". The line size in Montana is 4", 4", and 8".
 - d. Maximum design operating pressure: 1400 PSI
 - e. Maximum design flow rate: 58,000 BPD at 1400 PSI
 - f. Pump station specifications: (Rhame and Marmarth combined) two 250 HP, 2651 Gaso pumps with an output pressure of 950 PSI and with throughput capacity of 10,000 BPD. A centrifugal pump with a throughput capacity of 42,000 BPD was installed at Marmarth Station in 2005, and another in 2006, with a maximum capacity of 53,000 BPD. A 30,000 bbl tank was constructed at Marmarth Station in 2005.
 - g. Minimum cover over pipe: 48" (more or less)
 - h. The 4", 6" and 8" lines from Rhame to Baker have had internal line inspection tools ran as of 2011 with all anomalies being inspected or repaired. The 4" and 6" lines between Rhame and Marmarth have internal line inspections scheduled for July of 2014.

3. In-Service "Dates"
 - a. The original Rhame Station to Baker line was put in service in 1971 with a 4" loop constructed in 1973, a 6" loop in 1984 and an 8" loop line in 1995. The 8" extension in to North Dakota was built in 1997. Other small gathering lines were constructed in

1995-1997 and 2003-2004. Several other small gathering lines were constructed in 2005 and 2006.

- b. The original gathering into Rhame Station was built in 1971. The Harding Station to Rhame Station lines were built and put into service in 1985.
- c. A 30,000 bbl crude oil tank has been constructed at Marmarth Station in 2005 to improve pipeline flows.
Throughput of the main lines has been increased up to 50000 bpd due to improvements in capacity at Marmarth Station.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT FIVE YEARS.

1. None anticipated

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT TEN YEARS.

1. None anticipated

• **Robinson Lake to Stanley Transmission Facilities (Pipeline)**

1. Robinson Lake Station to Stanley 8"
 - a. Product type: crude oil
 - b. Length of facility: approx. 17 miles
 - c. Pipe Size: 8"
 - d. Maximum design operating pressure: 1440 PSI
 - e. Maximum design flow rate: 62000 BPD
 - f. Pump station specifications: 2-1250 HP Centrifugal pumps with tankage
 - g. Minimum cover over pipe: 48" (more or less)
 - h. Internal line inspection tools are scheduled to be run in 2015
2. In-Service "Dates"
 - a. This line was put into service in 2010 by Nexen USA. Plains acquired the line in late Dec., 2010.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT FIVE YEARS.

1. Plains Pipeline has no approved plans in place at this time although drilling and exploration is increasing in this area which increases the chance of additional transmission and transportation facilities to be constructed in the future.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT TEN YEARS.

1. See above 5 year plan.

• **Stanley to Manitou Transmission Facilities (Pipeline)**

1. Stanley to Manitou 10"

Also known as Nelson to Manitou

- a. Product type: crude oil
- b. Length of facility: approx. 17 miles
- c. Pipe Size: 10"
- d. Maximum design operating pressure: 1440 PSI
- e. Maximum design flow rate: 62000 BPD
- f. Pump station specifications: 2-1250 HP Centrifugal pumps with tankage, originating from Robinson Lake Station.
- g. Minimum cover over pipe: 48" (more or less)

2. In-Service "Dates"

- a. Construction began on this line in late June 2012 and was put in service on Dec 30, 2012.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT FIVE YEARS.

1. There are no other plans for this pipeline during the next 5 years other than possibly short pipeline connections from various production companies or other crude carriers.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT TEN YEARS.

1. There are no other plans for this pipeline during the next 10 years other than possibly pipeline connections from various production companies or other crude carriers.

• **Bakken North Transmission Facilities (Pipeline)**

1. Bakken North 12" (Trenton Station to Raymond Station)

- a. Product type: crude oil
- b. Length of facility: approx. 80 miles
- c. Pipe Size: 12"
- d. Maximum design operating pressure: 1440 PSI
- e. Maximum design flow rate: 75000 BPD
- f. Pump station specifications: 2-1250 HP Centrifugal pumps with tankage originating near Williston ND at Plains' Trenton Station
- g. Minimum cover over pipe: 48" (more or less)
- h. This lines originates from Trenton Station near Williston ND and delivers to Wascana Pipeline at the Canadian border north of Outlook, MT. The newly constructed segment from Trenton Station to Raymond Station is 80 miles in length and ties into an existing 6 mile segment Plains acquired from Bridger PL from Raymond Station to the Canada/US border.
- j. The existing segment from Raymond to the border was internally inspected in 2012.
- k. The newly constructed segment is scheduled to be internally inspected in 2014.

2. In-Service "Dates"

- a. Construction began on this line in early 2012 and completed by the 1st Qtr of 2014.
This line was placed into service in April 2014.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT FIVE YEARS.

1. Plains Pipeline has constructed this line to deliver crude oil from the Williston ND area to the Canadian border near Outlook, MT where it connects with Wascana Pipeline in Canada. Connections from other crude oil sources such as production companies and other pipelines are possible, however, no plans are in existence at this time.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT TEN YEARS.

1. There are no other plans for this pipeline during the next 10 years other than possibly pipeline connections from various production companies, however, no plans are in existence at this time.

• **Trenton System Transmission Facilities (Pipeline)**

1. Richland County, MT to Trenton Station near Williston, ND
 - a. Product type: crude oil
 - b. Length of facility: 303 miles (280 miles are in Montana)
 - c. Pipe Size: 4", 6" and 10"
 - d. Maximum design operating pressure: 1440 psi
 - e. Maximum design flow rate: 36,000 bpd
 - f. Pump station specifications: Oil is gathered from production facilities with individual pumps at production sites in North Dakota and Montana. A truck unloading facility, Richland Station, injects crude into the line in Richland County, MT. Oil is gathered to tankage at Trenton Station near Williston, ND. Trucks can also unload at Trenton Station.
 - g. Minimum cover over pipe: 48" (more or less)
 - h. The Trenton gathering line was placed in service in 1968.
 - i. Internal inspection tools were ran in the pipeline in 1997, 2004, 2009, and 2014.
 - j. 5000' of changeouts were made in 1997-1998. Additional repairs were made in early 2005 as a result of the 2004 internal line inspection tool run. Other anomalies were addressed with pipe replacements as a result of the 2009 internal inspection tool run.
 - k. Approximately 5 miles of 10" pipeline, including a 10" line bored under the Missouri River, have been constructed in 2006 to replace portions of the 6" line to increase capacity. The replaced portions of the 6" pipeline have been taken out of service.

2. East Fork Gathering Pipeline (INACTIVE)

- a. Product type: crude oil
- b. Length of facility: 30 miles
- c. Pipe size: 6" and 4"
- d. Maximum design operating pressure: 1440 psi

REPORT ID: 90259149
REPORT NAME: ERROR LISTING FOR FIELD OFFICES
3

- e. Maximum design flow rate: 8400 BPD
- f. Pump specifications: All pumps have been removed from production facilities.
- g. Minimum pipe cover: 48" (more or less)
- h. Internal inspection tool run in 1997.
- i. No changeouts were required.
- j. This line has been purged of all crude oil.

This pipeline is currently idle. Plains maintains the property, however, to preserve its salvage value or return it to service should that be desired.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES IN THE NEXT FIVE YEARS:

1. Plains Pipeline has no plans in the next 5 years to expand this pipeline other than possible connects to various sites such as production facilities or other carriers. However, no approved plans or projects are pending at this time.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES IN THE NEXT TEN YEARS:

1. See above 5 year plan.

Company Overview

Plains Pipeline, L.P. provides crude petroleum transportation services from producing leases to various pipeline or refinery destinations. Ultimately, the crude oil is converted to marketable condition as fuels and lube products. Plains must react to the oil and gas industry's needs for its service on a much shorter time frame than five or ten years. The distances involved are relatively short and the need for the service is generally only foreseeable by a few short months. Long-range planning is valuable only to the extent that it permits Plains to react rapidly and efficiently to industry requirements for pipeline transportation services.

Regional Coordination

Oil and gas exploration activity remains uncertain due to unpredictable crude oil prices. Since petroleum exploration is a highly competitive business, regional planning for production and transportation of oil and gas production is very limited.

It is believed that if the companies engaged in the exploration and production of oil and gas coordinated their plans on a regional basis in order to meet regional fuel requirements as they foresaw them, they may expose themselves to the severe penalties associated with violation of the nation's antitrust laws.

Environmental Information

Plains has developed cooperative working relationships with the U.S. Forest Service, the Bureau of Land Management, the North Dakota Industrial Commission, the North Dakota Public Service Commission, the State Health Department, the State Water Commission, and those counties in which it operates.

Plains selects pipeline corridors and routing to minimize impact as required by the statutes and rules and regulations of the Public Service Commission. Whenever desirable, Plains may employ local environmentalists and archaeologists to assist with planning; local farmers may be employed for restoring cropland to tillable condition following construction. Plains is proud of its safety record in the operation of facilities in North Dakota and is prepared to meet any emergency that should arise in order to minimize the impact of any pipeline failure.

In 1988, a new metering and SCADA supervisory system was installed on the Rhame to Baker, and Trenton lines for leak detection purposes. New pipelines under construction will have the newest technology for SCADA and leak detect available. Plains Pipeline's Control Center in Midland, TX monitors most of Plains Pipeline's operations in North Dakota. Plains maintains a rigid pipeline integrity program and periodically runs internal line inspection tools to find anomalies and perform required repairs and change outs as needed.

Projected Demand For Services

At the present time, the world market for crude oil is tight. This has led to higher crude oil prices.

Current high prices of crude oil have increased crude oil exploration in North Dakota and surrounding states. As development and production increases, the need for transportation capability also increases. New facilities and pipelines may need to be constructed to meet growing demand, however, uncertainty and confidentiality of production activities leads to short range planning by the crude oil gathering and transportation industry.

Appendix G

Landowner Waivers

Landowner Waivers Pending