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# A Class III Intensive Cultural Resource Inventory for the Dore Loop in McKenzie County, North Dakota

*By:*  
Brittany Brooks

*Prepared for:*  
Keitu Engineers & Consultants, Inc.

*On Behalf of:*  
Hiland Crude, LLC

*Prepared by:*  
Beaver Creek Archaeology, Inc.  
1632 Capitol Way  
Bismarck, ND 58501  
[www.bcarch.org](http://www.bcarch.org)

Wade Burns, Principal Investigator

Cultural Resource Use Permit: N/A  
BCA Project No.: 2014-1090  
November 2014

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**Beaver Creek**  
**ARCHAEOLOGY**

**WHERE PROGRESS MEETS PRESERVATION**

1632 Capitol Way | Bismarck, ND 58501 | PH [701] 663.5521 | FX [701] 663.5509

[www.bcarch.org](http://www.bcarch.org) | e-mail: [info@bcarch.org](mailto:info@bcarch.org)

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COUNTY	TWP	R	SEC	SU
McKenzie	151N	102W	6	YE
	151N	103W	1, 2, 3, 4, 5	YE
	151N	104W	1, 2, 3, 4, 5	YE
	152N	103W	31, 32, 33, 34	GA
	152N	104W	33, 34, 35, 36	YE

## **Abstract**

The purpose of this investigation was to survey for cultural resources within the 560-acre survey area for the proposed Dore Loop in McKenzie County, North Dakota. Four hundred and twenty-five acres of the survey area has been previously inventoried so only 135 acres were surveyed during the current inventory.

This project is proposed on private property. Due to the Public Service Commission (PSC) involvement in the project, the applicant must comply with Section 106 of the National Historic Preservation Act (NHPA). The NHPA requires the applicant to consider what effects the undertaking will have on Historic Properties within the survey area.

Keitu Engineers & Consultants, Inc. on behalf of Hiland Crude, LLC contracted Beaver Creek Archaeology, Inc. (BCA) to conduct this study to fulfill the Section 106 obligations for this project. On September 8, 2014 and November 8, 2014, Wade Burns (Principal Investigator), Tara Friend (Archaeological Assistant), and Michael Rohrer (Archaeological Assistant) conducted the Class III Cultural Resource Inventory.

During the inventory, BCA archaeologists identified two previously recorded sites (32MZ1174 and 32MZ2206). Cultural Resources include one Native American stone feature site (32MZ2206) and one Architectural site (32MZ1174). Due to cultural resources within the proposed survey area, a plan of avoidance is proposed, and as long as this is followed, Beaver Creek Archaeology, Inc. recommends a finding of *No Historic Properties Affected* for this project.

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## **Introduction**

Keitu Engineers & Consultants, Inc. contracted Beaver Creek Archaeology, Inc. (BCA) to perform a Class III Cultural Resource Inventory of the Dore Loop in McKenzie County, North Dakota. The survey area covers approximately 560 acres; however, only 135 acres were inventoried to Class III standards as 425 acres were previously inventoried (see map in Appendix B). The land status is private property.

The legal locations for the survey area are presented below in a tabular format as depicted on the USGS 7.5' Cartwright NE, Buford, and Dore (MT) quadrangle maps:

**Table 1.** Project Location:

<b>Township</b>	<b>Range</b>	<b>Sections</b>	<b>USGS Quad. Map</b>
151N	102W	6	Cartwright NE
151N	103W	1, 2, 3, 4, 5	Cartwright NE & Buford
151N	104W	1, 2, 3, 4, 5	Buford & Dore (MT)
152N	103W	31, 32, 33, 34	Cartwright NE & Buford
152N	104W	33, 34, 35, 36	Buford & Dore (MT)

On September 8, 2014 and November 8, 2014, BCA conducted a Class III inventory for the Dore Loop. This report will detail the result of that inventory.

During the inventory, BCA archaeologists identified two previously recorded sites (32MN1174 and 32MZ2206). Cultural Resources include one Native American stone feature site (32MZ2206) and one Architectural site (32MZ1174).

The Native American stone feature site (32MZ2206) has been recommended potentially *eligible* for the National Register of Historic Places (NRHP), and BCA recommends that the site be avoided during pipeline construction by staying within a previously disturbed pipeline disturbance. The site will need to be avoided by a minimum of 50 feet (from the site boundary). Temporary fencing along the 50-foot site buffer line in conjunction with site monitoring during construction would minimize any adverse effect to the site.

The Architectural site (32MZ1174), the Lower Yellowstone Irrigation Project (LYIP), has been recommended potentially *eligible* for the NRHP. During the inventory, a new segment of the site was recorded. This newly recorded segment is not eligible for the NRHP as it is only a few years old; however, as the LYIP is still in use, BCA recommends that the site and the ineligible segment be avoided during pipeline construction by boring under the site.

Land use throughout the survey area consists of pastureland, fallow grasslands, and agricultural lands. Ground Surface Visibility (GSV) in these areas did not go below 30%, so no shovel probes were excavated.

## **Project Background and Inventory Methodology**

The proposed project consists of the construction of a petroleum pipeline for Hiland Crude, LLC. The survey area is approximately 560 acres in size; however, 425 acres were previously inventoried (see MS#s 11818, 12246, and 14475), so only 135 acres were inventoried to Class III

Standards for cultural resources within the survey area (see map Appendix B). The 560-acre project area is a corridor that measures 12.9 miles long and a variable 300 to 473 feet wide.

BCA cultural resource staff conducted the Class III Cultural Resource Inventory of the proposed project area on September 8, 2014 and November 8, 2014. The Secretary of the Interior (SOI) qualified archaeologist Wade Burns (Principal Investigator) along with Tara Friend (Archaeological Assistant) and Michael Rohrer (Archaeological Assistant) surveyed the proposed project area. Brittany Brooks prepared the report. Jay Ell (GIS Coordinator) created the project maps. The report and fieldwork preparation included a review of previously identified cultural resources and intensive pedestrian surveys of the survey area.

The pedestrian survey was performed by the BCA archaeologists walking linear pedestrian transects 10-15 meters apart based upon terrain probability for cultural resources. Shovel probes were implemented if the Ground Surface Visibility (GSV) dropped below 30%.

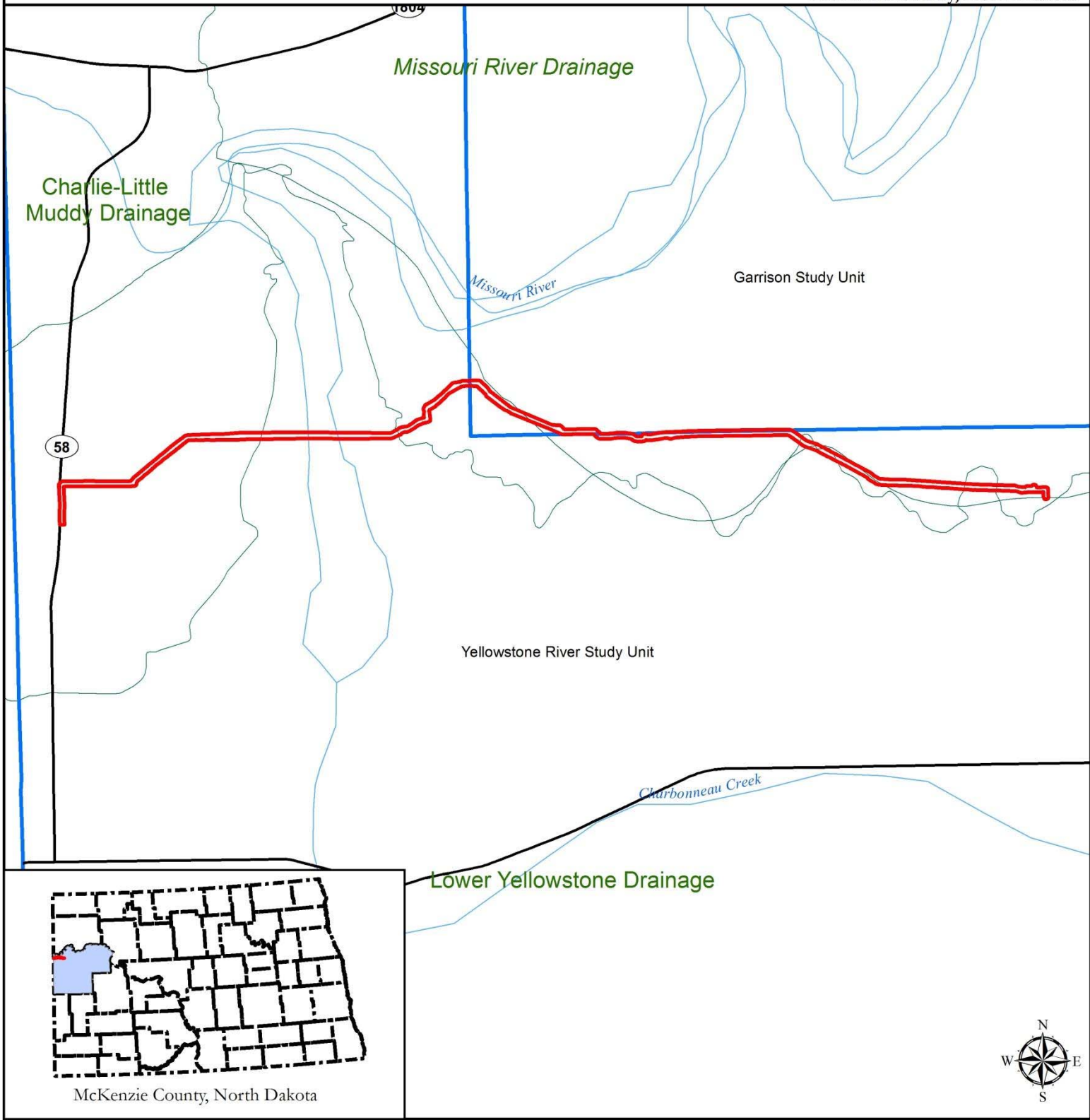
If a cultural resource was encountered, the location was marked with pin-flags and the surrounding area was intensely scrutinized to determine the nature and extent of the resource. The resource was then plotted on a USGS 7.5' Quadrangle map and a sketch-map utilizing a Trimble GPS unit was made. Cultural Resources consist of any historic or prehistoric district, site, structure, or object (usually) over 50 years of age.

Throughout the survey, field notes and overview pictures of the survey area were taken (see photos in Appendix A). Copies of maps, field notes, and photographs are located at the BCA main office in Bismarck, North Dakota.



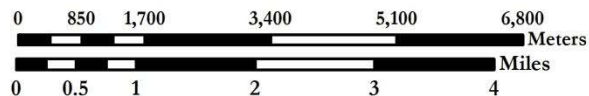
# Beaver Creek ARCHAEOLOGY

Project Location for:  
Dore Loop  
For: Keitu Engineers & Consultants, Inc.  
On Behalf of Hiland Crude, LLC  
Missouri River, Lower Yellowstone River  
& Charlie-Little Muddy Drainage  
McKenzie County, North Dakota



## Legend

- Survey Area (560 acres)
- Project Area



Base Map: USGS 7.5'  
Scale: 1:24,000  
UTM NAD83 Zone 13

Figure 1. Project location.

## **Environmental Setting**

The proposed project is located within two environmental settings, the Garrison Study Unit and the Yellowstone River Study Unit.

### ***Garrison Study Unit***

The project lies partially within the Garrison Study Unit (GSU), which is located in the northwestern part of North Dakota. The study unit is situated within the Glaciated Missouri Plateau Subsection, of the Great Plains Physiographic Province (SHSND 2008b:6.1). Knob-and-kettle glaciated terrain and other glacial features are common on the Coteau du Missouri. Named streams include the Big Muddy Creek, Painted Woods Creek, Douglas Creek, Shell Creek and Deepwater Creek. Named rivers include Little Muddy River, Little Knife River and White Earth River (SHSND 2008b:6.1-6.6).

Temperatures vary immensely by season with warm summers and cold winters. Precipitation averages around 16 inches annually, most of which falls as rain during the spring and summer months. Prevailing winds throughout the year average around 16 mph from the west-northwest (SHSND 2008b:6.6).

Landforms in this area consist of glaciated uplands, breaks terrain, valley wall side slopes and foot slopes, draws, alluvial terraces, and floodplains. This area of North Dakota is situated in the Northern Temperate Grasslands biome. The mixed grass prairie is dominated by western wheatgrass, blue grama, and needle-and-thread. This grassland provided good habitat for large game animals, such as bison and antelope. Gallery forests grew along the Missouri River and other tributaries and provided a suitable environment for white-tailed deer and small mammals such as muskrat and porcupine. Hardwood draws of bur oak, green ash, and juniper are part of transition zones between the grasslands and floodplain forests. Food plants in the area include chokecherry, buffaloberry, and gooseberry (SHSND 2008b:6.7).

In general, the faunal diversity in the area at contact time was as great as or greater than anywhere in the state (SHSND 2008b:6.8). Animals that could be hunted for meat, hides, feathers, teeth, bones, etc., included bison, elk, antelope, white-tailed deer, mule deer, bighorn sheep, mountain lion, coyote, foxes, eagles, hawks, owls, and a variety of waterfowl, fish, turtles, and mussels (SHSND 2008b:6.8).

Today the area contains an agricultural-based economy. Wheat, corn, sunflowers and grasslands comprise the project area. Tree cover is limited to wind blocks surrounding farmsteads and along riparian areas.

This biotic diversity along with the availability of water makes this setting favorable for human settlement, both during prehistoric and historic time-periods. One prominent natural resource in this area is Knife River Flint (KRF), which is abundant and has been quarried for centuries by native peoples. In addition, good quality Tongue River Silicified sediment, chalcedonies, and silicified wood attracted people to the area. These stones are capable of conchoidal fracturing and are ideal for stone tool production.

### ***Yellowstone River Study Unit***

Most of the project area lies within the Yellowstone River Study Unit (YRSU), which is located in part of McKenzie County and one township in Golden Valley County as well as the township in Williams County containing the Yellowstone-Missouri river confluence. The study unit is situated within the McKenzie Upland physiographic region (SHSND 2008b:13.1). The area is comprised of rolling plains and prominent buttes in the badlands. Named streams include the Horse Creek, O'Neil Creek, Charbonneau Creek, and Antelope Creek. Named rivers include Yellowstone River and Missouri River (SHSND 2008b:13.1-13.6).

This is one of the warmer parts of the state with the annual mean temperature of approximately 42°F. Precipitation averages around 14 inches annually, most of which falls as rain during the spring and summer months. The area gets less snow than the rest of the state (SHSND 2008b: 13.6).

Landforms in this area consist of badlands terrain with horizontally bedded clay and silt bedrock exposures formed into canyons, ridges, and buttes and gently rolling shortgrass prairie. In addition, in the Yellowstone valley, prominent landforms include valley wall side slopes and foot slopes, alluvial fans, river terraces, and floodplains. This area of North Dakota is situated in the mixed grass prairie and floodplain forest biomes. Grama grass, sage, buckbrush, prickly pear, juniper, hawthorne, and buffaloberry dominate the mixed grass prairie. This grassland provided good habitat for bison and antelope. The floodplain forest is situated along the bottomlands and is dominated by cottonwood, box elder, aspen, and other grasses, forbs, and shrubs (SHSND 2008b:13.6).

The faunal diversity in the area provided local groups animals which could be exploited for food, hides, feathers, teeth, bones, etc., included bison, antelope, big horn sheep, white-tailed deer, mule deer, coyote, white-tail jackrabbit, beaver, raccoon, prairie rattlesnake, bullsnake, eagles, hawks, owls, and a variety of fish and freshwater mussels (SHSND 2008b: 13.7).

Today the area contains an agricultural-based economy. Wheat, corn, sunflowers, and grasslands comprise the project area. Tree cover is limited to wind blocks surrounding farmsteads and along riparian areas.

This biotic diversity along with the availability of water makes this setting favorable for human settlement, both during prehistoric and historic time-periods. One prominent natural resource in this area is Knife River Flint (KRF), which is abundant and has been quarried for centuries by native peoples. In addition, good quality Yellowstone agate, chalcedonies, and silicified wood attracted people to the area. These stones are capable of conchoidal fracturing and are ideal for stone tool production.

## **Native American Cultural Background**

The proposed project is located within two cultural units, the Garrison Study Unit and the Yellowstone River Study Unit. The Euro-American cultural background is the same for both study units.

### ***Garrison Study Unit***

The majority of archaeological sites found within the Garrison Study Unit are stone circle sites, followed by cultural material scatters and cairn sites. These types of sites are most often found on ridge and hill settings (SHSND 2008b:6.9). The project is located near the Missouri River, and the site distribution is light within a one-mile radius of the survey area (where the file search was conducted). The archaeological horizons encountered in North Dakota are as follows:

#### **Paleo-Indian Period (9500-5500 B.C.)**

Due to the amount of sediment erosion and deposition that has taken place across the landscape since early Holocene times, it is difficult to locate intact Paleo components in the GSU. However, areas near tributaries on ridgetop and terrace settings have yielded plant and animal remains and shed light on Paleo-Indian subsistence patterns and lithic technologies. The Beacon Island site (32MN243A), for example, is an Agate Basin site that contains intact, unmixed, and datable remains of *Bison antiquus* and the Moe site (32MN101), which contains Folsom and later Paleo remnants, was found above today's reservoir water level. The most significant areas to discover Paleo-Indian remnants have been in the Knife River flint (KRF) principal source area and in or near the Missouri River valley. Knife River flint was the flint of choice to early groups producing lithics in this region (SHSND 2008b:6.63-6.65). "Two lithic technological procedures prominently represented at sites in the GSU are Folsom fluting and blade production" (SHSND 2008b:6.64). The Moe site yielded Folsom, Plainview (or Goshen), Agate Basin, Parallel-Oblique Flakes, and Scottsbluff points.

#### **Plains Archaic Period (5500-400 B.C.)**

Middle and Late Plains Archaic deposits are found in quickly deposited sedimentary context, which correlate with erosion in the uplands from subsequent drought. Plains Archaic remnants have frequently been discovered in upland settings as well as in terrace and riverbank locations. The Middle and Late Archaic components at the Mondrian Tree site (32MZ58) yielded bone remains of bison, antelope, elk, deer, beaver, and canids. This site also has evidence of summertime collecting and processing of plant foods, such as goosefoot, marsh elder, knotweed, dogbane, wild grape, hedge nettle, and mallow, with a sandstone grinding slab and quartzite mano (SHSND 2008b:6.66-6.67).

Early Plains Archaic components are indicated by finds of Simonsen points. Middle Plains Archaic components are represented by Oxbow, McKean, Duncan, and Hanna points. Late Plains Archaic components are indicated by finds of Yonkee and Sandy Creek points. Numerous Early, Middle, and Late Plains Archaic projectile point styles have proven to be reliable cultural/temporal indicators for relative dating in the GSU (SHSND 2008b:6.67-6.68).

#### **Plains Woodland Period (400 B.C.–A.D. 1200)**

Environmentally favorable conditions, the development of biomass, peaked twice during the Plains Woodland period, which coincide with the peak of the Besant/Sonota culture of the Middle Plains Woodland period and Late Plains Woodland period to early Plains Village period. Besant/Sonota components are rather common. Mortuary sites, such as the Boeckel-Renner site (32ME799), along with a large number of sites in the area indicate that people with the Middle Plains Woodland Besant/Sonota material culture had permanent occupation within the GSU. Site

32ME947 is a stratified, multi-component bison kill and processing site with a Middle and Late Plains Woodland components, which is associated with the Old Women's complex. Other Late Plains Woodland cultures in the GSU are represented by Avonlea and Mortlach (SHSND 2008b:6.69-6.70). "Subsistence remains from the Mortlach component at the Evans site (32MN301) include bison, swift fox, coyote, deer, duck, and charred plum seed. Bison scapula digging tools were found, but not any remains of garden crops" (SHSND 2008b:6.71).

Ceramic technologies in the area show up around the Middle Plains Woodland period at sites such as the Nightwalker's Butte (32ML39), the Evans site, and the Mondrian Tree site (32MZ58). Mortlach ceramics display substantial variability in decoration and vessel form. Lithic technologies also show stylistic variation in the Late Plains Woodland period with Prairie Side-Notched points, Avonlea points, and other variations of side- and corner-notched points. Obsidian, from southeastern Idaho, of possible Besant/Sonota cultural affiliation was recovered from the Boeckel-Renner site (SHSND 2008b:6.71-6.73).

### **Plains Village Period (A.D. 1200-1780)**

Prior to 1780, the GSU was mainly an area of hunting camps and temporary settlements. "Field camps were established in a sheltered tributary stream valley setting at the Mondrian Tree site (32MZ58)" and specialized activities went on in an adjacent open upland rim setting at the Edna Mae site (32MZ369) (SHSND 2008b:6.74-6.75). Sometime within the middle of the Plains Village period, there was a drought episode, during which time the subsistence base was diminished and conflict arose. As a result, settlements, such as the White Earth Creek site (32MN101), had fortification ditches and palisade walls with bastions to protect their people (SHSND 2008b:6.73-6.75).

Besides hunting, the Plains Villagers grew corn, melons, pumpkins, and beans. Several ceramic temporal trends occurred during the Plains Village period via vessel forms and types of decoration. These are associated with the Knife River phase and Scattered Village complex. Exotic nonlocal shell, such as dentalium and abalone shell, and other trade goods have been found at the Mondrian Tree site (SHSND 2008b:6.75-6.76).

### **Equestrian/Fur Trade Period (A.D. 1780-1880)**

The advent of the Fur Trade and increased Euro-American contact in the 19<sup>th</sup> century brought about many changes in the traditional culture of groups such as the Mandan, Hidatsa, and Arikara. The Fort Berthold Reservation was established in 1870 for the Mandan, Hidatsa, and Arikara to protect them from hostile Equestrian Nomads (SHSND 2008b:6.76). Metal tools and implements obtained via trade replaced traditional items of stone, bone, wood, shell, and clay. The gun ascended to a place alongside the bow and arrow in basic weaponry. Hunting parties set up temporary tipi camps during different seasons of the year, and these settlements functioned as the field camps of pedestrian hunter-gatherers. Many of these locations, unless repeatedly reoccupied or marked by stone circles, probably contain little in the way of identifiable material traces in the archaeological record. The horse-mounted hunting and gathering peoples subsisted on bison; however, wild plant foods, other wild animal foods, and garden produce received in exchange with settled Village gardeners also were significant components of the diet (SHSND 2008b:6.76-6.78).

Intertribal trade that occurred during the Equestrian period has its beginning in prehistoric times. The Hidatsa traded with the Crow, Dakotas, Cheyenne, and others to the south and southwest (SHSND 2008b:6.78). Fur trade between Indians and non-Indians within the GSU, such as between the Assiniboine and Fort Kipp, began around 1826. Besides trading, there are a number of written and ethnographic accounts of horse-mounted Indian groups using this area, such as the Crow, Dakota, Cheyenne, Assiniboine, and Hidatsa. The Crows traveled through here going between their Big Horn Mountain territory and their Missouri River village homeland. There may have been territorial continuity between the Crow and the Hidatsa from the time the two split in the 1500s until the Hidatsa were drastically weakened by the plagues in the late 1700s (SHSND 2008b:6.77-6.79).

### **Reservation Era (A.D. 1880-present)**

Between 1850 and 1870, the United States government created reservations to separate the Native Americans and the influx of settlers. Where they were once able to move freely, Native Americans were now restricted to a designated area. In 1887, the Dawes Act divided tribal land into individual land allotments as a means of assimilating Native Americans into Euro-American society. By using individual land allotments as a means of breaking tribal culture, the United States government sought to cease their way of life and force conversion to Christianity, farming, and education of children at boarding schools. Children were taken from their family and placed in boarding schools (Indian schools), such as the Fort Stevenson Indian School, Bismarck Indian School, and the Carlisle Indian School in Pennsylvania, and were prohibited from using their language, practices, and culture and emphasized Euro-American culture. Today, the Dawes Act is considered the most destructive policy dealing with Native peoples (MHA Nation 2012a and 2012b; SHSND 2008c).

In 1934, in an effort to rectify some of the damage done, the Indian Reorganization Act was established that secured certain rights to Native Americans. This included the reversal of the Dawes Act and a return to local self-government on a tribal basis. However, in the late 1940s and early 1950s the Indian Reorganization Act was disassembled. The plan was to establish a policy that would eliminate tribal status all together. In 1975, the Indian Self-Determination and Education Assistance Act was enabled. This policy meant to allow tribal autonomy while still benefitting from government treaty obligations. American Indian Religious Freedom Act of 1978 was created to protect and preserve the traditional religious rights and cultural practices of Native Americans. In addition to Self-Determination, other laws were passed such as the Indian Civil Rights Act, the Indian Financing Act, and the Indian Child Welfare Act (SHSND 2008c).

Today, reservations have tribal government, which administers many governmental, economic, health, welfare, and educational programs. There are still problems on Indian Reservation, such as poverty, crime, and alcoholism; however, there is also economic growth because of small independent business, farming, and gaming (MHA Nation 2012c).

### ***Yellowstone River Study Unit***

The majority of archaeological sites found within the Yellowstone River Study Unit are cultural material scatters, followed by cairn sites, and stone circle sites. These types of sites are most often found on ridge, terrace, and hill settings (SHSND 2008b:13.9). The project is located near Dore and crosses the Yellowstone River, and the site distribution is moderate within a one-mile radius

of the survey area (where the file search was conducted). The archaeological horizons encountered in North Dakota are as follows:

**Paleo-Indian Period (9500–5500 B.C.)**

Finds of only a few distinctively styled lanceolate projectile points provide the only evidence of Paleo-Indian settlement in the YRSU and include a Scottsbluff point found at 32W1102, a possible kill site. Older terraces of the Yellowstone valley and surrounding uplands would have provided a favorable habitat for plant and animal species that would attract human settlement to the area. Pleistocene megafauna were found in the region and would have been available to early hunter-gatherers. Knife River flint was the flint of choice to early groups producing lithics in this region as well as locally available stone such as Porcellanite and Antelope Chert (SHSND 2008b:13.57-13.59).

**Plains Archaic Period (5500–400 B.C.)**

Middle and Late Archaic deposits are found in quickly deposited sedimentary context, which correlate with erosion in the uplands from subsequent drought. Plains Archaic remnants have frequently been discovered in upland settings as well as in terrace and riverbank locations. Early, Middle, and Late Plains Archaic complexes such as the Logan Creek, Oxbow, Hanna, Duncan, and Pelican Lake are some of the best represented components presently known from the YRSU. A low-density lithic scatter at site 32MN473 indicated a brief Late Plains Archaic encampment located on a terrace between two intermittent streams. Subsistence strategies are thought to have involved a mixture of hunting and gathering practices as indicated by bison, antelope, deer, and canid remains as well as the presence of grinding slabs and manos at Middle and Late Plains Archaic sites. Furthermore, evidence of large quantities of fire-cracked rock indicates the importance of stone boiling to prepare food at campsites (SHSND 2008b:13.59-13.60).

Early Plains Archaic components are indicated by finds of Simonsen and Oxbow points as evident of a Simonsen point found near the head waters of Cherry Creek, which is a sign of the Logan Creek-Mummy Cave culture as well as a KRF Oxbow point found at the headwaters of Lonesome Creek, indicative of the Oxbow culture. McKean, Duncan, Hanna, and Yonkee points represent Middle Plains Archaic components. Late Plains Archaic components are indicated by finds of Pelican Lake and Sandy Creek points. Projectile points were made of locally available raw materials such as KRF, Yellowstone agate, and Porcellanite (SHSND 2008b:13.59-13.61).

**Plains Woodland Period (400 B.C.–A.D. 1200)**

The Plains Woodland period is represented by the Middle Plains Woodland Besant/Sonota complex and the Late Plains Woodland Avonlea and Mortlach components. Site 32MZ333 and 32MZ334 are two Besant/Sonota complex sites dating to 2,000 years ago. Site 32MZ333 yielded stone tools, flaking debris from tool production and repair, bone from food processing, potsherds, and hearths. The type and amount of culture material present as well as the site location indicates that the site was a hunting or field camp rather than a residential base. The potsherds recovered from 32MZ333 had crushed granite temper and a smoothed-over cord marked exterior, a style and technique of the Besant/Sonota complex (SHSND 2008b:13.61-13.63).

Lithic technologies show variation in the Late Plains Woodland period with Prairie Side-Notched points, Avonlea points, and other variations of side- and corner-notched points. Avonlea points

have been found at several sites in McKenzie County. Obsidian, from the northern Rockies, suggests direct or indirect contact with people in the Rocky Mountain region (SHSND 2008b: 13.62-13.63).

**Plains Village Period (A.D. 1200–1780)**

The lower Yellowstone valley appears to have been used occasionally by Plains Villages as a core area within which permanent settlements, most likely fortified, were established. Some Plains Village sites in the YRSU include the Scraper site (32WI34), the Cheney Creek site (32MZ27), the Highway site (32MZ484) and site 32MZ767, none of which are permanent settlements. Ethnographic information indicates that the Hidatsa exploited the Yellowstone basin during seasonal bison hunts. Besides hunting, the Plains Villagers grew corn, melons, pumpkins, and beans (SHSND 2008b:13.64-13.65).

Several ceramic temporal trends occurred during the Plains Village period via vessel forms and types of decoration. These are associated with the Mortlach complex and Scattered Village complex. Lithic assemblages of the Plains Villages include large, thin, bifacially flaked, unilateral cutting tools set in bison rib hafts and bipolar flakes and were used to process meat and hides. Plains Villagers were active in long distance trade with other Northern Plains groups. The Highway site is a probably Plains Village field camp that yielded obsidian flakes, indicating regional trade of exotic resources (SHSND 2008b:13.65-13.66).

**Equestrian/Fur Trade Period (A.D. 1780–1880)**

The advent of the Fur Trade increased Euro-American contact in the 19<sup>th</sup> century, and the reliance upon horse for transportation brought about many changes in the traditional culture of groups such as the Hidatsa and Assiniboine. Metal tools and implements obtained via trade replaced traditional items of stone, bone, wood, shell, and clay. The gun ascended to a place alongside the bow and arrow in basic weaponry. Hunting parties set up temporary camps, such as the Garden Coulee site (32WI18), during different seasons of the year, and these settlements functioned as the field camps of pedestrian hunter-gatherers. Many of these locations, unless repeatedly reoccupied or marked by stone circles, probably contain little in the way of identifiable material traces in the archaeological record. Subsistence of the horse-mounted hunting and gathering peoples was founded on bison; however, wild plant foods, other wild animal foods, and garden produce received in exchange with settled Village gardeners also were significant components of the diet (SHSND 2008b:13.67-13.68).

Intertribal trade that occurred during the Equestrian period has its beginning in prehistoric times. Fur trade between Indians and non-Indians within the YRSU, such as between the Blackfeet and Fort Union, began with the establishment of a fur post in 1828, later renamed Fort Union, which provided a local source of Euro-American trade goods to various native groups. In 1866, Fort Buford, a US military installation, took over trading operations. Besides trading, there are a number of written and ethnographic accounts of horse-mounted Indian groups using this area, such as the Crow, Dakota, Cheyenne, Assiniboine, and Hidatsa. The Crows traveled through here going between their Big Horn Mountain territory and their Missouri River village homeland. There may have been territorial continuity between the Crow and the Hidatsa from the time the two split in the 1500s until the Hidatsa were drastically weakened by the plagues in the late 1700s (SHSND 2008b:13.67-13.68).

**Reservation Era (A.D. 1880-present)**

Between 1850 and 1870, the United States government created reservations to separate the Native Americans and the influx of settlers. Where they were once able to move freely, Native Americans were now restricted to a designated area. In 1887, the Dawes Act divided tribal land into individual land allotments as a means of assimilating Native Americans into Euro-American society. By using individual land allotments as a means of breaking tribal culture, the United States government sought to cease their way of life and force conversion to Christianity, farming, and education of children at boarding schools. Children were taken from their family and placed in boarding schools (Indian schools), such as the Fort Stevenson Indian School, Bismarck Indian School, and the Carlisle Indian School in Pennsylvania, and were prohibited from using their language, practices, and culture and emphasized Euro-American culture. Today, the Dawes Act is considered the most destructive policy dealing with Native peoples (MHA Nation 2012a and 2012b; SHSND 2008c).

In 1934, in an effort to rectify some of the damage done, the Indian Reorganization Act was established that secured certain rights to Native Americans. This included the reversal of the Dawes Act and a return to local self-government on a tribal basis. However, in the late 1940s and early 1950s the Indian Reorganization Act was disassembled. The plan was to establish a policy that would eliminate tribal status all together. In 1975, the Indian Self-Determination and Education Assistance Act was enabled. This policy meant to allow tribal autonomy while still benefitting from government treaty obligations. American Indian Religious Freedom Act of 1978 was created to protect and preserve the traditional religious rights and cultural practices of Native Americans. In addition to Self-Determination, other laws were passed such as the Indian Civil Rights Act, the Indian Financing Act, and the Indian Child Welfare Act (SHSND 2008c).

Today, reservations have tribal government, which administers many governmental, economic, health, welfare, and educational programs. There are still problems on Indian Reservation, such as poverty, crime, and alcoholism; however, there is also economic growth because of small independent business, farming, and gaming (MHA Nation 2012c).

**Euro-American Cultural Background**

The majority of historic sites within North Dakota are farmsteads/homesteads from the late 19<sup>th</sup> century and early 20<sup>th</sup> century.

**Dakota Territory (1858-1889)**

The Dakota Territory consisted of the northernmost part of the land acquired from France in the 1803 Louisiana Purchase and in 1818, the United States acquired the northeastern portion of the Dakota Territory in a treaty with Great Britain. The Dakota Territory included North Dakota, South Dakota and much of present-day Montana and Wyoming. After becoming an incorporated territory in 1861, the population was slow to increase due to Indian attacks. Eventually, the population increased during the “Dakota Boom,” from 1870 to 1880, because of the railroad growth and the Homestead Act of 1862. Many of the settlers came from Germany and the Scandinavian countries of Norway and Sweden. The economic base was organized around agriculture, mining, and cattle ranching (FWP 1938).

Fur Trade – Before and after the Lewis and Clark 1803 expedition, explorers such as Sieur de la Vérendrye, David Thompson, Charles Chaboillez, Alexander Henry, and Manuel Lisa ventured into the area either looking for trade routes or to establish fur trading posts. Consequently, “between 1806 and 1850 Spaniards from St. Louis, Frenchmen from Quebec, Scots and Britons from Hudson’s Bay and Montreal, and Americans working either as free traders or engages for a dozen fur companies” headed into the region (FWP 1938; Lamar 1996:27).

Forts – The majority of the forts in the region were constructed in the 19<sup>th</sup> century. Their purpose included trading outposts, primarily fur trade and military posts for the protection of supply routes, trails, trade, and settlers. These forts, prior to the introduction of the railroad were along rivers such as the Missouri, Yellowstone, Heart, and Red rivers. Some of the more notable forts include Fort Mandan, Fort Lisa, Fort Henry, Fort Clark, Fort Union, Fort Abercrombie, Fort Berthold, Fort Buford, Fort Rice, Fort Totten, and Fort Abraham Lincoln (FWP 1938; SHSND 2008a).

Trails – Two major trails, the River Trail and the Ridge Trail, branches of the network of Red River Trails in the Red River Valley, originally were Native American trails that were later used by Euro-American fur traders. The Red River Trails connected fur trading posts, where they hauled furs and goods by ox cart. Later, the trails also connected military posts, where military supplies and men were sent. These military posts (e.g., Fort Abercrombie, Fort Totten, and Fort Ransom) also protected the trails as well as the people traveling up and down the trails. Eventually the trails and ox carts were replaced by the railroad (Gilman *et al.* 1979).

A notable trail in the western part of the region is the Bismarck-Deadwood Stage Trail (1887-1880). This trail was a stagecoach and supply line that ran between Bismarck, the western terminus of the Northern Pacific Railroad and the Black Hills gold town of Deadwood in Dakota Territory. There was transportation and economic booms associated with this trail and that boom ended when the railroad reached Pierre and an alternate line opened (SHSND 2008a).

Riverboats – The Missouri and Red rivers were important to the settlement and expansion of the Dakota Territory and were used the most for river transportation. Riverboats such as rafts, sailboats, rowboats, Mackinaws, keelboats, and steamboats brought explorers and fur traders into the Dakota Territory; however, the keelboat and steamboat were probably used more often due to their carrying capacity. “Keelboats were used primarily from 1800 to 1840, when they were replaced by steamboats” (Miller 2012). This type of boat floated high in the water allowing it to travel on shallow rivers and was able to carry 15 to 30 tons of cargo. River transportation becomes increasingly important for transporting goods to outposts and return furs downstream.

Steamboats eventually replaced the keelboats and were used for cargo and passenger transportation. The riverboat industry became a popular mode of transportation, as it was much easier to deliver goods to remote areas by boat than overland routes. In addition, “settlers and visitors could also travel much more safely by taking steamboats” (Burns 2004:14). The demise of riverboat transportation occurred for several reasons: (1) less shipping of passengers and cargo, (2) scarcity of wood yards, (3) inconvenient climate, (4) labor unrest, and (5) the railroad. Shipping on the Red River continued until 1912 and until the 1930s on the Missouri River (Burns 2004).

Railroad - Major development of the railroad in the Dakota Territory occurred in the 1870s and 1880s between the Northern Pacific Railroad and the Great Northern Railroad. Moreover, the success of the railroad was primarily because of agriculture and increasing settlement. Federal land grants were given to the Northern Pacific Railroad, who in turn sold the land, while the Great Northern Railroad bought its lands from the federal government and promoted settlement along its lines (FWP 1938).

Agriculture – The Federal Homestead Act of 1862 offered free land to anyone over 21 years-old who would cultivate and improve his 160 acres of land and live on it for 5 years. An additional 160 acres could be obtained for a tree claim and a third track of land could be acquired before or after the land was surveyed. Crops planted and harvested included spring wheat, durum, flaxseed, barley, oats, sugar beets, corn, hay, red clover, alfalfa, sweet clover, and seed potato. Ranching of cattle and sheep, poultry raising, and bee keeping was also done on farms (FWP 1938).

Bonanza farms or large farms so-called because of their almost fabulous yields of wheat open to settlement in 1863. The main purpose of Bonanza farms was to demonstrate the potential wealth of the Red River Valley. Most of these farms were owned by companies in the east, with resident managers, were run like factories with hundreds of men, and used advanced farming methods. Bonanza farms thrived in the Red River Valley during the last two decades of the 19<sup>th</sup> century; however, they were eventually subdivided into smaller farms (FWP 1938).

#### **North Dakota (1889-Present)**

North Dakota became the 39<sup>th</sup> state to enter the Union on November 2, 1889. After statehood, industrial development increased. The railroad industry expanded and peaked in 1905 through competition between the Great Northern Railway and the Soo Line. Large lignite mines opened and local brickworks and flourmills flourished in the state. Entrepreneurs built stores, shops, and offices along Main Street and town squares. While rural areas still relied on small local general stores, city consumers had more choice with locally owned department retail stores. In 1919, the Bank of North Dakota at Bismarck opened and has become a large and powerful economic force. “The State Mill and Elevator at Grand Forks, completed in 1922, provided a market for grain and a source of feed and seed [and] the state hail insurance program benefitted many farmers until its elimination in the 1960s” (SHSND 2012).

Farm homes in the eastern part of the state were small, close together with well-painted modernized buildings surrounded by neat lawns and tree groves. They had modern conveniences like electricity, telephones, radios, and cars. In the central part of the state, farms were not as modernized as eastern North Dakota but were well kept. In western North Dakota, the shacks erected to establish residence under the Federal Homestead Act were still in use in the early 20<sup>th</sup> century (FWP 1928).

For North Dakota, the 1920s and 1930s were an economic depression, starting with the 1920 collapse of wartime prices for grain. In 1921, more banks closed than in any other year, resulting in farm foreclosures. At the same time, farm size increased and many farmers mechanized their operations. A dramatic shift to motorized transportation put a greater emphasis on better roads and bridges (SHSND 2012).

The Great Depression of the 1930s slowed progress and spurred change. Rural population decreased while the city population grew. Because of the price decline of farm produce, cooperatives enjoyed a renewed popularity as farmers banded together to market their produce and reduce the cost of farming. Farmers Unions built local elevators and organized oil cooperatives that served the needs of the rural community. Despite economic problems, crop failures, dust storms, and extreme weather, North Dakota visibly modernized during the 1930s. Federal relief programs improved highways, state parks, and city services throughout the state. State departments undertook public health and safety problems, and a movement for consolidated law enforcement was started with the formation of a State Highway Patrol in 1935. “Rural schools consolidated at an increasing rate. Public utilities extended their reach through development of rural electric cooperatives; the first, Baker Electric of Cando, energized its lines in 1938” (SHSND 2012).

Immediately, after Franklin Roosevelt took the oath of office he began passing a series of laws aimed at putting people back to work, restore faith in the banking system, and shore up the economy (SHSND 2012). Among these laws included the Works Progress Administration (WPA) and the Civilian Conservation Corps (CCC). In North Dakota between 1935 and 1942, the WPA built 20,373 miles of highways and streets, 821 new bridges and viaducts, 166 miles of sidewalks, 15,012 culverts, 503 new public buildings, 61 building additions, 680 outdoor recreation facilities, 809 water wells, two irrigation projects, 39 sewage treatment plants, and nine water treatment plants, as well as other reconstructions and repairs (Robinson 1966:408). In June of 1933, some 235,000 men were enrolled in the CCC to work on federal and state public improvement projects. They built national forest trails, campsites, and visitor centers in state and national parks as well as roads and dams (SHSND 2012).

In the 1940s, with more favorable weather and improved crop yields, farmers benefitted by the higher prices stimulated by America’s entry into World War II. By the end of the war, farm debt had dropped noticeably. After the war, the industrial economy continued to prosper. “In 1946, the demand for Missouri River flood control and diversion of the river’s waters for irrigation and industrial development were rewarded with initiation of construction on the Garrison Dam” (SHSND 2012). The development of natural resources expanded in 1951 when oil was discovered within the Bakken near Tioga. Communication and interstate transportation systems improved and expanded in the 1950s. By the 1960s, two large Air Force Bases, one in Minot and the other in Grand Forks, had been built as a modern continuation of an historic role in Federal military strategy that began in the 1860s. In the 1950s, as private auto transportation increased, the use of passenger rail service declined, railroads had increasingly become a means of hauling freight (SHSND 2012).

The 1960s signified the start of large-scale energy development because of high demand, which lead to the development of power plants and coal strip mines. An oil boom occurred in 1978 as a result of high international crude oil prices, causing increase in the population of towns such as Dickinson, Williston, and Watford City. This oil boom and subsequent population increase did not last as worldwide oil prices declined in 1981 and oil workers moved away (SHSND 2012). Another oil boom started in 2008, is still ongoing, and resulted in enough oil and gas jobs to give North Dakota the lowest unemployment rate in the United States. In addition, the oil boom has supplied economic growth in other areas such as the service industry (Rocco 2013).

## **Research Goals**

Due to a state agency's participation in the project, the applicant must comply with Section 106 of the National Historic Preservation Act (NHPA). The NHPA requires the applicant to consider what effects the undertaking will have on historic properties within the survey area. The three central objectives of this study are to assist the proponent with their Section 106 compliance obligations, identify and assess project impacts to cultural resources located within the survey area, and to provide NRHP recommendations for historic properties encountered within the survey area. Cultural resources consist of any historic and prehistoric district, site, building, structure, or object (usually) over 50 years of age.

To be eligible for inclusion on the NRHP, a site must usually be more than fifty years old, retain its integrity of location, design, setting, materials, workmanship, feeling, and association and it must meet one of the following criteria:

- (a) Associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) Associated with the lives of persons significant in our past; or
- (c) Embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinctions; or
- (d) Have yielded, or may be likely to yield, information important in prehistory or history.

## **Project Results**

### ***Survey Conditions***

On September 8, 2014, the weather conditions consisted of clear skies, and a temperature of 80°F. On November 8, 2014, the weather conditions consisted of overcast skies, and a temperature 32°F. The project area is located on the rolling plains and floodplain within the Missouri River, Lower Yellowstone River, and Charlie-Little Muddy drainage systems. The survey area is located within pastureland, fallow grasslands, and agricultural land. Vegetation in the area consists of wheat and native and non-native grasses, plants, forbs, trees and shrubs. The elevation of the survey area ranged from 1,870-2,240 feet. During the course of the inventory, the GSV ranged from 45-100%, varying on location. As a result, no shovel probes were implemented, as the GSV never dropped below 30%. Areas of higher visibility, such as erosion features, areas of sparse vegetation and rodent burrows were also closely examined for cultural material.

### ***File Search***

On September 3, 2014, Amanda Person of Beaver Creek Archaeology, Inc. conducted the file search at the State Historical Society of North Dakota (SHSND). The purpose of the file search is primarily to identify previously recorded archaeological and historical sites, and also to identify previous inventories in the area. The file search revealed 14 sites, two site leads, and nine isolated finds in a one-mile radius of the survey area (see Tables 4 and 5 in Appendix C). There are 29 manuscripts on file for the sections in which the survey area is located (see Table 6 in Appendix C). Previously recorded cultural resources within the survey area include one Archaeological site

(32MZ2206), one Architectural site (32MZ1174), and one Isolated Find (32MZx1102). In addition, there is one Site Lead (32MZx120) potentially located within the project area.

### ***Intensive Pedestrian Survey***

The Class III inventory covered approximately 135 acres. The location of the project area can be seen in Figure 1 and in the map located in Appendix B. The Dore Loop is a 12.9 mile long, variable 300 to 473 foot wide (560 acres) pipeline corridor. Four hundred and twenty-five acres of the survey area has been previously inventoried so only 135 acres were surveyed during the current inventory (see MS#s 11818, 12246, and 14475).

This inventory resulted in the identification of two previously recorded sites (32MZ1174 and 32MZ2206) (see Table 2). Cultural Resources include one Native American stone feature site (32MZ2206) and one Architectural site (32MZ1174). The findings are listed and described in Appendix D.

The Native American stone feature site (32MZ2206) has been recommended potentially *eligible* for the NRHP, and BCA recommends that the site be avoided during pipeline construction by staying within a previously disturbed pipeline disturbance. The site will need to be avoided by a minimum of 50 feet (from the site boundary). Temporary fencing along the 50-foot site buffer line in conjunction with site monitoring during construction would minimize any adverse effect to the site.

The Architectural site (32MZ1174), the LYIP, has been recommended potentially *eligible* for the NRHP. During the inventory, a new segment of the site was recorded. This newly recorded segment is not eligible for the NRHP as it is only a few years old; however, as the LYIP is still in use, BCA recommends that the site and the ineligible segment be avoided during pipeline construction by boring under the site.

The previously recorded Isolated Find (32MZx1102) was not relocated during the cultural resources inventory. Isolated Finds are recommended *not eligible* to the NRHP, and no avoidance is necessary.

During the pedestrian survey, no evidence of the Site Lead 32MZx120 was observed within the project area.

**Table 2.** Cultural Resources located within or near the survey area.

SITS #	Affiliation	Description	NRHP Status
32MZ1174	Architectural	Lower Yellowstone Irrigation Project	Unevaluated
32MZ2206	Period Unknown	Stone Circle	Unevaluated
32MZx120	Historic	Site Lead: Fort Henry	Unevaluated
32MZx1102	Period Unknown	Isolated Find: KRF Scraper	Not Eligible

### ***Summary and Recommendations***

On September 8, 2014 and November 8, 2014, BCA conducted a Class III Cultural Resource Inventory of the proposed project area. The Class III Inventory covered approximately 135 acres. The locations of the survey area can be seen on the map located in Appendix B.

The file search revealed 14 sites, two site leads, and nine isolated finds in a one-mile radius of the survey area.

During the inventory, BCA archaeologists identified two previously recorded sites (32MZ1174 and 32MZ2206). Cultural Resources include one Native American stone feature site (32MZ2206) and one Architectural site (32MZ1174).

The Native American stone feature site (32MZ2206) has been recommended potentially *eligible* for the NRHP, and BCA recommends that the site be avoided during pipeline construction by staying within a previously disturbed pipeline disturbance. The site will need to be avoided by a minimum of 50 feet (from the site boundary). Temporary fencing along the 50-foot site buffer line in conjunction with site monitoring during construction would minimize any adverse effect to the site.

The Architectural site (32MZ1174), the LYIP, has been recommended potentially *eligible* for the NRHP. During the inventory, a new segment of the site was recorded. This newly recorded segment is not eligible for the NRHP as it is only a few years old. BCA recommends that the site and the ineligible segment be avoided during pipeline construction by boring under the site because the LYIP is still in use.

The previously recorded Isolated Find (32MZx1102) was not relocated during the cultural resources inventory. Isolated Finds are recommended *not eligible* to the NRHP, and no avoidance is necessary.

During the pedestrian survey, no evidence of the Site Lead 32MZx120 was observed within the project area.

The survey area is located in areas where it could potentially have an adverse effect on cultural resources (see Table 3). See Appendix D for site avoidance measures.

**Table 3.** Summary of Cultural Resources identified during the inventory located in or near the survey area.

SITS #	Description	NRHP Status	Recommendation
32MZ1174	Lower Yellowstone Irrigation Project	Unevaluated	Avoidance via boring
32MZ2206	Stone Circle	Unevaluated	Avoidance via boring

Beaver Creek Archaeology, Inc. recommends that site 32MZ2206 have temporary site buffer fencing and monitoring with construction boring around the site (see Figure 11 in Appendix D). For site 32MZ1174, BCA recommends that construction bore under the site (see Figures 8-10 in Appendix D). BCA recommends that the “Unanticipated Discovery Plan” (UDP) approved by the ND SHPO and created by Keitu Engineers and Consulting, Inc. be used during the construction phase of the project.

Provided that the sites listed in Table 3 are avoided by the following recommendations of site buffer fencing, monitoring, and boring under or around the sites, Beaver Creek Archaeology, Inc. recommends that the project proceed under a *No Historic Properties Affected* as surveyed, mapped and described herein.

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## Appendix A: Survey Area Photographs



**Figure 2.** Overview of the survey area. View to the east.



**Figure 3.** Overview of the survey area. View to the west.

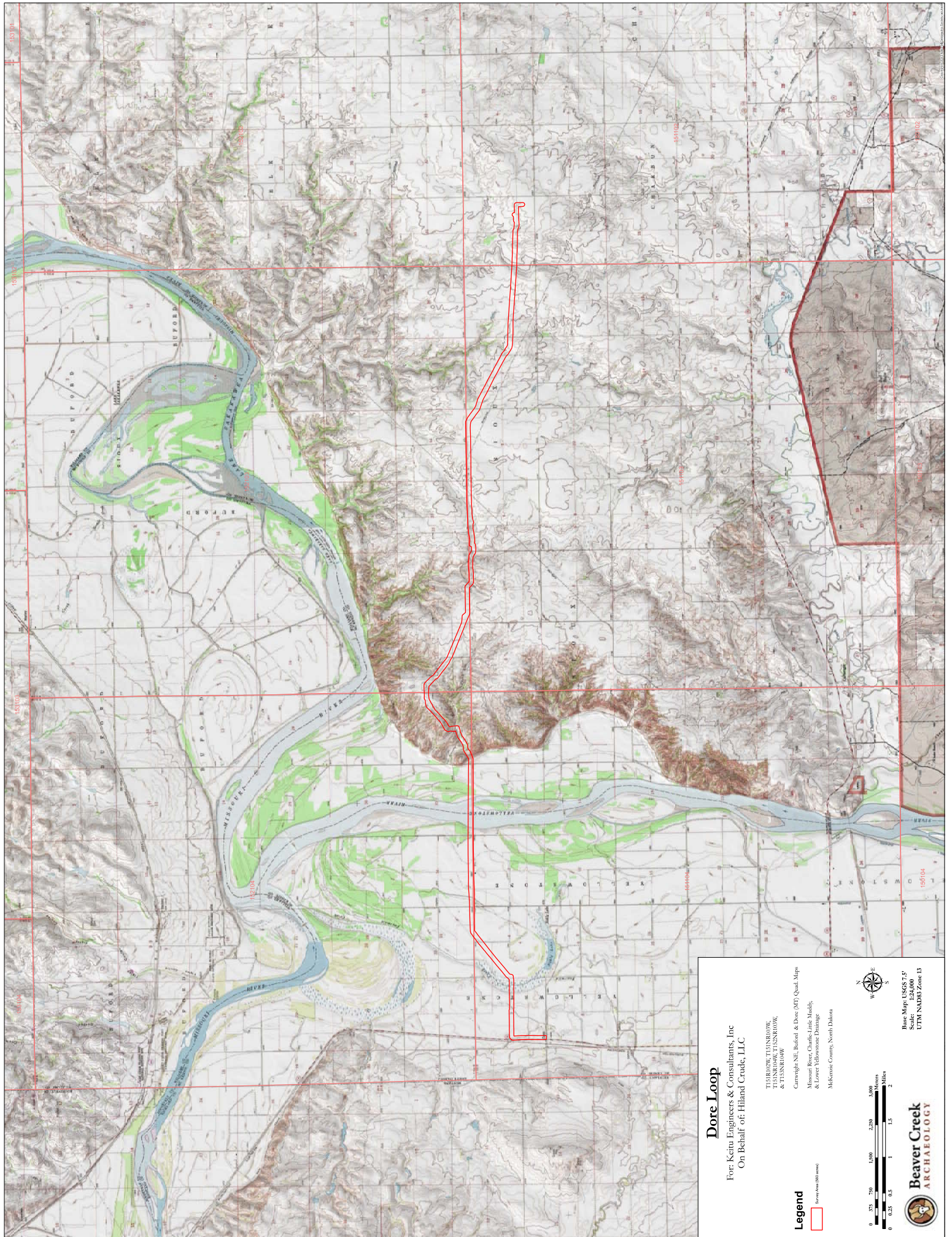


**Figure 4.** Overview of the survey area. View to the west.



**Figure 5.** Overview of the survey area. View to the east.

## Appendix B: Maps



### Dore Loop

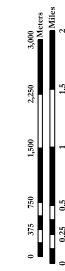
For: Keim Engineers & Consultants, Inc  
 On Behalf of: Hilland Crude, LLC

TESNIRIOW TISINRUIW  
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 & TISNIRIOW

Cartwright NE, Buford & Dore (MT) Quad Maps  
 Missouri River Chertic Leds, Middle,  
 & Lower Yellowstone Drainage  
 McCone County, North Dakota

#### Legend

Survey Area (200 acres)



Base Map: USGS 7.5'  
 Scale: 1:24,000  
 UTM NAD83 Zone 13

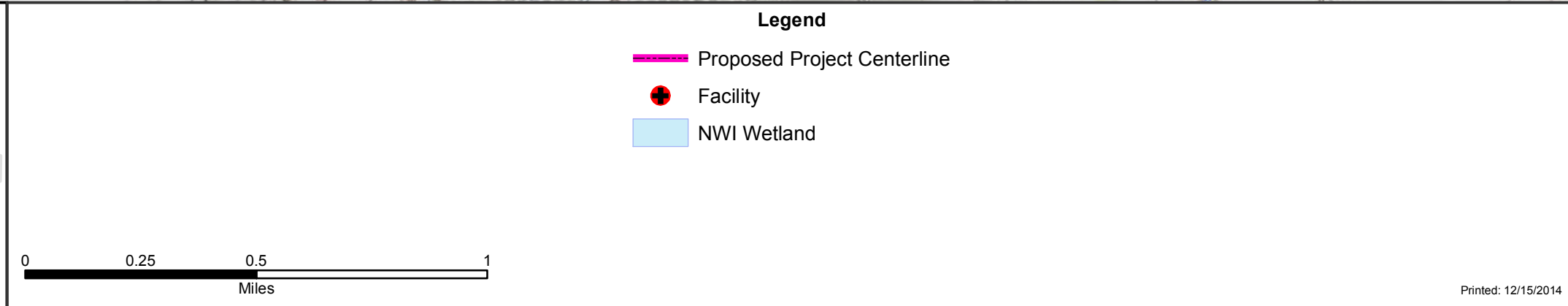
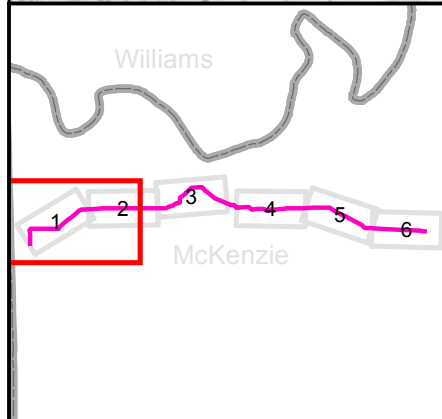
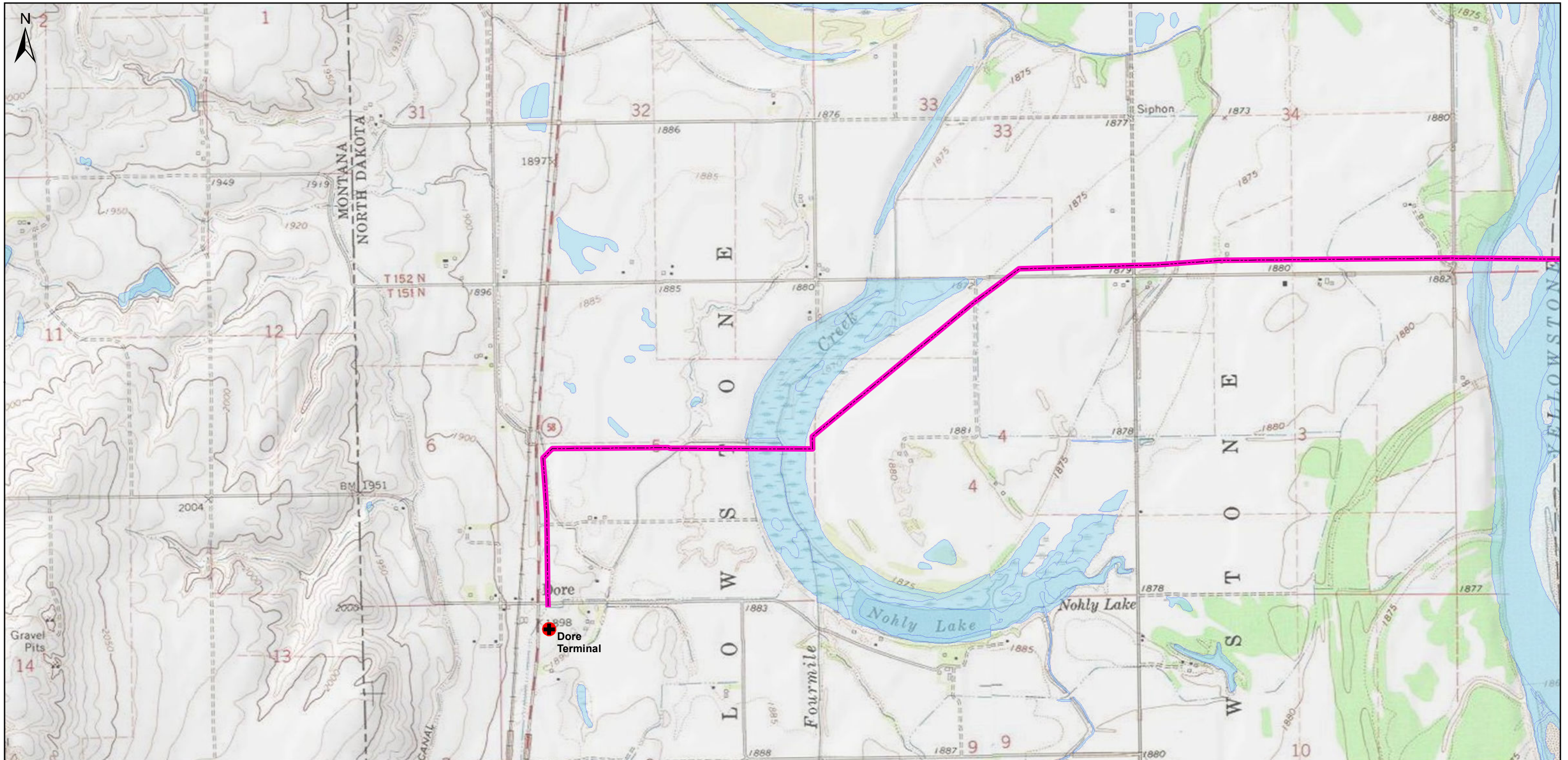



## Appendix C: Literature Search

**Information Removed due to ND SHPO Regulations for Public Dispersal of Documents**

## Appendix D: Site Descriptions

**Information Removed due to ND SHPO Regulations for Public Dispersal of Documents**

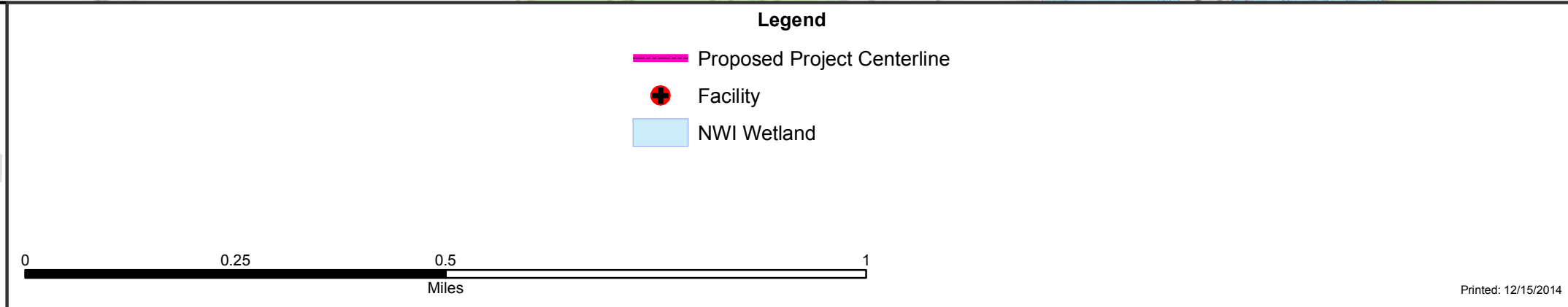
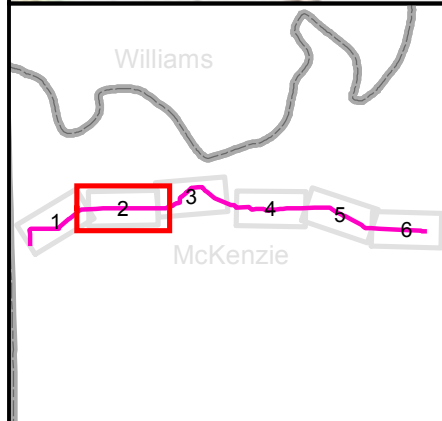
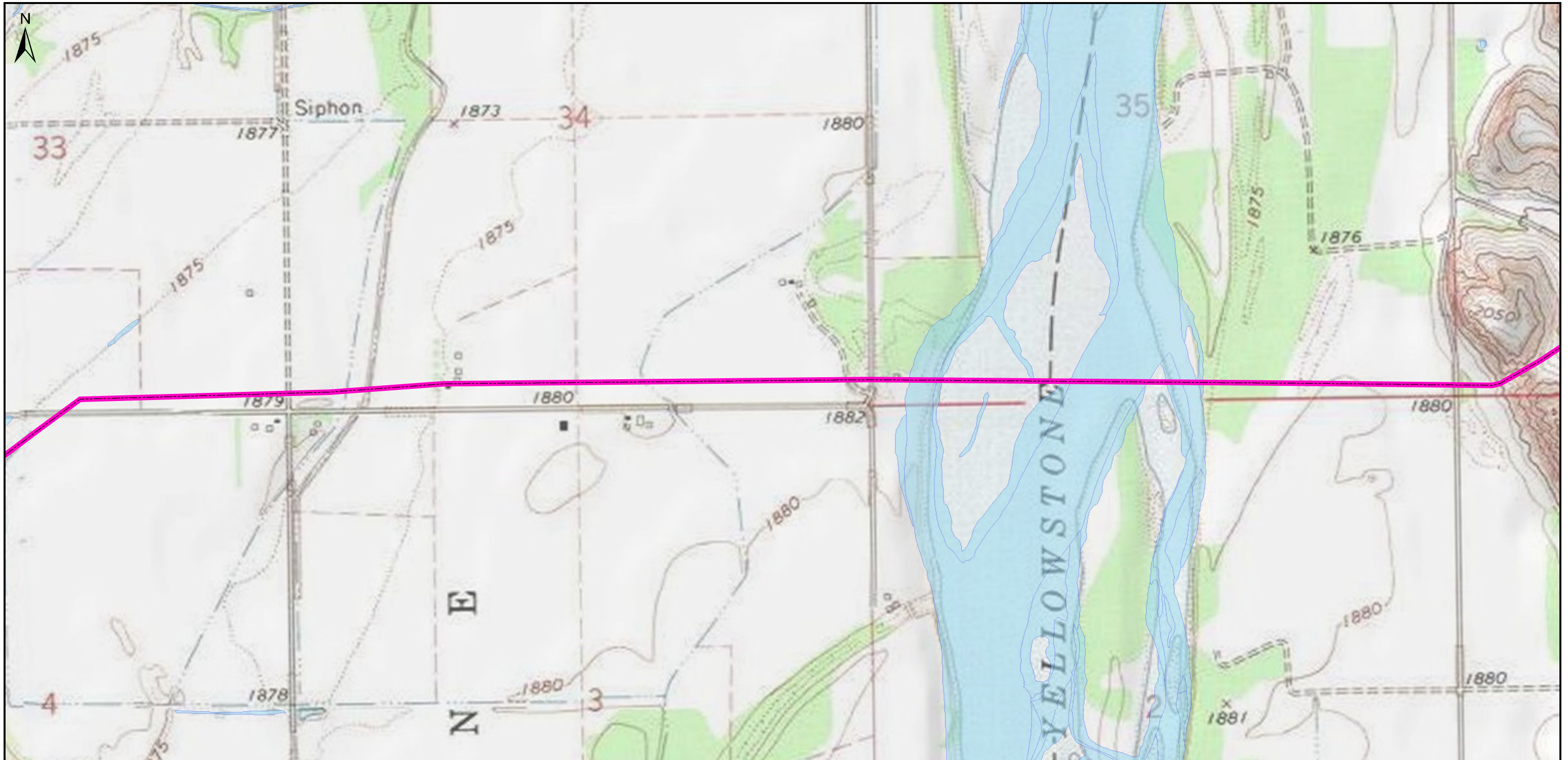




**Dore Loop  
Crude Oil Pipeline**

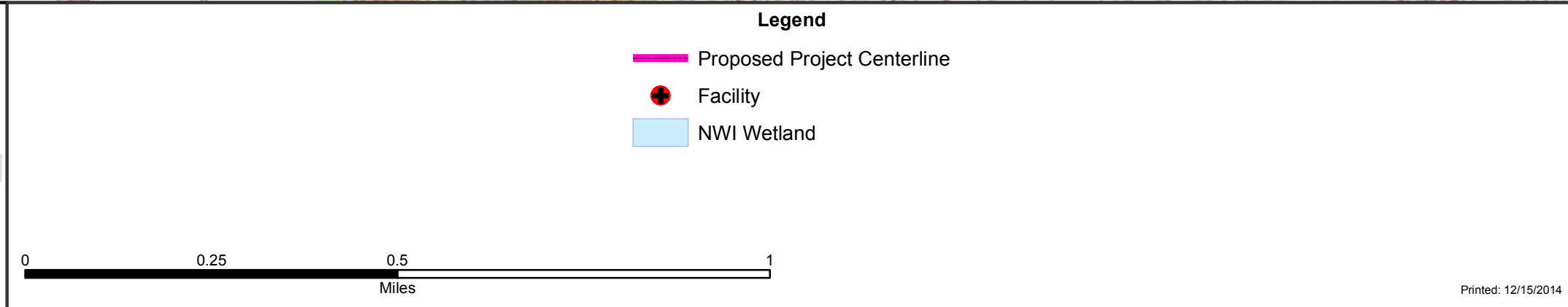
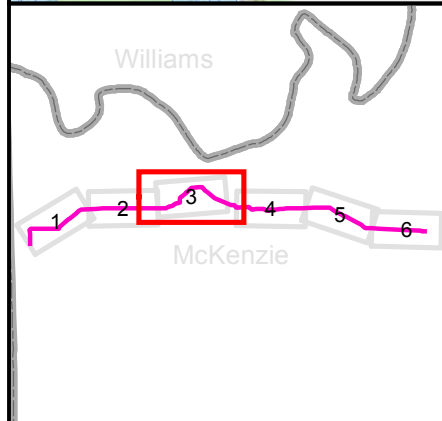
Figure 4.B.1a - Route Map

Printed: 12/15/2014



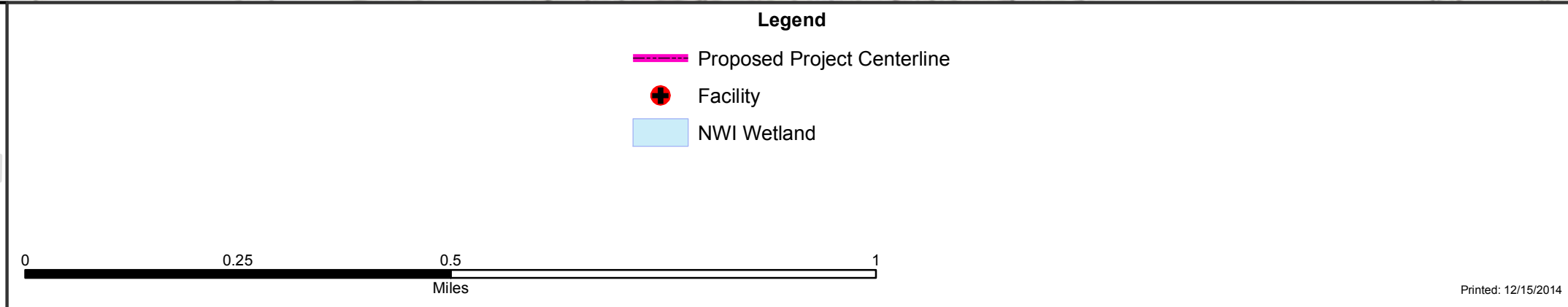
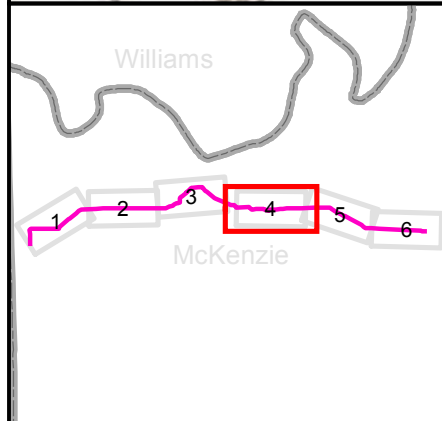
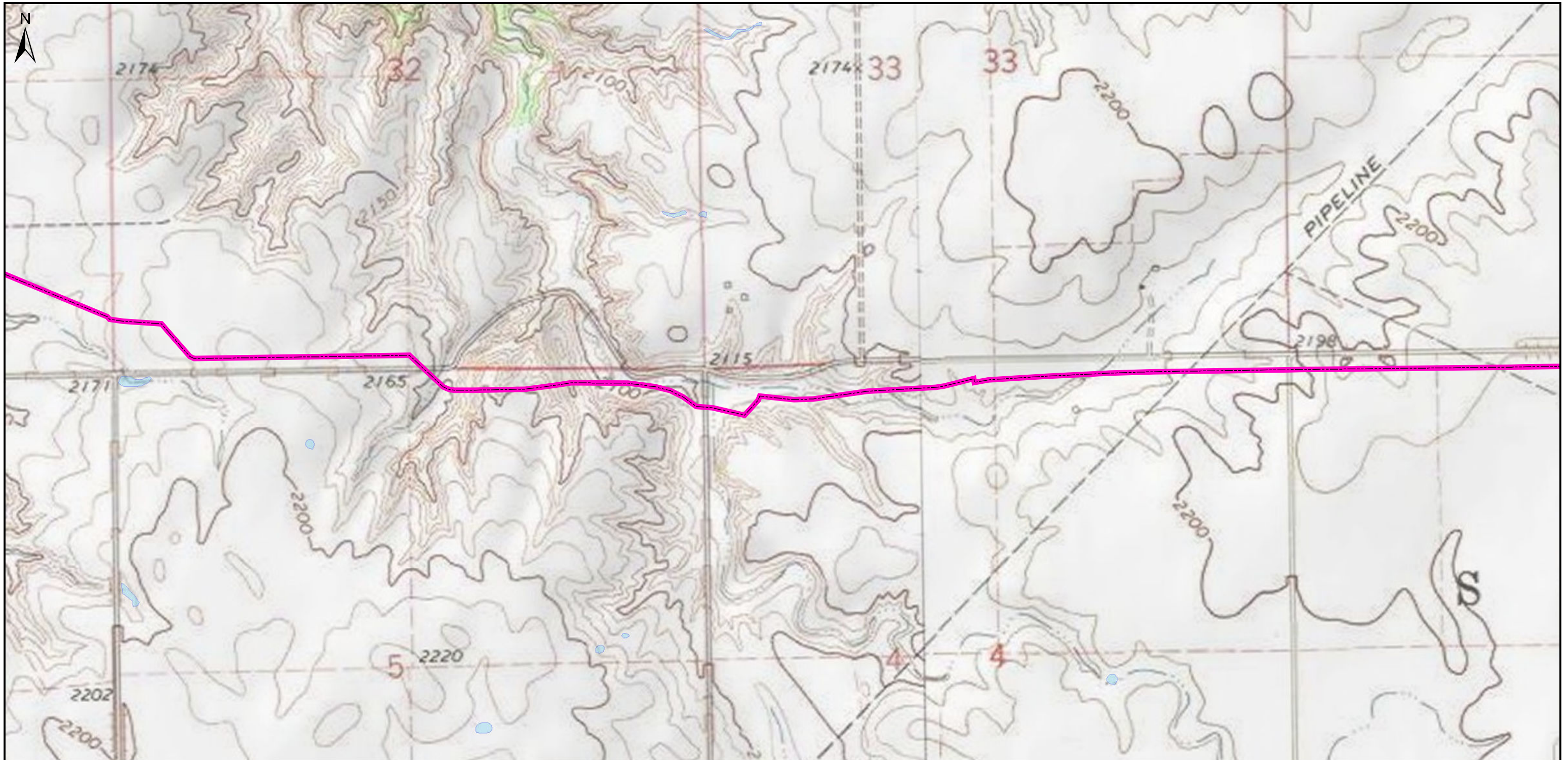
**Dore Loop  
Crude Oil Pipeline**  
Figure 4.B.2a - Route Map

Printed: 12/15/2014



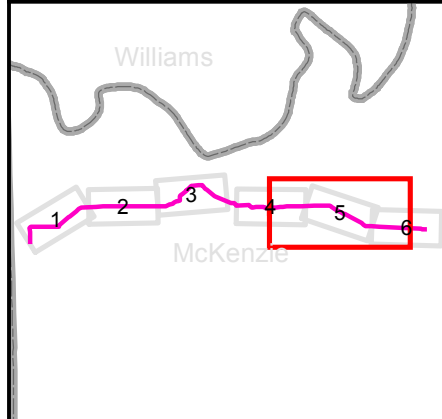
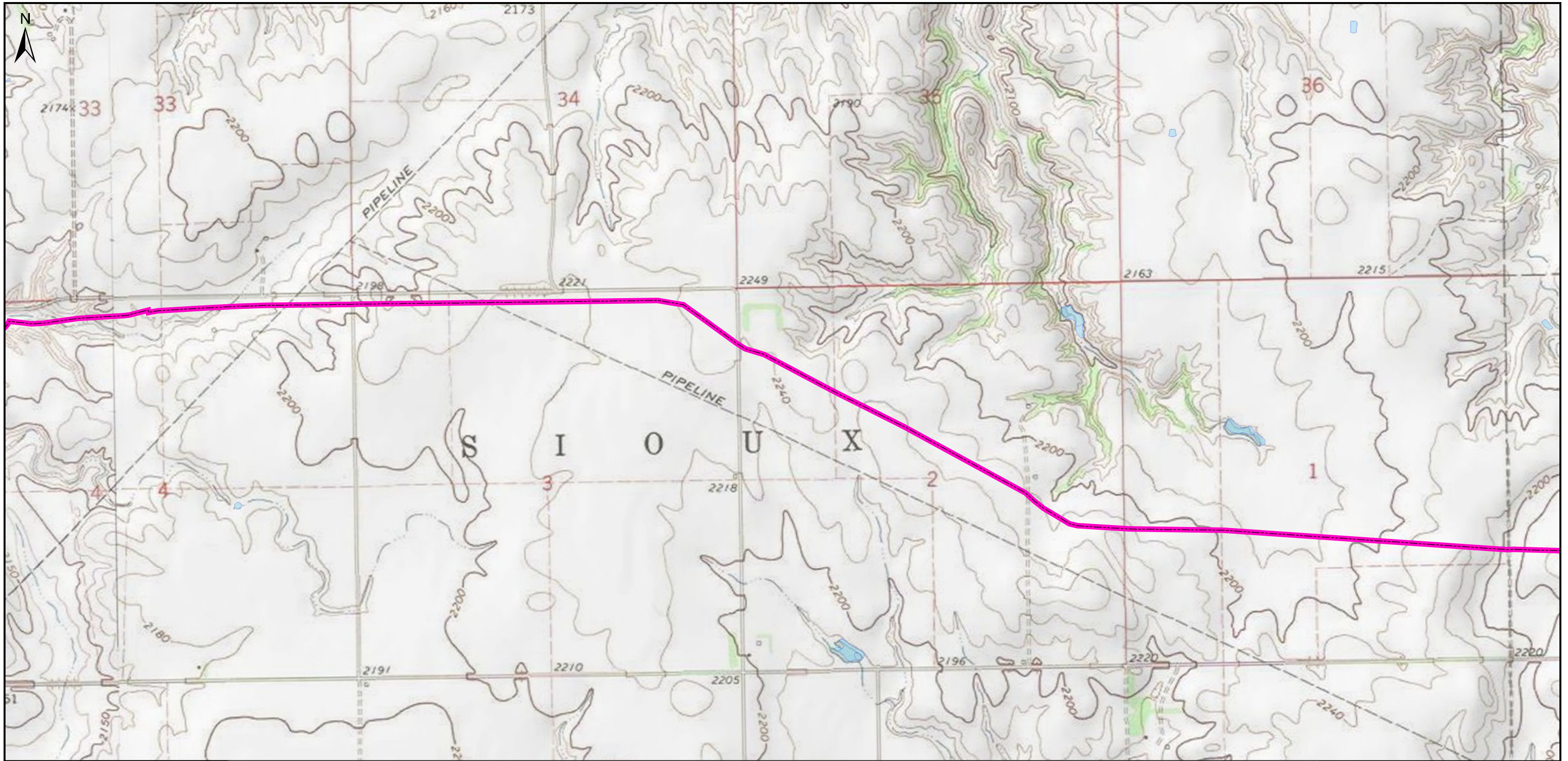
**Dore Loop  
Crude Oil Pipeline**  
Figure 4.B.3a - Route Map

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**Dore Loop  
Crude Oil Pipeline**  
Figure 4.B.4a - Route Map

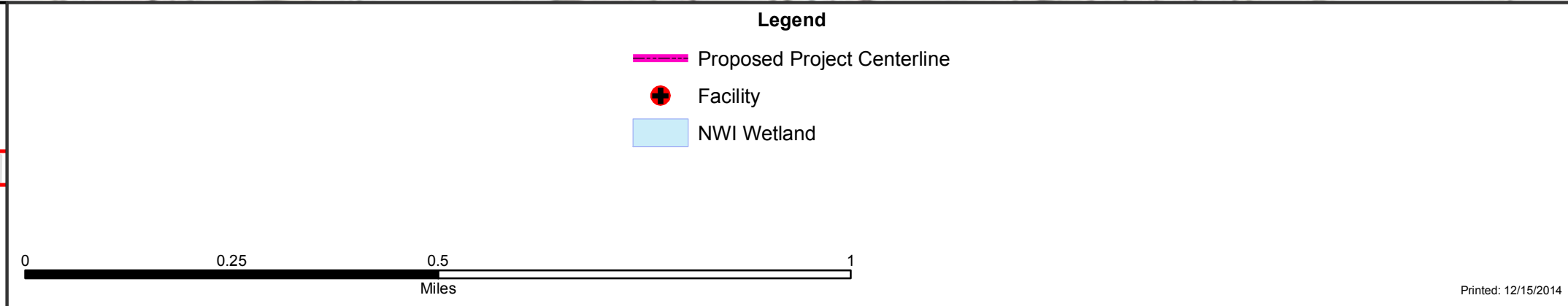
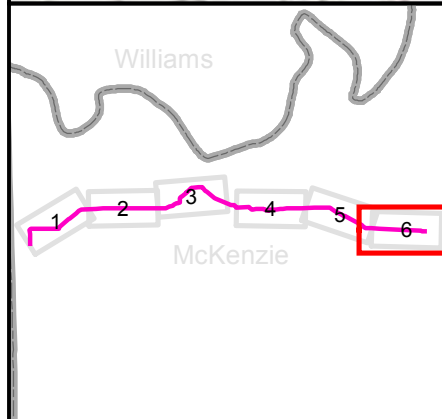
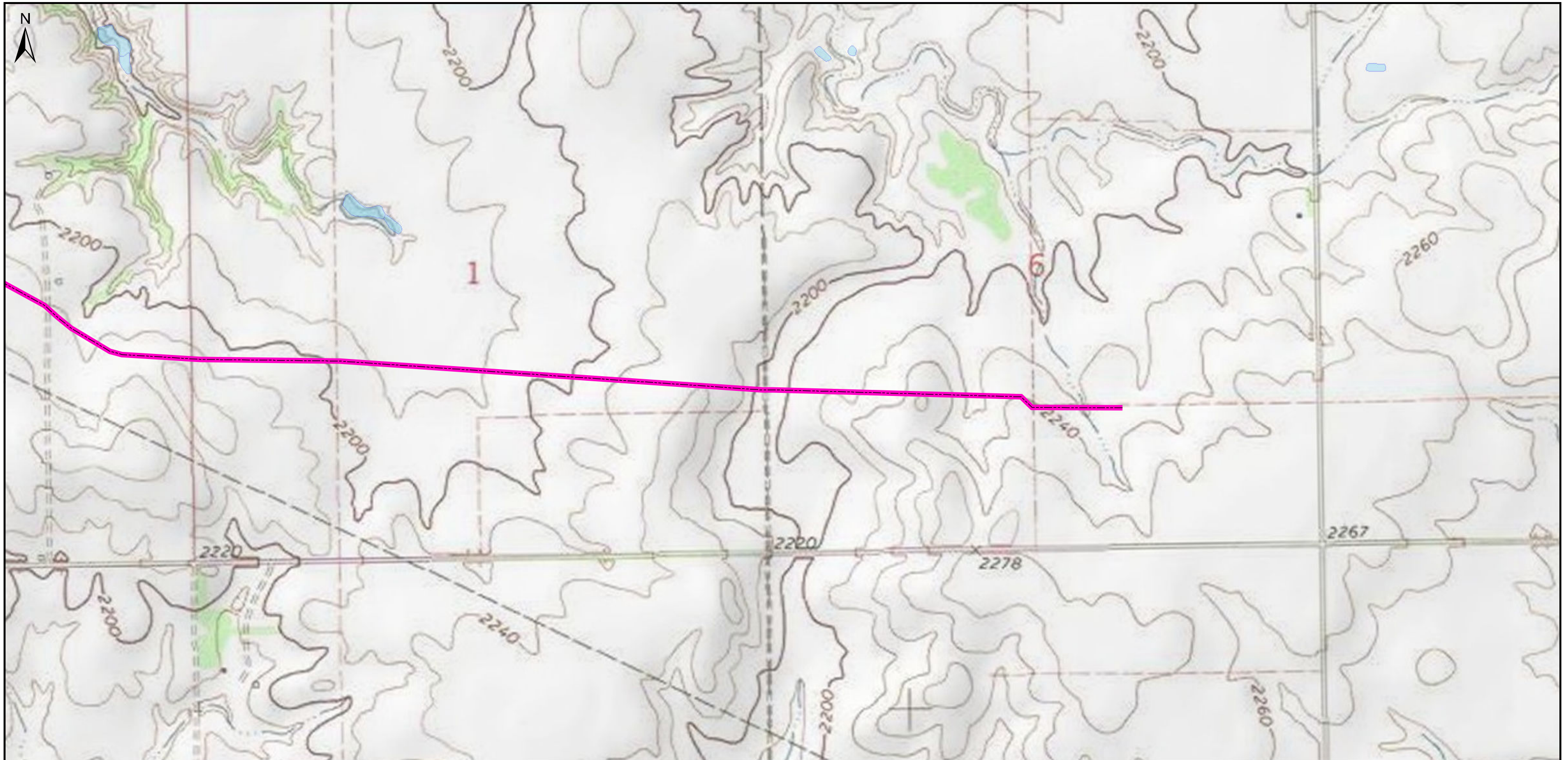
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**Dore Loop  
Crude Oil Pipeline**

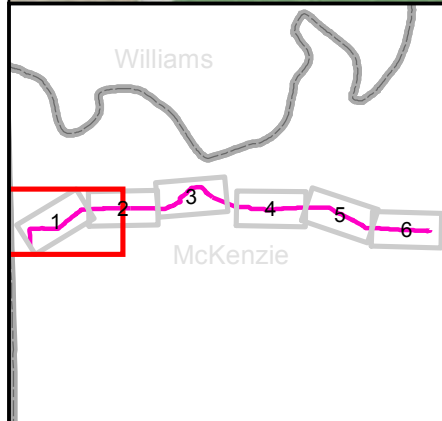
Figure 4.B.5a - Route Map

Printed: 12/15/2014












**Dore Loop  
Crude Oil Pipeline**  
Figure 4.B.6a - Route Map

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**Legend**

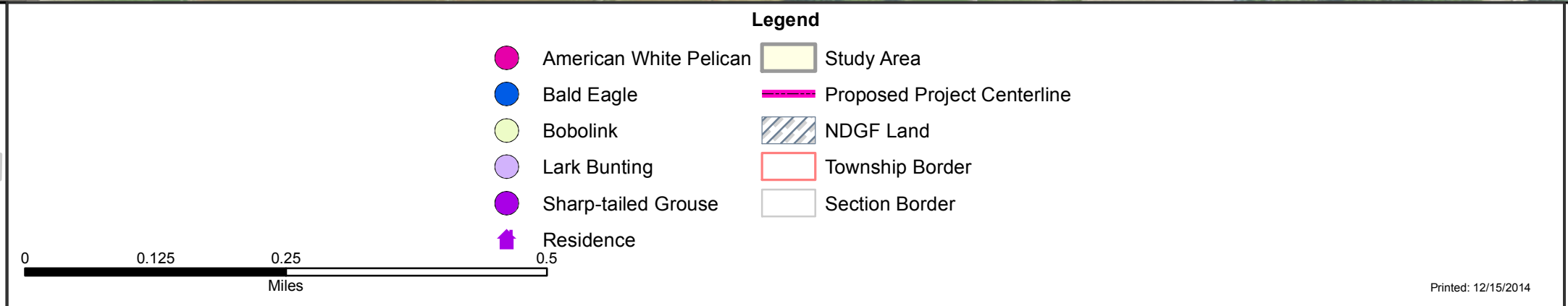
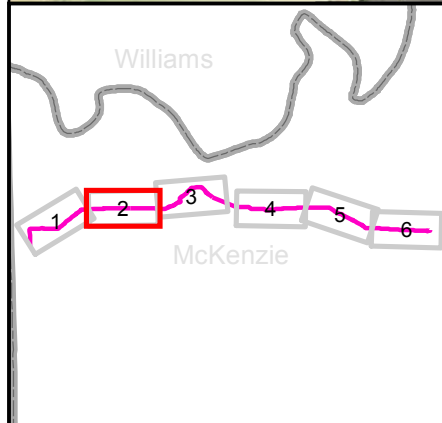
 American White Pelican	 Proposed Project Centerline
 Marbled Godwit	 Facility
 Northern Harrier	 Township Border
 Residence	 Section Border
 Study Area	

0    0.125    0.25    0.5  
Miles



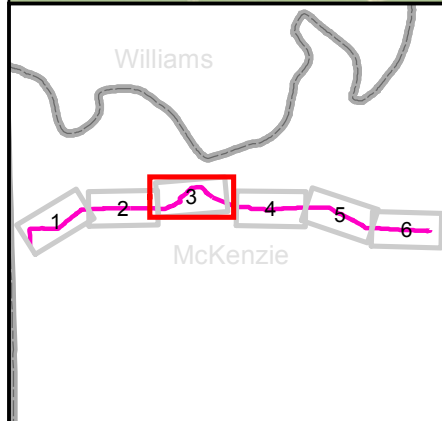
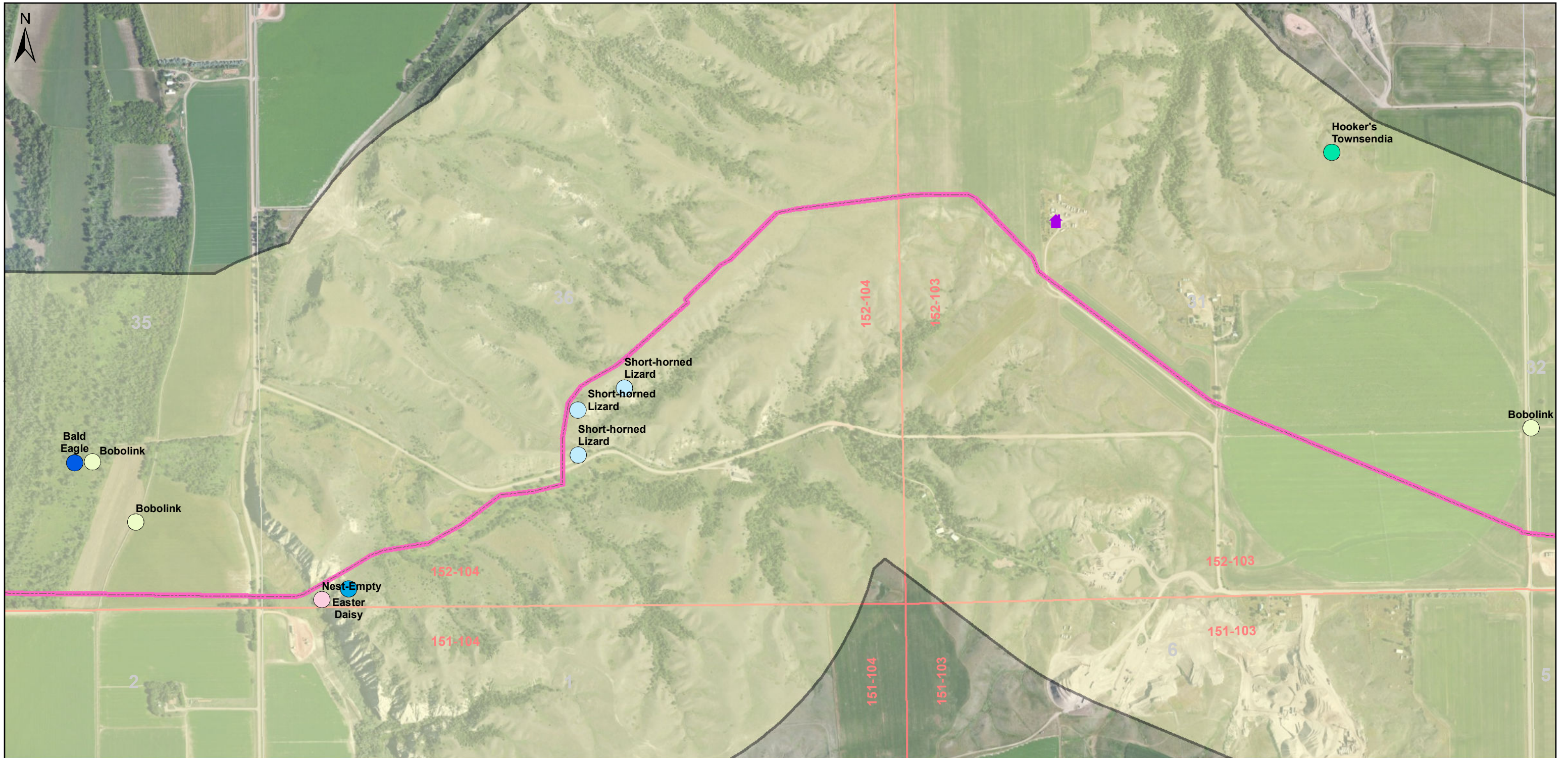
**Dore Loop  
Crude Oil Pipeline**  
Figure 4.B.1b - Route Map

Printed: 12/15/2014



**Dore Loop  
Crude Oil Pipeline**  
Figure 4.B.2b - Route Map

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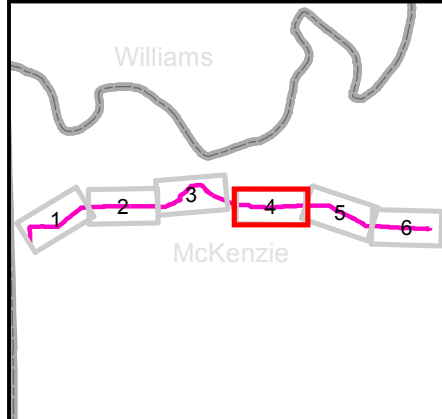
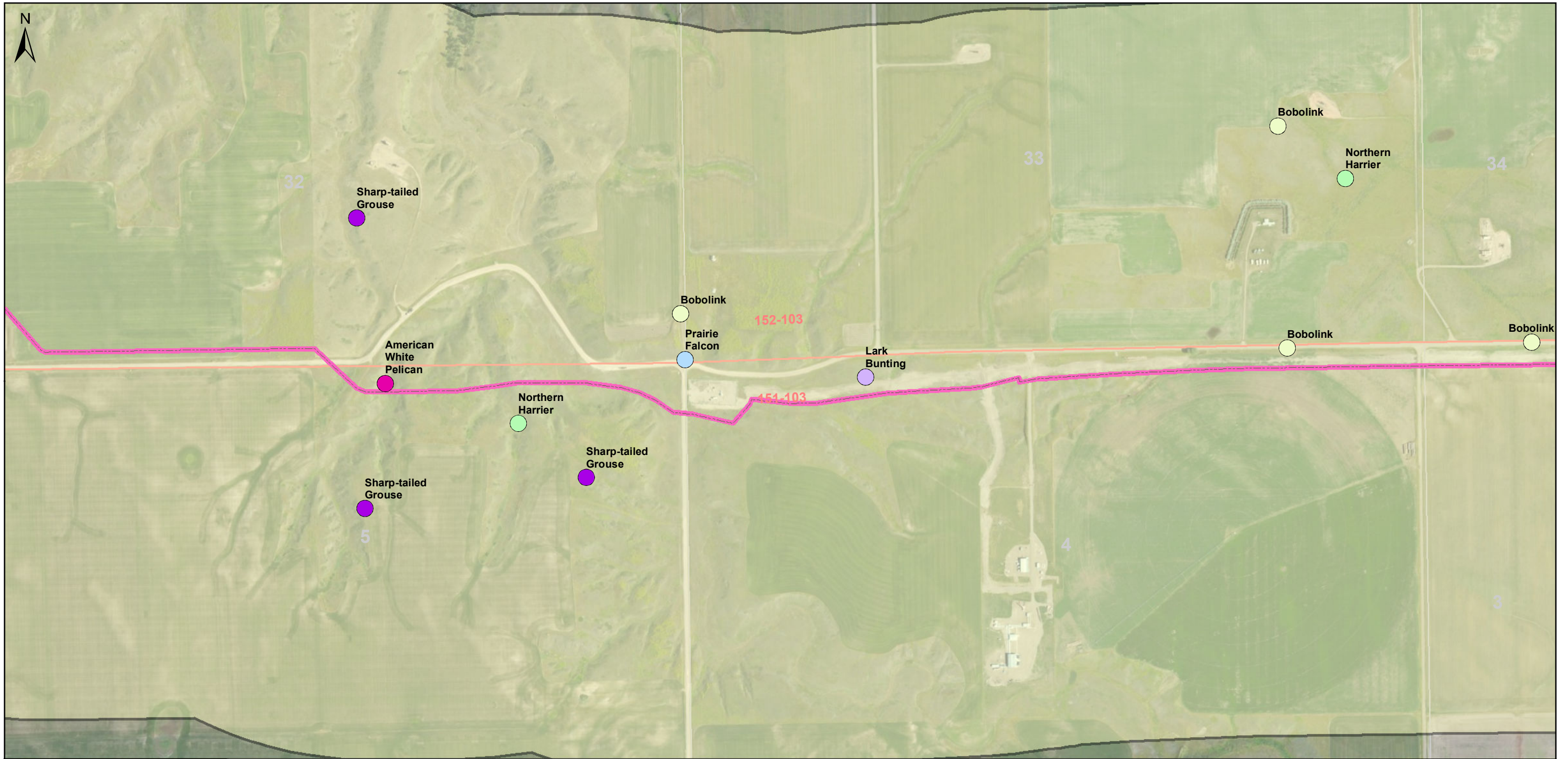


<p>0 0.125 0.25 0.5 Miles</p>		<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="color: blue;">●</span> Bald Eagle</li> <li><span style="color: yellow;">●</span> Bobolink</li> <li><span style="color: pink;">●</span> Easter Daisy</li> <li><span style="color: green;">●</span> Hooker's Townsendia</li> <li><span style="color: lightpink;">●</span> Nest-Empty</li> <li><span style="color: lightblue;">●</span> Short-horned Lizard</li> <li><span style="color: purple;">🏠</span> Residence</li> <li><span style="border: 1px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Study Area</li> <li><span style="border-bottom: 2px solid pink; width: 20px; display: inline-block;"></span> Proposed Project Centerline</li> <li><span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px;"></span> Township Border</li> <li><span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Section Border</li> </ul>	
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**Dore Loop  
Crude Oil Pipeline**  
Figure 4.B.3b - Route Map

Printed: 12/15/2014



**Legend**

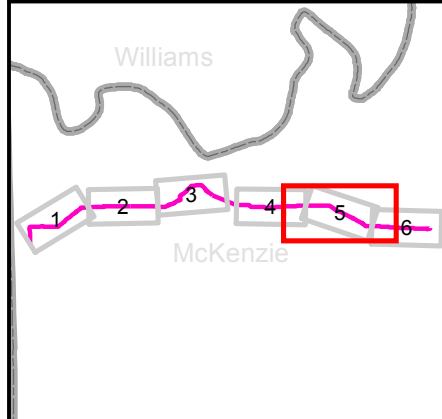
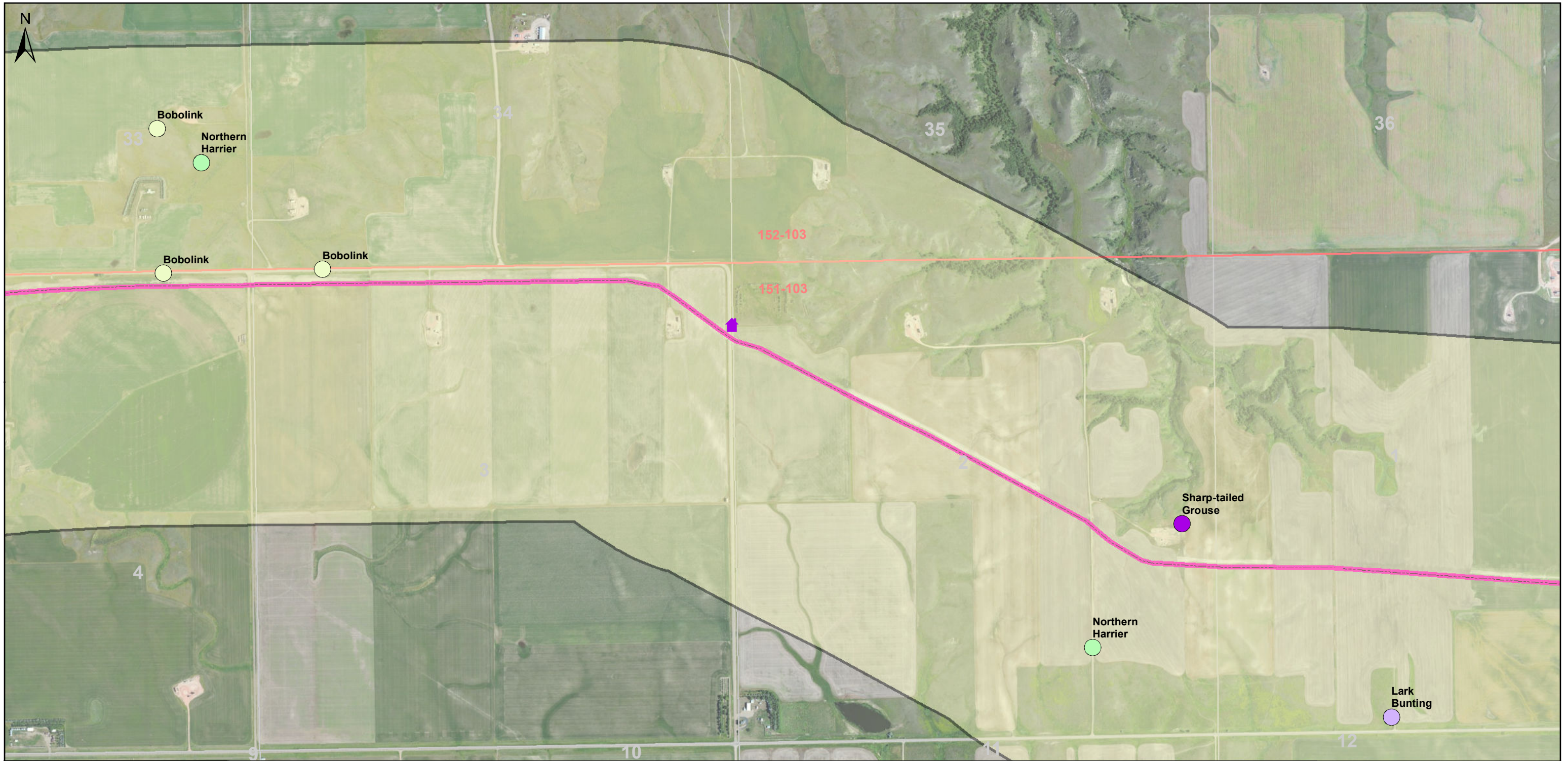
<span style="color: magenta;">●</span> American White Pelican	<span style="color: purple;">●</span> Sharp-tailed Grouse
<span style="color: yellow;">●</span> Bobolink	<span style="border: 1px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Study Area
<span style="color: purple;">●</span> Lark Bunting	<span style="border-bottom: 2px dashed magenta; display: inline-block; width: 20px;"></span> Proposed Project Centerline
<span style="color: green;">●</span> Northern Harrier	<span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px;"></span> Township Border
<span style="color: blue;">●</span> Prairie Falcon	<span style="border: 1px solid gray; display: inline-block; width: 15px; height: 10px;"></span> Section Border

0      0.125      0.25      0.5  
Miles

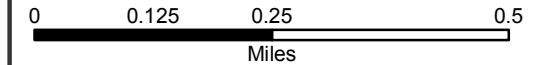


**Dore Loop  
Crude Oil Pipeline**  
Figure 4.B.4b - Route Map

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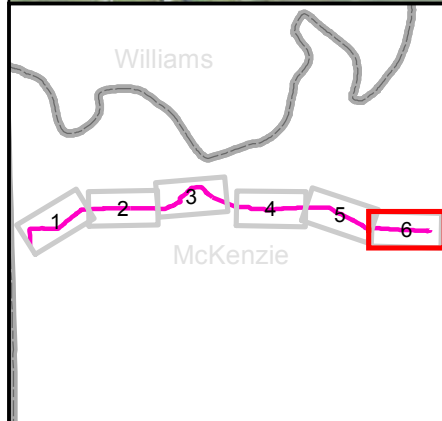


<b>Legend</b>	
Bobolink	Study Area
Lark Bunting	Proposed Project Centerline
Northern Harrier	Township Border
Sharp-tailed Grouse	Section Border
Residence	



**Dore Loop  
Crude Oil Pipeline**  
Figure 4.B.5b - Route Map

Printed: 12/15/2014



**Legend**

Lark Bunting	Proposed Project Centerline
Marbled Godwit	Township Border
Northern Harrier	Section Border
Sharp-tailed Grouse	
Study Area	

0      0.125      0.25      0.5  
Miles

**Dore Loop  
Crude Oil Pipeline**

Figure 4.B.6b - Route Map

Printed: 12/15/2014

**APPENDIX 4.C LANDOWNER AND TENANT LIST**

<b>Section</b>	<b>Twp</b>	<b>Range</b>	<b>Owner</b>	<b>Address</b>	<b>City, State, ZIP</b>
6	151N	102W	HILAND OPERATING, LLC	205 WEST MAPLE SUITE 110	ENID, OK 73701
6	151N	102W	SAFELY FAMILY TRUST	FIRST NATIONAL BANK & TRUST - TRUSTEE PO BOX 1827	WILLISTON, ND 58802
6/1	151N	102W	IVERSON/DEDRICK M & JANICE E	14852 38TH ST. NW	ALEXANDER, ND 58831
1/2	151N	103W	O'CONNER ET AL., TERRY	1627 PEOSTA AVE.	HELENA, MT 59601
2/3	151N	103W	ANDERSON, JANET K.	3461 155TH AVE. NW	CARTWRIGHT, ND 58838
3	151N	103W	LASSEY, DAVID & ALAN	15321 36TH ST. NW	CARTWRIGHT, ND 58838
4	151N	103W	WILLISTON BASIN INTERSTATE	1250 WEST CENTURY AVENUE	BISMARCK, ND 58503
4	151N	103W	SKORPIL, DENNIS R & MARLEEN	15351 35TH ST. NW	CARTWRIGHT, ND 58838
4	151N	103W	GULLIKSON, JAMES A	3492 157 AVE. NW	CARTWRIGHT, ND 58838
31	152N	103W			
5	151N	103W	MONSON FAMILY TRUST, EDNA S	611 PLAIN HILLS DR.	GRAND FORKS, ND 58201
4	151N	104W	FLYNN, CHARLES R & JULIE ANN	15962 HIGHWAY 200	FAIRVIEW, MT 59221
5	151N	104W	LANGWALD, TIM & CHARLENE R.	3781 HIGHWAY 58	FAIRVIEW, MY 59221
5	151N	104W	SCHLOTHAUER, HAROLD	15922 30TH ST. NW	FAIRVIEW, MT 59221

Hiland Crude, LLC  
Route Application  
Dore Crude Oil Loop Pipeline, McKenzie County

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<b>Section</b>	<b>Twp</b>	<b>Range</b>	<b>Owner</b>	<b>Address</b>	<b>City, State, ZIP</b>
5	151N	104W	MONGOOSE TRUCKING & HOT SHOT, LLC.	3532 HIGHWAY 58	FAIRVIEW, MT 59221
31	152N	103W	GULLIKSON, JAMES A & DIANA	3492 157 AVE. NW	CARTWRIGHT, ND 58838
31/32	152N	103W	DOBIAS FAMILY TRUST, WILLIAM	PO BOX 105	FORSYTH, MT 59327
4	151N	104W	BIEBER REV TRUST, HARLOW &	3591 159 AVE. NW	FAIRVIEW, MT 59221
33	152N	104W	ANNABELLE		
4	151N	104W	BUXBAUM, SCOTT M & ANITA L	16041 34TH ST. NW	FAIRVIEW, MT 59221
33	152N	104W			
34	152N	104W	BERRY, WILL L. & LUKE E & SHAWN	15624 HIGHWAY 200	CARTWRIGHT, ND 58838
34	152N	104W	CAYKO, TERRY & VICKY	15852 36TH ST. NW	FAIRVIEW, MT 59221
35	152N	104W	SANDE FAMILY TRUST	428 EL CERRITO AVE.	PIEDMONT, CA 94611
35	152N	104W	USACOE	441 G. STREET NW	WASHINGTON, DC 20314
35	152N	104W	HETTICH, BENJAMIN D.	2610 BRADFORD COURT	WILLISTON, ND 58801
36	152N	104W	PAULSON, CARROLL & LINDA	3251 156TH AVE. NW	CARTWRIGHT, ND 58838

**APPENDIX 4.D.1**

**North Dakota Federal and State Plant Species of Concern**

Hiland Crude, LLC  
 Plant Species of Concern  
 Dore Crude Oil Pipeline, McKenzie County

<b>TABLE 4.D.1.A</b>						
<b>NORTH DAKOTA'S PLANT SPECIES OF CONCERN</b>						
<u>Scientific Name</u>	<u>Common Name</u>	<u>Global</u>	<u>State</u>	<u>USFWS</u>	<u>USFS</u>	<u>Habitat</u>
<i>Acorus americanus</i>	Sweetflag	G5	S4			Peatlands, fens, seeps
<i>Agrostis exarata</i>	Spike Bentgrass	G5	S1		W	Moist habitats
<i>Allium canadense</i>	Meadow Onion	G5	S1			Prairies, open woods
<i>Allium tricoccum</i>	Wild Garlic	G5	S3			Rich undisturbed woods
<i>Apios americana</i>	American Groundnut	G5	SH			Moist woods, thickets banks
<i>Arabis canadensis</i>	Sicklepod	G5	S1			Mesic woodlands
<i>Arnica cordifolia</i>	Heart-leaved Arnica	G5	S3			Open woodlands
<i>Asclepias lanuginosa</i>	Wooly Milkweed	G4?	S1			Sandy or rocky calcareous prairie
<i>Asclepias sullivantii</i>	Sullivant's Milkweed	G5	S2			Mesic tallgrass prairies
<i>Astragalus australis</i>	Indian Milkvetch	G5	S2S3		W	Open wooded hillsides, bluffs, limestone
<i>Astragalus drummondii</i>	Drummond's Milkvetch	G5	S1		W	Prairies to open wooded/brushy hillsides/ravines, all soil
<i>Astragalus neglectus</i>	Cooper's Milkvetch	G4	S1			Sandy, gravelly shores, mesic gravelly prairie
<i>Astragalus vexilliflexus</i>	Bent-flowered Milkvetch	G4	S3		W	Rocky knolls and open wooded hillsides
<i>Athyrium filix-femina</i>	Northern Lady-fern	G5	S3			Moist woods, thickets, bogs, along streams
<i>Botrychium campestre</i>	Prarie Grapefern	G3G4	S1			Dry, gravelly or sandy prairies
<i>Botrychium matricariifolium</i>	Chamomile Grapefern	G5	S1			Moist woodlands
<i>Botrychium minganense</i>	Moonwort	G4	S1			Wooded, often north-facing slopes, meadows
<i>Botrychium multifidum</i>	Leathery Grapefern	G5	S1			Wet meadows, rich woodlands
<i>Botrychium simplex</i>	Least Grapefern	G5	S2			Meadows, barrens, woods, subacid soils
<i>Bromus carinatus</i>	Mountain Brome	G5	S1		W	Disturbed, moist woods, dry meadows, sagebrush
<i>Bromus kalmii</i>	Kalm's Brome	G5	S3			Open oak woods, sandy soils
<i>Calla palustris</i>	Water Arum	G5	S2			Northern marshes and swamps

Hiland Crude, LLC  
 Plant Species of Concern  
 Dore Crude Oil Pipeline, McKenzie County

<b>TABLE 4.D.1.A</b>						
<b>NORTH DAKOTA'S PLANT SPECIES OF CONCERN</b>						
<u>Scientific Name</u>	<u>Common Name</u>	<u>Global</u>	<u>State</u>	<u>USFWS</u>	<u>USFS</u>	<u>Habitat</u>
<i>Campanula aparinoides</i>	Marsh Bellflower	G5	S2S3			Wetland thickets, seepage, peatlands
<i>Cardamine bulbosa</i>	Spring Cress	G5	S1			Wet meadows, wood springs
<i>Carex alopecoidea</i>	Foxtail Sedge	G5	S2			Damp, rich, wooded areas
<i>Carex athrostachya</i>	Jointed-spike Sedge	G5	S3			Low prairie, marsh margins
<i>Carex backii</i>	Back's Sedge	G4	S3			Damp, wooded areas
<i>Carex brunnescens</i>	Brown Sedge	G5	S1			Fens, wet wooded areas
<i>Carex buxbaumii</i>	Buxbaum's Sedge	G5	S2			Wet meadows, fens
<i>Carex capillaris</i>	Hair-like Sedge	G5	S2			Wet meadows, fens
<i>Carex chordorrhiza</i>	Creeping Sedge	G5	S1			Sphagnum bogs, poor fens
<i>Carex convoluta</i>	Spiral Sedge	G5	S2			Rich, deciduous woodlands
<i>Carex diandra</i>	Lesser-panicled Sedge	G5	S3			Swamps, meadows, shores
<i>Carex echinata ssp. echinata</i>	Spiny Sedge	G5T5	S1			Sphagnum bogs
<i>Carex festuceacea</i>	Fescue Sedge	G5	S2			Wooded areas
<i>Carex foenea (Carex siccata)</i>	Dry-spiked Sedge	G5	S3		W	Dry open soil in wooded areas
<i>Carex formosa</i>	Handsome Sedge	G4	S1			Low, moist, eastern woodlands
<i>Carex garberi</i>	Elk Sedge	G5	S1			Fens, swamps, pond margins
<i>Carex gracillima</i>	Graceful Sedge	G5	S1			Moist swampy woods
<i>Carex gynocrates</i>	Pistillate Sedge	G5	S1			Peaty fens
<i>Carex haydenii</i>	Hayden's Sedge	G5	S1			Wet meadows, sloughs
<i>Carex lasiocarpa</i>	Wiregrass Sedge	G5	S3			Sphagnum bogs, seepage-fed peatlands, lake borders
<i>Carex leptalea</i>	Delicate Sedge	G5	S3			Shrubby peatland fens, swampy woods and thickets
<i>Carex limosa</i>	Mud Sedge	G5	S2			Sphagnum bogs, fens
<i>Carex nebrascensis</i>	Nebraska Sedge	G5	S2			Wet meadows, stream margins
<i>Carex pedunculata</i>	Peduncled Sedge	G5	S2			Moist oak or birch woodlands
<i>Carex richardsonii</i>	Richardson's Sedge	G5	S1			Low, usually sandy, prairie

Hiland Crude, LLC  
 Plant Species of Concern  
 Dore Crude Oil Pipeline, McKenzie County

<b>TABLE 4.D.1.A</b>						
<b>NORTH DAKOTA'S PLANT SPECIES OF CONCERN</b>						
<u>Scientific Name</u>	<u>Common Name</u>	<u>Global</u>	<u>State</u>	<u>USFWS</u>	<u>USFS</u>	<u>Habitat</u>
<i>Carex scirpoidea</i>	Spikerush Sedge	G5	S2		W	Rocky slopes, wet meadows
<i>Carex scoparia</i>	Pointed Broom Sedge	G5	SH			Damp woods, low prairie, lakeshores
<i>Carex simulata</i>	Copycat Sedge	G5	S2			Calcareous fens, wet meadows
<i>Carex sterilis</i>	Sterile Sedge	G4	S1			Seepage peatland fens, wet meadows
<i>Caulophyllum thalictroides</i>	Blue Cohosh	G4G5	S1			Moist rich woods
<i>Chaenactis douglasii</i>	Douglas' Dusty-maiden	G5	S2			Scoria slopes and buttes
<i>Cheilanthes feei</i>	Slender Lip fern	G5	S1			Dry rocky slopes, sandstone, limestone
<i>Chenopodium subglabrum</i>	Smooth Goosefoot	G3G4	S1		S	Sandy river terraces, sand colluviums, sand blowouts, sand dunes
<i>Clematis columbiana</i> var. <i>tenuiloba</i>	Slender-lobed Clematis	G5? T4?	S1		W	Rocky slopes, limestone soils
<i>Collinsia parviflora</i>	Blue lips	G5	S2		S	Mesic slopes of buttes
<i>Crataegus mollis</i>	Downy Hawthorn	G5	S1			Open mesic woods
<i>Cryptantha torreyana</i>	Torrey's Cryptantha	G5	S1		S	Dry plains, pine slopes, on scoria
<i>Cyperus bipartitus</i>	Brook Flatsedge	G5	S2			Cool, spring-fed streams
<i>Cyperus diandrus</i>	Low Flatsedge	G5	S2			Sandy or muddy shores, stream margins
<i>Cypripedium candidum</i>	White Lady's Slipper	G4	S2			Low prairie, wet meadows
<i>Cypripedium parviflorum</i>	Small Yellow Lady's-slipper orchid	G5	S2			Damp woods, fens, streambanks
<i>Cypripedium parviflorum</i> var. <i>pubescens</i>	Large Yellow Lady's-slipper	G5T5	S2			Boggy areas, wet prairies
<i>Cypripedium reginae</i>	Showy Lady's-slipper	G4	S2			Swampy woodlands, thickets, fens
<i>Dalea enneandra</i>	Nine-anthered Dalea	G5	S3			Sandy or gravelly slopes, dry mixed grass prairies
<i>Desmanthus illinoensis</i>	Prairie Mimosa	G5	S1			Prairies with rocky or sandy soils
<i>Dicentra cucullaria</i>	Dutchman's Breeches	G5	S1			Rich eastern woodlands

Hiland Crude, LLC  
 Plant Species of Concern  
 Dore Crude Oil Pipeline, McKenzie County

<b>TABLE 4.D.1.A</b>						
<b>NORTH DAKOTA'S PLANT SPECIES OF CONCERN</b>						
<u>Scientific Name</u>	<u>Common Name</u>	<u>Global</u>	<u>State</u>	<u>USFWS</u>	<u>USFS</u>	<u>Habitat</u>
<i>Diervilla lonicera</i>	Dwarf Honeysuckle	G5	S3			Shady woodlands, usually aspen
<i>Dirca palustris</i>	Leatherwood	G4	S1			Shady, damp woodland slopes
<i>Drosera rotundifolia</i>	Round-leaved Sundew	G5	S1			Acid bogs, swamps
<i>Dryopteris carthusiana</i>	Spinulose Woodfern	G5	S3			Rich, moist woods, ravines, boggy areas, alder thickets
<i>Dryopteris cristata</i>	Crested Woodfern	G5	S3			Swampy woods and thickets, seeps
<i>Eleocharis parvula</i>	Dwarf Spikerush	G5	S2			Brackish, alkaline shores
<i>Eleocharis pauciflora</i>	Few-flowered Spikerush	G5	S3			Calcareous fens, seeps
<i>Eleocharis wolfii</i>	Wolf's Spikerush	G3?	SH			Shores, low, wet prairie
<i>Elymus glaucus</i>	Blue Wildrye	G5	S2			Open woods, prairie slopes
<i>Epilobium coloratum</i>	Purple-leaved Willowherb	G5	S3			Marshes, seeps, shores
<i>Epilobium pygmaeum</i> ( <i>Boisduvalia glabella</i> )	Smooth-spike Primrose	G5	S2		W	Small streams, vernal pools
<i>Equisetum palustre</i>	Marsh Horsetail	G5	S2			Willow/alder thickets, swampy woods, streambanks
<i>Equisetum pratense</i>	Meadow Horsetail	G5	S2			Moist woodlands, shady streambanks
<i>Equisetum sylvaticum</i>	Wood Horsetail	G5	S2			Moist aspen or lowland woods, seeps
<i>Equisetum variegatum</i>	Variegated Horsetail	G5	S1			Marl pools of calcareous fens
<i>Erigeron divergens</i>	Spreading Fleabane	G5	S1		W	Dry, open, rocky, sandy, loose soils
<i>Erigeron radicans</i>	Cushion Fleabane	G3G4	S1		W	Exposed hills, slopes, ridges
<i>Eriogonum cernuum</i>	Nodding Buckwheat	G5	S1		S	Erosional breaks in sandy grasslands, sandstone colluvium
<i>Eriogonum visherii</i>	Dakota Buckwheat	G3	S2		S	Barren, erodible, rock outcrops in badland habitat
<i>Eriophorum chamissonis</i>	Chamisson's Cottongrass	G5	S2			Bogs, marshes, peaty fens
<i>Eriophorum gracile</i>	Slender Cottongrass	G5	S1			Seepage fens

<b>TABLE 4.D.1.A</b>						
<b>NORTH DAKOTA'S PLANT SPECIES OF CONCERN</b>						
<u>Scientific Name</u>	<u>Common Name</u>	<u>Global</u>	<u>State</u>	<u>USFWS</u>	<u>USFS</u>	<u>Habitat</u>
<i>Eriophorum viridicarinatum</i>	Green Keeled Cottongrass	G5	S2			Sphagnum bogs, peaty fens
<i>Escobaria missouriensis</i>	Missouri Foxtail Cactus	G5	SNR		S	Plains, hills, desert edge, grasslands, lower mountains
<i>Euonymus atropurpureus</i>	Wahoo	G5	S3			Rich deciduous woods, woodland edges, river banks
<i>Euphorbia robusta</i>	Rocky Mountain Spurge	G5	S3			Dry, sandy or gravelly prairie slopes
<i>Fraxinus nigra</i>	Black Ash	G5	S2			Swampy or wet lowlands
<i>Fritillaria pudica</i>	Yellow Fritillary	G5	S3			Ephemerally moist areas of buttes
<i>Galium labradoricum</i>	Bog Bedstraw	G5	S3			Wetland thickets, fens, swampy woods
<i>Gentianopsis crinita</i>	Fringed Gentian	G5	S2			Low wet prairies, stream banks
<i>Geranium maculatum</i>	Wild Geranium	G5	SH			Rich, eastern deciduous woods
<i>Geum rivale</i>	Water Avens	G5	S2			Marshes, wet meadows, riverbanks
<i>Gymnocarpium dryopteris</i>	Oakfern	G5	S2			North-facing or shady wooded slopes
<i>Halenia deflexa</i>	Spurred Gentian	G5	S3			Wetland thickets, damp shady woods
<i>Helianthemum bicknellii</i>	Bicknell's Sunrose	G5	S1			Open woods, prairies, usually dry sandy soil
<i>Hudsonia tomentosa</i>	Woolly Beach-heather	G5	S1			Sand prairies, dunes
<i>Iris missouriensis</i>	Rocky Mountain Iris	G5	S2			Mesic areas within mixed grass prairie
<i>Juncus brevicaudatus</i>	Short-tailed Rush	G5	S2			Wet meadows, fens, marshes
<i>Juncus vaseyi</i>	Vasey's Rush	G5?	S2			Wet meadows, shores
<i>Lappula cenchrusoides</i>	Stickseed	G4	S1			Dry soils in open areas
<i>Lechea stricta</i>	Upright Pinweed	G4?	S2			Dry, sandy woods and prairies
<i>Leersia virginica</i>	Whitegrass	G5	S3			Moist woods, stream banks
<i>Leucocrinum montanum</i>	Sand Lily	G5	S2		S	Grass/sagebrush prairies, open conifer woodlands, sandy soils
<i>Linnaea borealis</i>	Twinflower	G5	S4			Moist, wooded, north-facing slopes
<i>Liparis loeselii</i>	Loesel's Twayblade	G5	S2			Damp woods, prairie swales, fens

Hiland Crude, LLC  
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<b>TABLE 4.D.1.A</b>						
<b>NORTH DAKOTA'S PLANT SPECIES OF CONCERN</b>						
<u>Scientific Name</u>	<u>Common Name</u>	<u>Global</u>	<u>State</u>	<u>USFWS</u>	<u>USFS</u>	<u>Habitat</u>
<i>Lipocarpha micrantha</i>	Small-flowered Lipocarpha	G5	S1			Wet sandy areas, sandbars
<i>Mahonia repens</i>	Creeping Barberry	G5	S2			Coulees, slopes of high plains
<i>Mentzelia pumila</i>	Dwarf Mentzelia	G4	S1		S	Dry sandy or clayey soils
<i>Menyanthes trifoliata</i>	Buckbean	G5	S2			Sphagnum bogs, fen peat lands
<i>Mimulus guttatus</i>	Yellow Monkeyflower	G5	S1			Marshes, along streams and lake shores
<i>Minuartia dawsonensis</i>	Stiff Sandwort	G5	S1			Open rocky or gravelly areas on shale
<i>Mitella nuda</i>	Naked Mitrewort	G5	S3			Swampy lowland woods and thickets
<i>Monotropa uniflora</i>	Indianpipe	G5	S3			Rich shady woods
<i>Muhlenbergia filiformis</i>	Pull-up Muhly	G5	S1			Marl pools of calcareous fens
<i>Myosurus apetalus var. montanus</i>	Bristly Mousetail	G5T3 T5	S1		W	Moist areas, vernal pools, lowlands
<i>Myosurus aristatus</i>	Sedge Mousetail	G5	S2			Moist areas, vernal wetlands of mixed grass prairies
<i>Myriophyllum pinnatum</i>	Cutleaf Watermilfoil	G5	S2			Shallows of marshes and shores
<i>Najas guadalupensis</i>	Southern Naiad	G5	S1			Lakes or streams
<i>Najas marina</i>	Spiny Naiad	G5	S1			Alkaline lakes, ponds
<i>Oenothera laciniata</i>	Cutleaf Evening Primrose	G5	SA?		W	Sandy prairie, disturbed pastures, roadsides, stream valleys
<i>Oenothera rhombipetala</i>	Rhombic Evening Primrose	G4G5	S2			Sandy prairies
<i>Onoclea sensibilis</i>	Sensitive Fern	G5	S2			Wetland thickets, fen peat lands, damp, shady woodlands
<i>Ophioglossum pusillum</i>	Adder's-Tongue Fern	G5	S2			Low prairie swales
<i>Orobanche ludoviciana, ssp. multiflora</i>	Manyflowered Broomrape	G5	S1		W	Dry sandy soils, dunes, gypsum ridges
<i>Orobanche uniflora</i>	One-flowered Broomrape	G5	SH			Damp woods, thickets

Hiland Crude, LLC  
 Plant Species of Concern  
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<b>TABLE 4.D.1.A</b>						
<b>NORTH DAKOTA'S PLANT SPECIES OF CONCERN</b>						
<u>Scientific Name</u>	<u>Common Name</u>	<u>Global</u>	<u>State</u>	<u>USFWS</u>	<u>USFS</u>	<u>Habitat</u>
<i>Oxytropis deflexa</i>	Drooping Locoweed	G5	S2			Sandy lake shores, low meadows, aspen woodland clearings
<i>Oxytropis sericea</i>	White Locoweed	G5	S1		W	Mixed grass prairie on slopes or buttes
<i>Parnassia palustris var. parviflora</i>	Small-flowered Grass-of-Parnassus	G4	S3			Calcareous fens, bogs
<i>Pellaea glabella</i>	Smooth Cliffbrake	G5	S3			Sandstone caprock of buttes and ledges
<i>Penstemon procerus</i>	Small-flowered Penstemon	G5	S1			Northern prairie slopes
<i>Petasites frigidus</i>	Sweet Coltsfoot	G5	S2			Damp meadows, woods
<i>Phlox allysifolia</i>	Alyssum-leaved Phlox	G5	S2		S	Sandy/gravelly soil of open prairies, clay banks, limestone ridges
<i>Phlox pilosa</i>	Downy Phlox	G5	S1			Mesic prairies of open woodlands
<i>Pinus flexilis</i>	Limber Pine	G5	S1		S	Arid, exposed rocky ridges, foothills
<i>Piptatherum pungens</i>	Slender Mountain-Ricegrass	G5	S2			Xeric slopes, usually shale
<i>Platanthera clavellata</i>	Green Woodland Orchid	G5	SH			Swampy woods, bogs
<i>Platanthera praeclara</i>	Western Prairie Fringed Orchid	G3	S2	T		Moist prairie swales of sand hills
<i>Pogonia ophioglossoides</i>	Rose pogonia	G5	S1			Swampy woods, bogs
<i>Polygonum hydropiperoides</i>	Swamp Smartweed	G5	S1			Rooted in or near water
<i>Polygonum leptocarpum</i>	Thin-fruited Knotweed	G2G4Q	S1			Damp, dry soils on clay
<i>Polygonum punctatum</i>	Dotted Smartweed	G5	S3			Swampy thickets, wet meadows, riverbanks
<i>Polygonum sagittatum</i>	Arrow-leaved Tearthumb	G5	S2			Marshes, wet meadows
<i>Populus x acuminata</i>	Lanceleaf Cottonwood	GNA	S2		S	Floodplains, stream banks
<i>Populus x jackii</i>	Balm-of-Gilead	GNA	SNR		W	Uplands and bottomlands
<i>Potamogeton diversifolius</i>	Water-thread Pondweed	G5	S3		W	Shallow ponds, marshes
<i>Potamogeton filiformis</i>	Slender Pondweed	G5	S3			Shallow lakes, ponds, streams

Hiland Crude, LLC  
Plant Species of Concern  
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<b>TABLE 4.D.1.A</b>						
<b>NORTH DAKOTA'S PLANT SPECIES OF CONCERN</b>						
<u>Scientific Name</u>	<u>Common Name</u>	<u>Global</u>	<u>State</u>	<u>USFWS</u>	<u>USFS</u>	<u>Habitat</u>
<i>Potamogeton natans</i>	Floating Pondweed	G5	S2			Cold, shallow to deep lakes and streams
<i>Potamogeton praelongus</i>	White-stemmed Pondweed	G5	S1			Usually cool, deep water of lakes
<i>Potamogeton strictifolius</i>	Narrow-leaved Pondweed	G5	S1			Shallow lakes, streams
<i>Potamogeton vaginatus</i> ( <i>Stuckenia vaginata</i> )	Sheathed Pondweed	G5	S3			Usually deep cold lakes, ponds
<i>Potentilla diversifolia</i>	Mountain meadow cinquefoil (Varileaf Potentilla)	G5	S1		W	Drainages, meadows
<i>Potentilla palustris</i>	Purple Cinquefoil	G5	S2			Fens, wet meadows, bogs
<i>Potentilla tridentata</i> ( <i>Sibbaldiopsis tridentata</i> )	Three-toothed Cinquefoil (Shrubby Fivefingers)	G5	S1		W	Gravel shores, dry shale outcrops of prairie hillsides, scoria
<i>Primula incana</i>	American Primrose	G4G5	S2			Alkali wet meadows, fens
<i>Psoralea tenuiflora</i>	Slim-flowered Scurfpea	G5	SH			Dry prairie, high plains
<i>Ranunculus cardiophyllus</i>	Heart-leaved Buttercup	G4G5	S1		W	Mountain meadows along streams, seeps
<i>Ranunculus flammula</i>	Acrid Spearwort	G5	S1			Marshes, damp shores
<i>Ranunculus recurvatus</i>	Hooked crowfoot	G5	S1			Wooded ravines, swampy woods
<i>Rhynchospora capillacea</i>	Hair Beakrush	G4	S2			Moist calcareous fens, marsh meadows, seeps, limestone
<i>Ribes cynosbati</i>	Prickly Gooseberry	G5	S3			Moist rich woods
<i>Rorippa calycina</i>	Hayden's Yellowcress	G3	SH		W	Sandy shores of rivers and streams
<i>Salix maccalliana</i>	Swamp Willow	G5?	S1			Bogs, swamps
<i>Salix pedicellaris</i>	Bog Willow	G5	S3			Sphagnum bogs, fens
<i>Sanicula gregaria</i>	Cluster Sanicle	G4Q	SH			Rich, moist woodlands
<i>Scheuchzeria palustris</i>	Scheuchzeria	G5	S1			Sphagnum bogs,
<i>Scirpus cyperinus</i>	Cottongrass Bulrush	GNR	SNR			Wet meadows, fresh marshes, boggy areas, fen wetlands

Hiland Crude, LLC  
 Plant Species of Concern  
 Dore Crude Oil Pipeline, McKenzie County

<b>TABLE 4.D.1.A</b>						
<b>NORTH DAKOTA'S PLANT SPECIES OF CONCERN</b>						
<u>Scientific Name</u>	<u>Common Name</u>	<u>Global</u>	<u>State</u>	<u>USFWS</u>	<u>USFS</u>	<u>Habitat</u>
<i>Selaginella rupestris</i>	Ledge Spike-moss	G5	S1			Sandy soils near oak woodlands
<i>Senecio eremophilus</i>	Northern Ragwort	G5	S2			Open sites in aspen woodlands
<i>Smilax ecirrhata</i>	Upright Greenbrier (Upright Carrionflower)	G5?	S2		W	Rich deciduous woods and thickets
<i>Solidago flexicaulis</i>	Zigzag Goldenrod	G5	S2			Rich deciduous woodlands
<i>Solidago riddellii</i>	Riddell's Goldenrod	G5	SH			Low prairies, wet meadows
<i>Sphagnum recurvum</i>	Recurved Sphagnum	G5	S1			Bogs, fens, forests, near wetlands
<i>Sphagnum teres</i>	Round-leaved Sphagnum	G5	S1			Bogs, fens, forests, near wetlands
<i>Spiranthes cernua</i>	Nodding Ladies' Tresses	G5	S1			Fens, low prairies
<i>Spiranthes romanzoffiana</i>	Hooded Ladies' Tresses	G5	S1			Fens, wet meadows
<i>Sporobolus airoides</i>	Alkali Sacaton	G5	S3		S	Sandy/gravelly soil, clay outwash, saline conditions
<i>Stephanomeria minor (tenuifolia)</i>	Narrow-leaved Wirelettuce	G5	S3			Dry, clay outcrops
<i>Talinum parviflorum (Phemeranthus parviflorus)</i>	Prairie Fameflower	G5	S2		W	Sandy acidic soil, overlying bedrock
<i>Thelesperma subnudum var. marginatum</i>	Greenthread	G5T5	S2			Sandy prairie, open plains
<i>Thelypteris palustris</i>	Marsh Fern	G5	S3			Wetland thickets, shrubby fens
<i>Townsendia exscapa</i>	Easter Daisy	G5	SNR		S	Dry barren plain, hillsides on gravelly exposures, weathered bedrock
<i>Townsendia hookeri</i>	Hooker's Townsendia	G5	S1		S	Butte summits
<i>Triantha glutinosa</i>	Sticky False-asphodel	G5	S1			Fens, wet meadows
<i>Triplasis purpurea</i>	Purple Sandgrass	G4G5	S1			Sandy prairies, blowouts
<i>Utricularia intermedia</i>	Flat-leaved Bladderwort	G5	S2			Calcareous fens, seepage peatlands

<b>TABLE 4.D.1.A</b>						
<b>NORTH DAKOTA'S PLANT SPECIES OF CONCERN</b>						
<u>Scientific Name</u>	<u>Common Name</u>	<u>Global</u>	<u>State</u>	<u>USFWS</u>	<u>USFS</u>	<u>Habitat</u>
<i>Utricularia minor</i>	Lesser Bladderwort	G5	S2			Calcareous fens, seeps
<i>Uvularia sessilifolia</i>	Sessile-leaved Bellwort	G5	S2			Rich deciduous woods
<i>Veronicastrum virginicum</i>	Culver's Root	G4	SH			Low prairie, rich woods
<i>Viola conspersa</i> ( <i>Viola labradorica</i> )	Bog Violet	G5	S2			Moist woods, streambanks
<i>Viola incognita</i> ( <i>Viola blanda</i> )	Large-leaved White Violet	G4G5T 4T5	SH			Moist woods
<i>Wolffia columbiana</i>	Southern Watermeal	G5	S2			Aquatic in quiet waters
* Data provided by the USFWS, USFS, ND Game & Fish Dept., North Dakota Natural Heritage Program, and NatureServe.						

<b>TABLE 4.D.1.B</b>	
<b>USDA FOREST SERVICE SENSITIVE PLANTS LITTLE MISSOURI NATIONAL GRASSLAND</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Smooth Goosefoot	<i>Chenopodium subglabrum</i>
Blue Lips	<i>Collinsia parviflora</i>
Torrey's Cryptantha	<i>Cryptantha torreyana</i>
Nodding Buckwheat	<i>Eriogonum cernuum</i>
Dakota Buckwheat	<i>Eriogonum visheri</i>
Missouri Foxtail Cactus	<i>Escobaria missouriensis</i>
Sand Lily	<i>Leucocrinum montanum</i>
dwarf mentzelia	<i>Mentzelia pumila</i>
alyssumleaf phlox	<i>Phlox alyssifolia</i>
limber pine	<i>Pinus flexilis</i>
lanceleaf cottonwood	<i>Populus x acuminata</i>
alkali sacaton	<i>Sporobolus airoides</i>
Easter Daisy	<i>Townsendia exscapa</i>
Hooker's Townsend daisy	<i>Townsendia hookeri</i>

<b>TABLE 4.D.1.C</b>	
<b>BLM SENSITIVE SPECIES – PLANTS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Cusick's horse-mint	<i>Agastache cusickii</i>
Western boneset	<i>Ageratina occidentalis</i> = <i>Eupatorium occidentale</i>
Tapertip onion	<i>Allium acuminatum</i>
Sitka columbine	<i>Aquilegia formosa</i>
Daggett rock cress	<i>Arabis demissa</i> var. <i>languida</i>
sapphire rockcress	<i>Arabis fecunda</i>
narrowleaf milkweed	<i>Asclepias stenophylla</i>
Sweetwater milkvetch	<i>Astragalus aretioides</i> = <i>Orophaca aretioides</i>
Barr's milkvetch	<i>Astragalus barrii</i>
painted milkvetch	<i>Astragalus ceramicus</i> var. <i>apus</i>
lesser rushy milkvetch	<i>Astragalus convallarius</i> var. <i>convallarius</i> = <i>A. junciformis</i>
Geyer's milkvetch	<i>Astragalus geyeri</i>
Gray's milkvetch	<i>Astragalus grayi</i>
Wind River milkvetch	<i>Astragalus oregonus</i>
Bitterroot milkvetch	<i>Astragalus scaphoides</i>
railhead milkvetch	<i>Astragalus terminalis</i>
large-leafed balsamroot	<i>Balsamorhiza macrophylla</i>
Peculiar moonwort	<i>Botrychium paradoxum</i>
low northern-rockcress	<i>Braya humilis</i>
Mohave brickellbush	<i>Brickellia oblongifolia</i>
Idaho sedge	<i>C. idahoa</i> = <i>C. parryana</i> ssp. <i>idahoa</i>
Small-winged sedge	<i>Carex stenoptila</i>
obscure evening-primrose	<i>Camissonia andina</i> = <i>Oenothera andina</i>
small camissonia	<i>Camissonia parvula</i> = <i>Oenothera parvula</i>
Crawe's sedge	<i>Carex crawei</i>

<b>TABLE 4.D.1.C</b>	
<b>BLM SENSITIVE SPECIES – PLANTS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
annual Indian paintbrush	<i>Castilleja exilis</i>
yellow bee plant	<i>Cleome lutea</i>
Fendler cat's-eye	<i>Cryptantha fendleri</i>
miner's candle	<i>Cryptantha scoparia</i>
Schweinitz' flatsedge	<i>Cyperus schweinitzii</i>
Scribner's panic grass	<i>Dichanthelium oligosanthes</i> <i>var.scribnerianum</i>
beavertip draba	<i>Draba globosa = D. apiculata</i>
Wind River draba	<i>Draba ventosa</i>
long sheath waterweed	<i>Elodea bifoliata = E.longivaginata</i>
beaked spikerush	<i>Eleocharis rostellata</i>
Idaho fleabane	<i>Erigeron asperugineus</i>
linearleaf fleabane	<i>Erigeron linearis</i>
buff fleabane	<i>Erigeron ochroleucus var.</i>
matted buckwheat	<i>Eriogonum caespitosum</i>
Railroad Canyon wild buckwheat	<i>Eriogonum soliceps</i>
Visher's buckwheat	<i>Eriogonum visheri</i>
hiker's gentian	<i>Gentianopsis simplex</i>
spiny hopsage	<i>Grayia spinosa</i>
Howell's gumweed	<i>Grindelia howellii</i>
showy goldeneye	<i>Heliomeris multiflora var.multiflora =</i> <i>Viguiera multiflora</i>
prostrate hutchensia	<i>Hutchinsia procumbens</i>
ballhead ipomopsis	<i>Ipomopsis congesta ssp.crebrifolia</i>
simple bog sedge	<i>Kobresia simpliciuscula</i>
green molly	<i>Kochia americana</i>
mat prickly phlox	<i>Leptodactylon caespitosum</i>

<b>TABLE 4.D.1.C</b>	
<b>BLM SENSITIVE SPECIES – PLANTS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Idaho bladderpod (same as keeled)	<i>Lesquerella carinata var. languida</i>
Pryor Mountain bladderpod	<i>Lesquerella lesicii</i>
beautiful bladderpod	<i>Lesquerella pulchella</i>
sand wildrye	<i>Leymus flavescens = Elymus flavescens</i>
Pale-spiked lobelia	<i>Lobelia spicata</i>
taper-tip desert-parsley	<i>Lomatium attenuatum</i>
Nuttall desert-parsley	<i>Lomatium nuttallii</i>
marsh felwort	<i>Lomatogonium rotatum</i>
Torrey's desert dandelion	<i>Malacothrix torreyi = M. sonchoides v. torreyi</i>
bractless mentzelia	<i>Mentzelia nuda</i>
dwarf mentzelia	<i>Mentzelia pumila</i>
dwarf purple monkeyflower	<i>Mimulus nanus</i>
primrose monkeyflower	<i>Mimulus primuloides</i>
square-stem monkeyflower	<i>Mimulus ringens</i>
leafy nama	<i>Nama densum</i>
Blue toadflax	<i>Nuttallanthus texanus</i>
meadow lousewort	<i>Pedicularis crenulata</i>
narrowleaf penstemon	<i>Penstemon angustifolius</i>
Lemhi beardtongue	<i>Penstemon lemhiensis</i>
Whipple's beardtongue	<i>Penstemon whippleanus</i>
hoary phacelia	<i>Phacelia incana</i>
Hot Spring phacelia	<i>Phacelia thermalis</i>
plains phlox	<i>Phlox andicola</i>
Missoula phlox	<i>Phlox missoulensis</i>
double bladderpod	<i>Physaria brassicoides</i>

<b>TABLE 4.D.1.C</b>	
<b>BLM SENSITIVE SPECIES – PLANTS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
common twinpod	<i>Physaria didymocarpa v. lanata</i>
slender-branched popcorn flower	<i>Plagiobothrys leptocladus</i>
short-leavedbluegrass	<i>Poa arnowiae = P. curta</i>
Austin's knotweed	<i>Polygonum douglasii sp.Austinae</i>
Platte cinquefoil	<i>Potentilla plattensis</i>
alkali primrose	<i>Primula alcalina</i>
mealy primrose	<i>Primula incana</i>
James stitchwort	<i>Pseudostellaria jamesiana =Stellaria jamesiana</i>
dwarf wooly-heads	<i>Psilocarphus brevissimus</i>
Indian breadroot	<i>Pediomelum hypogaeum</i>
Lemmon's alkaligrass	<i>Puccinellia lemmonii</i>
white-veined wintergreen	<i>Pyrola picta</i>
Beartooth large-flowered goldenweed	<i>Pyrrcoma carthamoides var.subsuarrosa = Haplopappuscarthamoides v. subsuarrosus</i>
bur oak	<i>Quercus macrocarpa</i>
Northern buttercup	<i>Ranunculus pedatifidus</i>
persistent-sepal yellow-cress	<i>Rorippa calycina</i>
slender bulrush	<i>Schoenoplectus heterochaetus =Scirpus heterochaetus</i>
shoshonea	<i>Shoshonea pulvinata</i>
few-flowered goldenrod	<i>Solidago velutina = S. sparsifolia</i>
white-stemmed globe-mallow	<i>Sphaeralcea munroana</i>
silver chicken sage	<i>Sphaeromeria argentea</i>
smooth buckwheat	<i>Stenogonum salsuginosum =Eriogonum salsuginosum</i>
thorn skeletonweed	<i>Stephanomeria spinosa =Lygodesmia spinosa</i>

<b>TABLE 4.D.1.C</b>	
<b>BLM SENSITIVE SPECIES – PLANTS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Poison suckleya	<i>Suckleya suckleyana</i>
Rocky Mountain dandelion	<i>Taraxacum eriophorum</i>
alpinemeadowrue	<i>Thalictrum alpinum</i>
arrow thelypody	<i>Thelypodium sagittatum ssp.sagittatum</i>
meadow pennycress	<i>Thlaspi parviflorum</i>
showy townsendia	<i>Townsendia florifera</i>
Nannyberry	<i>Viburnum lentago</i>

**APPENDIX 4.D.2**

**North Dakota Federal and State Wildlife Species of Concern**

Hiland Crude, LLC  
Wildlife Species of Concern  
Dore Crude Oil Loop Pipeline, McKenzie County

<b>TABLE 4.D.2.A</b>							
<b>NORTH DAKOTA'S BIRD SPECIES OF CONCERN</b>							
<b>Scientific Name</b>	<b>Common Name</b>	<b>Global</b>	<b>State</b>	<b>USFWS</b>	<b>USFS</b>	<b>CWCS</b>	<b>Habitat</b>
<i>Ammodramus bairdii</i>	Baird's Sparrow	G4	SU		S	I	Native prairies & grasslands
<i>Ammodramus leconteii</i>	Le Conte's Sparrow	G4	SU			II	Fens, wet meadows, marshes, sedges
<i>Ammodramus nelsoni</i>	Nelson's Sharp-tailed Sparrow	G5	SU			I	Fens, shallow marshes, lakes
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	G5	S?B			I	Mixed-grass prairie, meadows, hayfields
<i>Anas acuta</i>	Northern Pintail	G5	S?B			II	Aquatic/wetland habitat
<i>Anthus spragueii</i>	Sprague's Pipit	G4	S3		S	I	Grazed prairie
<i>Asio flammeus</i>	Short-eared Owl	G5	S?B, S?N			II	Prairie, hayfields, stubble fields
<i>Athene cunicularia</i>	Burrowing Owl	G4	SU		S	II	Grasslands with abandoned burrows
<i>Aythya americana</i>	Redhead	G5	S?B			II	Aquatic/wetland habitat
<i>Aythya valisineria</i>	Canvasback	G5	S?B			II	Aquatic/wetland habitat
<i>Bartramia longicauda</i>	Upland Sandpiper	G5	S?B			I	Dry, open mixed-grass prairie
<i>Botaurus lentiginosus</i>	American Bittern	G4	S?B			I	Aquatic/wetland habitat
<i>Buteo regalis</i>	Ferruginous Hawk	G4	SU			I	Native prairie, trees, cliffs
<i>Buteo swainsoni</i>	Swainson's Hawk	G5	SU			I	Open plains and prairies
<i>Calamospiza melanocorys</i>	Lark Bunting	G5	S?B			I	Sagebrush, sage prairie
<i>Calcarius mccownii</i>	McCown's Longspur	G4	S2			III	Arid, grazed, mix-grass prairie,
<i>Calcarius ornatus</i>	Chestnut-collared Longspur	G5	S?B			I	Grazed/hayed mixed-grass prairie
<i>Catoptrophorus semipalmatus</i>	Willet	G5	SU			I	Aquatic/wetland habitat
<i>Centrocercus urophasianus</i>	Greater Sage Grouse	G4	SU		S	II	Sagebrush
<i>Charadrius montanus</i>	Mountain Plover	G2	SX	PT			Dry short grass prairie, sagebrush
<i>Chlidonias niger</i>	Black Tern	G4	S?B			I	Aquatic/wetland habitat

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<b>TABLE 4.D.2.A</b>							
<b>NORTH DAKOTA'S BIRD SPECIES OF CONCERN</b>							
<b>Scientific Name</b>	<b>Common Name</b>	<b>Global</b>	<b>State</b>	<b>USFWS</b>	<b>USFS</b>	<b>CWCS</b>	<b>Habitat</b>
<i>Circus cyaneus</i>	Northern Harrier	G5	S?B, S?N			II	Upland grasses near water
<i>Cistothorus platensis</i>	Sedge Wren	G5	S?B			II	Wet meadows, tall grasses & sedges
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	G5	S?B			I	Woodlands, thickets, prairie shrub, shelterbelt
<i>Coturnicops noveboracensis</i>	Yellow Rail	G4	S2			I	Aquatic/wetland habitats
<i>Dolichonyx oryzivorus</i>	Bobolink	G5	S?B			II	Tall-grass prairie, hayland, cropland
<i>Falco mexicanus</i>	Prairie Falcon	G5	S3			II	Badlands, cliffs, buttes in west ND
<i>Falco peregrinus</i>	Peregrine Falcon	G4T4	S1		S	III	Undisturbed areas with cliffs and prey
<i>Grus americana</i>	Whooping Crane	G1	SX	E, XN		III	Aquatic/wetland habitats
<i>Haliaeetus leucocephalus</i>	Bald Eagle	G5	S1			II	Forested areas near water
<i>Lanius ludovicianus</i>	Loggerhead Shrike	G4	SU		S	II	Open country, wooded coulees, shelterbelts
<i>Larus pipixcan</i>	Franklin's Gull	G4G5	S?B			I	Aquatic/wetland habitats
<i>Limosa fedoa</i>	Marbled Godwit	G5	SU			I	Aquatic/wetland habitat
<i>Melanerpes erythrocephalus</i>	Red-Headed Woodpecker	G5	S?B			II	Trees by rivers, shelterbelts, wooded areas
<i>Numenius americanus</i>	Long-billed Curlew	G5	S2		S	I	Aquatic/wetland habitats, extreme SW counties
<i>Numenius borealis</i>	Eskimo Curlew	GH	S?	E			Wetlands, grasslands, pastures
<i>Pelecanus erythrorhynchos</i>	American White Pelican	G4	S?B			I	Aquatic/wetland habitat
<i>Phalaropus tricolor</i>	Wilson's Phalarope	G5	S?B			I	Aquatic/wetland habitat
<i>Podiceps auritus</i>	Horned Grebe	G5	S?B			I	Aquatic/wetland habitat
<i>Recurvirostra americana</i>	American Avocet	G5	S?B			II	Aquatic/wetland habitat
<i>Spiza americana</i>	Dickcissel	G5	S?B			II	Alfalfa, sweet clover, brushy grasslands

<b>TABLE 4.D.2.A</b>							
<b>NORTH DAKOTA'S BIRD SPECIES OF CONCERN</b>							
<b>Scientific Name</b>	<b>Common Name</b>	<b>Global</b>	<b>State</b>	<b>USFWS</b>	<b>USFS</b>	<b>CWCS</b>	<b>Habitat</b>
<i>Spizella breweri</i>	Brewer's Sparrow	G5	S3			III	Dense sagebrush, short-grass prairie
<i>Sterna antillarum</i>	Interior Least Tern	G4	S1	E		II	Sparsely vegetated sand bars
<i>Tympanuchus cupido pinnatus</i>	Greater Prairie Chicken	G4T4	S2		S	II	Native tall-grass prairie
<i>Tympanuchus phasianellus</i>	Sharp-tailed Grouse	G4	S?			II	Mixed-grass prairie, patches of woody vegetation
<i>Zonotrichia albicollis</i>	White-throated Sparrow	G5	S3				Mature quaking aspen, dense understory
* Data provided by the USFWS, USFS, ND Game & Fish Dept., North Dakota Natural Heritage Program, and NatureServe.							

<b>TABLE 4.D.2.B</b>							
<b>NORTH DAKOTA'S MAMMAL SPECIES OF CONCERN</b>							
<b>Scientific Name</b>	<b>Common Name</b>	<b>Global</b>	<b>State</b>	<b>USFWS</b>	<b>USFS</b>	<b>CWCS</b>	<b>Habitat</b>
<i>Canis lupus</i>	Gray Wolf	G4	SX	E		III	Forested areas
<i>Chaetodipus hispidus</i>	Hispid Pocket Mouse	G5	S4			III	Short and mixed-grass prairie
<i>Cynomys ludovicianus</i>	Black-tailed Prairie Dog	G3G4	SU		S	I	Short grass of grazed rangeland in SW North Dakota
<i>Lemmyscus curtatus</i>	Sagebrush Vole	G5	S4			III	Extreme western North Dakota
<i>Lutra canadensis</i>	Northern River Otter	G5	S1			II	Rivers, streams near wooded areas
<i>Mustela nigripes</i>	Black-footed Ferret	G1	S1	E		II	Short grass prairie where prairie dog towns occur.
<i>Myotis ciliolabrum</i>	Western Small-footed Myotis	G5	SU			III	Extreme western North Dakota
<i>Myotis evotis</i>	Long-eared Myotis	G5	SU			III	Western North Dakota
<i>Myotis volans</i>	Long-legged Myotis	G5	SU			III	Western North Dakota
<i>Ovis canadensis</i>	Bighorn Sheep	G4T4	S2		S		Rugged terrain, rocky slopes, badlands
<i>Perognathus flavescens</i>	Plains Pocket Mouse	G5	SU			III	Sandy areas covered with grass in SE North Dakota
<i>Sorex arcticus</i>	Arctic Shrew	G5	S?			III	Moist, grassy openings in forested areas
<i>Sorex hoyi</i>	Pygmy Shrew	G5	SU			II	Forested areas in drift prairie & Red River Valley
<i>Spermophilus richardsonii</i>	Richardson's Ground Squirrel	G5	S?			II	Open grasslands, cultivated fields, pastures
<i>Spilogale putoris</i>	Eastern Spotted Skunk	G5	S1			III	Riparian woodlands, densely vegetated
<i>Vulpes velox</i>	Swift Fox	G3	S1			II	Short mixed-grass prairie tracts
* Data provided by the USFWS, USFS, ND Game & Fish Dept., North Dakota Natural Heritage Program, and NatureServe.							

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<b>TABLE 4.D.2.C</b>							
<b>NORTH DAKOTA'S REPTILE SPECIES OF CONCERN</b>							
Scientific Name	Common Name	Global	State	USFWS	USFS	CWCS	Habitat
<i>Apalone mutica</i>	Smooth Softshell Turtle	G5	SU			III	Lower Missouri River System
<i>Chelydra serpentina</i>	Common Snapping Turtle	G5	S?			II	Warm water lakes/streams, muddy bottoms
<i>Eumeces septentrionalis</i>	Northern Prairie Skink	G5	S2S3			III	Sandy areas in grasslands
<i>Graptemys pseudogeographica</i>	False Map Turtle	G5	SU			III	Lower Missouri River System
<i>Heterodon nasicus</i>	Western Hognose Snake	G5	S?			I	Sand/gravel habitats near rivers
<i>Liochlorophis vernalis</i>	Smooth Green Snake	G5	S?			I	Grasslands, uplands of hills
<i>Phrynosoma hernandesi</i>	Short-Horned Lizard	G5	S?			II	Badlands
<i>Sceloporus graciosus</i>	Northern Sagebrush Lizard	G5	S4			III	Sagebrush, open flats, forested slopes near water
<i>Storeria occipitomaculata</i>	Redbelly Snake	G5	S?			II	Woodlands in drift prairie, Red River Valley
* Data provided by the USFWS, USFS, ND Game & Fish Dept., North Dakota Natural Heritage Program, and NatureServe.							

<b>TABLE 4.D.2.D</b>							
<b>NORTH DAKOTA'S AMPHIBIAN SPECIES OF CONCERN</b>							
Scientific Name	Common Name	Global	State	USFWS	USFS	CWCS	Habitat
<i>Bufo hemiophrys</i>	Canadian Toad	G4	S?			I	Aquatic/wetland habitat
<i>Rana pipiens</i>	Northern Leopard Frog	G5	S?				Aquatic/wetland habitat
<i>Spea bombifrons</i>	Plains Spadefoot Toad	G5	S?			I	Dry grasslands, loose soils, shallow pools
* Data provided by the USFWS, USFS, ND Game & Fish Dept., North Dakota Natural Heritage Program, and NatureServe.							

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<b>TABLE 4.D.2.E</b>							
<b>NORTH DAKOTA'S FISH SPECIES OF CONCERN</b>							
<b>Scientific Name</b>	<b>Common Name</b>	<b>Global</b>	<b>State</b>	<b>USFWS</b>	<b>USFS</b>	<b>CWCS</b>	<b>Habitat</b>
<i>Ameiurus natalis</i>	Yellow Bullhead	G5	SX			III	Backwater, slow-moving sections of rivers, soft bottoms
<i>Campostoma anomalum</i>	Central Stoneroller	G5	S3			III	Forest River in NE North Dakota
<i>Cycleptus elongatus</i>	Blue Sucker	G3G4	S3			I	Large rivers, strong current, high turbidity
<i>Ichthyomyzon castaneus</i>	Chestnut Lamprey	G4	S?			III	Red River
<i>Ichthyomyzon unicuspis</i>	Silver Lamprey	G5	S?			III	Red River
<i>Macrhybopsis gelida</i>	Sturgeon Chub	G3	S2		S2	I	Rocky rapids, high turbidity, swift currents
<i>Macrhybopsis meeki</i>	Sicklefin Chub	G3	S2			I	Deep rivers, swift current, muddy waters
<i>Macrhybopsis storeriana</i>	Silver Chub	G5	S?			II	Deeper pools, sandy backwater, large rivers
<i>Margariscus margarita</i>	Pearl Dace	G5	S3			I	Missouri & Red River systems
<i>Nocomis biguttatus</i>	Hornyhead Chub	G5	S3			III	Forest River in NE North Dakota
<i>Notropis anogenus</i>	Pugnose Shiner	G3	S1			III	Clear water with vegetation
<i>Notropis heterolepis</i>	Blacknose Shiner	G4	S3			III	Pools with vegetation
<i>Notropis rubellus</i>	Rosyface Shiner	G5	S3			III	Pools with current
<i>Percina caprodes</i>	Logperch	G5	S3			III	Red River
<i>Percina shumardi</i>	River Darter	G5	SU			III	Red River
<i>Percopsis omiscomaycus</i>	Trout-Perch	G5	S?			II	Deep pools, rivers, streams, sandy bottoms
<i>Phoxinus eos</i>	Northern Redbelly Dace	G5	S4		S2	II	Slower rivers with some vegetation
<i>Phoxinus neogaeus</i>	Finescale Dace	G5	SU			III	Pools, slow moving waters
<i>Platygobio gracilis</i>	Flathead Chub	G5	S?			II	Turbid waters, swift current, sand/gravel bottoms
<i>Polyodon spathula</i>	Paddlefish	G4	S?			II	Large free flowing rivers with zooplankton
<i>Pylodictis olivaris</i>	Flathead Catfish	G5	S4			III	Pools, lakes, slower waters,
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	G2	S1	E		II	Large, turbid rivers with sand/gravel bottom

\* Data provided by the USFWS, USFS, ND Game & Fish Dept., North Dakota Natural Heritage Program, and NatureServe.

<b>TABLE 4.D.2.F</b>							
<b>NORTH DAKOTA'S INSECT SPECIES OF CONCERN</b>							
<b>Scientific Name</b>	<b>Common Name</b>	<b>Global</b>	<b>State</b>	<b>USFWS</b>	<b>USFS</b>	<b>CWCS</b>	<b>Habitat</b>
<i>Atrytone arogos iowa</i>	Arogos Skipper	G3G4T3T4	S?		S		Native prairie with purple vetch, Canada thistle, purple coneflower
<i>Euphyes dion</i>	Dion Skipper	G4	S1		S		Sedge marshes, cattails, swamp milkweed
<i>Hesperia dacotae</i>	Dakota Skipper	G2	S2	C	S		Native tall grass prairie with white camass
<i>Hesperia ottoe</i>	Ottoe Skipper	G3G4	S?		S		Native prairie hilltops with coneflower
<i>Oarisma powesheik</i>	Powersheik Skipper	G2G3	S?		S		Undisturbed, tall grass meadows
<i>Phyciodes batesii</i>	Tawny Crescent	G4	S3		S		Woodlands, native prairie with dogbane, leafy spurge
<i>Poanes massasoit</i>	Mulberry Wing	G4	S2		S		Sedge meadows with upright sedge, dogwood
<i>Poanes viator</i>	Broad-Winged Skipper	G5	S2		S		Tall marsh grass with hairy sedge, swamp milkweed
<i>Speyeria idalia</i>	Regal Fritillary	G3	S2		S		Tall grass areas, damp meadows with blazing star, milkweed, thistle
* Data provided by the USFWS, USFS, ND Game & Fish Dept., North Dakota Natural Heritage Program, and NatureServe.							

<b>TABLE 4.D.2.G</b>							
<b>NORTH DAKOTA'S BIVALVE AND GASTROPOD SPECIES OF CONCERN</b>							
<b>Common Name</b>	<b>Scientific Name</b>	<b>Global</b>	<b>State</b>	<b>USFWS</b>	<b>USFS</b>	<b>CWCS</b>	<b>Habitat</b>
<i>Amblema plicata</i>	Threeridge	G5	S?			II	Mud, sand, gravel bottoms
<i>Fusconaia flava</i>	Wabash Pigtoe	G5	S4			II	Mud, sand, gravel bottoms
<i>Lasmigona compressa</i>	Creek Heelsplitter	G5	S?			II	Sandy-bottomed headwaters
<i>Ligumia recta</i>	Black Sandshell	G5	S4			II	Swift current, gravel/sand bottoms
<i>Potamilus alatus</i>	Pink Heelsplitter	G5	S4			II	Mud, gravel bottoms
<i>Potamilus ohioensis</i>	Pink Papershell	G5	SU			III	Sandy bottom of Bois de Sioux River
<i>Quadrula quadrula</i>	Mapleleaf	G5	S3			II	Mud, sand, gravel bottoms
* Data provided by the USFWS, USFS, ND Game & Fish Dept., North Dakota Natural Heritage Program, and NatureServe.							

<b>TABLE 4.D.2.H</b>	
<b>BLM SENSITIVE SPECIES – MAMMALS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>
Fisher	<i>Martes pennanti</i>
Fringed myotis	<i>Myotis thysanodes</i>
Fringe-tailed myotis	<i>Myotis thysanodes pahasapensis</i>
Gray Wolf	<i>Canis lupus</i>
Great Basin pocket mouse	<i>Perognathus parvus</i>
Grizzly Bear	<i>Ursus arctos horribilis</i>
Long-eared myotis	<i>Myotis evotis</i>
Long-legged myotis	<i>Myotis volans</i>
Meadow jumping mouse	<i>Zapus hudsonius</i>
North American wolverine	<i>Gulo gulo luscus</i>
Northern myotis	<i>Myotis septentrionalis</i>
Pallid bat	<i>Antrozous pallidus</i>
Pygmy rabbit	<i>Brachylagus idahoensis</i>
Swift fox	<i>Vulpes velox</i>
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>
White-tailed prairie dog	<i>Cynomys leucurus</i>

<b>TABLE 4.D.2.I</b>	
<b>BLM SENSITIVE SPECIES – BIRDS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Baird's sparrow	<i>Ammodramus bairdii</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Black tern	<i>Chilodonias niger</i>
Black-backed woodpecker	<i>Picoides arcticus</i>
Black-crowned night heron	<i>Nycticorax nycticorax</i>
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>
Bobolink	<i>Dolichonyx orysivorus</i>
Brewer's sparrow	<i>Spizella breweri</i>
Burrowing owl	<i>Athene cunicularia</i>
Chestnut-collared longspur	<i>Calcarius ornatus</i>
Common loon	<i>Gavia immer</i>
Dickcissel	<i>Spiza americana</i>
Ferruginous hawk	<i>Buteo regalis</i>
Flammulated owl	<i>Otus flammeolus</i>
Franklin's gull	<i>Larus pipixcan</i>
Golden eagle	<i>Aquila chrysaetos</i>
Great gray owl	<i>Strix nebulosa</i>
Greater sage-grouse	<i>Centrocercus urophasianus</i>
Harlequin duck	<i>Histrionicus histrionicus</i>
LeConte's sparrow	<i>Ammodramus leconteii</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Long-billed curlew	<i>Numenius americanus</i>
Marbled godwit	<i>Limosa fedoa</i>
McCown's longspur	<i>Calcarius mccownii</i>
Mountain plover	<i>Charadrius montanus</i>

<b>TABLE 4.D.2.I</b>	
<b>BLM SENSITIVE SPECIES – BIRDS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Nelson's sharp-tailed sparrow	<i>Ammodramus nelsoni</i>
Northern goshawk	<i>Accipiter gentiles</i>
Peregrine falcon	<i>Falco peregrinus</i>
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
Sage sparrow	<i>Amphispiza belli</i>
Sage thrasher	<i>Oreoscoptes montanus</i>
Sedge wren	<i>Cistothorus platensis</i>
Sprague's pipit	<i>Anthus spragueii</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Three-toed woodpecker	<i>Picoides tridactylus</i>
Trumpeter swan	<i>Cygnus buccinator</i>
White-faced ibis	<i>Plegadis chihi</i>
Yellow rail	<i>Coturnicops noveboracensis</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>

<b>TABLE 4.D.2.J</b>	
<b>BLM SENSITIVE SPECIES – FISH</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Arctic grayling (fluvial population)	<i>Thymallus arcticus montanus</i>
Northern redbelly X Finescale dace	<i>Phoxinus eos x Phoxinus neogaeus</i>
Paddlefish	<i>Polyodon spathula</i>
Pearl dace	<i>Margariscus margarita</i>
Sauger	<i>Stizostedion canadense</i>
Sturgeon chub	<i>Macrhybopsis gelida</i>
Westslope cutthroat trout	<i>Oncorhynchus clarki lewisi</i>
Yellowstone cutthroat trout	<i>Oncorhynchus clarki bouvieri</i>

<b>TABLE 4.D.2.K</b>	
<b>BLM SENSITIVE SPECIES – REPTILES</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Greater short-horned lizard	<i>Phrynosoma hernandesi</i>
Milk snake	<i>Lampropeltis triangulum</i>
Snapping turtle	<i>Chelydra serpentina</i>
Spiny softshell	<i>Apalone spinifera</i>
Western hog-nosed snake	<i>Heterodon nasicus</i>

<b>TABLE 4.D.2.L</b>	
<b>BLM SENSITIVE SPECIES – AMPHIBIANS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>
Great Plains toad	<i>Bufo cognatus</i>
Northern leopard frog	<i>Rana pipiens</i>
Plains spadefoot	<i>Spea bombifrons</i>
Western toad	<i>Bufo boreas</i>

<b>TABLE 4.D.2.M</b>	
<b>BLM SENSITIVE SPECIES – INSECTS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Dakota skipper	<i>Hesperia dacotae</i>

**APPENDIX 4.D.3**

**North Dakota Federal and State Threatened and Endangered  
Botany and Wildlife Species Rank Definitions**

<b>TABLE 4.D.3.A</b>	
<b>NATURAL HERITAGE RANK DEFINITIONS</b>	
<b>G1</b>	<b>Critically Imperiled</b> – Critically imperiled globally because of extreme rarity or because of some factor of its biology making it especially vulnerable to extinction. Typically 5 or fewer occurrences or very few remaining individuals (<1,000) or acres (<2,000) or stream miles (<10). [Critically endangered throughout its range.]
<b>G2</b>	<b>Imperiled</b> - Imperiled globally because of rarity or because of other factors demonstrably making it very vulnerable to extinction or elimination throughout its range. Typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000) or acres (2,000 to 10,000) or stream miles (10 to 50). [Endangered throughout its range.]
<b>G3</b>	<b>Vulnerable</b> – Vulnerable globally either because very rare and local throughout its range, found only in a restricted range (even if abundant at some locations) or because of other factors making it vulnerable to extinction or elimination throughout its range. Typically of 21 to 100 occurrences or between 3,000 and 10,000 individuals. [Threatened throughout its range.]
<b>G4</b>	<b>Apparently Secure</b> – Uncommon but not rare (although it may be quite rare in parts of its range, especially at the periphery), and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern. Typically more than 100 occurrences and more than 10,000 individuals.
<b>G5</b>	<b>Secure</b> – Common, widespread, and abundant (although it may be quite rare in parts of its range, especially on the periphery). Not vulnerable in most of its range. Typically with considerably more than 100 occurrences and more than 10,000 individuals.
<b>GX</b>	<b>Presumed Extinct</b> (species elements) - Believed to be extinct throughout its range (e.g., passenger pigeon), virtually no likelihood that it will be rediscovered.
<b>GH</b>	<b>Possibly Extinct</b> (species elements) - Of historical occurrence throughout its range, i.e., formerly part of the established biota, with the expectation that it may be rediscovered (e.g. Ivory-billed woodpecker).
<b>G#G#</b>	<b>Range Rank</b> - A numeric range rank (e.g., G2G3) is used to indicate uncertainty about the exact status of a taxon. Ranges cannot skip more than one rank (e.g., GU should be used rather than G1G4).
<b>GU</b>	<b>Unrankable</b> - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends
<b>G?</b>	<b>Unranked</b> - Global rank not yet assessed.
<b>HYB</b>	<b>Hybrid</b> - Element not ranked because it represents and interspecific hybrid and not a species.
<b>?</b>	<b>Inexact Numeric Rank</b> - Denotes inexact numeric rank.
<b>Q</b>	<b>Questionable Taxonomy</b> - Taxonomic status is questionable; numeric rank may change with taxonomy.
<b>C</b>	<b>Captive or Cultivated Only</b> - Taxon at present is extant only in captivity or cultivation, or as a reintroduced population not yet established
<b>T</b>	<b>Intraspecific Taxon</b> (trinomial) – The status of intraspecific taxa (subspecies or varieties) are indicated by a “T-rank” following the species’ basic global rank. A T subrank cannot imply the subspecies or variety is more abundant than the species’ basic global rank (i.e., a G1T2 subrank should not occur).
<b>S1</b>	<b>Critically Imperiled</b> – Critically imperiled in the state because of extreme rarity or because of some factor of its biology making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals (<1,000). [Critically endangered in state.]
<b>S2</b>	<b>Imperiled</b> – Imperiled in the state because of rarity or because of other factors making it very vulnerable to extirpation from the state. Typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000). [Endangered in the state.]
<b>S3</b>	<b>Vulnerable</b> – Vulnerable in the state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences or between 3,000 to 10,000 individuals. [Threatened in the state.]
<b>S4</b>	<b>Apparently Secure</b> – Uncommon but not rare, and usually widespread in the state. Possible cause of long-term concern. Usually more than 100 occurrences and more than 10,000 individuals

<b>TABLE 4.D.3.A</b>	
<b>NATURAL HERITAGE RANK DEFINITIONS</b>	
<b>S5</b>	<b>Secure</b> – Common, widespread, and abundant in the state. Essentially ineradicable under present conditions. Typically with considerably more than 100 occurrences and more than 10,000 individuals.
<b>SX</b>	<b>Presumed Extirpated</b> – Element is believed to be extirpated from the state. Virtually no likelihood that it will be rediscovered.
<b>SH</b>	<b>Possibly Extirpated (Historical)</b> – Elements occurred historically in the state, and there is some expectation that it may be rediscovered. Its presence may not have been verified in the past 20 years.
<b>S#S#</b>	<b>Range Rank</b> – A numeric range rank (e.g., S2S3) is used to indicate the range of uncertainty about the exact status of the element. Ranges cannot skip more than one rank (e.g., SU should be used rather than S1S4).
<b>SU</b>	<b>Unrankable</b> – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
<b>S?</b>	<b>Unranked</b> - State rank not yet assessed.
<b>HYB</b>	<b>Hybrid</b> - Element not ranked because it represents and interspecific hybrid and not a species.
<b>SE</b>	<b>Exotic</b> - An exotic species established in the state; may be native in nearby regions.
<b>SE#</b>	<b>Exotic Numeric</b> – An exotic established in the state that has been assigned a numeric rank to indicate its status, as defined for S1 through S5.
<b>SZ</b>	<b>Zero Occurrences</b> – Present but lacking practical conservation concern in the state because there are no definable occurrences, although the taxon is native and appears regularly in the state. An SZ rank will generally be used for long distance migrants whose occurrences during their migrations have little or no conservation value for the migrant, as they are typically too irregular (in terms of repeated visitation to the same locations), transitory, and dispersed to be reliably identified, mapped, and protected.
<b>SP</b>	<b>Potential</b> – Potential that element occurs in the state but no extant or historic occurrences are accepted.
<b>SR</b>	<b>Reported</b> – Element reported in the state but without a basis for either accepting or rejecting the report, or the report not yet reviewed. Some of these are very recent discoveries for which the program hasn't yet received first-hand information; others are old, obscure reports.
<b>SRF</b>	<b>Reported Falsely</b> – Element erroneously reported in the state and the error has persisted in the literature.
<b>SSYN</b>	<b>Synonym</b> – Element reported as occurring in the state, but state does not recognize the taxon; therefore the Element is not ranked by the state.
<b>*</b>	S rank has been assigned and is under review. Contact the individual state Natural Heritage Program for assigned rank.
<b>B</b>	<b>Breeding</b> – Basic rank refers to the breeding population of the Element in the state.
<b>N</b>	<b>Non-breeding</b> – Basic rank refers to the non-breeding population of the Element in the state.
<b>?</b>	<b>Inexact Numeric Rank</b> – Denotes inexact numeric rank.
<b>C</b>	<b>Captive or Cultivated</b> - Native element presently extant in the state only in captivity or cultivation or as a reintroduced population not yet established

<b>TABLE 4.D.3.B</b>	
<b>FEDERAL STATUS DESIGNATIONS</b>	
<b>U.S. Fish and Wildlife Service (USFWS)</b>	
*This value indicates status under the federal Endangered Species Act of 1973 based on categories defined by the U.S. Fish and Wildlife Service(16 U.S.C.S §1531-1543 (Supp.1996)).	
<b>E</b>	Endangered
<b>T</b>	Threatened
<b>PE</b>	Proposed Endangered
<b>PT</b>	Proposed Threatened
<b>PC</b>	Proposed Candidate
<b>XE</b>	Essential Experimental Population – An experimental population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild.
<b>XN</b>	Experimental Nonessential Population – An experimental population of a listed species reintroduced into a specific area that receives more flexible management under the Act.
<b>C</b>	Candidate (species for which the U.S. Fish and Wildlife Service has sufficient information on biological status and threats to propose listing as threatened or endangered).
<b>CH</b>	Critical Habitat – The specific areas within the geographic area occupied by a species, at the time it is listed, on which are found those physical or biological features essential to conserve the species and that may require special management considerations or protection; and specific areas outside the geographic area occupied by the species at the time it is listed upon determination that such area essential to conserve the species.
<b>PDL</b>	Proposed of delisting – Any species for which a final rule has been published in the Federal Register to delist the species.
<b>DM</b>	Recovered, delisted, and being monitored – Any previously listed species that is now recovered, has been delisted, and is being monitored.
<b>S1</b>	Critically imperiled: at high risk because of extreme rarity (often 5 or fewer occurrences), rapidly declining numbers, or other factors that make it particularly vulnerable to rangewide extinction or extirpation.
<b>S2</b>	Imperiled: at risk because of restricted range, few populations (often 20 or fewer), rapidly declining numbers, or other factors that make it vulnerable to rangewide extinction or extirpation.
<b>S3</b>	Vulnerable: at moderate risk because of restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors that make it vulnerable to rangewide extinction or extirpation.
<b>S</b>	Sensitive: animal and plant species identified by the Regional Forester for which population viability is a concern as evidenced by significant downward trend in population or a significant downward trend in habitat capacity.
<b>W</b>	Watch Plants:
<b>Level I</b>	Species having a high level of conservation priority because of declining status either in North Dakota or across their range; or a high rate of occurrence in North Dakota constituting the core of the species’ breeding range, but are at-risk range wide, and non-State Wildlife Grants (SWG) funding is not readily available to them.
<b>Level II</b>	Species having a moderate level of conservation priority; or a high level of conservation priority, but a substantial amount of non-State Wildlife Grant funding is available to them.
<b>Level III</b>	North Dakota’s species having a moderate level of conservation priority, but are believed to be peripheral or do not breed in North Dakota.

## **APPENDIX 4.E**

### **Agency Notifications and Responses**

October 13, 2014

Walter Hadley  
County Planning Director  
McKenzie County Planning Department  
201 5<sup>th</sup> Street NW  
Watford City, ND 58854

**RE: Hiland Crude, LLC - Proposed Dore Pipeline Loop Project**

Hiland Crude, LLC (Hiland) is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County. Hiland is planning to begin construction in December of 2014, using a 75 foot construction right-of-way width (50 foot where needed). Construction activity is proposed to be complete by spring of 2015. The Project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. This new portion of pipeline will be operationally integrated into the existing operations of Hiland.

The pipeline will be buried underground. No new pumping facilities will be needed at this time within North Dakota. No new surface facilities will be installed in the State of North Dakota, other than pipeline markers, rectifiers, and block valves. Some small fenced-in enclosures to house associated power and control systems may be installed to allow some valves to be operated remotely.

Keitu Engineers & Consultants, Inc. (Keitu) provides the following description of Hiland's pipeline route for the Dore Pipeline Loop.

- The pipeline originates 8 miles northeast of Cartwright, ND near Hiland Partner's Watford City Gas Processing Facility and ends in Dore, ND at Hiland Crude's Dore Terminal.
- The pipeline runs through the following legal descriptions:
  - T151N R102W Section 6
  - T151N R103W Sections 1, 2, 3, 4, and 5
  - T152N R103W Sections 31 and 32
  - T152N R104W Sections 33, 34, 35, and 36
  - T151N R104W Sections 4, 5, and 8

Keitu is contracted by Hiland to conduct the biological assessment of the proposed project corridor (1 mile wide) and prepare the siting application for the North Dakota Public Service Commission.

Enclosed is a map of the entire length of the pipeline route intended for the McKenzie County Planning Department to review. The North Dakota Public Service Commission, requires applicants to contact relevant agencies to gain information on planned developments within the vicinity of the Project. We respectfully request that any specific concerns known in the area is brought to our attention to ensure we focus on those items.

As always, Keitu appreciates the opportunity to assist our client and the regulatory agencies with compliance. I will serve as the primary Keitu contact and can be reached at (701) 667-1808 ext 117 or via email at [kbecker@keitu.com](mailto:kbecker@keitu.com).

Karine Becker  
Staff Specialist

*Enclosure: Pipeline Route*

October 13, 2014

Mike Brand, Director  
Surface Management Division  
ND Department of Trust Lands  
1707 N 9<sup>th</sup> Street, PO Box 5523  
Bismarck, ND 58506-5523

**RE: Hiland Crude, LLC - Proposed Dore Pipeline Loop Project**

Hiland Crude, LLC (Hiland) is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County. Hiland is planning to begin construction in December of 2014, using a 75 foot construction right-of-way width (50 foot where needed). Construction activity is proposed to be complete by spring of 2015. The Project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. This new portion of pipeline will be operationally integrated into the existing operations of Hiland.

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- The pipeline runs through the following legal descriptions:
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  - T152N R103W Sections 31 and 32
  - T152N R104W Sections 33, 34, 35, and 36
  - T151N R104W Sections 4, 5, and 8

Keitu is contracted by Hiland to conduct the biological assessment of the proposed project corridor (1 mile wide) and prepare the siting application for the North Dakota Public Service Commission.

Enclosed is a map of the entire length of the pipeline route intended for the ND Department of Trust Lands to review. The North Dakota Public Service Commission requires applicants to contact agencies for comment. We respectfully request that any specific areas of concern known in the area are brought to our attention to ensure we focus on those items.

As always, Keitu appreciates the opportunity to assist our client and the regulatory agencies with compliance. I will serve as the primary Keitu contact and can be reached at (701) 667-1808 ext 117 or via email at [kbecker@keitu.com](mailto:kbecker@keitu.com).

Karine Becker  
Project Manager (Pro Tem)

*Enclosure: Pipeline Route*

October 13, 2014

Dave Glatt  
North Dakota Department of Health  
Environmental Health Section  
918 East Divide Avenue  
Bismarck, ND 58501-1947

**RE: Hiland Crude, LLC - Proposed Dore Pipeline Loop Project**

Hiland Crude, LLC (Hiland) is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County. Hiland is planning to begin construction in December of 2014, using a 75 foot construction right-of-way width (50 foot where needed). Construction activity is proposed to be complete by spring of 2015. The Project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. This new portion of pipeline will be operationally integrated into the existing operations of Hiland.

The pipeline will be buried underground. No new pumping facilities will be needed at this time within North Dakota. No new surface facilities will be installed in the State of North Dakota, other than pipeline markers, rectifiers, and block valves. Some small fenced-in enclosures to house associated power and control systems may be installed to allow some valves to be operated remotely.

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  - T151N R104W Sections 4, 5, and 8

Keitu is contracted by Hiland to conduct the biological assessment of the proposed project corridor (1 mile wide) and prepare the siting application for the North Dakota Public Service Commission.

Enclosed is a map of the entire length of the pipeline route intended for the North Dakota Department of Health to review. The North Dakota Public Service Commission requires applicants to contact agencies for comment. We respectfully request that any specific areas of concern known in the area are brought to our attention to ensure we focus on those items.

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Karine Becker  
Project Manager (Pro Tem)

*Enclosure: Pipeline Route*

October 13, 2014

Steve Dyke  
Conservation Supervisor  
ND Game and Fish Department  
100 N. Bismarck Expressway  
Bismarck, ND 58501-5095

**RE: Hiland Crude, LLC - Proposed Dore Pipeline Loop Project**

Hiland Crude, LLC (Hiland) is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County. Hiland is planning to begin construction in December of 2014, using a 75 foot construction right-of-way width (50 foot where needed). Construction activity is proposed to be complete by spring of 2015. The Project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. This new portion of pipeline will be operationally integrated into the existing operations of Hiland.

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  - T152N R104W Sections 33, 34, 35, and 36
  - T151N R104W Sections 4, 5, and 8

Keitu is contracted by Hiland to conduct the biological assessment of the proposed project corridor (1 mile wide) and prepare the siting application for the North Dakota Public Service Commission.

Enclosed is a map of the entire length of the pipeline route intended for the North Dakota Game and Fish Department to review. The North Dakota Public Service Commission requires applicants to contact agencies for comment. We respectfully request that any specific species of concern known in the area is brought to our attention to ensure we focus on those items.

As always, Keitu appreciates the opportunity to assist our client and the regulatory agencies with compliance. I will serve as the primary Keitu contact and can be reached at (701) 667-1808 ext 117 or via email at kbecker@keitu.com.

Karine Becker  
Project Manager (Pro Tem)

*Enclosures: Proposed Pipeline Route*

October 13, 2014

Justin Kringstad  
North Dakota Industrial Commission  
Pipeline Authority  
600 E. Boulevard Ave. Dept. 405  
Bismarck, ND 58505-0840

**RE: Hiland Crude, LLC - Proposed Dore Pipeline Loop Project**

Hiland Crude, LLC (Hiland) is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County. Hiland is planning to begin construction in December of 2014, using a 75 foot construction right-of-way width (50 foot where needed). Construction activity is proposed to be complete by spring of 2015. The Project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. This new portion of pipeline will be operationally integrated into the existing operations of Hiland.

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- The pipeline runs through the following legal descriptions:
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  - T151N R104W Sections 4, 5, and 8

Keitu is contracted by Hiland to conduct the biological assessment of the proposed project corridor (1 mile wide) and prepare the siting application for the North Dakota Public Service Commission.

Enclosed is a map of the entire length of the pipeline route intended for the ND Pipeline Authority to review. The North Dakota Public Service Commission requires applicants to contact agencies for comment. We respectfully request that any specific areas of concern known in the area are brought to our attention to ensure we focus on those items.

As always, Keitu appreciates the opportunity to assist our client and the regulatory agencies with compliance. I will serve as the primary Keitu contact and can be reached at (701) 667-1808 ext 117 or via email at [kbecker@keitu.com](mailto:kbecker@keitu.com).

Karine Becker  
Project Manager (Pro Tem)

*Enclosure: Pipeline Route*

October 13, 2014

Mark Zimmerman  
North Dakota Parks and Recreation  
1600 E. Century Avenue, Suite 3  
Bismarck, ND 58503-0649

**RE: Hiland Crude, LLC - Proposed Dore Pipeline Loop Project**

Hiland Crude, LLC (Hiland) is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County. Hiland is planning to begin construction in December of 2014, using a 75 foot construction right-of-way width (50 foot where needed). Construction activity is proposed to be complete by spring of 2015. The Project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. This new portion of pipeline will be operationally integrated into the existing operations of Hiland.

The pipeline will be buried underground. No new pumping facilities will be needed at this time within North Dakota. No new surface facilities will be installed in the State of North Dakota, other than pipeline markers, rectifiers, and block valves. Some small fenced-in enclosures to house associated power and control systems may be installed to allow some valves to be operated remotely.

Keitu Engineers & Consultants, Inc. (Keitu) provides the following description of Hiland's pipeline route for the Dore Pipeline Loop.

- The pipeline originates 8 miles northeast of Cartwright, ND near Hiland Partner's Watford City Gas Processing Facility and ends in Dore, ND at Hiland Crude's Dore Terminal.
- The pipeline runs through the following legal descriptions:
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  - T152N R104W Sections 33, 34, 35, and 36
  - T151N R104W Sections 4, 5, and 8

Keitu is contracted by Hiland to conduct the biological assessment of the proposed project corridor (1 mile wide) and prepare the siting application for the North Dakota Public Service Commission.

Enclosed is a map of the entire length of the pipeline route intended for the North Dakota Parks and Recreation to review. The North Dakota Public Service Commission requires applicants to contact agencies for comment. We respectfully request that any specific areas of concern known in the area are brought to our attention to ensure we focus on those items.

As always, Keitu appreciates the opportunity to assist our client and the regulatory agencies with compliance. I will serve as the primary Keitu contact and can be reached at (701) 667-1808 ext 117 or via email at [kbecker@keitu.com](mailto:kbecker@keitu.com).

Karine Becker  
Project Manager (Pro Tem)

*Enclosure: Pipeline Route*

October 13, 2014

Todd Sando  
State Engineer  
North Dakota State Water Commission  
900 East Boulevard Avenue, Dept 770  
Bismarck, ND 58505-0850

**RE: Hiland Crude, LLC - Proposed Dore Pipeline Loop Project**

Hiland Crude, LLC (Hiland) is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County. Hiland is planning to begin construction in December of 2014, using a 75 foot construction right-of-way width (50 foot where needed). Construction activity is proposed to be complete by spring of 2015. The Project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. This new portion of pipeline will be operationally integrated into the existing operations of Hiland.

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Keitu Engineers & Consultants, Inc. (Keitu) provides the following description of Hiland's pipeline route for the Dore Pipeline Loop.

- The pipeline originates 8 miles northeast of Cartwright, ND near Hiland Partner's Watford City Gas Processing Facility and ends in Dore, ND at Hiland Crude's Dore Terminal.
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  - T151N R104W Sections 4, 5, and 8

Keitu is contracted by Hiland to conduct the biological assessment of the proposed project corridor (1 mile wide) and prepare the siting application for the North Dakota Public Service Commission.

Enclosed is a map of the entire length of the pipeline route intended for the North Dakota State Water Commission to review. The North Dakota Public Service Commission requires applicants to contact agencies for comment. We respectfully request that any specific areas of concern known in the area are brought to our attention to ensure we focus on those items.

As always, Keitu appreciates the opportunity to assist our client and the regulatory agencies with compliance. I will serve as the primary Keitu contact and can be reached at (701) 667-1808 ext 117 or via email at [kbecker@keitu.com](mailto:kbecker@keitu.com).

Karine Becker  
Project Manager (Pro Tem)

*Enclosure: Pipeline Route*

October 13, 2014

Dan Cimarosti  
Regulatory Project Manager  
US Army Corps of Engineers  
1513 South 12<sup>th</sup> Street  
Bismarck, North Dakota 58504

**RE: Hiland Crude, LLC - Proposed Dore Pipeline Loop Project**

Hiland Crude, LLC (Hiland) is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County. Hiland is planning to begin construction in December of 2014, using a 75 foot construction right-of-way width (50 foot where needed). Construction activity is proposed to be complete by spring of 2015. The Project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. This new portion of pipeline will be operationally integrated into the existing operations of Hiland.

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  - T151N R104W Sections 4, 5, and 8

Keitu is contracted by Hiland to conduct the biological assessment of the proposed project corridor (1 mile wide) and prepare the siting application for the North Dakota Public Service Commission. Enclosed is a map of the entire length of the pipeline

Enclosed is a map of the entire length of the pipeline route intended for the US Army Corps of Engineers to review. The North Dakota Public Service Commission, requires applicants to contact agencies for comment. We respectfully request that any specific species of concern known in the area is brought to our attention to ensure we focus on those items.

As always, Keitu appreciates the opportunity to assist our client and the regulatory agencies with compliance. I will serve as the primary Keitu contact and can be reached at (701) 667-1808 ext 117 or via email at [kbecker@keitu.com](mailto:kbecker@keitu.com).

Karine Becker  
Project Manager (Pro Tem)

*Enclosure: Pipeline Route*

October 13, 2014

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

**RE: Hiland Crude, LLC - Proposed Dore Pipeline Loop Project**

Hiland Crude, LLC (Hiland) is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County. Hiland is planning to begin construction in December of 2014, using a 75 foot construction right-of-way width (50 foot where needed). Construction activity is proposed to be complete by spring of 2015. The Project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. This new portion of pipeline will be operationally integrated into the existing operations of Hiland.

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  - T151N R104W Sections 4, 5, and 8

Keitu is contracted by Hiland to conduct the biological assessment of the proposed project corridor (1 mile wide) and prepare the siting application for the North Dakota Public Service Commission.

Enclosed is a map of the entire length of the pipeline route intended for the U.S. Fish and Wildlife Service to review. The North Dakota Public Service Commission requires applicants to contact agencies for comment. We respectfully request that any specific areas of concern known in the area are brought to our attention to ensure we focus on those items.

As always, Keitu appreciates the opportunity to assist our client and the regulatory agencies with compliance. I will serve as the primary Keitu contact and can be reached at (701) 667-1808 ext 117 or via email at kbecker@keitu.com.

Karine Becker  
Project Manager (Pro Tem)

*Enclosure: Pipeline Route*

October 13, 2014

Todd Gallion  
Wildlife Refuge Specialist  
Lake Ilo National Wildlife Refuge  
489 102 Avenue S.W.  
Dunn Center, ND 58626

**RE: Hiland Crude, LLC - Proposed Dore Pipeline Loop Project**

Hiland Crude, LLC (Hiland) is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County. Hiland is planning to begin construction in December of 2014, using a 75 foot construction right-of-way width (50 foot where needed). Construction activity is proposed to be complete by spring of 2015. The Project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. This new portion of pipeline will be operationally integrated into the existing operations of Hiland.

The pipeline will be buried underground. No new pumping facilities will be needed at this time within North Dakota. No new surface facilities will be installed in the State of North Dakota, other than pipeline markers, rectifiers, and block valves. Some small fenced-in enclosures to house associated power and control systems may be installed to allow some valves to be operated remotely.

Keitu Engineers & Consultants, Inc. (Keitu) provides the following description of Hiland's pipeline route for the Dore Pipeline Loop.

- The pipeline originates 8 miles northeast of Cartwright, ND near Hiland Partner's Watford City Gas Processing Facility and ends in Dore, ND at Hiland Crude's Dore Terminal.
- The pipeline runs through the following legal descriptions:
  - T151N R102W Section 6
  - T151N R103W Sections 1, 2, 3, 4, and 5
  - T152N R103W Sections 31 and 32
  - T152N R104W Sections 33, 34, 35, and 36
  - T151N R104W Sections 4, 5, and 8

Keitu is contracted by Hiland to conduct the biological assessment of the proposed project corridor (1 mile wide) and prepare the siting application for the North Dakota Public Service Commission.

Enclosed is a map of the entire length of the pipeline route intended for Lake Ilo National Wildlife Refuge to review. The North Dakota Public Service Commission, requires applicants to contact agencies for comment. We respectfully request that any specific species of concern known in the area is brought to our attention to ensure we focus on those items.

As always, Keitu appreciates the opportunity to assist our client and the regulatory agencies with compliance. I will serve as the primary Keitu contact and can be reached at (701) 667-1808 ext 117 or via email at kbecker@keitu.com.

Karine Becker  
Project Manager (Pro Tem)

*Enclosure: Pipeline Route*



October 27, 2014

Ms. Karine Becker, Staff Specialist  
Keitu Engineers and Consultants, Inc.  
1403 27<sup>th</sup> Street NW  
Mandan, ND 58554

Re: Hiland Crude, LLC – Proposed Dore Pipeline Loop Project  
McKenzie County

Dear Ms. Becker:

This department has reviewed the information concerning the above-referenced project submitted under date of October 13, 2014, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. All necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner.
2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.
3. Projects disturbing one or more acres are required to have a permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Further information on the storm water permit may be obtained from the Department's website or by calling the Division of Water Quality (701-328-5210). Also, cities may impose additional requirements and/or specific best management practices for construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.
4. Noise from construction activities may have adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a

recommended muffler in good working order. Noise effects can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours.

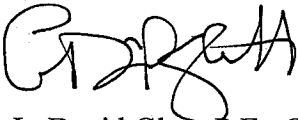
5. Projects that involve construction of pipelines should select locations that minimize the potential for environmental damage during construction and in the event of a spill, restrict fluids from reaching surface waters. Well placement should avoid close proximity to drainage areas and steep slopes. Environmental damage can be reduced by developing a spill response plan that emphasizes rapid deployment of prepositioned assets necessary to contain spills and subsequent cleanup. Proper surveillance and monitoring of pipelines is necessary for the early detection of leaks.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

These comments are based on the information provided about the project in the above-referenced submittal. The U.S. Army Corps of Engineers may require a water quality certification from this department for the project if the project is subject to their Section 404 permitting process. Any additional information which may be required by the U.S. Army Corps of Engineers under the process will be considered by this department in our determination regarding the issuance of such a certification.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,



L. David Glatt, P.E., Chief  
Environmental Health Section

LDG:cc  
Attach.



## Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

### **Soils**

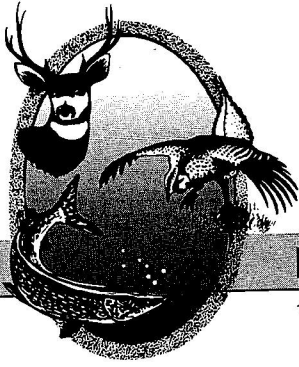
Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

### **Surface Waters**

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

### **Fill Material**

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.



"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

November 5, 2014

Karine Becker  
Project Manager  
Keitu Engineers & Consultants, Inc.  
PO Box 98  
Mandan, ND 58554-0098

Dear Ms. Becker:

RE: Hiland Crude, LLC – Proposed Dore Pipeline Loop Project

Hiland Crude LLC is proposing to construct an approximately 13-mile-long, 12-inch crude oil pipeline in McKenzie County, North Dakota. The project will interconnect with existing Hiland facilities and will parallel a portion of Hiland's Market Center Pipeline. The North Dakota Game and Fish Department has reviewed this project for wildlife concerns.

The Department owns the Sullivan Wildlife Management Area in Section 35, T152N, R104W. A special use permit may be required if this project will cross or otherwise impact these lands. Mr. Kent Luttschwager, District Wildlife Resource Management Supervisor, may be contacted at 701-770-0918 for additional information on permit requirements.

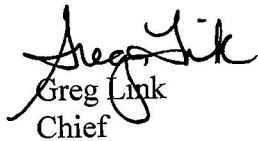
A primary concern is the disturbance of native prairie and wooded draws associated with construction of the pipeline and other facilities. We ask that work within these areas be avoided to the extent possible, every effort be made to prevent destruction of woody vegetation, and disturbed areas be reclaimed to pre-project conditions. We also suggest that aerial surveys be conducted for raptor nests before construction begins.

The pipeline route crosses the Yellowstone River, a Class I fishery. We recommend that this stream be crossed by directional boring if possible. If this method is not feasible, construction should not take place within the waterway between April 15 and June 1, and controls should be implemented to minimize erosion and sedimentation.

The National Wetland Inventory indicates various wetlands within the 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 any significant adverse effects on wildlife or wildlife habitat, including species of concern, provided these recommendations are implemented where appropriate.

Sincerely,

A handwritten signature in black ink that reads "Greg Link". The signature is written in a cursive style with a large, stylized "G" and "L".

Greg Link  
Chief

Conservation & Communication Division

js



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](mailto:parkrec@nd.gov)  
[www.parkrec.nd.gov](http://www.parkrec.nd.gov)

November 3, 2014

Ms. Karine Becker  
Keitu Engineers & Consultants, Inc.  
2610 Old Red Trail, Suite C  
Mandan, ND 58554-1447

Re: Hiland Crude, LLC Proposed Dore Pipeline Loop Project

Dear Ms. Becker,

The North Dakota Parks and Recreation Department (the Department) has reviewed the above referenced proposed Alexander Station Lateral Crude Oil Pipeline in McKenzie County.

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.

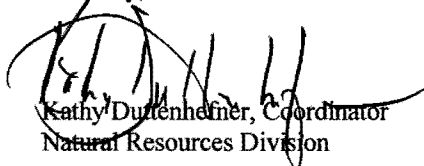
The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, there are documented occurrences in our database within or adjacent to project area, all documented occurrences are associated with riverine ecological communities. Please find map and spreadsheet attached. We defer any additional comments regarding animal species to US Fish and Wildlife Service and the ND Game and Fish Department.

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.

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](mailto:kgduttonhefner@nd.gov)). Thank you for the opportunity to comment on this proposed project.

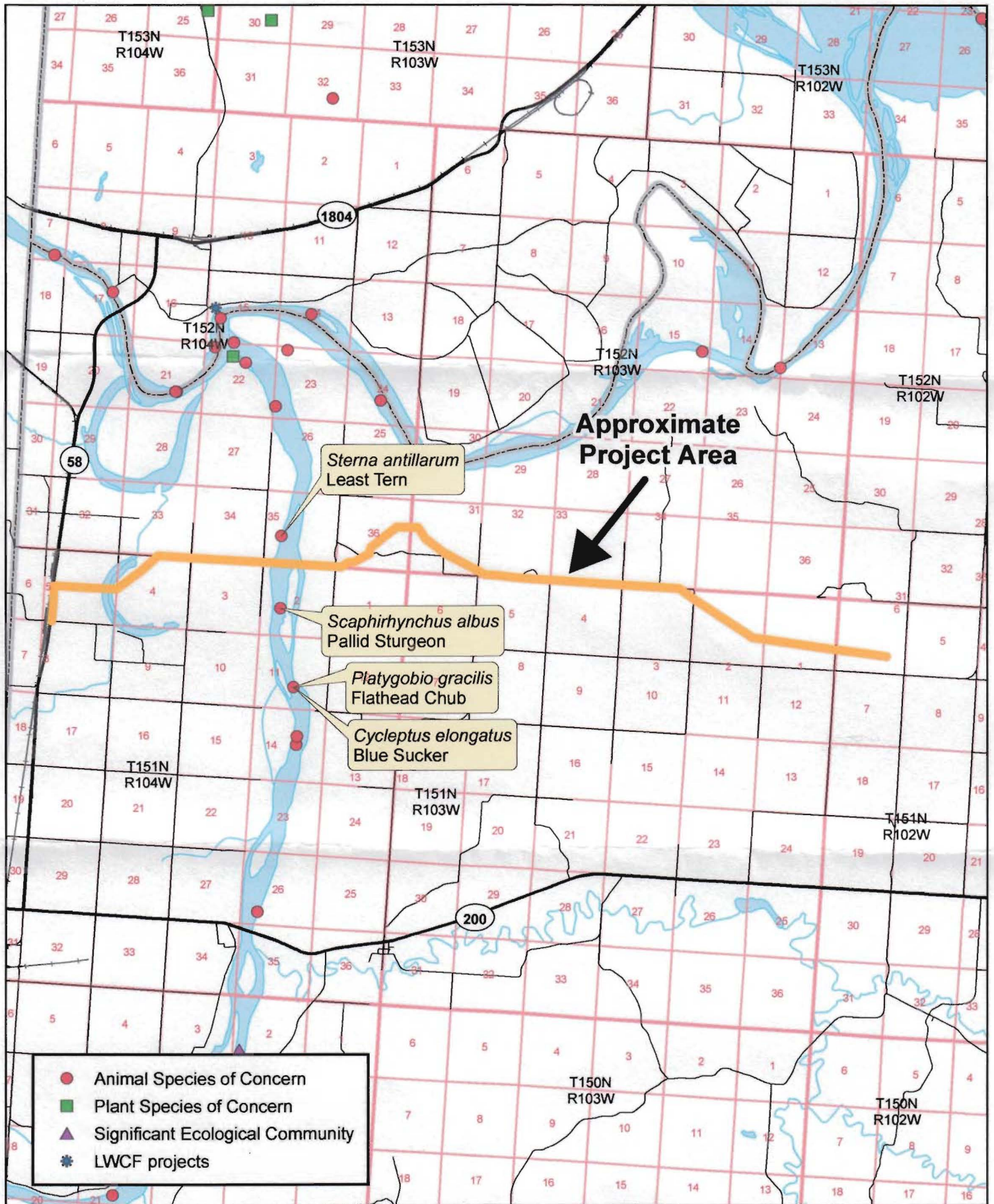
Sincerely,

  
Kathy Duttonhefner, Coordinator  
Natural Resources Division

R.USNDNHI\*2014179KD11.3.2014DL11.3.2014

.....  
*Play in our backyard!*

# North Dakota Parks and Recreation Department North Dakota Natural Heritage Inventory



North Dakota Natural Heritage Inventory  
Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
<i>Cyprinus elongatus</i>	Blue Sucker	S3	G3G4		151N104W - 11	McKenzie	1994-09-30		S
<i>Platygobio gracilis</i>	Flathead Chub	SNR	G5		151N104W - 11	McKenzie	1993-10-01		S
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	S1	G2	LE	151N104W - 02; 152N104W - 36; 151N104W - 12; 152N104W - 35; 151N104W - 10; 151N104W - 11; 151N104W - 03; 152N104W - 34; 151N104W - 01	McKenzie	1994-04-29	Low	M
<i>Sterna antillarum</i>	Least Tern	S1	G4	PS:LE	152N104W - 35	McKenzie	1986-07	Medium	S

### **North Dakota Natural Heritage Inventory Biological and Conservation Data Disclaimer**

The quantity and quality of data collected by the North Dakota Natural Heritage Inventory are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in North Dakota have never been thoroughly surveyed, and new species are still being discovered. For these reasons, the Natural Heritage Inventory cannot provide a definite statement on the presence, absence, or condition of biological elements in any part of North Dakota. Natural Heritage data summarize the existing information known at the time of the request. Our data are continually upgraded and information is continually being added to the database. This data should never be regarded as final statements on the elements or areas that are being considered, nor should they be substituted for on-site surveys.

#### **Estimated Representation Accuracy**

Value that indicates the approximate percentage of the Element Occurrence Representation (EO Rep) that was observed to be occupied by the species or community (versus buffer area added for locational uncertainty). Use of estimated representation accuracy provides a common index for the consistent comparison of EO reps, thus helping to ensure that aggregated data are correctly analyzed and interpreted.

Very high (>95%)

High (>80%, <= 95%)

Medium (>20%, <= 80%)

Low (>0%, <= 20%)

Unknown

(null) - Not assessed

#### **Precision**

A single-letter code for the precision used to map the Element Occurrence (EO) on a U.S. Geological Survey (USGS) 7.5' (or 15') topographic quadrangle map, based on the previous Heritage methodology in which EOs were located on paper maps using dots.

S - Seconds: accuracy of locality mappable within a three-second radius; 100 meters from the centerpoint

M - Minute: accuracy of locality mappable within a one-minute radius; 2 km from the centerpoint

G - General: accuracy of locality mappable to map or place name precision only; 8 km from centerpoint

U - Unmappable



# North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850  
701-328-2750 • TDD 701-328-2750 • FAX 701-328-3696 • INTERNET: <http://swc.nd.gov>

October 28, 2014

Karine Becker  
Keitu Engineers & Consultants, Inc.  
PO Box 98  
Mandan, ND 58554-0098

Dear Ms. Becker:

This is in response to your request for review of environmental impacts associated with the Hiland Crude, LLC's proposed Dore Pipeline Project located in McKenzie County, ND. The pipeline originates 8 miles northeast of Cartwright, ND near Hiland Partner's Watford City Gas Processing Facility and ends in Dore, ND at Hiland Crude's Dore Terminal. The pipeline runs through the following legal descriptions: T151N R102W Section 6; T151N R103W Sections 1, 2, 3, 4 and 5; T152 N R103W Sections 31 and 32; T152N R104W Sections 33, 34, 35, and 36; and T151N R104W Sections 4, 5, and 8.

The proposed project has been reviewed by State Water Commission staff and the following comments are provided:

- There are no floodplains identified and/or mapped where this proposed project is to take place. The project takes place in an unmapped county. No floodplain permits are necessary from McKenzie County relative to the National Flood Insurance Program.
- A sovereign land permit is needed for this project from the State Engineer for the Yellowstone River Crossing. For your convenience an application form is enclosed. If you have any questions regarding this permit, please contact Jerry Heiser at 701-328-4935.
- The ND State Water Commission (Commission) maintains a network of observation/monitor water wells throughout the state, and many are located close to public right-of-ways. The well location information can be obtained from the Commission's website at: <http://swc.nd.gov>; then click on "Map and Data Resources"; and then click on "Map Services". If water wells may be affected by your project or accidentally damaged, please contact the Water Appropriations Division of the Commission at 701-328-2754. A copy of the map is enclosed.
- It is the responsibility of the project sponsor to ensure that local, state and federal agencies are contacted for any required approvals, permits, and easements.
- All waste material associated with the project must be disposed of properly and not placed in identified floodway areas.
- No sole-source aquifers have been designated in ND.

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 701-328-4967.

Sincerely,

Linda Weispfenning  
Water Resource Planner

LW:dp/1570  
Encl.



# APPLICATION FOR AUTHORIZATION TO CONSTRUCT A PROJECT WITHIN ISLANDS AND BEDS OF NAVIGABLE STREAMS AND WATERS

Office of the State Engineer  
900 East Boulevard  
Bismarck, ND 58505-0850

Permit No. \_\_\_\_\_

Project No. 1625

Date  
Received Stamp  
Location

I, the undersigned, do hereby submit the following information to the Office of the State Engineer as an application to construct a project that may impact islands and beds of navigable streams and waters of North Dakota under NDCC Chapter 61-33.

## GENERAL INFORMATION:

This Application must include a map from an actual survey, aerial photo or topographic map and plot map (if a development). The size of the map shall be 8½ by 11 inches. The map shall have a north arrow and approximate scale. Indicate the existing or proposed work on the drawing. Plans and specifications must be submitted if project includes construction work.

- (1) Project will be located in the: \_\_\_\_\_ Water Resource District
- (2) Legal description to the nearest 40 acre tract: \_\_\_\_\_ ¼ \_\_\_\_\_ ¼ Section \_\_\_\_\_ Township \_\_\_\_\_ Range \_\_\_\_\_
- (3) Is this application for modification of an existing project  Yes  No If so, what year was project constructed: \_\_\_\_\_  
By whom: \_\_\_\_\_
- (4) Proposed project involves  water crossing, type \_\_\_\_\_  boat dock,  boat ramp,  water intake,  dredge, volume \_\_\_\_\_ cu. yds.  filling, volume \_\_\_\_\_ cu. yds., type \_\_\_\_\_,  other (explain) \_\_\_\_\_
- (5) Water body on which project will be located: \_\_\_\_\_
- (6) Purpose: \_\_\_\_\_
- (7) Project Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- (8) Contractor, if known: \_\_\_\_\_
- (9) Anticipated construction start date: \_\_\_\_\_ Completion date: \_\_\_\_\_

The filing of this application and its approval in no way relieves the applicant or riparian landowner from any responsibility or liability resulting from the construction, operation or failure of the project.

Riparian Land Owner or Organization Sponsor: (Print) \_\_\_\_\_

Address: \_\_\_\_\_

Phone: (W) \_\_\_\_\_

Applicant: (Print) \_\_\_\_\_

Address: \_\_\_\_\_

Phone: (W) \_\_\_\_\_

Signature: \_\_\_\_\_ Date Submitted: \_\_\_\_\_  
(Riparian landowner or Organization Sponsoring the project)

# Dore Pipeline Loop

- ND Corporate Limits
- Tribal Lands
- Section Corners
- Townships\_2
- County Boundaries1
- Driller Logs
- usgs\_gages
- Domestic Well
- Industrial Well
- Irrigation Well
- Multi-Well Sample
- Municipal Well
- Observation Well
- Observation Well - Destroyed
- Observation Well - Plugged
- Observation Well - Recorder
- Production Well
- Production Well - Plugged
- Rural Water Well
- Stock Well
- Stock Well - Plugged
- Surface Water Monitoring Site
- Test Hole
- Test Well
- Unknown
- Surface Water Monitoring Site
- Dams
- Approved
- Denied
- Hold
- Pending
- Withdrawn

