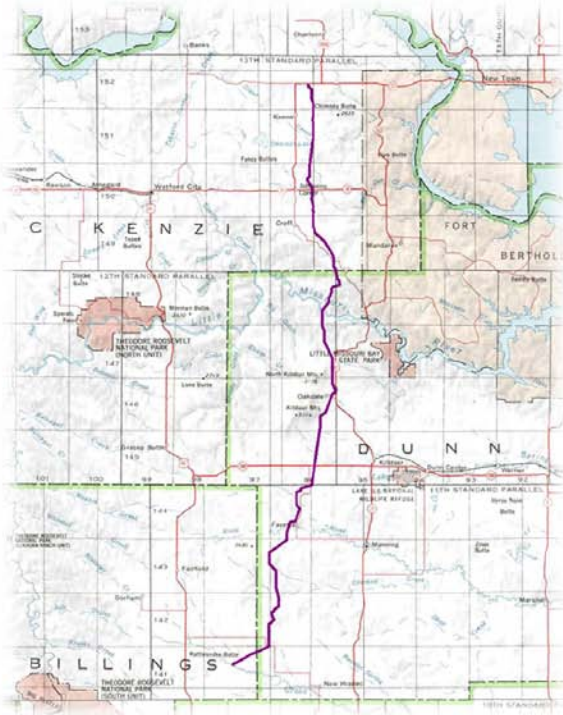


ND PSC Case No. PU-09-750

**12-inch Crude Oil Pipeline, Billings, Dunn, McKenzie
Counties
Pipeline Route Application**

July 2010



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SECTION A DESCRIPTION OF PROPOSED FACILITY

A.1 TYPE OF FACILITY

Bridger Pipeline LLC proposes to construct and operate a new 77-mile-long, 12-inch liquid petroleum pipeline together with three pipeline interconnects and two truck receipt points approximately 16.5 miles west of New Town, ND to receive deliveries of crude oil produced in Billings, Mountrail, McKenzie, and Dunn Counties. Upon completion, this system will provide pipeline transportation of crude oil production to three major crude markets: (1) Guernsey, Wyoming via Bridger's Little Missouri and Heart River systems and the Butte pipeline system; (2) to Enbridge pipeline using Belle Fourche's connection at Alexander for further transportation to Clearbrook, Minnesota; and (3) to Tesoro High Plains pipeline via Belle Fourche's existing connection at Treetop for further transportation to the Mandan Refinery. This market flexibility is critical to assure the best overall value is obtained for ND's crude oil production.

The new pipeline will provide needed capacity to transport increased production of petroleum from the Bakken and Three Forks formations while reducing oil tanker traffic on County, State and Federal roads. The pipeline will have a capacity of 60,000 barrels per day (bpd) or the equivalent of approximately 300 roundtrip loads by standard sized crude tanker trucks.

The pipeline will span three counties in North Dakota: Billings, Dunn, and McKenzie. The pipeline will be buried underground. A truck terminal, storage tanks and pump facility will be installed at the northern end of the pipeline. A mid-route pumping station could be added in the future to boost the line's capacity to approximately 110,000 barrels per day. Additional surface facilities installed in the State of North Dakota will be limited to pipeline markers, rectifiers, "pig" launchers, receivers and block valves. Some small fenced-in enclosures to house associated power and control systems may be installed to allow valves to be operated remotely.

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

The estimated cost of the Bridger 12-inch Crude Oil Pipeline Project (Project) is \$29 million.

Figure 3.1 shows the general location of the facility.

A.2 PRODUCT

This 12-inch-diameter pipeline is expected to transport sweet crude petroleum. Although Bridger does not explicitly specify the type of crude it will transport; historically it is a sweet common stream system and will continue to accept sweet crude oil into its common stream. Bridger does not have any plans to accept any other crude other than sweet crude from Billings, Mountrail, McKenzie, and Dunn Counties.

A.3 SIZE AND DESIGN

The pipe installed will have a nominal diameter of 12 inches and with a wall thickness of 0.250 inches as denoted as API Code 5L specification x52 pipeline pipe. Road and water crossings

will be 12-inch diameter and 0.375 inch wall thickness with Powercrete for road and water crossings. The maximum allowable operating pressure will be 1440 psig.

A.4 TIME SCHEDULE

With over 130 oil drilling rigs currently in operation, the state's oil production is expected to continue to climb. State and county roads are being degraded by high use by crude trucks. Highway safety is also being adversely affected by traffic count. The lack of pipeline transport flexibility may also contribute to steep crude oil price discounts associated with unbalanced crude oil supply and demand. It would benefit all stakeholders to begin construction as soon as possible.

The State of North Dakota and its citizens also benefit from higher crude prices and its impacts on production and extraction revenues. Bridger has assured its customers that the upgraded system would be operational in the first quarter of 2011. In order to accomplish this, Bridger needs to begin construction at the earliest possible date.

A.4 (a) Certificate of Corridor Compatibility

Corridor Permit Application is being submitted in July 2010 as part of this consolidated Certificate of Corridor Compatibility and Route Application.

A.4.(b) Route Application

Route Permit Application is being submitted in July 2010 as part of this consolidated Certificate of Corridor Compatibility and Route Application.

A.4 (c) Route Permit

Route Permit approval is expected on or before September 15, 2010.

A.4 (d). Construction Start Date

Bridger Pipeline LLC would like to begin construction of the line as soon as possible after the spring nesting season is complete (i.e. July 16, 2010) Construction in third quarter 2010 would allow the system to begin operation in the first quarter of 2011.

A.4 (e) Construction Complete

Estimated construction completion date is on or before January, 2011.

A.4 (f) In Service Date

Estimated in service date is on or before April 15, 2011.

Bridger Pipeline, LLC
Route Application
12-inch Crude Oil Pipeline – McKenzie, Dunn, Billings Counties

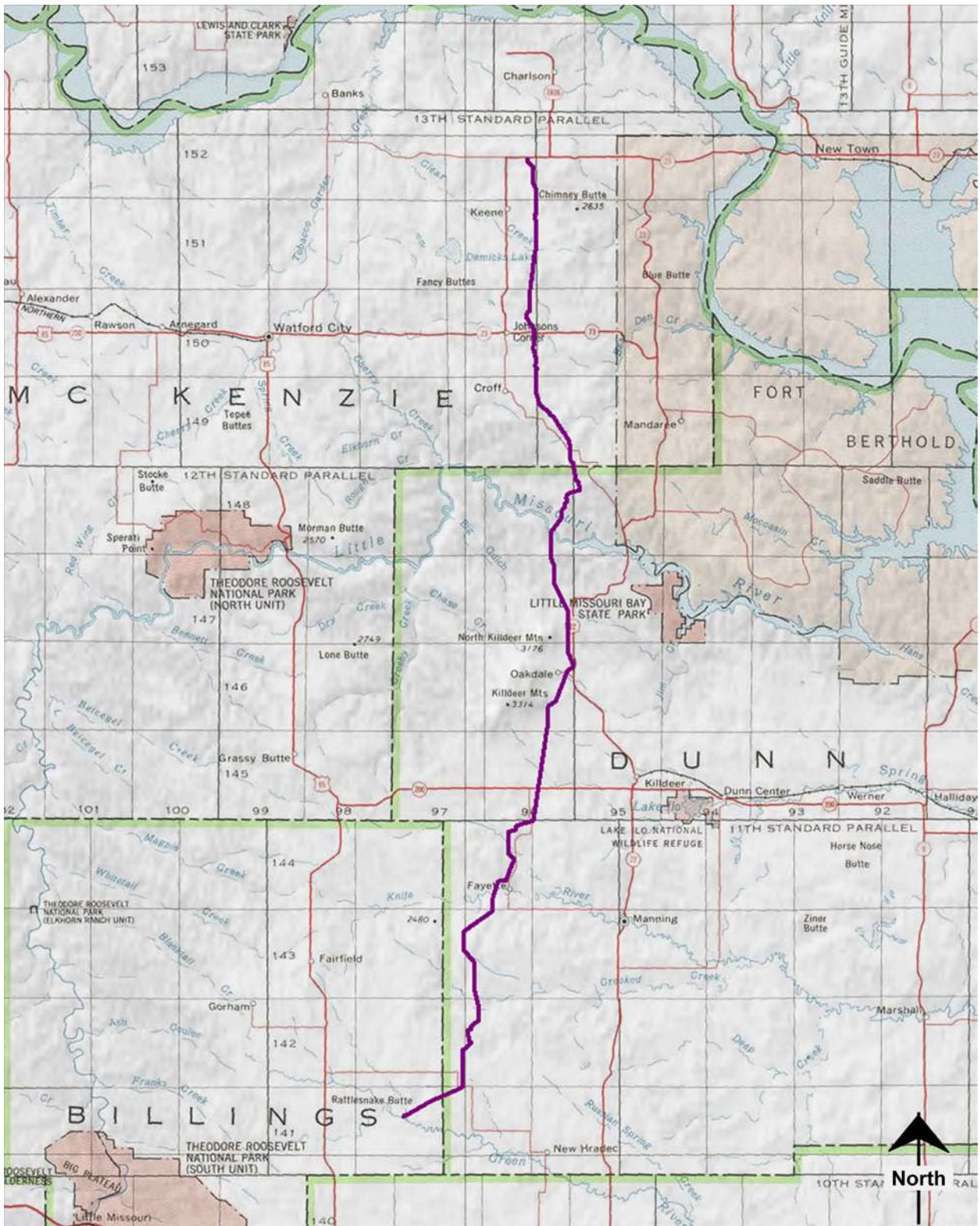


FIGURE 3.1 – General Project Location Map

SECTION B LOCATION

B.1 APPLICANT'S POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

Bridger Pipeline works to protect the environment, home to its employees and customers. Protection of the environment is an integral element in the conduct of Bridger Pipeline LLC. Environmental protection efforts will span the entire Project, from planning through construction, restoration, and into full operation.

B.1.a Construction

The Project involves laying a 12-inch steel pipeline in a newly acquired right-of-way, spanning portions of Billings, Dunn, and McKenzie Counties. Construction of the new 12-inch-diameter pipeline will result in temporary short-term impacts, but is not expected to result in significant long-term change to the environment.

Planning, design, construction, and restoration will incorporate the equipment and measures discussed in Section B.6. Environmental monitoring, in the form of ongoing environmental inspection, will be conducted during and following construction. Environmental inspectors will monitor for compliance with required environmental protection measures, permit conditions, and specifications, and provide ongoing oversight for day-to-day issues that may arise. The environmental inspectors will be trained and well-versed in the implementation of environmental best management practices during construction. Contract specifications will incorporate environmental protection and mitigation measures, and contractors will be expected to implement these measures in the field. Contractor training and project orientation will also be provided by Bridger Pipeline LLC.

The proposed pipeline route is located primarily on private land and landowner concerns will be addressed during all phases of construction including final restoration. Land agents assigned to the Project will work closely with landowners and be responsive to issues that may arise during the course of the Project to the extent practicable. Permission from all private land owners has already been obtained.

Three small parcels of Federal land will be crossed via the pipeline's route, totaling less than one mile of its total length. Preliminary permission for the proposed route has already been obtained.

Environmental data collected to date includes information on soils, land use, wetland and water body crossings, protected species, and cultural resources. Bridger Pipeline LLC will continue to work with appropriate regulatory agencies and will continue to gather comprehensive information during the permitting process.

B.1.b Ongoing Pipeline Operation

The pipeline is a permanent, ongoing system; as such, Bridger has a continuing commitment to conduct its operations in an environmentally responsible manner. Substantial, continual effort is placed on pipeline integrity, operational safeguards, emergency response, and landowner relationships, all of which reduce the impact of the

pipeline to the environment. Bridger supplements the support of the existing internal environmental staff with engineering and environmental consultants as necessary to assure compliance with environmental regulations and applicable company policy. Additional discussion on operations and safety is provided in Section B.9.c.

B.1.c Energy Conservation Considerations

Installation of a 12-inch line to existing Bridger and Belle Fourche pipeline sections in Bridger's North Dakota pipeline network will expand Bridger's service area, and improve delivery destination options for system shippers.

The key energy economic impact will be the substitution of the most energy efficient mode of crude oil transportation, e.g. pipeline, for the least efficient mode of transportation, e.g. on-road transport via cargo tanker truck. Installing this new segment will add 60,000 bpd of capacity to the system which will be used to move crude oil from Mountrail, McKenzie, Dunn and Billings counties any of three delivery destinations. (1) Guernsey, Wyoming via Bridger's Little Missouri and Heart River systems and the Butte pipeline system; (2) to Enbridge pipeline using Belle Fourche's connection at Alexander for further transportation to Clearbrook, Minnesota; and (3) to Tesoro High Plains pipeline via Belle Fourche's existing connection at Treetop for further transportation to the Mandan Refinery.

Beyond the direct energy benefit of using a more efficient mode of transportation, energy conservation is a major concern at Bridger Pipeline Company. Energy/power costs represent the largest single recurring expense in pipeline operation. Attention is continually being directed toward energy conservation.

Bridger Pipeline LLC's energy conservation goal is to minimize power/energy unit costs through the implementation of internal programs directed at continuous improvement of energy utilization efficiency. The following provides a brief explanation of the programs reviewed during the project development phase:

Pipeline Control Center

Bridger Pipeline LLC control operators are trained in applied hydraulics and pipeline control through the use of a computerized pipeline control simulation system. They are trained to operate the pipeline at a natural flow rate using efficient combinations of pumps, thereby minimizing energy consumption. Operators have the capability to start and stop pumps and monitor pipeline operating conditions to assist in achieving an energy efficient operation.

Energy Efficient Pumps and Motors

For new installations, Bridger Pipeline LLC purchases high efficiency pumps and motors at a premium initial cost in an effort to conserve long range energy requirements. Specifically, a high polish is used on the pump impeller, and motors are custom designed for high efficiency. For example, a fully loaded 2,500 horsepower pump and motor unit, operating 300 days per year at 80% efficiency will consume 17 million kilowatt hours (kWh) of energy annually and sets a demand of 2,331 kW. Increasing the

efficiency by only 1% translates into 170,000 kWh of energy savings. With this substantial potential for energy savings, it is desirable to optimize efficiency. Pumps are hydraulically designed and selected to obtain a high best efficiency point (BEP) at the desired flow rates. The forecasts are continually being evaluated and if the flow rate is outside the BEP range, impeller changes are typically implemented for improved efficiency.

Drag Reducing Agents (DRA)

Bridger Pipeline LLC currently uses drag reducing agents in selected segments of its pipeline system. Injection of DRA reduces flow turbulence of liquid hydrocarbons which results in reduced pressure loss between stations. This practice allows a high flow rate (increased throughput) at the same operating pressure, or a decrease in operating pressure while maintaining flow rate. These two scenarios allow increased throughput or decreased power use. The flexibility furthers opportunities to shift power use to improve economics or accommodate the utilities. In these cases, the economic benefits realized with the implementation of the DRA program have outweighed the material cost of the DRA. As a result, lower unit energy costs and greater efficiency have occurred.

Other energy efficiency programs being investigated for future implementation include:

- Enhancements to the pipeline control system to allow further energy use optimization;
- Coordination of our energy use between utilities for mutual benefit; and
- Improve pump efficiency by upgrading to geometrically optimized pump wear rings.

B.2. DISCUSS THE FACTORS LISTED IN SECTION 49-22-09 NDCC TO AID THE COMMISSION'S EVALUATION OF THE PROPOSED PIPELINE ROUTE

Factors which the North Dakota Public Service Commission (ND PSC or Commission) consider in evaluating the designation of corridors and routes include the following:

B.2.a Available Research and Investigations Relating to the Effects of the Location, Construction, and Operation of the Proposed Facility on Public Health and Welfare, Natural Resources, and the Environment

A discussion of the effects of the location, construction, and operation of the pipeline on public health and welfare, natural resources, and the environment is included in Section B.4. and the Application for Corridor Certificate presented in Tab 1. Record and database research relating to these effects have included both Class I and Class III cultural research investigations plus field identification of occupied buildings and other avoidance areas including cultural resource reviews, protected species and sensitive area reviews, and field studies conducted May through July 2010.

B.2.b The Effects of New Energy Conversion and Transmission Technologies and Systems Designed to Minimize Adverse Environmental Effects

The Project does not include new energy conversion or transmission technologies. The pipeline design is consistent with existing pipeline technologies. However as described

in Section B.1.c above, Bridger Pipeline LLC is constantly evaluating new energy conservation technologies to reduce the energy consumed in its operations.

B.2.c The Potential for Beneficial Uses of Waste Energy from a Proposed Energy Conversion Facility

The Project does not involve new energy conversion facilities; no usable waste energy will result from the Project.

B.2.d Adverse Direct and Indirect Environmental Effects, Which Cannot be Avoided Should the Proposed Site or Route be Designated

Unavoidable adverse direct and indirect environmental effects may include short-term or temporary effects on vegetation, wildlife, agricultural operations, transportation, and noise levels as described in Section B.4. However, since construction is scheduled to begin and be completed (1) outside of the prime growing season and (2) on an accelerated timeline, impacts to agricultural operations will be minimal and impacts to transportation will be short-term. Bridger will implement thorough mitigation measures to minimize these impacts as described in its Environmental Mitigation Plan (EMP) presented as Tab 5 and Tab 6 in this consolidated application.

B.2.e Alternatives to the Proposed Site, Corridor or Route, Which are Developed During the Hearing Process and Which Minimize Adverse Effects

The pipeline corridor was selected to avoid or minimize environmental and socioeconomic impacts. Much of the corridor parallels the Dakota Gasification Company's 14-inch carbon dioxide transmission pipeline, thereby minimizing new severance on properties. The route selected was developed based on voluntary landowner participation and their input as to location on their parcel of land.

The route is described in Section B.3 and depicted in diagrams presented in Tab 4.

The Applicant is prepared to fully participate in the Hearing Process and has compiled the enclosed application and supporting documentation in both hardcopy and electronic format to assist in its distribution.

B.2.f Irreversible and Irretrievable Commitments of Natural Resources Should the Proposed Site, Corridor or Route be Designated

Approximately half of the proposed route, including the Little Missouri Scenic River crossing, is within a quarter mile of an existing pipeline corridor and, therefore, minimal irreversible or irretrievable commitments of natural resources will result from the Project.

The southern half of the pipeline route is across a new corridor, however several oil field gathering systems and natural gas pipeline transportation pipelines all reside in the vicinity of the proposed route. Minimal irreversible or irretrievable commitments of natural resources will result from the Project.

B.2.g The Direct and Indirect Economic Impacts of the Proposed Facility

B.2.g.(1) The Project presents an optimization of new and existing pipeline capacity to meet the needs for additional liquid petroleum transportation to this region.

As presented in Tab 1 Section C.2 of Bridger's Corridor Certificate Application which describes feasible alternatives, options considered include:

1. No action alternative
2. Trucking alternative.
3. Rail alternative.
4. Pipeline system alternatives.
5. Alternative pipeline routes.
6. Alternative pipeline designs.

During the initial design of the Project, all but one of these options were rejected as not feasible and/or uneconomical. Bridger's proposal represents an optimal use of new and existing pipelines on a combination of new and existing routes. Bridger's shippers support its proposal to be an appropriate economical response to the need for additional mid-stream pipeline transport capacity.

B.2.g.(2) The Project has significant economic benefits.

Application of horizontal drilling technology and steady and relatively historically high crude oil prices have resulting in a resurgence of oil drilling activity in North Dakota. Unprecedented success has occurred in the Bakken oil formation, resulting in a doubling of oil production in North Dakota in the last three years. A summary of annual crude oil production in the state is presented in Table 3.1, below.

Year	Total Crude Oil Production, Barrels	% Gain over 2006
2006	39.9 million	---
2007	45.1 million	13.0 %
2009	62.8 million	57.4 %
2009	79.7 million	99.7 %

A comparison for the most recent available information (January/February 2009 vs. 2010) shows a year-over-year increase of over 25%.¹

¹ U.S. Department of Energy, EIA webpage statistics, crude oil production by state, Retrieved July 7, 2010

According to the January 22, 2010 issue of Business Week, the State's forecast for oil production in 2010 was raised, again. "Output may reach 300,000 to 400,000 barrels a day by mid- 2011 and stay at that level for 10 to 15 years," said Lynn Helms, Director of the North Dakota Mineral Resources Department. The state's previous estimate was 220,000 to 280,000 barrels per day. Assuming only the average of the predicted range, the most current predictions expect North Dakota's annual oil production to reach 128 million barrels or more in 2011.

Even if Enbridge Phase 7 project is constructed in 2012, Quintana's project to the Keystone XL project occurs in 2013 (and as recently as June 21, 2010, a spokesman from TransCanada announced as of that date, no agreement has been reached with Quintana or any other company wanting to ship domestic crude in its segregated oil sands pipeline system²) and/or others wish to pursue a "northern" alternative connection into the TransCanada connection, three major gaps in pipeline service remain which would be addressed by this project:

(1) Timeframe

Bridger Pipeline is prepared to begin construction in 2010 and place the line in service in early 2011. All other announced projects are expected to come on-stream in 2013 or later.

(2) Williston Basin Transition Route

As depicted in Figure 1, the proposed Bridger 12-inch Crude Pipeline will transit three major oil production counties in North Dakota, and will be within a few miles of Mountrail County. Its proximity to other crude gathering systems in all four counties provides a pipeline alternative to trucking crude oil to other crude shipping points. Access points to the system announced include

- (a) North truck unloading station at ND Highway 23 18 miles west of New Town, ND
- (b) Interconnection with the PetroHunt / Questar gathering system (s)
- (c) Truck unloading station at ND Highway 200 11 miles west of Killdeer, ND
- (d) Future interconnection point for the Arrow / Saddle Buttes gathering system (s)

(3) Multi-Market Access Points

This pipeline will have direct or indirect access to all three crude oil market currently available in North Dakota (a) Guernsey, Wyoming crude hub (b) Clearbrook Minnesota crude hub and (c) Tesoro Refinery at Mandan, ND. The proposed Bridger 12-inch Crude Pipeline will transit three major oil production counties in North Dakota, and will be within a few miles of Mountrail County. Its proximity to other crude gathering systems in all four counties will provide a pipeline alternative to trucking crude oil to other crude shipping points.

Because of increased distances to market, North Dakota sweet crude generally fetches about 10 percent less than a barrel produced elsewhere and sold on the New York Mercantile Exchange. This gap grew by an additional \$4.16 per barrel in May 2010 during the Tesoro - Mandan Refinery outage. Without adequate flexibility in the pipeline

² Bismarck Tribune (Bismarck, ND) newspaper article, [Bakken Connector to Keystone Proposed](#), June 21, 2010

network, this loss of 58,000 barrels per day of crude uptake was the major factor in the loss of \$37.5 million crude value (using 9,013,224 barrels production) in May 2010, relative to the average differential in 2010. A summary of the state's crude oil price and market benchmarks is presented in Table 3.2, below.

Month	Taxable Barrels	90% NYMEX Price	Average ND Price	Differential
January	7,326,490	\$70.32	\$69.50	(\$0.82)
February	7,251,538	\$68.67	\$69.21	\$0.54
March	8,466,539	\$73.06	\$73.48	\$0.42
April	8,470,816	\$76.12	\$75.41	(\$0.71)
May	9,013,224	\$67.07	\$62.91	(\$4.16)

The cost of the Project in North Dakota will be approximately \$29 million. The pro-rated cost of construction in each county is estimated at \$1.3 million for Billings, \$19.2 million for Dunn and \$8.5 million for McKenzie County. All three counties will benefit with the addition of taxable assets to their area.

Over 50 construction workers will be hired from pipeline contractors, equipment contractors, suppliers, and regional testing firms. Forty to fifty percent of the labor force is expected to be hired from the regional labor pool. In addition, environmental consultants and safety, environmental, and construction inspectors will also be employed during the Project, and has selected North Dakota based consulting firms to assist with the site selection and permitting process. During the months of preparation, construction, and testing, these workers will have a significant positive economic impact (e.g., payroll tax, local expenditures, sales tax) on McKenzie, Dunn, and Billings Counties.

Pipe and other materials for the expansion are all expected to be from U.S. and North American suppliers. Much of the materials and equipment needed for construction, including welding supplies, heavy equipment, electrical components, and building materials will be supplied from this region. Operation of the Project will require Bridger Pipeline, LLC to hire between 2-4 new full-time permanent employees.

B.2.g.(3) Bridger is solely a transportation company.

Bridger owns and operates a non-shipper-owned liquid hydrocarbon pipeline facility. Bridger does not own any of the crude petroleum or natural gas liquids transported in its pipeline system. Bridger does not determine markets or destinations for petroleum commodities.

³ Per email correspondence from Justin Kringstad of ND Pipeline Authority, courtesy of ND Tax Department, Received July 13, 2010

Bridger's business activity is to provide a service which is available to anyone tendering commodities for transportation pursuant to tariffs published and on file with the FERC and in accordance with their rules and regulations and the Interstate Commerce Act. Bridger attempts to anticipate the need for additional pipeline capacity by relying upon forecasts for throughput generated by shippers on the system.

B.2.h Existing Plans of the State, Local Government, and Private Entities for Other Developments at or in the Vicinity of the Proposed Site, Corridor, or Route

Over the past several years, the North Dakota Pipeline Authority has been working with producers and regional pipeline companies to address the issues surrounding the safe transportation of this surge in crude oil volume. The North Dakota Pipeline Authority commissioned and completed a study in 2009 to look possible "on ramp" access to either or both TransCanada's Keystone (which began operation June 30, 2010) or Keystone XL (proposed start operation in 2013) syncrude trunk lines to major mid-continent and gulf coast crude markets. While the study concluded that the most economical alternate was to build a link north from Stanley into Canada, Quintana Capital Group GP, LTD submitted a letter of intent in June 2010 to the ND Public Service Commission (Case PU-10-218) to pursue construction of a branchline to the proposed Keystone XL pipeline, connecting to it near Baker, MT in Fallon County, Montana. However, the project, slated for initial operations in 2013, may be delayed if environmental opposition to the Keystone XL continues to grow.

Enbridge Pipeline had announced on March 3, 2010 an effort to expand capacity northward. Referred to as Enbridge Phase 7 project, the company will evaluate construction and operation of 115,000 barrels of new pipeline capacity from Beaver Lodge Looping Station through Stanley into an existing portal at Berthold, ND. The company proposes to add pumps and reverse the portal into Steelman to allow producers to ship crude north into Canada, across Manitoba and return via an existing Enbridge connection back into the midcontinent refining market in the United States.

Plains All American Pipeline LP (Plains) filed a letter of intent with the ND Public Service Commission in June 2008 to construct a 6-inch crude oil pipeline in Dunn and Stark Counties. The line was expected to be tied into the company's existing crude oil gathering system to transfer oil into their crude terminal north of Killdeer, ND. The project, assigned case PU-08-424 is an example of a Williston Basin Transition Route. Work on the project was temporarily suspended to allow Plains to redeploy capital assets to another corporate project in the US midcontinent. No report of its status was found in the public domain. Plains also has since purchased Tesoro's Hwy 22 crude terminal adjacent to their Killdeer crude truck station and connections Tesoro's crude gathering system in Dunn County. Even if revived, the relatively small project line size and its location in north Stark County and southern Dunn County will not provide adequate relief to the transportation bottlenecks associated with the recent volume expansion in the state.

Bridger is not aware of other crude oil transportation development by state, local or governmental entities at or in the vicinity of the Project corridor.

B.2.i The Effect of the Proposed Site or Route on Existing Scenic Areas, Historic Sites and Structures, and Paleontological or Archaeological Sites

Two scenic areas in North Dakota are within the study corridor and one will be transected by the pipeline route.

The Little Missouri is North Dakota's only designated State Scenic River. The river flows generally in a west to east direction in the near vicinity of the Project. With the Little Missouri River being 274 miles in length, the pipeline must cross the river at some point. The Applicant proposes to avoid crossing within key scenic areas of the river such as Sully Creek State Recreation Area, or within either the Little Missouri National Grassland or Theodore Roosevelt National Park. Construction is to occur in the late fall/earlier winter when site seeing along the river is reduced. Once installed, the underground the pipeline is not visible. The river crossing block valves required by the US Department of Transportation regulations will be set back away from the current river bank to minimize any impacts to the view shed from the river surface.

The proposed route across the Little Missouri River is parallel to and within the same corridor as the existing Dakota Gasification Company carbon dioxide (CO₂) pipeline.

The second scenic area is the Killdeer Mountain Four Bears Scenic Byway. The Byway extends from ND Highway 22 beginning just north of Manning, ND up to its intersection with ND Highway 23 and east to the Four Bears Bridge west of New Town. The 64-mile long Byway enters the Project's corridor (i.e. within ½ mile of the proposed pipeline route) for approximately 5 miles. The Dakota Gasification Company carbon dioxide (CO₂) pipeline shares proximity to the Scenic Byway for 3 of these same 5 miles. Once installed, the underground the pipeline is not visible. No block valves or other aboveground piping is expected to be installed within this area.

One historic site is within the study corridor, and one another site is in the vicinity but outside of the study corridor.

The Hutmacher Farm is listed on the National Register of Historic Places and is within the study corridor. The farm site, located 10 miles southwest of Killdeer in Dunn County, is denoted on Figure 4.B.11a and consists of a group of farm buildings constructed between the 1880 and 1960s in traditional Ukrainian-German immigrant style. The proposed pipeline route is located 800 to 1000 feet west of the site, and beyond and behind small hill. Once installed, the underground the pipeline is not visible. No block valves or other aboveground piping is expected to be installed within this area. For reference, a main branch of Tesoro's High Plains crude oil pipeline network runs to the east of the site approximately 400 to 600 feet away.

The Killdeer Mountain Battlefield State Historic Park is located 1.2 miles west of the proposed pipeline. The park is located outside of the study corridor but is mentioned in the Applicants efforts to be complete. The site is located in the west half of Section 33 just off the west edge of Figure 4.B.9a in Dunn County. Once installed, the Project's underground piping will not be visible. No aboveground piping is expected to be installed in this area of the route.

Metcalf Archaeological Consultants, Inc. of Bismarck, North Dakota was engaged to review existing site file data maintained by the State Historical Society of North Dakota (SHSND), North Dakota State Historic Preservation Office (NDSHPO) to determine if any portion of the pipeline route was surveyed previously for cultural resources. The Class III cultural resource pedestrian inventory covered 100% of the proposed pipeline route. The corridor was inventoried by walking parallel pedestrian transects across a 200 foot wide Area of Potential Effect (APE) centered on the proposed pipeline.

Thirty-four cultural resources were documented during the Class III inventory, including 13 archaeological sites, 17 archaeological isolated finds, and four historic sites. In addition, three previously recorded prehistoric sites were updated. Two additional previously recorded sites were visited and found to be out of the APE and were not updated and on previously recorded site, 32DU343, was not relocated. A site lead, 32DUx800, was also found to be out of the area of potential effect.

Metcalf Archaeological Consultants, Inc. prepared and issued a report for their work on the project. A copy of their Cultural Resource Investigations Report in its entirety is presented as Tab 4 Attachment A.

Based on findings from both the Class I record search and Class III field survey, multiple reroutes were developed in an attempt to avoid impacts to identified cultural resource sites. However, in consultation with the ND State Preservation Office (NDSHPO) and where applicable the Bureau of Land Management (BLM), five identified sites will be penetrated by the pipeline route and/or the associated construction zone.

The locations of two of the new historic sites identified during the Class III field survey are shown on Figure 4.B.4.a in green. The smaller of the two sites reported as site 32MZ2074. While the initial approach was to route the pipeline around the area, additional information and photos of the site were obtained during the site revisit and presented to the NDSHPO. The site has been subsequently determined to be National Register of Historic Places (NRHP) and will be transected by the pipeline route. The second, larger historic Veeder property site 32MZ2081 consists of several abandoned farm buildings. After documenting the location of the site features, and in consultation and with the approval of NDSHPO, the perimeter boundary of the site is proposed to be penetrated by the pipeline route but the construction zone will be narrowed and the surface features of the site not disturbed.

Prehistoric site 32DU343 are shown on Figure 4.B.6a in green. Site 32DU343 has been determined to be NRHP ineligible and is proposed to be transected by the pipeline route.

Prehistoric sites 32DU352 and 32DU1385 are shown on Figure 4.B.8a in green. Based on field studies and with the approval of NDSHPO, the portion of 32DU352 to be crossed has been determined to be NRHP ineligible. Site 32DU1385 was revisited and assessed to have a broader boundary than previously reported. After consultation with the NDSHPO, the expanded area was tested by shovel probing. Information obtained as a result of site tested has been presented and evaluated by the NDSHPO. The expanded portion of the site identified in the 2010 has also been determined to be NRHP ineligible. The proposed pipeline route will also transect the site.

It is important to note that a total of 5 routes were attempted through this area. As the Metcalf Archaeological Consultants, Inc. Cultural Investigation Report describes, this area has the second most densely grouped archeological sites known within the entire state of North Dakota. The Project's initial "avoidance" strategy needed to be abandoned in this area because of lack of practical alternatives. The Applicant believes it has selected the least intrusive route through the area.

The depicted route on Figures 4.B.1 through 4B.16 (i.e. Tab 4 Appendix B Mapbook) is the joint effort of Applicant, its consultants and the ND State Preservation Office (NDSHPO) which resulted from the series of teleconferences and face-to-face meetings to review the Cultural Resource Investigations Study. Specific precautions during construction will include:

- Construction excavation monitoring at site 32DU1502
- Construction excavation monitoring along the entire pipeline corridor in Section 12, T146N, R96W by an archaeologist.
- The construction corridor be narrowed to 50 feet and sites be fenced by an archaeologist at the following sites: 32DU1504; 32DU1512; 32DU1510; 32DU1513; 32DU1387

Provided that the above Project conditions are followed, a finding of “*No Historic Properties Affected*” has been issued by Metcalf Archaeological Consultants.

The lead agency (Bureau of Land Management) and NDSHPO have recommended that a monitoring and fencing program be undertaken before and during construction excavation activity. It is further recommended by these agencies that both the monitoring and site fencing cited above be undertaken by archaeologists.

An “Unanticipated Discovery Plan” has been developed and adopted by the Project should unexpected artifacts be uncovered during pipeline construction. The plan has been sent for approval to the North Dakota State Historic Preservation Office.

No other existing scenic areas, historic sites and structures, and paleontological or archeological sites other than those identified here in section B.2.i have been identified by Bridger Pipeline, LLC or its consultants.

B.2.j The Effect of the Proposed Route on Areas Which Are Unique Because of Biological Wealth or Because They are Habitats for Rare and Endangered Species

Contacts have been made with the North Dakota Game and Fish Department (NDGFD), the U.S. Fish and Wildlife Service (USFWS), and the North Dakota Parks and Recreation Department’s North Dakota Natural Heritage Inventory System to identify species and ecologically significant habitats within the right-of-way and the Project corridor. Possible areas of concern discussed were federally listed endangered, threatened, candidate, sensitive, watch species, state-listed protected species, and critical habitats that are located on or within the pipeline route.

The NDGFD was provided with the proposed route which is currently under review. Areas that will be analyzed by the department will be state-listed protected species and unique biological areas with the proposed route.

The USFWS discussed federally listed endangered, threatened, and candidate species in North Dakota. Recommendations were made to avoid areas where prairie dog colonies occur. The endangered black footed ferret occupies prairie dog colonies and avoidance is required to prevent habitat loss.

The North Dakota Natural Heritage Inventory System listed Species of Concern in the state that have been identified within the Project area. A map was provided to allow for the analysis of each location of concern. This information was incorporated into the field training and reference information used during the biological field survey conducted in the study corridor in May through June 2010. Findings are reported on the appropriate plate in Tab 4 Attachment B Mapbook.

B.2.k Problems Raised by Federal Agencies, Other State Agencies, and Local Entities

Project representatives attended a January 21, 2010 Federal Interagency Coordination Meeting in Bismarck. Contacts from the following Federal and State agencies were in attendance: US Army Corps of Engineers (COE), US Bureau of Reclamation (USBR), US Fish and Wildlife Service (FWS), Federal Highway Administration (USFHA), US National Resource Conservation Service (NRCS) as well as ND State Agencies including the ND State Water Commission and the ND Game and Fish Department (NDGFD). The proposed route was presented to attendees as stakeholders in the permitting process.

Significant observations from the group included (1) encouraged by the corridor being sited on the east side of Killdeer Mountains rather than the west site which avoids a concentrated area of sensitive wildlife and vegetation (2) encouraged by the effort to consolidate the utility into an existing pipeline corridor where possible (3) supportive of the conceptual design for the Little Missouri River crossing and (4) encouraged by the construction schedule slated for after nesting season. Other topics discussed were availability of electrical power from existing distribution points, threshold size for prairie dog town considered as feeding ground for black-footed ferret protected species. The agencies' representatives offered three points of caution (1) golden eagle nests have been spotted at the north end of the proposed corridor in years past, but construction outside of nesting season would address this issue and (2) short term impacts to project for whooping cranes migration in fall of year; (3) include potential construction lay-down areas in the field archeological survey. The group offered the names of other stakeholders, including the SW Water Resource District, which may also be interested in receiving advance notice of the project.

Subsequent to this meeting, contact was made with the Dickinson office of the SW Water and advised of the pending project and its location. Permitting requirements were also discussed, and incorporated into the Project work plan.

The proposed route corridor has also been provided to the US Forest Service McKenzie County Ranger District which has jurisdiction over the Dakota National Grasslands. The

project is pursuing as its primary, preferred route an option which does not include any US Forest Service land. Given the width of the study corridor, several tracts of US Forest Service land fall within ½ mile of the expected pipeline route and Federal field survey protocols will be followed during that portion of the project.

Three small parcels of land under the jurisdiction of the US Department of the Interior Bureau of land management are involved in the pipeline route. The archeological study corridor was expanded consistent with existing Federal guidelines. Significant findings in their area of responsibility have already been reviewed with their archeological and realty specialists without any concerns expressed.

Multiple route alternatives do exist which involve crossing between 1320 to 4300 feet of US Forest Service property. However based on correspondence in March 2010 with the McKenzie District staff, current policy prevents new hazardous liquid pipelines from being installed on USFS lands unless all private land options have been exhausted. This option will be explored if suitable arrangements cannot be made with private landowners. However as of the date of the application, the Applicant believes it has secured approval for the entire route from either private landowners and/or the US Bureau of Land Management. The List of Landowners is provided in TAB 4 Appendix 3.3 within this consolidated application.

The Bismarck office of the US Army Corps of Engineers was contacted to discuss requirements crossing areas deemed “waters of the United States.” These types of crossings can be bored without triggering permitting requirements. If the corresponding permits can not be obtained for open cut crossings during the project, these crossings will be bored. However initial feedback from their staff indicates that all of the river and stream crossings along the proposed route are covered under existing Nationwide Permit 12. The Nationwide Permit 12 permit is drafted for use by utility companies, including pipelines, which intend to cross small streams and rivers. Construction can be performed under this nationwide permit in designated areas, as long as the permit’s stipulations are met. These conditions have been reviewed and are acceptable to the Applicant, if applicable.

Approximately 5.5 miles of the pipeline route travels across the former Figure 4 Ranch now owned by the Three Affiliated Tribes. This parcel of land is considered “fee” lands, not “trust” land. The US Department of the Interior - Bureau of Indian Affairs (BIA) was contacted by representatives of the Three Affiliated Tribes and provided information on the Project. After review of the aspects of the Project, the BIA representative concluded that the Project was not involved in the permitting or approval of the Project.

Initial background information and proposed routing on the Project was presented to the McKenzie County Commission on February 2, 2010, the Billings County Commission on February 2, 2010, and the Dunn County Commission on February 3, 2010 including representatives from the counties’ respective Engineering Departments. Subsequent County Commission meetings were held as issues surfaced during the Project planning stage. Road and section line permit applications will be filed with the County Engineer as required by the County and pipeline installation will be performed in conformance with the specifications discussed. No objection to the project was voiced by any of those

groups at that time, or in subsequent correspondence. This aspect of the Project will be managed via the permitting procedures currently in place by the counties.

Three state highway crossings are among the road crossings for the Project; (1) ND State Highway 23; (2) ND State Highway 73; and (3) ND State Highway 200. The crossings proposed for all three state highways will cross the respective east-west 2-lane paved asphalt highway segment. These crossings will be bored perpendicular to the traffic flow in a north-south direction. The installed pipe will meet or exceed ND DOT requirements and consistent with policies outlined in published State specifications. Contacts have already been established with the Williston and Dickinson District offices of the ND Department of Transportation as part of the process of obtaining the necessary permits for the Project. To date, no objections have been raised with regard to the Project.

The Project proposes to cross the Little Missouri River. As outlined in the ND Century Code Chapter 61-29-04, the Little Missouri River Commission composed of the director of the parks and recreation department, the state health officer of the state department of health, the chief engineer of the state water commission, or their designated representatives, and one member from each of the following counties: McKenzie, Billings, Slope, Golden Valley, Dunn, and Bowman. The commission members representing the above-mentioned counties must be appointed by their respective boards of county commissioners. Initial background information and proposed routing on the Project was presented to the Little Missouri River Commission, which has the power and duty of promulgating management policies to coordinate all activities within the confines of the Little Missouri Scenic River, on April 21, 2010. An offer was also extended to the Commission for a Project representative to attend their next meeting and present details of the Project, if desired. To date, no objections have been raised with regard to the Project.

No other problems or concerns other than those identified in this Section B.2.k have been raised by Federal Agencies, Other State Agencies, and Local Entities, to the knowledge of Bridger Pipeline, LLC or its consultants.

B.3. IDENTIFY AND MAP CRITERIA LEADING TO PROPOSED PIPELINE ROUTE LOCATION WITHIN CORRIDOR

The following criteria, which include but are not limited to the criteria required by North Dakota Administrative Code Chapter 69-06-08-02, were considered in evaluating the location of the pipeline route: Exclusion and Avoidance Areas, Selection and Policy Criteria, Design and Construction Limitation, Economic Considerations, Human Environment, Soils, Vegetation/Wildlife, Land Use, Water Resources, and Cultural Resources. Each criteria is discussed in detail, including descriptions, potential impacts, and mitigation measures where appropriate are given in sections B.4, B.5, and B.6. The pipeline route will cross only one type of Avoidance Area, the Little Missouri Scenic River. One additional scenic area, namely the Killdeer Mountain Four Bears Scenic Byway does enter the eastern edge the Project's study corridor for approximately 5 of the 64 miles of the Byway's length or 5 miles of the 77 miles of the pipeline corridor's length.

The pipeline route has been superimposed on both a 2009 aerial photographic map as well as USGS Quadrangle Topographic Maps and is presented as Appendix 4.B in the consolidated application Mapbook.

B.4. RELATIVE VALUE AND EFFECTS UPON EACH CRITERION INCLUDING LOCATION, CONSTRUCTION, AND OPERATION OF THE FACILITY

In accordance with Chapter 69-06-08-02, the pipeline route has been developed after consideration of its impact on humans and the environment. Alternative routes or options, which are discussed in Tab 1 Section C.2 of the Application for Corridor Certificate, are not preferable and will typically result in more significant impacts.

Underground pipeline installation minimizes potential impacts on human or animal welfare and aesthetics. Construction of the new pipeline will cause temporary disruption to the environment, but will not result in long-term changes to the environment. The following is a general analysis of the existing human and natural environment along the pipeline route and the potential impacts of pipeline right-of-way preparation, construction practices, and operation and maintenance procedures.

B.4.a Exclusion and Avoidance Areas (North Dakota Rules Chapter 69-06-08-02.1 and 69-06-08-02.2)

The ND PSC has identified certain sensitive or otherwise important environmental features that must be considered during the selection of a route for transmission facilities. These features have been classified as either “Exclusion Areas” or “Avoidance Areas”. As defined in North Dakota Rules Chapter 69-06-08-02.1 and 69-06-08-02.2, Exclusion Areas are areas that are to be excluded from consideration for energy conversion sites and transmission facility routes. Avoidance Areas are areas not to be considered in the routing of a transmission facility unless it is shown that, under the circumstances, there are no reasonable alternatives. In 1978, the ND PSC published the Inventory of Exclusion and Avoidance areas for the Siting of Energy Conversion and Transmission Facilities, which lists these areas for each county in North Dakota (see table 1). Bridger has confirmed with ND PSC staff that no new types of Exclusion or Avoidance Areas have been added to the inventory to date.

Tab 4 Appendix B contains maps depicting Exclusion and Avoidance Areas within a one mile study corridor centered on the pipeline route. The pipeline route has been superimposed on both a 2009 aerial photographic maps as well as USGS Quadrangle Topographic Maps.

No Exclusion Areas are impacted by this project. Only one Avoidance Area, namely a scenic river (i.e. Little Missouri Scenic River) is impacted by the project.

Table 3.1

North Dakota Public Service Commission Exclusion and Avoidance Areas – Transmission Facility Siting

Avoidance and Exclusion Area	Category	Crossed By Route	Administering Agency
National Memorial Parks	Exclusion	No	National Park Service (NPS)
National Historic Sites and Landmarks	Exclusion	No	NPS
National Natural Landmarks	Exclusion	No	NPS
National Wilderness Areas	Exclusion	No	NPS and USFS
National Parks	Exclusion	No	NPS
National Monuments	Exclusion	No	NPS and State Historical Society
State Parks	Exclusion	No	State Park Service
State Historic Sites	Exclusion	No	State Historical Board
State Historical Markers	Exclusion	No	State Historical Board
State Archaeological Sites	Exclusion	No	State Historical Board
State Monuments	Exclusion	No	State Historical Society
State Nature Preserves	Exclusion	No	State Park Service
Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species	Exclusion	No	U.S. Fish and Wildlife Service (FWS)
Areas Where Animal or Plant Species Unique or Rare in the State Would be Irreversibly Damaged	Exclusion	No	Various
County Parks and Recreation Areas, Municipal Parks, and Parks under other Governmental Jurisdiction	Exclusion	No	Various
National Wildlife Areas	Avoidance	No	FWS
National Wildlife Refuges	Avoidance	No	FWS
National Grasslands	Avoidance	No	US Forest Service (FS)

Table 3.1 (continued)

North Dakota Public Service Commission Exclusion and Avoidance Areas – Transmission Facility Siting

Avoidance and Exclusion Area	Category	Crossed By Route	Administering Agency
National Historic Districts	Avoidance	No	State Historical Society
National Wild, Scenic or Recreational Rivers	Avoidance	No	Heritage Conservation Recreation Service, State Outdoor Recreation Agency
State Wild, Scenic or Recreational Rivers	Avoidance	Yes	State of North Dakota Legislative Assembly
State Game Refuges	Avoidance	No	North Dakota Game and Fish Department
State Game Management and Management Areas	Avoidance	No	North Dakota Game and Fish Department
State Forests	Avoidance	No	State Forest Service
State Forests Management Lands	Avoidance	No	State Forest Service
State Grasslands	Avoidance	No	State Park Service
Irrigated Land	Avoidance	No	State Water Commission
Areas of Historic, Archaeological or Paleontological Significance	Avoidance	No	State and County Historical Society
Areas of Recreational Significance	Avoidance	No	Various
Reservoirs	Avoidance	No	U.S. Army Corps of Engineers and State Water Resource Commission
Municipal Water Supplies	Avoidance	Yes	State Water Resource Commission
Water Sources for Organized Rural Water Districts	Avoidance	No	State Water Commission
Areas which are Geologically Unstable	Avoidance	No	State Geologist Geological Survey
Within 500 Feet of a Residence, School, or Place of Business	Avoidance	No	Landowners

B.4.a.(1) Areas of Historic, Archaeological, or Paleontological Significance.

One historic site is within the study corridor, and one another site is in the vicinity but outside of the study corridor.

The Hutmacher Farm is listed on the National Register of Historic Places and is within the study corridor. The farm site, located 10 miles southwest of Killdeer in Dunn County, is denoted on Figure 4.B.11a and consists of a group of farm buildings constructed between the 1880 and 1960s in traditional Ukrainian-German immigrant style. The proposed pipeline route is located 800 to 1000 feet west of the site, and beyond and behind small hill. Once installed, the underground the pipeline is not visible. No block valves or other aboveground piping is expected to be installed within this area. For reference, a main branch of Tesoro's High Plains crude oil pipeline network runs to the east of the site approximately 400 to 600 feet away.

The Killdeer Mountain Battlefield State Historic Park is located 1.2 miles west of the proposed pipeline. The park is located outside of the study corridor but is mentioned in the Applicants efforts to be complete. The site is located in the west half of Section 33 just off the west edge of Figure 4.B.9a in Dunn County. Once installed, the Project's underground piping will not be visible. No aboveground piping is expected to be installed in this area of the route.

Metcalf Archaeological Consultants, Inc. of Bismarck, North Dakota was engaged to review existing site file data maintained by the State Historical Society of North Dakota (SHSND), North Dakota State Historic Preservation Office (NDSHPO) to determine if any portion of the pipeline route was surveyed previously for cultural resources. The Class III cultural resource pedestrian inventory covered 100% of the proposed pipeline route. The corridor was inventoried by walking parallel pedestrian transects across a 200 foot wide Area of Potential Effect (APE) centered on the proposed pipeline.

Thirty-four cultural resources were documented during the Class III inventory, including 13 archaeological sites, 17 archaeological isolated finds, and four historic sites. In addition, three previously recorded prehistoric sites were updated. Two additional previously recorded sites were visited and found to be out of the APE and were not updated and on previously recorded site, 32DU343, was not relocated. A site lead, 32DUx800, was also found to be out of the area of potential effect.

Metcalf Archaeological Consultants, Inc. prepared and issued a report for their work on the project. A copy of their Cultural Resource Investigations Report in its entirety is presented as Tab 4 Attachment A.

Based on findings from both the Class I record search and Class III field survey, multiple reroutes were developed in an attempt to avoid impacts to identified cultural resource sites. However, in consultation with the ND State Preservation Office (NDSHPO) and where applicable the Bureau of Land Management (BLM), five identified sites will be penetrated by the pipeline route and/or the associated construction zone.

The locations of two of the new historic sites identified during the Class III field survey are shown on Figure 4.B.4.a in green. The smaller of the two sites reported as site 32MZ2074. While the initial approach was to route the pipeline around the area, additional information and photos of the site were obtained during the site revisit and presented to the NDSHPO. The site has been subsequently determined to be National Register of Historic Places (NRHP) and will be transected by the pipeline route. The second, larger historic Veeder property site 32MZ2081 consists of several abandoned farm buildings. After documenting the location of the site features, and in consultation and with the approval of NDSHPO, the perimeter boundary of the site is proposed to be penetrated by the pipeline route but the construction zone will be narrowed and the surface features of the site not disturbed.

Prehistoric site 32DU343 are shown on Figure 4.B.6a in green. Site 32DU343 has been determined to be NRHP ineligible and is proposed to be transected by the pipeline route.

Prehistoric sites 32DU352 and 32DU1385 are shown on Figure 4.B.8a in green. Based on field studies and with the approval of NDSHPO, the portion of 32DU352 to be crossed has been determined to be NRHP ineligible. Site 32DU1385 was revisited and assessed to have a broader boundary than previously reported. After consultation with the NDSHPO, the expanded area was tested by shovel probing. Information obtained as a result of site tested has been presented and evaluated by the NDSHPO. The expanded portion of the site identified in the 2010 has also been determined to be NRHP ineligible. The proposed pipeline route will also transect the site.

It is important to note that a total of 5 routes were attempted through this area. As the Metcalf Archaeological Consultants, Inc. Cultural Investigation Report describes, this area has the second most densely grouped archeological sites known within the entire state of North Dakota. The Project's initial "avoidance" strategy needed to be abandoned in this area because of lack of practical alternatives. The Applicant believes it has selected the least intrusive route through the area.

The depicted route on Figures 4.B.1 through 4B.16 (i.e. Tab 4 Appendix B Mapbook) is the joint effort of Applicant, its consultants and the ND State Preservation Office (NDSHPO) which resulted from the series of teleconferences and face-to-face meetings to review the Cultural Resource Investigations Study. Specific precautions during construction will include:

- Construction excavation monitoring at site 32DU1502
- Construction excavation monitoring along the entire pipeline corridor in Section 12, T146N, R96W by an archaeologist.
- The construction corridor be narrowed to 50 feet and sites be fenced by an archaeologist at the following sites: 32DU1504; 32DU1512; 32DU1510; 32DU1513; 32DU1387

Provided that the above Project conditions are followed, a finding of "*No Historic Properties Affected*" has been issued by Metcalf Archaeological Consultants.

The lead agency (Bureau of Land Management) and NDSHPO have recommended that a monitoring and fencing program be undertaken before and during construction

excavation activity. It is further recommended by these agencies that both the monitoring and site fencing cited above be undertaken by archaeologists.

An “Unanticipated Discovery Plan” has been developed and adopted by the Project should artifacts be uncovered during pipeline construction. The plan has been sent for approval to the North Dakota State Historic Preservation Office.

No other existing scenic areas, historic sites and structures, and paleontological or archeological sites other than those identified here in section B.2.i have been identified by Bridger Pipeline Company, or its consultants.

B.4.a.(2) Areas within 500 feet of Farmhouse, Rural Residence, or Place of Business.

The pipeline route will not pass within 500 feet of farmhouses, rural residences, or places of business. The rural residence nearest to the proposed pipeline route is the Marlin Brown residence. The farmhouse is located approximately 595 feet west of the proposed route and is located in Section 12, T150N, R96W approximately 3 miles northeast of Johnson’s Corner.

Hess Corporation’s Keene Field office located in rural McKenzie County is situated on the south side of ND Highway 23, and “kiddee-corner” southeast of Bridger’s proposed north end pipeline pumping and crude truck unloading station. The crude oil pipeline route crosses approximately 100 feet from the southwest corner of their property. The perimeter of their 500 ft x 900 ft parcel is dedicated to outdoor pipeline laydown areas and equipment storage. The pipeline route does pass within 650 feet of the nearest corner of their mechanical shop building and 750 feet of the nearest corner of their office building.

No residences or other occupied structures will be razed due to construction, nor will future residential developments be precluded following completion of the pipeline, except as required by state and/or local setback ordinances and easement restrictions. Construction could temporarily restrict access to residences along the pipeline route. Where this potential exists, Bridger will either limit the time such restrictions are in place or will make arrangements to accommodate the landowner’s needs.

During construction, residences and the business in close proximity to construction activities will be exposed to short-term increases in construction-related noise and dust. Some minor dust emissions are inevitable in any construction project. However, if excessive, the construction right-of-way and access roads near residential areas will be watered down to control dust during construction. After construction is completed, measures to stabilize and revegetate the right-of-way promptly will prevent further dust emissions.

The heavy construction equipment needed to install the pipeline will generate unavoidable short-term increases in ambient noise levels. Increases in ambient noise levels due to equipment operation will be limited to the period of construction and will generally be limited to daylight hours. No noise will be generated along the right-of-way during normal operation of the pipeline.

B.4.b Selection Criteria (North Dakota Rules Chapter 69-06-08-02.3)

State of North Dakota Rules specifies several selection criteria to be considered in designating a pipeline corridor or route. Specifically, the ND PSC considers whether adverse effects from the location, construction, and maintenance of the facility as they relate to these criteria, will be at an acceptable minimum, and whether these effects will be managed and maintained at an acceptable minimum. Potential impacts, as they relate to each of the selection criteria, are discussed below. Measures Bridger will implement to minimize these impacts are noted below and discussed in greater detail in Section B.6.

B.4.b.(1) Impact on Agriculture.

The Project will be installed within a new right-of-way in Billings and Dunn Counties as well as adjacent to Dakota Gasification Company's existing pipeline right-of-way in Dunn and McKenzie Counties in northwestern North Dakota. A significant quantity of the pipeline route will cross agricultural and pasture lands where crop and livestock production are the extensive economic activity. The primary crops cultivated in the area include wheat, grain, and alfalfa.

Agricultural Production

The Project will generate temporary effects on agricultural land use, such as landscape modifications and the possible introduction of noxious and invasive species when agricultural areas are reclaimed. Bridger will take appropriate management practices to restore all areas to the land owners' satisfaction. Bridger will also implement mitigation requirements to avert the infestation of noxious weeds on reclaimed land. Species that are considered noxious weeds under North Dakota state law are provided in Table 3.2. These noxious weeds will out-compete desirable forbs and grasses in pastures, fields, and native grasslands, reducing biodiversity. Noxious and invasive species that have been recorded during the field study and that are a concern on farm and pasture land are absinth wormwood, common burdock, field bindweed, leafy spurge, hoary cress, houndstongue, Canada thistle, musk thistle, yellow sweetclover, and yellow toadflax.

Table 3.2			
Noxious Weeds Listed Under North Dakota State Law			
Common Name	Scientific Name	Status	Impact
Bindweed: Field	<i>Convolvulus arvensis</i>	Invasive	Extremely difficult to control. The extensive root system and twine-like growth disrupts harvesting operations and replaces desirable vegetation.
Burdock: Common	<i>Arctium minus</i>	Invasive	Displaces important plant communities. Taint milk products if heavily grazed.
Cress: Hoary	<i>Cardaria draba</i>	Invasive	Displace existing plant communities and associated wildlife.
Houndstongue	<i>Cynoglossum officinale</i>	Invasive	Displaces desirable plant communities, decreases grazing
Knapweed: Diffuse	<i>Centaurea diffusa</i>	Noxious	May seriously reduce productive potential of infested rangelands.
Knapweed: Russian	<i>Acroptilon repens</i>	Noxious	Most distributed knapweed and most difficult to control. Inhibits growth in crop plants and other desirable plant species.
Knapweed: Spotted	<i>Centaurea maculosa</i>	Noxious	Reduces livestock and wildlife forage and increases surface water runoff, soil erosion, and stream sedimentation.
Loosestrife: Purple	<i>Lythrum salicaria</i>	Noxious	Quickly displaces native wetland vegetation and has the potential to cause a severe impact on wildlife. Roots of the plant can cause obstruction of water flow in ditches in canals.
Medic: Black	<i>Medicago lupulina</i>	Invasive	Aggressively displaces desirable plant communities, causes bloating in cattle.
Saltcedar	<i>Tamarix chinensis</i> <i>T. parviflora</i> <i>T. ramosissima</i>	Noxious	Displaces native vegetation by releasing salts to inhibit the growth of vegetation.
Spurge: Leafy	<i>Euphorbia esula</i>	Noxious	Contains milky latex which causes oral and digestive irritation in cattle. The plant also replaces desirable forage.
Sweetclover: Yellow	<i>Melilotus officinalis</i>	Invasive	Degrades native grasslands and reduces biodiversity.
Thistle: Canada	<i>Cirsium arvense</i>	Noxious	Displaces desirable plant species and is unpalatable to livestock. Infestations decreases land value for crop production and grazing.
*Information provided by the North Dakota Department of Agriculture			

Table 3.2 (continued)			
Noxious Weeds Listed Under North Dakota State Law			
Common Name	Scientific Name	Status	Impact
Thistle: Musk	<i>Carduus nutans</i>	Noxious	Corrupts pastures and reduce grazing in the vicinity.
Toadflax: Dalmatian	<i>Linaria genistifolia</i>	Noxious	Unpalatable to livestock and will flourish over native species.
Toadflax: Yellow	<i>Linaria vulgaris</i>	Noxious	Displace existing plant communities and associated wildlife. Corrupts pastures lands and reduces grazing.
Wormwood: Absinth	<i>Artemisia absinthium</i>	Noxious	Reported to contaminate the milk produced by cattle. Species inhibits grow in desirable forage.
*Information provided by the North Dakota Department of Agriculture			

The pipeline will be installed at a depth that is equivalent to the depth of other pipelines within the project route and at a depth that exceeds the typical tillage depth. Therefore, the pipeline will not interfere with normal agricultural operations on cropland after construction is complete. The majority of the construction operations are scheduled post harvest season, 2010 and prior to the 2011 growing season. Therefore, minimal disruption is expected.

Above-ground facilities that may be located on cropland are limited to pipeline appurtenances such as valves, line markers, and cathodic protection rectifiers and test stations. Therefore, minimal long-term loss of farmland use is expected. Approximately 26.2 percent (187 acres) of the 715 acres of pipeline route will cross prime farmlands in North Dakota as classified by the Natural Resource Conservation Service (NRCS) (see Table 3.7). This total includes prime farmland and land that would be considered prime farmland if drained. Prime farmland is defined as land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yield crops when treated and managed according to acceptable farming methods. Construction activities will not significantly affect the factors such as soil quality, growing season, or moisture supply that are considered in determining whether land is prime farmland.

Following construction, agricultural lands will be returned to preconstruction uses to the optimum extent practicable.

Family Farms and Ranches

The construction activity will not alter the patterns of landownership or create long-term disruptions of family farming operations. The construction zone will be within a new right-of-way and adjacent to an existing right-of-way. Easement payments will be beneficial to landowners within the route and with schedule permitting; there will be no interference

during growth season. However, Bridger’s crop loss compensation program will amend landowners if any crop damage were to occur. Crop damage of resulting, future pipeline maintenance and repairs will also be amended by Bridger. All maintenance equipment used will be limited to access routes in agreement with the landowners to minimize disruption to soil, drainage, and crops.

Construction activity can create short-term disruption to livestock operations, and inconvenience to farm activities. Possible impacts include removal or damage of fences, gates, and private roads. Bridger will work to minimize construction interference while in operation. Temporary access routes will be made to allow for livestock and farm equipment to mobilize as needed. Temporary fences and gates will be constructed as necessary to prevent livestock from entering into the construction zone, where injury is a potential occurrence. The Project will be conducted in a timely matter and upon completion, fences, gates, and roads will be restored to the landowner’s satisfaction.

Lands Suitable for Irrigation

Construction activity will not impact irrigated lands. Land that is most efficient for irrigation is relatively level and has soils that are well drained and highly permeable. The route crosses silt and clay soils which contain low permeability, making them unsuitable for irrigated agriculture. No aboveground irrigation systems have been identified along the route.

Surface Drainage Patterns

Construction of the Project will not alter surface drainage patterns. Streams, swales, ditches, and other natural drains will be restored to preconstruction contours after construction is complete. The pipe will be installed beneath drainage ditches in a manner that will not interfere with flow or future maintenance efforts by landowners or the drainage authority. Mitigation measures will include installation of the pipe at a sufficient depth to avoid being encountered by drain cleaning equipment, or installing concrete slabs above the pipe but below the grade of the ditch.

Groundwater Flow Patterns

Ground water suitable for domestic and livestock supplies in McKenzie County is available from three aquifer systems. The Fox Hills and basal Hell Creek aquifer system is used as a source for livestock and domestic supplies. It generally is 1,100 to 1,800 feet in depth. The Ludlow aquifer underlies all of McKenzie County at depths greater than 500 feet. The Tongue River aquifer is also suitable for domestic and livestock use and is found at depths between 140 and 500 feet. Local flow for all three aquifers below the Project area will flow in a southeasterly to northwesterly direction toward the Missouri River.

The 1985 study “Groundwater Resources in McKenzie County” conducted by the US Geological Survey estimated 150 wells were tapping the Fox Hills and basal Hell Creek aquifer system and the Ludlow aquifer system to provide a low volume source of stock water and other uses.

Ground water suitable for domestic and livestock supplies in Dunn County is available from two main aquifer systems. The majority of ground water is obtained from the Sentinel Butte aquifer system. This system consists of aquifers that are found at depths ranging from 15 to 700 feet. The Fox Hills aquifer system underlies all of Dunn County at depths from 1,330 to 1,960 feet. Additional minor ground water sources include the Hell Creek (depths ranging from 1,150 to 1,730 ft), Cannonball-Ludlow (570 to 1,130 ft), and Tongue River (230 to 750 ft) aquifer systems. Local flow for aquifers below the Project area will flow in a southeasterly to northwesterly direction toward the Missouri River.

Ground water suitable for domestic and livestock supplies in Billings County is available from four aquifer systems. The Fox Hills and basal Hell Creek aquifer system is used as a source for large yield livestock supplies. It generally is 1,000 to 1,900 feet in depth. The upper Hell Creek-lower Ludlow aquifer system (depths up to 1,400 feet), aquifers in the Sentinel Butte Member and the upper part of the Ludlow and Tongue River Members are also tapped for domestic and livestock supplies. Local flow for aquifers below the Project area will flow in a southeasterly to northwesterly direction toward the Missouri River.

Groundwater flow could potentially be altered by pipeline construction through blasting and trenching activities. As described in section B.4.g, no exposed bedrock or areas of shallow bedrock will be encountered. Therefore, blasting is not anticipated.

Other construction-related disturbance and excavation (trenching) could temporarily disturb the level of groundwater and increase the sediment in the groundwater. However given the shallow depth of construction activities and the relatively deep location of the area's aquifers, installation of the proposed pipeline is not expected to have a significant effect on regional groundwater flow patterns.

The use of regulated materials, such as fuel, lubricants, and coolants during construction could present a potential for accidental discharges, which could affect groundwater. Bridger's Environmental Mitigation Plan (EMP) presented in Tab 5 and supporting diagrams in Tab 6 outlines precautions to be taken to prevent sedimentation or other materials from entering the water supplies in the area. Project contractors will be expected to have a current oil spill prevention control and countermeasure (SPCC) plan and implement it fully if the facility contains an aggregate oil storage capacity above 1320 gallons, consistent with US Environmental Protection Agency requirements outlined in 40 CFR 112. Regardless of the total storage capacity, no bulk oil storage facilities will be sited within 100 feet of surface water.

A description of Bridger's pipeline protection and emergency response procedures for pipeline operations and maintenance is provided in Section B.9.c.

B.4.b.(2) Impact of Noise Sensitive Land Uses.

No farmsteads are located within 500 feet of the proposed pipeline (see Table 3.2). No other sensitive noise receptors such as schools or hospitals are located in the vicinity of the Project. During construction, residences in close proximity to the construction spread will experience short-term increases in construction-related noise. The heavy construction equipment needed to construct the pipeline will generate short-term

increases in ambient noise levels. Typical bulldozers, backhoes, and side booms used to install large-diameter pipelines generate between 80 to 90 decibels within 50 feet of the equipment. Increases in ambient noise levels due to heavy equipment operation will be limited to the period of construction, typically during daylight hours.

No noise is generated along the right-of-way during normal operation of the pipeline. No additional pump stations or noise increases at the pump station are proposed as part of the Project in North Dakota.

B.4.b.(3) Impact on Visual Effect on the Adjacent Area.

The only aboveground facilities that will be constructed in North Dakota as part of the Project are pipeline appurtenances such as mainline valves, line markers, and cathodic protection equipment and test stations. Mainline valves will be sited at existing aboveground facility sites. Other than these permanent above ground facilities, the Project will result in only short-term visual effects related to construction activities.

B.4.b.(4) Impact on Extractive and Storage Resources.

No extractive or storage resources were identified which would be affected by the Project. Efforts have been employed to avoid current to planned oil extraction facilities along the route.

B.4.b.(5) Impact on Water Bodies.

The route crosses 3 rivers, 9 creeks, and numerous tributaries totaling approximately 1.85 miles in length. Water body crossings by legal description are described in Table 3.3 below.

Both the Little Missouri River and the Green River are classified as a Class I fishery resource. Bridger will use boring techniques when crossing these water bodies to minimize impacts to the rivers.

Table 3.3			
Waterbodies Crossed by the 12-inch Crude Oil Loop Pipeline Route			
Name	Crossing Length (ft)	Location	Trees Established
Billings County			
Green River	60	T141N R98W Section 15	YES
Unnamed Tributary of Green River	270	T141N R98W Section 10	NO
Spring Creek	55	T141N R98W Section 10	YES
Unnamed Tributary of Spring Creek	60	T141N R98W Section 10	NO
Indian Creek	35	T141N R98W Section 11	YES
Unnamed Tributary of Indian Creek	50	T141N R98W Section 1	NO

Table 3.3 (continued)			
Waterbodies Crossed by the 12-inch Crude Oil Loop Pipeline Route			
Dunn County			
Unnamed Tributary of Spring Creek	25	T141N R98W Section 1	NO
Unnamed Tributary of Spring Creek	200	T141N R97W Section 6	NO
Unnamed Tributary of Spring Creek	65	T141N R97W Section 6	NO
Unnamed Tributary of Spring Creek	170	T141N R97W Section 6	NO
Unnamed Tributary of Spring Creek	250	T142N R97W Section 29	NO
Spring Creek	70	T142N R97W Section 20	NO
Unnamed Tributary of Crooked Creek	100	T142N R97W Section 8	YES
Unnamed Tributary of Crooked Creek	60	T142N R97W Section 8	YES
Unnamed Tributary of Crooked Creek	55	T142N R97W Section 9	NO
Tributary of Crooked Creek	65	T142N R97W Section 9	NO
Crooked Creek	55	T142N R97W Section 4	YES
Unnamed Tributary of Crooked Creek	300	T142N R97W Section 4	NO
Unnamed Tributary of Knife River	40	T143N R97W Section 8	NO
Unnamed Tributary of Knife River	75	T143N R97W Section 8	YES
Unnamed Tributary of Knife River	60	T143N R97W Section 8	NO
Unnamed Tributary of Knife River	75	T143N R97W Section 4	YES
Unnamed Tributary of Knife River	35	T143N R97W Section 3	NO
Unnamed Tributary of Knife River	30	T144N R97W Section 34	NO
Knife River	50	T144N R97W Section 27	YES
Unnamed Tributary of Knife River	30	T144N R97W Section 23	NO
Unnamed Tributary of Little Knife River	75	T144N R97W Section 14	NO
Unnamed Tributary of Little Knife River	50	T144N R97W Section 14	YES
Unnamed Tributary of Little Knife River	30	T144N R97W Section 11	NO
Little Knife River	25	T144N R97W Section 11	YES
Unnamed Tributary of Spring Creek	100	T144N R97W Section 1	NO
Unnamed Tributary of Spring Creek	50	T145N R96W Section 27	YES
Unnamed Tributary of Spring Creek	300	T145N R96W Section 22	NO
Unnamed Tributary of Spring Creek	60	T145N R96W Section 22	NO
Unnamed Tributary of Spring Creek	115	T145N R96W Section 22	NO
Unnamed Tributary of Spring Creek	160	T145N R96W Section 15	NO
Spring Creek	75	T145N R96W Section 15	YES
Unnamed Tributary of Spring Creek	150	T145N R96W Section 10	NO
Unnamed Tributary of Spring Creek	60	T145N R96W Section 3	NO
Unnamed Tributary of Gumbo Creek	30	T145N R96W Section 34	NO
Gumbo Creek	20	T146N R96W Section 34	NO

Table 3.3 (continued)			
Waterbodies Crossed by the 12-inch Crude Oil Loop Pipeline Route			
Dunn County			
Unnamed Tributary of Gumbo Creek	25	T146N R96W Section 34	NO
Unnamed Tributary of Gumbo Creek	90	T146N R96W Section 34	NO
Unnamed Tributary of Gumbo Creek	65	T146N R96W Section 23	NO
Unnamed Tributary of Gumbo Creek	70	T146N R96W Section 23	NO
Unnamed Tributary of Jim Creek	110	T146N R96W Section 24	YES
Unnamed Tributary of Jim Creek	60	T146N R96W Section 13	YES
Jim Creek	130	T146N R96W Section 13	YES
Unnamed Tributary of Jim Creek	65	T146N R96W Section 12	YES
Unnamed Tributary of Frank Creek	925	T146N R96N Section 12	YES
Unnamed Tributary of Frank Creek	95	T146N R96W Section 1	YES
Unnamed Tributary of Frank Creek	150	T147N R96W Section 36	YES
Unnamed Tributary of Frank Creek	120	T147N R96W Section 36	YES
Unnamed Tributary of Frank Creek	50	T147N R96W Section 36	NO
Unnamed Tributary to Corral Creek	100	T147N R96W Section 25	YES
Unnamed Tributary to Branch Elk Creek	40	T147N R96W Section 2	YES
Unnamed Tributary to Bear Creek	165	T147N R96W Section 2	YES
Unnamed Tributary to Bear Creek	55	T148N R96W Section 35	YES
Little Missouri Scenic River	300	T148N R96W Section 26	YES
Tributary to Little Missouri Scenic River	150	T148N R96W Section 12	YES
Deep Creek	25	T148N R95W Section 6	YES
McKenzie County			
Tributary of Bear Den Creek	20	T149N R95W Section 28	YES
Tributary of Bear Den Creek	230	T149N R95W Section 28	YES
Tributary of Bear Den Creek	250	T149N R95W Section 20	YES
Tributary of Bear Den Creek	120	T149N R95W Section 18	YES
Tributary of Bear Den Creek	45	T149N R95W Section 7	YES
Tributary of Bear Den Creek	125	T149N R95W Section 7	YES
Bear Den Creek	120	T149N R95W Section 7	YES
Tributary of Bear Den Creek	65	T149N R95W Section 6	YES
Tributary of Bear Den Creek	60	T149N R95W Section 31	YES
Tributary of Dry Creek	40	T150N R96W Section 24	YES
Tributary of Dry Creek	80	T150N R96W Section 24	NO
Dry Creek	75	T150N R96W Section 12	NO
Tributary of Dry Creek	50	T150N R96W Section 12	YES
Tributary of Dry Creek	40	T150N R96W Section 12	YES
Tributary of Dry Creek	80	T150N R96W Section 1	YES

Table 3.3 (continued)			
Waterbodies Crossed by the 12-inch Crude Oil Loop Pipeline Route			
McKenzie County			
Tributary of Dry Creek	125	T150N R96W Section 1	NO
Tributary of Dry Creek	60	T151N R96W Section 36	NO
Tributary of Dry Creek	55	T151N R96W Section 36	NO
Tributary of Handy Water Creek	45	T151N R96W Section 25	YES
Tributary of Handy Water Creek	20	T151N R96W Section 25	NO
Tributary of Handy Water Creek	50	T151N R96W Section 25	YES
Tributary of Handy Water Creek	40	T151N R96W Section 24	NO
Clear Creek	70	T151N R96W Section 12	YES
Tributary of Clear Creek	40	T151N R96W Section 1	NO
Tributary of Clear Creek	40	T151N R96W Section 1	YES
Tributary of North Branch Clear Creek	100	T152N R96W Section 36	NO
North Branch Clear Creek	30	T152N R96W Section 36	NO
Tributary of North Branch Clear Creek	50	T152N R96W Section 25	NO
North Branch Clear Creek	25	T152N R96W Section 25	NO

Pipeline construction by water bodies will be conducted in accordance with applicable regulatory requirements. No water body will be permanently drained or filled as part of the Project, and effects on water bodies are expected to be short-term and minor. Bridger will restore the area as close to its previous state and naturally functioning condition as possible.

In unsaturated wetlands, topsoil will be segregated from the trench line during construction to preserve natural sources of seed and rootstock. During trenching, water quality of inundated wetlands adjacent to the construction area could be temporarily affected due to the suspension of sediments and organic matter. Silt fence or straw bales will be installed as needed to minimize this effect. Although wetland vegetation will be cleared for pipeline construction, these areas will be allowed to revegetate to their preconstruction structure and function. After the trench is backfilled, the topsoil will be replaced to facilitate the natural re-vegetation process in unsaturated wetlands.

Unsaturated wetlands may be revegetated with a temporary cover crop if specified by permitting agencies. No fertilizer, lime, or mulch would be applied in wetlands. The long-term operation and maintenance of the pipeline will not have adverse effects on wetland function or value.

B.4.b (6) Impact on Woodlands and Wooded Areas.

Tree rows and woody areas occur in limited amounts as isolated islands or rows throughout the Project area. The proposed route crosses through wooded areas on rangeland. Wooded habitat provides shelter and safety for a number of wildlife species.

Any trees will be protected to the extent practicable in a manner compatible with safe operation, maintenance, and inspection of the pipeline. Impacts on wooded areas due to construction activity are anticipated to be temporary. It may be necessary to clear some mature trees during construction. However, Bridger will work with the appropriate state agencies to identify efficient restoration measures following construction.

B.4.b.(7) Impact on Radio and Television Reception, and Other Communication of Electronic Control Facilities.

No impacts on television or radio reception or communication or electronic control facilities are anticipated as a result of the Project.

B.4.b.(8) Impact on Human Health and Human Safety.

Bridger Pipeline owns and operates the Poplar System in eastern Montana, the Little Missouri Pipeline in North Dakota and the Powder River System in Wyoming. By building and operating this extensive network, Bridger has become one of the largest pipeline companies in North Dakota and experienced in managing construction and operating pipeline systems that protect the public's health and safety.

Causes of and Prevention of Accidents on Pipelines

The major causes of pipeline leaks in the United States are corrosion (both internal and external), excavation damage, pipe or weld failure, incorrect operations, or natural causes (e.g. floods or outside force). To prevent these categories of failures, Bridger will construct and maintain the pipeline to meet or exceed industry and governmental requirements and standards. Specifically, the steel pipe will meet U.S. Department of Transportation Pipeline and Hazardous Material Safety Administration (PHMSA) federal codes under 49 CFR Part 195 (referred to hereafter as PHMSA regulations), and construction methods will follow standards issued by the American Society of Mechanical Engineers, National Association for Corrosion Engineers and American Petroleum Institute (API). As a safety factor, the pipeline is designed to withstand pressures over and above its normal operating pressures and will operate according to codes and regulations. All pipe is inspected and integrity-tested at the factory and transported per the highest technical standards. All of the pipe will be manufactured with fusion-bonded epoxy coating to protect against corrosion. The actual installation of the pipeline and all construction and testing records will be subject to regulatory inspection, including by PHMSA inspectors. PHMSA also conducts regularly scheduled field inspections of the pipeline facilities to ensure compliance with federal regulatory requirements, including the integrity testing of the pipeline through the use of internal inspection devices.

Once installed, the pipeline will be subjected to careful testing to verify integrity and compliance with specifications. PHMSA regulations require at least 10% of the field welds be inspected using radiological (i.e. X-ray) and/or other non-destructive testing. Testing will also include checking coating integrity. Initially the project will perform 100% X-ray inspections of the welds. Only after adequate performance has been established based on statistically significant data of Project's specific welders and a demonstration of proper weld material handling, will the frequency be considered for reduction, but never

below 50%. Additional inspections will include internal inspection of the entire length of each line by using an in-line inspection tool known as a caliper pig, and hydrostatically testing the line to qualify the maximum allowable operating pressure. The pipeline will be placed into service only after inspection to verify compliance with all construction standards and requirements.

This new pipeline will be maintained and inspected according to PHMSA regulations, industry codes and prudent pipeline operating techniques. All of Bridger's mainline liquids pipelines are externally coated to resist corrosion, internally inspected at regular intervals using in-line inspection technology, and equipped with a cathodic-protection system to prevent external corrosion.

The Bridger System rights-of-way are patrolled and inspected by air at least every three weeks but not less than 26 times per year to watch for abnormal conditions or dangerous activities, e.g., unauthorized excavation, along the routes of the lines. Bridger also conducts extensive public education and outreach programs that exceed industry (API Recommended Practice 1162) and PHMSA (49 CFR 195.440) requirements concerning public awareness of pipelines and pipeline-safety matters. All Bridger lines are marked with signage and warnings, per federal regulations, at road and highway crossings, railroad crossings, navigable rivers, and other locations to alert the public to the presence of underground lines and to provide information, contact numbers, and emergency data.

Pipeline workers and contractors performing critical tasks are qualified under OSHA safety standards and PHMSA "operator qualification" rules and are subjected to federal drug and alcohol testing requirements. Bridger meets, and often exceeds, these requirements so that human error in construction and operation is avoided.

Baseline Transportation Accident Rates

Releases from interstate liquid petroleum pipelines are reportable to PHMSA as required by 49 CFR Part 195 Subpart B. Currently, the federal regulations require reporting of all releases greater than 5 gallons (and/or if other threshold reporting criteria are met), which becomes public record. In addition, Bridger is required by North Dakota to report unintentional petroleum releases to the North Dakota Department of Health.

There is no alternative mode of transportation to transport the equivalent daily volumes proposed by the Project in a "mid-stream" situation, although anecdotal evidence suggest a significant number of crude oil transport trucks are hauling crude oil to existing truck unloading stations. The proposed new pipeline capacity of 60,000 barrels per day represents the equivalent of approximately 300 crude truck tankers operating a day.

It is therefore illustrative to compare pipeline safety to other modes of transportation. Pipelines operate more safely than any other mode of oil transportation. In Table 3.4 the numbers show how much more likely a transportation mode is to have an accident of a particular type compared to an oil pipeline. For example, truck accidents result in deaths at least 87 times more often than pipeline accidents. Likewise, truck accidents result in fires and/or explosions about 35 times more frequently per barrel of oil transported per

mile. These figures include only accidents involving petroleum shipments, not all accidents for a given transportation mode.

Table 3.4			
Accident Rates of Petroleum Transportation Methods^a			
Method	Death	Fire/Explosion	Injury
Truck	87.3	34.7	2.3
Rail	2.7	8.6	0.1
Barge	0.2	4.0	3.6
Tank Ship	4.0	1.2	3.1

^a Values less/more than 1.0 indicate risk of accident is lower/greater than pipeline transportation. Comparisons based on calculated rates per ton-mile. Source: Allegro Energy Group as posted on the Association of Oil Pipelines webpage

Crude Oil Pipeline Accident Rates

An analysis of the historical record shows that the liquid petroleum pipeline industry's safety performance has improved significantly over the last 30 years. These improvements correlate with advancements in technology as well as increased environmental awareness. The annual number of spills has decreased by nearly 40%. Over the last 30 years, the number of spills has also dropped from an average of 318 in the first six years (1969 to 1974) compared to only 100 in 2009, the lowest number of incidents since statistics have been tracked. The total number of barrels lost in 2009 was also the lowest since the information has been compiled.¹

Applicant's Pipeline Incidents and Public Safety

According to available records or knowledge of staff, there have been no deaths or major injuries of landowners or members of the public as a direct result of a pipeline leak on the Bridger System since the system began operations in the U.S. in 1987.

Applicant's Ten Year Pipeline Accident Record

A search of the US Coast Guard's National Response Center incident database for the last ten years in North Dakota, there have been 60 reported pipeline incidents, 27 involved crude oil on either gathering systems or transmission pipelines. A total of 170 incidents were reported for all modes of transportation and all materials during the same period. None of the incidents involved the Applicant.

¹ U.S. Department of Transportation PHMSA website Retrieved July 7, 2010

² U.S. Coast Guard National Response Center Database Retrieved July 7, 2010

B.4.b.(9) Impact on Animal Health and Safety.

Construction activity within the Project area is expected to have temporary impacts on domestic animals and wildlife. The clearing of vegetation will temporarily reduce cover, nesting, and foraging habitat for some species. Small, slower moving species may be lost during construction. However, species will generally establish into adjacent habitats, away from the disturbance area. Once habitat alterations are reclaimed, it is expected that wildlife habitat will reestablish within the area.

Pipeline trenching activities and associated spoil piles may result in a short-term barrier restricting the movement of some wildlife species (typically two to four weeks at any one area). Except for short-term interruptions during construction, existing public roads, farm lanes, and livestock crossings will be kept open, providing crossing access.

B.4.b.(10) Impact on Plant Life.

During construction operations, vegetation will be removed within the project right-of-way and where extra workspace is needed. Trees and shrubs that are cleared will be reestablished once construction activity is complete. All areas where vegetation will be removed will be reestablished to regulation standards from county agencies and satisfaction of landowners. Permanent impacts on vegetation are not anticipated. Special consideration will be taken for known occurrences of sensitive populations and habitat which could potentially establish new sensitive populations within the Project area.

B.4.c Policy Criteria (North Dakota Rules Chapter 69-06-08-02.4)

The ND PSC may give preference to an applicant that will maximize benefits resulting from the adoption of policies and practices of the ND PSC. These policies, and the extent to which the Project aligns with or reinforces these policies, are described below.

B.4.c.(1) Location and Design.

Bridger believes that the Project has been placed in the optimal alignment. No designated Exclusion Areas are crossed by the route and only one, unavoidable avoidance area (i.e. Little Missouri Scenic River) will transected. Mitigation measures will be implemented to avoid or minimize potential adverse impacts on the single Avoidance Area crossed. Further, the alignment on the north half of the route is generally adjacent to Dakota Gasification Company's existing pipeline right-of-way, minimizing the need for new right-of-way and the environmental and human impacts associated with a new route.

The Project is designed and will be operated in a manner that meets or exceeds state and Federal engineering, safety and operational design standards.

B.4.c.(2) Training and Utilization of Available Labor in this State for the General and Specialized Skills Required.

No training of local labor is anticipated as a direct result of this pipeline expansion. During construction of the facility, skilled and unskilled labor, both local and non-local workers will be employed by Bridger Pipeline or by the general contractor(s) selected to construct this pipeline.

B.4.c.(3) Economies of Construction and Operation.

The Project is believed to be the most cost-effective and operationally sound means of meeting Bridger's delivery obligations. Refer to section B.2.g of this Application and section C.2 of the Application for Corridor Certificate.

B.4.c.(4) Use of Citizen Coordinating Committees.

No Citizen Coordinating Committee is anticipated as a result of the Project. Bridger Pipeline believes a Citizen Coordinating Committee is not appropriate for this type of project given approximately half of the pipeline will be installed in right-of-way adjacent to an existing pipeline right of way and in an area of the state where crude gathering and transmission pipelines already exist throughout the area.

B.4.c.(5) Commitment of a Portion of the Transmitted Product for Use in this State.

Bridger Pipeline LLC 12-inch liquid petroleum pipeline is expected to receive deliveries of crude oil produced in Billings, Mountrail, McKenzie, and Dunn Counties. Upon completion, this system will provide pipeline transportation of crude oil production to three major crude markets: (1) Guernsey, Wyoming via Bridger's Little Missouri and Heart River systems and the Butte pipeline system; (2) to Enbridge pipeline using Belle Fourche's connection at Alexander for further transportation to Clearbrook, Minnesota; and (3) to Tesoro High Plains pipeline via Belle Fourche's existing connection at Treetop for further transportation to the Mandan Refinery. This market flexibility is critical to assure the best overall value is obtained for ND's crude oil production.

As outlined, one of the connections for the pipeline is the Tesoro High Plains Pipeline System which delivers crude to Tesoro's Mandan ND Refinery and approximately 40% of its production is used in the state.

A second connection provides the option to access the Enbridge Pipeline northern tier crude pipeline system. While this crude oil system transports oil to destinations such as the Flint Hills Refinery in Pine Bend Minnesota and the Marathon-Ashland Refinery at St Paul Park Minnesota, both of these refineries do source refined petroleum products through direct and/or via exchange to the North Dakota markets via the existing NuStar and Magellan product pipeline networks.

B.4.c.(6) Labor Relations.

The Project will have no anticipated effect on labor relations within North Dakota.

B.4.c.(7) Coordination of Facilities.

Bridger Pipeline, LLC and its system companies operate a pipeline running from Baker, Montana to a connection point with Enbridge Pipelines (North Dakota) LLC near Alexander. The pipeline can be configured to operate in either direction, either to transport crude oil from locations in western North Dakota to the Butte Pipeline at Baker, Montana for further delivery to Guernsey, Wyoming; or (2) or north into the Enbridge northern tier pipeline system via it's Belle Fourche System and onto refineries in Minnesota and further east. Another segment of the Belle Fourche network located at the south end of the proposed pipeline accesses the Tesoro's High Plains crude system via its connection at Tree Top.

Both the existing Bridger, Little Missouri and Belle Fourche crude pipelines and the proposed new 12-inch line and their associated pumping, control and operating systems will be used in conjunction with each other to optimize system capacity.

B.4.c.(8) Monitoring of Impacts.

Bridger Pipeline believes that construction-related impacts will be adequately mitigated throughout the Project route by the use of best management practices, good construction techniques, and environmental inspection. Therefore, long-term monitoring of impacts directly related to the Project is not anticipated. Following the installation of the pipeline, a thorough inspection will be performed to ensure restoration efforts have been successful.

B.4.c.(9) Utilization of Existing and Proposed Rights-of-way and Corridors.

The 12-inch Crude Oil Pipeline Project will be constructed in recently acquired new right-of-way located adjacent to the existing Bridger Pipeline right-of-way. Generally the new right-of-way has a width of 75 feet.

Bridger will acquire additional workspace from the landowners where necessary temporarily during construction activities. use of unauthorized workspace is prohibited without the landowner and Bridger's approval. In all cases, the size of additional temporary workspace will be kept to the minimum necessary to safely conduct work. Temporary working areas will not be restricted by or subject to permanent easement restrictions upon completion of construction.

B.4.c.(10) Other Existing and Proposed Transmission Facilities.

Crude oil produced in North Dakota when shipped by pipeline is destined for one of three market hubs: (1) Tesoro's Mandan, ND refinery; (2) Guernsey WY interconnection hub; and/or (3) Clearbrook, MN interconnection hub. The crude oil pipeline network servicing the Williston Basin crude oil production fields is presented as Figure 1.C.1

Crude oil into the Guernsey WY interconnection hub has suffered depressed prices relative to value at the Clearbrook, MN interconnection hub since mid-2005. However with the start of operation of TransCanada's Keystone Pipeline on June 30, 2010, significant volumes of Canadian oilsand "syncrude" will bypass this market and be

delivered to the mid-continent refining centers in Illinois and eventually to Cushing Oklahoma. Secondary effects will unload and open-up capacity leaving Guernsey, allowing for more North Dakota production to access the mid-continent.

The “geographical market risk” of limited transportation options suffered by oil producers in the rapidly expanding crude oil production in Dunn and Mountrail Counties has caused millions of dollars per year in lost revenue. With constrained export capacity, local production lacks access to alternative markets, making it vulnerable to regional price swings.

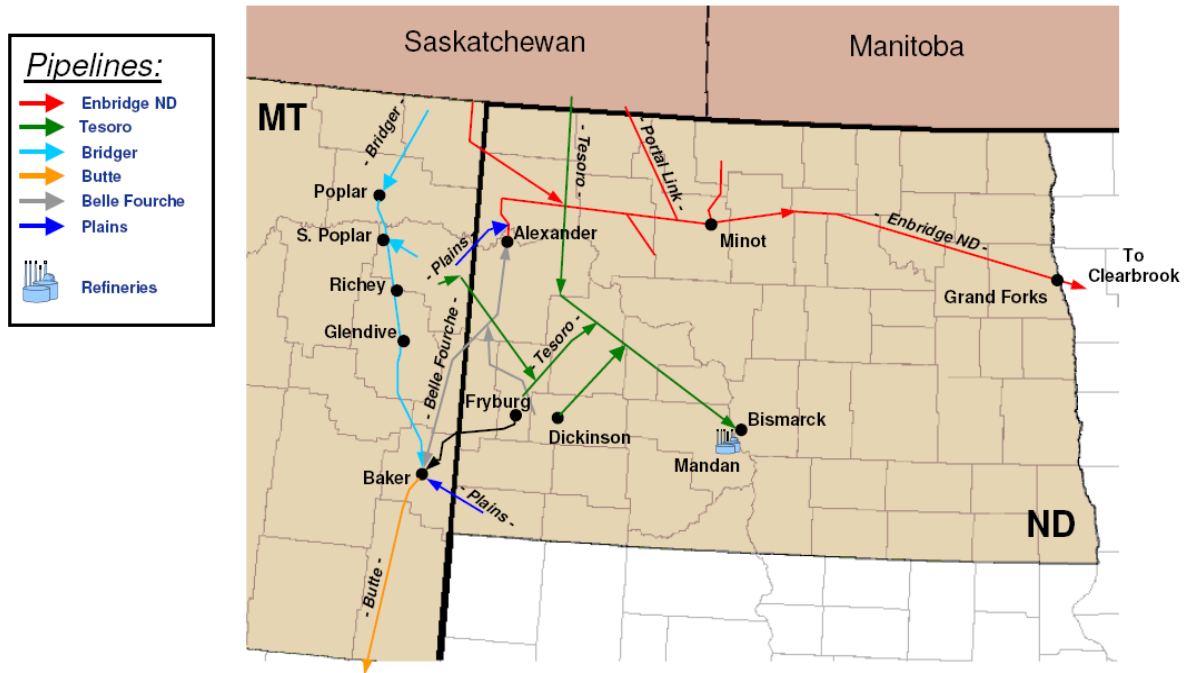


FIGURE 3.2 – Williston Basin Crude Oil Liquid Pipeline Transportation Network Map

Over the past several years, the North Dakota Pipeline Authority has been working with producers and regional pipeline companies to address the issues surrounding the safe transportation of this surge in crude oil volume. The North Dakota Pipeline Authority commissioned and completed a study in 2009 to look at possible “on ramp” access to either or both TransCanada’s Keystone (which began operation June 30, 2010) or Keystone XL (proposed start operation in 2013) syncrude trunklines to major mid-continent and gulf coast crude markets. While the study concluded that the most economical alternate was to build a link north from Stanley into Canada, Quintana Capital Group GP, LTD submitted a letter of intent in June 2010 to the ND Public Service Commission (Case PU-10-218) to pursue construction of a branchline to the proposed Keystone XL pipeline, connecting to it near Baker, MT in Fallon County, Montana. However, the project, slated for initial operations in 2013, may be delayed if environmental opposition to the Keystone XL continues to grow.

Enbridge Pipeline had announced on March 3, 2010 an effort to expand capacity northward. Referred to as Enbridge Phase 7 project, the company will evaluate construction and operation of 115,000 barrels of new pipeline capacity from Beaver Lodge Looping Station through Stanley into an existing portal at Berthold, ND. The company proposes to add pumps and reverse the portal into Steelman to allow producers to ship crude north into Canada, across Manitoba and return via an existing Enbridge connection back into the midcontinent refining market in the United States.

Plains All American Pipeline LP (Plains) filed a letter of intent with the ND Public Service Commission in June 2008 to construct a 6-inch crude oil pipeline in Dunn and Stark Counties. The line was expected to be tied into the company's existing crude oil gathering system to transfer oil into their crude terminal north of Killdeer, ND. The project, assigned case PU-08-424 is an example of a Williston Basin Transition Route. Work on the project was temporarily suspended to allow Plains to redeploy capital assets to another corporate project in the US midcontinent. No report of its status was found in the public domain. Plains also has since purchased Tesoro's Hwy 22 crude terminal adjacent to their Killdeer crude truck station which connects Tesoro's crude gathering system in Dunn County. Even if revived, the relatively small project line size and its location in north Stark County and southern Dunn County will not provide adequate relief to the transportation bottlenecks associated with the recent volume expansion in the state.

B.4.d Design and Construction Limitations

See section A.3 of the Application for Corridor Certificate.

B.4.e Economic Considerations

See section B.2.g of this route application and section C of the Application for Corridor Certificate found in Tab 1.

B.4.f Human Environment

The Project area is sparsely populated and farming is the predominant economic activity. The proposed route crosses 131 parcels of land owned by 94 different landowners.

The proposed pipeline route does not pass within 500 feet of a home or rural residence. The route also does not pass through parks or recreational areas.

No production water wells were identified within the survey corridor. While a domestic water well does not meet the definition of a "municipal water supply" or a "water source for organized rural water districts," the following five wells were identified within 500 feet of the proposed route: 144-097-27 AA (15 ft); 150-096-13 DCC (90 ft); 150-096-24 ACA (150 ft); 150-096-12 DCA (230 ft); 152-096-24 BB (430 ft).

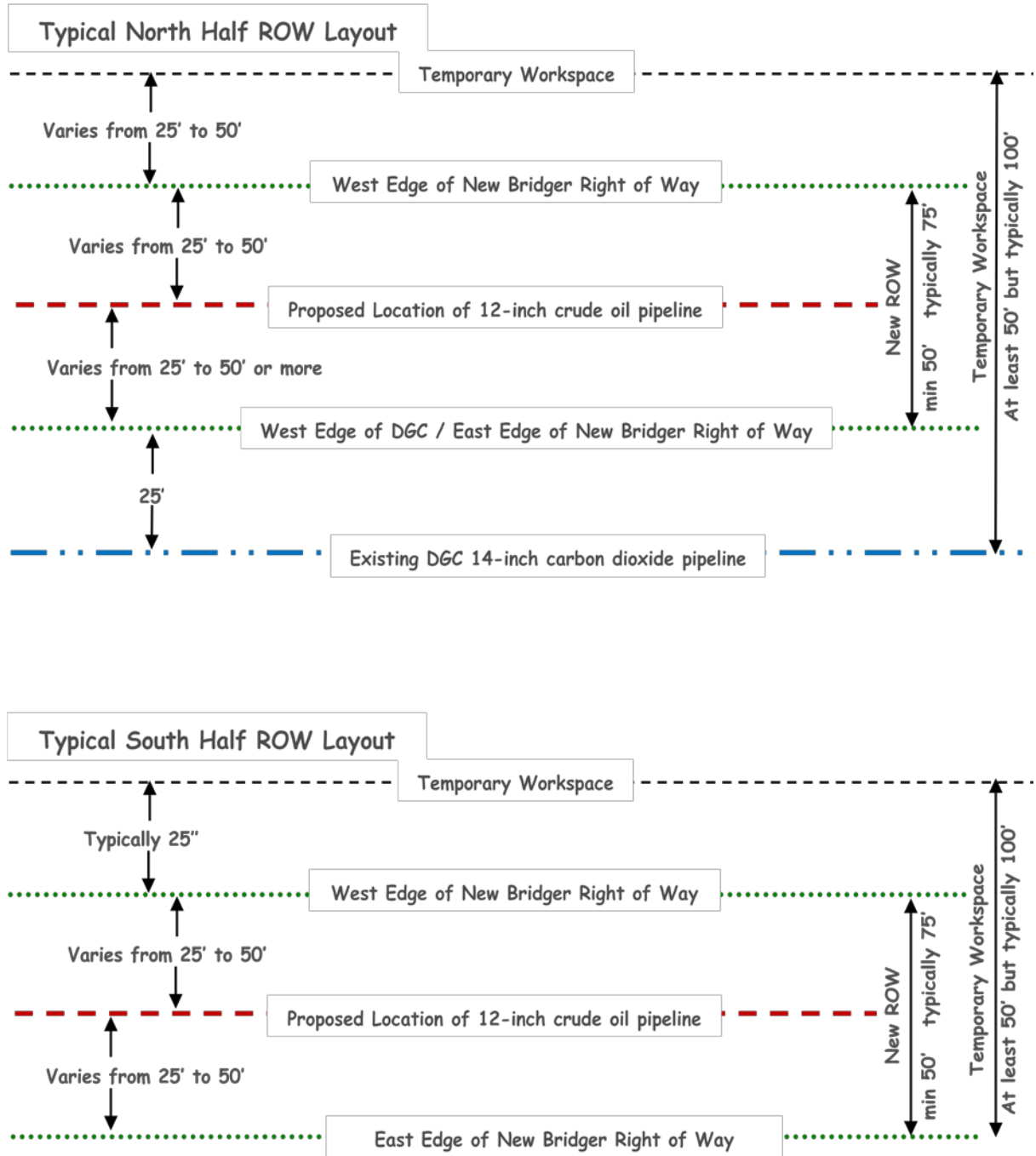


FIGURE 3.3 – Typical Right-of-Way Configuration

Approximately 76.2 of the 77 miles of the proposed pipeline route (i.e. 99%) is located on private land, and landowner concerns will be addressed during all phases of construction including final restoration. Land agents assigned to the Project will work closely with landowners and be responsive to issues that may arise during the course of the Project to the extent practicable. Permission from all private land owners has already been obtained.

The remaining 0.8 miles of the proposed route (i.e. 1%) will be located on land under the jurisdiction of the US Department of the Interior – Bureau of Land Management. Project representatives are working to define the necessary construction precautions to minimize impacts to the area. However, no permanent population resides in this area.

The pipeline will not transect any Federal highways. The proposed pipeline route will cross 3 state highways, (ND State Highway 200, ND State Highway 73 and ND State Highway 23) all of which are two lane paved roads. Of the 42 county roads, two are a two-lane paved roads, 29 are improved county roads (i.e. gravel) and 11 are two wheel section line trails. The pipeline will cross 9 private/oil roads, all of which are gravel.

Paved roads will be bored. Use of these facilities will not be disrupted as a result of the Project. Gravel roads will be open cut. Open cutting a county road will temporarily close it to traffic; however, the road network throughout the Project area is sufficient that suitable alternative routes are readily available.

Road crossings for the route are summarized in Table 3.5.

Table 3.5			
Billings County Road Crossings			
Legal Description	Coordinates	Road Name	Description of Road
North Section 15 T141N R98W	47.03844° N 103.092° W	26 th St SW	Scoria
Section 10 T141N R98W	47.041389° N 103.08225° W	Private Drive	Scoria
West Section 11 T141N R98W	47.043361° N 103.075167° W	122 nd Ave SW	Two Track Vegetated
West Section 12 T141N R98W	47.051694° N 103.054028° W	121 st Ave SW	Scoria
North Section 12 T141N R98W	47.052944° N 103.0495° W	25 th St SW	Two Track Vegetated
East Section 1 T141N R98W	47.059472° N 103.032667° W	120 th Ave SW County Line	No Road

Table 3.5 (continued)			
Dunn County Road Crossings			
Legal Description	Coordinates	Road Name	Description of Road
West Section 6 T141N R97W	47.059472° N 103.032667° W	120 th Ave SW County Line	No Road
West Section 5 T141N R97W	47.064722° N 103.011306° W	119 th St SW	Two Track Vegetated
North Section 5 T141N R97W	47.067444° N 103.004667° W	24 th St SW CMC1352	Scoria
North Section 32 T142N R97W	47.081944° N 103.005611° W	23 rd St SW	No Road
North Section 29 T142N R97W	47.096472° N 103.005833° W	22 nd St SW	Scoria
North Section 20 T142N R97W	47.110944° N 102.992556° W	21 st St SW	No Road
North Section 17 T142N R97W	47.125417° N 102.993556° W	20 th St SW	No Road
West Section 9 T142N R97W	47.128167° N 102.990306° W	118 th Ave SW	No Road
North Section 9 T142N R97W	47.139889° N 102.980500° W	19 th St SW	Two Track Vegetated
North Section 4 T142N R97W	47.154333° N 102.986333° W	18 th St SW	Scoria
North Section 33 T143N R97W	47.168778° N 102.989083° W	17 th St SW	No Road
North Section 28 T144N R97W	47.183239° N 102.989222° W	16 th St SW	Two Track Vegetated
West Section 21 T143N R97W	47.189889° N 102.990139° W	118 th Ave SW	Scoria
North Section 20 T143N R97W	47.198528° N 103.000278° W	15 th St SW	Two Track Vegetated
North Section 7 T143N R97W	47.212000° N 103.005417° W	14 th St SW	No Road
North Section 8 T143N R97W	47.226417° N 102.991028° W	13 th St SW	No Road
West Section 4 T143N R97W	47.226889° N 102.990333° W	118 th Ave SW	No Road
West Section 3 T143N R97W	47.237806° N 102.968861° W	117 th Ave SW	No Road
North Section 3 T143N R97W	47.240917° N 102.961500° W	12 th St SW	Scoria

Table 3.5 (continued)			
Dunn County Road Crossings			
Legal Description	Coordinates	Road Name	Description of Road
North Section 34 T144N R97W	47.255389° N 102.959500° W	11 th St SW	No Road
Middle Section 27 T144N R97W	47.262639° N 102.956083° W	10M St SW	Scoria
West Section 26 T144N R97W	47.268306° N 102.947667° W	116 th Ave SW	No Road
North Section 26 T144N R97W	47.269889° N 102.942694° W	10 th St SW	No Road
Section 23 T144N R97W	47.274111° N 102.937222° W	Private Drive	Scoria
North Section 23 T144N R97W	47.284333° N 102.929944° W	9 th St SW	No Road
North Section 14 T144N R97W	47.298778° N 102.940056° W	8 th St SW	No Road
North Section 11 T144N R97W	47.313250° N 102.940806° W	7 th St SW	Scoria
West Section 1 T144N R97W	47.323139° N 102.926361° W	115 th Ave SW	No Road
West Section 6 T144N R96W	47.327000° N 102.905111° W	114 th Ave SW	Scoria
North Section 6 T144N R96W	47.328611° N 102.903944° W	6 th St SW	Scoria
North Section 34 T145N R96W	47.343250° N 102.901361° W	5 th St SW	Two Track Vegetated
North Section 27 T145N R96W	47.357556° N 102.899528° W	ND Highway 200 4 th Street SW	Asphalt Paved
North Section 22 T145N R96W	47.372028° N 102.898472° W	3 rd St SW	Scoria
North Section 15 T145N R96W	47.386500° N 102.898583° W	2 nd St SW	Scoria
North Section 10 T145N R96W	47.400972° N 102.893556° W	1 st St SW	Scoria
North Section 3 T145N R96W	47.415444° N 102.891861° W	Main St Killdeer Mt Battlefield Rd	Scoria
Section 34 T146N R96W	47.426056° N 102.890639° W	Oil Site Road	Scoria
North Section 34 T146N R96W	47.429889° N 102.888417° W	1 st St NW	No Road

Table 3.5 (continued)			
Dunn County Road Crossings			
Legal Description	Coordinates	Road Name	Description of Road
West Section 26 T146N R96W	47.433889° N 102.886389° W	110 th Ave NW	No Road
North Section 26 T146N R96W	47.444389° N 102.869917° W	2 nd St NW	No Road
Section 23 T146N R96W	47.446444° N 102.869417° W	Private Drive	Scoria
West Section 24 T146N R96W	47.454194° N 102.865056° W	109 th Ave NW	Scoria
North Section 24 T146N R96W	47.459000° N 102.856608° W	3 rd St NW	Scoria
North Section 13 T146N R96W	47.473333° N 102.853583° W	4 th St NW Gap Road CMC1305	Scoria
North Section 12 T146N R96W	47.487889° N 102.853528° W	5 th St NW	No Road
North Section 1 T146N R96W	47.502333° N 102.851611° W	6 th St NW	Scoria
North Section 36 T147N R96W	47.516778° N 102.852000° W	7 th St NW	No Road
North Section 25 T147N R96W	47.531278° N 102.852389° W	8 th St NW	No Road
North Section 24 T147N R96W	47.545944° N 102.861889° W	9 th St NW	Scoria
Section 13 T147N R96W	47.551639° N 102.864278° W	Oil Site Road	Scoria
West Section 13 T147N R96W	47.552361° N 102.865083° W	107 th Ave NW	No Road
North Section 14 T147N R96W	47.560028° N 102.872417° W	10 th St NW	No Road
Middle Section 11 T148N R96W	47.563694° N 102.872278° W	Unmarked Road	Scoria
North Section 11 T147N R96W	47.574444° N 102.871222° W	11 th St NW	No Road
Section 2 T147N R96W	47.576694° N 102.872667° W	Abandoned Oil Site Road	Scoria/ Two Track Vegetated
Section 2 T147N R96W	47.587167° N 102.879139° W	CO2 Line Pump Service Road	Scoria
North Section 2 T147N R96W	47.589000° N 102.877839° W	12 th St NW	No Road
North Section 35 T148N R96W	47.603472° N 102.875750° W	13 th St NW	No Road

Table 3.5 (continued)			
Dunn County Road Crossings			
Legal Description	Coordinates	Road Name	Description of Road
North Section 26 T148N R96W	47.617917° N 102.875556° W	14 th St NW	No Road
West Section 24 T148N R96W	47.632333° N 102.865472° W	107 th Ave NW	No Road
North Section 24 T148N R96W	47.632389° N 102.865361° W	15 th St NW	No Road
North Section 13 T148N R96W	47.646806° N 102.854833° W	16 th St NW	No Road
West Section 7 T148N R95W	47.651222° N 102.844028° W	108 th Ave NW	No Road
North Section 7 T148N R95W	47.661306° N 102.840278° W	17 th St NW	No Road
West Section 6 T148N R95W	47.669972° N 102.844056° W	108 th Ave NW	No Road
North Section 1 T148N R96W	47.674222° N 102.846139° W	18 th St NW County Line	No Road
McKenzie County Road Crossings			
Legal Description	Coordinates	Road Name	Description of Road
South Section 33 T149N R95W	47.674222° N 102.846139° W	18 th St NW County Line	No Road
North Section 33 T149N R95W	47.688639° N 102.849194° W	Bear Den Road County Route 53 19 th St NW CMC2753	Asphalt Paved
North Section 28 T149N R95W	47.703000° N 102.854278° W	20 th St NW	No Road
West Section 21 T149N R95W	47.704889° N 102.856278° W	106 th Ave NW	No Road
North Section 20 T149N R95W	47.717472° N 102.870361° W	21 st St NW	No Road
West Section 17 T149N R95W	47.724167° N 102.877361° W	107 th Ave NW	Two Track Vegetated
North Section 18 T149N R95W	47.731778° N 102.888000° W	22 nd St NW	No Road
Within Section 7 T149N R95W	47.742889° N 102.898306° W	23 rd St NW	Scoria
North Section 7 T149N R95W	47.746250° N 102.898306° W	23 rd St NW (Section Line)	No Road

Table 3.5 (continued)			
McKenzie County Road Crossings			
Legal Description	Coordinates	Road Name	Description of Road
West Section 6 T149N R95W	47.756944° N 102.898222° W	24 th St NW (Not on Section Line)	Scoria
North Section 6 T149N R95W	47.760528° N 102.898211° W	24 th St NW (Section Line)	Scoria
West Section 31 T150N R95W	47.769750° N 102.898750° W	108 th Ave NW	Scoria / Two Track Vegetated
North Section 36 T150N R96W	47.775139° N 102.902806° W	25 th St NW	No Road
North Section 25 T150N R95W	47.789556° N 102.903083° W	26 th St NW	Two Track Vegetated Road
North Section 24 T150N R96W	47.804111° N 102.902083° W	ND Highway 73 27 th St NW	Asphalt Paved
North Section 13 T150N R96W	47.818528° N 102.903889° W	28 th St NW (Section Line)	No Road
Section 2 T150N R96W	47.821361° N 102.904472° W	Private Drive	Scoria
Middle Section 12 T150N R96W	47.825778° N 102.905417° W	28 th St NW (Not along Section Line)	Scoria
North Section 12 T150N R96W	47.833056° N 102.906639° W	29 th St NW	No Road
North Section 1 T150N R96W	47.847417° N 102.905972° W	30 th St NW	Scoria
Section 12 T151N R96W	47.848139° N 102.905861° W	Oil Site Road	Scoria
North Section 36 T151N R96W	47.861889° N 102.903306° W	31 st St NW	No Road
North Section 25 T151N R96W	47.876333° N 102.901806° W	County Route 14 32 nd St NW CMC2714	Asphalt Paved
North Section 24 T151N R96W	47.890806° N 102.900778° W	33 rd St NW	Scoria
North Section 13 T151N R96W	47.905250° N 102.899778° W	County Route 12 34 th St NW CMC2712	Scoria
North Section 12 T151N R96W	47.919722° N 102.900333° W	35 th St NW	No Road
North Section 1 T151N R96W	47.934194° N 102.899250° W	36 th St NW	No Road
North Section 36 T152N R96W	47.948667° N 102.899472° W	37 th St NW	No Road

Table 3.5 (continued)			
McKenzie County Road Crossings			
Legal Description	Coordinates	Road Name	Description of Road
North Section 25 T152N R96W	47.963389° N 102.903611° W	38 th St NW	Scoria
West Section 24 T152N R96W	47.975667° N 102.919889° W	109 th Ave NW	Scoria
North Section 23 T152N R96W	47.977639° N 102.920306° W	ND Highway 23 39 th St NW	Asphalt Paved

All roads and section line crossings are subject to review and approval by the Project County Engineers and County Commissions. Applications will be submitted and permits obtained for the road crossings before start of construction.

B.4.g Terrain and Geology

The Project counties are located within the Great Plains Province of the Interior Plains. The Project area includes the Missouri Plateau (McKenzie County), Glaciated (Dunn County), and Unglaciated (Billings County) Sections of the Province. The majority of the Project area lies within the glaciated portion of the Missouri Plateau characterized by thin drift except for valley fill so the topography reflects the pre-glacial topography. The extreme southern portion of the project area lies within the unglaciated portion of the Great Plains Province characterized by the major drainages of the Missouri and Little Missouri Rivers. The Missouri River formed when glaciers blocked the northeastward flowing drainages and the diverted drainage flowing southeastward along the margin of the glacier was entrenched in that course after the ice melted. The Little Missouri River flowed northward in the valleys now occupied by Red Wing Creek and Tobacco Garden Creek prior to glaciation. Subsequently it was diverted eastward from Red Wing Creek. The process of adjustment to the lowered base level of the Missouri River is developing a band of badlands along these drainages.

The Project area includes rocks of each of the geologic periods with the thickest accumulations of sedimentary rocks near the center of the Williston Basin. The near-surface sediment is of Recent, Pleistocene, or Tertiary age. Recent sediment consists of alluvium or colluvium which is generally confined to lowland areas of current or Pleistocene drainage. Pleistocene sediments consist of till on the upland areas and water-sorted sediment in an along glacial drainages. Soil horizons have developed on the poorly consolidated Tertiary formations in the unglaciated areas.

Bedrock may be impacted by construction activities as the pipeline gains elevation on the northern side of the Little Missouri River crossing. The pipeline route follows a finger extending from a bluff bordering the river. The soils in this area consist of a Badland-Cabba-Arikara complex, which are characterized by thin topsoil (0-15 inches). The

underlying bedrock is part of the Sentinel Butte Formation of the Paleocene period. Siltstones and sandstones are the primary sediments of this Formation.

The Project will cross the bed of the Missouri Plateau, characterized by low relief and gentle slopes interrupted by buttes and ridges. Using a 24K USGS TOPO, the surface elevations along the route range from 2450 feet MSL the northern junction near Highway 23, to 1850 feet MSL at the Little Missouri River crossing. The pipeline route surface elevation returns 2450 feet MSL near Mountain Gap Road. The pipeline route remains at an elevation of approximately 2450 feet MSL until approximately 8 miles before the Green River valve station which the elevation raises near 2650 ft MSL before ending at the Green River Valve Station at an elevation near 2550 ft MSL.

B.4.h Soils

Detailed soil characteristics along the pipeline route were identified and assessed using the Soil Survey Geographic database (SSURGO; U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), 2003). The SSURGO database is a digital version of the original county soil surveys developed by the NRCS for use with geographic information systems (GIS). It provides the most detailed level of soils information for natural resource planning and management. The mapping scale in the Project area is 1:20,000, with a minimum delineation size of 4.0 acres. SSURGO is linked to an attribute database that gives the proportionate extent of the component soils and their properties for each map unit (USDA, NRCS 1995). The SSURGO database was used to define soil characteristics along the pipeline route in McKenzie, Dunn and Billings Counties. SSURGO attribute data consist of physical properties, chemical properties, and interpretive groupings. Attribute data apply to the whole soil (e.g., listed hydric, prime farmland soils, slope class) as well as to layer data for soil horizons (e.g., texture, permeability). The soil attribute data can be used in conjunction with spatial data to describe the soils in a particular area.

The majority of McKenzie and Billings Counties is in the Rolling Soft Shale Plain (Major Land Resource Area 54) of the Northern Great Plains Spring Wheat Region. The Project area in McKenzie County lies within the Glaciated Missouri Plateau Section of the Great Plains Province, while the Project area in Billings County lies within the unglaciated section of the Great Plains Province on the southwest edge of the Williston Basin.

The Project area in Dunn County transitions from the Rolling Soft Shale Plain (Major Land Resource Area 54) of the Northern Great Plains Spring Wheat Region in the southern portion of the county to the Northern Rolling High Plains, Northeastern Part (Major Land Resource Area 58C) of the Western Great Plains Range and Irrigated Region in the northern portion. The pipeline route lies within the glaciated Great Plains physiographic Province of Fenneman.

The soils in the Project area belong to one of two classifications. The area north of ND Highway 73 to the truck receipt points and south of ND Highway 200 to the Green River Station, which represents approximately 75% of the pipeline route, is predominately a fine loam mixed soil. These soils are well suited for cropland. The Project area adjacent to the Little Missouri River, which represents the remaining 25% of the pipeline route, consists of predominately fine and fine silty soils, many in complex with Badland. These

soils have a higher tendency for erosion and are best suited for rangeland. Soils on areas adjacent to creeks and streams are shallow to very deep and hilly to very steep.

Wind erosion may be a hazard on most of the soils in the Project area. It is severe on the coarse textured and moderately coarse textured soils. These are primarily the Beisigl, Chinook, Dooley, Flasher, Glendive, Rhame, Tally, and Vebar soils. Certain soils have a relatively high content of lime. They are primarily the Cabba, Cabbart, Chama, Havre, Havrelon, Korchea, Lambert, Lonna, Maschetah, Patent, and Zahl soils. They are susceptible to wind erosion in the spring if they have been bare throughout the winter. Because of freezing and thawing, soil structure can break down, resulting in aggregates that are susceptible to movement. This can also cause fine textured soils such as Grano, Heil, Hoffmanville, Lallie, Lawther, Moreau, Scorio, Wayden, and Wolf Point to have a severe wind erosion hazard. Nearly all soils can be damaged by wind erosion if they are not protected by residue.

Water erosion is a severe hazard on gently rolling and steeper soils, such as Beisigl, Cabba, Cabbart, Chama, Cherry, Dogtooth, Flasher, Janesburg, Lonna, Vebar, Williams, and Zahl. The hazard is greatest when the surface is bare therefore the precautions outlined in the Environmental Mitigation Plan found in Tab 5 will be implemented to minimize impacts.

Tables 6, 7, and 8 list the soil associations, the approximate crossing length of each soil association, STATSGO map unit identification numbers (MUIDs) crossed by the pipeline route, and provides a summary of soil limitations for the pipeline route. STATSGO MUIDs are geologically and geographically related soils which correspond to soil associations. Approximately 26 percent of the soils crossed by the pipeline route (187 acres of the 715 acres within the pipeline route) are NRCS-classified prime farmland, provided there is sufficient artificial drainage to remove excess surface water.

Potential temporary effects on soil resources include the loss of soil productivity due to erosion, soil mixing, or soil compaction. Soil disturbances associated with clearing, grading and trenching will expose soils to water and wind and increase the potential for erosion. Analysis of STATSGO data indicates that some soils in the Project area are susceptible to erosion by wind. Soil erosion by water is also common along the pipeline route. During construction, the effects of erosion by water on steep slopes will be mitigated by use of silt fence and other erosion control measures as described in Bridger's Environmental Mitigation Plan (EMP) (see Tab 5).

Table 3.6						
Project Area Soil Characteristics						
County	Total Project Acres	Prime Farmland	Hydric Soils	Highly Erodible		Shallow to Bedrock
				Water	Wind	(<6")
Acres ^a (%)						
McKenzie	196	43 (22)	45 (23)	128 (65)	113 (58)	4 (2)
Dunn	481	137 (28)	104 (22)	222 (46)	215 (45)	64 (13)
Billings	38	7 (18)	6 (16)	19 (50)	11 (29)	4 (10)

^a Acreage is based on a 100-foot wide construction right-of-way and does not include access roads, temporary extra workspace, or areas of open water, and does not account for reduced right-of-way widths in wetlands and forested areas.

Table 3.7										
Project Area Topsoil Depths and Slope Classes										
County	Total Project Acres	Topsoil Depth (Inches) ^a				Slope Class (%)				
		0-6	>6-12	>12-18	>18	0-6	>6-9	>9-15	>15-30	>30
Acres ^b (%)										
McKenzie	196	4 (2)	0 (--)	5 (3)	186 (95)	79 (40)	27 (14)	30 (15)	29 (15)	31 (16)
Dunn	481	64 (13)	0 (--)	22 (5)	394 (82)	244 (51)	78 (16)	50 (10)	43 (9)	67 (14)
Billings	38	4 (10)	0 (--)	9 (24)	25 (66)	31 (82)	3 (8)	4 (11)	<1 (--)	<1 (--)

^b Defined as depth to soil restrictive layer

^a Acreage is based on a 100-foot wide construction right-of-way and does not include access roads, temporary extra workspace, or areas of open water, and does not account for reduced right-of-way widths in wetlands and forested areas.

Table 3.8					
Project Area Prime Agricultural Land Topsoil Depths					
County	Total Project Acres	Topsoil Depth (Inches) ^a			
		0-6	>6-12	>12-18	<18
		Acres ^b (%)			
McKenzie	43	0 (--)	0 (--)	2 (5)	41 (95)
Dunn	137	0 (--)	0 (--)	0 (--)	137 (100)
Billings	7	0 (--)	0 (--)	0 (--)	7 (100)

^b Defined as depth to soil restrictive layer
^a Acreage is based on a 100-foot wide construction right-of-way and does not include access roads, temporary extra workspace, or areas of open water, and does not account for reduced right-of-way widths in wetlands and forested areas.

Soil productivity could potentially be affected if topsoil were to become mixed with subsoil during construction. To minimize this potential in agricultural land and other areas where soil productivity is an important concern, Bridger will segregate topsoil during trench excavation. In cropland, topsoil will be removed to a maximum depth of 12 inches from the trench and spoil storage area unless otherwise requested by the landowner. Topsoil will be stored separately from the trench spoil and will be returned to its approximate original location after the trench is backfilled.

The Project construction will cause temporary removal of vegetation and result in exposure of soil. These actions may result in some minor temporary erosion. The re-vegetation of these areas using native species would mitigate these concerns.

Heavy equipment used to construct the pipeline may cause soil compaction along the right-of-way. Soils will be tilled with a chisel plow or other deep-tillage equipment to loosen the soil to the reasonable satisfaction of the landowner. Because the soils of the project area generally have a high shrink-swell potential, compaction will correct itself over time as the soil goes through wet-dry and freeze-thaw cycles.

B.4.i Vegetation and Wildlife

Investigations were conducted on potential impacts the Project could inflict upon wildlife and plant species. Information was gathered from a variety of sources to compile the existing conditions of plant, wildlife, and critical habitats within the proposed corridor. Sources included field surveys, literature, and personal communications with the NDGF,

the USFWS, and the ND Parks and Recreational Department (The ND National Heritage Inventory). Field surveys were conducted on foot and via ATV. Field data was collected with a Trimble GEOXT 2005, GEOXT 2008, and GEOXH 2008 Series GPS handhelds and photographs were taken along the entire length of the proposed route.

Analysis within the corridor included a complete inspection for species of concern, habitat components required to support species of concern, noxious weeds, and wetlands. The survey area was expanded when nearby additional areas may be impacted by the Project. Plant species, noxious weeds, and wildlife species were identified in the field and mapped. Any unknown species were collected and later identified using state-wide literature. Personal communications and knowledge of species and species habitat were used to make a justified determination on the potential effects of the Project.

Vegetation

Botany surveys were performed along the 77 mile proposed pipeline route in Billings, Dunn, and McKenzie counties during May and June of 2010. Keitu surveyors conducted a thorough inspection of 73 miles of private land consisting of cropland, rangeland, and badland terrain (Killdeer Mountains), as well as wetland environments, and approximately 4 miles of state and Federal land.

The Project route crosses terrain consisting of pasture land, cropland (see Section B.4.b.1), badlands and wetlands. Smooth brome, Kentucky bluegrass, green needlegrass, blue grama, little bluestem, western wheatgrass, and threadleaf sedge were primarily found on prairie flats. Other grasses commonly identified were crested wheatgrass, needle-and-thread grass and side oats grama. Forbs established within the mixed-grass prairie include alfalfa, dandelion, field sagewort, fringed sagewort, field chickweed, Indian breadroot, Missouri milkvetch, prairie coneflower, prairie onion, prairie rose, prairie smoke, prickly pear cactus, silver leaf scurfpea, small-leaf pussytoes, stiff sunflower, western wallflower, white beardtongue, white clover, white sagebrush and yarrow.

Badland terrain along the survey corridor presented woodland and sagebrush prairie communities. Dense woody draws exist on hill slopes and foothills. Primary woody vegetation observed include American elm, boxelder, bur oak, Canadian gooseberry, chokecherry, green ash, cottonwood, hawthorn, juneberry, nannyberry, paper birch, quaking aspen, Rocky Mountain Juniper, Siberian elm and silver buffaloberry. Understory observed consisted of Canadian anemone, Canadian white violet, creeping juniper, creeping woodsorrel, fragile fern, littleleaf buttercup, northern bedstraw, poison ivy, starry false Solomon's seal, veiny meadowrue, western snowberry, wild sarsaparilla, wild strawberry, and woods rose.

Vegetation associated with sagebrush communities include green needlegrass, little bluestem, prairie sandreed, sideoats grama, rubber rabbitbrush, western wheatgrass and yucca.

Dominant wetland species identified include cattail, creeping spikerush, scouring rush, curly dock, western dock, common reed, prairie cordgrass and reed canarygrass.

Sensitive plant species identified within the survey corridor were white locoweed (State Sensitive Species) and Indian milkvetch (State Candidate Species). Communities were primarily found 200 feet or more from the proposed pipeline. Construction activity is proposed to occur with a 100 foot corridor, narrowing to 50 feet where recommended. Plant communities that exceed the construction corridor will not be impacted by the Project.

Section 2 of T144N R97W contained the closest population of white locoweed found throughout the survey corridor. The population was identified approximately 75ft along the west side of the proposed pipeline. Construction activity will be narrowed to prevent impact to the population.

The primary impact is expected to be the removal of vegetation in the right-of-way during construction activity. Additional vegetation may be removed in areas where extra workspace is required, such as a road or waterbody crossing.

In areas that require revegetation, Bridger will specify appropriate seed mixes, application rates, and seeding dates, taking into account the recommendations of appropriate state and federal agencies.

Wildlife

Wildlife surveys were performed along the 77 mile proposed pipeline route in Billings, Dunn, and McKenzie counties, during May and June of 2010. Keitu surveyors conducted a thorough inspection of 73 miles private land which consisted of cropland, rangeland, and badland terrain (Killdeer Mountains), as well as wetland environments, and approximately 4 miles of state and Federal land.

Common wildlife identified in the survey corridor include ground squirrel, jackrabbit, mule deer, white-tailed deer, badger, bullsnake, rattlesnake, pheasant, sharp-tailed grouse, Hungarian partridge, songbirds, migratory waterfowl and raptors.

Sensitive bird species observed during the field survey include burrowing owl, chestnut-collared longspur, golden eagle, Le Conte's sparrow, marbled godwit, merlin, northern pintail, prairie falcon, Swainson's hawk, turkey vulture, upland sandpiper, and willet.

A prairie falcon nest was observed in T142N R97W of Section 17. The nest exists approximately 630 feet away from the east side of the proposed pipeline. Breeding/nesting season typically occurs from March through October. Construction will be scheduled to occur after October 31st, 2010. Based upon the Dakota Prairie Grasslands Oil and Gas's 0.25 mile – No Surface Occupancy Stipulation for prairie falcon nests, no construction activity will occur within 0.5 miles of the nesting site prior to the scheduled construction date. Data has been given to the NDGFD for review and comments.

Other nesting areas recorded have been distributed to both the NDGFD and the USFWS for review and recommendations. Construction activity is proposed to begin outside of the nesting season and will have no impact on other existing nests observed or species associated with them.

Other sensitive species observed within the survey corridor consist of pronghorn, black-tailed prairie dogs, and short-horned lizard.

Four prairie dog colonies were identified during the field survey. The closest colony is located approximately 520 feet away from the proposed line in T144N R97W of Section 14 in Dunn County. All colonies observed along the proposed route are outside of the construction corridor and will not be impacted by construction activity. In the event that a colony should be discovered along the right-of-way, Bridger will notify the USFWS and modify the route to avoid any disruption to prairie dogs or their habitat. Data has been given to the NDGFD and USFWS for review and comments.

Two short-horned lizards were found during the field survey. Both species were identified in badland habitat. The closest lizard observed was approximately 535 feet away from the proposed line in T147N R96W of Section 2 in Dunn County. The other species was observed approximately 0.5 miles from the proposed line in T148N R95W of Section 18 in Dunn County. Short-horned lizards are primarily found in badland habitat and tend to be more active at mid-day during spring and fall due to cooler temperatures. Bridger will use best management practices in badland habitat to minimize disturbance of short-horned lizards to the best extent possible. Data has been given to the NDGFD and USFWS for review and comments.

Pronghorn sightings were recorded and data has been distributed to the NDGFD for review and comments. In the event that pronghorns enter the right-of-way during construction, Bridger will use best management practices to minimize disturbance to this species.

Impacts from the Project and human activity during construction will create no significant effects to the State Sensitive Species for North Dakota (see Appendices 4.E and 4.F). The proposed construction activity is scheduled to begin in the third quarter of 2010. Construction operations will occur after breeding seasons when migratory species are unlikely to occur. Although the Project may impact habitat it is unlikely that the effect will be significant enough to alter a species population.

B.4.j Land Use

About 35% of Billings, Dunn and McKenzie Counties is cropland or pasture, 50% is privately owned native rangeland, 5% is federal land, and 10% is other land. The Federal land is administered by the US Department of the Interior – Bureau of Land Management.

Specific to the project area, agricultural production is the predominant land use. Approximately 79% is cropland or pasture, 20% native rangeland, less than 1% Federal land (i.e. three small parcels that add up to about 320 acres.) and 0% municipality (will not be penetrating any city limits or urban areas.)

The primary crops cultivated in the area include wheat, grain and alfalfa. The Project will result in temporary impacts on agricultural land use. Landowners will be compensated

for crop loss or reduced yields caused by construction of the pipeline. Deep tillage or other measures will be implemented as necessary to mitigate effects of soil compaction.

The only industrial area crossed by the pipeline route is at both ends of the pipeline loop where the line connects into existing pipeline junctions or pipeline terminal. The proposed route runs in the vicinity and sometimes adjacent to existing oil well sites. Construction and operation of the pipelines will preclude future unrelated industrial development on lands occupied by the permanent maintained right-of-way. After installation of the pipeline, disturbed areas will be restored to preconstruction conditions to the extent practicable, and will generally revert to preconstruction uses. No long-term change in land use is anticipated.

B.4.k Water Resources-Ground Water

Ground water suitable for domestic and livestock supplies in McKenzie County is available from three aquifer systems in semi-consolidated rocks of Late Cretaceous and Tertiary age. Ground water from aquifers in unconsolidated sand and gravel of Quaternary age is suitable for domestic, livestock, municipal, industrial, and irrigation uses. Rocks older than Late Cretaceous age extend to 15,000 feet (4,572 meters) and generally contain brackish water that is unsuitable for most purposes.

The Fox Hills and basal Hell Creek aquifer system is used as a source for livestock and domestic supplies. It generally is 1,100 to 1,800 feet (335 to 549 meters) in depth, and the transmissivity is 200 to 300 feet squared per day (19 to 28 meters squared per day). The water is lower in dissolved solids than water in overlying aquifers of Tertiary age and has a median dissolved-solids concentration of about 1,325 milligrams per liter. Wells may yield 100 gallons per minute (6.3 liters per second). Six aquifers, each consisting of 50 to 176 feet (15 to 54 meters) of unconsolidated sand and gravel of Quaternary age, occur in McKenzie County. The sand and gravel could yield 100 to more than 500 gallons per minute (6.3 to 32 liters per second). The water from four of the aquifers generally is a sodium bicarbonate type and has a median dissolved-solids concentration of 1,100 to 2,330 milligrams per liter. Water from the Charbonneau, Tobacco Garden, and Yellowstone-Missouri aquifers is suitable for irrigation.

Ground water is an important resource utilized to meet Dunn County's domestic and livestock needs. The cities of Halliday and Killdeer obtain water for public supply from wells. Ground water is obtained from sandstone aquifers in preglacial rocks and glaciofluvial sand and gravel deposits contained in glacial melt-water channels for domestic, livestock, municipal and industrial uses.

The majority of ground water is obtained from the Sentinel Butte aquifer system. This system consists of aquifers that are found at depths ranging from 15 to 700 feet. The aquifer system has a mean transmissivity of 49 feet squared per day. The water has a dissolved-solids concentration ranging from 123 to 7,060 milligrams per liter. Wells may yield up to 200 gallons per minute (13 liters per second) of predominately hard water of a sodium bicarbonate type. Ground water collected from the Fox Hills, basal Tongue River, and Cannonball-Ludlow aquifers is generally a soft sodium bicarbonate type. Dissolved-solids concentrations range from 1,200 to 2,600 milligrams per liter. Wells may yield up to 200 gallons per minute (12 liters per second). A 1,555 foot (474 meter)

well delivers 50 to 65 gallon per minute (3 to 4 liters per second) of soft sodium bicarbonate type water with a dissolved-solids concentration of about 1,400 milligrams per liter from the Fox Hills aquifer to the city of Halliday. A 70 foot (21 meter) well delivers 21.9 million gallons (83,000 cubic meters) per year of very hard sodium bicarbonate type water with a dissolved-solids concentration of 1,090 milligrams per liter from the Killdeer aquifer to the city of Killdeer.

Ground water for public, domestic, livestock, and industrial supplies in Billings County is obtained from aquifers consisting mostly of semiconsolidated sandstone of Late Cretaceous and Tertiary age. Sedimentary rocks extending at least 15,000 feet (4,570 meters) below land surface contain saline water that is unsuitable for most purposes.

The Fox-Hills-lower Hell Creek aquifer system supplies most of the municipal water in Billings County. Wells may yield as much as 300 gallons per minute (19 liters per second) of sodium bicarbonate type water with low dissolved constituents. The city of Medora has several wells that deliver soft sodium bicarbonate type water with a dissolved-solids concentration of 1,080 milligrams per liter from the aquifer. The upper Hell Creek-lower Ludlow aquifer system is tapped for domestic and livestock supplies. Wells may yield as much as 150 gallons per minute (9.5 liters per second) of soft sodium bicarbonate type water. Aquifers in the upper part of the Ludlow and Tongue River Members may yield as much as 250 gallons per minute (16 liters per second). Aquifers in the Sentinel Butte Member yield as much as 50 gallons per minute (3 liters per second). Water obtained from these aquifers is used for domestic and livestock supplies and is of varying quality.

No sub-surface injection of water is expected for this project. Any released water will be discharged to surface water, and subject to the requirements of the general NPDES permit issued by the ND Department of Health – Environmental Section.

This project is not expected to impact North Dakota ground water quality.

Water Resources-Surface Waters

Topographic maps and current aerial photos were reviewed to identify streams, rivers, and lakes crossed by the pipeline route. A pedestrian field survey was also conducted in May through June of 2010 to characterize any surface waters and wetlands that exist in the route of the proposed pipeline (See Table 3.3).

The Little Missouri River is designated by the State of North Dakota as a State Scenic River under the National Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) and is classified as a Class I fishery resource. Bridger will comply with the appropriate regulatory agencies in regards to construction methods when crossing the river to protect its status on the Nationwide Rivers Inventory.

The pipeline also crosses the Green River, the Knife River, and the Little Knife River. Bridger will utilize boring techniques when crossing these rivers to minimize disturbance to these areas during construction.

Pipeline construction by creeks will be conducted in accordance with applicable regulatory requirements. No creek will be permanently drained or filled as part of the Project, and effects on creeks are expected to be short-term and minor. Bridger will restore the area as close to its previous state and naturally functioning condition as possible.

All pipeline construction will occur outside of the fish migration and spawning periods from April 15 – June 1 and appropriate erosion control measures will be installed to reduce sediment transport into waterbodies and wetlands. Implementation of the measures described in Bridger’s EMP will provide adequate protection to water resources during construction.

Waterbody crossings are planned to be constructed using either horizontal directional drill (HDD) or open-cut construction techniques, with most waterbodies crossed by the open-cut method.

Construction across waterbodies will require authorization by the U.S. Army Corps of Engineers (ACE). Bridger will be obtaining necessary authorization for water crossings in wetlands and construction will be conducted in accordance with applicable permit conditions. However preliminary information obtained from the Bismarck District staff indicates the project may qualify to use the provisions of the “Nationwide 12” Corps issued utility permit, as long as the provisions of this existing permit is satisfied.

These small waterbodies will typically be crossed by means of the “wet trench” (open-cut) construction technique. In a wet trench crossing, backhoes excavate a trench in the waterbody channel, leaving “hard plugs” of soil in place on each bank of the crossing. When the trench has been excavated and the crossing section fabricated, the hard plugs are removed and the pipe segment is moved into place. The newly installed pipeline is welded in place and the trench is backfilled with native materials or as required by applicable permits.

Temporary, incremental increases in sediment load can be expected downstream of open-cut waterbody crossings during the excavation and backfilling phases of construction. Additionally, some incremental increase in surface run-off sedimentation may be expected to occur at each of the crossings due to the close proximity of exposed soils. No significant or long-term increase in sedimentation is expected from construction of the waterbody crossings.

Wetlands

Bridger made arrangements to conduct field wetland delineations to identify wetlands crossed by the pipeline route. This wetland delineation, in conjunction with aerial photo-based alignment sheets and USGS topographic maps and US Corps of Engineers waters of concern within North Dakota, was used to identify wetlands along the pipeline route.

Section B.4.b.(5), Impact on Wetlands

Construction in wetlands will require authorization by the U.S. Army Corps of Engineers (ACE). Bridger will be obtaining necessary authorization for wetland crossings and work in wetlands will be conducted in accordance with applicable permit conditions.

For water and wetland crossings which are not bored and construction in unsaturated wetlands, topsoil will be segregated from the trench line to preserve natural sources of seed and rootstock. During trenching, water quality of inundated wetlands will be temporarily affected due to the suspension of sediments and organic matter. After the trench is backfilled, the topsoil will be replaced to facilitate the natural re-vegetation process. The long-term operation and maintenance of the pipeline will not have adverse effects on wetland function or value.

Construction of the Project will not result in the permanent drainage or filling of wetlands. Bridger will implement the measures identified in its EMP to minimize adverse effects on wetlands during construction and restore wetlands following construction. Effects on wetlands are therefore expected to be short-term and minor.

Water Use

The Project will not significantly affect water use patterns. Following construction, drains, swales, and flowages will be restored to preconstruction conditions to the extent practicable to minimize disruption of water resources.

The Project will require temporary appropriations of water (likely surface water) for use in the hydrostatic testing of the newly installed pipeline. Additionally, some temporary trench dewatering will be required, particularly during road bores. No significant effect on existing and future water uses is anticipated.

Discharge of water used to hydrostatically test the new pipeline is not expected to have an impact on the environment or receiving waters. The discharge is regulated by the North Dakota Department of Health under a North Dakota Pollutant Discharge Elimination System (NDPDES) general permit issued specifically for temporary dewatering activities including hydrostatic testing and trench dewatering (Permit No. NDG-070000).

Surface Water Runoff

Potential construction-related effects on surface waters are primarily related to sedimentation from uncontrolled erosion of disturbed areas. Much of the pipeline route is level or only gently sloping, which limits the potential for runoff effects. Because the right-of-way will be restored to preconstruction conditions, area runoff following construction will generally reflect surrounding land use.

Bridger will obtain authorization under a general permit for Storm Water Discharges Associated with Construction Activity from the North Dakota Department of Health, which implements a federal program under the Clean Water Act. Bridger's EMP, which was developed in part to meet requirements of this permit, describes best management

practices. Bridger Pipeline, its General Contractor and project subcontractors will implement to minimize off-site erosion from site stormwater runoff. These practices will protect surface water and soil resources within the Project area. Bridger's EMP will be included in the construction specifications for the Project and enforced by one or more environmental inspectors during construction.

Discharges to Surface Waters

During construction, point source wastewater discharge will be generated from hydrostatically testing the new pipeline prior to placing it in service. Discharges will also occur as needed for trench dewatering during construction. The North Dakota Department of Public Health has developed a General Permit (Permit No. NDG-070000) which authorizes the discharge of waters related to temporary dewatering and hydrostatic testing. Bridger will obtain authorization for construction-related discharges and will conduct trench dewatering and hydrotest water discharges in a manner consistent with the NPDES General Permit.

Testing and discharge is anticipated to be consistent with past practices and experience. Discharges of hydrostatic test water typically are controlled discharges directly to the ground surface or occasionally into Waters of the State. Specific discharge point(s) for hydrostatic test water for the pipeline have not been determined at this time. In most cases, it is anticipated that this water will be acquired from several of the rivers crossed by the pipeline route and discharged back to the original source. The NPDES permit specifies that discharge water must be free from process and other wastewater discharge.

Protection from Fuel Spills

Construction equipment should be expected to be self-propelled and/or motorized and are expected to be powered by gasoline or diesel fueled engines. Fuel for construction vehicles will be used and stored consistent with regulations of the US Environmental Protection in 49 CFR 112 for areas with at least 1320 gallons of aggregate storage capacity and/or consistent with the National Fire Protection Association Code 395 for storage and handling of petroleum-based fuels in isolated and/or remote areas. If more than 1320 gallons of oil storage occurs at one area, the contractor will be required to prepare and implement a oil spill prevention, control and countermeasure (SPCC) plan in accordance with 49 CFR 112 including having the plan reviewed and certified as adequate by a registered professional engineer. An oil SPCC Plan outlines required secondary containment measures to be installed around bulk storage containers (i.e. tanks and drums) as well as other oil-handling areas such as unloading and dispensing areas. The Plan also describes response, containment, and cleanup measures. Training requirements of impacted employees are also outlined.

Contractors will be required to provide trained personnel, appropriate equipment and materials to contain and clean up spills of fuel, lubricating oil or hydraulic fluid that result from equipment failure when working in or near wetlands or surface water bodies.

Storage of bulk fuels will not be allowed within 100 feet of an open waterway.

B.4.I Cultural Resources

Metcalf Archaeological Consultants, Inc. of Bismarck, North Dakota was engaged to review existing site file data maintained by the State Historical Society of North Dakota (SHSND), North Dakota State Historic Preservation Office (NDSHPO) to determine if any portion of the pipeline route was surveyed previously for cultural resources. The Class III cultural resource pedestrian inventory covered 100% of the proposed pipeline route. The corridor was inventoried by walking parallel pedestrian transects across a 200 foot wide Area of Potential Effect (APE) centered on the proposed pipeline.

Thirty-four cultural resources were documented during the Class III inventory, including 13 archaeological sites, 17 archaeological isolated finds, and four historic sites. In addition, three previously recorded prehistoric sites were updated. Two additional previously recorded sites were visited and found to be out of the APE and were not updated and on previously recorded site, 32DU343, was not relocated. A site lead, 32DUx800, was also found to be out of the area of potential effect.

Metcalf Archaeological Consultants, Inc. prepared and issued a report for their work on the project. A copy of their Cultural Resource Investigations Report in its entirety is presented as Tab 4 Attachment A.

Based on findings from both the Class I record search and Class III field survey, multiple reroutes were developed in an attempt to avoid impacts to identified cultural resource sites. However, in consultation with the ND State Preservation Office (NDSHPO) and where applicable the Bureau of Land Management (BLM), five identified sites will be penetrated by the pipeline route and/or the associated construction zone.

The locations of two of the new historic sites identified during the Class III field survey are shown on Figure 4.B.4.a in green. The smaller of the two sites reported as site 32MZ2074. While the initial approach was to route the pipeline around the area, additional information and photos of the site were obtained during the site revisit and presented to the NDSHPO. The site has been subsequently determined to be National Register of Historic Places (NRHP) and will be transected by the pipeline route. The second, larger historic Veeder property site 32MZ2081 consists of several abandoned farm buildings. After documenting the location of the site features, and in consultation and with the approval of NDSHPO, the perimeter boundary of the site is proposed to be penetrated by the pipeline route but the construction zone will be narrowed and the surface features of the site not disturbed.

Prehistoric site 32DU343 are shown on Figure 4.B.6a in green. Site 32DU343 has been determined to be NRHP ineligible and is proposed to be transected by the pipeline route.

Prehistoric sites 32DU352 and 32DU1385 are shown on Figure 4.B.8a in green. Based on field studies and with the approval of NDSHPO, the portion of 32DU352 to be crossed has been determined to be NRHP ineligible. Site 32DU1385 was revisited and assessed to have a broader boundary than previously reported. After consultation with the NDSHPO, the expanded area was tested by shovel probing. Information obtained as a result of site tested has been presented and evaluated by the NDSHPO. The

expanded portion of the site identified in the 2010 has also been determined to be NRHP ineligible. The proposed pipeline route will also transect the site.

It is important to note that a total of 5 routes were attempted through this area. As the Metcalf Archaeological Consultants, Inc. Cultural Investigation Report describes, this area has the second most densely grouped archeological sites known within the entire state of North Dakota. The Project's initial "avoidance" strategy needed to be abandoned in this area because of lack of practical alternatives. The Applicant believes it has selected the least intrusive route through the area.

The depicted route on Figures 4.B.1 through 4B.16 (i.e. Tab 4 Appendix B Mapbook) is the joint effort of Applicant, its consultants and the ND State Preservation Office (NDSHPO) which resulted from the series of teleconferences and face-to-face meetings to review the Cultural Resource Investigations Study. Specific precautions during construction will include:

- Construction excavation monitoring at site 32DU1502
- Construction excavation monitoring along the entire pipeline corridor in Section 12, T146N, R96W by an archaeologist.
- The construction corridor be narrowed to 50 feet and sites be fenced by an archaeologist at the following sites: 32DU1504; 32DU1512; 32DU1510; 32DU1513; 32DU1387

Provided that the above Project conditions are followed, a finding of *"No Historic Properties Affected"* has been issued by Metcalf Archaeological Consultants.

The lead agency (Bureau of Land Management) and NDSHPO have recommended that a monitoring and fencing program be undertaken before and during construction excavation activity. It is further recommended by these agencies that both the monitoring and site fencing cited above be undertaken by archaeologists.

An "Unanticipated Discovery Plan" has been developed and adopted by the Project should unexpected artifacts be uncovered during pipeline construction. The plan has been sent for approval to the North Dakota State Historic Preservation Office.

No other existing scenic areas, historic sites and structures, and paleontological or archeological sites other than those identified here in section B.2.i have been identified by Bridger Pipeline, LLC or its consultants.

B.5. THE CRITERIA TO BE EVALUATED SHALL INCLUDE AT A MINIMUM ALL OF THE FOLLOWING, WHICH ARE WITHIN THE DESIGNATED CORRIDOR:

- Exclusion Areas;
- Avoidance Areas;
- selection criteria;
- policy criteria;
- design and construction limitations; and
- economic considerations

Complete descriptions, potential impacts, and mitigation measures relevant to the six criteria cited above are provided in Section B.4 in conjunction with the descriptions of potential impacts. Below is a discussion of additional measures Bridger will employ.

B.6. MITIGATION MEASURES

B.6.a Measures to Preserve the Human Environment

Bridger will require its construction contractor to clean up on a daily basis personal litter, bottles and paper deposited by right-of-way preparation and construction crews. Waste and scrap that is the product of pipeline construction will be removed and properly disposed of in accordance with applicable regulations before construction is completed.

To the maximum extent practicable, Bridger will minimize noise and dust resulting from construction near residential areas.

Bridger will obtain applicable permits prior to conducting road crossings from McKenzie, Dunn and Billings Counties where applicable. Permission will also be obtained from all owners of private roads including oil lease roads. Temporary signs will be posted at each crossing as appropriate to alert motorists of construction activity. Paved roads will be bored which will minimize interference with traffic flow caused by construction activities, and as required by state and county regulations.

B.6.b Measures to Protect Terrain and Geological Resources

Bridger will, to the maximum extent practicable, restore the area affected by pipeline construction to the natural conditions that existed immediately before construction of the pipeline. Restoration will be compatible with the safe operation, maintenance, and inspection of the pipeline.

To the maximum extent practicable, Bridger will restore the construction area to pre-construction contours. Measures such as slope breakers, erosion control blankets and re-vegetation will be employed to maintain the stability of slopes along the right-of-way. No crown of backfill material will be left over the trench in wetlands.

Fuel and all other hazardous materials will be stored in accordance with the requirements of Contractor's oil SPCC Plan, if applicable. An oil SPCC Plan describes response, containment, and cleanup measures. However, even for small quantities of oil-based liquids, containers and fueled equipment will not be stored within 100 feet of surface water.

B.6.c Measures to Protect Soils

Bridger will implement temporary and permanent erosion control measures as specified in the EMP (Tab 5 and Tab 6). The EMP will be included in contract documents and enforced as such throughout the Project.

Temporary erosion and sedimentation control measures may include installation of silt fence, straw bales, slope breakers, trench breakers, erosion control fabric and mulch.

To minimize potential impacts on soil productivity, topsoil will be segregated during trench excavation in agricultural land, unsaturated wetlands, and if applicable, other areas where soil productivity is an important consideration. Unless otherwise requested by the landowner, topsoil in cropland will be removed to a maximum depth of 12 inches from the trench and spoil storage area and stored separately from the trench spoil. After the trench is backfilled, topsoil will be returned to its approximate original location. Compaction of agricultural soils will be minimized by restricting construction activities during periods of prolonged rainfall. Where unacceptable levels of compaction occur in agricultural lands, deep tillage, a chisel plow or other deep tillage equipment will be utilized to loosen the soil to the reasonable satisfaction of the landowner.

Bridger will retain environmental inspectors to monitor the contractor's compliance with applicable requirements to protect soil resources during construction of the Project.

B.6.d Measures to Protect Vegetation and Wildlife

Bridger will clear the right-of-way to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the pipeline.

Bridger Pipeline and its contractors will effectively control or limit the spread of invasive plant species through control treatments and avoiding existing populations where possible. Treatments will be initiated prior to pipeline construction to lessen the potential for this activity to disperse propagules along the freshly disturbed route. Monitoring and treatment should then be conducted on an annual basis to ensure a high degree of control and maximize treatment effectiveness.

In areas that require permanent revegetation, Bridger will specify appropriate seed mixes, application rates, and seeding dates, taking into account recommendations of appropriate state and federal agencies and landowner requests. In non-agricultural areas, vegetation cleared from extra workspace will be allowed to revegetate after construction depending on arrangements with the landowner. Consequently, significant changes in cover types are not anticipated.

After completion of waterbody crossings, Bridger will revegetate disturbed stream banks in accordance with the EMP and requirements of applicable state or federal permits. During construction in unsaturated wetlands, topsoil will be segregated from the trench line to preserve natural sources of seed and rootstock. After the trench is backfilled, the topsoil will be replaced to facilitate the natural re-vegetation process.

Bridger will take appropriate precautions to protect livestock and crops affected by construction. Operation of the pipeline is not anticipated to significantly affect terrestrial wildlife, fisheries resources, or other aquatic species. Shelter belts and trees will be protected and restored by Bridger to the extent practicable in a manner compatible with the safe operation, maintenance, and inspection of the pipeline.

B.6.e Measures to Protect Land Use Permits

Bridger will obtain and comply with applicable county permits regulating zoning and land use. Per prior discussion with the Billings County, Dunn County and McKenzie County staff, these permits will include Conditional Use Permit (for Billings and Dunn County) Pipeline Utility Permit (all three counties), road crossing permits (all three counties). Bridger will retain one or more environmental inspectors to monitor compliance with environmental conditions of county permits.

Bridger will repair surface drains disturbed during right-of-way preparation, construction and maintenance activities. Bridger will repair private roads and farm lanes damaged when moving equipment or when obtaining access to the right-of-way. Bridger will repair or replace fences and gates removed or damaged as a result of right-of-way preparation, construction or maintenance activities.

The Project will be installed at a minimum depth of 48 inches from the surface contour to minimize the potential for environmental damage resulting from deep tillage activities unless modified to accommodate special construction issues at the site.

Shelter belts and trees will be protected by Bridger to the extent possible in a manner compatible with the safe operation, maintenance, and inspection of the pipeline.

B.6.f Measures to Protect Water Resources

Bridger will obtain applicable permits for crossing wetlands and waterbodies and for water appropriations related to hydrostatic testing and trench dewatering. Environmental inspectors will monitor compliance with applicable waterbody and wetland protection requirements during construction of the facilities.

Measures to protect water resources have been discussed to some extent in Section B.4.k and in previous mitigation sections on soils (Section B.6.c) and vegetation and wildlife (Section B.6.d). Bridger's EMP describes these measures in detail, and contains illustrations of how sediment control devices are typically installed at waterbody crossings. Additionally, Bridger will maintain a 10-foot-wide vegetative buffer until the actual crossing of the waterbody takes place. Temporary sediment control measures such as silt fence installed at each crossing will minimize the introduction of sediment into waterbodies during construction and minimize the movement of spoil and sediment from surface runoff during and after construction. Permanent erosion control measures, such as vegetation and installation of slope breakers, will effectively stabilize riparian zones. Bridger will stabilize stream banks disturbed during construction using methods as directed by applicable state and/or Federal permits.

For open-cut crossings, "hard plugs" of soil prevent the flow of water from the waterbody into the adjacent trench and the migration of sediment from the adjacent trench into the waterbody. After the pipe is installed, the trench will be backfilled in such a manner to restore the natural contours of the waterbody to the extent practicable. Directional drilling of the rivers and creeks will minimize construction-related disturbance of this river because in-stream trenching and backfilling will not be necessary.

Wetland crossings will be conducted in accordance with applicable regulatory requirements. If construction mats or timbers are placed in wetlands to support equipment, they will be removed after construction is completed. In order to maintain surface water hydrology within wetlands, preconstruction contours will be restored and no crown will be left over the trench. If there is a potential for a wetland to be drained by trenching, trench plugs will be installed as needed at the edge of a wetland. In unsaturated wetlands, topsoil will be replaced to facilitate the natural revegetation process.

Bridger's EMP specifies several measures to protect wetlands and waterbodies from pollution during construction by fuels or other hazardous materials. The EMP also specifies that equipment must be refueled at least 100 feet from waterbodies. If due to site-specific conditions there is no practical alternative, the contractor must implement site-specific protective measures and containment procedures described in the contractor's SPCC Plan. Contractors will be required to provide trained personnel, appropriate equipment and materials to contain and clean up spills of fuel, lubricating oil or hydraulic fluid that result from equipment failure when working in or near wetlands or surface water bodies.

Water appropriations for hydrostatic testing will be conducted in accordance with applicable permits. Bridger will conduct trench dewatering and hydrostatic test discharges in a manner consistent with the NDPDES General Permit. Bridger's EMP describes best management practices that will be implemented to minimize off-site erosion from surface water runoff, and protect water and soil resources within the Project area.

Much of the concerns associated with the quality of the water being discharged are addressed by the fact that no additives to the water are permitted unless written approval is received from Bridger and applicable permits authorize such additives. Environmental Inspectors will monitor compliance with permits. Where appropriate, water will be discharged into an energy dissipation and/or filtering device to remove sediment and to reduce the erosive energy of the discharge.

B.6.g Measures to Protect Cultural Resources

The Project started with the intent to avoid all impacts to cultural resources. The Project passes through the area of North Dakota with the second highest concentration of cultural resource sites.

Based on findings from both the Class I record search and Class III field survey, multiple reroutes were developed in an attempt to avoid impacts to identified cultural resource sites. However, in consultation with the ND State Preservation Office (NDSHPO) and where applicable the Bureau of Land Management (BLM), five identified sites will be penetrated by the pipeline route and/or the associated construction zone.

The lead agency (Bureau of Land Management) and NDSHPO have recommended that a monitoring and fencing program be undertaken before and during construction excavation activity. It is further recommended by these agencies that both the monitoring and site fencing cited above be undertaken by archaeologists.

Specific precautions during construction will include:

- Construction excavation monitoring at site 32DU1502
- Construction excavation monitoring along the entire pipeline corridor in Section 12, T146N, R96W by an archaeologist.
- The construction corridor be narrowed to 50 feet and sites be fenced by an archaeologist at the following sites: 32DU1504; 32DU1512; 32DU1510; 32DU1513; 32DU1387

An “Unanticipated Discovery Plan” has been developed and adopted by the Project should unexpected artifacts be uncovered during pipeline construction. The plan has been sent for approval to the North Dakota State Historic Preservation Office.

Unanticipated Discovery Plan

In order to minimize the potential for the accidental discovery of cultural resources, Bridger Pipeline conducted intensive pedestrian inventories along the entire proposed pipeline route. To ensure that Bridger Pipeline maintains full and complete compliance with all Federal and State regulations concerning the protection of cultural resources, an Unanticipated Discovery Plan has been prepared for the current project. Construction may result in the discovery of unanticipated cultural resources, or of cultural resources in areas where they were not expected to occur.

All inspections have the responsibility to monitor the construction of sites for potential archaeological remains throughout construction. If, during the course of construction of sites for potential cultural resources are identified, the Environmental Inspector will immediately stop tasks in the vicinity of the potential find and make work stoppage recommendations to the Construction Inspector. Should a work stoppage authority be deemed necessary, Bridger Pipeline will notify the North Dakota State Historic Preservation Office (NDSHPO) and Bureau of Land Management (BLM), and will inform the archaeological consultant who will survey the site and provide an immediate verbal report to Bridger and the NDSHPO. Bridger will notify the BLM of the report and continue to consult with the NDSHPO as per the requirements of Section 106 of the National Historic Preservation Act (NHPA). The contacts are:

Paul R Picha, Chief Archeologist
North Dakota State Historic Preservation Office
State Historical Society of North Dakota
612 East Boulevard Avenue
Bismarck, North Dakota 58505-0830
(701) 328-3574

Brenda Shierts, Archaeologist
US Department of the Interior
Bureau of Land Management
Miles City Field Office
310 Roundup Street
Belle Fouche, South Dakota 57717-1698
Telephone: 605-892-7000
Fax: 605-892-7015

If the unanticipated discovery is determined to be not eligible for inclusion on the NRHP, Bridger will proceed with the project following written concurrence for the NDSHPO and approval for the BLM. If the site is determined to be potentially eligible for inclusion on the NRHP, additional work such as a Determination of Eligibility of Data Recovery will be performed as required/approved by the NDSHPO and the BLM. Further work at the site will be suspended until all criteria of Section 106 of the NHPA and other Federal and state regulation have been successfully completed.

If human remains and/of a burial are encountered, these remains, features and any associated artifacts shall be left undisturbed, work at the site of discovery shall cease immediately, and the site shall be secured from further trespass. Bridger Pipeline shall immediately contact the SHPO and local law enforcement and shall not resume work at this site until further notice from the SHPO per North Dakota Century Code 23-06-27 – Protection of human burial sites, human remains and burial goods and Chapter 40-02-03 – Protection of Prehistoric and Historic Human Burial Sites, Human Remains, and Burial Goods. If the remains and/or burial goods are on BLM administered lands, BLM will have to comply with the Native American Graves Protection and Repatriation Act (NAGPRA; U.S.C. 3001 et seq).

Under no circumstances should human remains be removed from the site without completing all coordination processes with the local law enforcement agency, medical examiner, the NDSHPO, Native American representatives, as appropriate, and the BLM. Further work at the site will be suspended until all criteria of Section 106 of the NHPA and other related state and Federal regulation have been successfully completed.

In the event that human remains are encountered, Bridger intends to comply with all local, state, and federal guidelines, regulations, and laws. In conjunction with complying with the above mentioned regulations, Bridger may pursue alternate pipeline routes for the proposed pipeline project with regulatory agencies and land owners.

A copy of the plan is also found in Tab 4 in Appendix 4.A in the Cultural Resource Investigation report prepared by Metcalf Archeological Consultants, in Chapter 7.

B.7. QUALIFICATIONS OF PERSONS CONTRIBUTING TO THE STUDY

The qualifications of the personnel who contributed to the route application include:

(1) Tad True, Vice President – Bridger Pipeline, LLC

Degree: Bachelor of Business Administration, University of Notre Dame
Experience: 6 years experience in petroleum transportation field

(2) Tyler Reece, Project Engineer – Bridger Pipeline, LLC

Degree: Bachelor of Mechanical Engineering, University of Wyoming
Experience: 3 years experience in petroleum transportation field as well as regulatory affairs and compliance

Professional License
Registered EIT: Wyoming

(3) Debra M. Bell, Land Supervisor – Bridger Pipeline, LLC

Degree: Bachelor of Political Science, Corpus Christi State University
Experience: 25+ years experience in utility permitting, land recording, easement including participation in more than 10 pipeline projects
Professional License
Registered Landman - WPL
Certified Legal Assistant - NALA

(4) Kathleen Spilman, Managing Director – Keitu Engineers & Consultants, Inc.

Degree: Bachelor of Science - Chemical Engineering, University of North Dakota
Masters in Management, University of Mary
Experience: 29 years experience in petroleum refining and fuels transportation field as well as regulatory affairs and compliance.
Professional License
Registered Professional Engineer: North Dakota, South Dakota, Montana

(5) Jeremiah Trnka, Staff Engineer (Environmental) – Keitu Engineers & Consultants

Degree: Master of Environmental Engineering, Washington State University
Bachelor of Fisheries and Wildlife Biology, University of North Dakota
Experience: 2 years experience with North Dakota Game and Fish
Other Training: Intro to ArcGIS I and II, and Field GIS/GPS Mapping -- South Dakota School of Mines & Technology

(6) Heather Jandt, Specialist (Biology) – Keitu Engineers & Consultants, Inc.

Degree: Bachelor of Science, Major Biology, Dickinson State University
Experience: 4 years experience in regulatory affairs and compliance.
Other Training: Western Missouri State University – Global Positioning and Mapping

(7) Michael Pederson, Staff Consultant – Keitu Engineers & Consultants, Inc.

Degree: Bachelor of Science Natural Resource Mgmt Minor: Zoology/Range Science
North Dakota State University
Experience: 3 years experience in field technical services and regulatory affairs
Other Training: Emphasis: Biotic Resources

(8) Kristi Eng, Staff Consultant – Keitu Engineers & Consultants, Inc.

Degree: Bachelor of Science in Biology / Minor in Environmental Studies
University of North Carolina - Wilmington
Experience: 1 year experience in regulatory affairs and legal support services
Other Training: Conservation Biology, Tree and Foliage

(9) Lawrence Edland, Licensed Soil Classifier – Edland’s Soil Consulting

Degree: Bachelor of Soil Science, North Dakota State University

Experience: 36 years experience in soil surveying, 2 years experience with
TRANSCANADA pipeline and BISON pipeline project

Professional License

North Dakota Registered Professional Soil Classifier

Other Training: Advanced Hydric Soil and Hydro-geomorphic Training

B.8. MAPS

See Tab 1 section D.7 of the Application for Corridor Certificate and Tab 2.

B.9. OTHER MATTERS

The information provided below is in accordance with North Dakota Century Code 49-22-08.1 Sections 1.e, 1.f, and 1.g.

B.9.a Right-of-Way Preparation, Construction and Reclamation Procedures

Critical safety aspects of pipeline installation are governed by US Department of Transportation regulations subject to the jurisdiction of its Pipeline and Hazardous Material Safety Administration (PHMSA) which had tended to standardize installation techniques. The advance of technology has introduced significant improvements in the techniques and equipment available to install underground pipe lines, reducing both the time required and the size or “footprint” of impact.

Construction of the pipeline will follow standard techniques employed by other projects installed in North Dakota such as Dakota Gasification Company 14-inch CO₂ pipeline and the Enbridge Pipeline’s projects. Essentially an outdoor assembly line, the major steps typically include (1) survey and staking of the right-of-way; (2) clearing; (3) front-end grading; (4) right-of-way topsoil stripping; (5) pipeline route staking; (6) pipe stringing; (7) pipe bending; (8) pipe alignment and initial weld; (9) fill and cap with final weld; (10) as built footage; (11) x-ray inspection and weld repair; (12) coating field welds and coating inspection; (13) trenching; (14) lowering pipe into trench; (15) as-built survey; (16) pad, backfill to rough grade; (17) hydrostatic testing and system tie-in; (18) clean-up; (19) restoration and re-vegetation.

B.9.a.(1) Survey and Staking

Before construction, Bridger crews will survey and stake the centerline and exterior boundaries of the construction right-of-way. The exterior boundary stakes will mark the limit of approved disturbance areas, which will be maintained throughout the construction period. The North Dakota One Call system will be contacted to identify and mark the locations of underground utilities in the construction corridor. During this period, equipment involved in pipeline construction will be moved onto the right-of-way using existing roads for access wherever practicable.

B.9.a.(2) Clearing

Bridger will clear the 100-foot-wide construction right-of-way and additional temporary extra workspaces of shrubs and trees. The clearing crew will typically mow, chip, mulch and/or haul off all non-merchantable timber. Burning of non-merchantable wood may be allowed when the contractor has obtained the necessary permits and approvals. All merchantable timber will be property of Bridger unless other arrangements are made with the landowner.

B.9.a.(3) Grading

Following clearing, grading of the ground surface may be done to provide a relatively smooth working surface and a safe working area. Typically, a 10-footwide buffer will be left relatively undisturbed, except where grading is needed for bridge installation, at waterbody crossings until immediately before the pipelines are installed across the waterbody. Where necessary, grading of the adjacent 100 foot of right-of way to accommodate staging equipment and materials will also occur.

Temporary bridges will be installed at waterbodies, except for drainage ditches, intermittent waterbodies, and other non-fisheries water, along the pipeline route to provide temporary access for equipment traveling along the construction right-of-way. In addition, temporary erosion control measures will be installed in accordance with Bridger's EMP. See Tab 5 and the drawings presenting in Tab 6 for additional details.

B.9.a.(4) Topsoil Stripping

Topsoil will be stripped and segregated in agricultural areas, cropland, hayfields, pasture, residential areas, and other areas as requested by the landowner along the pipeline route in accordance with Applicant's EMP. In unsaturated wetlands, a maximum of 12 inches of surficial soils will also be stripped from the trench areas. Topsoil will be stripped to a maximum depth of 12 inches in cultivated lands.

B.9.a.(5) Pipeline Route Staking

Once the topsoil has been stripped and stockpiled, the route will be resurveyed and the pipeline route staked.

B.9.a.(6) Pipe Stringing

Before excavating pipeline trenches, individual joints of pipe will be strung along the construction right-of-way and arranged to be accessible to construction personnel. This operation typically involves specially designed stringing trucks to deliver pipe from pipe yards to the right-of-way. Small portable cranes and/or side-boom tractors are used to unload the stringing trucks and place pipe along the right-of-way.

B.9.a.(7) Pipe Bending.

A mechanical pipe bending machine will bend individual joints of pipe to the desired angle to accommodate natural ground contours or pipeline alignment. In certain areas, prefabricated fittings will be used where field bending is not practicable.

B.9.a.(8) Pipe Alignment and Initial Weld

After stringing and bending are complete, pipe sections will be aligned and placed on temporary supports located adjacent to the proposed trench locations. Pipe ends will be attached to each other using short welds.

B.9.a.(9) Fill and Cap Segment Welds

Final welds will be completed around the entire circumference of the pipe joints in compliance with applicable industry standards and PHMSA requirements.

B.9.a.(10) As-built Footage

Once welding is complete, Bridger will compare the as-built condition and length of the pipe with construction drawings. Documents will be edited to reflect impacts of field decisions as well as final locations of lateral tie-in points, other pipeline apertures and cathodic protection connections.

B.9.a.(11) X-Ray Inspection and Weld Repair

A third-party inspection service provider meeting US DOT certification requirements will be engaged to inspect all field-welds, both visually and radiographically or via other appropriate non-destructive inspection techniques. When welds are deemed inadequate, appropriate repairs will be made consistent with US DOT PHMSA regulations trenches in accordance with PHMSA regulations and re-inspected. Inspection records will be cross referenced against the final “as-built” footage of the pipeline.

B.9.a.(12) Coating and Coating Inspection of Field Welds

The pipe is typically delivered with a factory coating of fusion-bonded epoxy or similar material to prevent corrosion. Bridger will apply coating at welded joints and will electronically inspect the pipeline coating before the pipe is lowered into the trench.

B.9.a.(13) Trenching

Backhoes and/or ditching machines will be used to excavate trenches in accordance with PHMSA regulations, which require a minimum thirty inches of cover for normal excavations and 18 to 30 inches of cover in rocky areas. The trench walls will generally be kept vertical to the extent practicable and the

trenches will typically be 4 to 8 feet wide, but may be wider in less stable or saturated soils.

Where trench dewatering is needed, water will be discharged directly to the ground if there is adequate vegetation along the right-of-way to filter the water effectively. Where vegetation is sparse or absent, or in environmentally sensitive areas (e.g., adjacent to waterbodies or wetlands), straw bale dewatering structures or suitable filtering alternatives will be used to minimize siltation in adjacent waterbodies.

B.9.a.(14) Lowering Pipe Into Trench.

After welding and coating are completed and the trench is excavated, the pipe will be lowered into the trench by side-boom tractors.

B.9.a.(15) As-built Survey

A survey of the final location of the pipeline will be made.

B.9.a.(16) Pad and Backfill to Grade.

Bladed equipment or a specially designed backfilling machine will be used to backfill the trench to the approximate ground surface elevation. This generally consists of replacing the material excavated from the trench. In areas where topsoil has been segregated, subsoil will be replaced first, and topsoil will be spread uniformly on top. Directly above the pipeline, an excess of soil or “crown” will be placed to allow for future settling, excluding wetlands.

Construction debris, including wooden supports, welding rods, containers, brush, trees, or refuse of any kind, will not be permitted in the backfill. If an excessive amount of rocks are present in the backfill, the pipeline will be protected with rock shield or similar protective coating and/or backfilled with clean padding prior to backfilling with the rocky material.

B.9.a.(17) Hydrostatic Testing.

After backfilling, Bridger will hydrostatically test the pipelines in accordance with the PHMSA regulations to ensure that the system is capable of operating at the design pressure. The testing process will involve filling a segment of the pipeline with water and maintaining a prescribed pressure for a specified amount of time.

The length of individual test segments will be determined by topography and water availability. Water withdrawals used to fill and test the pipelines will be consistent with state regulations and Bridger’s EMP. Bridger will obtain hydrostatic test water from major waterbodies crossed by the pipeline and/or municipal sources along the pipeline route. Adequate flow will be maintained to protect aquatic life and allow for downstream uses. The test water will be discharged through energy dissipation devices to the ground surface or to a

nearby waterbody. These discharges will be done in accordance with Bridger's EMP and permits issued by the state agencies.

B.9.a.(18) Cleanup.

After the backfilling is completed, Bridger will regrade and restore work areas as nearly as practicable to the original contour of the land. Fences that are removed to install the pipelines will be reconstructed across the right-of-way.

B.9.a.(19) Restoration and Revegetation.

Following installation and final cleanup of the pipeline construction area, original grade and contours will be restored to the extent practicable and temporary and permanent erosion controls will be installed. Disturbed areas will be revegetated in accordance with permit requirements, and site-specific landowner requests.

B.9.b Landowner Issues

B.9.b.(1) Procedures for Landowner Relations.

Landowners have already been contacted in person, by telephone and/or by mail to secure permission for the new pipeline right-of-way. Construction will occur after this year's harvest and prior to next spring's planting season, minimizing impacts to agriculture. Landowners have been advised to expect pipeline construction to begin in late 2010 and that survey crews will be working along the pipeline route.

Once the necessary permits have been acquired, a brief description of the Project will be mailed to landowners. Bridger is committed to giving landowners complete information about the Project and keeping them informed throughout construction. Bridger has begun to personally contact landowners to discuss methods of damage settlements, tenant's rights, and to address any unique property concerns.

B.9.b.(2) List of Landowners.

By use of county records, a current list of landowners was generated and used to contact residents and will also be used for future personal contacts. In addition to landowners, all known tenant farmers in the construction area have been notified on the Project. A list of landowners and tenants who have been contacted regarding the Project is attached as Tab 4 Appendix 4.C.

B.9.c Operations and Safety

B.9.c.(1) Pipeline Operation and Control.

The Bridger Pipeline system is controlled via one of two control centers located near Donkey Creek, Wyoming or Watford City, North Dakota.

The Control Center is manned by pipeline operators 24 hours a day. The Control Center also serves as an emergency center to receive calls from employees, the public or public officials reporting unusual conditions or pipeline failures.

A telemetry (SCADA) system provides 24-hour monitoring of the pipeline and pump operations, including pressures, temperatures and flow rates. This telemetry system enhances immediate response capability to any potential problems. The pipeline is also designed to accommodate an instrumented internal inspection device to detect and record the type and location of corrosion or other defects for long-term monitoring of the pipeline integrity.

B.9.c.(2) Communications Capabilities.

Land-lines and satellite communications are used to exchange the necessary computerized data for pipeline monitoring and control. Bridger uses cellular phones as needed, to facilitate personnel communications during operation, maintenance, or emergency activities.

B.9.c.(3) Protection of the Pipe from Damage.

Bridger has an aggressive program in educating excavators and the public about the presence of the pipeline and preventing damage to the pipeline from excavating equipment. Bridger has joined and supports the North Dakota One-Call system and other one-call systems in the states where they exist.

The pipeline is protected from corrosion in a number of ways. Pipelines are covered with a protective coating. In addition, all buried or submerged metallic structures (pipeline systems) are under a cathodic protection system, as required by PHMSA regulations.

B.9.c.(4) Inspections.

Bridger conducts routine inspections of the pipeline and facilities to determine that the system is operating properly, in compliance with PHMSA regulations.

Each calendar year (not to exceed a 15-month interval), the cathodic protection system is monitored by taking pipe/structure-to-soil and line current (where possible) readings. Additionally, each rectifier and anode groundbed used to impose cathodic protection on the pipeline is inspected to ensure proper operation. Repairs and adjustments to the cathodic protection system are either made during the annual survey or during later maintenance activities. At least six times per year, each rectifier and critical cathodic protection interference bond to foreign structures is inspected and corrective measures taken, if needed.

Bridger also periodically evaluates the effectiveness of its cathodic protection system by conducting supplemental close interval surveys (e.g., close interval pipe to soil, etc.) of the system.

The pipeline route is patrolled by air at least 26 times per year to inspect the surface conditions of land on or adjacent to the pipeline right-of-way. If weather and other

conditions permit, this aerial inspection is conducted weekly. Line walking inspection of the right-of-way is sometimes used to supplement aerial inspections in congested areas. This inspection also assists in identifying unknown construction or other unsafe activity on the pipeline right-of-way.

Isolating valves are checked at least twice per year to ensure proper operation. In the event of a leak, it is important for valves to close properly to isolate the section of pipeline and minimize the amount of petroleum that may escape. Other components of the pipeline, such as tanks and pump stations are also routinely inspected.

Bridger began a program in the 1980s of periodically inspecting the pipeline internally with an electronic inspection tool – called “instrument pigs.” These devices travel through the inside of the pipeline and either mechanically, ultrasonically, or magnetically examine the condition (dents, gouges, corrosion, or cracks) of the pipe by on-board computers. Results of the inspection are then analyzed, and the pipe inspected to verify preliminary findings and then repaired as required.

All overpressure safety devices capable of limiting, regulating, controlling, and/or relieving operating pressures are inspected and tested to ensure the device is in good mechanical condition and functioning properly.

Periodically, government officials inspect Bridger’s compliance with applicable government regulations. Inspections of Bridger’s written procedures, records, and facilities are routinely conducted by the PHMSA.

B.9.c.(5) Maintenance.

Many other maintenance activities are performed on the pipeline and related facilities. Bridger has a comprehensive preventative maintenance program that meets and, in many cases exceeds, minimum federal safety standards set forth in PHMSA regulations, including 49 CFR Part 195. When facilities are added or replaced, there are comprehensive standards for their design and installation in both Bridger procedure manuals and contract specifications. Repair pipe is pre-tested and other components used to repair the pipeline meet national standards and regulatory requirements. Other procedures, such as welding procedures, movement of the pipe, coating repair, corrosion control, and tank maintenance are all guided by written procedures which have been reviewed by the PHMSA inspectors.

B.9.c.(6) Training of Personnel.

Bridger has established a comprehensive orientation, technical, safety, emergency, and on-the-job training program that is in compliance with the Operator Qualification rules issued by the PHMSA under 49 CFR Part 195. As personnel progress in pipeline operation and maintenance positions, they receive hundreds of hours of formal and on-the-job training. Demonstrations of competence are shown through review of job performance, periodic pipeline control system simulators, emergency exercises, welding certification tests, and other functions required to continue safe pipeline operation and maintenance.

B.9.c.(7) Public Awareness Program.

Bridger conducts a public education program to ensure that the affected public (those who work and live along the pipeline), excavators, local public officials, and emergency units of government are aware of how to recognize and avoid or respond to a pipeline emergency. Bridger has also been active at the local, county, and state level in emergency response planning and joint training/exercises to prepare all potential responders to deal with emergencies.

The pipeline route is marked at all public road and railway crossings (at a minimum) to increase the public's awareness of the underground pipeline. Additional markings are posted at valves, other pipeline facilities, and stations along the pipeline route.

B.9.c.(8) Emergency Preparedness.

Bridger's operating and maintenance practices are aimed at preventing emergencies on the pipeline. However, it is imperative that Bridger be prepared to respond to an emergency should one occur. In addition to preventative activities described above, Bridger's emergency response program includes pre-planning, equipment staging, notifications, and emergency and leak containment procedures and engaging the services of area contract spill responders. Oil Spill Prevention Control and Countermeasure (SPCC) plans have been prepared for all North Dakota transportation and non-transportation related storage and use facilities with aggregate storage capacities in excess of 1320 gallons. The emergency response plan has been submitted and approved by PHMSA as required by 49 CFR Part 194.