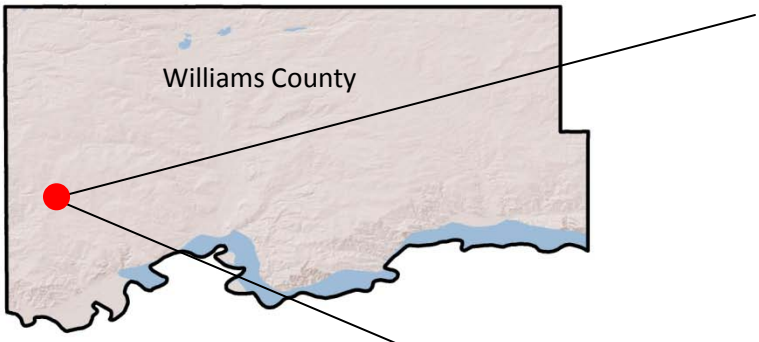
FEBRUARY 2011

APPLICATION TO THE NORTH DAKOTA PUBLIC SERVICE COMMISION FOR A CERTIFICATE OF THE SITE COMPATIBILITY FOR THE STATELINE 1 & 2 GAS PLANTS



BEAR PAW ENERGY, LLC
A SUBSIDIARY OF ONEOK PARTNERS, L.P.

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INTRODUCTION

Bear Paw Energy, LLC (Bear Paw) owns and operates natural gas gathering, processing and fractionation facilities in the Williston Basin in Montana, North Dakota and Saskatchewan, Canada, as well as natural gas gathering facilities in the Powder River Basin in Wyoming. Bear Paw's facilities interconnect to the interstate natural gas pipeline grid, which serves markets in the Rocky Mountains, Midwest and California.

In the Williston Basin, Bear Paw has approximately 3,700 miles of gathering pipelines with approximately 125 million cubic feet per day of capacity at four processing plants. Most of the wells connected to the facilities produce casinghead gas in association with crude oil. This casinghead gas is generally high in natural gas liquids (NGL) content, which are separated from the natural gas at the processing plants, fractionated into individual components and sold.

In response to growing demand for gas processing capacity of NGL produced in North Dakota, Bear Paw proposes to construct the Stateline 1 and the Stateline 2 Gas Processing Plants (the Stateline 1 and Stateline 2 Plants are referred to collectively herein as the Stateline Plants or the Plants) to address the growing demand for added gas processing capacity in the region. Bear Paw's proposed Plants would be located approximately 16 miles northwest of Williston in Williams County.

Bear Paw hereby submits to the North Dakota Public Service Commission (PSC or Commission) a single filing containing a request for waiver or reduction of procedures and time schedules and an application for a Certificate of Site Compatibility for its Stateline Plants Project.

This application provides the necessary information as stipulated by the North Dakota Century Code, Energy Conversion and Transmission Facility Siting Act, Chapter 49-22-08; and the PSC Administrative Code, Chapter 69-06-08-01 Energy Conversion Facility Siting Criteria.

The information presented in this application is organized according to the format prescribed in the PSC Application Guidelines for a Certificate of Site Compatibility, which divides the information into the following four main categories:

SECTION 1: DESCRIPTION
SECTION 2: STUDIES
SECTION 3: NEED FOR FACILITY
SECTION 4: LOCATION

To assist the Commission in its review of Bear Paw's application, Bear Paw has included with this application the information described in Section 49-22-09 of the

Century Code, Factors to Consider in Evaluating Applications and Designation of Sites, Corridors, and Routes. This information is placed toward the end of Section 4, following the discussion of the Facility Siting Criteria.

SECTION 1: DESCRIPTION

1.1 Type

Bear Paw's proposed Stateline Plants would be located approximately 16-miles northwest of Williston, North Dakota. As proposed, the Plants would be constructed on a plot of approximately 160 acres located in the SW ¼, Section 21, Township 155 North, Range 103 West of Williams County, as depicted in the map included in Appendix A.

The Stateline Plants will each operate independently of each other. However, Bear Paw will be establishing interconnecting piping between the plants for plant balancing or to provide backup processing capability if one plant is at reduced rates or shutdown. Each plant will be a gas processing facility with a design capacity of 100 MMscfd utilizing a cryogenic turboexpander process. The facility will process associated natural gas from oil production wells connected to Bear Paw's gathering system. The feed will be supplied to the proposed Plants via Bear Paw's existing gathering system and once processed, the NGL product will be transferred to on site storage tanks prior to being transferred by pipeline to a remote product storage and railcar facility already owned and operated by Bear Paw. Residual gas, largely methane and ethane, will be transferred to Williston Basin Interstate pipeline through a meter located in on the property. The gas will be shipped by Williston Basin to an interconnecting facility with Northern Border Pipeline for transit on that system.

Once constructed, the Stateline Plants will occupy approximately 80 acres of the 160-acre plot; the remaining acreage will be allotted for an electrical substation to provide electrical power for gas compression, provide space for product metering and serve as stormwater outfall, vehicle parking, and unused space for potential future expansion.

Construction of the Plants will include the installation of underground piping, above ground piping and above ground gas processing facilities. The major processing systems shall be located within the Plant Site; starting from the inlet gas and condensate piping as they enter each Plant. These systems include:

Inlet gas slug catchers;
Inlet gas condensate pumping, filtration, and stabilization;
Mole sieve dehydration;
NGL extraction (including refrigeration);
HP residue gas compression;
NGL product storage and pipeline pumps;

Flare system;
Drain system;
Plant control systems;
Utility systems (electrical, instrument air, and heat medium);

A simplified engineering flow chart depicting the facility's process and an overview plot plan drawing showing the layout of the proposed processing equipment are included in Appendix A.

1.2 Product

The each Plant will produce a NGL mix stream, containing products such as propane, butane, and natural gasoline, as well as pipeline grade natural gas, (a mixture of methane, ethane and small amounts of carbon dioxide).

1.3 Size and Design

1.3.1 Gross Design Capacity

The Stateline 1 Plant is designed with a nameplate capacity of 100 MMSCFD. Likewise, the Stateline 2 Plant is designed with a nameplate capacity of 100 MMSCFD. Appendix A includes a Design Data Report, which discusses the nameplate capacity in more detail.

1.3.2 Net Design Capacity

The net design capacity of each proposed Plant using a feed stream benchmark is 77.82 MMSCFD less 0.5 MMSCFD for utility natural gas.

1.3.3 Estimated Thermal Efficiency of the Energy Conversion Process and the Assumptions Upon Which the Estimate is Based

This not applicable to the process.

1.4 Provide One Copy of the Design Data Reports Separate from the Application

See Appendix A for complete Design Data Report.

1.5 Time Schedule

1.5.1 Certificate of Site Compatibility

Bear Paw seeks a Certificate of Site Compatibility by April 15, 2011.

1.5.2 Land Acquisition

Bear Paw purchased a 160.33-acre parcel from a private party for this project. The purchase agreement and for this transaction is dated December 30, 2010; the deed was filed on January 3, 2011 with the Williams County Recorder's Office.

1.5.3 Construction Start Date

Bear Paw will begin construction of the Stateline 1 Plant at the Plant Site upon receipt of necessary authorizations. Bear Paw anticipates that it will begin construction of the Stateline 1 Plant no later than April 30, 2011. Construction of the Stateline 2 Plant will commence approximately three months after the Stateline 1 Plant.

1.5.4 Construction Completion Date

Bear Paw anticipates that Stateline 1 Plant commissioning activities will begin in August, 2012, with a planned full in-service date of November, 2012. Bear Paw anticipates that the Stateline 2 Plant will be in-service before the end of 2012. Site work may continue including restoration work though May, 2013.

1.5.5 Test Operations

Bear Paw anticipates testing for the Stateline 1 Plant will be completed before the end of November, 2012. Bear Paw anticipates testing for the Stateline 2 Plant will be completed before the end of January, 2013.

1.6 Commercial Production Data for Stateline 1

Product	Production
Inlet Gas Rate	100 MMscfd
Mole Percent Ethane+	43%
Residue Gas Production	77.82 MMscfd
NGL Production	2,974,000 lbs/d
100 Percent Capacity Factor:	Not applicable to this process

1.7 Commercial Production Data for Stateline 2

Product	Production
Inlet Gas Rate	100 MMscfd
Mole Percent Ethane+	43%
Residue Gas Production	77.82 MMscfd
NGL Production	2,974,000 lbs/d
100 Percent Capacity Factor:	Not applicable to this process

1.8 Any Expansions or Additions

Bear Paw is currently evaluating the addition of de-ethanizer units for each Stateline Plant.

SECTION 2: STUDIES

2.1 Study Area

The Study Area is defined by the approximately 1-mile-wide buffer area centered upon the 160-acre project site. The Project Site and the Study Area is depicted on the maps found in Appendix B: Exclusion and Avoidance Areas, and Aerial Photography. The environmental analysis was conducted for the entire study area whose limit is delineated by the dashed line.

2.2 Site

The Site is a 160-acre parcel as depicted in the maps found in Appendix B. A natural resource inventory was conducted that encompassed this entire parcel; resources inventoried included habitat analysis, wetland delineation, and tree/shrub inventory. Cultural resource field studies were also conducted throughout the entire parcel.

Bear Paw initiated consultations with the federal and state agencies identified below for the purpose of environmental resource assessment relative to the potential impacts associated with the siting and construction of the proposed Plants at this location. Please refer to Appendix C for copies of these consultations.

U.S. Fish and Wildlife Service (FWS);
U.S. Farm Service Agency (FSA);
North Dakota Game and Fish Department (GFD);
North Dakota Parks and Recreation Department (PRD);
North Dakota State Historic Preservation Office (SHPO);
North Dakota State Lands Department (SLD); and
North Dakota Department of Health (NDDoH).

Consultations and field studies are summarized as follows:

2.3 Environmental Analysis

2.3.1 Natural Resource Inventory

Bear Paw retained SWCA, Inc. (SWCA) to conduct a natural resource inventory of the Site. A biological inventory of the Site was conducted to study the presence or absence of protected species and critical habitat. A tree/woody shrub inventory was completed. Field studies included a wetland and waterbody survey. The inventory and field studies were completed on November 2, 2009. A copy of the report can be found in Appendix D.

The Site is characterized as agricultural, with no trees or shrubs, and with no wetlands or waterbodies.

2.3.1.1 Botanical Inventory

The Site is comprised of a single vegetative community. The Site is dominated by a cultivated mixture of intermediate wheat (*Thinopyrum intermedium*) and alfalfa (*Medicago sativa*); though both smooth brome (*Bromus inermis*) and yellow seetclover (*Metilotus officinalis*) were observed as minor elements in the community.

2.3.1.2 Tree/Sapling/Shrub Inventory

No trees or shrubs were observed on the Site.

2.3.1.3 Wetland and Waterbodies Inventory

No wetlands were observed on the Site. Two features characterized as a Palustrine Emergent Wetland (PEM) have been cataloged and mapped by the National Wetlands Inventory (NWI) on the Site; however, a wetland delineation of the Site concluded there were no wetland features present on the Site.

No waterbodies were observed on the Site. A mapped feature characterized as an intermittent stream is depicted on United States Geologic Survey (USGS) topographic maps is depicted in the southeast quarter of the Site; however, a comprehensive study of the site concluded that no waterbodies are present on the Site.

2.3.1.4 Wildlife Inventory

The wildlife observed on the Site are species commonly associated with agricultural communities. Various common avian and mammalian fauna were observed. No federal or state species of concern were observed on the Site.

2.3.2 U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (FWS) administer several natural resource programs designed to indentify and protect various plant and animal species of special status including habitats deemed critical. Bear Paw's efforts thus far to engage the FWS in consultation for purpose of identifying and addressing potential concerns are detailed in the following sections.

2.3.2.1 Federally Protected Species Review

Under the authority of the Endangered Species Act (ESA), the FWS assess wildlife populations for viability throughout their current and historic ranges. Those species that have been characterized as Threatened or Endangered Species as well as their critical habitats are managed by the FWS under the authority of the ESA.

E3 Environmental, LLC (E3 Environmental) provided Bear Paw technical assistance with protected species review and subsequent consultations with the FWS. A review of the FWS published data identified the following listed species with the potential to occur within the study area:

Least tern (*Sterna antillarum*) – Endangered
Whooping crane (*Grus americana*) – Endangered

Piping plover (*Charadrius melodus*) – Threatened
Pallid sturgeon (*Scaphirhynchus albus*) – Endangered
Gray wolf (*Canis lupus*) – Endangered
Black-footed ferret (Mustela nigripes) - Endangered

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

Least tern: The interior population(s) of the least tern has historically been associated with large river systems for breeding and migratory habitats. Breeding birds are known to breed colonies, utilizing sandbar habitat common to larger rivers. Regionally the Missouri River, which is greater than 12 miles from the project site, is known to host remnant breeding populations of the terns. No terns or their habitat were observed on the Site.

Whooping crane: The whooping crane is a large-bodied marsh species that breeds primarily in Canada and winters in the Gulf of Mexico. This species has been closely studied and monitored in recent years due to its small population. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. This species prefers larger wetland complexes for roosting habitat, typically using adjacent uplands for foraging opportunities. The proposed project area was a previously cultivated cropland which may act as a viable stop over area; however, no significant wetlands were observed. As such, the proposed project area is unlikely to support whooping crane migratory stopover. Construction activities would likely serve as a deterrent, and once constructed the proposed facility would present a fairly prominent feature to be avoided relative to its surrounding landscape.

Piping plover: The piping plover is associated with shorelines along small alkaline lakes, large reservoir beaches, and river islands and adjacent sand pits. Breeding birds select wide beaches with highly clumped vegetation covering less than 25% of the area. Regionally the Missouri River, 12 miles from the project site, is known to host breeding populations of the plovers. It is unlikely that migrating piping plover would visit the project area during migration. The project site is not located within designated piping plover critical habitat.

Pallid sturgeon: The pallid sturgeon is known to occur in the Missouri River, which is located 12 miles from the proposed project site. This species is sensitive to changes in water quality due to turbidity, water temperature, and flow.

Gray wolf: The gray wolf is a large carnivore that through conservation measures has experienced strong population recovery, particularly in the Great Lakes states of the

upper Midwest. As populations rebound, individuals may break from packs to explore opportunities to establish packs in unoccupied territory. Roaming individuals can cover great distances without establishing viable breeding populations in previously unoccupied habitat(s). This species is not tolerant of human disturbance and will tend to avoid interaction with humans. The activities associated with construction and later plant operations would likely serve as a deterrent to this species.

Black-footed ferret: Black-footed ferrets are nocturnal, solitary carnivores. Ferrets inhabit extensive prairie dog complexes typically composed of several smaller colonies in proximity to one another that provide a sustainable prey base. This species has not been observed in the wild for more than 20 years.

On January 13, 2011, the Bismarck, ND office of the FWS concluded project specific consultations by providing concurrence that the proposed project will not adversely impact federally protected species or their critical habitats. See Appendix C for a copy of the correspondence.

2.3.2.2 U.S. Fish and Wildlife Service Migratory Bird Treaty Consultation

FWS is responsible for the protection of migratory birds; management of this responsibility has largely focused on protection of the birds while on their breeding grounds during the breeding season. It is generally understood that the FWS defines the breeding season in this region as occurring annually from February 1 through July 15. Cultivated land provides marginal habitat for breeding birds, tilled fields lack the vegetative cover necessary to provide suitable habitat. The Site shall be cleared of vegetation prior to the growing season. These efforts are intended to avoid direct impacts to breeding migratory birds.

On January 13, 2011, the Bismarck, ND office of the FWS concluded project specific consultations by providing concurrence that the proposed measures will adequately avoid and mitigate potential impacts to migratory birds. See Appendix C for a copy of the correspondence.

2.3.3 U.S. Fish and Wildlife Service Managed Lands

Conservation programs such as Waterfowl Production Areas, wetland and grassland easements represent an important tool used by the FWS to identify and manage high-quality wildlife habitat. A review of public records failed to identify any of these FWS managed lands in the project study area.

On January 13, 2011, the Bismarck FWS office concluded project specific consultations by confirming the absence of FWS managed lands within the proposed project study area. See Appendix C for a copy of the correspondence.

2.3.4 U.S. Farm Service Agency

Land conservation programs are administered at the county level through Williams County Farm Service Agency (FSA). These programs include the Conservation Reserve Program (CRP) and the Grassland Reserve Program (GRP) which are designed to compensate farmers for placing tillable lands into a non-agricultural conservation program; landowner participation is voluntary, yet financial considerations are available for participants.

On Bear Paw's behalf, E3 Environmental consulted with the local FSA office to confirm the presence or absence of CRP or GRP lands within the study area. Williams County FSA responded stating that this information is confidential; therefore, Bear Paw is unable to provide comment as to the presence of FSA managed lands.

2.3.5 North Dakota Game and Fish Department

The North Dakota Game and Fish Department (GFD) have oversight of the state's game species and certain state managed lands (i.e.; PLOTS). On December 30, 2010, the GFD confirmed the absence of both state managed lands and wildlife concerns associated with the project Study Area and Site. See Appendix C for a copy the correspondence.

2.3.6 North Dakota Parks and Recreation Department

The North Dakota Parks and Recreation Department – Natural Resource Division (PRD) scope of authority and expertise covers recreation and biological resources (in particular rare species and ecological communities). The PRD also maintains a database comprised of the location and recorded occurrences of plant and animal species of special concern.

On January 21, 2011, the PRD confirmed the absence of rare species and ecological communities within the Study Area and Site. The PRD also confirmed the absence of state lands or management projects under its jurisdiction within the Study Area or Site. See Appendix C for a copy of the correspondence.

2.3.7 North Dakota State Historic Preservation Office

The North Dakota State Historic Preservation Office (SHPO) is responsible for managing the historic and archaeological resources of the state. SWCA was retained by Bear Paw to survey the Site and report the results to the SHPO.

On November 2, 2010, SWCA conducted a Class I Cultural Resources Literature Search of SHPO records to identify previously completed cultural resource investigations and previously recorded cultural resources within 1 mile of the Site. No record of cultural resource investigations previously conducted within 1 mile of the Site was found. However, this research did identify two (2) previously recorded cultural resources located within 1 mile of the Site. Both are prehistoric in age, but neither has been evaluated with respect to eligibility for listing on the National Register

of Historic Places. No previously recorded resources were identified within the Site boundaries.

On November 2 and 9, 2010 SWCA conducted a Class III Cultural Resource inventory of the Site. Archaeologists completed a pedestrian survey supplemented with limited shovel testing of the 160-acre Site. The site is generally described as an agricultural field. No cultural resources were identified by the Class III survey.

SWCA prepared a Negative Results Report that detailed results from the literature search and survey. The report recommended no further cultural resource work. See Appendix E for a copy of this report.

On January 10, 2011 SWCA submitted the survey report to the SHPO seeking concurrence with the results and recommendations of the report. The SHPO responded on January 10, 2011 and concurred with the conclusions and recommendations as presented. See Appendix C for a copy of the correspondence.

2.3.8 North Dakota State Lands Department

The North Dakota State Lands Department (SLD) is in charge of managing surface acres and mineral interests held in trust for various schools and institutions.

On January 11, 2011, E3 Environmental initiated consultations with the SLD requesting comments regarding the presence of surface or mineral trust lands located within a 1-mile diameter of the project site. The SLD provided comment to E3 Environmental on January 11, 2011; no surface acres or mineral trust lands are located on the project site. Mineral trust lands do occur within the 1-mile buffer of the project site. See Appendix C for a copy of the correspondence.

2.3.9 North Dakota Department of Health

The North Dakota Department of Health (NDDoH) administers regulatory programs governing the state's interest air quality and water discharges. Bear Paw is currently engaged at various stages in the permitting process with the NDDoH with respect to air emissions and water discharges.

2.3.9.1 ND DoH Air Quality

The NDDoH administers the state's air quality protection programs. Bear Paw is applying for the required permits for construction and operation of the new emission sources. Equipment such as electric-driven compressors, heat medium fluid heaters, storage vessels, flares, and other ancillary equipment could be regulated emission sources and will be included in the permit application required by NDDoH for the construction and operation of air emission sources.

Bear Paw's design plans include incorporating the necessary control measures to reduce total emissions for the Plants and ascertain compliance with all state and

federal rules. The estimated emission reduction has not yet been finalized. The total estimated emissions for the Plants have not been finalized.

Bear Paw will obtain a NDDoH Air Pollution Control Permit to Construct that will address net potential emissions from the Plants. The permit is required prior to initiation of construction of a new stationary emission source. Once each of Plants is constructed and begins operations, Bear Paw will notify the NDDoH to procure an Operating Permit for the Plant, as required.

2.3.9.2 ND DoH Pollution Discharge Elimination System

The Pollution Discharge Elimination System (ND PDES) is the regulatory program that regulates water discharges. Bear Paw will procure the following ND PDES permits from the NDDoH for regulated discharges associated with the construction and operation of the Plants.

Construction Stormwater: Bear Paw will be seeking coverage under NDR10-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System* general permit for construction sites as required when disturbing an area greater than five (5) acres during construction. A project-specific erosion control plan referred to as Storm Water Pollution Prevention Plan (SWPPP) will be prepared and maintained on-site for the duration of the project. Bear Paw will properly implement the SWPPP which will be designed to manage run-off in a manner that will minimize exposure to chemicals, waste, or petroleum products as well as describing erosion control measures designed to minimize off-site transfer of sediments.

Construction site dewatering: Bear Paw will be seeking coverage under NDG07-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination* a general permit for various temporary discharges including both construction site dewatering and hydrostatic test water discharges. Site dewatering is required when groundwater infiltrated excavations (e.g., foundations and trenches) must be removed. Discharges are managed to minimize scouring and off-site transfer of sediments. Discharges are monitored and water quality samples will be collected, analyzed and reported as stipulated by the general permit.

Hydrostatic test water discharges: Bear Paw will be seeking coverage under NDG07-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination* a general permit for various temporary discharges including both construction site dewatering and hydrostatic test water discharges.

Industrial discharges: Bear Paw understands that the Plants will be exempt from a requirement to obtain an industrial discharge permit of stormwater. The Plants' SIC code is 1321, which is exempt from stormwater permit requirements. Additionally,

Bear Paw has developed no-contact facilities which are also eligible for exempt status, but require an NDDoH review of the facilities and stormwater control measures.

SECTION 3: NEED FOR FACILITY

3.1 Analysis of Need Based on Present and Projected Demand, Including System Studies

Recent technological advances in drilling and completion associated with horizontal wells currently employed in the Bakken Shale and Three Forks formations of the Williston Basin have dramatically increased hydrocarbon production in the area. In addition to technological advances, area drilling activity has increased measurably of late. Over the past 19 months, the reported number of drill rigs operating in North Dakota has increased from less than 40 in June 2009, to 163 rigs as of January 2011. The increased production continues to be constrained by take away capacity for both crude and gas products. While near term demands associated with increased crude oil production can be readily addressed with the installation of tankage for temporary storage coupled with additional trucking or rail capacity to bring it to market, the associated natural gas production is typically lost to flaring until the required infrastructure is placed into service. The requisite infrastructure includes gathering systems and gas processing to refine the raw feed stock into commercial products. The function of the gas processing plant is to separate commercial grade NGL such as butane, propane and ethane from casinghead gas and produces a residue gas that is pipeline quality natural gas. The plant also prepares these products for delivery. The rapid increase in gas production from Bakken and Three Forks wells has exceeded the limited processing capacity available at existing facilities, and construction of additional processing capacity is required to meet the demand of area producers. Absent the construction of additional processing capacity, gas produced in association with oil from these wells must be flared, which is a loss of revenue to the producers, royalty owners, and the state of North Dakota. Gas gathering and processing is a non-discretionary service that is required for the marketing and sale of natural gas produced in association with oil from these wells.

3.2 Description of Feasible Alternative Methods of Serving the Need

A thorough analysis of all reasonable alternatives was conducted. Various factors were considered by Bear Paw, including engineering, economic, and environmental factors in multidisciplinary and iterative fashion. This process identified the following alternatives.

No Action Alternative: Overall regional production would continue to be constrained by gas processing capacity, resulting in increased flaring at well head and loss of natural resources. This alternative is not desirable.

Expansion of Existing Processing Facilities: Bear Paw initially considered the expansion of its Grasslands Gas Plant located near Sydney, Montana in western McKenzie County. The Grasslands Plant was expanded from 60 MMcfd to 100 MMcfd

in 2009 when Bakken formation wells were first drilled in the Elm Coulee Field in Richland County, Montana. However, Bear Paw concluded that further expansion of the Grasslands Plant was uneconomical due to (i) a lack of sufficient space and limited capacity of peripheral equipment at Grasslands Plant to accommodate a major expansion and (ii) a lack of capacity in Bear Paw's high pressure gathering system to deliver significant volumes of gas production from Northern and Eastern Williams County to the Grasslands Plant, which is approximately 70-80 miles from the area where the production is currently being developed. This alternative is not desirable.

Bear Paw also considered sending additional gas to the Garden Creek Gas Plant located near Watford City in McKenzie County. This processing facility is slated to be mechanically complete in November 2011 and in full operation by the end of 2011. Bear Paw concluded that this was uneconomical due to the lack of higher capacity in the plant as designed. While equipment is not on site, the majority of the equipment was sized and purchased prior to the decision for the need to add additional capacity was made.

Alternative Plant Location A: Alternative locations were considered along the Montana/North Dakota border and Northern Williams County but were found to be uneconomical or have a higher impact to the local residential populations. This alternative is not desirable.

Alternative locations near the current site with different landowners, and with different parcels from the same landowner, were also considered but were found to have greater indirect impact to area resources as each alternative site considered would require installation of additional infrastructure (e.g., access roads, utilities, and delivery pipelines) and increased distance from Bear Paw's existing gas gathering system which would deliver gas to the plant). This alternative is not desirable.

3.3 Bear Paw's Most Recent 10-Year Plan

Bear Paw's most recent 10-year plan was filed October 29, 2010 (PU-10-621). The Stateline 1 Plant was listed in the 10 year plan as a "Planned Facility" in Section C for proposed facilities to be constructed within 5 years. The Stateline 2 Plant was listed in the 10 year plan as a "Potential Facility" in Section C for proposed facilities to be constructed within 5 years.

SECTION 4: LOCATION

4.1 Study Area

Bear Paw's Study Area includes a 1-mile-wide area surrounding the 160-acre Site as described in Appendix B. Bear Paw initiated agency consultations, Geographic Information System mapping, internet based research and desktop analysis when conducting the resource inventory of the Site. These efforts were augmented with biological and cultural resource surveys of the Site.

4.2 Identify and Map Criteria

The information presented in this section was developed to demonstrate conformation with the Commission's siting criteria for Energy Conversion facilities. Bear Paw has conducted a thorough inventory of the Study Area and evaluated the resources that occur within the Study Area and Site sufficiently to assess the compatibility of the Plants with the state's siting criteria. The following sections identify and discuss the presence or absence of siting criteria within the Study Area or Site. Where siting criteria is identified, its location is shown on the maps in Appendix B.

4.3 Exclusion Area Inventory and Analysis

Exclusion areas are geographic areas that should be excluded from consideration when siting an energy conversion facility. The following table and text identify and discuss exclusion areas identified within the Study Area or Site.

Exclusion Area		Project Site	Within Study Area
Federal			
	National Parks or Memorial Parks	No	No
	Historic Sites, Districts, or Landmarks	No	No
	Natural Landmarks or Monuments	No	No
	Wilderness Areas or Wildlife Areas	No	No
	Wild, Scenic or Recreational Rivers	No	No
	Wildlife Refuges or Grasslands	No	No
State			
	Forest or Forest Management Lands	No	No
	Historic Sites, Monuments, or Historical Markers	No	No
	Archaeological Sites	No	No
	Grasslands	No	No
	Wild, Scenic or Recreational Rivers	No	No
	Game Refuges or Game Management Areas	No	No

Exclusion Area		Project Site	Within Study Area
	Management Areas	No	No
	Nature Preserves	No	No
County			
	Parks	No	No
	Recreation Areas	No	No
	Municipal Parks	No	No
Other			
	Parks or public lands held by other government entities.	No	No
	Prime Farmland	No	Yes
	Irrigated Farmland	No	No
	Critical habitat for protected species	No	No

4.3.1 Federal Resource Review

Based upon a review of publicly available information, Bear Paw has concluded that there are no national parks, memorial parks, historic sites and landmarks, monuments, or wilderness areas within the Study Area or Site. Bear Paw has completed consultations with the appropriate federal agencies to confirm this conclusion. See Section 2 for a comprehensive discussion of Bear Paw's consultations.

4.3.2 State Resource Review

Based upon a review of field surveys and publicly available information, Bear Paw has concluded that there are no state parks, historic sites, monuments, historical markers, archaeological sites, or nature preserves within the Study Area or Site. Bear Paw has completed consultations with various agencies to confirm this conclusion. See Section 2 for a comprehensive discussion of Bear Paw's efforts.

4.3.3 County Resource Review

Based upon a review of publicly available information Bear Paw has concluded that there are no county parks, recreation areas, municipal parks, or parks owned by other subdivisions of government bodies within the Study Area or Site. Bear Paw has completed consultations with various agencies to confirm this conclusion. See Section 2 for a comprehensive discussion of Bear Paw's efforts.

4.3.4 Prime Farmland

Bear Paw conducted a review of published data to assess both the Study Area and Site for the presence of Prime Farmland. Bear Paw has confirmed that the absence of Prime Farmland within the Site. However, approximately 23.6 acres in the Study Area are classified as Prime Farmland. Project activities will not impact areas classified as Prime Farmland.

4.3.5 Irrigated Farmland

Bear Paw's investigation found no evidence of irrigation within the Study Area or Site.

4.3.6 Protected Species Resource Review

Bear Paw has conducted field surveys of the Site and reviewed published information and has concluded that there are no areas critical to the life stages of threatened or endangered animal or plant species within the Study Area or Site. Bear Paw has completed consultations with Federal and state agencies to confirm this conclusion. See Section 2 for a comprehensive discussion of Bear Paw's efforts.

4.3.7 Critical Habitat for Protected Species

Based upon consultations with agencies and surveys of the Site, Bear Paw has confirmed the absence of critical habitat within the Study Area and Site. See Section 2 for a comprehensive discussion of Bear Paw's efforts.

4.4 Avoidance Area Inventory and Analysis

Avoidance Area		Project Site	Within Study Area
Other			
	Other Historic Resources not meeting Exclusion Areas criteria	No	No
	Areas within City Limits or Military Installation Boundaries	No	No
	Areas within Known 100-Year Floodplains	No	No
	Areas of Known Geologic Instability	No	No
	Woodlands and Wetlands	No	Yes
	Areas of Recreational Significance not categorized as Exclusion Areas	No	No
	Areas within 500 feet of an Inhabited Rural Residence	No	No

4.4.1 Other Historical Resources Not Meeting Exclusion Area Criteria

Bear Paw conducted a Class I study of the Study Area and Site, and conducted a Class III cultural resource survey of the Site; these studies confirmed the absence of historical resources. Bear Paw has submitted survey results to the SHPO for review and comments seeking concurrence with this conclusion. On January 10, 2011, Bear Paw received SHPO concurrence. See Section 2 for a comprehensive discussion of Bear Paw's efforts.

4.4.2 Areas Within City Limits or Military Installation Boundaries

Bear Paw has confirmed that the Study Area and Site are not located within city limits or within the boundaries of military installations.

4.4.3 Areas Within Known 100-Year Floodplains

Typically, flood hazards are benchmarked with Federal Emergency Management Administration's (FEMA) 100-year floodplain analysis. Unfortunately, many rural areas have not been mapped by FEMA. The Site's average elevation is approximately 100 feet higher than the nearest waterbody. This difference in elevation suggests the site is clear of a 100-year floodplain.

4.4.4 Areas of Known Geologic Instability

There are no known areas of geological instability within the Study Area or Site. North Dakota has not experienced an earthquake of sufficient magnitude to damage welded steel piping or structural steel in recorded history. Sink holes are known to occur in North Dakota but are more closely related to mining activities and no evidence of mining or sink holes were identified. Finally, the potential for landslides was evaluated. Earth movement of this nature is closely associated with areas of great topographic relief, high gradient slopes, recent deposits that have yet to reach a stable angle of repose, or where underground water movement may create a slurry of rock and mud resulting in a subsidence. Nothing of this sort was found.

4.4.5 Woodlands and Wetlands

Natural resource studies of the Site augmented GIS analysis and agency consultations when assessing wetland, waterbody and woodland resources of the Study Area. Woodlands associated with waterways and property/section lines occur within the Study Area but none were found on the Site.

Several mapped wetland features were inventoried within the Study Area, a site survey was commissioned to study the potential features located within the Site. An inventory of waterbodies also revealed several mapped features, characterized as intermittent streams, within the Study Area. These waterbody features are consistent within the general topography of the area and are indicative of surface drainage patterns. A field survey was also commissioned to study the mapped waterbody feature located within the Site.

A desktop inventory of the Site identified two mapped wetland features. However, wetland biologists who surveyed the Site attempted to locate these features but failed because definitive wetland characteristics were no longer present. Desktop analysis also identified a mapped waterbody, characterized as an intermittent stream, located within the Site; though field studies failed to locate this feature. A comprehensive survey was conducted of the entire Site on November 2, 2010 which confirmed the absence of any wetland or waterbody feature. See Appendix D for the natural resource studies and wetland/waterbody delineation report for this Site.

4.4.6 Areas of Recreational Significance Not Categorized as Exclusion Areas

No areas of recreational significance occur within the Study Area or Site.

4.4.7 Areas within 500 Feet of Inhabited Rural Residence

Bear Paw has confirmed the absence of inhabited rural residence within the Study Area or within 500 feet of the Site.

4.5 Factors to be Considered in Evaluating Applications and Designation of Sites, Corridors and Routes (Section 49-22-09, N.D.C.C.)

4.5.1 Selection Criteria

The selection criteria require a study of environmental impacts and changes in land use that may result from the siting of the proposed facility. Through this process, Bear Paw proposes that it has successfully avoided or minimized these effects to the maximum extent practicable, for Commission review and approval.

4.5.1.1 Agricultural Impact Assessment

Agricultural Production: The Plants will remove approximately 160 acres of tillable land from agricultural production. This parcel represents the minimum amount of surface area necessary to develop the gas processing capacity with current design specifications while maintaining minimum spacing requirements for the equipment, and installation of necessary peripheral equipment such as a flare, power substation, roads, and continually occupied office building.

Family Farms and Ranches: The property was acquired through a purchase agreement negotiated by Bear Paw and the landowner. The Site will be converted from a family farm/rangeland to an industrial use. The Site is over three-quarters of a mile from the nearest farm structures, which are unoccupied and currently used by the landowner for storage. No other impacts to family farms or ranches are anticipated.

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 combination of topographic relief and soil characteristics at the Site indicate that the Site is not suitable for irrigation. No above-ground irrigation systems have been identified in the Study Area.

Surface Drainage: The existing surface drainage pattern at the Site is to the east toward an unnamed intermittent tributary to Painted Woods Creek. Bear Paw has studied the site with respect to stormwater run-off management and has determined that the most effective means of controlling stormwater flows will be to implement certain engineered structural control measures to manage run-off from the plant in combination with a passive system that utilizes the natural drainage of the

undeveloped portions of the Site. These open green spaces will serve as natural filtration of sediments and shall promote onsite infiltration.

Ground Water: The aquifers that underlay North Dakota are typically associated with two types of geologic formations, specifically bedrock and glacial drift. Bedrock aquifers in the area are known to occur from 3,000 to 5,000 feet below the surface while glacial drift aquifers are known to occur at depths of from a few feet to up to 500 feet below the surface. Ground excavation associated with the project will generally be limited to depths no greater than 8 feet; as such, it is unlikely that the project would have significant or permanent impact on groundwater resources. Bear Paw will be seeking a permit to install a ground water well to provide a source of water during construction and as a source of utility water to the office building after construction.

Agricultural Quality of the Cropland: Land acquired for the Plant will be permanently removed from agricultural production. No other impact to agricultural lands is anticipated.

4.5.1.2 Impact Upon the Availability and Adequacy of

Local public services: The potential impacts to local public services including law enforcement, fire department, health care, public schools, and recreational facilities are anticipated to be temporary in duration and minimal in their overall effect to existing programs and systems.

Construction activities are anticipated to occur over an 18 to 24 month period for each Plant. During this period, there will be an influx of employees ranging from laborers, skilled trades, technicians, engineering and environmental professionals. The work force will typically engage 100 individuals, with periods where the workforce will increase to levels of up to 300 individuals for periods of high construction.

Area resources may experience increased demand on services with the addition of construction workers temporarily residing in the area. The peak demands will likely occur in late 2011 and early in 2012. The most noticeable impact may be due to an increase in vehicle traffic associated with the plant.

Prior to construction, Bear Paw will coordinate with local health care providers and emergency responders to discuss emergency response coordination.

4.5.1.3 The Impacts Upon

Local Institutions: Due to its proximity to the project site, Williston may see the greatest impact from the project. The city of Williston is 16 miles away to the southeast of the Stateline Plants. These impacts from facility construction will be temporary as the majority of the construction will be completed in 2012. Once operational the Plants will employ approximately 35 full time employees and will conduct business with many local contractors and businesses. Generally, the impacts

will be beneficial to the local economy due to the addition of revenues from outside of the community being spent on goods and services locally. The beneficial impacts of the additional workforce associated with permanent workforce required to operate the facility will have long term benefits on the economy that are anticipated to be greater than the demands placed upon the institutions.

Noise-Sensitive Land Uses: There are no noise-sensitive resources located within 500 feet of the Site. Bear Paw has identified one unoccupied dwelling located within the Study Area that is located approximately 0.75 miles from the Site where the owner maintains buildings for storage. The project has been sited approximately 16 miles from Williston in a rural setting, effectively isolating the project from the majority of sensitive receptors. Local residents may experience additional motor vehicle volumes on area roadways, but the noise associated with vehicles will be similar to existing background levels and occur largely during normal business hours.

Rural Residences and Businesses: The project is located approximately 16 miles from Williston. Residents may experience additional traffic congestion and an increase in commerce in response to the influx of temporary workers purchasing goods and services. The Plants will likely benefit the local economy for both the near and long term.

Aquifers: Water demands during and after construction are anticipated to minimal. A ground water well has been planned to provide water during construction and serve as utility water during operations. Bear Paw expects the permitting process associated with siting the well will ensure that the resource will be sufficient to support the anticipated demand without impacting other current or anticipated beneficial use of the resource.

Human Health and Safety: Bear Paw promotes a safe and healthy workplace during construction and operations of all its assets. A corporate policy that meets or exceeds federal and state laws, rules and regulations is enforced and adhered to by all regular and contract employees. Bear Paw governs operations and construction activities with various safe work procedures designed to protect property and personnel and maintaining regulatory compliance.

Animal Health and Safety: The wildlife currently inhabiting the Site are common and are generally mobile. The local wildlife inhabitants will be displaced by the project without a measurable impact to the viability of these populations. No species of special concern are anticipated to experience direct impacts due to construction or operation of the Plant.

Plant Life: The project will result in the loss of negligible amount of pasture land, when measured on a county- or state-wide basis. No species of special concern will be impacted by the project.

Temporary and Permanent Housing: The region has experienced increased demand for permanent and temporary housing as the result of the continued expansion of resource production. The area has witnessed this increased activity since the early 2000's and as a result has steadily increased lodging resources in response. The temporary work force is expected to be well aware of the situation and willing to accept non-traditional lodging opportunities such as work camps if necessary. Bear Paw has initiated contract negotiations to expand an existing temporary work camp in the Williston area to accommodate the Project's workforce.

Temporary and Permanent Skilled and Unskilled Labor: Construction of the combined Stateline Plants will require a work force of approximately 300 temporary employees. The construction employees will be comprised of both skilled and unskilled personnel. Skilled labor will include craft workers such as operating engineers, iron workers, welders, electricians, carpenters and boilermakers. The unskilled workforce will be comprised of common laborers who work closely with the skilled trades.

Once the Plants are operational, they will require approximately 35 full-time employees. These personnel will be responsible for day-to-day operations, maintenance, and support of local gathering assets that supply the Plants.

4.5.2 Cumulative Effects of the Location of the Facility in Relation to Existing and Planned and Facilities and Other Industrial Development

Bear Paw is not aware of any new planned facilities or industrial developments at the Site. The introduction of additional gas processing capacity may expose existing demand that may result in development of additional gathering capacity. Also a result of new processing capacity, there may be development of additional take-away capacity to bring the product to market.

4.6 Policy Criteria

The Commission may give preference to an applicant that will maximize benefits that result from the adoption of the following policies and practices, and in proper case may require the adoption of such policies and practices. The Commission may also give preference to an applicant that will maximize interstate benefits.

4.6.1 Policies and Commitments to Limit Environmental Impact

Bear Paw is committed to conducting its business in compliance with all applicable environmental laws and regulations. These laws, regulations and standards are designed to safeguard the environment, human health, wildlife, and natural resources.

Our commitment to observe them faithfully is an integral part of our business and our values.

Bear Paw will make environmental considerations contained in the permits and authorizations received for this project a priority. Bear Paw will conduct its activities with the objectives of providing a healthful and safe workplace for our employees, preventing accidents and environmental incidents, and controlling emissions and wastes to below harmful levels.

Bear Paw will require all persons and firms providing service to it to conduct their work in compliance with environmental conditions, permit authorizations, and regulations, and will hold them accountable for their actions in that regard.

4.6.2 Recycling of the Conversion Byproducts and Effluents

There are no direct conversion byproducts for this gas process. The Stateline Plants are designed to separate wellhead gas and any accompanying fluids into various commercial product streams with the exception of produced water that is entrained with the untreated feed stock. Produced water is removed from the plant inlet separators, which operate at 600 psig, to a secondary vessel operating at 60 psig. This reduced pressure allows any remaining entrained volatile components to separate as a gas from the water prior to transferring the remaining water to a storage tank at atmospheric pressure. Both Stateline Plants will have 3 zeolite mole sieve beds for dehydrating the associated gas upstream of the cryo-thermal portion of the plant. The zeolite has a limited operational life span and will require periodic replacement. The frequency of zeolite replacement will vary depending upon the qualities of the gas entering the plant for processing. The zeolite will be removed, as necessary, and processed (eg. recover recyclable portions and dispose of the remainder properly) by the vendor. The water vapor is condensed at 600 psig and moved to the same secondary vessel that treats the produced water from the inlet separators. From there, the produced water is removed by a third party vendor for treatment and disposal. Used lube oils from operating compressors are stored in an atmospheric storage tank prior to being removed by a third party vendor for treatment and recycling.

4.6.3 Energy Conservation Through Location, Process and Design

The siting of the Plants in close proximity to wellhead and gathering systems reduces emissions associated with shipping raw feed gas over greater distances. Waste energy is generated in the expansion of cooled inlet gas to the cryo-thermal gas plant. The gas is first chilled to condense liquids. After separation, the temperature of the gas lowered further via the process of throttling expansion in the expander section of the turbo-expander. The expander is tied by an integral shaft to a compressor to compress gassed from the stabilizer overhead prior to the residue compressors. The mechanical efficiencies of the turbo-expanders can achieve 90 percent.

4.6.4 Training and Utilization of Available Labor in This State for the General and Specialized Skills Required

Gas plant construction is a specialized niche construction market and the labor force needed to build the Plants will be primarily comprised of a non-local workforce. The primary contractor will be a non-local contractor, supplying specialized skilled labor. Bear Paw will draw upon the local labor force to supply general laborers. The workforce is anticipated to reach a peak of approximately 300 personnel of which up to 10 percent could be drawn upon locally.

4.6.5 Use of a Primary Energy Source or Raw Material Located Within the State

The raw feed gas supplying the proposed Plants will be produced and processed primarily in this State with some additional gas being supplied from eastern Montana. The Plants products will be shipped to delivery points in State and transported out of state.

4.6.6 Nonrelocation of Residents

No residences shall be displaced or require relocation due to the Project.

4.6.7 The Dedication of an Area Adjacent to the Facility to Land Uses Such As Recreation, Agriculture, or Wildlife Management

Bear Paw does not own property adjacent to the proposed Project suitable for recreation, agricultural, or wildlife management purposes. The current land use of properties adjacent to the Project is agricultural/range land (see aerial photograph in Appendix B).

4.6.8 Economies of Construction and Operation

Bear Paw has designed the Plants to take advantage of the Site's proximity to existing electrical supply and gathering system piping for its location. The Plants will use an existing gathering line system to deliver raw feed stock to the Plants from the gathering fields and generate new delivery points for processed natural gas and Y-grade (unfractionated) NGL. The Plant's location and design are clear examples of creating an economy of scale project concept, achieving additional production capacity in the most minimally intrusive and most efficient way possible, in terms of new infrastructure development.

4.6.9 Secondary Uses of Appropriate Associated Facilities for Recreation and the Enhancement of Wildlife

Construction of the Plants will result in the development of an industrial facility and a setting not typically suitable for recreational or wildlife application.

4.6.10 Use of Citizen Coordinating Committees

Bear Paw has established and maintained a good relationship with the local residents through its presence operating gathering systems in the area. Through these

relationships Bear Paw has maintained several grass roots communication channels to inform local residents regarding the developments associated with the Plants. At the time of writing, Bear Paw has received a recommendation for approval of a Williams County Conditional Use Permit for the gas plant as required by Williams County zoning codes. Bear Paw expects the zoning to be formally approved by the Williams County Commissioners in February. Additionally, Bear Paw met with the government and economic groups from Williston and Williams County listed below. A summary of each meeting is contained in Appendix C.

Williston Economic Development Council
Williams County Superintendant, Dennis Nelson
Williams County Commissioners
Williams County Emergency Response Coordinator, Mike Hallesee
Williston Chamber of Commerce
Hebron Township President, Floyd Miller

4.6.11 A Commitment of a Portion of the Transmitted Product for Use in This State

The raw feed gas supplying the proposed Plants will be produced primarily in this State with some additional production being supplied from eastern Montana. The products of the Plants will be transported to delivery or transfer points located both in State and out of State. Natural gas, NGL and natural gasoline end users in North Dakota may contact marketers to arrange purchase and delivery to their location using existing Bear Paw points of sale.

4.6.12 Labor Relations

Bear Paw does not anticipate encountering any adverse labor relations on this Project. The labor market in the Project area is supportive of the oil and gas industry.

4.6.13 The Coordination of Facilities

Bear Paw through its corporate parent, ONEOK Partners, L.P. is actively pursuing natural gas gathering and processing development projects in northwestern North Dakota. Bear Paw will coordinate the construction of the Plants with its other gas gathering/processing construction projects. Coordinating construction activities will result in greater efficiencies by using much of the same labor pool and often the same construction equipment.

4.6.14 Monitoring of Impacts

Bear Paw will coordinate with its primary contractor, Linde Process Plants, Inc., the oversight responsibilities for construction activities at the Site. Environmental responsibilities shall be coordinated in the same manner.

4.6.15 Problems Raised by Federal Agencies, Other State Agencies, and Local Entities

Bear Paw has initiated consultations with several federal, state, and local authorities who have environmental oversight authority. The purpose of these consultations is the identification of potential natural resource issues related to the Plant. Responding agencies have not raised any concerns. Bear Paw will remain responsive to agency input through construction, restoration and operations.

SECTION 5: MITIGATIVE MEASURES

Bear Paw's commitment to minimize environmental impacts is a key mitigation element. As described previously, Bear Paw's design took into consideration various elements to maximize efficiencies while minimizing impacts to the environment. This combination of actions effectively mitigates the impacts of the Plant.

SECTION 6: LIST OF PREPARERS

Russ Clark, P.E.
Project Engineer
ONEOK Partners, 100 W. Fifth Street, Tulsa, OK 74103

B.S. Chemical Engineering, Montana State University - Bozeman
Mr. Clark has worked as an engineer in the petroleum and natural gas industries for 10 years. As a process engineer, he has designed and overseen the implementation of several natural gas projects in the past two years. Mr. Clark is a licensed Professional Engineer by examination in the State of Colorado.

Joseph Soerries, P.E.
Project Manager
ONEOK Partners, 100 W. Fifth Street, Tulsa, OK 74103

B.S. Mechanical Engineering, University of Tulsa.
Mr. Soerries has worked in many different positions in the petroleum and natural gas industries for over 30 Years. As a project manager, he has managed over 10 natural gas processing plants in the past twenty years. Since 1982, Mr. Soerries has been a licensed Professional Engineer by examination in the State of Oklahoma.

William McCarthy, C.W.B.
Senior Environmental Compliance Analyst
E3 Environmental, LLC, 817 Vandalia Street, St. Paul, MN 55114

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

Tyson Schreiner, G.I.S.P.
GIS Specialist
Senior Environmental Compliance
E3 Environmental, LLC, 817 Vandalia Street, St. Paul, MN 55114

B.S. Natural Resources and Environmental Studies, University of Minnesota – Twin Cities. Mr. Schreiner has also obtained a Professional Certification in his area of technical expertise, Geographic Information Systems. Mr. Schreiner has 13 years of professional experience. Mr. Schreiner's GIS experience involves creating data from

various sources and formats including: hard copy maps, Global Positioning Systems (GPS), Agency databases, CAD or other formats.

Judith Cooper. Ph.D.
Archaeologist/ Principle Investigator
SWCA, Inc., 116 North 4th Street, Suite 200, Bismarck, ND 58501

Ph.D. and M.A. Anthropology, Southern Methodist University and B.A. Anthropology, Pennsylvania State University. Dr. Cooper has over ten years of experience in North American archaeology and has worked on field (survey, testing, and recovery) and research projects in the northern Great Plains and Rocky Mountains. Dr. Cooper is experienced in federal and state cultural resources law and regulations, including Section 106 of the National Historic Preservation Act. As the Cultural Resources Lead in the SWCA's Bismarck office, she serves as a member of multi-disciplinary project teams to assure cultural resource concerns are appropriately addressed during the regulatory process.

Appendix A
Engineering Documents

PROJECT DESIGN DATA

2.1. PLANT CAPACITY

Stateline 1 and Stateline 2 are to be designed with a **nameplate capacity of 100 MMSCFD** to accommodate the 2010 forecasted gas composition shown below. The plant must also have enough incremental capacity to accommodate intra-day flow swings of approximately - 10 MMSCFD. This and other design considerations are discussed further in the **Project Design Philosophy** document provided in Appendix 5.4.

2.2. FEED STREAM FLOWS & COMPOSITIONS

Raw associated gas from oil production wells was designed to enter the plant fence at a pressure between 550 and 1100 psig at a temperature between 40 ^{o}F and 90 ^{o}F. The inlet slug catcher is to rated to handle a maximum of 100 MMscfd of inlet gas flow at 1,100 psig (MAWP). Raw inlet gas is limited to 4 ppm Hydrogen Sulfide. For the purposes of design, refer to the table below.

Inlet Gas Flow

Components	**Mol%**	**GPM**
Nitrogen	2.082	
Carbon Dioxide	0.593	
Hydrogen Sulfide	0.000 (less than 4 ppm)	
Methane	58.208	
Ethane	21.859	5.828
Propane	11.553	3.173
Iso-butane	1.103	0.360
Butane	3.145	0.989
Iso-pentane	0.472	0.172
N-pentane	0.654	0.236
Hexane	0.199	0.145
Heptane	0.099	(included in the Hexane GPM)
Octane plus	0.033	
Totals	100.000	Ethane + 10.904 gpm Propane + 5.076 gpm

2.3. BATTERY LIMIT CONDITIONS

Inlet gas conditions at the plant inlet

	Design	**Maximum**	**Minimum**
Gas Volume (MMscfd)	100	100	40
Gas Pressure (psig)	600	1100	550
Temperature (^{o}F)	80	90	40
Hydrogen Sulfide (ppm)	3.0	4.0	0.0
Water Content (lbs water/MMscf)	Saturated	Saturated	0.0

2.4. PRODUCT SPECIFICATIONS

2.4.1 NGL Product Specifications

Y-Grade Product	Design	Maximum	Minimum
Pipeline MAOP (psig)	1,440	1,440	N/A
Carbon dioxide to ethane liquid volume ratio	0.0035	0.0250	N/A
Methane to ethane liquid volume ratio	0.010	0.015	0.05
Methane vol% of total hydrocarbons	N/A	0.50	N/A
Vapor pressure at 100 ^{o}F (psig)	550	600	N/A
Copper Strip test at 100 ^{o}F	N/A	N/A	No. 1
Minimum product temperature (^{o}F)	60	N/A	40
Maximum product temperature (^{o}F)			
- Product with >= 65 mol% ethane	80	90	N/A
- Product with < 65 mol% ethane	100	110	N/A

Natural Gasoline (Condensate)	Design	Maximum	Minimum
Reid Vapor Pressure at 100F	13.0	14.0	12.0
Liquid vol% of Propane	0.0	0.0	None
Liquid vol% of Butanes	3.0	6.0	1.5
Liquid vol% of Pentanes	N/A	N/A	40.0
Liquid vol% of Hexanes and heavier	N/A	50.0	N/A

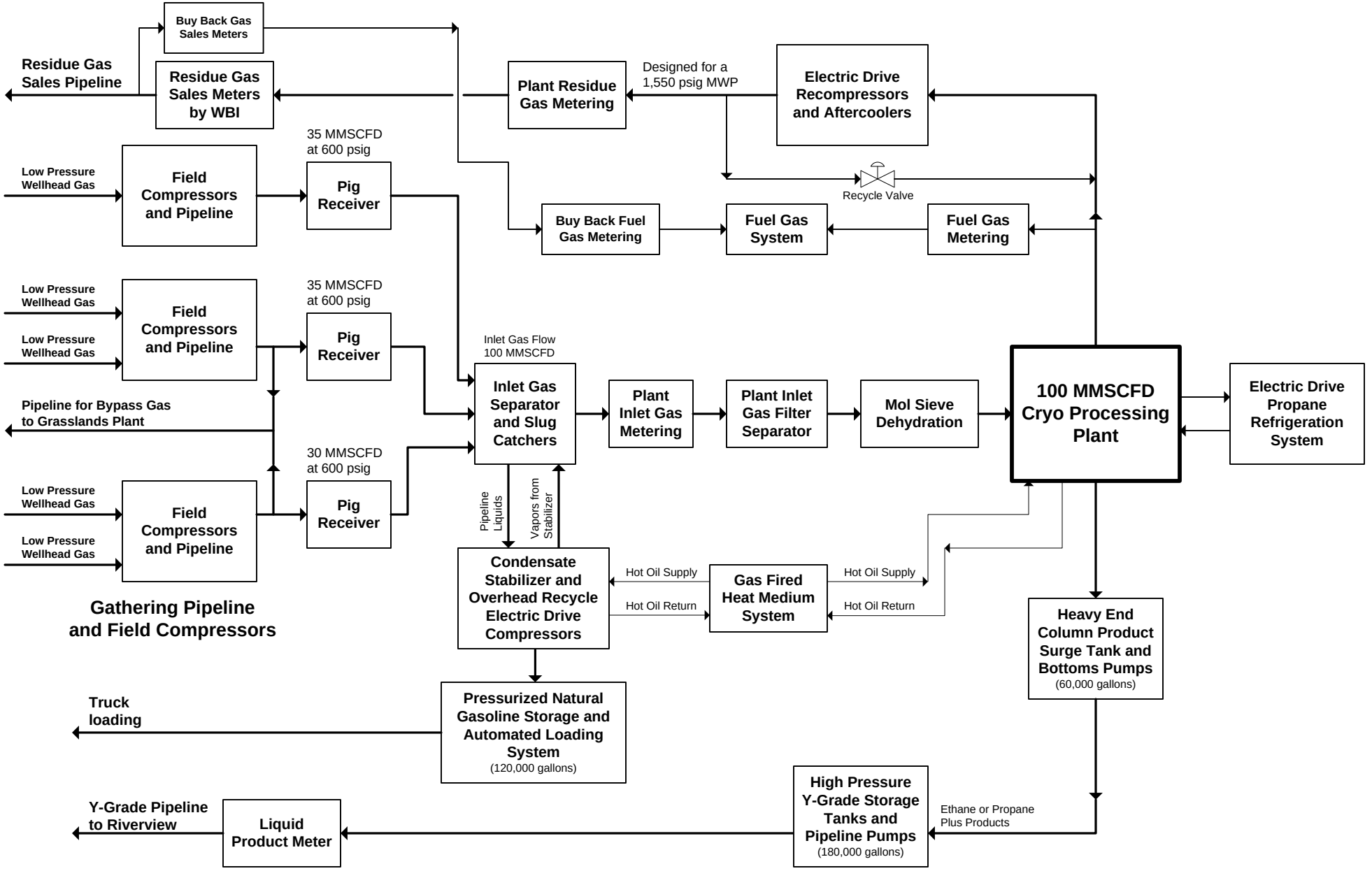
2.4.2 Residue Gas Pipeline Specifications

	Design	Maximum
Pressure (psig)	1,440	1,550
Temperature (^{o}F)	120	120
Water content (lbs/MMscf)	Nil	5.0
Hydrogen sulfide (ppm)	0.0	4.0
Gross higher heating value (BTU/ft^{3})	N/A	1,200
Carbon dioxide (mol%)	0.0	2.0
Cricondentherm Temperature (^{o}F)	N/A	20

Stateline 1 Plant

Block Diagram for a New 100 MMSCFD Processing Plant

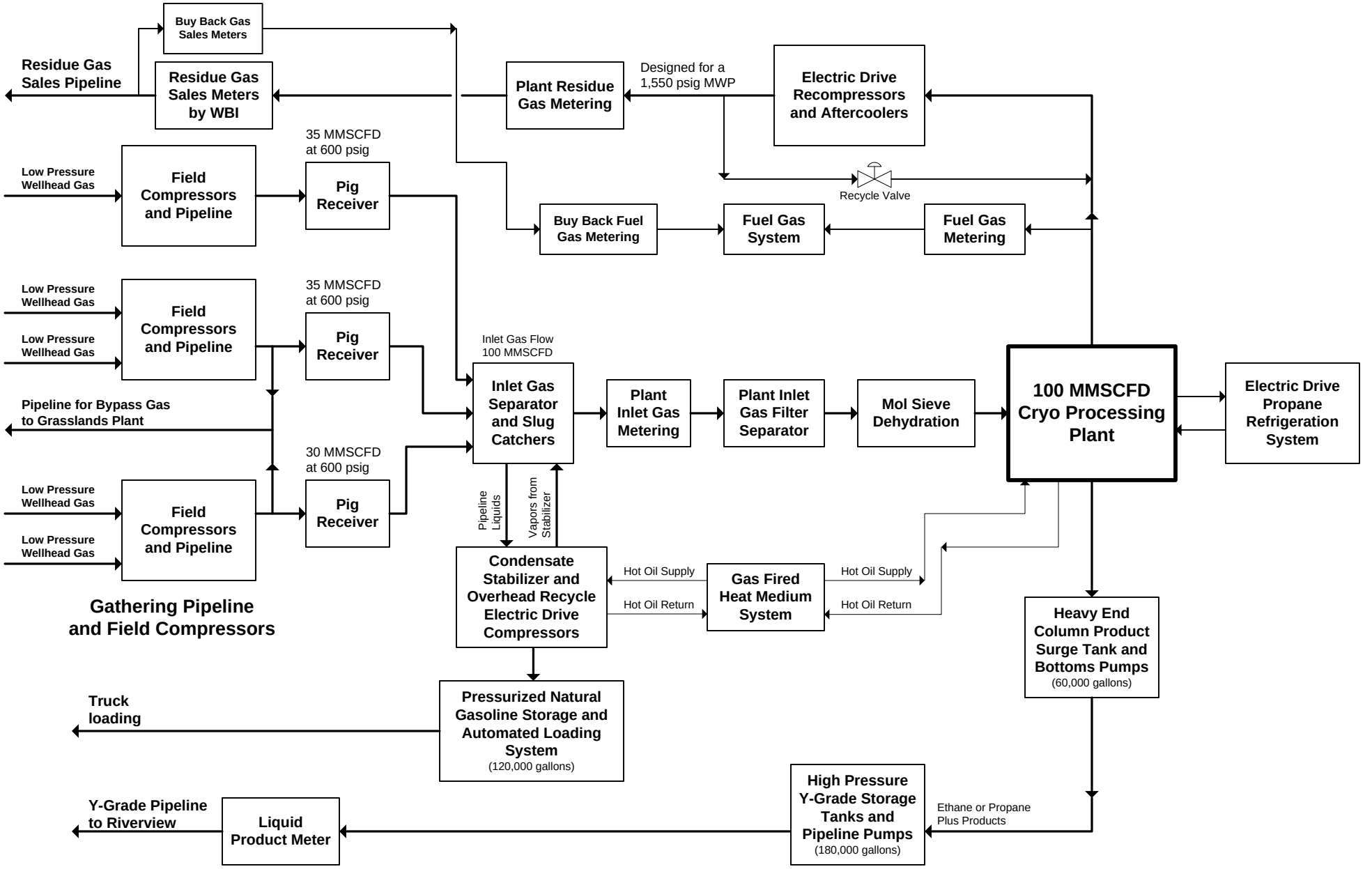
December 13, 2010

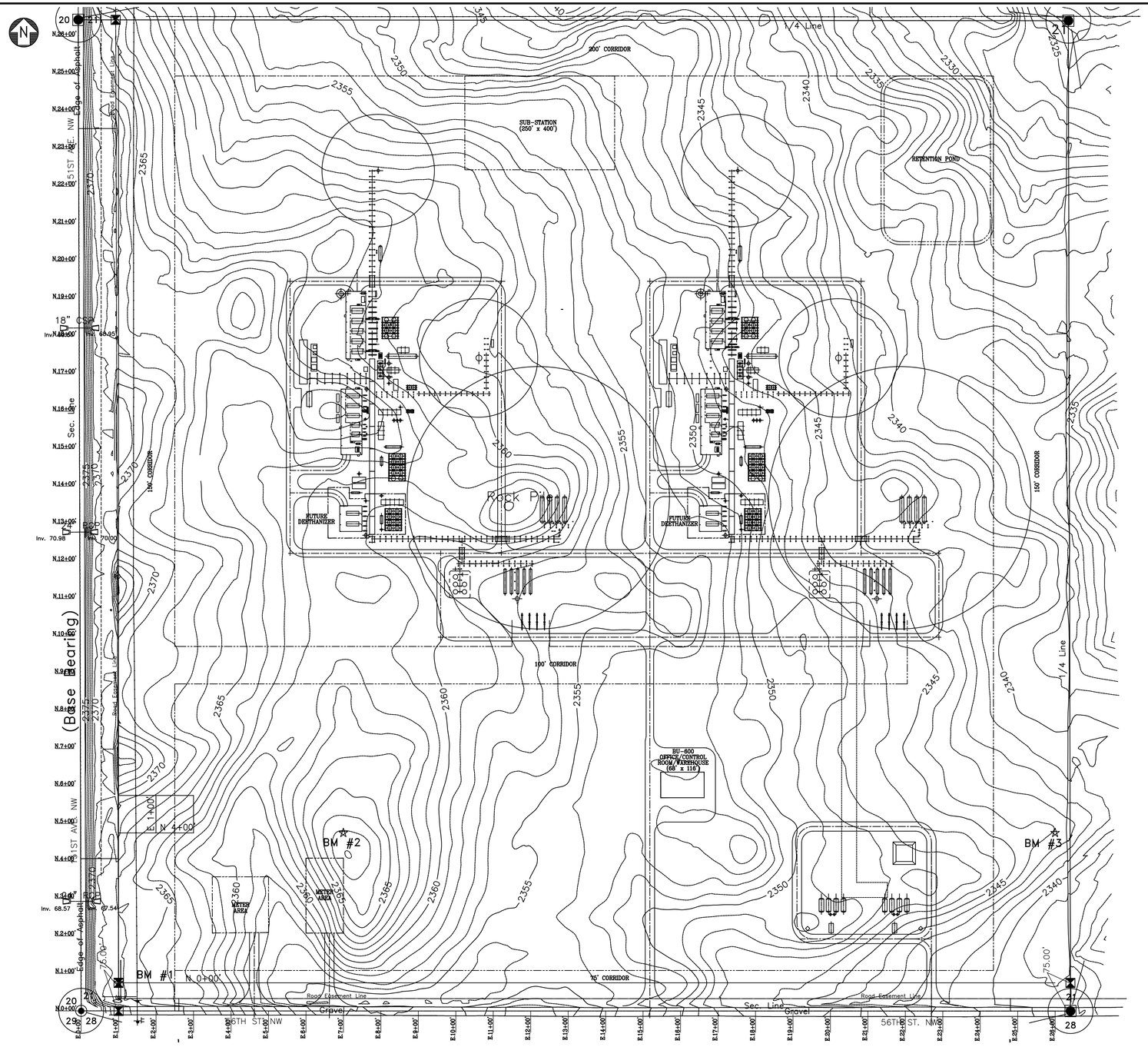


Stateline 2 Plant

Block Diagram for a New 100 MMSCFD Processing Plant

February 2, 2011





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Linde Process Plants, Inc.

PROJECT NO. A00B

LPP DWG. &AFA00B-00-LZP-1000 | STATUS CA | ISSUE 1.0

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHD	APRD
A	01/28/11	FOR CLIENT APPROVAL	JAS	JT	ETM

QTR 1/4 | TWNSP | RNGE | SEC | INITIAL POINT | BLK NAME | BLK No
SURVEY NAME | SURV No | ABSTRACT NAME | ABSTRACT No
DRW BY | DRW DATE | DES BY | APRD BY | SURVEY BY:
PROJECT NAME | SCALE: NONE
AFE NO.: | CAD. NO.:

ORIGINAL DWG BY:
ORIGINAL DWG #:

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DWG. NO.: 9326-000-001 | REV. A

ONEOK PARTNERS

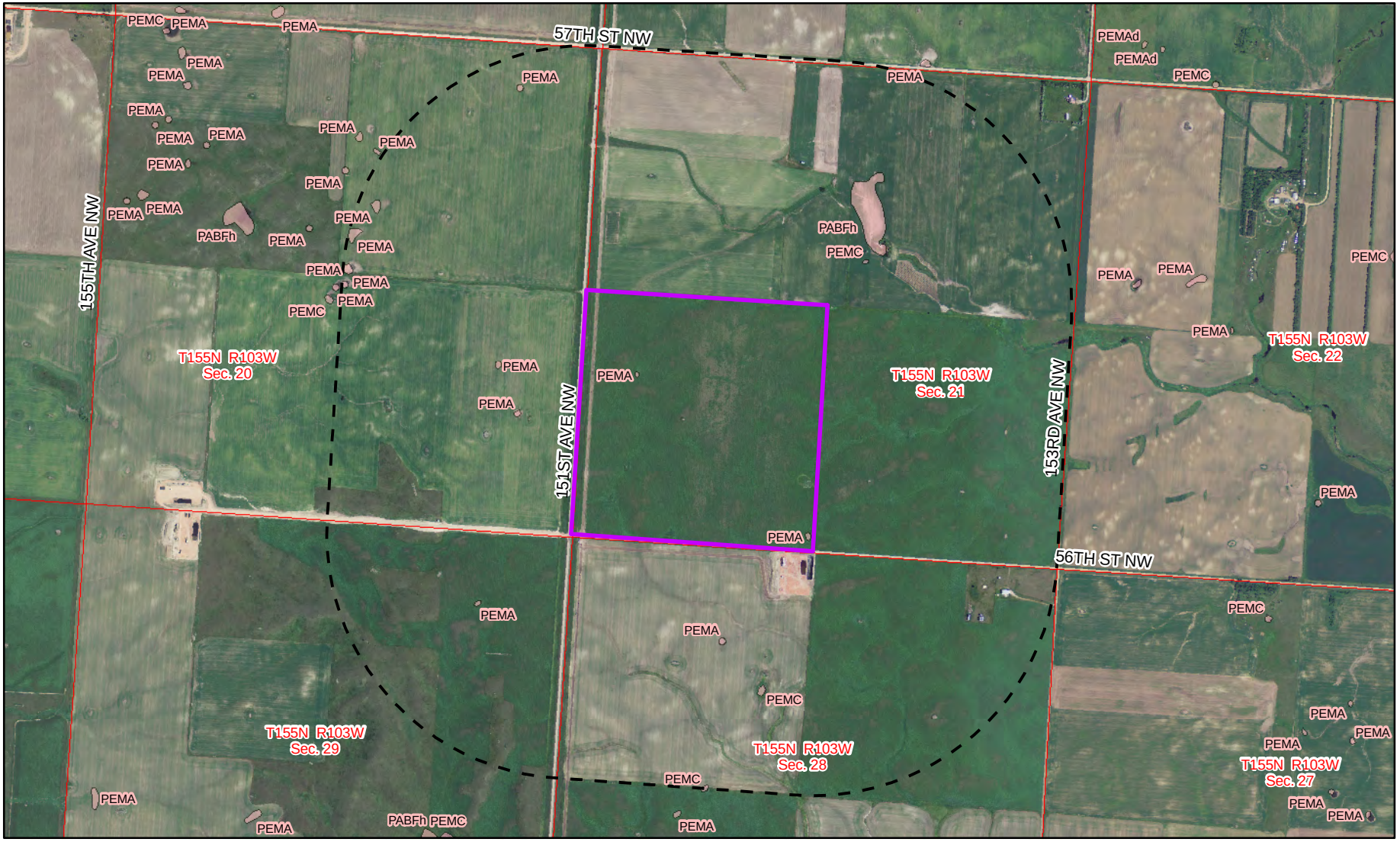
BEAR PAW ENERGY

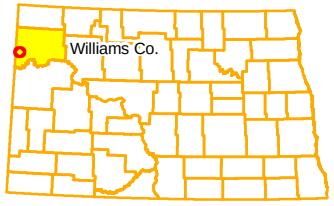
TOPO PLAN
100 MMSCFD LIQUID RECOVERY UNIT

STATELINE GAS PLANT | WILLIAMS COUNTY, ND

Q:\2110A00B – Stateline Gas Plant\09 PROJECT EXECUTION\09.01 Drawings\09.01.02 Plot Plan–Key Plans\Plot Plan\Proposed Plot Plant Location.dwg Jan 28, 2011 – 2:34pm jscott

Appendix B
Exclusion & Avoidance Maps





Half mile buffer
Stateline Gas Plant
Roadway
Section Line
National Wetlands Inventory

Source: Williams County, ND NAIP Imagery, 2010
USFWS National Wetlands Inventory (NWI)

N

0 0.25 0.5 Miles

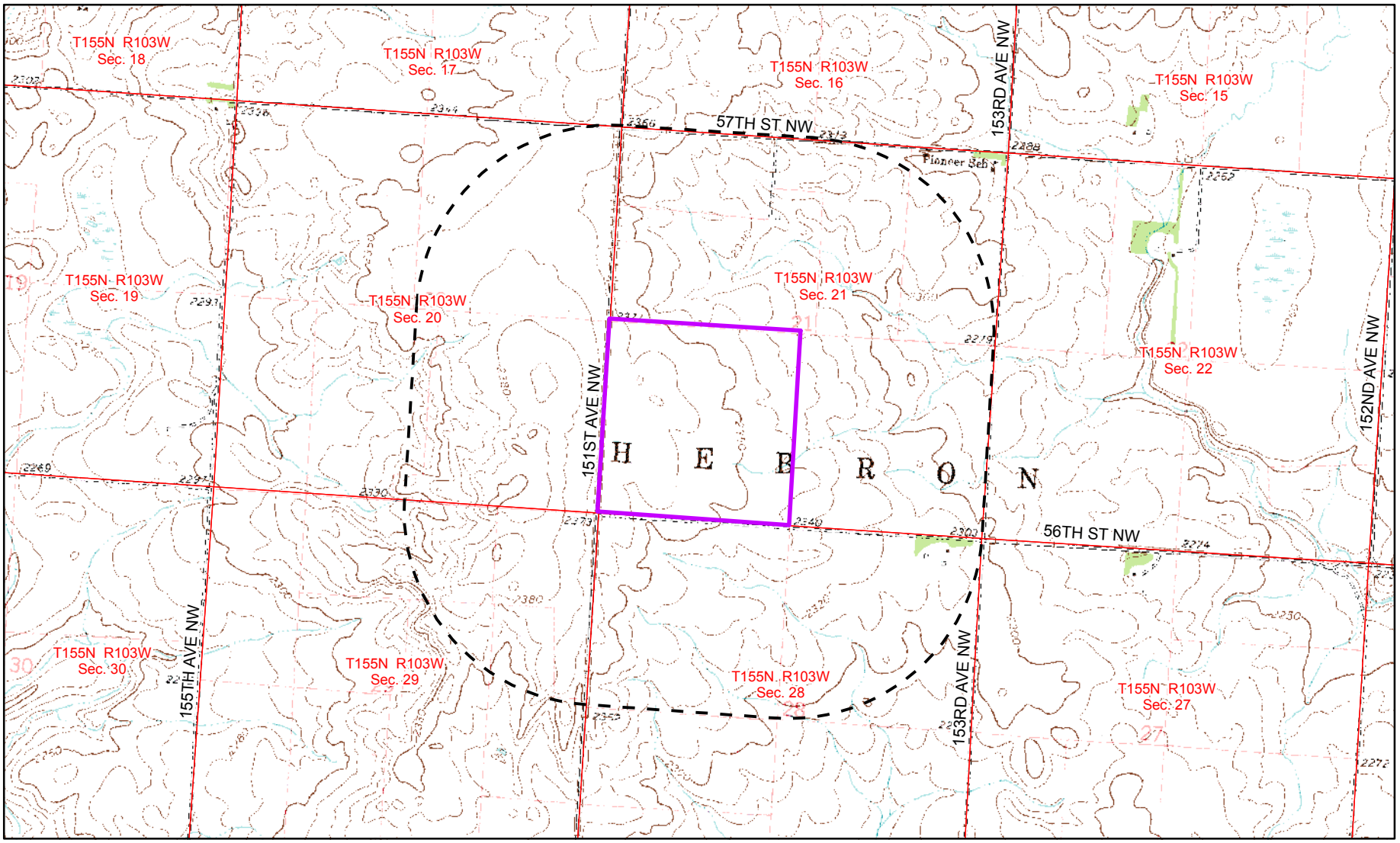
BEAR PAW ENERGY, LLC

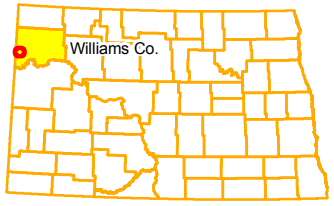
Enhancing Execution with Experience

Stateline Gas Plant

National Wetlands Inventory Data & Aerial Photograph

(TKS) Thursday, November 04, 2010 File: G:\Projects\ONE_10_####_BPE_Stateline_Gas_Plant\Maps\Report\aerial_nwi.mxd





North Dakota

Half mile buffer

Stateline Gas Plant

Roadway

Section Line

Source: Trenton NW, ND USGS 7.5' series topographic map

Bear Paw Energy, LLC
A SUBSIDIARY OF ONEOK PARTNERS, L.P.

Enhancing Execution with Experience

N

0 0.25 0.5 Miles

Stateline Gas Plant

Project Location

(TKS) Thursday, November 04, 2010 File: G:\Projects\ONE_10_####_BPE_Stateline_Gas_Plant\Maps\Report\proj_loc.mxd

From:	William McCarthy
To:	William McCarthy
Subject:	FW: Bear Paw Energy State Line Gas Plant - request for a review of enrolled CRP Lands
Date:	Monday, February 07, 2011 2:34:31 PM

From: Paryzek, Corey - Williston, ND [mailto:Corey.Paryzek@nd.usda.gov]
Sent: Monday, November 22, 2010 10:07 AM
To: Stephanie Linde; Feilmeier, Marcy - Watford City, ND
Subject: RE: Bear Paw Energy State Line Gas Plant - request for a review of enrolled CRP Lands

Due to Privacy information concerns we are unable to provide specific information to the energy company without a signed release from the producer or producers involved.

From: Stephanie Linde [mailto:slinde@go2e3.com]
Sent: Monday, November 22, 2010 9:42 AM
To: Paryzek, Corey - Williston, ND
Cc: 'Clark, Rusty L.'; Tim Helbig; 'Bill McCarthy'; 'Stephanie Linde'
Subject: Bear Paw Energy State Line Gas Plant - request for a review of enrolled CRP Lands

Dear Mr. Paryzek,

I am contacting you on behalf of Bear Paw Energy (BPE), a subsidiary of ONEOK Partners, LP, Tulsa, Oklahoma. BPE has proposed the development of a gas processing plant to be located in the S ½ of the SW ¼ of Section 21, Township 155N, Range 103W of Williams County, North Dakota. BPE has identified the 80 acre parcel shown in the attached maps to site of the proposed gas processing plant. Currently the project is scheduled to begin construction on or about March 15, 2011, and require approximately 18 months to complete.

E3 Environmental has been retained by BPE to provide environmental support services and in this capacity I am requesting a review of the proposed project area for lands that are enrolled in the FSA's Conservation Reserve Program (CRP) or Grassland Reserve Program (GRP). In your response please note the presence or absence of CRP or GRP within the project site and the one mile diameter study area surrounding the site as depicted in the attached maps, where the dashed line delineates the extent of this request.

Should you have questions or require additional information, please contact me by phone or e-mail.

Stephanie Linde, Associate Consultant
E3 Environmental, LLC
651-323-3824 (m)
slinde@go2e3.com
www.go2e3.com

Please consider the environment before printing this e-mail.

From:	William McCarthy
To:	Katie Schmidt
Subject:	FW: Bear Paw Energy State Line Gas Plant - request for a review of enrolled CRP Lands
Date:	Friday, February 04, 2011 9:53:09 AM
Attachments:	Maps_80_aerial_nwi.pdf Maps_80_topo_nwi.pdf

From: Stephanie Linde [mailto:slinde@go2e3.com]
Sent: Monday, November 22, 2010 9:42 AM
To: corey.paryzek@nd.usda.gov
Cc: 'Clark, Rusty L.'; Tim Helbig; 'Bill McCarthy'; 'Stephanie Linde'
Subject: Bear Paw Energy State Line Gas Plant - request for a review of enrolled CRP Lands

Dear Mr. Paryzek,

I am contacting you on behalf of Bear Paw Energy (BPE), a subsidiary of ONEOK Partners, LP, Tulsa, Oklahoma. BPE has proposed the development of a gas processing plant to be located in the S ½ of the SW ¼ of Section 21, Township 155N, Range 103W of Williams County, North Dakota. BPE has identified the 80 acre parcel shown in the attached maps to site of the proposed gas processing plant. Currently the project is scheduled to begin construction on or about March 15, 2011, and require approximately 18 months to complete.

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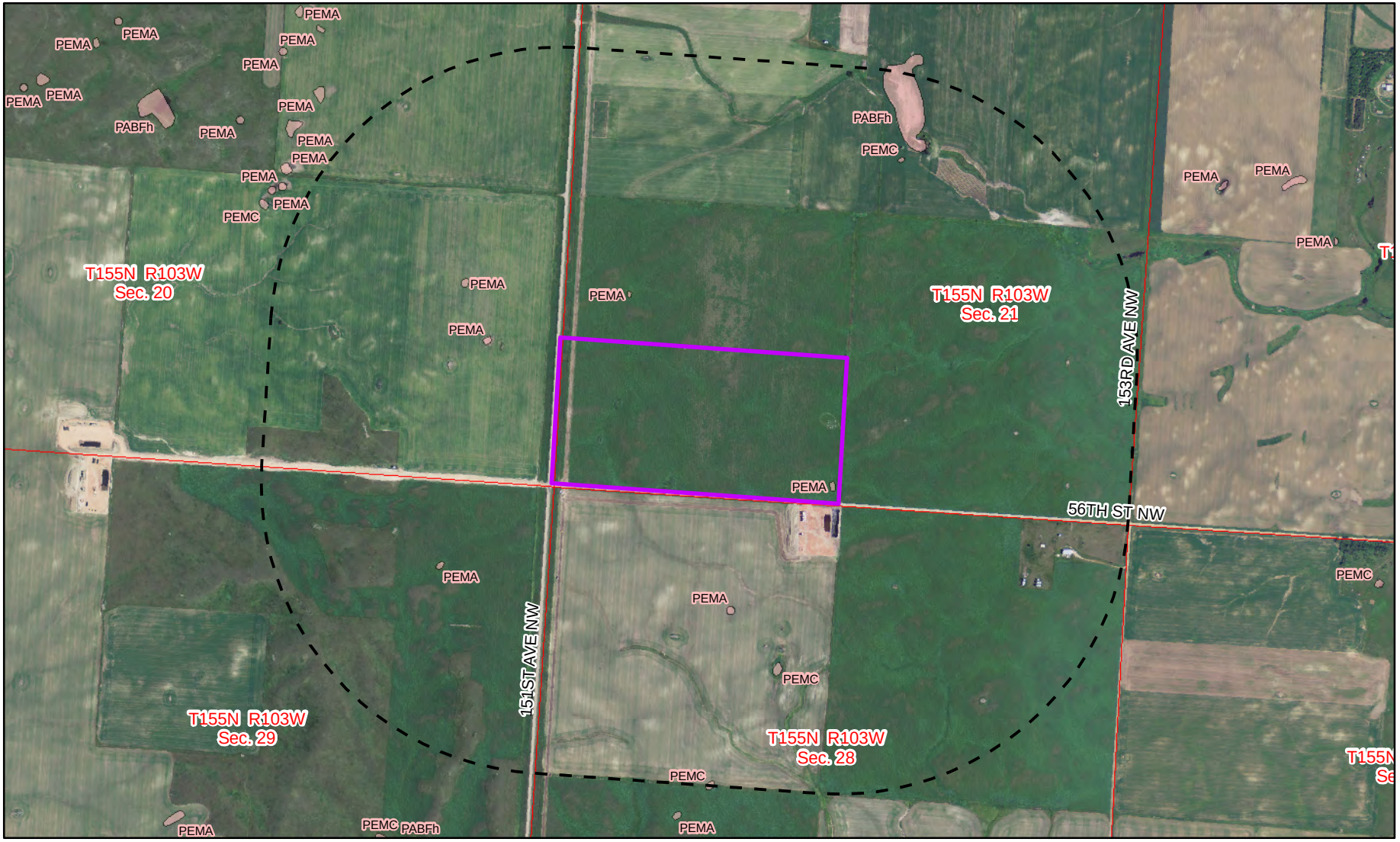
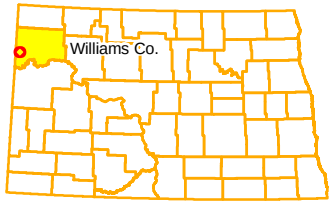




North Dakota

Half mile buffer
Stateline Gas Plant
Roadway
Section Line
National Wetlands Inventory

Source: Williams County, ND NAIP Imagery, 2010
USFWS National Wetlands Inventory (NWI)

N

0 1,000 2,000 Feet

Bear Paw Energy, LLC

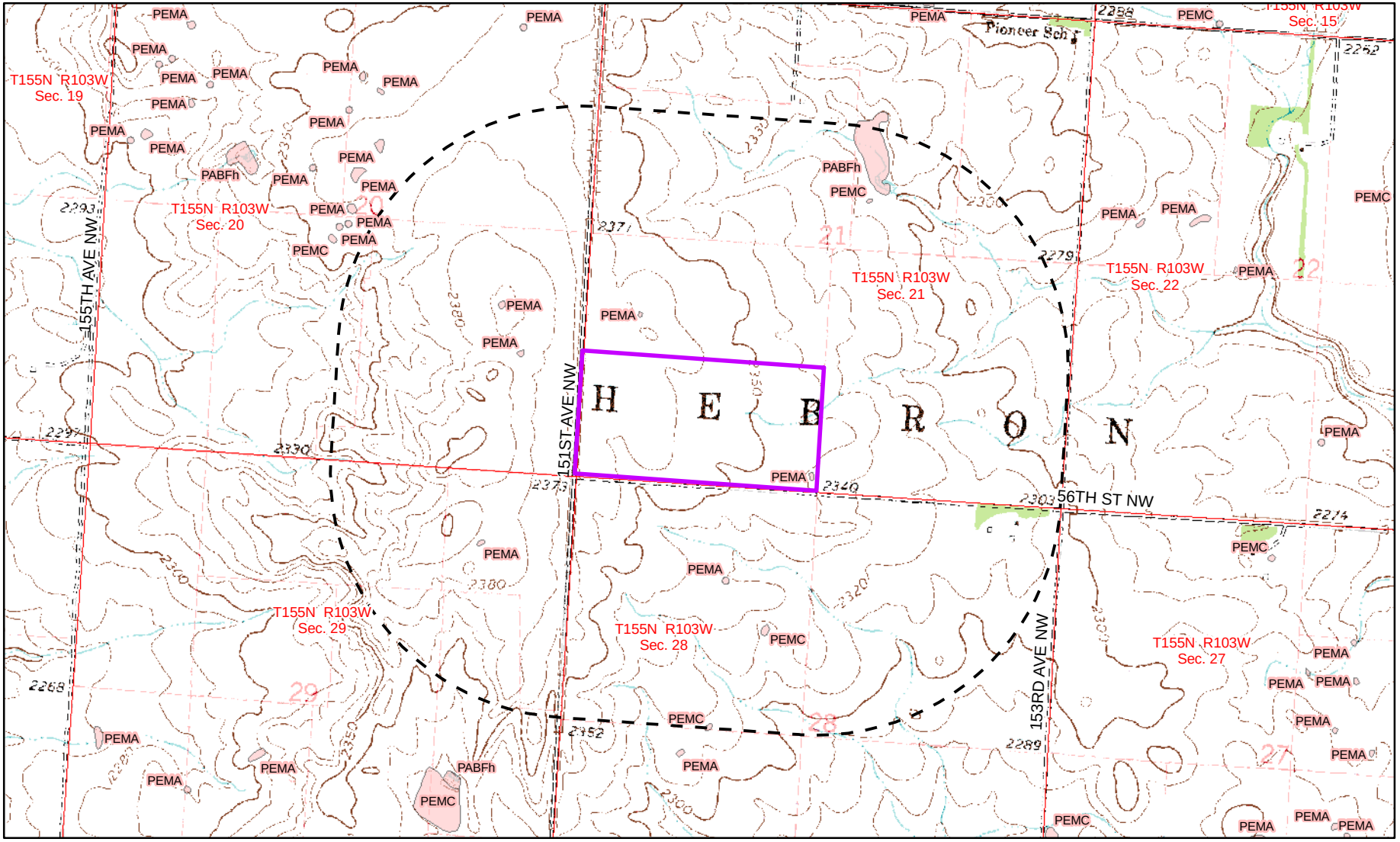
Enhancing Execution with Experience

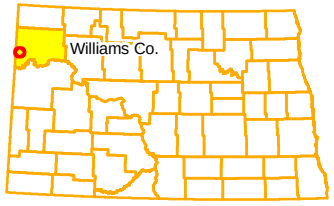
Stateline Gas Plant

National Wetlands Inventory Data & Aerial Photograph

(TKS) Tuesday, November 16, 2010

File: G:\Projects\ONE_10_1143_BPE_Stateline_Gas_Plant\Maps\Report\aerial_nwi.mxd





North Dakota

Half mile buffer
Stateline Gas Plant
Roadway
Section Line
National Wetlands Inventory

Source: Trenton NW, ND USGS 7.5' series topographic map
USFWS National Wetlands Inventory (NWI)

Bear Paw Energy, LLC
A SUBSIDIARY OF ONEOK PARTNERS, L.P.

Enhancing Execution with Experience

N

0 1,000 2,000 Feet

Stateline Gas Plant

National Wetlands Inventory Data & Topographic Map

(TKS) Tuesday, November 16, 2010 File: G:\Projects\ONE_10_1143_BPE_Stateline_Gas_Plant\Maps\Report\topo_nwi.mxd

Appendix C
Consultations

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
3425 Miriam Avenue
Bismarck, North Dakota 58501

JAN 13 2011

Mr. William F. McCarthy, Project Manager
E3 Environmental, LLC
817 Vandalia Street, Suite 100
St. Paul, Minnesota 55114

Re: Bear Paw Energy –Gas Processing Plant, Williams County, North Dakota

Dear Mr. McCarthy:

This is in response to your letter dated November 8, 2010, concerning the development of a gas processing plant to be located in Williams County, North Dakota. The project is proposed by Bear Paw Energy, LLC (BPE) and would encompass approximately 160 acres.

We offer the following comments under the authority of and in accordance with the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) (MBTA), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250) (BGEPA), and the Endangered Species Act (16 U.S.C. 1531 et seq.) (ESA), and the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

Fish and Wildlife Service Property

As part of the National Wildlife Refuge System, the U.S. Fish and Wildlife Service (Service) administers fee title Refuge and Waterfowl Production Areas, as well as wetland and grassland easements, throughout North Dakota. A review of our county plat maps indicates no Service property interests are located near the project area.

Migratory Birds

The Migratory Bird Treaty Act prohibits the taking, killing, possession, and transportation, (among other actions) of migratory birds, their eggs, parts, and nests, except when specifically permitted by regulations. While the MBTA has no provision for allowing unauthorized take, the Service realizes that some birds may be killed during construction even if all known reasonable and effective measures to protect birds are used. The Service's Office of Law Enforcement carries out its mission to protect migratory birds through investigations and enforcement, as well as by fostering

relationships with individuals, companies, and industries that have taken effective steps to avoid take of migratory birds, and by encouraging others to implement measures to avoid take of migratory birds. It is not possible to absolve individuals, companies, or agencies from liability even if they implement bird mortality avoidance or other similar protective measures. However, the Office of Law Enforcement focuses its resources on investigating and prosecuting individuals and companies that take migratory birds without identifying and implementing all reasonable, prudent, and effective measures to avoid that take. Project proponents are encouraged to work closely with Service biologists to identify available protective measures when developing project plans and/or avian protection plans, and to implement those measures prior to/during construction or similar activities.

Your letter contains measures that BPE has committed to implementing regarding migratory birds. Site surveys conducted in November 2010 found no raptor nests in or around the project area. BPE would initiate construction on or about March 15, 2011, and maintain an active construction site through plant commissioning and final restoration which is anticipated to occur approximately 18 months later. The proposed schedule would avoid the 2011 breeding season and migrants returning to the area would encounter an active construction site in the 2012 and 2013 breeding seasons, which would serve as a deterrent to breeding birds, and, therefore, the potential for take of migratory birds or their active nests is considered by the Service to negligible.

The Service believes that BPE's commitment to implement the aforementioned measures does demonstrate compliance with the MBTA.

Threatened and Endangered Species

A list of federally endangered and threatened species that may be present within the proposed project's area of influence is enclosed. This list fulfills requirements of the Service under Section 7 of the ESA. This list remains valid for 90 days.

Potential habitat for the Sprague's pipit exists in Divide and Williams Counties. In 2010, the Sprague's pipit was determined to be a candidate species under the ESA. No legal requirement exists to protect candidate species; however, it is within the spirit of the ESA to consider these species as having significant value and worth protecting.

Your letter states that potential impacts of the proposed project on federally listed species was analyzed and that the proposed project will not result in the taking or adverse impact to listed species. From the information provided, the Service is not aware of federally listed species in the project area.

Thank you for the opportunity to comment on this project proposal. If additional information is required, please have your staff contact Heidi Riddle of my staff, or contact me directly at (701) 250-4481 or at the letterhead address.

Sincerely,

Jeffrey K. Towner

Jeffrey K. Towner
Field Supervisor
North Dakota Field Office

Enclosure

"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

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

December 30, 2010

William F. McCarthy
Project Manager
E3 Environmental, LLC
817 Vandalia Street
Suite 100
St. Paul, MN 55114

Dear Mr. McCarthy:

RE: State Line Phase I Gas Plant
Bear Paw Energy

The North Dakota Game and Fish Department has reviewed this project for wildlife concerns. This department does not own nor have an interest in any lands within the study area. We have no objections to this project provided any unavoidable destruction of wetland acres is mitigated in kind.

Sincerely,

Paul Schadewald

Paul Schadewald
Chief
Conservation & Communication Division

js

817 Vandalia Street
Suite 100
St Paul, MN 55114

November 22, 2010

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

RE: Bear Paw Energy – State Line Phase I Gas Plant
State Conservation Priority Species Consultation

Bear Paw Energy, LLC (BPE), a subsidiary of ONEOK Partners, LP, Tulsa, Oklahoma, has proposed the development of a gas processing plant to be located in the SW ¼ of Section 21, Township 155N, Range 103W of Williams County, North Dakota. BPE has proposed the construction of a gas processing plant on the 160 acre parcel depicted on the enclosed USGS topographic map and aerial photograph. Project activities are scheduled to begin on or about March 15, 2011, and will continue for approximately 18 months.

The purpose of this correspondence is to request confirmation of the presence or absence of North Dakota Game and Fish Department PLOTS land at the project site or within the study area. As such, when conducting this review please include the project site and a one mile study area surrounding the site as depicted in the attached maps, where the dashed line delineates the extent of this request.

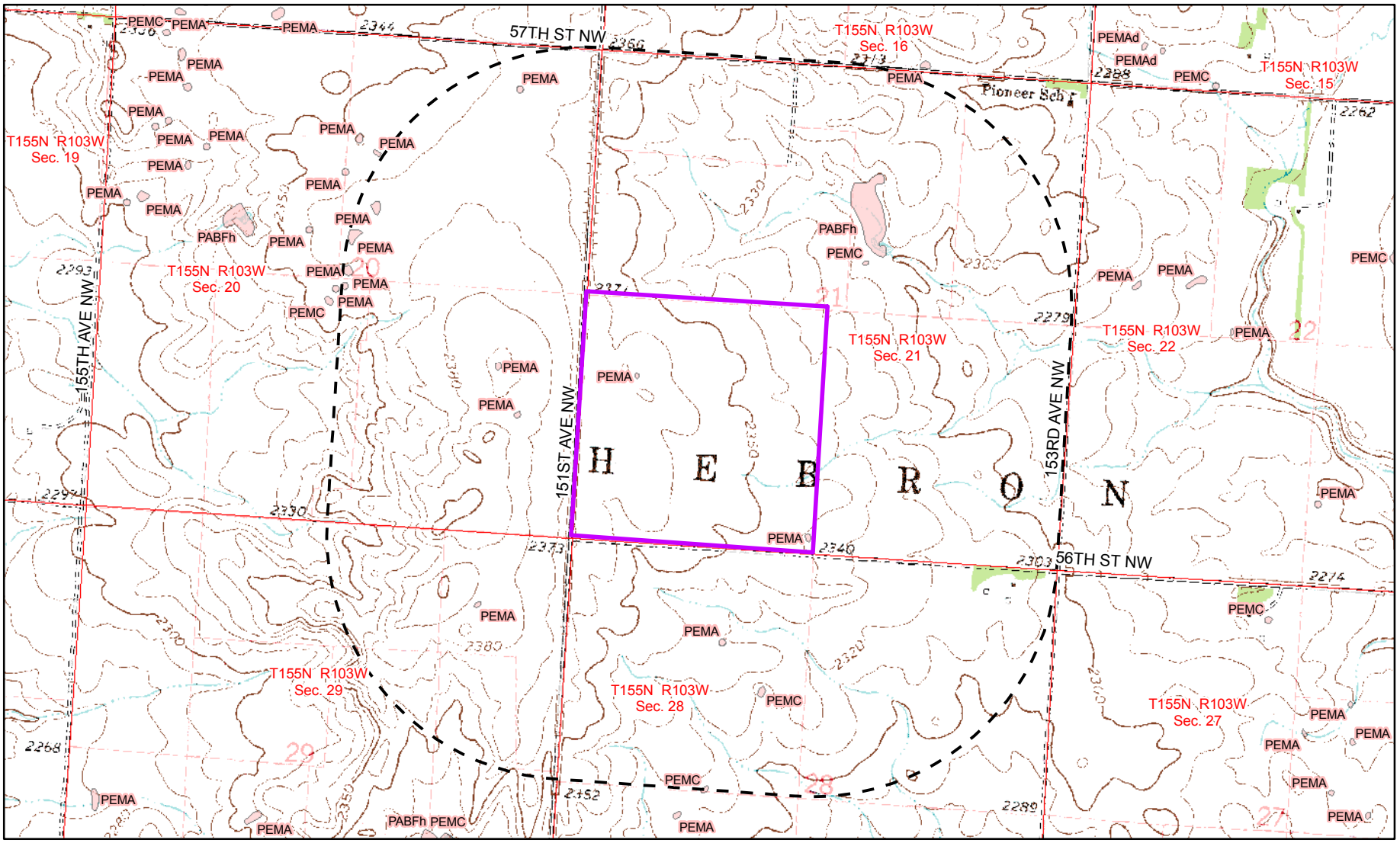
E3 Environmental, LLC (E3) has been retained by BPE to provide environmental consulting support for this project. Should you have questions or require additional information, please contact me at 651-319-7456 or wmccarthy@go2e3.com.

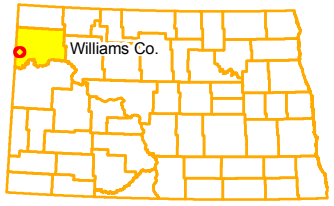
Sincerely,

William F. McCarthy
Project Manager
E3 Environmental, LLC

Enclosures:
Project map – USGS topographic
Project aerial photograph

cc: Russ Clark, ONEOK
E3 Project Files





Half mile buffer
Stateline Gas Plant
Roadway
Section Line
National Wetlands Inventory

Source: Trenton NW, ND USGS 7.5' series topographic map
USFWS National Wetlands Inventory (NWI)

Bear Paw Energy, LLC
A SUBSIDIARY OF ONEOK PARTNERS, L.P.

Enhancing Execution with Experience

N

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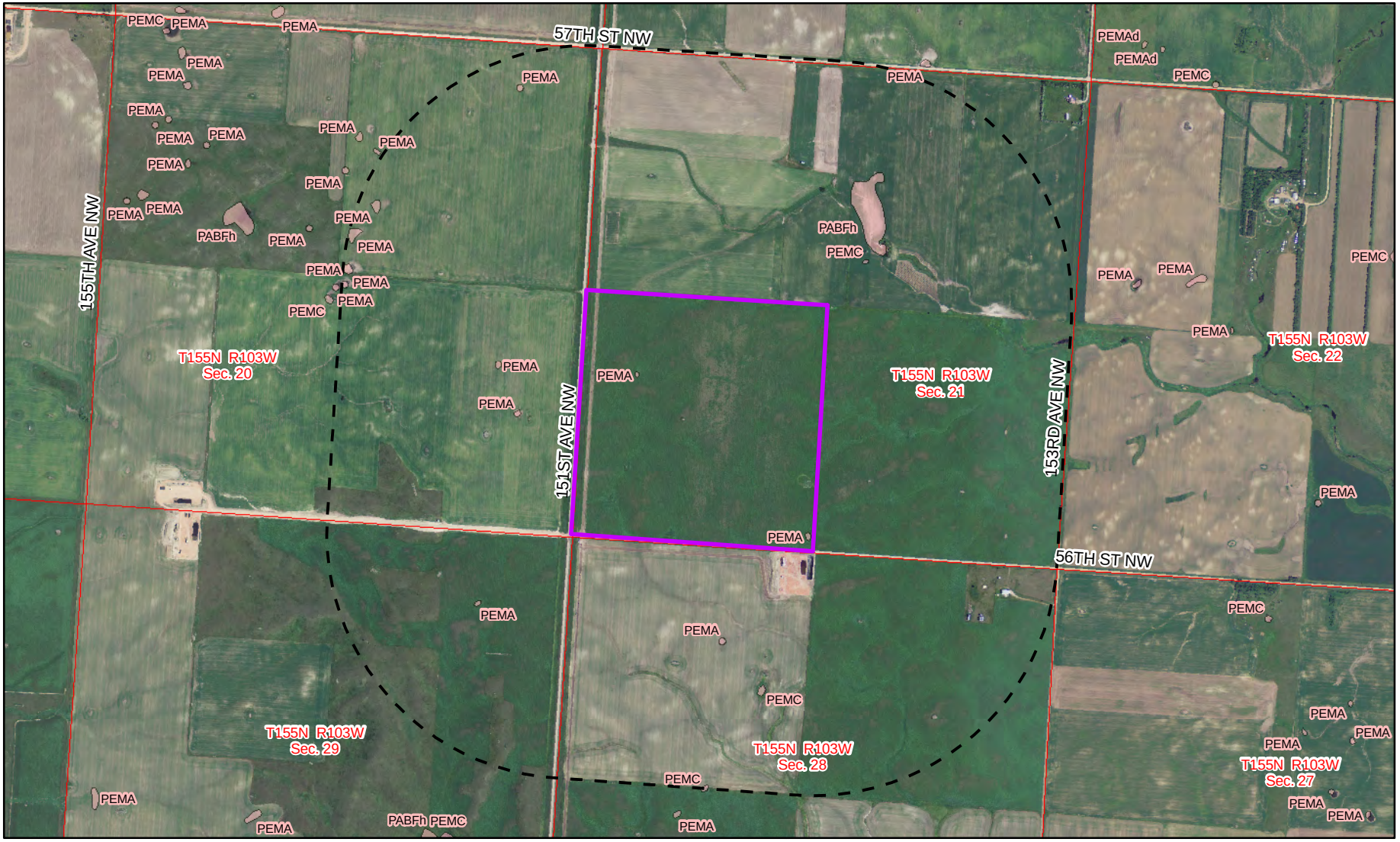
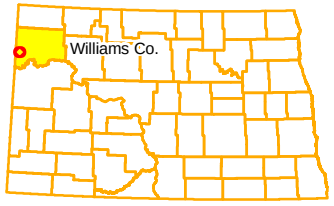
Feet

Stateline Gas Plant

National Wetlands Inventory Data & Topographic Map

(TKS) Thursday, November 04, 2010 File: G:\Projects\ONE_10_####_BPE_Stateline_Gas_Plant\Maps\Report\topo_nwi.mxd





Half mile buffer
Stateline Gas Plant
Roadway
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Source: Williams County, ND NAIP Imagery, 2010
USFWS National Wetlands Inventory (NWI)

N

0 0.25 0.5 Miles

BEAR PAW ENERGY, LLC

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Stateline Gas Plant

National Wetlands Inventory Data & Aerial Photograph

(TKS) Thursday, November 04, 2010 File: G:\Projects\ONE_10_####_BPE_Stateline_Gas_Plant\Maps\Report\aerial_nwi.mxd

FEDERAL THREATENED, ENDANGERED, AND CANDIDATE SPECIES
AND DESIGNATED CRITICAL HABITAT FOUND IN
WILLIAMS COUNTY, NORTH DAKOTA
January 2011

ENDANGERED SPECIES

Birds

Interior least tern (Sterna antillarum): Nests along midstream sandbars of the Missouri and Yellowstone Rivers.

Whooping crane (Grus Americana): Aransas-Wood Buffalo Population (264 birds) occurs in North Dakota counties during spring and fall migration between breeding and wintering areas. Whooping cranes prefer to roost overnight in shallow open water wetland habitat with good visibility during migration stopovers.

Fish

Pallid sturgeon (Scaphirhynchus albus): Known only from the Missouri and Yellowstone Rivers. No reproduction has been documented in 15 years.

Mammals

Gray wolf (Canis lupus): Occasional visitor in North Dakota. Most frequently observed in the Turtle Mountains area.

THREATENED SPECIES

Birds

Piping plover (Charadrius melodus): Nests on midstream sandbars of the Missouri and Yellowstone Rivers and along shorelines of saline wetlands. More nest in North Dakota than any other state.

CANDIDATE SPECIES

Birds

Sprague's Pipit (Anthus spragueii): Nests in native and planted grassland. Prefers patches of grassland at least 72 acres (29 hectares).

DESIGNATED CRITICAL HABITAT

Birds

Piping Plover - Lake Sakakawea - Critical habitat includes sparsely vegetated shoreline beaches, peninsulas, islands composed of sand, gravel, or shale, and their interface with the water bodies.

817 Vandalia Street
Suite 100
St Paul, MN 55114

November 8, 2010

Mr. Jeffrey Towner, Field Supervisor
U.S. Fish and Wildlife Service
North Dakota Field Office
3425 Miriam Avenue
Bismark, ND 58501-7926

RE: Bear Paw Energy – State Line Gas Plant
Federally Listed Species, USFWS Managed Lands, and Migratory Bird Consultation

Bear Paw Energy, LLC (BPE), a subsidiary of ONEOK Partners, LP, Tulsa, Oklahoma has proposed the development of a gas processing plant to be located in the SW ¼ of Section 21, Township 155N, Range 103W of Williams County, North Dakota. BPE has proposed to develop a 160 acre parcel to facilitate the construction of a gas processing plant. Project activities are scheduled to begin on or about March 15, 2011, and continue for approximately 18 months.

The purpose of this request is to compile U.S. Fish and Wildlife Service's (USFWS) comments on environmental topics that are relevant to the North Dakota Public Service Commission's (PSC) siting requirements for Energy Conversion facilities. On November 8, 2010, a web-based consultation with USFWS's IPaC system was conducted, however, due to the limitations of the system, this request has been prepared to augment that effort and facilitate a thorough project review.

E3 Environmental, LLC (E3) has been retained by BPE to provide environmental consulting support for this project.

Federally Listed Species Analysis:
On November 8, 2010, E3 reviewed USFWS's web site and conducted a protected species review. The results of the search found the following:

Whooping crane (*Grus americana*) – Endangered
Arctic peregrine falcon (*Falco peregrines tundrius*) – Recovery
Mountain plover (*Charadrius montanus*) – Proposed threatened
Piping plover (*Charadrius melodus*) – Threatened
Least tern (*Sterna antillarum*) – Endangered
Pallid sturgeon (*Scaphirhynchus albus*) – Endangered
Gray wolf (*Canis lupus*) – Endangered

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

Whooping crane: The whooping crane is a large bodied marsh species that breeds primarily in Canada and winters in the Gulf of Mexico. This species has been closely studied and monitored in recent years due to its small population. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. This species prefers larger wetland complexes for roosting habitat, typically using adjacent uplands for foraging opportunities. The proposed project will not result in a loss of crane habitat. Construction activities would likely serve as a deterrent, and once constructed the proposed facility would present a fairly prominent feature to be avoided relative to it surrounding landscape.

Piping plover: The piping plover is associated with shorelines along small alkaline lakes, large reservoir beaches, and river islands and adjacent sand pits. Breeding birds select wide beaches with highly clumped vegetation covering less than 25% of the area. Regionally the Missouri River, 13 miles from the project site, is known to host breeding populations of the plovers.

Least tern: The interior population(s) of the least tern has historically been associated with large river systems for breeding and migratory habitats. Breeding birds are known to breed in colonies, utilizing sandbar habitat common to larger rivers. Regionally the Missouri River, 13 miles from the project site, is known to host remnant breeding populations of the terns.

Pallid sturgeon: The pallid sturgeon is known to occur in the Missouri River, which is located 13 miles from the proposed project site. This species is sensitive to changes in water quality due to turbidity, water temperature, and flow.

Gray wolf: The gray wolf is a large carnivore that through conservation measures has experienced strong population recovery, particularly in the Great Lakes states of the upper Midwest. As populations rebound, individuals may break from packs to explore opportunities to establish packs in unoccupied territory. Roaming individuals can cover great distances without establishing viable breeding populations in previously unoccupied habitat(s). This species is not tolerant of human disturbance and will tend to avoid interaction with humans. The activities associated with construction and later plant operations would likely serve as a deterrent to this species.

Based upon this analysis it is concluded that the proposed project will not result in the taking of or adverse impact to these listed species. Species that USFWS has listed as "candidate" or populations identified as "Experimental" are not yet considered threatened or endangered and were not included in this study. BPE requests your comments regarding this analysis.

USFWS Managed Lands:

Conservation programs such as Waterfowl Production Areas and wetland and grassland easements represent an important tool used by USFWS to identify and manage high quality wildlife habitat. A review of public records failed to identify any of these USFWS managed lands in the project study area. BPE requests confirmation regarding the presence or absence of USFWS managed lands within the proposed study area.

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Migratory Bird Consultation:

USFWS administers various wildlife related mandates of national concern including the Migratory Bird Treaty Act (MBTA). BPE understands that unlike the Endangered Species Act, the MBTA has no provisions for the allowance of a take and therefore compliance may best be achieved by avoiding or minimizing the potential to interact with migratory species during the active breeding season. BPE also understands that in North Dakota, the breeding season is typically defined as occurring annually from February 1 through July 15; with the earliest dates typically associated with raptor nesting. Site surveys conducted in November 2011 noted an absence of suitable nest sites for raptors at this project location and parcels adjacent to it. In recognition of these facts, BPE proposes to initiate construction on or about March 15, 2011 and maintain an active construction site through plant commissioning and final restoration which is anticipated to occur approximately 18 months later. The proposed schedule would avoid the 2011 breeding season and migrants returning to the area would encounter an active construction site in the 2012 and 2013 breeding seasons which would serve as a deterrent to breeding birds. These efforts are intended to avoid direct impacts to breeding birds. BPE seeks confirmation that the proposed measures adequately avoid and mitigate potential impacts to migratory birds.

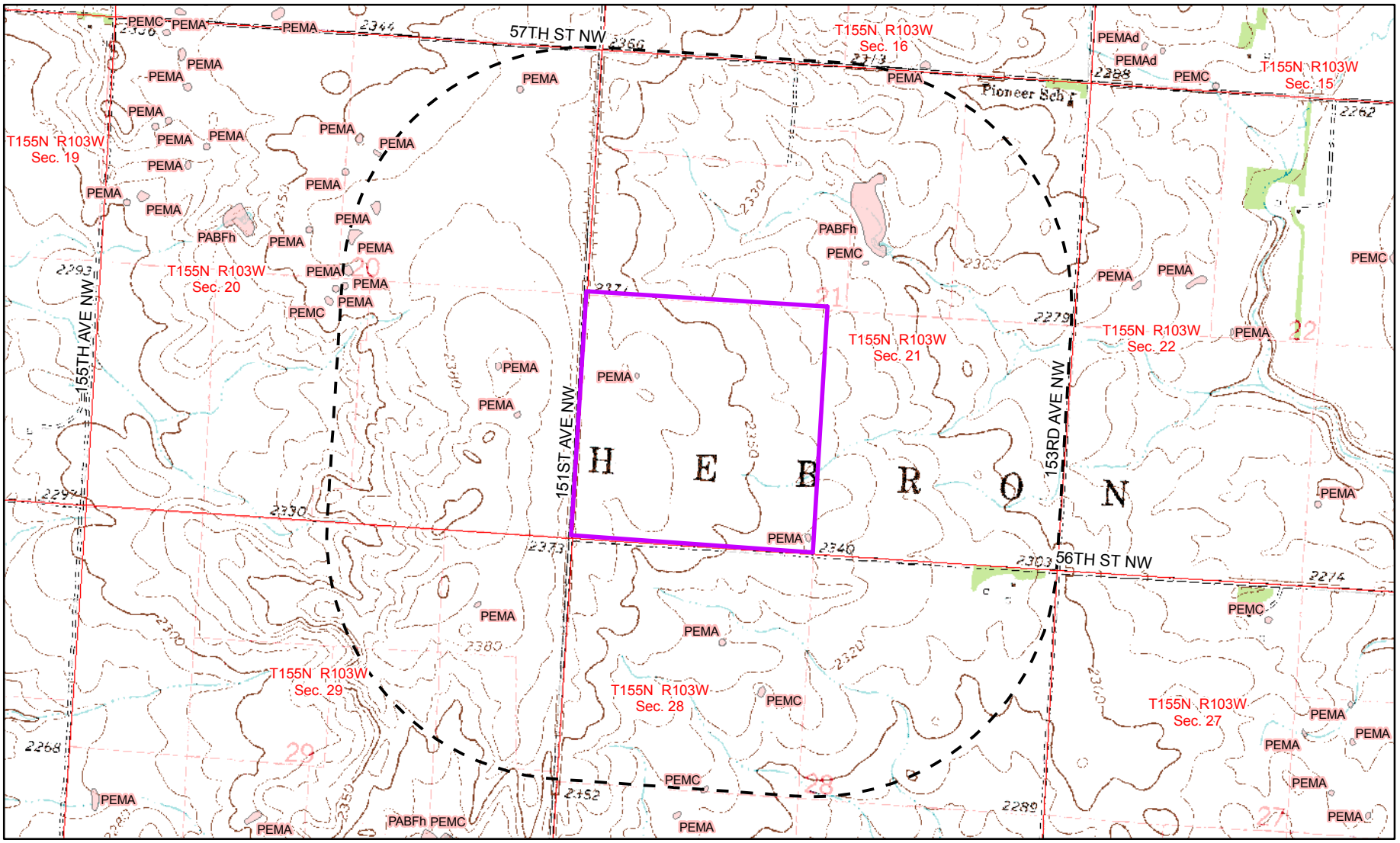
On behalf of BPE, E3 seeks to complete the project analysis previously initiated with the IPaC web-based project review by augmenting those efforts with USFWS comments on the topics detailed in this request. Should you have questions or require additional information, please contact me at 651-319-7456 or wmccarthy@go2e3.com.

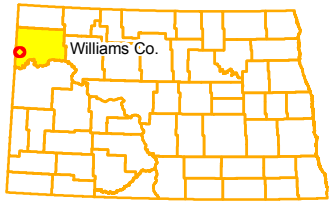
Sincerely,

William F. McCarthy
Project Manager
E3 Environmental, LLC

Attachments:
Map of project area – USGS topographic
Aerial photograph of project area

cc: Russ Clark, ONEOK
E3 Project Files





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A SUBSIDIARY OF ONEOK PARTNERS, L.P.

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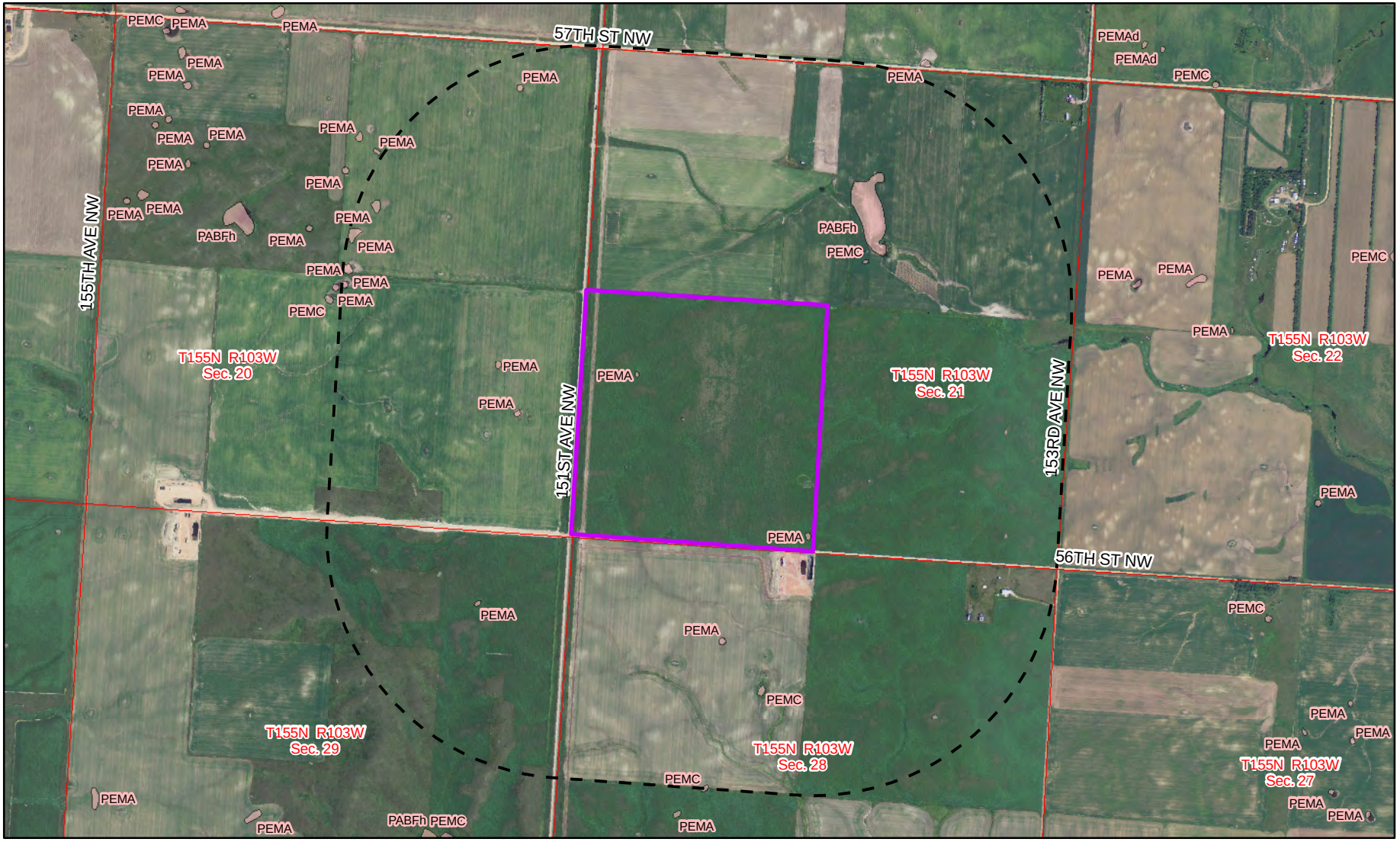

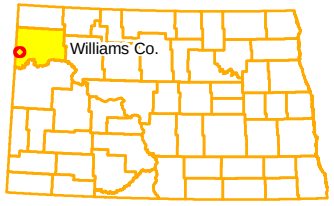

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BEAR PAW ENERGY, LLC

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Stateline Gas Plant

National Wetlands Inventory Data & Aerial Photograph

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John Hoeven, Governor
Mark A. Zimmerman, Director

1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649
Phone 701-328-5357
Fax 701-328-5363
E-mail parkrec@nd.gov
www.parkrec.nd.gov

January 21, 2011

Stephanie Linde
E3 Environmental, LLC
www.go2e3.com

Re: Bear Paw Energy, Gas Processing Plant

Dear Ms. Linde:

The North Dakota Parks and Recreation Department has reviewed the above referenced project proposal submitted by Bear Paw Energy, LLC to build a gas processing plant located in Section 21, T155N, R103W, Williams County.

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

The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any current or historic plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, there are no known occurrences within or adjacent to the project area.

Because this information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

Regarding any reclamation efforts, we recommend that any impacted areas be revegetated with species native to the project area.

Thank you for the opportunity to comment on this project. Please contact Kathy Duttenhefner (701-328-5370 or kgduttenhefner@nd.gov) of our staff if additional information is needed.

Sincerely,

Kathy Duttenhefner, Coordinator
Natural Resource Program

R.USNDNHI*2011-014
KD/1/21/2011/DL1/21/2011

From:	Katie Schmidt
To:	"kgduttenhefner@nd.gov"
Cc:	"William McCarthy"
Subject:	FW: Bear Paw Energy State Line Gas Plant - Natural Heritage Inventory Review Request
Date:	Wednesday, January 19, 2011 2:58:00 PM
Attachments:	Maps_160_aerial_nwi.pdf Maps_160_topo_nwi.pdf

Original request below.

As we discussed the original review request is below, originally transmitted on November 22, 2010 and the project maps are attached. Please let me know if you have any further questions or concerns. Thanks for your time and attention to this matter.

Have a great day!

Katie

Katie Schmidt, EIT
E3 Environmental, LLC
920.210.9570
888.414.2048
www.go2e3.com

Enhancing Execution with Experience

Please consider the environment before printing this e-mail.

From: Stephanie Linde [mailto:slinde@go2e3.com]
Sent: Monday, November 22, 2010 10:09 AM
To: kgduttenhefner@nd.gov
Cc: 'Clark, Rusty L.'; Tim Helbig; 'Bill McCarthy'; 'Stephanie Linde'
Subject: Bear Paw Energy State Line Gas Plant - Natural Heritage Inventory Review Request

Dear Ms. Duttenhefner,

Bear Paw Energy, LLC (BPE), a subsidiary of ONEOK Partners, LP, Tulsa, Oklahoma, has proposed the development of a gas processing plant to be located in the SW ¼ of Section 21, Township 155N, Range 103W of Williams County, North Dakota. BPE has proposed the development of the 160 acre parcel depicted in the attached USGS topographic map and aerial photograph by constructing a gas processing plant. Project activities are scheduled to begin on or about March 15, 2011, and will continue for approximately 18 months.

The purpose of this correspondence is to request agency review of the proposed project site and the surrounding study area. As such, when conducting this review please consider both the project

site and the one mile diameter study area surrounding the site as depicted in the attached maps, where the dashed line delineates the extent of this request.

We understand that the Parks and Recreation Department administers the following state programs:

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

We request confirmation of the presence or absence of managed lands, recreation projects or significant features cataloged in the Natural Heritage Inventory at the project site or within the study area.

E3 Environmental, LLC (E3) has been retained by BPE to provide environmental consulting support for this project. Should you have questions or require additional information, please contact me by phone or e-mail.

Sincerely,

Stephanie Linde, Associate Consultant
E3 Environmental, LLC
651-323-3824 (m)
slinde@go2e3.com
www.go2e3.com

Enhancing Execution with Experience

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STATE HISTORICAL SOCIETY OF NORTH DAKOTA

January 10, 2011

Judith R. Cooper
Principal Investigator
SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501

NDSHPO REF.: 11-0502 PSC Bear Paw Energy State Line Gas Plant Cultural Resources Class I and Class III Inventory Report, Williams County [T155N R103W Section 21, SW1/4]

Dear Judy:

We have received and reviewed correspondence and project document: **11-0502 PSC Bear Paw Energy State Line Gas Plant:** "A Class I and Class III Cultural Resource Inventory of the State Line Gas Plant, Williams County," by Stephanie Lechert and Jolene Schleicher (SWCA Report Number, 10-483, January 2010). Thank you for the report.

We concur with a ***"No Historic Properties Affected"*** and "***No Significant Sites Affected***" determination provided the project area is as located and described in the report.

If you have questions please contact either Paul Picha at ppicha@nd.gov or (701) 328-3574 or Susan Quinnell at squinnell@nd.gov or (701) 328-3576.

Sincerely,

Merlan E. Paaverud, Jr.
State Historic Preservation Officer (North Dakota)
and
Director, State Historical Society of North Dakota

c: Patrick Fahn, North Dakota Public Service Commission

SWCA
ENVIRONMENTAL CONSULTANTS

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

January 10, 2011

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

RE: A Class I and Class III Cultural Resource Inventory of the State Line Gas Plant, Williams County, North Dakota

Dear Mr. Picha:

Enclosed is a copy of a report entitled *A Class I and Class III Cultural Resource Inventory of the State Line Gas Plant, Williams County, North Dakota.* This report documents the cultural resource inventory of the Bear Paw Energy State Line Gas Plant Project, performed by SWCA Environmental Consultants (SWCA) on behalf of E3 Environmental, LLC. The cultural resource inventory is required as part of Bear Paw Energy's permit application to the North Dakota Public Service Commission.

No cultural resources were found within the project area. It is recommended that the project be granted a determination of *No Historic Properties Affected* and *No Significant Sites Affected*, pending agency concurrence. Please notify SWCA of the results of your review at the address listed below.

Please contact us if you have any questions or concerns regarding the attached report.

Sincerely,

Judith R. Cooper, Ph.D.
Cultural Resources Lead/Principal Investigator
SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, ND 58501
Office: 701-258-6622
Cell: 214-704-6280

From:	Katie Schmidt
To:	Michael Haupt (mhaupt@nd.gov)
Cc:	"William McCarthy"
Subject:	Bear Paw Energy Stateline Gas Plant – North Dakota State Land Department Review Request
Date:	Tuesday, January 11, 2011 11:53:00 AM
Attachments:	proj_loc.pdf

Dear Mr. Haupt,

E3 Environmental, LLC (E3) on behalf of Bear Paw Energy, LLC (BPE), a subsidiary of ONEOK Partners, LP, Tulsa, Oklahoma, requests a project review from the North Dakota State Land Department related to the proposed construction of the Stateline Gas Processing Plant. BPE plans to locate the proposed project on a 160-acre parcel of land located in the SW ¼ of Section 21, Township 155N, Range 103W of Williams County, North Dakota. The proposed site is depicted in the attached USGS topographic map. Project activities are scheduled to begin on or about March 15, 2011, and will continue for approximately 18 months.

Please provide comments regarding the presence of School Trust Lands located within a one mile diameter study area surrounding the project site, please refer to attached map on which the dashed line delineates the extent of this request. E3 will utilize this information in the preparation of a Public Service Commission application for the project. E3 has been retained by BPE to provide environmental consulting support for this project. Please contact myself by phone or email if additional information is required.

Sincerely,

Katie Schmidt, EIT
E3 Environmental, LLC
920.210.9570
888.414.2048
www.go2e3.com

From: Haupt, Michael L.
To: Katie Schmidt
Cc: "William McCarthy"
Subject: RE: Bear Paw Energy Stateline Gas Plant - North Dakota State Land Department Review Request
Date: Tuesday, January 11, 2011 2:13:11 PM
Attachments: Bear Paw plant.pdf

Katie,

Good afternoon! The ND School Trust does not own surface within one mile of the proposed BPE Stateline Gas Processing plant. However, there are State and School Trust minerals within one mile, as shown on the attached aerial photo, but not directly under the proposed site. Our concern would be the placement of several pipelines over the mineral tracts without consideration of potential surface well locations for development of these minerals. Please keep this in mind when routing Bear Paw pipelines to and from the plant. Let me know if you have questions. Thanks.

Michael L. Haupt
Land Management Professional, CPRM
North Dakota State Land Department
PO Box 5523, Bismarck ND 58506-5523
701-328-2800
mhaupt@nd.gov

From: Katie Schmidt [mailto:kschmidt@go2e3.com]
Sent: Tuesday, January 11, 2011 11:54 AM
To: Haupt, Michael L.
Cc: 'William McCarthy'
Subject: Bear Paw Energy Stateline Gas Plant - North Dakota State Land Department Review Request

Dear Mr. Haupt,

E3 Environmental, LLC (E3) on behalf of Bear Paw Energy, LLC (BPE), a subsidiary of ONEOK Partners, LP, Tulsa, Oklahoma, requests a project review from the North Dakota State Land Department related to the proposed construction of the Stateline Gas Processing Plant. BPE plans to locate the proposed project on a 160-acre parcel of land located in the SW ¼ of Section 21, Township 155N, Range 103W of Williams County, North Dakota. The proposed site is depicted in the attached USGS topographic map. Project activities are scheduled to begin on or about March 15, 2011, and will continue for approximately 18 months.

Please provide comments regarding the presence of School Trust Lands located within a one mile diameter study area surrounding the project site, please refer to attached map on which the dashed line delineates the extent of this request. E3 will utilize this information in the preparation of a Public Service Commission application for the project. E3 has been retained by BPE to provide environmental consulting support for this project. Please contact myself by phone or email if

additional information is required.

Sincerely,

Katie Schmidt, EIT
E3 Environmental, LLC
920.210.9570
888.414.2048
www.go2e3.com

Williams County Community Involvement Meetings

ONEOK was represented by the following personnel.
Dick Vande Bossche – Area Director of Operations
Mick Urban – Governmental Affairs, West Region
Russ Clark – Project Engineer, Stateline 1

Meeting with the Williston Economic Development Council
January 13, 2011, 9AM at WEDC offices in Williston City Hall
Tom Rolfstad – EDC
Shawn Wenco – EDC
John Kautzman – City Auditor
Ward Kaeser – Mayor of Williston, Not Present

A basic discussion was held about the proposed Stateline 1 plant and discussed the assessment of construction of the Stateline 2 plant on the same 160 acres. The group was somewhat concerned about where the electric utility was going to take their easement from, either Hwy 5 or the Hebron Township road (56th street). 56th Street is a non-regularly maintained road. The electric utility will likely require an easement on Hwy 5. ONEOK stated that we had some discussions with Montrail-Williams Electric already and that the utility could provide enough electric service to supply the needs of the facility.

John Kautzman was interested learning more about ONEOK's operating policy. Dick Vandebossche explained that it is a 3rd party gatherer and processor. This means that our normal agreements are in two forms. One is for the producers to retain ownership of the gas from the wellhead through the facility to the point of sale minus fuel, processing fees and transportation costs. The other is for ONEOK to purchase the raw gas at the wellhead at a discount to the value of the gas once it is transported to and processed at the facility.

This group requested to check with the city/county engineer, Monte Meyers, for water availability. Williams County is developing a regional water system to provide water to townships and small communities from Lake Sakakawea. This regional water system will not be available in the Stateline area until after the first plant is completed if not the second plant.

Shawn Wenco discussed the possibility of having job fairs in Williston for our positions at Garden Creek and Stateline. We replied that we have had a good working relationship with the operator training program at Bismarck State and would be interested in discussing work opportunities in Williston. ONEOK emphasized that the Stateline and Garden Creek positions are more stable than the drilling positions currently available in the Williston area. ONEOKs plant operations are determined by oil and gas being taken out of the ground rather than drilling opportunity.

ONEOK was represented by the following personnel.
Dick Vande Bossche – Area Director of Operations
Mick Urban – Governmental Affairs, West Region
Russ Clark – Project Engineer, Stateline 1

Meeting with Dennis Nelson, County Superintendant
January 13, 2011, 11:30 AM at Williams County Vehicle Shop Offices

A basic discussion was held about the proposed Stateline 1 plant and discussed the assessment of construction of the Stateline 2 plant on the same 160 acres. Dennis had some concerns with using County Hwy. 5 for construction traffic. The road is rated for 80,000 lbs (road signs indicated a 40,000 lbs limit during the site visit). There is either 4" or 6" of asphalt and road base on the road so the truck traffic would have less of an impact than Garden Creek. There are a number of impact fees that could be assessed but ONEOK would prefer to remain out of having to pay fees for the highway use.

Dennis preferred a route along County Hwy. 1A which will be under some construction this summer but is a gravel road and have minimal impacts to current traffic patterns. This will also require the use of 2 miles of township road, 56th Street to get to the plant property. There is also a large pipe or box culvert over a creek on County Hwy. 1A that will be crossed. It was determined to be a large pipe so weight concerns were minimized for now. Dennis also stated that there would likely be at least 1 corner that would have to be widened to an 80 foot radius for the large loads.

ONEOK stated that they would have our general contractor's logistical personnel contact the county and drive the roads to determine the best route to the project site. Some of the loads are unusually long and heavy so there are some concerns that the trailers could "bottom out" on hill crests if the slope on either side does not allow the truck to pass over.

Dennis organized a meeting with Monte Meyers and Commissioner Hanson in the afternoon to further discuss road needs.

Dennis had some concerns with Ground Prairie elementary school 4 miles to the south of the plant site. The elementary school does not have chain link fencing around the school yard. It also sits on a hill that is approximately 10-20' above the highway. There was concern about construction workers interfering with normal school traffic.

ONEOK was represented by the following personnel.
Dick Vande Bossche – Area Director of Operations
Mick Urban – Governmental Affairs, West Region
Russ Clark – Project Engineer, Stateline 1

Meeting with County Commissioners
January 13, 2011, 3:30 PM at Williams County Vehicle Shop Offices
Dan Kalil – County Commissioner, Chair
Martin Hanson – County Commissioner for District 1 (Stateline is in District 1)
Monte Meyers – County/City Engineer
Dennis Nelson – County Superintendant

A basic discussion was held about the proposed Stateline 1 plant and discussed the assessment of construction of the Stateline 2 plant on the same 160 acres. It was confirmed that there is 4" of asphalt and road base on the road. There are a number of impact fees that could be assessed but ONEOK would prefer to remain out of having to pay fees for the highway use. ONEOK stated that we would discuss options for getting construction loads to the project site.

Commissioner Kalil stated that North Dakota law states that the county has ROW 75' off each side of each section line. The Certificate of Survey for the site states the county has a 100' ROW from the section line so this is not an issue on the west side of the property. This 75' ROW was not shown on the south side of the property.

Highway 5 needs additional funds to add road base if heavy loads are to be moved on that road. Due to the existing roadbase, overlays may be used to upgrade the road to 105,500 lbs but this will not resolve the problem permanently. The asphalt will spread laterally off the road and cause some ruts that will require repair.

The township road, 56th Street, will require a dam to be redone if the route from Hwy 1A is to be used. This dam causes a minor chicane curve on the route to the plant site. It is recommended that the logistics personnel review this chicane and dam loading to ensure that property damage and safe passage is possible for this route. There will be construction on Hwy 1A this summer.

The Commissioners recommended a full presentation be given to the zoning commission for zoning approval. While this commission is only an advisory body, it is important to make sure that the zoning commission is comfortable.

The housing issues were discussed with the Commissioners. Commissioner Hanson stated that there is a vacant RV park in Grenora. Grenora is on the northern end of Hwy 5 and would remove traffic from having to travel by the Ground Prairie school.

ONEOK was represented by the following personnel.
Dick Vande Bossche – Area Director of Operations
Mick Urban – Governmental Affairs, West Region
Russ Clark – Project Engineer, Stateline 1

Meeting with County Emergency Response Coordinator
January 13, 2011 5:00 PM at Williams County Vehicle Shop Offices
Mike Hallessee – County Emergency Response

A basic discussion was held about the proposed Stateline 1 plant and discussed the assessment of construction of the Stateline 2 plant on the same 160 acres. We are likely to be in the Williston Rural Fire department district. It was desirable to have two plant entrances for emergencies in case one driving entrance is blocked. A table top exercise for the Stateline facility was recommended to evaluate emergency response to the site. ONEOK stated that we have an internal preference for live drills with emergency responders.

ONEOK was represented by the following personnel.
Dick Vande Bossche – Area Director of Operations
Mick Urban – Governmental Affairs, West Region
Russ Clark – Project Engineer, Stateline 1

Meeting with Williston Chamber of Commerce
January 14, 2011, 9:00 AM at Williston Chamber of Commerce Building
Ken Callahan – President
Kevin Paschke – Executive Director

A basic discussion was held about the proposed Stateline 1 plant and discussed the assessment of construction of the Stateline 2 plant on the same 160 acres. The group was somewhat concerned about the quantity and quality of housing stocks in the Williston area. There was some deep discussion about housing detailing the levels of stick built housing in the area and the prices at which homes are available. Williston has housing codes that are different from other areas and there was some concern from out of area developers who built sub-standard housing and refuse to repair their work.

Phone conversation with Hebron Township President
January 17, 2011, 3:00 PM
Floyd Miller – President, Hebron Township
Russ Clark – Project Engineer, Stateline 1

A basic discussion was held about the proposed Stateline 1 plant describing how the plant functions and very brief synopsis of what products the plant produces (Natural gas, field grade NGLs and natural gasoline). The discussion was focused on the use of 56th Street, a township road, to allow construction and permanent access to the Stateline facility.

56th Street is a non-maintained gravel road that was built prior to 1970. The road is currently being used by an oil driller to access a well on Section 28, thus truck traffic is already in the area. One possible construction route suggested by the County Superintendant was to use County Highway 1A and 56th street to access the site from US Highway 2. The issue with this is a stock dam that is located on 56th street that has been full of water for most of the past year. This stock dam is likely rated for 40 ton loads only and has two concrete culverts underneath it that may be capable of supporting some heavy loads. This may be an issue during freeze/thaw periods as the gravel road/stock dam would be softened and unusable for heavy traffic. There is also a chicane curve that could cause some issues with long load traffic. Mr. Miller was very receptive to meeting our general contractor's logistical personnel on the best access route for the facility.

To provide year-round access to the facility from 56th Street, the company would have to arrange or provide some plowing of the first half mile of 56th Street from County Highway 5. There is also a township standard for roads constructed in Hebron Township under development. This standard would have roads that are 24' wide and use a 3:1 slope on either side of the road. Mr. Miller would provide that standard to Linde when it is finalized. If 56th Street is to be upgraded, it would need to meet the Hebron Township standard.

Mr. Miller also commented on the location of pipeline markers on the new gathering line that follows County Highway 5. Many area farmers were farming in the county right of way thus, the pipeline markers are positioned at the edge of the farmed area rather than clearly demarking where the county right of way ends. Mr. Miller requested that the pipeline markers be located in the proper position (33' off each section line) and area farmers notified of the new location to they do not damage their farming equipment nor the pipeline marker.

Appendix D
Biology Report

Wetland Delineation Report and Endangered Species Review for the State Line Gas Plant, Williams County, North Dakota

Prepared for

E3 Environmental, LLC

Prepared by

SWCA Environmental Consultants

January 2011

Wetland Delineation Report and Endangered Species Review for the State Line Gas Plant, Williams County, North Dakota

Prepared for:

E3 Environmental, LLC
205 Doty Street, Suite 202
Green Bay, Wisconsin 54301

Prepared by:

Chris McLaughlin, B.S., Ecologist

Reviewed by:

Mike Cook, M.S., Ecologist

SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501
Telephone: (701) 258-6622; Fax: (701) 258-5987

SWCA Project No. 17110

January 10, 2011

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TABLES

APPENDICES

1.0 INTRODUCTION

E3 Environmental, LLC, requested SWCA Environmental Consultants (SWCA) perform natural and cultural resources surveys to assess the potential effect of activities associated with the construction of a gas processing plant, proposed by Bear Paw Energy and known as the State Line Gas Plant (SLGP). The jurisdictional agency presiding over the construction of the SLGP is the North Dakota Public Service Commission (NDPSC). This report presents the results of the natural resources field survey completed on November 2, 2010. The results of the cultural resources survey are contained in a separate report under a separate cover.

2.0 METHODS

2.1 STUDY AREA

The SLGP will be constructed in the SW ¼ of Section 21, Township 155 North, Range 103 West, approximately 18 miles northwest of Williston, Williams County, North Dakota. Construction of the SLGP is anticipated to affect approximately 160 acres. A site map of the SLGP project area is attached to this report as Appendix A. Additionally, photographs of the SLGP, taken during the field survey, are provided in Appendix B.

2.2 WETLANDS

SWCA ecologists conducted delineations in accordance with guidelines provided in the 1987 U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (Supplement) (USACE 2010). According to the Manual, an area is a wetland if three mandatory wetland indicators are present in a given area, with special exceptions: 1) the presence of hydrophytic vegetation, 2) wetland hydrology, and 3) hydric soils.

SWCA recorded data at points within areas that resembled or had the potential to be wetlands based on visual observation. Data recorded at each point included all vegetation within prescribed sampling plots, indicators of wetland hydrology, and soil characteristics. USACE datasheets containing data derived at each data point are provided in Appendix C.

Prior to visiting the SLGP project area, SWCA conducted a review of available background site information, including aerial imagery, National Wetland Inventory (NWI) data, and U.S. Geological Survey 7.5-minute topographic maps.

2.2.1 Vegetation

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

SWCA recorded the binomial scientific name and percent cover of all plants within a 30-foot radius for the tree stratum, a 15-foot radius for the sapling/shrub stratum, a 5-foot radius for the herbaceous stratum, and a 30-foot radius for the woody vine stratum. SWCA ecologists noted each plant species' respective U.S. Fish and Wildlife Service (USFWS) indicator status (i.e., upland [UPL], facultative upland [FACU], facultative [FAC], facultative wetland [FACW], and obligate [OBL]). In some instances the size and shape of the vegetative sampling plot was manipulated to better encompass each wetland or upland area, though the overall area assessed remained unchanged.

2.2.2 Hydrology

A data point was determined to contain wetland hydrology if at least one primary indicator or at least two secondary indicators of wetland hydrology were present, as defined by the Manual and Supplement. Common hydrologic indicators included the presence of surface water, high water table, soil saturation, hydrogen sulfide (H_2S) gas, sediment deposits, water-stained leaves, and oxidized rhizospheres on living roots.

2.2.3 Soil

Ecologists recorded detailed notes regarding soil profiles including the hue, value, and chroma (i.e., color) of the soil (using Munsell Soil Color Charts); the depth and extent of that soil color within the entire soil profile; the concentration of any redoximorphic concentrations or depletions; and the texture of the soil at each depth where a color change was observed. A soil pit was excavated to a depth necessary to either prove or disprove the presence of hydric soil indicators. Common hydric soil indicators of the northern Great Plains subregion include the presence of H_2S gas within the soil pit, redoximorphic depressions, and a depleted matrix.

2.3 WATERBODIES

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

Streams were classified as perennial, intermittent, or ephemeral based on field observations. During a typical year, a perennial stream contains flowing water year-round, and the water table is located above the stream bed. Groundwater is the primary water source for stream flow while precipitation runoff is supplemental. Ecologists classified streams that showed significant flow during the field survey or were named or designated as solid blue lines on the U.S. Geologic Survey 7.5-minute topographic maps as perennial.

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

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

2.4 WILDLIFE INCLUDING THREATENED AND ENDANGERED SPECIES

Information regarding the presence of threatened or endangered species that may occur within or near the project area was obtained from the USFWS list of threatened and endangered species by North Dakota county (USFWS 2010a). However, this document does not represent a comprehensive survey, but rather acknowledges the past and/or current presence of listed species. The lack of discovery of threatened or endangered species does not signify their non-existence within the area, but only that no primary or secondary indications of these species were recorded.

Prior to beginning the field survey, SWCA reviewed the USFWS list of threatened and endangered species for Williams County. SWCA conducted a cursory pedestrian survey concurrently with the wetland delineation for all listed species and suitable habitat that may be affected by construction activities.

Additionally, SWCA ecologists noted any wildlife observed during the field survey. Wildlife sightings can involve either primary observations (i.e., actual sighting of an animal) or secondary observations (i.e., observation of scat, tracks, or fur deposits).

2.5 TREE/SAPLING/SHRUB ENUMERATION

SWCA surveyed the SLGP project area for woody-stemmed vegetation including trees, saplings, and shrubs. If observed, woody-stemmed vegetation was taxonomically identified to species level and counted. The NDPSC generally requires that affected woody-stemmed vegetation be mitigated for at a 2:1 post- to pre-construction ratio.

2.6 MAPPING

Each data point was geographically recorded using a handheld Trimble GeoXH global positioning system (GPS) unit capable of providing spatial data with sub-meter accuracy, when post-processed. SWCA used Universal Transverse Mercator Zone 13N as the projected coordinate system and North American Datum 1983 as the datum. ArcGIS v9.3 (Redlands, California) was used to analyze collected features, calculate areas, and generate the map provided in Appendix A. Please note that all data collected using the GPS unit and displayed on the attached map are for review purposes only and do not represent a professional civil survey.

3.0 RESULTS

3.1 VEGETATION

Ecologists identified one vegetative community type within the SLGP project area: a herbaceous pasture/hay community. No hydrophytic vegetative communities were observed within the project area.

3.1.1 Herbaceous Pasture/Hay Community

The herbaceous pasture/hay community occurring throughout the SLGP project area was dominated by a planted mixture of intermediate wheatgrass (*Thinopyrum intermedium*) and alfalfa (*Medicago sativa*). Additionally, smooth brome (*Bromus inermis*) and yellow sweetclover (*Melilotus officinalis*) were noted within the herbaceous community.

3.1.2 Palustrine Emergent Wetland (PEM)

SWCA observed no PEM wetlands within the SLGP project area. Two NWI signatures were noted during the desktop review of the project area; however, ecologists verified that no wetlands were present within the NWI signatures.

3.2 HYDROLOGY

From August 1 to October 31, 2010, approximately 4.87 inches of precipitation accumulated at the National Weather Service's Williston, North Dakota, monitoring station (NWS-Williston) (Table 1). This amount represents a 1.17-inch departure from normal. It is SWCA's opinion that although a surplus of precipitation accumulated between August 1 and October 31, 2010, it did not significantly affect the presence of hydrologic indicators.

Table 1. Monthly Recorded Precipitation at NWS-Williston

Month (2010)	Recorded Precipitation (inches)	Normal Average Precipitation (inches)	Difference (inches)
August	2.20	1.48	0.72
September	1.41	1.35	0.06
October	1.26	0.87	0.39
Total	**4.87**	**3.70**	**1.17**

Source: National Oceanic and Atmospheric Administration (2010).

Temperatures recorded during October 2010 indicate an average monthly temperature of 47.3 degrees Fahrenheit, which represents a 3.7-degree departure from normal. Additionally, approximately 15 days in October 2010 experienced temperatures below freezing.

3.3 SOILS

The SLGP project area soil profile consists of a 10YR 4/3 silty clay loam from 0–16 inches in depth with no redoximorphic features present. The SLGP project area soil profile exhibits no other hydric soil indicators.

3.4 WETLANDS

No wetlands were observed within the SLGP project area.

3.5 WATERBODIES

No ephemeral, intermittent, or perennial waterbodies were observed within the SLGP project area.

3.6 WILDLIFE

SWCA noted no indication of the presence of federally protected species within the SLGP project area. However, several common species were observed.

3.6.1 Threatened and Endangered Species

The USFWS has identified six threatened and endangered species currently known or that have been known to exist in Williams County. During SWCA's cursory field survey, no threatened or endangered species or suitable habitat were observed.

Gray Wolf (*Canis lupus*)

Affects Determination: No Effect

The gray wolf was believed extirpated from North Dakota in the 1920s and 1930s with only sporadic reports from the 1930s to present (Licht and Huffman 1996). Licht and Fritts (1994) indicated that gray wolf mortality was confirmed in Dunn County in January 1992. Most documented gray wolf sightings that have occurred within North Dakota are believed to be young males seeking to establish territory (Hagen et al. 2005). However, the re-establishment of significant gray wolf populations in North Dakota is unlikely considering the historically troubled relationship between humans and wolves and the open habitat of the Great Plains, which makes them vulnerable to being shot (Licht and Huffman 1996). Therefore, the potential for transient wolves to exist near the project area remains but is not likely. Additionally, habitat fragmentation, in particular road construction as a result of oil and gas development, may further act as a barrier against gray wolf recolonization in western North Dakota. Therefore, the proposed project would have no effect on the gray wolf.

Pallid Sturgeon (*Scaphirhynchus albus*)

Affect Determination: May Affect, Is Not Likely to Adversely Affect

In 1990 the USFWS listed the pallid sturgeon as Endangered in the United States (USFWS 1990b). The primary factor leading to the decline of this species is the alteration of habitat through river channelization, creation of impoundments, and alteration of flow regimes

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

The pallid sturgeon population which is found near the project area occurs from the Missouri River below Fort Peck Dam to the headwaters of Lake Sakakawea and the lower Yellowstone River up the confluence of the Tongue River, Montana (USFWS 2007). This population consists of approximately 136 wild adult pallid sturgeon (USFWS 2007). Hatchery-reared sturgeon have also been stocked since 1998. The pallid sturgeon has been found to utilize the 16 miles of riverine habitat that would be inundated by Lake Sakakawea at full pool (Bramblett 1996 per USFWS 2007). Larval pallid sturgeons have also been found to drift into Lake Sakakawea. Although the majority of pallid sturgeons are found in the headwaters of Lake Sakakawea, North Dakota Game and Fish have caught and released pallid sturgeon in nets set in 80 to 90 feet of water between the New Town and Van Hook area. Based on this information, pallid sturgeon could be found throughout Lake Sakakawea (personal communication, email from Steve Krentz, Pallid Sturgeon Project Lead, U.S. Fish and Wildlife Service, to Mike Cook, Aquatic Ecologist, SWCA Environmental Consultants, September 3, 2010).

Suitable habitat for pallid sturgeon does not occur in the project area, and the Missouri River lies a minimum of 12.7 miles away from the SLGP. Overland sheet flow would likely travel from the SLGP project area to the potentially intermittent Upper Painted Woods Creek and the potentially perennial Painted Woods Creek. Subsequently, Painted Woods Creek would drain the project area into the mainstem Missouri River. Potential pollution and sedimentation occurring within the project area are concerns for downstream populations of endangered pallid sturgeon. Activities associated with the construction, production, or reclamation of the proposed project area are not anticipated to adversely affect water quality and subsequently the pallid sturgeon. Therefore, the proposed project may affect, but is not likely to adversely affect pallid sturgeon.

Interior Least Tern (*Sterna antillarum*)
Affect Determination: May Affect, Is Not Likely to Adversely Affect

The interior population of the least tern is listed as endangered by the USFWS (1985b). This bird is the smallest member of the gull and tern family, measuring approximately 9 inches in length. Terns remain near flowing water, where they feed by hovering over and diving into standing or flowing water to catch small fish (USFWS 2010b).

The interior population of least terns breeds in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems, where they nest in small colonies. From late April to August, terns nest in a shallow hole scraped in an open sandy area, gravel patch, or exposed flat and bare sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. The

adults continue to care for chicks after they hatch. Least terns in North Dakota will often be found sharing sandbars with the piping plover, a threatened species (USFWS 2010b).

Census data indicate over 8,000 least terns in the interior population. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe, and on the Missouri and Yellowstone rivers upstream of Lake Sakakawea (USFWS 1990a, 2010b). Approximately 100 pairs breed in North Dakota (USFWS 2010b). Details of their migration are not known, but their winter range is reported to include the Gulf of Mexico and Caribbean Islands (USFWS 1990a, 2010b).

Loss of suitable breeding and nesting habitat for terns has resulted from dam construction and river channelization on major rivers throughout the Mississippi, Missouri, and Rio Grande river systems. River and reservoir changes have led to reduced sandbar formation and other shoreline habitats for breeding, resulting in population declines. In addition, other human shoreline disturbances affect the species (USFWS 1990a). Critical habitat has not been designated for the species (USFWS 2010b).

Current conservation strategies include identification and avoidance of known nesting areas, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 2010b).

Suitable shoreline habitats for breeding and nesting terns does not occur in the project area, and the Missouri River lies a minimum of 12.7 miles away from the SLGP. It is unlikely that terns would visit the upland habitats present in the project area. Therefore, the proposed project may affect, but is not likely to adversely affect the endangered least tern.

Piping Plover (*Charadrius melodus*)
Affect Determination: May Affect, Is Not Likely to Adversely Affect

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

Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands, and on beaches, sand bars, and dredged material islands of major river systems (USFWS 2002, 2010c). The shorelines of lakes of the Missouri River constitute significant nesting areas for the bird. Piping plovers nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988b). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2010c). The birds fly south by mid to late August to areas along the Texas coast and Mexico (USFWS 2002). The Northern Great Plains population has continued to decline despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. Low survival of adult birds has been identified as a factor (Root et al. 1992). Current conservation strategies include identification and

preservation of known nesting sites, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988b, 2010c).

Suitable shoreline habitat for breeding and nesting plovers does not occur in the project area, and the Missouri River lies a minimum of 12.7 miles away from the SLGP. It is unlikely that migrating plovers would visit the project during their migration. Therefore, the proposed project may affect, but is not likely to adversely affect piping plover.

Designated Critical Habitat of Piping Plover
Affect Determination: No Effect

The USFWS has designated critical habitat for the Great Lakes and Northern Great Plains populations of piping plover (USFWS 2002). Designated critical habitat for the piping plover includes 183,422 acres and 1,207.5 river miles of habitat in Minnesota, Montana, North Dakota, South Dakota, and Nebraska. The proposed project will have no effect on plover designated critical habitat.

Whooping Crane (*Grus americana*)
Affect Determination: May Affect, Is Not Likely to Adversely Affect

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

Williams County, including the SLGP project area, is within or near the primary migratory flyway of whooping cranes; however, the primary breeding/nesting area for the species is in Canada, where approximately 83% of the wild nesting sites occur. Studies indicate that whooping cranes use a variety of habitats during migration and that they feed primarily in croplands and roost in small palustrine (marshy) wetlands within 0.6 mile of suitable feeding areas (Howe 1987, 1989). Whooping cranes have also been recorded in riverine habitats, with eight sightings along the Missouri River in North Dakota (Canadian Wildlife Service and USFWS 2007:18). In these cases they roost on submerged sand bars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

The project area was a previously cultivated cropland which may act as a viable stop over area; however, no significant PEM wetlands which support aquatic life were observed within the SLGP project area. Therefore, the proposed SLGP project area is unlikely to support whooping crane migratory stopover use due to the absence of suitable foraging habitat. The proposed project may affect, but is not likely to adversely affect whooping crane.

Black-footed ferret (*Mustela nigripes*)
Affects Determination: No Effect

Black-footed ferrets are nocturnal, solitary carnivores of the weasel family that have been largely extirpated from the wild primarily due to range-wide decimation of the prairie dog

(*Cynomys* sp.) ecosystem (Kotliar et al. 1999). They have been listed by the USFWS as endangered since 1967, and have been the object of extensive re-introduction programs (USFWS 2010d). Ferrets inhabit extensive prairie dog complexes of the Great Plains, typically composed of several smaller colonies in proximity to one another that provide a sustainable prey base. The *Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act* (USFWS 1989) states that ferrets require black-tailed prairie dog (*Cynomys ludovicianus*) towns or complexes greater than 80 acres in size, and towns of this dimension may be important for ferret recovery efforts (USFWS 1988a). Prairie dog towns of this size are not found in the project area. In addition, this species has not been observed in the wild for more than 20 years. The proposed project will have no effect on black-footed ferret.

3.6.2 Wildlife Observed

SWCA ecologists observed habitat capable of supporting various avian and mammal wildlife. Visual observations of a barn owl (*Tyto alba*) and field mice (*Mus* sp.) were noted.

These species may be affected during construction activities within the SLGP project area. However, they are likely to relocate to areas that will not be disturbed by construction activities.

3.7 TREE/SAPLING/SHRUB ENUMERATION

SWCA ecologists did not observe any trees, saplings, or shrubs within the SLGP project area.

4.0 CONCLUSIONS

1. SWCA ecologists observed no wetlands within the SLGP project area.
2. SWCA ecologists observed no intermittent or perennial waterbodies within the SLGP project area.
3. No threatened or endangered species or suitable habitats were observed during the field survey. Known species that may be present in Williams County are not likely to be detrimentally impacted by construction activities.
4. Common wildlife species observed during the field survey are likely to relocate once construction activities have commenced.

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APPENDIX A
State Line Gas Plant Project Area Map

Contains Privileged Information -- Do Not Release

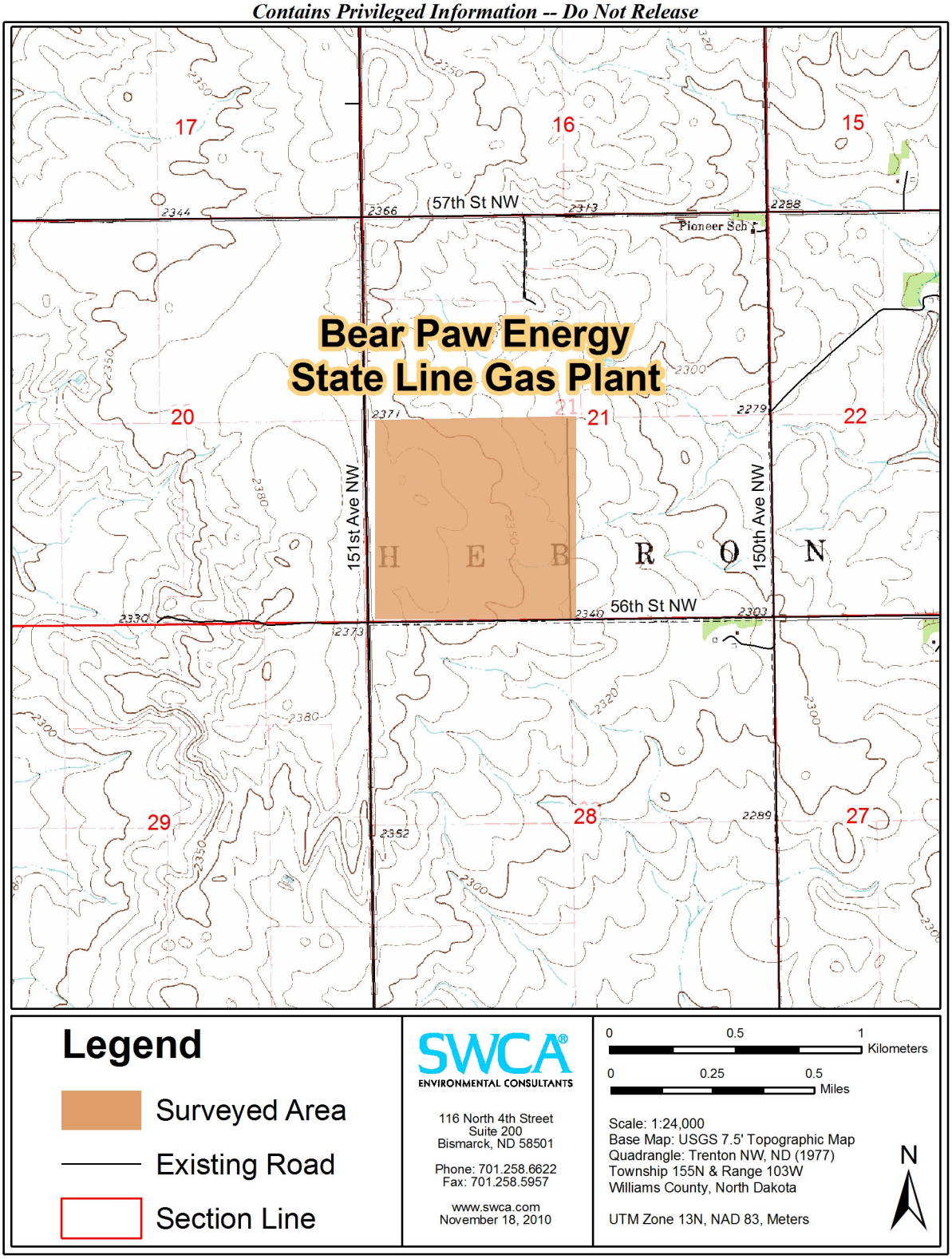
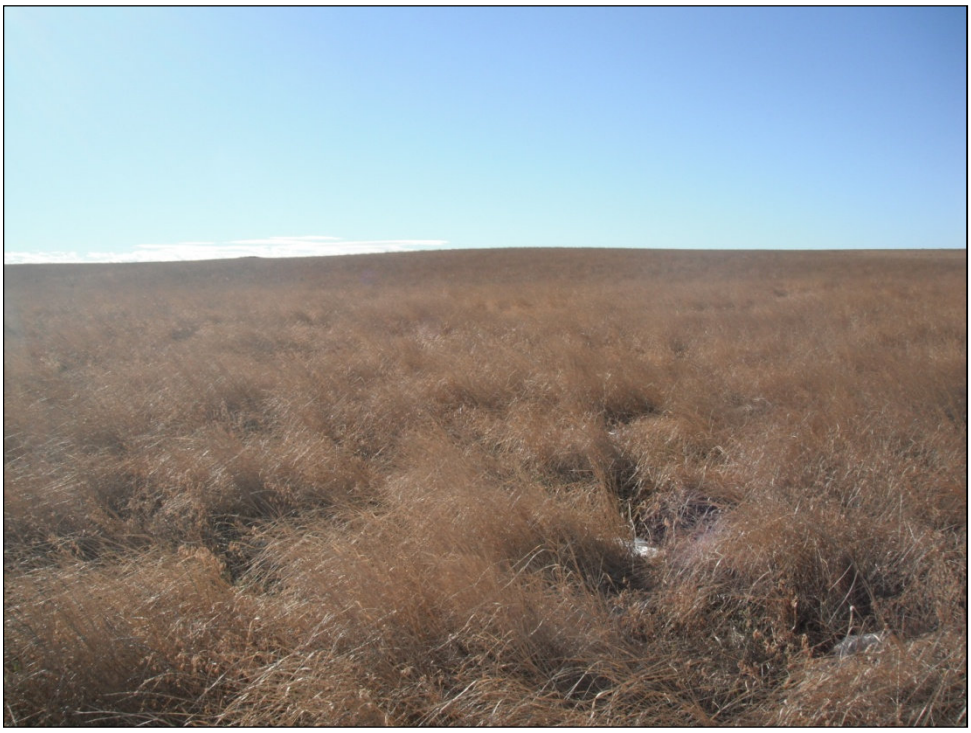


Figure 1. State Line Gas Plant Project Area Map

APPENDIX B
Photographs of State Line Gas Plant Project Area

Photograph 1. Overview of project area, facing east.



Photograph 2. Overview of project area, facing southwest.

Photograph 3. Overview of project area, facing east.

Photograph 4. Overview of project area, facing north.

Appendix E
Cultural Resources Report

A Class I and Class III Cultural Resource Inventory of the State Line Gas Plant, Williams County, North Dakota

Prepared for

E3 Environmental, LLC

Prepared by

SWCA Environmental Consultants

January 2011

MANUSCRIPT DATA RECORD FORM

1. Manuscript Number:

2. SHPO Reference #:

3. Author(s): Stephanie Lechert and Jolene Schleicher

4. Title: A Class I and Class III Cultural Resource Inventory of the State Line Gas Plant, Williams County, North Dakota

5. Report Date: January 10, 2011

6. Number of Pages: 34

7. Type – I, T, E, O: I

8. Acres: 160.00

9. Legal Location(s) (no quarter sections) with Historic Context Study Unit(s):
Consult the township tables in *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component*, (SHSND 2008; available at http://history.nd.gov/hp/hpforms.html) for Study Unit assignments.
Study Units: LM, CB, KN, HE, SM, GA, JA, GR, NR, SR, SO, SH, YE

COUNTY	TWP	RNG	SEC	SU
Williams	155	103	21	GA

A Class I and Class III Cultural Resource Inventory of the State Line Gas Plant, Williams County, North Dakota

Prepared for:

E3 Environmental, LLC
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SWCA Cultural Resource Report Number 10-483

January 10, 2011

ABSTRACT

This report outlines the results of a Class I and Class III cultural resource inventory conducted by SWCA Environmental Consultants (SWCA) on November 2 and 9, 2010, for a natural gas processing plant, known as the State Line Gas Plant (SLGP). Bear Paw Energy proposes to construct the SLGP on a privately owned 160.00-acre parcel located in Section 21, Township 155 North, Range 103 West, approximately 16.21 miles northwest of Williston, North Dakota. The project area is bounded by County Highway 5 (also known as 151st Avenue) on the west and 56th Street to the south.

The jurisdictional agency presiding over the construction of the SLGP is the North Dakota Public Service Commission (NDPSC). In compliance with NDPSC requirements, E3 Environmental, LLC, requested SWCA perform a cultural resource survey to assess the potential effect of activities associated with the construction of a gas processing plant. The area of project impact will not exceed 160.00 acres.

SWCA inventoried 160.00 acres for the SLGP project. No cultural resources were identified during the course of the inventory. It is recommended that the project be granted determinations of *No Historic Properties Affected* and *No Significant Sites Affected* and clearance to proceed as planned.

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INTRODUCTION

This report outlines the results of a Class I and Class III cultural resource inventory conducted by SWCA Environmental Consultants (SWCA) on November 2 and 9, 2010, for a natural gas processing plant, known as the State Line Gas Plant (SLGP). Bear Paw Energy proposes to construct the SLGP within a 160.00-acre parcel approximately 16.21 miles northwest of Williston, North Dakota. The jurisdictional agency presiding over the construction of the SLGP is the North Dakota Public Service Commission (NDPSC). In compliance with NDPSC requirements, E3 Environmental, LLC (E3), on behalf of BPE, requested SWCA perform a cultural resource survey to assess the potential effect of activities associated with the construction of a gas processing plant.

The SLGP project area is located on privately owned land in Section 21, Township (T) 155 North (N), Range (R) 103 West (W) (Figure 1). The area of project impact is anticipated to be approximately 80 acres for the proposed gas plant, with the possibility for future expansion; however, anticipated project impact will not exceed the inventoried 160.00-acre parcel.

For the cultural resource investigation, Judith Cooper and Michael Retter served as Principal Investigators. Chandler Herson (Field Principal Investigator), Jolene Schleicher, and Stephanie Lechert, all of SWCA, completed the fieldwork. All field notes and photographs are on file at SWCA's Bismarck, North Dakota, office under project number 17110.

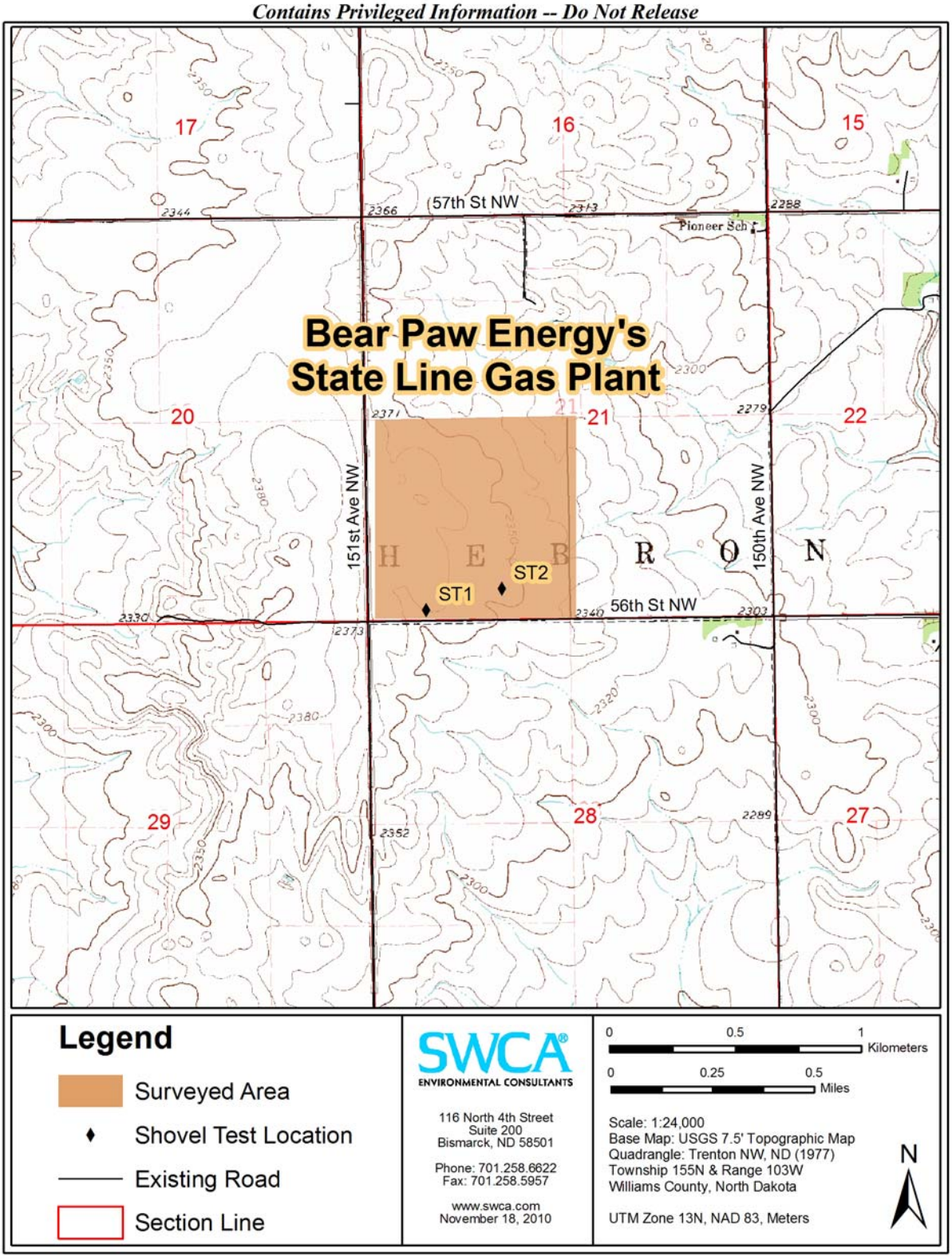

Figure 1. Project area map.

PROJECT SETTING

TOPOGRAPHY

The project area is located in the Glaciated Dark Brown Prairie ecoregion of the northwestern Great Plains physiographic province in northwest North Dakota (Fenneman 1931). The Glaciated Dark Brown Prairie ecoregion marks a transition to drier conditions with a well-defined drainage system and fewer wetlands compared to the more recently glaciated Missouri Coteau Slope to the east (Bryce et al. 1998). While there are no drainages or waterbodies in the immediate project area, the Missouri River is approximately 13.89 miles directly to the southwest. The elevation in the project area ranges from approximately 2,323 to 2,372 feet, with the highest elevations in the northwestern portions of the project area. The general topography of the proposed project is glaciated and levels to gently rolling plains sloping to the Missouri River (Bryce et al. 1998) (Figure 2). It features an established drainage pattern and a lack of wetlands (Bryce et al. 1998).

Figure 2. Project area overview depicting general topography, facing southeast.

CLIMATE

The climate for northwest North Dakota is temperate. Based on climatic data collected from the Grenora station in northwestern North Dakota, between 1971 to 2000, January is the coldest month with a mean daily temperature of 6.9 degrees Fahrenheit (°F) while July is the warmest month with a mean daily temperature of 68.8°F (National Climatic Data Center [NCDC] 2009). Temperature extremes on record range from -43°F at the coldest to 111°F at

the warmest. On average, 132 days are frost-free (28°F or above) and the average date of the first fall frost is September 28 and the average date of the last spring frost is May 4 (North Dakota Agricultural Statistics Service 2010). Per annum, Grenora receives 13.56 inches of precipitation (NCDC 2009). The wettest month is June, with an average of 2.40 inches of precipitation received; February is the driest, with only 0.28 inch of precipitation received on average. Thirty-five inches of snow are received annually, on average, with the highest accumulations (7.5 inches, on average) received in November (NCDC 2009). The highest monthly snowfall on record occurred in January at which time 22.3 inches of snow fell. Overall, northwest North Dakota, like much of the northwestern Great Plains, is characterized by a moderate to cool climate, with cold, dry winters and mild to warm, dry to moderately wet summers.

HYDROLOGY

The project area is located 758 feet south of Painted Wood Creek, which drains into the Missouri River approximately 13.89 miles to the southeast. No intermittent or perennial waterbodies exist within the SLGP project area.

GEOLOGY

In general, the geology of the project area is characterized by Glacial Sediment-Collapsed Glacial Sediment (Qccr). Glacial Sediment-Collapsed Glacial Sediment consists of an unbedded, unsorted mixture of clay, silt, sand, and pebbles, and a few cobbles and boulders up to 30 feet thick (Clayton 1980).

SOILS

Four soil series are present in the project area (Natural Resources Conservation Service [NRCS] 2010); however, the dominant soil type is fine-loamy till found on rises, flats, and knolls. Table 1 summarizes the soils within the project area.

Table 1. Summary of Soil Series within the Project Area.

Soil Series	Parent Material	Drainage	Slope	Landform
Livona fine sandy loam	Eolian deposits over fine-loamy till	Well drained	0%–6%	Rises
Livona-Zahl complex	Eolian deposits over fine-loamy till; Fine-loamy till	Well drained	6%–9%	Rises, Knolls
Williams-Bowbells loams	Fine-loamy till	Well drained; Moderately well drained	0%–3%; 3%–6%	Rises, Flats
Williams-Zahl loams	Fine-loamy till	Well drained	6%–9%	Knolls

Source: NRCS (2010)

FLORA AND FAUNA

The project area is situated within the Glaciated Dark Brown Prairie ecoregion, characterized by a well-defined drainage system and few wetlands (Figure 3). Present vegetation includes such species as blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), needlegrass (*Nassella viridula*), little bluestream (*Schizachyrium scoparium*), and prairie sandreed (*Calamovilfa longifolia*) (Bryce et al. 1998).

Figure 3. Overview of the vegetation characteristic of the project area, facing north-northwest.

Approximately 160 wildlife species are resident or seasonal visitors to the Missouri River ecosystem, and hundreds of native fish species live in the mainstem and tributaries. Some of the animal species that would have been common and available for human use in the Missouri River Valley area—both prehistorically and historically—include fur-bearing mammals such as beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), eastern cottontail (*Sylvilagus floridanus*), elk (*Cervus elaphus*), moose (*Alces alces*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), pronghorn (*Antilocapra americana*), and bison (*Bison bison*), as well as bird and waterfowl species such as mallard (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), sharp-tailed grouse (*Pedioecetes phasianellus campestris*), golden eagle (*Aquila chrysaetos*), and bald eagle (*Haliaeetus leucocephalus*) (Seabloom et al. 1978). At present, three federally listed threatened and endangered species reside in the area—the least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), and pallid sturgeon (*Scaphirhynchus albus*) (National Research Council 2002).

ENVIRONMENTAL CONSTRAINTS

Preservation of archaeological materials within or adjacent to the project area has been impacted largely by natural erosion, including ongoing eolian and colluvial processes. Secondary sources of impact to archaeological resources include livestock grazing, agriculture, and oil and gas development. Some oil and gas development has occurred near the project area and is presently increasing as demand for domestic energy sources has grown in recent years. In some places, these varied land uses have resulted in increased ground visibility and removal of overburden, allowing for the identification of numerous sites and an interpretation of high site density. In other cases, though, it has simply removed the archaeological materials and resulted in the identification of low site densities. In combination, these factors may have disrupted the contexts of a moderate percentage of cultural materials.

CULTURAL/HISTORIC OVERVIEW

PREHISTORIC CONTEXTS

The following discussion incorporates a variety of sources to develop a prehistoric overview for the work conducted for the SLGP project and includes information from the Garrison Study Unit (GSU) in which the project area is located (Gregg and Bleier 2008). As of 2007, 3,303 archaeological sites were identified in the GSU, the majority of which were identified on ridges (40.5 percent); hills, bluffs, and knolls (24.0 percent); and terraces (10.4 percent) (Gregg and Bleier 2008).

Paleoindian Tradition (ca. 11,500–7,900 years before present [B.P.])

Although speculation exists regarding the possibility of earlier habitation of the Great Plains, the Paleoindian tradition is the oldest of the region, and, in general, is associated with a hunting and gathering adaptation (Gregg 1985). The Paleoindian tradition is subdivided here into six main complexes: Clovis, Goshen, Folsom, Hell Gap/Agate Basin, Alberta/Cody, and Parallel Oblique Flaked. Fourteen Paleoindian archaeological resources have been identified in the GSU (Gregg and Bleier 2008). Paleoindian sites in the GSU include, but are not limited to, the Beacon Island site (32MN234A), the Beacon Island Agate Basin site (32MN234), the Moe site (32MN101), and 32ME946.

The Clovis complex (ca. 11,500–10,800 B.P.), defined by large, fluted lanceolate projectile points, is the earliest unequivocal complex in North America. Clovis artifacts have been found with megafauna, such as mammoth, in buried contexts in the Southwest and Great Plains (Grayson and Meltzer 2002); however, although megafauna were probably dietary constituents, it is debated to what degree Early Paleoindians pursued large game (Cannon and Meltzer 2004; Grayson and Meltzer 2002). In the South Dakota Badlands, the Lange-Ferguson site yields the best evidence for proboscidean exploitation (Hannus 1990). Here, modified mammoth bones are directly associated with a flake and three projectile points were recovered from deposits similar to those containing mammoth, indicating that Clovis hunter-gatherers either killed the animals or scavenged their carcasses (Hannus 1990). Skeletal remains from a single mammoth were unearthed during building construction in 1988 near

Powers Lake within the GSU. These remains were shallowly buried, were not radiocarbon dated, and were not appraised for the potential of associated cultural remains (Gregg and Bleier 2008). Few Clovis sites have been recorded in the region. Clovis artifacts were recovered from two sites, a single Clovis point base was recovered from 32ME946 (Floodman 1988) and Clovis points have been recovered from the Beacon Island Agate Basin site (Ahler 2003).

Goshen (ca. 10,900–10,100 B.P.) is a technological complex first identified at Hell Gap, Wyoming (Irwin 1967, 1971), but it is also found at Mill Iron, Montana, Carter-Kerr/McGee, Wyoming, and the Jim Pitts site, located in the South Dakota Black Hills (Sellet 2001). Goshen is poorly understood—the basally thinned, unfluted projectile points share affinities with both Clovis and Folsom, but are also similar to Southern Plains Plainview points. In stratified deposits, Goshen materials typically underlie Folsom (Frison et al. 1996). Plainview or Goshen points were recovered from the Moe site in the GSU (Gregg and Bleier 2008).

The Folsom complex (ca. 10,900–10,200 B.P.) is typified by distinctive fluted lanceolate projectile points. With most large grazers extinct by Folsom times and grasslands dominating the Great Plains, bison populations flourished, providing resources for Folsom hunters (Frison 1991). However, many high-elevation Folsom sites, especially in the intermontane basins of the Rocky Mountains, also demonstrate broad diets of diverse small prey (Hill 2007). Probable structures recorded at the Mountaineer and Barger Gulch sites in Colorado suggest long-term occupations in mountain settings (Stiger 2006; Surovell and Waguespack 2007). In North Dakota, there are numerous documented Folsom sites (Gregg 1985), including the Bobtail Wolf (32DU955A), Big Black (32DU955C), and Young-Man-Chief (32DU955D) sites (Root 2000; Shifrin 2000; William 2000). These sites are interpreted as camps, quarries, and lithic workshops where Knife River flint was procured and used for tool production. In the GSU, Folsom points were recovered from the Moe (32MN101) and Beacon Island Agate Basin (32MN234) sites (Gregg and Bleier 2008).

Both the Agate Basin (ca. 10,500–10,000 B.P.) and Hell Gap (ca. 10,000–9,500 B.P.) technocomplexes are typified by lanceolate projectile points with thick lenticular cross-sections (Frison 1991). Based on morphological similarities and stratigraphic evidence, Hell Gap is technologically descended from Agate Basin. Agate Basin and Hell Gap hunter-gatherers were probably specialized bison hunters. Sites like Agate Basin II (Hill 2001) and Casper (Todd et al. 1997) indicate more frequent extraction of marrow and within-bone nutrients, suggesting a greater focus on long-range planning than previously evident. Some sites associated with this tradition have been recorded in North and South Dakota, but these mainly consist of isolated and surface finds (Gregg 1985). One of the most significant Paleoindian sites in the GSU is the Beacon Island Agate Basin site (Ahler 2003). Agate Basin points have also been recovered from the Moe site, and an isolated Knife River flint Agate Basin point was recorded in the same report as 32ME946 (Gregg and Bleier 2008).

Alberta (9800–9000 B.P.) is a poorly dated technology that probably descends from Hell Gap and is documented at the Hell Gap, Wyoming, and Hudson-Meng, Nebraska, sites (Agenbroad 1978; Frison 1991). Hudson-Meng is one of the largest documented bison kills and suggests that Alberta people focused on bison hunting (Agenbroad 1978); however, more recent work suggests that humans were not responsible for killing the bison and that they died

of a natural event (Todd and Rapson 1999). The Cody Complex (9200–8800 B.P.), which includes stemmed/shouldered Eden and Scottsbluff projectile points and the distinctive Cody knife, apparently arose from Alberta (Frison 1991). These sites are widespread across the northwestern and central Great Plains, with components at the Wyoming Horner I, Finley, and Medicine Lodge Creek sites (Frison and Todd 1986; Frison and Walker 2007) and the Mammoth Meadows, Myers-Hindman, and MacHaffie sites in Montana (Davis 1993). Such sites indicate that Cody adaptations were diverse and utilized large fauna as well as small prey and floral resources (Frison et al. 1996; Galvan 2007). Alberta/Cody sites have been recorded in North and South Dakota. In fact, Hudson-Meng contains extensive Knife River flint, showing a strong connection to the Missouri River region. A single Scottsbluff point was recorded at the Moe site, and Metcalf et al. (1988) recorded a probable Alberta point as an isolated find near Scorio Creek.

The Parallel Oblique Flaked complex is a catch-all grouping of Paleoindian projectile point types (Gregg 1985) including Angostura, Milnesand, Browns Valley, Lusk, Allen, and Frederick; these range in age from around 9400 to 7900 B.P. All types are lanceolate with parallel oblique flaking. Bison kill-butcheries became rare on the northwestern and northern Great Plains after approximately 8000 B.P. (Frison 1998), perhaps due to severe ecological deterioration that could no longer support large bison populations. Complex excavated and surface sites have been recorded in the Dakotas, including sites on the Missouri River. In the GSU, six archaeological resources defined under the general "Plano" category have been identified (Gregg and Bleier 2008).

Plains Archaic Tradition (ca. 8000–1500 B.P.)

The transition from Paleoindian to Archaic is archaeologically visible as an abrupt shift to large notched projectile points (Frison 1991), perhaps indicating a shift to atlatl propelled darts from hand-thrown spears. This transition is also associated with warming/drying trends that prompted diverse subsistence adaptations among hunter-gatherers (Carlson 1994). Ground stone appears in the Archaic, suggesting a greater focus on processing floral resources. In conjunction with the appearance of pit houses and storage pits in the western intermontane basins, this suggests a shift in subsistence base, a reduction in overall residential mobility, and more predictable seasonal rounds (Frison 1991). In the GSU, 96 Archaic archaeological resources have been identified. Thirty-one of these are from unspecified associations (Gregg and Bleier 2008). Important Archaic-age sites in the GSU include the Mondrian Tree site (32MZ58) and the Moe site (32MN101).

The Logan Creek/Mummy Cave complex (5600–4000 B.P.) is the earliest example of large side-notched projectile points on the northern Great Plains. The blending of the Logan Creek and Mummy Cave for this complex is due to varied nomenclature used among archaeologists regionally for similar archaeological complexes (Gregg 1985). Settlement types associated with this complex include bison kills, transient camps, and some stone circle sites. Four archaeological resources containing large side-notched projectile point varieties have been identified in the GSU (Gregg and Bleier 2008).

The Oxbow complex (5000–4000 B.P.), typified by side-notched, deeply concave-based projectile points, is concentrated in northern Montana, Alberta, and Saskatchewan (Hannus 1994:180) but is also quite common in North and South Dakota, with numerous sites along

the Missouri River and its tributary system. Oxbow subsistence apparently centered on bison and sites include bison impoundments and jumps, encampments on stream terraces, stone circles, and processing areas (Hannus 1994; Reeves 1969). However, numerous birds and small mammals were probably exploited (Aaberg et al. 2006:174). Some northern Great Plains sites further yield evidence of complex cultural behavior including bundle burials with elaborate grave goods (Bryan 1991). Four Oxbow archaeological resources have been identified in the GSU (Gregg and Bleier 2008).

The McKean complex (ca. 4500–3400 B.P.) encompasses three distinct sub-phases—the McKean lanceolate, Duncan, and Hannah. The McKean complex is widespread across the Great Plains, and sites from this period can be found associated with bison kills, stone circles, lithic caching, and seasonal settlements (Frison 1991). Slab-lined pit hearths are common, as are ground stone artifacts suggesting a greater reliance on plant resources (Carlson 1994; Frison 1991). McKean complex sites often demonstrate evidence of lithic raw material exchange, including Swan River chert, Tongue River silicified sediment, and Knife River flint (Gregg 1985). In the GSU, 23 archaeological resources dating to the McKean complex have been identified (Gregg and Bleier 2008).

Pelican Lake (ca. 3000–2700 B.P.), typified by broad, thin corner-notched projectile points, is likely a descendant of McKean and is found across the northern and central Great Plains (Frison 1991). This wide spatial distribution may indicate significant population growth in response to the favorable moist conditions of the Sub-Atlantic episode (Reeves 1983). Numerous communal bison kills, such as Head-Smashed-In (Frison 1991), indicate communal bison hunting, but this does not suggest it was an exclusive feature of their subsistence. Rather, Pelican Lake populations probably relied on a broad-based economy across diverse ecozones (Hannus 1994). Thirty-four Pelican Lake archaeological resources have been identified in the GSU (Gregg and Bleier 2008).

Plains Woodland Tradition (ca. 2000–450 B.P.)

Temporally overlapping with the Northwestern Plains Late Archaic, the Plains Woodland tradition is characterized by increased sedentism, garden horticultural activity, expanding regional exchange networks with eastern Woodland populations (Adena and Hopewell), and the elaboration of ceremonial activities and mortuary practices, specifically mound burials (Griffin 1967). Significant technological advances such as bow and arrow and ceramics-use are also apparent (Gregg 1985); however, the fundamental subsistence strategies of the Plains Woodland did not drastically differ from their Archaic predecessors (Zimmerman 1985). It is assumed that this tradition saw the beginning of horticultural practices in the region. For the purposes of this study the complexes that are classed as belonging to the Plains Woodland include Besant, Sonota, Laurel, Avonlea, Old Woman's, and Blackduck. The Besant and Sonota components are well represented in the GSU (Gregg and Bleier 2008). Of the 184 Woodland sites in the GSU, 119 are unspecified, and 37 are Besant and/or Sonota age sites (Gregg and Bleier 2008).

The Besant complex (ca. 2000–1500 B.P.), typified by small to medium-sized side-notched triangular projectile points, represents the earliest presence of ceramics in North Dakota, probably resulting from eastern woodland influence (Walde 2006). Besant ceramics are more common in the eastern half of the Dakotas; the vessels show a basic conoidal shape and

suggest lump modeling manufacture with some coarse cording (Wood and Johnson 1973). Besant sites show extensive use of Knife River flint (Reeves 1970). Site types include stone circle sites, habitations on stream and river terraces, and bison kills. Numerous communal kill sites, including the Ruby bison pound in Wyoming (Frison 1991), suggest that Besant people were sophisticated bison hunters. The Sonota complex (1850–1350 B.P.) appears to be a possible sub-complex of Besant, but differs in that burial mounds are common at Sonota sites (Reeves 1983; Wood 1967). These mounds include rectangular subfloor pits/tombs with dismembered bodies and, commonly, articulated bison remains (Johnson and Johnson 1998). The presence of associated exotic artifacts is often cited as evidence of Hopewell influence on Middle Plains Woodland populations (Johnson and Johnson 1998). In the GSU, 37 Besant/Sonota archaeological resources have been identified, including at 32DU2, the Twin Buttes site (32DU32/32ME617), and 32ME254.

Sites from the Laurel complex (2100–850 B.P.) are generally found in the eastern portions of North Dakota, northern Minnesota, and southern Canada. Laurel pottery and mound building are fairly distinct, but lithics associated with this complex tend to be various and lack a particular style (Gregg 1985).

Avonlea complex (ca. 1800–1000 B.P.) sites occur across the northern Great Plains and are contemporaneous with Besant. This complex includes a variety of site types, including stone circles, bison kills, and rock shelter habitations (Reeves 1970). Avonlea represents the first regional complex to produce arrow points exclusively, suggesting a transition to bow and arrow technology (Frison 1988). Avonlea point types are small and indistinctly side-notched. Saskatchewan Basin Complex: Early Variant pottery is found at Avonlea sites (Byrne 1973). Avonlea subsistence in the north relied heavily on communal bison procurement, but in the southern range bison hunting was supplemented by smaller game (e.g., pronghorn), fish, and seasonal plant exploitation (Smith and Walker 1988). Avonlea sites are relatively rare in the Dakotas (Vickers 1994). In North Dakota, the Evans site (32MN301) contained Avonlea projectile points and ceramics (Schneider and Kinney 1978). Only one Avonlea-aged archaeological resource was identified in the GSU.

Rare in North Dakota is the Old Woman's complex (A.D. 700–1300). This complex is contemporary with the Plains Village tradition, so it would seem likely that many associated sites would be granted the latter designation (Gregg 1985).

The Blackduck complex (A.D. 1150–450) derives from northern Minnesota and was concentrated in southern Manitoba. It is contemporary with both Avonlea and Old Woman's complexes, and with Extended and Terminal Middle Missouri traditions. Some evidence of possible Blackduck pottery has been found along the Missouri River, which suggests trade between the Missouri River villagers and the Blackduck people to the north (Joyes 1970).

Plains Village Tradition (ca. 1050–350 B.P.)

Lehmer (1971) defines the Plains Village tradition as possessing the following diagnostic traits: equal horticulture and hunting and gathering strategies, semi-permanent villages near the Missouri River floodplain, earthlodges, large storage and refuse pits, distinctive ceramics, abundant end scrapers and arrow points, bison scapula hoes, and a well-developed bone tool industry. The Plains Village tradition is divided into the Middle Missouri tradition (A.D. 969–

1500) and the Coalescent tradition (A.D. 1300–1650), discussed below. Only 15 Plains Village archaeological resources have been identified in the GSU (Gregg and Bleier 2008).

Three primary Middle Missouri variants are recognized: Initial Middle Missouri (A.D. 969–1297), Extended Middle Missouri (A.D. 1075–1443), and Terminal Middle Missouri (A.D. 1300–1500) (Eighmy and LaBelle 1996). These represent a continuation and intensification of Northern Plains Woodland lifeways and their appearance coincides with the onset of the Medieval Warm Period (Bryson et al. 1970) when a moisture increase likely permitted horticulture in areas previously characterized by tenuous farming conditions (Wood 2001).

The Initial Middle Missouri Variant (IMMV) is thought to have developed as an outgrowth of the Great Oasis (Tiffany 2007) or via the arrival of eastern populations already exploiting a Plains Village lifeway (Lehmer 1971). The IMMV was concentrated in the southern portions of the Middle Missouri region and characterized by highly fortified villages of large, semi-subterranean rectangular houses (Lehmer 1971; Winham and Calabrese 1998).

The Extended Middle Missouri Variant (EMMV) is concentrated in the northern portions of the Middle Missouri region (Lehmer 1971). EMMV groups resided in small villages of semi-subterranean rectangular houses; southern villages were more often fortified than those in the north (Wood 2001). It is unclear whether the EMMV replaced the IMMV or represents a contemporaneous offshoot of the IMMV. Origins aside, it is assumed that IMMV populations were eventually absorbed into EMMV populations. The final expression of this tradition was the Terminal Middle Missouri (Winham and Calabrese 1998:282). These sites were concentrated in a smaller geographic area along the Missouri River in southern North Dakota and characterized by fewer but much larger villages (Wood 2001). Sites again contained long, rectangular semi-subterranean houses but were highly fortified (Wood 2001). A continuation of the Middle Missouri tradition is recognized historically as the Siuoan-speaking Mandan and Hidatsa (Wood 2001).

The Coalescent period is temporally divided into Initial (650–350 B.P.), Extended (500–300 B.P.), and Post-Contact Coalescent (300 B.P.–Historic period) (Johnson 1998; Lehmer 1971). The Coalescent tradition is thought to represent a geographic movement of Central Plains tradition village-dwelling populations to the Missouri River Valley in South Dakota (Blakeslee 1993). Central Plains traditions might have migrated from Nebraska and Kansas in response to drought brought on by the Pacific climatic episode (Lehmer 1971). Similar to Middle Missouri tradition groups, Coalescent populations practiced an economy split between mixed cultigen horticulture and bison hunting (Johnson 1998).

Initial Coalescent Variant sites are located on bluffs overlooking the Missouri River and its drainages in southern South Dakota. Populations lived in fortified villages consisting of subrectangular to circular/oval earthlodges and often surrounded by complex fortifications (Johnson 1998). Violence amongst Coalescent groups is evidenced at the Crow Creek site (39BF11) where approximately 486 individuals were killed in the village fortification ditch around 625 B.P. (Willey and Emerson 1993). Crow Creek is interpreted as evidence of internecine warfare amongst Initial Coalescent groups over land competition (Zimmerman and Bradley 1993) or, conversely, as evidence of warfare between immigrant Coalescent groups and resident Middle Missouri tradition peoples (Johnson 1998). The Extended

Coalescent Variant apparently descended from the Initial Coalescent sometime in the fifteenth century A.D. Sites are concentrated along the Missouri River and its tributaries in central and northern South Dakota (Krause 2001). Extended Coalescent sites are far more abundant than during the Initial Coalescent and are characterized by a dispersed, unfortified village structure of circular earthlodges (Johnson 1998; Krause 2001; Lehmer 1971). The Extended Coalescent Variant evolved into the Post-Contact Coalescent during the Protohistoric and Historic and the Coalescent tradition is recognized as the Arikara (Krause 2001). The last post-contact village was Like-a-Fishhook Village, occupied by the Arikara, Mandan, and Hidatsa; it was abandoned in 1886 when groups relocated to the Fort Berthold Reservation (Smith 1972).

HISTORIC CONTEXTS

European Trade and Exploration (A.D. 1738–1858)

Perhaps the earliest attempts at exploring the northern Great Plains came as a result of the ventures of Pierre Gaultier de Varennes Siure de la Verendrye (Dill 1983). His travels from New France into North Dakota led him as far as the Missouri River (somewhere near Bismarck), and led to subsequent expeditions by his sons, which went farther south into South Dakota (near Pierre) and west towards the Black Hills. While the elder la Verendrye met the Mandan, his sons encountered the Arikara and other tribes in South Dakota. Their reports heightened interest in the region and the possibilities that existed for trade with its inhabitants.

Following the la Verendryes, a modest fur trade developed in the region, but until the expedition of Captains Meriwether Lewis and William Clark returned successfully from their voyage up the Missouri, the region was considered a wild unknown (Schulenberg 1957).

In 1807, Manuel Lisa established a short-lived post at the mouth of the Bighorn, and by 1809 his St. Louis Missouri Fur Company was building posts among most of the tribes all along the Missouri River. Other notable companies, such as the Northwest Company, Hudson Bay Company, the Columbia Fur Company, and the American Fur Company, soon followed suit (Schulenberg 1957). The life of these posts tended to be short, but they did much to influence the tribes who frequented the Missouri River in both North and South Dakota. Fort Union—at the confluence of the Yellowstone and Missouri rivers—was the last of the great posts, and its waning during the late 1850s saw the fur trade in the Dakotas in its last throes.

Post-Contact Tribal Overview (A.D. 1780–1900)

In addition to the tribes that arose from the Middle Missouri and Coalescent traditions (Mandan, Hidatsa, and Arikara), the northern Great Plains and the Missouri River were also used by countless other tribes since before European contact.

The Assiniboine were known to frequent the northern Missouri River (mainly near the confluence with the Yellowstone), and were active in the fur trade throughout the eighteenth and nineteenth centuries. As well, the Cheyenne were pushed westward by the Chippewa during the middle of the eighteenth century and took up at least a temporary settlement period on the Missouri River. At least one earthlodge village has been attributed to the Cheyenne in eastern North Dakota, and some Cheyenne villages on the Missouri River were located

between the Mandan to the north, and the Arikara to the south, where they built earthlodges and pursued horticulture and buffalo hunting (Schlesier 1968).

The Plains Cree and Plains Chippewa also frequented the northern Missouri—mainly near the confluence with the Yellowstone, but also near Fort Clark. Both tribes traded actively with the Mandan and Hidatsa. The Crow, although more westerly in their territory, were related to the Hidatsa and would often trade and visit with the Missouri River tribes (Schulenberg 1957).

Based on linguistic evidence, the Sioux (or Dakota) originated from the southwest Great Lakes region (DeMallie 2001a). The timing of the migration is unclear, but ceramic evidence suggests that the Dakota were living on the plains several centuries before the arrival of Europeans (Hanson 1998). Based on linguistics, it is thought that the Assiniboine split from the Sioux sometime before the mid-seventeenth century (Hanson 1998). The Teton Dakota are divided into seven sub-tribes, including the Oglala, Brule, Sans Arc, Hunkpapa, Blackfeet, Miniconjou, and Two Kettles (Hanson 1998). According to DeMallie (2001a), by the mid-eighteenth century, the Teton Dakota hunted bison in the area east of the Missouri River, their movements limited in part by the Arikara stronghold along the Missouri River. However, a series of smallpox epidemics from 1771 to 1781 devastated the Arikara villages (Johnson 1998) and permitted the Teton Dakota to move west of the Missouri River. Like the Teton Dakota, the Yankton and Yanktonai Dakota occupied the prairies east of the Missouri River and north into Minnesota in the mid-seventeenth century (DeMallie 2001a). By the mid-nineteenth century, the Yankton and Yanktonai occupied the prairies east of the Missouri River from the mouth of the Big Sioux River in the south to the Red River in the north (DeMallie 2001b).

The Reservation Period began in the 1860s and continues into today. This time period contains numerous accounts of hurt feelings and unjust actions—including government actions to stop tribal ceremonialism, forced boarding school education of Indian children, and attempts at termination and relocation to solve the "Indian Problem" in the Dakotas. Regardless of this checkered history, the tribes who lived on, and used, the Missouri River have persisted to the present as strong and vital people with a living culture that has survived for present and future generations.

In the GSU, five Hidatsa, one Arikara, one Chippewa, one Mandan, and 21 unspecified historic Native American archaeological resources have been identified (Gregg and Bleier 2008).

Homesteading in the Dakotas (A.D. 1860–1930)

The first homestead in North Dakota was filed in 1868, which was the only homestead filed until 1871. The true rush for homesteads did not take place until 1885. This rush was spurred by the extension of the Northern Pacific Railroad across the Red River from Minnesota (Works Progress Administration [WPA] 1950). Western North Dakota did not see much settlement prior to the 1890s, and the major settlement of this region did not start in any great numbers until between 1900 and 1910. In general, those homesteaders who selected lands along the Missouri River were able to do some crop farming, but the majority of homesteads were arranged as ranch operations for sheep or cattle.

In addition to the homesteading, which brought an increasing number of people to western North Dakota, the discovery of large deposits of lignite coal further boosted interest in the development of Williams County and the surrounding area (WPA 1950). Although slow at first, the mining industry started to flourish during the 1930s; to this day it remains a major focus of activity which drives the economy of both the county and the state. In total, eight historic Euro-American archaeological resources have been identified in the GSU (Gregg and Bleier 2008).

BACKGROUND RESEARCH

As part of the initial phase of this investigation, SWCA conducted a background search of archaeological and historical literature and records for the project area and surrounding 1-mile area. Researchers searched relevant record holdings at the SHSND and other available sources for information regarding previously recorded historic and prehistoric sites located within the project area, including General Land Office (GLO) survey plats. Background research was conducted on November 2, 2010.

Based on the results of the SHSND records search, no previous cultural resource inventories have been performed within 1 mile of the project area. Results identified two previously recorded cultural resources within the surrounding 1-mile study area (Table 2). Both are prehistoric in age and are cultural material scatter site leads (32WIX154 and 32WIX155) of unknown cultural affiliation. Regarding eligibility for listing on the National Register of Historic Places (NRHP), both resources remain unevaluated. None of the previously recorded resources are within the project area. Additionally, a search of the GLO plats for Section 12 of T155N, R103W (GLO 1893, 1902) did not show any historic resources or features located within the project area as of 1893 or 1902 (Figure 4).

Table 2. Previously Recorded Resources.

Site Number	Site Name	Site Type	Legal Location (S/T/R)	Cultural Affiliation	NRHP Recommendation
32WIX154	None	Cultural Material Scatter	NE¼, Section 20, T155N, R103W	Unknown Prehistoric	Unevaluated
32WIX155	None	Cultural Material Scatter	SW¼ NW¼, Section 21, T155N, R103W	Unknown Prehistoric	Unevaluated

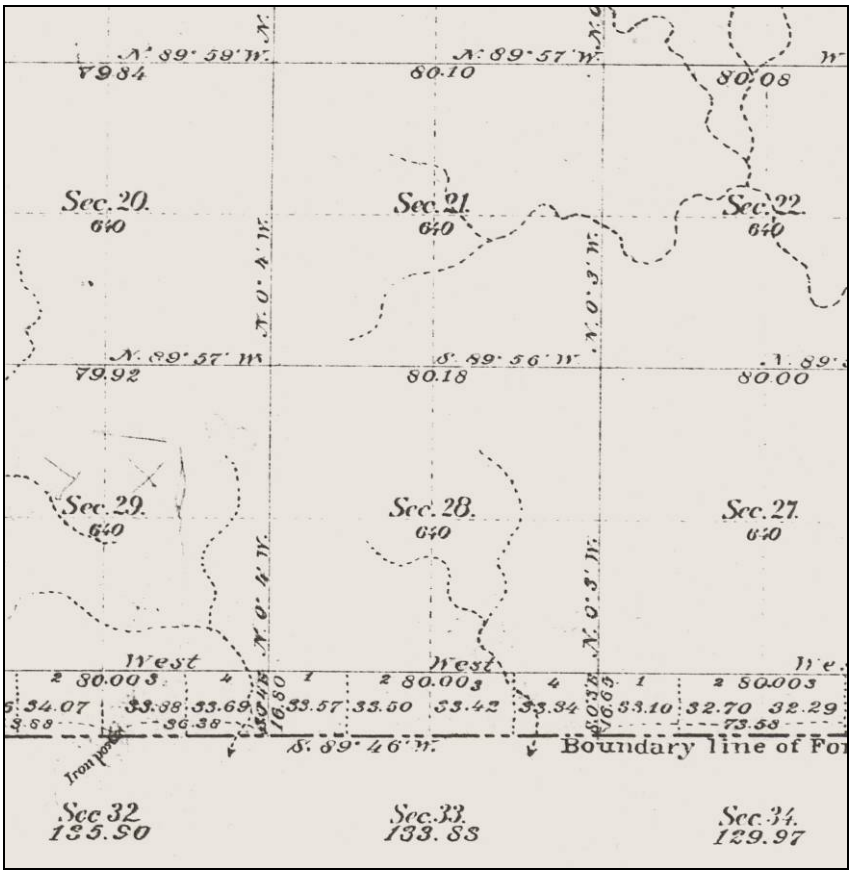

Figure 4. 1893 GLO survey plat showing Section 21 of T155N, R103W (GLO 1893).

FIELDWORK METHODS

Fieldwork was designed so that project archaeologists could collect all appropriate and necessary data for the completion of the project report of results and recommendations, and to ensure accurate completion of site forms for all resources encountered.

In accordance with the scope of work, archaeologists surveyed the 160.00-acre SLGP project area using parallel linear transects with spacing not exceeding 30 meters (m). The ground surface was examined for artifacts, features, or other evidence of cultural occupation. Cut banks, eroded surfaces, and other areas with significant exposure were examined intensively throughout fieldwork, especially where previously recorded cultural resources existed. In areas with high vegetation cover and high probability of cultural resources, survey transects were reduced to 10 m to maintain adequate visibility.

Where cultural resources were located, project archaeologists made an intensive effort to fully and accurately establish the extent and boundaries of new and previously recorded sites. As such, sites were mapped using sub-meter accurate Trimble global positioning system (GPS) units. When detailed mapping or remapping was required, all linear site features, such as site boundaries, roads, and fence lines, as well as point features, such as the site datum, cultural features, artifact concentrations, diagnostic artifacts and tools, and other necessary data, were

mapped with the Trimble GPS unit for post-processing into ArcMap 9.3 shapefiles and plotting onto associated U.S. Geological Survey 7.5-minute quadrangles to ensure accuracy and produce required location maps of all sites and resources.

In addition to site mapping, project personnel photographed sites in overview and for other data collection needs. Associated features and diagnostic artifacts were described, measured, recorded with GPS units, and photographed, as appropriate. Field personnel noted environmental setting, context, topography, and geographical location for each cultural resource. No collection was conducted during the inventory. Subsurface testing was conducted during the inventory and the methods used are detailed below.

SHOVEL TESTING METHODS

Limited shovel testing is occasionally used in areas of dense vegetation to determine the depositional context and soil matrix of a project area and assess the potential for that area to contain subsurface sediments that may be conducive to the preservation of intact, buried cultural deposits. Shovel tests are excavated in levels of 10 cm below surface (cmbs) to maintain depositional provenience should cultural deposits be discovered and so that depths of discovery can be assigned to the nearest 10-cm interval. All matrices from the tests are screened through ⅛-inch metal hardware mesh. In the event of discovery, artifacts encountered are bagged according to level and shovel test number. Efforts are made to ensure that the tests are excavated to bedrock or clearly archaeologically sterile soils. Descriptions of the soil matrix and stratigraphy are recorded.

SITE EVALUATION

SWCA evaluated sites and their significance, as defined by criteria set forth in Title 36 Code of Federal Regulations 60.4 (National Park Service [NPS] 1991), which states:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A) That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B) That are associated with the lives of persons significant in our past; or
>
> C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D) That has yielded or may be likely to yield information important in prehistory or history.

Not eligible sites have lost integrity and are unlikely to contribute further data significant to knowledge of prehistory or history.

Prehistoric Archaeological Sites

Prehistoric lithic scatters/campsites (sites without any structures or association with known significant events or persons) recorded for the project generally will not contain NRHP discussion for Criteria A, B, or C. Instead, for NRHP recommendation purposes, these properties will be discussed for their potential to yield information significant to prehistory or the archaeological record under NRHP Criterion D. Special cases generally apply to Criterion A, where a prehistoric site type (such as a stone circle site) may not be recommended eligible for the NRHP from an archaeological perspective, but may be considered important to cultures of Native American peoples.

Evaluation of the significance of archaeological sites under Criterion D considers general characteristics such as the nature, size, and diversity of the site assemblage; the potential presence or absence of subsurface cultural deposits; the nature of any features within the site (construction techniques, building materials, structural integrity); and the age range reflected by the site assemblage. Sites considered to be significant generally contain an assemblage of cultural remains that reflects sufficient diversity to permit identification of activities and allow confirmation of the period of site use. Sites with the most potential to address research questions about human lifeways contain associated features, structures, and/or relatively intact and dateable artifacts.

Historic Archaeological Sites or Components

Historic sites containing or consisting of preserved features or structures are evaluated primarily under Criteria A, B, and C. Historic trash scatters lacking associated features or structures are primarily evaluated under Criterion D. In general, these types of sites represent ephemeral prospecting or stock management activities, but they lack identifiable or important association with specific persons or events of regional or national history (Criteria A and B), and they lack the formal and structural attributes necessary to qualify as eligible under Criterion C. The evaluation of significance of historic archaeological sites under Criterion D focuses on the capacity of the sites or components to yield significant information regarding knowledge of history during the period(s) of site significance. Evaluation of the significance of historic sites considers general characteristics such as the nature, size, and diversity of the site assemblage; the potential presence or absence of subsurface cultural deposits; the nature of any features within the site; construction techniques; building materials; structural integrity; and the age range reflected by the site assemblage.

Historic sites considered to be significant under Criterion D generally contain an assemblage of cultural remains that reflects sufficient diversity to permit identification of activities and allow confirmation of the period of site use. Sites with the most potential to address research questions contain associated features, structures, and relatively intact and datable artifacts. Significant sites are those that could impart information not available solely from historical documents. Although archival research may provide an essential form of information, often historical records are inaccurate or incomplete. For example, examination of construction techniques or household assemblages can provide information on economic slumps, reuse of structures for other than original purposes, and re-occupation cycles. As a result, insight may be gained into questions about human lifeways that are often asked in archaeology, but rarely specified directly in historical documentation.

Non-Archaeological Historic Sites or Components

Non-archaeological historic sites or sites with non-archaeological components are those primarily assessed for NRHP eligibility under Criteria A, B, or C, rather than Criterion D and typically are not subject to subsurface testing. Individual segments of significant historic sites are evaluated as contributing or non-contributing in terms of physical and environmental integrity. Examples of historic site types include linear historic features, such as transportation routes and water conduits, standing building, and structure sites, and potentially extend to any historic feature on an otherwise archaeological site, such as Traditional Cultural Property (TCP) features. Historic and ethnographic sites evaluated for potential contribution to history or cultural traditions for reasons beyond their possible future research value tend to have different evaluation and management considerations than archaeological sites. Typically, the integrity of historic sites is addressed using the guidelines presented in National Register Bulletin 15 (NPS 1991), which defines the seven elements of integrity as location, design, materials, workmanship, setting, feeling, and association. As such, properties are basically evaluated in consideration of their physical integrity and the integrity of their surroundings. TCPs are also considered under the guidelines of National Register Bulletin 38 (Parker and King 1998).

INVENTORY RESULTS AND RECOMMENDATIONS

SWCA conducted a Class III inventory of the project area on November 2 and 9, 2010. The project area lies in a previously cultivated agricultural field, which has been replanted with native prairie vegetation. Project area vegetation was dominated by intermediate wheatgrass, but other vegetation including smooth brome, yellow sweet clover, and alfalfa was observed as well. Bare ground visibility was approximately 10 percent and no snow cover was present at the time of survey. Impacts to the project area include agricultural activity and pipeline construction on the western edge of the project area.

Shovel Testing Results

Shovel testing was conducted by SWCA on November 2, 2010, to help identify the soil matrix and depositional environment of the project area and to assess the potential for intact and interpretable subsurface cultural deposits within the project area. Two shovel tests, ST1 and ST2, were excavated in the southern portion of the project area in areas with lower vegetation density and higher probability for intact depositional contexts. Shovel tests were excavated in arbitrary 10-cm levels.

ST1 was excavated to a depth of 41 cmbs and no cultural materials were found. Soils were brown silty clay with calcium carbonate inclusions appearing at 35 to 41 cmbs. The test was terminated due to compaction. ST2 was excavated to a depth of 38 cmbs and no cultural materials were found. Soils were very dark grayish brown for the 0- to 10-cmbs level, brown silty clay for the 10- to 30-cmbs level, and light gray silty sand with calcium carbonate inclusions for the 30- to 38-cmbs level. This test pit was also terminated due to compaction.

No cultural resources were identified during the course of the inventory or during the shovel testing. It is recommended that the project be granted determinations of *No Historic Properties Affected* and *No Significant Sites Affected* and clearance to proceed as planned.

CONCLUSION

SWCA conducted a Class I and a Class III cultural resource inventory on November 2 and 9, 2010, for the proposed SLGP natural gas processing plant. Bear Paw Energy proposes to construct the SLGP on a privately owned 160.00-acre parcel of land, approximately 16.21 miles northwest of Williston, North Dakota.

The NDPSC is the jurisdictional agency presiding over the construction of the SLGP. In compliance with NDPSC requirements, E3, on behalf of Bear Paw Energy, requested SWCA to perform a cultural resource inventory to assess the potential effect of activities associated with the construction of the SLGP on any cultural resources that may be present within the proposed project area. It is anticipated that the proposed SLGP will impact approximately 80 acres, but potential future expansion of the proposed plant will not exceed 160.00 acres.

SWCA inventoried 160.00 acres for the SLGP project. No cultural resources were identified during the course of the inventory. It is recommended that the project be granted determinations of *No Historic Properties Affected* and *No Significant Sites Affected* and clearance to proceed as planned.

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