Certificate of Corridor Compatibility Application

Johnson's Corner Connector Crude Oil Pipeline
McKenzie County

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INTRODUCTION

Sacagawea Pipeline Company, LLC ("Sacagawea"), submits this Certificate of Corridor Compatibility Application to the North Dakota Public Service Commission ("Commission" or "PSC") for the proposed construction of a 16-inch crude oil pipeline approximately 13 miles in length located in McKenzie County, North Dakota. The pipeline will be known as the Johnson's Corner Connector Pipeline Project ("Project"). The proposed pipeline would originate from a service site at a location near Johnson's Corner, North Dakota (the origination point of the Project is hereinafter referred to as "Johnson's Corner"), and terminate at the Keene Crude Oil Terminal owned by Paradigm Midstream Services. The pipeline is located entirely in McKenzie County, North Dakota. The northern portion of the pipeline is collocated with the previously proposed Sacagawea Pipeline Project ("Sacagawea Pipeline"), which is currently pending before the Commission in Case No. PU-15-114.

The Project is needed to address transportation of growing volumes of crude oil. The pipeline system will be constructed to allow crude to flow in either direction. This feature allows for greater flexibility and access to more sales points depending on market conditions, and acts as a balancing point allowing the best price for North Dakota crude producers. The Keene Crude Oil Terminal will include an interconnection with the Sacagawea Pipeline. This pipeline interconnection and its interconnections to rail terminals and other pipeline systems will provide access to multiple refinery markets throughout the United States.

In accordance with Chapter 49-22 of the North Dakota Century Code, Section 69-06-08-02 of the North Dakota Administrative Code, and the Commission's Energy Conversion and Transmission Facility Siting Guidelines, Sacagawea provides the following information to support its request for a Certificate of Corridor Compatibility for the Project.

SECTION A DESCRIPTION OF PROPOSED FACILITY

A.1 Type and Size of Facility

A.1 (a) Type

The proposed Project will result in a new crude oil transmission pipeline approximately 13 miles in length. The steel pipe utilized for construction of the Project will meet United States Department of Transportation ("US DOT") regulations, specifically the design criteria outlined in 49 C.F.R. Subpart 195(C). The Project will be constructed per 49 C.F.R. Subpart 195(D). The Project will be operated and maintained per 49 C.F.R. Subpart 195(F).

A.1 (b) Size

The maximum capacity of the proposed Project will be 100,000 barrels of oil per day ("bbls/day"). The normal throughput will be 75,000 bbls/day.

Construction of the Project will involve the installation of 16-inch nominal diameter, steel, API-5L, PSL2, Grade X-60 ERW Line Pipe with a nominal wall thickness of 0.312 inches. Bore pipe will have a nominal wall thickness of 0.375 inches. The maximum operating pressure ("MOP") of the pipeline will be 1,440 pounds of pressure per square inch gauge ("psig"). Normal operating pressure will be 1,000 psig.

Valves will be 16-inch ANSI 600 manufactured in accordance with American Petroleum Institute ("API") Standard 6D "API Specification for Steel, Gate, Plug, Ball and Check Valves for Pipeline Service." Valves will be installed pursuant to US DOT regulations. The MOP of the valves will be 1,440 psig.

The maximum temperature of the crude will be 120°F, which is within design parameters. The proposed Project will typically operate between 60°F and 120°F.

A.1 (c) Length

The Project will involve approximately 13 miles of pipeline installation.

A.2 Purpose of Facility

The pipeline system will be constructed to allow crude to flow in either direction. This feature allows for greater flexibility and access to more sales points depending on market conditions, and acts as a balancing point allowing the best price for North Dakota crude producers. The purpose of the Project will be to transport crude oil either from Johnson's Corner to the Keene Crude Oil Terminal, or from the Keene Crude Oil Terminal to Johnson's Corner.

The Project is needed to address transportation of growing volumes of crude oil. The Keene Crude Oil Terminal will connect the Project with the Sacagawea Pipeline, which in turn offers connections to the Phillips 66 Partners Palermo Rail Terminal and options to connect to the Enbridge Crude Oil Terminal near Stanley, North Dakota. The interconnection with the Sacagawea Pipeline and its interconnections to rail terminals and other pipeline systems will provide access to multiple refinery markets throughout the United States.

A.3 Location

The Project would originate from a location near Johnson's Corner, North Dakota and terminate at the Keene Crude Oil Terminal. The Project is entirely located within McKenzie County, North Dakota. Figure 1.A.1 shows the general location of the proposed Project.

A.4 Aboveground Facilities

Surface facilities to be installed along the route will be limited to valves, pig launchers and receivers, pipeline markers, and rectifiers.

The Keene Crude Oil Terminal is an existing above-ground site, so the addition of equipment for the Project will be limited to meters and pumps. Above-ground valves and meters will be installed at the Johnson's Corner Service Site.

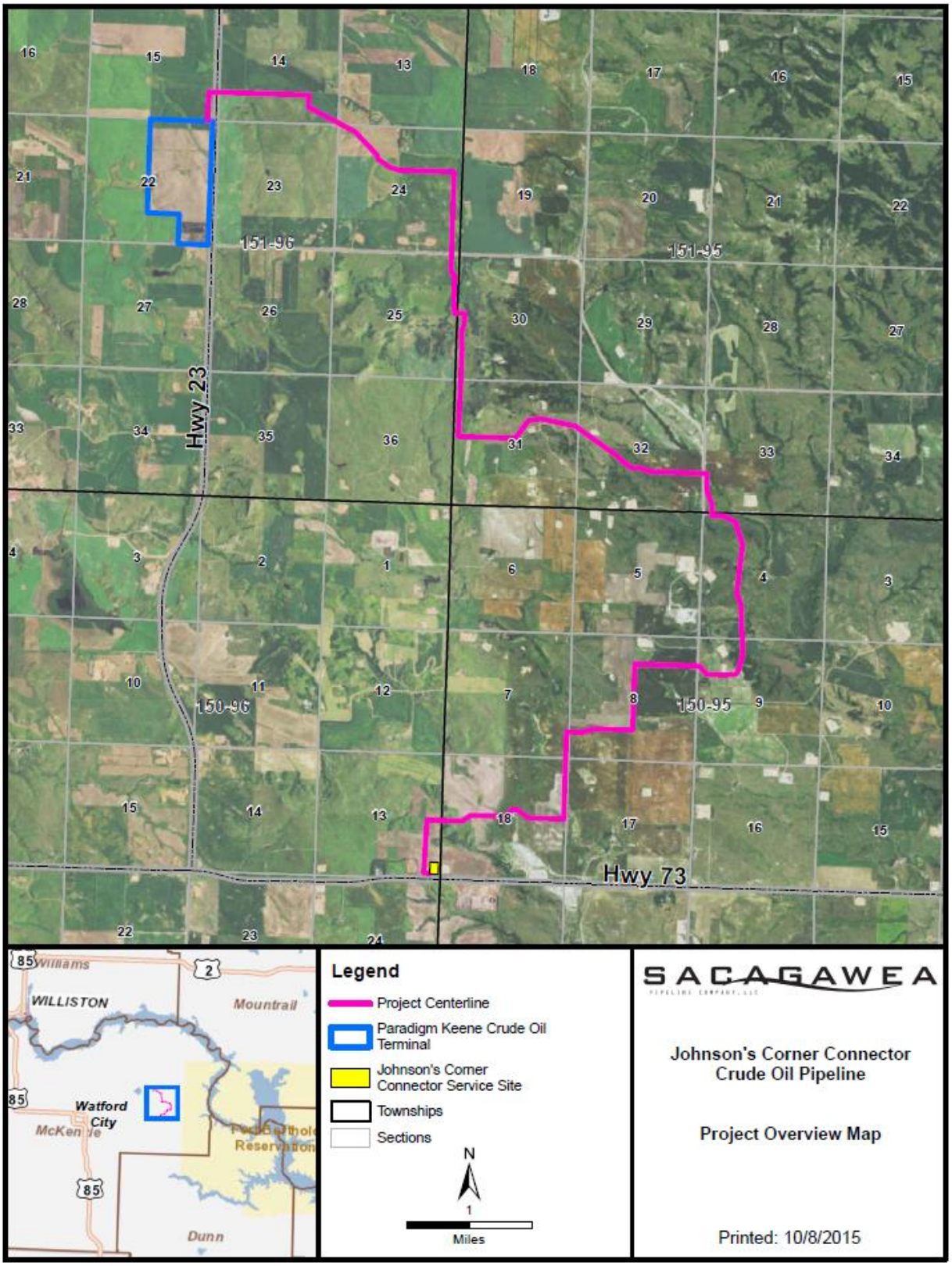

FIGURE 1.A.1 – General Project Location Map

A.5 Project Schedule

Sacagawea proposes to develop the Project on the following time schedule:

A.5 (a) Certificate of Corridor Compatibility

The Certificate of Corridor Compatibility Application is being submitted in November of 2015 as part of this Consolidated Certificate of Corridor Compatibility and Route Permit Application.

A.5 (b) Route Application

The Route Permit Application is being submitted in November of 2015 as part of this Consolidated Certificate of Corridor Compatibility and Route Permit Application.

A.5 (c) Right-of Way Acquisition Date

Right-of-Way acquisition is complete.

A.5 (d) Issuance of Certificate of Corridor Compatibility and Route Permit

A Certificate of Corridor Compatibility and a Route Permit for the Project are expected to be issued in March of 2016.

A.5 (e) Construction Start Date

Construction is expected to begin around April of 2016, contingent on approval from the Commission.

A.5 (f) Construction Complete

Construction for the Project is anticipated to last approximately four to six months following application approval.

A.5 (g) Test Operations

Test operations will occur following construction of the proposed Project.

A.5 (h) In-Service Date

All facilities are estimated to be in-service in or before September of 2016.

SECTION B STUDIES

B.1 Corridor

Section 69-06-05-01(2)(f) of the North Dakota Administrative Code requires that a corridor's width be at least ten percent of the length of the proposed project (i.e., 1.3 miles), but not less than one mile or greater than six miles wide unless approved by the Commission. In conjunction with the application for proposed construction of the Project, a one-mile-wide field corridor was studied. The accompanying Application for Waiver or Reduction of Procedures and Time Schedules ("Application for Waiver") requests that Sacagawea's Certificate of Corridor Compatibility and Route Permit Applications be approved using a one-mile-wide study corridor, rather than the 1.3-mile-wide corridor required by Section 69-06-05-01(2)(f).

B.2 Environmental Analysis

Studies were undertaken in conjunction with the proposed construction to evaluate the Project's potential impacts on recreational, environmental, and cultural resources. Specific study findings for the proposed corridor are discussed in detail in the Route Application (see Tab 3) and associated exhibits (see Tab 4). Significant features are depicted in Tab 4 on Figures 4.B.a which are overlaid on an aerial photograph. The Project route is also presented superimposed on a USGS Topographic map as Figures 4.B.b in Tab 4. This information is also presented as shapefiles on the enclosed CD-ROM disk in Tab 7 suitable for viewing with ESRI's ArcGIS mapping software.

Sacagawea engaged SWCA Environmental Consultants ("SWCA") to perform the environmental and cultural resource siting studies for the Project.

SWCA performed a Class I archeological file search using a 1-mile-wide study corridor of the pipeline route. A Class III field survey was performed on a 200-foot-wide corridor in August of 2015. Significant features are discussed in the Route Application (see Tab 3). The cultural resource location details are not presented here in a publicly available document per request of the North Dakota State Historic Society. The abstract of the report is being submitted as part of this application in Tab 4. Additional details of these sites will be provided to the Commission staff upon request.

SWCA conducted natural resource field surveys to identify exclusion and avoidance areas as specified in North Dakota Administrative Code 69-06-08-02 for the proposed Project. Field surveys were conducted using a 200-foot-wide survey corridor in September and November of 2013, August of 2014, and March and August of 2015. The purpose of these studies is to determine the potential presence and extent of wetlands and water bodies, including potentially jurisdictional waters of the U.S., within the survey area for the proposed Project. Concurrently with the wetland/water-body determinations, SWCA conducted a wildlife survey and habitat assessment that covered threatened and endangered species; a tree, sapling, and shrub enumeration survey; and a noxious weed survey. A copy of this report is included in Tab 4.

SECTION C NEED FOR FACILITY

C.1 Need for Facility Based on Current and Projected Demand

C.1 (a) Planned Use and Purpose

The purpose of the Project is to provide "mid-stream" transportation alternatives for the expanding volumes of crude oil produced in North Dakota and to facilitate efficient access to downstream takeaway markets. The pipeline system will be constructed to allow crude to flow in either direction. This feature allows for greater flexibility and access to more sales points depending on market conditions, and acts as a balancing point allowing the best price for North Dakota crude producers.

The Project will transport crude oil either from Johnson's Corner to the Keene Crude Oil Terminal, or from the Keene Crude Oil Terminal to Johnson's Corner. The Project is needed to address transportation of growing volumes of crude oil. The Keene Crude Oil Terminal will include an interconnection with the Sacagawea Pipeline. This pipeline interconnection and its interconnections to rail terminals and other pipeline systems will provide access to multiple refinery markets throughout the United States.

C.1 (b) Pipeline Capacity is Constrained in Western North Dakota

The major constraint in transporting oil and gas from North Dakota to refining centers is the lack of pipeline capacity. Several major projects have been planned to address the growing volumes, but pipeline capacity is not expected to keep pace with the production, leaving incremental volumes to find alternative transportation methods, primarily by rail.

C.1 (c) Recent System Studies Supporting the Analysis of the Need

The development of hydrocarbon production in the Williston Basin has increased significantly in recent years due to advancements in deep horizontal directional drilling techniques and subsequent oil extraction in the Bakken and Three Forks shale formations. The total recoverable amount of Bakken and Three Forks oil reserves is subject to interpretation and speculation. The most recent U.S. Geological Survey information estimated there may be 7.4 billion barrels of oil still undiscovered in the Bakken and Three Forks formations.[1] Information from the North Dakota Department of Mineral Resources indicates that oil production has increased dramatically over the past five years from approximately 330,010 bbls/day in August of 2010 to over 1,186,444 bbls/day in August of 2015,[2] with production expected to continue to increase.

An excerpt from "The Williston Basin: Greasing the Gears for Growth in North Dakota" prepared by Bentek Energy, LLC under contract from the North Dakota Pipeline Authority is presented in Tab 2 as Appendix 2.A. The 129-page report released July 25, 2012 highlights that oil production from the Williston Basin, which includes the Dakotas and Montana, soared more

[1] United States Geological Survey, Assessment of Undiscovered Oil Resources in the Bakken and Three Forks Formations, Williston Basin Province, Montana, North Dakota, and South Dakota (2013), available at http://pubs.usgs.gov/fs/2013/3013/.

[2] North Dakota Department of Mineral Resources, North Dakota Monthly Oil Production Statistics, *available at* https://www.dmr.nd.gov/oilgas/stats/historicaloilprodstats.pdf (last visited October 19, 2015).

than 400% in the five years prior to the report. Oil production from the Williston Basin is expected to continue to grow until 2025. In the report, Bentek Energy, LLC also estimates that planned refinery and pipeline projects will not be able to accommodate the increased production. Producers will therefore continue to rely on more expensive transportation options until additional pipeline capacity is available.[3]

Due in large part to production from the Bakken and Three Forks formations, the State of North Dakota is currently the second largest producer of crude oil in the United States. The state produced an all-time high of 1,227,483 bbls/day in December 2014.[4]

Sacagawea's proposed Project will provide needed capacity to transport increased production of crude oil from the Bakken and Three Forks formations.

C.1 (d) Other Expansions on the Sacagawea System

Sacagawea has submitted a Certificate of Corridor Compatibility Application and Route Permit Application, requesting permission from the Commission to construct an approximately 70 mile crude oil pipeline originating at Paradigm Midstream Services' Keene Crude Oil Terminal located approximately 2.8 miles south of Keene, North Dakota in McKenzie County and terminating at the Palermo Rail Facility owned by Phillips 66 Partners Terminal, LLC in Mountrail Country. *See* PSC Case No. PU-15-114. A hearing was held on August 21, 2015.

Sacagawea has submitted a Certificate of Corridor Compatibility Application and Route Permit Application, requesting permission from the Commission to construct an approximately 8 mile crude oil pipeline originating from the Palermo Rail Facility owned by Phillips 66 Partners Terminal, LLC terminating at the Enbridge Crude Oil Terminal located in Stanley. This entire pipeline is located in Mountrail County, North Dakota. *See* PSC Case No. PU-15-670. A hearing has been scheduled for January 12, 2016.

Sacagawea may construct other pipeline transmission facilities in McKenzie County to transport crude oil to the Keene Terminal for transport on the Sacagawea Pipeline. Sacagawea may also construct other transmission facilities in Mountrail County to deliver crude oil to points other than the Palermo Rail Facility. The need for and timing of other transmission pipeline facilities are subject to further commercial discussions and an expanded open season for Sacagawea.

[3] Bentek Energy, LLC, "The Williston Basin: Greasing the Gears for Growth in North Dakota," July 25, 2012, pp. 35, 47.

[4] NDIC, "Director's Cut," available at: https://www.dmr.nd.gov/oilgas/directorscut/directorscut-2015-10-13.pdf (accessed October 19, 2015). This document is also presented in Tab 2 as Appendix 2.B.

C.1 (e) Statement Concerning Deviations from Most Recent 10-year Plan

Sacagawea's Ten Year Plan for 2015-2025 was filed with the Commission on May 14, 2015, in Case No. PU-15-188. This plan outlined Sacagawea's plans to submit a Certificate of Corridor Compatibility Application and Route Permit Application, requesting permission from the Commission to construct an approximately 12 mile crude oil pipeline originating from a location 3 miles east of Johnson's Corner, North Dakota in McKenzie County and terminating at Paradigm Midstream Services' Keene Crude Oil Terminal located approximately 2.8 miles south of Keene, North Dakota in McKenzie County.

C.2 Alternatives to the Proposed Facility

Three alternatives to the Project were considered.

C.2 (a) No Action Alternative

The status quo could be allowed to continue, supported by trucking crude oil to existing pipeline unloading facilities and/or rail trans-ship facilities. Finding qualified cargo tank operators, already a critical issue, will continue to be difficult. Further, there will be additional wear and tear to county and state roads due to high truck traffic. Pipeline transportation (1) reduces truck traffic on the area's road network; (2) provides access to a wider range of markets; and (3) results in a more efficient and safer mode of transportation by reducing costs and the potential for accidents. A "no action" alternative is unacceptable to Sacagawea and its customers.

C.2 (b) Alternative Pipeline Design/Size

Based on the crude petroleum forecast and discussions with shippers and producers, Sacagawea determined that a maximum capacity of 100,000 bbls/day would be required and sufficient to meet the transportation requirements of its shippers. The 16-inch design provides the most efficient and cost effective combination of capital cost and pumping horsepower requirements for the required capacity.

C.2 (c) Alternative Pipeline Route

A full route alternative analysis was completed by Sacagawea. Sacagawea identified and evaluated several options for routing its Project. These studies were designed to define a preferred corridor that achieves Project objectives, is technologically and economically feasible to construct, and minimizes impacts on landowners and the environment. Sacagawea next evaluated this corridor for the optimum configuration. It was determined that the proposed route would minimize environmental and landowner impacts.

SECTION D LOCATION

D.1 Study Area

The proposed pipeline would originate from a location near Johnson's Corner, North Dakota and run approximately 13 miles northeast turning northwest, terminating at the Keene Crude Oil Terminal owned by Paradigm Midstream Services. The Project is located entirely in McKenzie County, North Dakota.

In conjunction with the application for construction of the proposed Project, a one-mile-wide corridor was studied via desktop studies. Field studies were completed using a 200-foot-wide corridor. The Class I archeological file search was completed using a 1-mile-wide study corridor of the route. A Class III field survey was performed on a 200-foot-wide corridor.

D.2 Map of Proposed Corridor

Because a consolidated application for a Certificate of Corridor Compatibility and a Route Permit is being submitted, maps (including USGS Quad and Aerial Maps) of the proposed corridor and route for the Project can be found in Appendix 4.B of the Route Application (see Tab 4). The location of exclusion and avoidance areas, as defined in Section 69-06-08-02 of the North Dakota Administrative Code, within the corridor are also depicted on the maps provided.

D.3 Criteria to be Evaluated

Because this application is part of a consolidated application for a Certificate of Corridor Compatibility and a Route Permit, the criteria to be evaluated are discussed in Section C of the Route Permit portion of the application (see Tab 3).

D.4 Relative Value of Each of the Criteria

Because this application is part of a consolidated application for a Certificate of Corridor Compatibility and Route Permit, the relative value of each of the criteria considered is discussed in Section C of the Route Permit portion of the application (see Tab 3).

SECTION E GENERAL MITIGATIVE MEASURES TO BE TAKEN

Because this application is part of a consolidated application for a Certificate of Corridor Compatibility and a Route Permit, the mitigation measures that Sacagawea proposes to take with respect to the Project are discussed in Section D of the Route Permit application (see Tab 3).

SECTION F QUALIFICATIONS OF PERSONS CONTRIBUTING TO THE STUDY

The qualifications of the personnel who contributed to the corridor location study are:

(1) Thomas G. Janik, VP Engineering – Paradigm Energy Partners, LLC

Degree: Bachelor of Science - Civil Engineering, Texas A&M University

Experience: 38 years of experience in the oil and gas industry including executive management experience in engineering and corrosion services, project and construction management, operations, and pipeline and facilities construction. In addition, he is experienced in the development and management of pipeline integrity management process safety management programs.

(2) Kathleen Spilman, Managing Director — Keitu Engineers & Consultants, Inc.

Degrees: Bachelor of Science - Chemical Engineering, University of North Dakota
Masters in Management, University of Mary

Experience: 33 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

(3) Heather Patch, Staff Engineer (Chemical) — Keitu Engineers & Consultants, Inc.

Degree: Bachelor of Science - Chemical Engineering, University of North Dakota

Experience: 3 years' experience in regulatory affairs and compliance.

SECTION G MAPS

G.1 Map of Criteria within Study Area

Because a consolidated application for a Certificate of Corridor Compatibility and a Route Permit is being submitted, the maps (including USGS Quad and Aerial Maps) of the proposed corridor and route of the Project can be found in Appendix B of the Route Permit portion of the application (see Tab 4). The location of exclusion and avoidance areas, as defined in Section 69-06-08-02 of the North Dakota Administrative Code, within the corridor are also depicted on the maps provided.

G.2 Maps of Study Area

The geographic information system ("GIS") software currently in use by Commission staff is ESRI's ArcGIS and companion software packages. A CD-ROM containing electronic copies of ArcGIS shapefiles outlining the proposed corridor has been included with this application as Tab 7.