



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E.
Aberdeen, South Dakota 57401



IN REPLY REFER TO:
DESCRM
MC-208

JAN 20 2010

MEMORANDUM

TO: Superintendent, Fort Berthold Agency

FROM: ^{ACTING} Regional Director, Great Plains Region

SUBJECT: Environmental Assessment and Finding of No Significant Impact

In compliance with the regulations of the National Environmental Policy Act (NEPA) of 1969, as amended, for five proposed exploratory drilling wells: Dakota-3 Benson #3-9H, Dakota-3 High Hawk #4-9H, Dakota-3 Joseph Eagle #16-19H, Dakota-3 Fettig (860 A-B) #16-22H and Dakota-3 Morsette #35-26H by Zenergy Operating Company, LLC on the Fort Berthold Reservation, an Environmental Assessment (EA) has been completed and a Finding of No Significant Impact (FONSI) has been issued.

All the necessary requirements of the National Environmental Policy Act have been completed. Attached for your files is a copy of the EA, FONSI and Notice of Availability. The Council on Environmental Quality (CEQ) regulations require that there be a public notice of availability of the FONSI (1506.6(b)). Please post the attached notice of availability at the agency and tribal buildings for 30 days.

If you have any questions, please call Marilyn Bercier, Regional Environmental Scientist, Division of Environment, Safety and Cultural Resources Management, at (605) 226-7656.

Attachment

cc: Marcus Levings, Chairman, Three Affiliated Tribes (with attachment)
Perry "No Tears" Brady, THPO (with attachment)
Roy Swalling, BLM, Dickenson, ND (with attachment)
John Shelman, US Army Corps of Engineers

Finding of No Significant Impact

Zenergy Operating Company, LLC

**Dakota-3 Benson #3-9H
Dakota-3 High Hawk #4-9H
Dakota-3 Joseph Eagle #16-19H
Dakota-3 Fettig (860 A-B) #16-22H
Dakota-3 Morsette #35-26H**

Fort Berthold Indian Reservation Dunn and McKenzie Counties, North Dakota

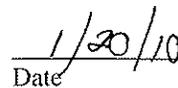
The U.S. Bureau of Indian Affairs (BIA) has received a proposal for five oil/gas wells, access roads and related infrastructure on the Fort Berthold Indian Reservation to be located in the NE¼ NW¼ of Section 9, T148N, R93W, Dunn County; NW¼ NW¼ Section 9, T149N, R92W, Dunn County; SE¼ SE¼, Section 19, T149N, R93W, Dunn County; SE¼ SE¼, Section 22, T149N, R94W, McKenzie County and SE¼ SE¼, Section 35, T150N, R94W, McKenzie County, North Dakota. Associated federal actions by BIA include determinations of effect regarding cultural resources, approvals of leases, rights-of-way and easements, and a positive recommendation to the Bureau of Land Management regarding the Applications for Permit to Drill.

The potential of the proposed actions to impact the human environment is analyzed in the attached Environmental Assessment (EA), as required by the National Environmental Policy Act. Based on the recently completed EA, I have determined that the four proposed projects will not significantly affect the quality of the human environment. No Environmental Impact Statement is required for any portion of the proposed activities.

This determination is based on the following factors:

1. Agency and public involvement was solicited and environmental issues related to the proposal were identified.
2. Protective and prudent measures were designed to minimize impacts to air, water, soil, vegetation, wetlands, wildlife, public safety, water resources, and cultural resources. The remaining potential for impacts was disclosed for both the proposed action and the No Action alternative.
3. Guidance from the U.S. Fish and Wildlife Service has been fully considered regarding wildlife impacts, particularly in regard to threatened or endangered species.
4. The proposed actions are designed to avoid adverse effects to historic, archaeological, cultural and traditional properties, sites and practices. Compliance with the procedures of the National Historic Preservation Act is complete.
5. Environmental justice was fully considered.
6. Cumulative effects to the environment are either mitigated or minimal.
7. No regulatory requirements have been waived or require compensatory mitigation measures.
8. The proposed projects will improve the socio-economic condition of the affected Indian community.


Regional Director


Date

Notice of Availability and Appeal Rights

Zenergy: Dakota-3 Benson #3-9H
Dakota-3 High Hawk #4-9H
Dakota-3 Joseph Eagle #16-19H
Dakota-3 Fettig (860 A-B) #16-22H
Dakota-3 Morsette #35-26H

The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals related to installation of five oil/gas wells as shown on the attached map. Construction by Zenergy is expected in the Spring of 2010.

An environmental assessment (EA) determined that proposed activities will not cause significant impacts to the human environment. An environmental impact statement is not required. Contact Howard Bemer, Superintendent at 701-627-4707 for more information and/or copies of the EA and the Finding of No Significant Impact (FONSI).

The FONSI is only a finding on environmental impacts – it is not a decision to proceed with an action and *cannot* be appealed. BIA’s decision to proceed with administrative actions *can* be appealed until February 20, 2010 by contacting:

**United States Department of the Interior
Office of Hearings and Appeals
Interior Board of Indian Appeals
801 N. Quincy Street, Suite 300, Arlington, Va 22203.**

Procedural details are available from the BIA Fort Berthold Agency at 701-627-4707.

Project locations.



ENVIRONMENTAL ASSESSMENT

**United States Department of Interior
Bureau of Indian Affairs**

**Great Plains Regional Office
Aberdeen, South Dakota**

Cooperating Agency:

Bureau of Land Management

**North Dakota State Office
Dickinson, North Dakota**



Zenergy Operating Company, LLC

Five Bakken Exploratory Oil Wells:

**Dakota-3 Benson #3-9H
Dakota-3 High Hawk #4-9H
Dakota-3 Joseph Eagle #16-19H
Dakota-3 Fettig (860 A-B) #16-22H
Dakota-3 Morsette #35-26H**

Fort Berthold Indian Reservation

January 2010

For information contact:
Bureau of Indian Affairs, Great Plains Regional Office
Division of Environment, Safety and Cultural Resources Management
115 4th Avenue SE, Aberdeen, South Dakota 57401 (605) 226-7656

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

Zenergy Operating Company, LLC (Zenergy) has acquired the leases and is proposing to drill five horizontal oil and gas wells on the Fort Berthold Indian Reservation (Reservation) to evaluate and possibly develop the commercial potential of natural resources. Developments have been proposed on lands held in trust by the United States in Dunn and McKenzie Counties, North Dakota. The Bureau of Indian Affairs (BIA) is the surface management agency for potentially affected tribal lands and individual allotments. The BIA manages lands held in title by the tribe and tribal members to subsurface mineral rights. Developments have been proposed in locations that target specific areas in the Middle Bakken Dolomite member of the Bakken Formation, a known oil reserve. The following proposed well sites, shown in Figures 1 through 6, will be located within the Reservation where the majority of the external boundaries are located above the Bakken Formation.

- **Dakota-3 Benson #3-9H:** NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 9, Township (T) 148 North (N), Range (R) 93 West (W), Dunn County, North Dakota
- **Dakota-3 High Hawk #4-9H:** NW $\frac{1}{4}$ NW $\frac{1}{4}$, Section 9, T149N, R92W, Dunn County, North Dakota
- **Dakota-3 Joseph Eagle #16-19H:** SE $\frac{1}{4}$ SE $\frac{1}{4}$, Section 19, T149N, R93W, Dunn County, North Dakota
- **Dakota-3 Fettig (860 A-B) #16-22H:** SE $\frac{1}{4}$ SE $\frac{1}{4}$, Section 22, T149N, R94W, McKenzie County, North Dakota
- **Dakota-3 Morsette #35-26H:** SE $\frac{1}{4}$ SE $\frac{1}{4}$, Section 35, T150N, R94W, McKenzie County, North Dakota

Existing access roads will be upgraded and new access roads will be constructed to facilitate the construction and operation of each proposed well. Well pads will be constructed to accommodate drilling activities and well operations. Pits constructed for drilled cuttings will be used during drilling operations and reclaimed once operations have ceased. Should any of the proposed well sites result in long-term commercial production, supporting facilities may be constructed on site. All components (e.g., roads, well pads, supporting facilities) will be reclaimed upon final abandonment unless formally transferred with federal approval to either the BIA or the landowner. The proposed wells are exploratory; should they prove productive, further exploration of surrounding areas is possible. This environmental assessment (EA) addresses the potential impacts associated with the construction and possible long-term operation of the above-listed wells and directly related infrastructure and facilities. Further oil and gas exploration and development will require additional NEPA analysis and federal actions.

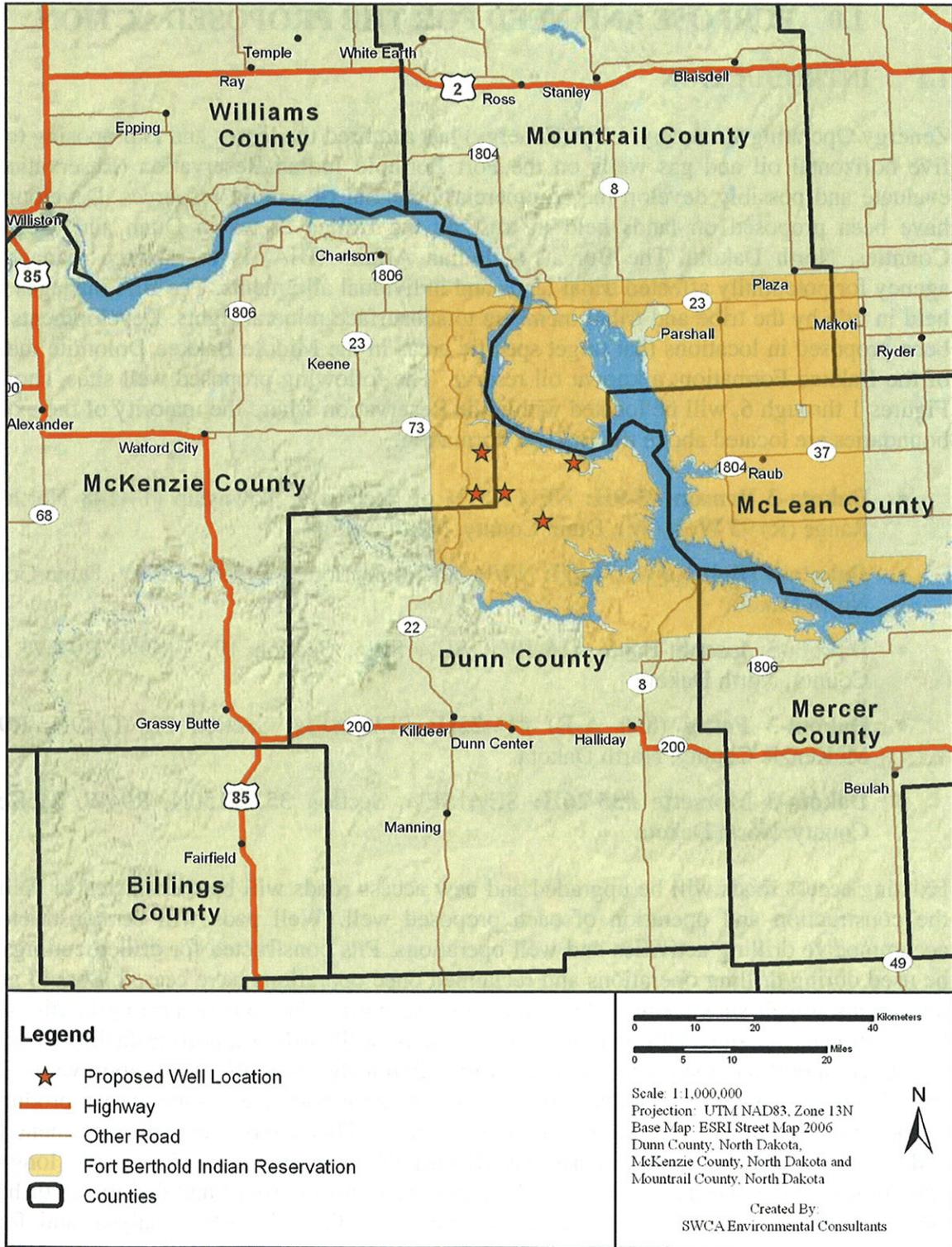


Figure 1. Project location.

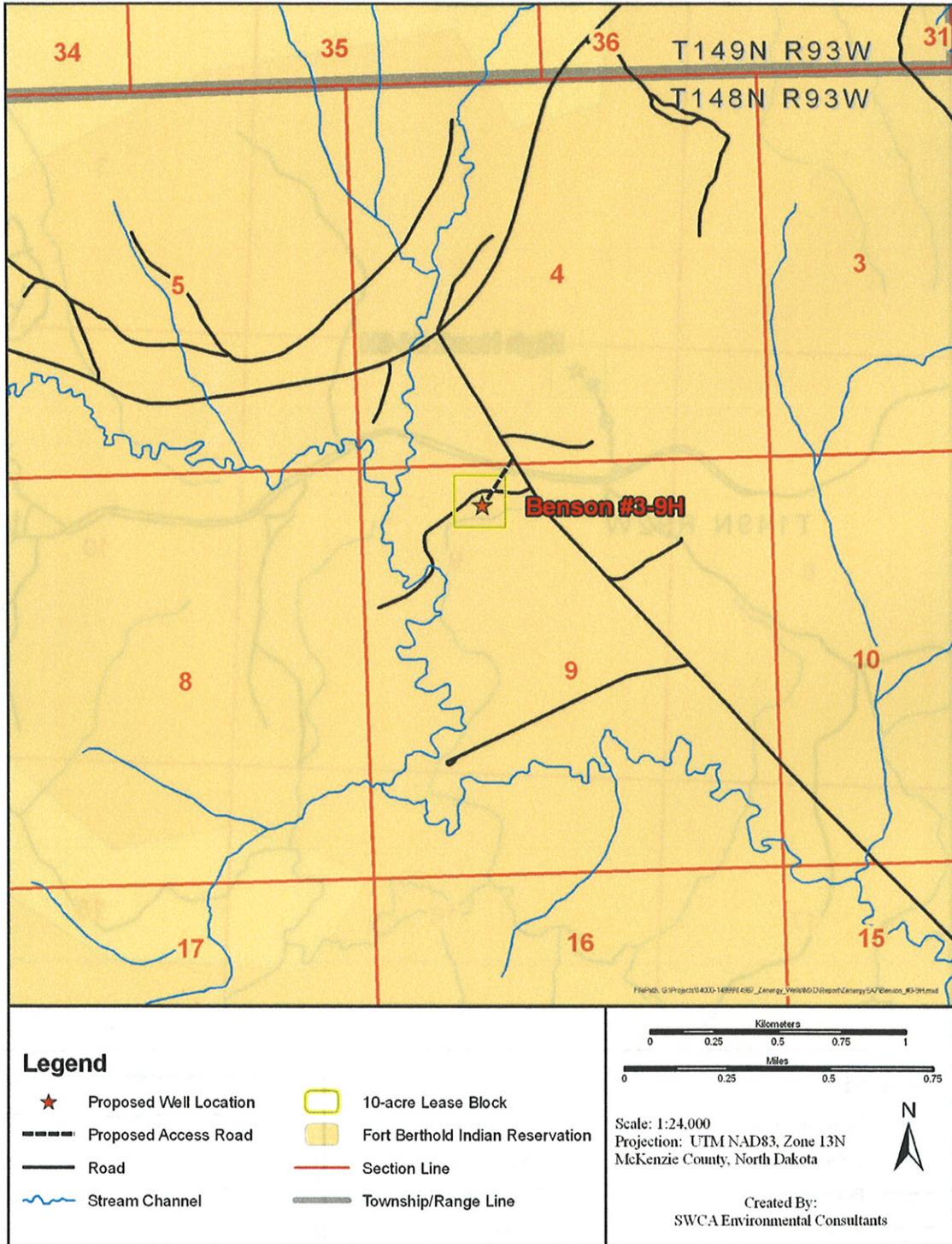


Figure 2. Dakota-3 Benson #3-9H proposed location.

Note: Although there is a road that appears to be a more viable option as an access point for the Dakota-3 Benson #3-9H access road, this road only appears on GIS maps and does not actually exist.

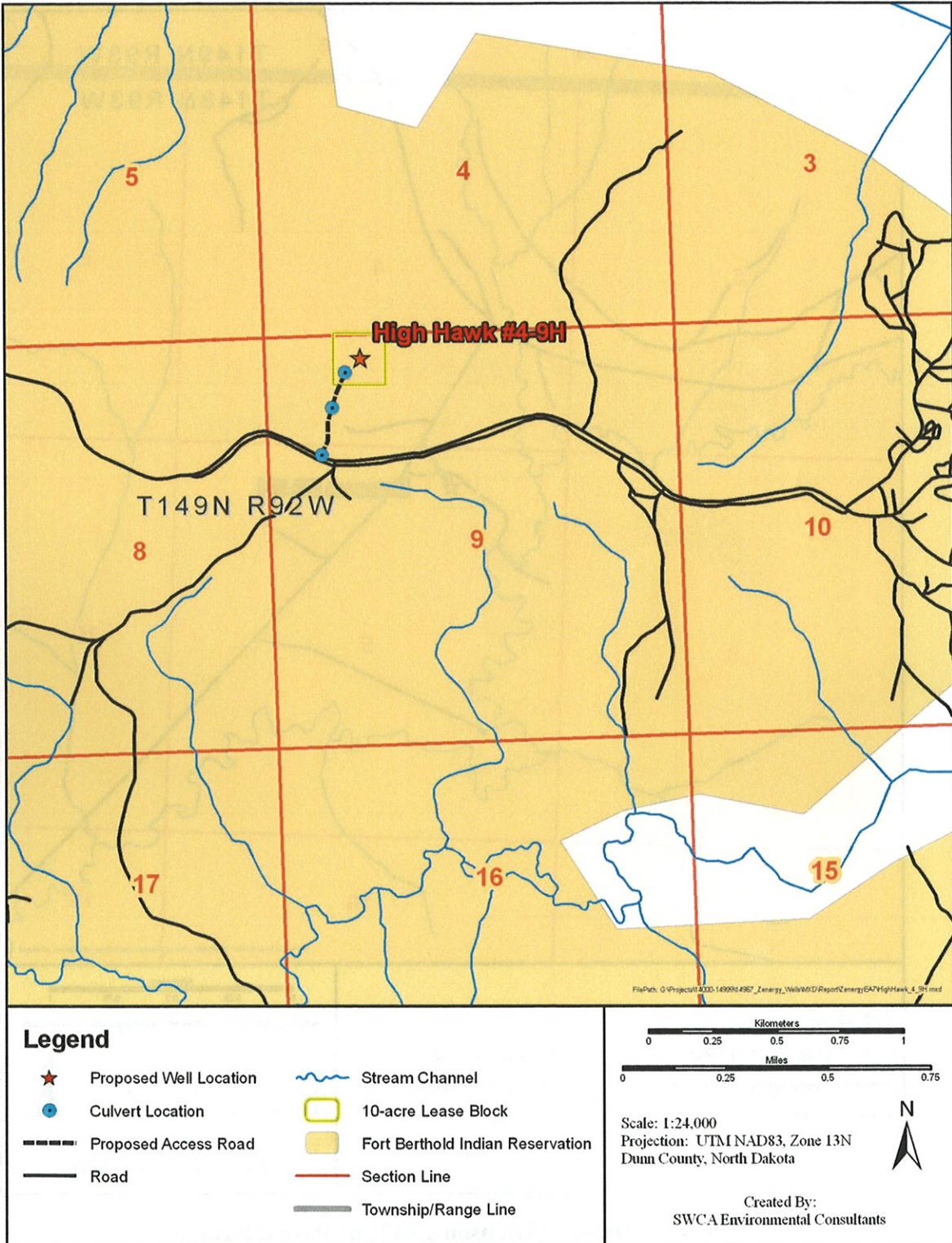


Figure 3. Dakota-3 High Hawk #4-9H proposed location.

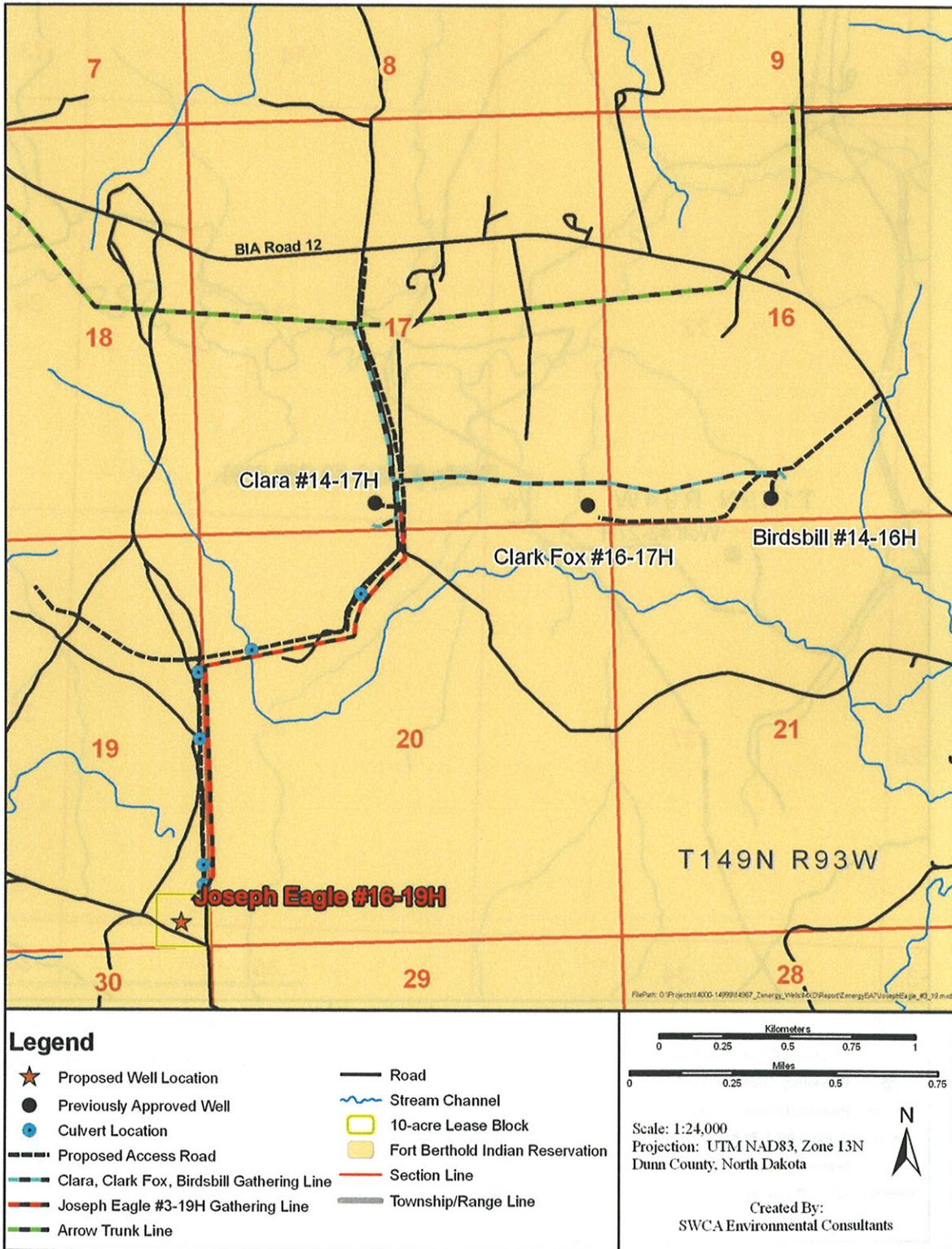


Figure 4. Dakota-3 Joseph Eagle #16-19H proposed location.

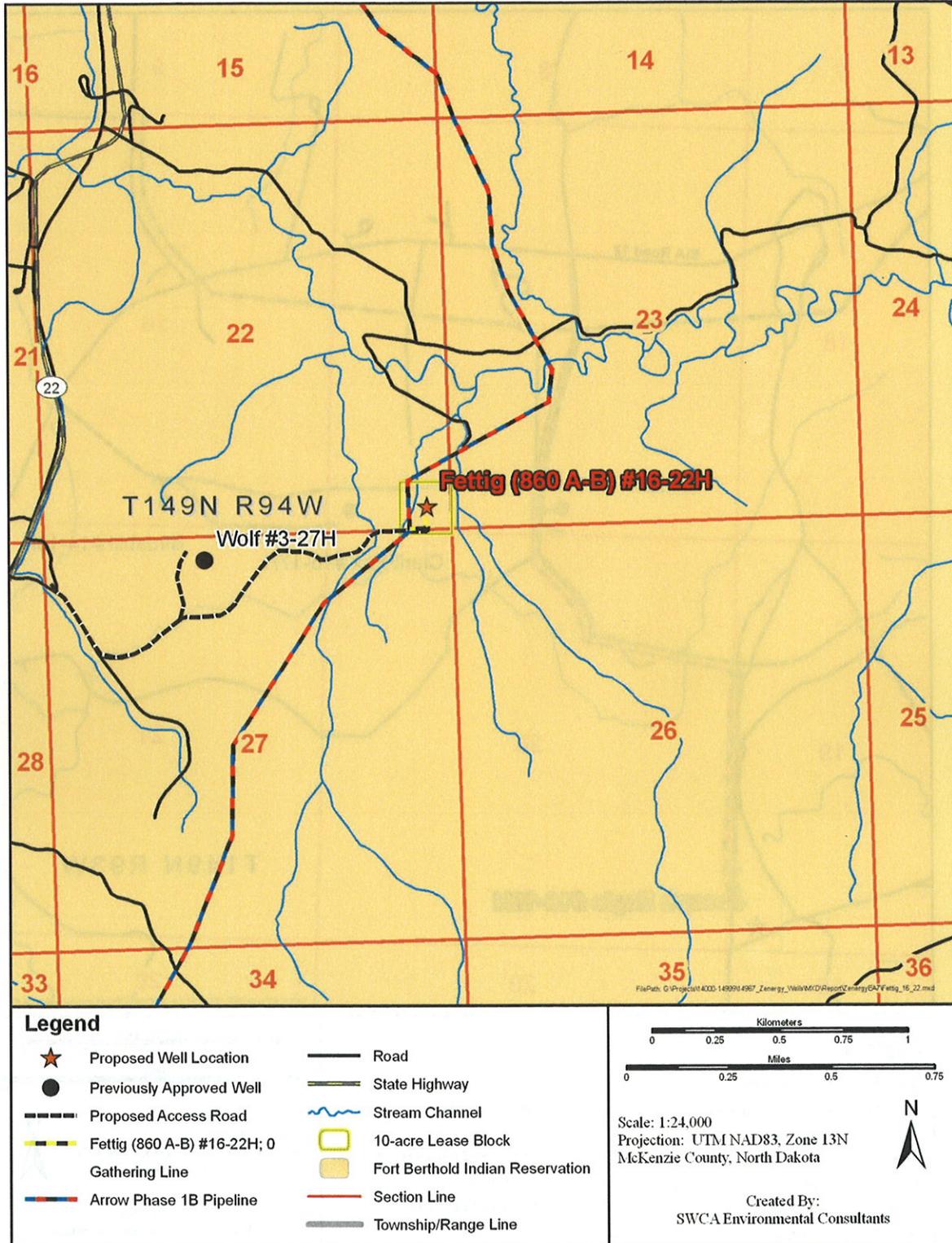


Figure 5. Dakota-3 Fettig (860 A-B) #16-22H proposed location.

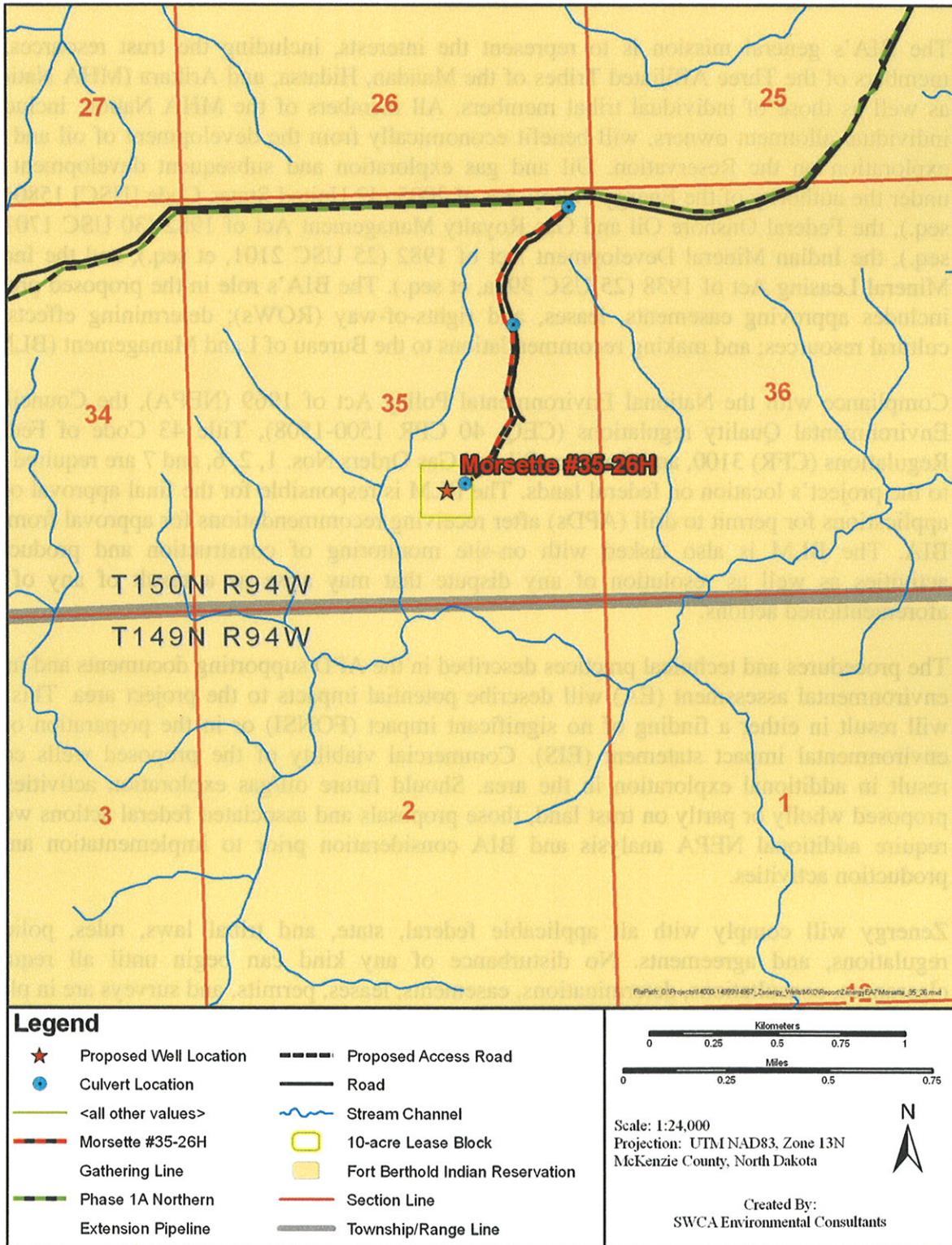


Figure 6. Dakota-3 Morsette #35-26H proposed location.

1.2 FEDERAL AND OTHER RELEVANT REGULATIONS AND AUTHORITIES

The BIA's general mission is to represent the interests, including the trust resources, of members of the Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara (MHA Nation), as well as those of individual tribal members. All members of the MHA Nation, including individual allotment owners, will benefit economically from the development of oil and gas exploration on the Reservation. Oil and gas exploration and subsequent development are under the authority of the Energy Policy Act of 2005 (42 United States Code [USC] 15801, et seq.), the Federal Onshore Oil and Gas Royalty Management Act of 1982 (30 USC 1701, et seq.), the Indian Mineral Development Act of 1982 (25 USC 2101, et seq.), and the Indian Mineral Leasing Act of 1938 (25 USC 396a, et seq.). The BIA's role in the proposed project includes approving easements, leases, and rights-of-way (ROWs); determining effects on cultural resources; and making recommendations to the Bureau of Land Management (BLM).

Compliance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations (CEQ, 40 CFR 1500-1508), Title 43 Code of Federal Regulations (CFR) 3100, and Onshore Oil and Gas Orders Nos. 1, 2, 6, and 7 are required due to the project's location on federal lands. The BLM is responsible for the final approval of all applications for permit to drill (APDs) after receiving recommendations for approval from the BIA. The BLM is also tasked with on-site monitoring of construction and production activities as well as resolution of any dispute that may arise as a result of any of the aforementioned actions.

The procedures and technical practices described in the APD supporting documents and in the environmental assessment (EA) will describe potential impacts to the project area. This EA will result in either a finding of no significant impact (FONSI) or in the preparation of an environmental impact statement (EIS). Commercial viability of the proposed wells could result in additional exploration in the area. Should future oil/gas exploration activities be proposed wholly or partly on trust land, those proposals and associated federal actions would require additional NEPA analysis and BIA consideration prior to implementation and/or production activities.

Zenergy will comply with all applicable federal, state, and tribal laws, rules, policies, regulations, and agreements. No disturbance of any kind can begin until all required clearances, consultations, determinations, easements, leases, permits, and surveys are in place.

2.0 PROPOSED ACTION AND THE NO ACTION ALTERNATIVE

The BIA, as directed by NEPA, must “study, develop, and describe appropriate alternatives to the recommended course of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources...” (NEPA Sec 102[2][e]). Developing a range of alternatives allows for exploration of options designed to meet the purpose and need for the action. Along with the No Action Alternative, the BIA is considering the Proposed Action.

2.1 THE NO ACTION ALTERNATIVE

Under the No Action Alternative, the proposed project (including well pads, wells, and access roads) would not be constructed, drilled, installed, or operated. The BIA would not approve easements, leases, or ROWs for the proposed locations and the BLM would not approve the APD. No impacts would occur as a result of this project to the following critical elements: air quality, public health and safety, water resources, wetland/riparian habitat, threatened and endangered species, soils, vegetation and invasive species, cultural resources, socioeconomic conditions, and environmental justice. There would be no project-related ground disturbance, use of hazardous materials, or trucking of product to collection areas. Surface disturbance, deposition of potentially harmful biological material, and traffic levels would not change from present levels. Under the No Action Alternative, the MHA Nation, tribal members, and allottees would not have the opportunity to realize potential financial gains from the discovery and resulting development of resources at these well locations.

2.2 THE PROPOSED ACTION

This document analyzes the potential impacts of five exploratory oil and gas wells with varied surface and mineral estates located in the west-central portions of the Reservation in Dunn and McKenzie Counties. Sites were chosen by Zenergy in consultation with tribal and BIA resource managers to provide information for future development. Well site locations underwent a pre-clearance process that included surveys for cultural, archaeological, and natural (i.e., biological and physical) resources. The proposed wells would test the commercial potential of the Middle Bakken Dolomite Member of the Bakken Formation.

2.2.1 Field Camps

A few personnel would be housed in self-contained trailers for a very short period of time. Long-term housing is not being proposed. Most personnel, both construction and drilling, would commute to the site. Human waste would be collected on-site in portable toilets and trailers and it would be transported off site to a state-approved wastewater treatment facility. All other solid waste would be contained in enclosed containers and transported to, and disposed of, at state-approved facilities.

2.2.2 Access Roads and Utility Corridors

2.2.2.1 Access Roads

Up to 12,778 feet (i.e., 2.4 miles) of new access roads would be constructed. A maximum disturbed ROW width of 66 feet for each access road would result in up to 19.4 acres of new

surface disturbance. Signed agreements would be in place allowing road construction across affected private and allotted land surfaces, and any applicable approach permits and/or easements would be obtained prior to any construction activity.

Construction would follow road design standards outlined in the BLM Gold Book (BLM and USFS 2007). At a minimum, 6 inches of topsoil would be removed from the access road corridors. This stockpiled topsoil would then be placed on the outside slopes of the ditches following road construction. The ditches would be reseeded as quickly as possible using a seed mixture determined by the BIA. Care would be taken during road construction to avoid disturbing or disrupting any buried utilities that may exist along Highway 22 and BIA Roads 10, 12, and 17. The access roads would be surfaced with a minimum of 4 inches of aggregate if the site were to be established as a commercial production site. Also, the roadway would remain in use for the life of the well(s). Details of road construction are addressed in the APD. A diagram of typical road cross sections is shown in Figure 7.

2.2.2.2 Utility Corridors

Zenergy plans to construct oil, produced water, and gas gathering lines from the well sites to tie-in points on the Arrow Midstream Holdings, LLC gathering system. In accordance with the BLM Gold Book and best management practices (BMPs), Zenergy would co-locate the gathering lines along proposed and existing access roads, wherever possible, to reduce overall disturbance. In addition to the construction practices described in Section 2.2.2.1, Access Roads, Zenergy would also:

- Avoid constructing gathering lines on steep hillsides or in water courses
- Avoid blocking or changing the natural course of any drainage
- Bury the gathering lines at least 4 feet below the bottom of any channel that is crossed
- Test the gathering lines prior to backfilling the trenches
- Compact the trenches during backfilling and then heaped to mitigate settling
- Recontour any cut-and-fill slopes

Please see Section 2.2.8, Construction Details at Individual Sites, for more information on gathering line construction.

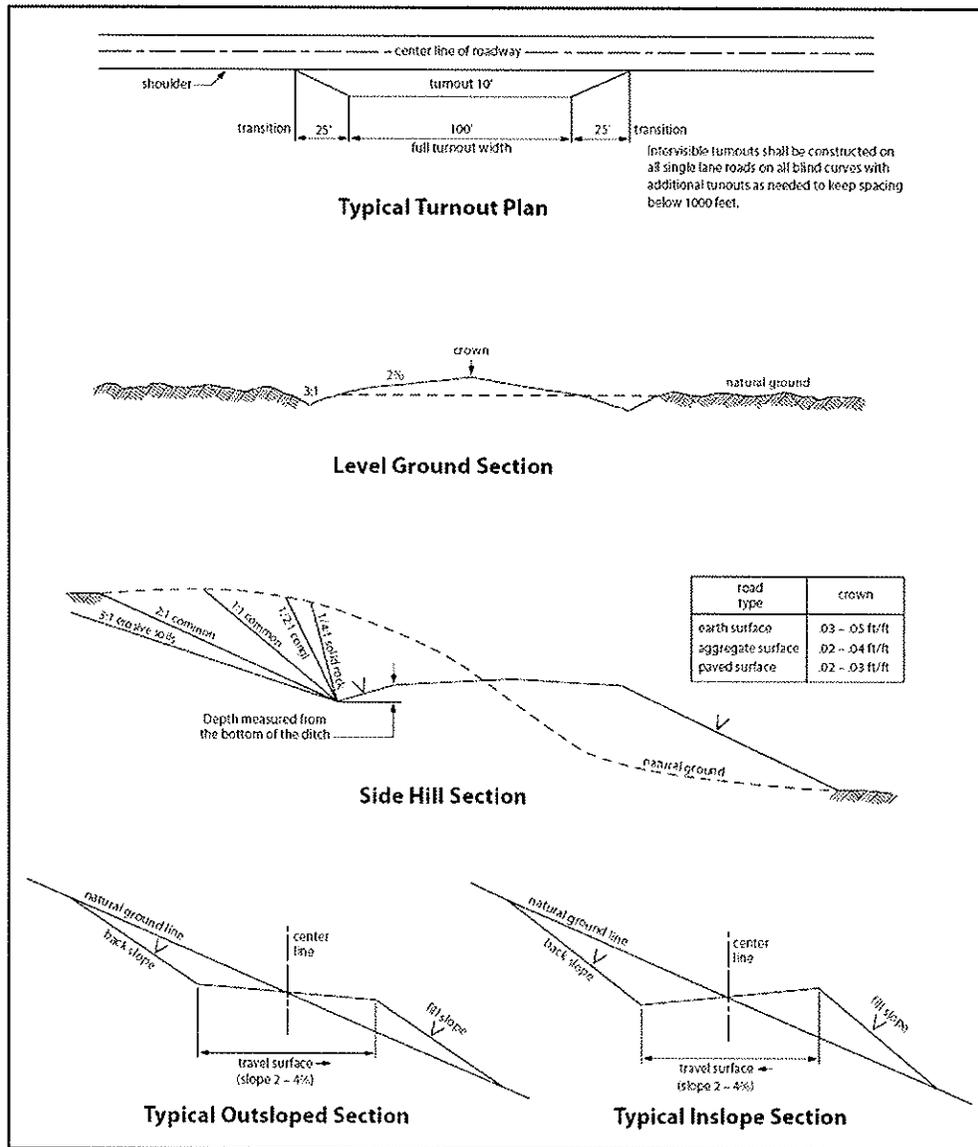


Figure 7. Typical road cross sections (BLM and USFS 2007).

2.2.3 Well Pads

The proposed well pads would include a leveled area (pad) and a pit. The pad would be used for the drilling rig and equipment, and the pit would be excavated, lined, and used for drilling fluids and cuttings. The pad would be stripped of topsoil and vegetation and then graded. The topsoil would be stockpiled and stabilized with a cover crop until it could be used to reclaim and revegetate the disturbed area. The sub-soils would be used in the construction of the pad and the finished pads would be graded to ensure that water drains away from the pad. Erosion control BMPs would be implemented and could include surface drainage controls, soil surface protection methodologies, and sediment capture features.

The well pads average approximately 430 feet by 330 feet (3.3 acres per well pad). Cut-and-fill slopes, stockpiled topsoil, and reserve pit backfill placed on the edge of the pads would

result in approximately 0.4 acre of additional surface disturbance per pad. Total surface disturbance would average approximately 3.7 acres per well pad and would total 18.5 acres. Details of pad construction and reclamation can be found in the APD.

2.2.4 Drilling

After securing mineral leases, Zenergy submitted the APDs to the BLM on the following dates:

- Dakota-3 Benson #3-9H: April 29, 2009
- Dakota-3 High Hawk #4-9H: November 11, 2009
- Dakota-3 Joseph Eagle #16-19H: November 11, 2009
- Dakota-3 Fettig (A-B) #16-22H: November 11, 2009
- Dakota-3 Morsette #35-26H: November 11, 2009

The BIA's office in New Town, North Dakota received copies of the APD from the BLM North Dakota Field Office. Construction will begin when the BIA completes the NEPA process and the APDs are then approved by the BLM.

Rig transport and on-site assembly would take roughly seven days for each well; a typical drill rig is shown in Figure 8. Drilling would require approximately 35 days to reach target depth, using a rotary drilling rig rated for drilling to approximately 15,000 feet. For the first 2,500 feet drilled, a freshwater-based mud system with non-hazardous additives would be used to minimize contaminant concerns. Water would be obtained from a commercial source for this drilling stage, using approximately 8.4 gallons of water per foot of hole drilled.

After setting and cementing the near-surface casing, an oil-based mud system (80% to 85% diesel fuel and 15% to 20% water) would be used to drill to 7-inch casing point. Oil-based drilling fluids reduce the potential for hole sloughing while drilling through water-sensitive formations (shales). Approximately 4,720 gallons of water and 18,900 gallons of diesel fuel per well would be used to complete vertical drilling. The lateral reach of the borehole would be drilled using 33,600 gallons of fresh water as mud and adding polymer sweeps as necessary to clean the hole.

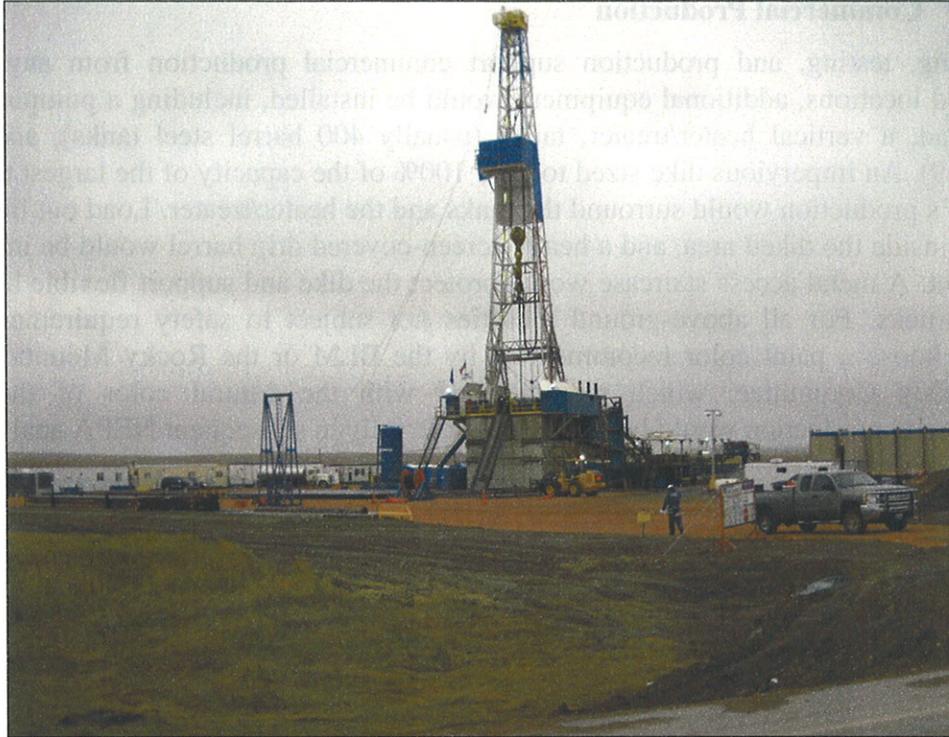


Figure 8. Typical drilling rig (Ruffo 2009).

2.2.5 Casing and Cementing

Surface casing would be set at an approximate depth of 2,500 feet and cemented back to the surface during drilling, isolating all near-surface freshwater aquifers in the project area. The Fox Hills Formation and Pierre Formation would be encountered at depths of approximately 1,700 and 1,800 feet, respectively. Production casing would be cemented from approximately 11,256 feet deep to a depth of about 4,000 feet in order to isolate the hydrocarbon zone present in the Dakota Formation below a depth of 4,500 feet. Casing and cementing operations would be conducted in full compliance with Onshore Oil and Gas Order No. 2 (43 CFR 3160).

2.2.6 Completion Activities

A completion rig unit would be moved on-site following the conclusion of drilling and casing activities. Approximately 30 days is usually required, at the proposed well depths, to clean out the well bore, pressure test the casing, perforate and fracture the horizontal portion of the hole, and run production tubing for commercial production. The typical procedure for fracturing a target formation to increase production includes pumping a mixture of sand and a carrier (e.g., water and/or nitrogen) downhole under extreme pressure. The resulting fractures are propped open by the sand, increasing the capture zone of the well and subsequently maximizing the efficient drainage of the field. After fracturing, the well is “flowed back” to the surface where fracture fluids are recovered and disposed of in accordance with North Dakota Industrial Commission (NDIC) rules and regulations.

2.2.7 Commercial Production

If drilling, testing, and production support commercial production from any of the five proposed locations, additional equipment would be installed, including a pumping unit at the well head, a vertical heater/treater, tanks (usually 400 barrel steel tanks), and a flare pit (Figure 9). An impervious dike sized to hold 100% of the capacity of the largest tank plus one full day's production would surround the tanks and the heater/treater. Load out lines would be located inside the diked area, and a heavy screen-covered drip barrel would be installed under the outlet. A metal access staircase would protect the dike and support flexible hoses used by tanker trucks. For all above-ground facilities not subject to safety requirements, the BIA would choose a paint color recommended by the BLM or the Rocky Mountain Five-State Interagency Committee, which would blend with the natural color of the landscape. Commercial production would be discussed more fully in subsequent NEPA analyses.



Figure 9. Typical producing oil well pad (Sobotka 2008).

Gathering lines will be constructed at the Dakota-3 Joseph Eagle #16-19H, Fettig (860 A-B) #16-22H, and Morsette #35-26H well sites. At the Dakota-3 Benson #3-9H and High Hawk #4-9H, oil would be collected in tanks installed on location and periodically trucked to an existing oil terminal for sales. Any produced water would be captured in tanks and periodically trucked to an approved disposal site. The frequency of trucking activities for both oil and produced water would depend upon volumes and rates of production. The duration of production operations cannot be reliably predicted, but some oil wells have pumped for more than 100 years. The operator estimates that each well would yield approximately 500 barrels of oil per day and 100 barrels of water during the first year of production. After the first year, the operator estimates production would decrease to approximately 300 barrels of oil per day and 45 barrels of water. Produced water is mostly recovered frac fluids and is expected to become minimal after two years.

Large volumes of gas are not expected from these locations. Small volumes would be flared in accordance with Notice to Lessees (NTL) 4A and adopted NDIC regulations, which prohibit unrestricted flaring for more than the initial year of operation (North Dakota Century Code [NDCC] 38-08-06.4).

In the future at the Dakota-3 Benson #3-9H and High Hawk #4-9H, the operator may apply for ROWs for oil and water pipelines and for an electric line, all of which would likely be located within existing disturbance along access and arterial roads.

2.2.8 Construction Details at Individual Sites

2.2.8.1 Dakota-3 Benson #3-9H

The proposed Dakota-3 Benson #3-9H well site, seen in Figure 10, is located approximately 8 miles southeast of Mandaree in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 9, T148N, R93W, Dunn County, North Dakota. A new access road approximately 634 feet long would be constructed from the well site to BIA 17 (Figure 11). The new road would disturb approximately 0.96 acres and the proposed well pad would disturb approximately 3.7 acres; the total anticipated new disturbance to 4.66 acres.

The spacing unit consists of 640 acres (+/-) with the bottom hole located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 9, T148N, R93W (Figure 12). Vertical drilling would be completed at approximately 10,000 feet, at which point drilling would turn roughly horizontal to an approximate total vertical depth (TVD) of 10,451 feet. The drill string would total approximately 14,900 feet at the total measured depth (TMD), including approximately 4,500 feet of lateral reach into the Middle Bakken Formation. The drilling target is located approximately 550 feet from the south line (FSL) and 2,090 feet from the east line (FEL), approximately 4,500 feet southeast of the surface hole location. A setback of at least 500 feet would be maintained.



Figure 10. Dakota-3 Benson #3-9H well pad area, looking southwest.

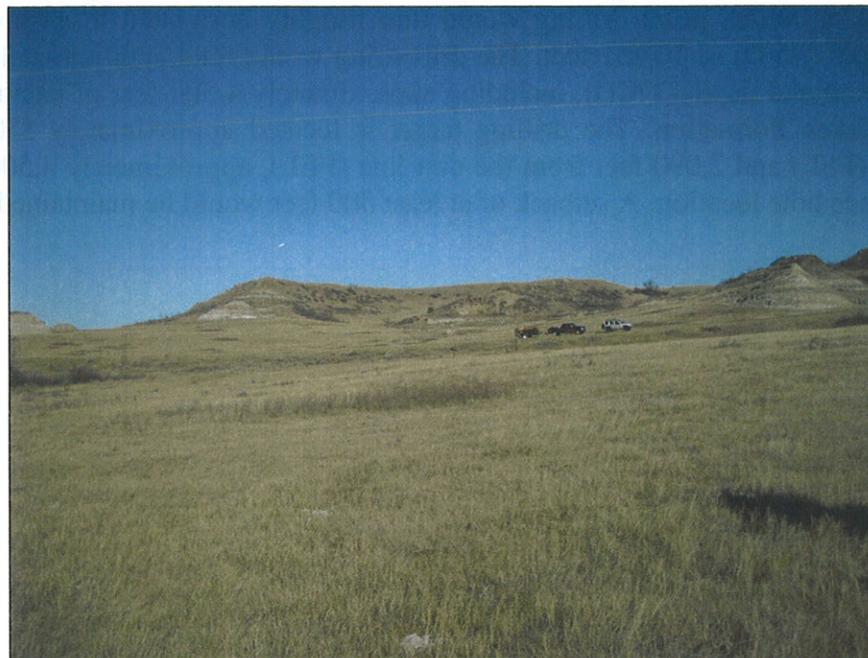


Figure 11. Dakota-3 Benson #3-9H access road, looking northeast.

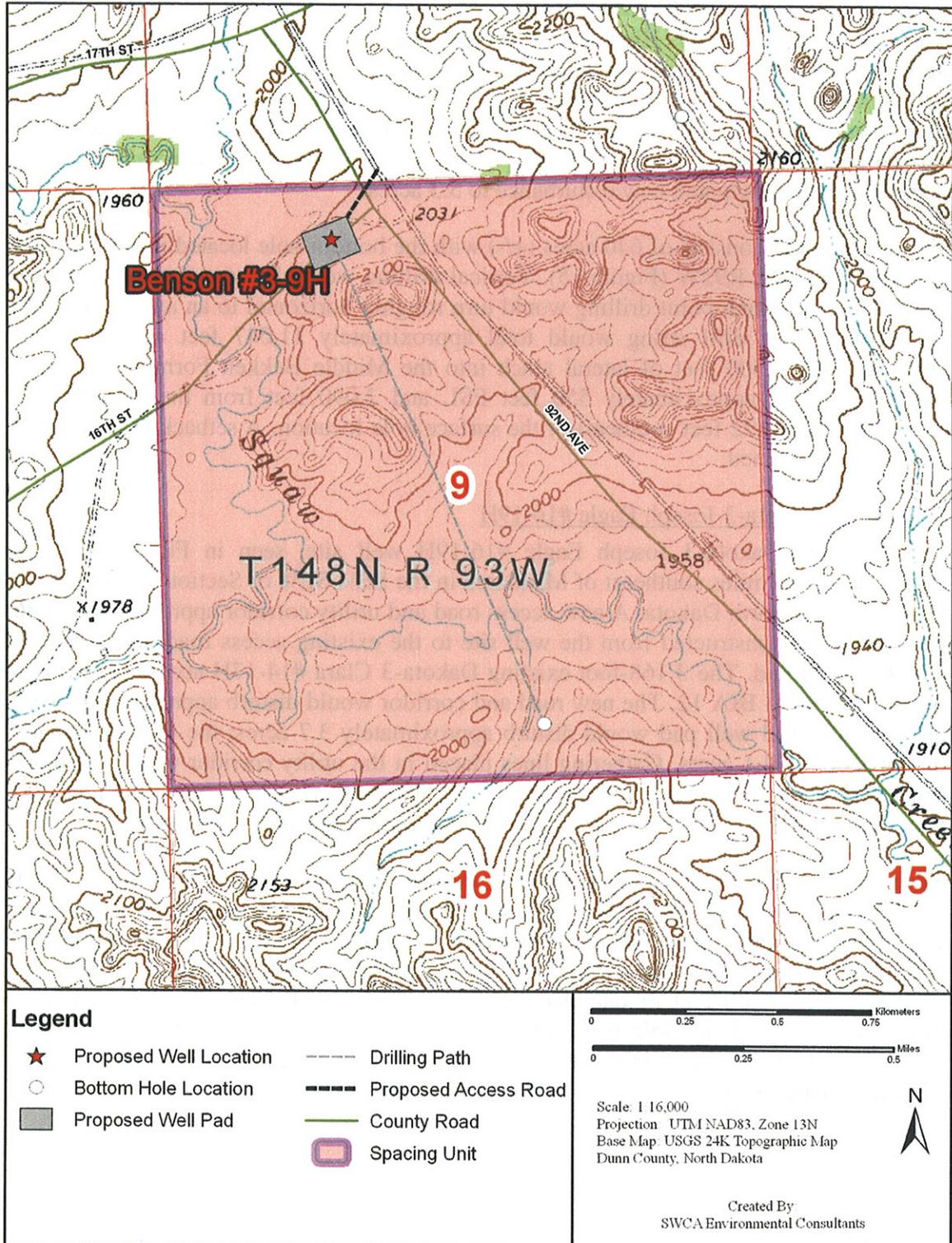


Figure 12. Dakota-3 Benson #3-9H proposed location showing spacing unit and drilling target.

2.2.8.2 Dakota-3 High Hawk #4-9H

The proposed Dakota-3 High Hawk #4-9H well site, seen in Figure 13, is located approximately 9.8 miles east-northeast of Mandaree in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 9, T148N, R92W, Dunn County, North Dakota. A new access road (Figure 14) approximately 1,056 feet long would be constructed from the well site and connect to BIA 10. The new road would disturb approximately 1.6 acres and the proposed well pad would disturb approximately 3.7 acres; the total anticipated new disturbance to 5.3 acres.

The spacing unit consists of 640 acres (+/-) with the bottom hole located in the SE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 9, T148N, R92W (Figure 15). Vertical drilling would be completed at approximately 10,197 feet, at which point drilling would turn roughly horizontal to an approximate TVD of 10,747 feet. The drill string would total approximately 11,047 feet at TMD, including approximately 4,500 feet of lateral reach into the Middle Bakken Formation. The drilling target is located approximately 550 feet FSL and 2,090 feet from the west line (FWL), approximately 4,522 feet southeast of the surface hole location. A setback of at least 500 feet would be maintained.

2.2.8.3 Dakota-3 Joseph Eagle #16-19H

The proposed Dakota-3 Joseph Eagle #16-19H well site, seen in Figure 16, is located approximately 3 miles southeast of Mandaree in the SE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 19, T149N, R93W, Dunn County, North Dakota. A new access road and utility corridor approximately 6,864 feet long would be constructed from the well site to the existing access road for Dakota-3 Clara #14-17H well pad. The 3,168-foot existing Dakota-3 Clara #14-17H access road (Figure 17) would connect to BIA 12. The new road and corridor would disturb approximately 10.4 acres and the proposed well pad would disturb approximately 3.7 acres; the total anticipated new disturbance to 14.1 acres. Gathering lines placed in the utility corridor would include 6-inch oil, 4-inch produced water, and 6-inch gas lines. The gathering lines would tie into the Clara, Clark Fox, Birdsbill Gathering Line of the Arrow gathering system (Figure 4).

The spacing unit consists of 640 acres (+/-) with the bottom hole located in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 19, T149N, R93W (Figure 18). Vertical drilling would be completed at approximately 10,197 feet, at which point drilling would turn roughly horizontal to an approximate TVD of 10,747 feet. The drill string would total approximately 11,047 feet at the TMD, including approximately 4,500 feet of lateral reach into the Middle Bakken Formation. The drilling target is located about 550 feet from the north line (FNL) and 1980 feet from FWL, approximately 5,270 feet northwest of the surface hole location. A setback of at least 500 feet would be maintained.



Figure 13. Dakota-3 High Hawk #4-9H well pad area, looking west.



Figure 14. Dakota-3 High Hawk #4-9H access road, looking north.

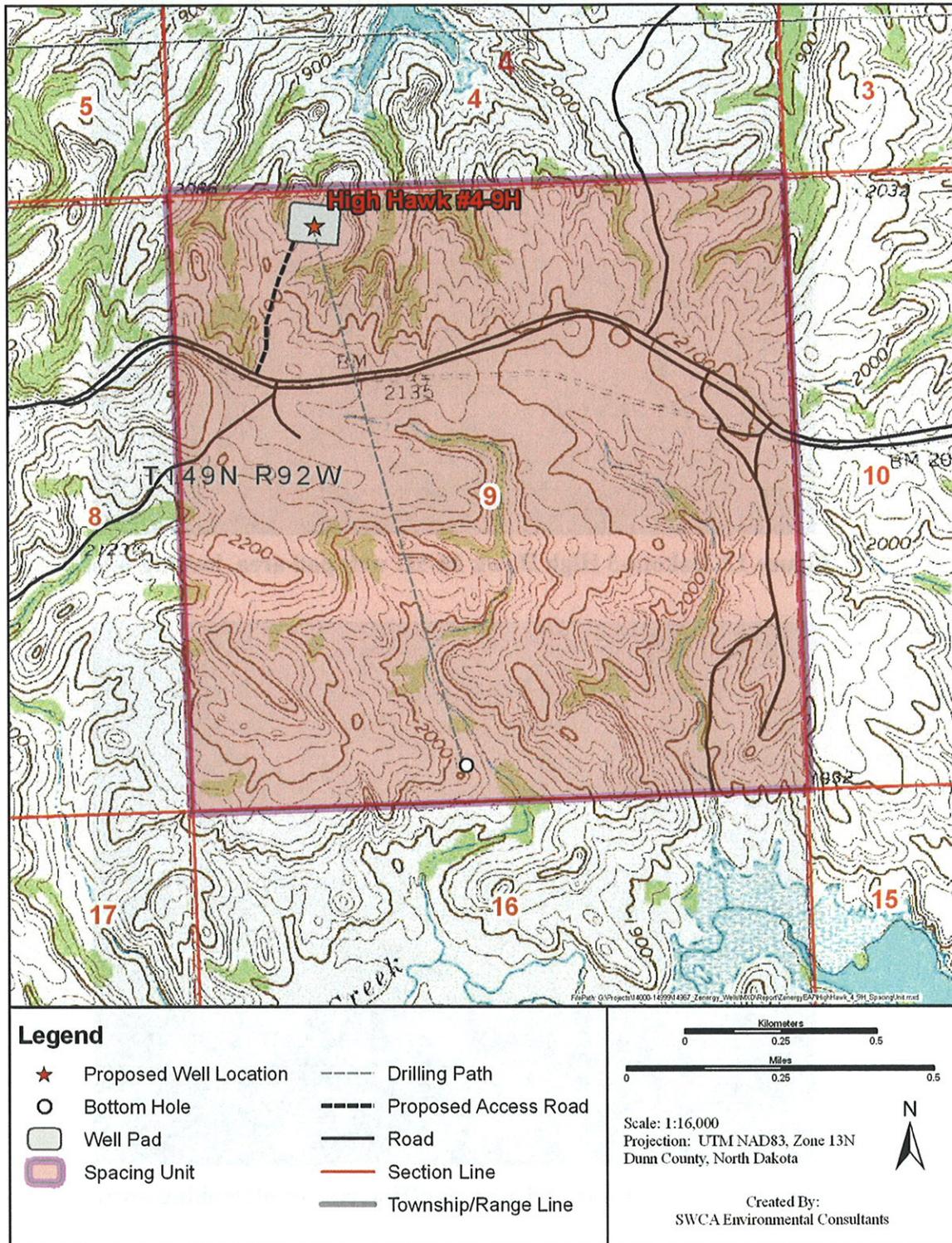


Figure 15. Dakota-3 High Hawk #4-9H proposed location showing spacing unit and drilling target.



Figure 16. Dakota-3 Joseph Eagle #16-19H well pad area, looking north.



Figure 17. Dakota-3 Joseph Eagle #16-19H access road area, looking east.

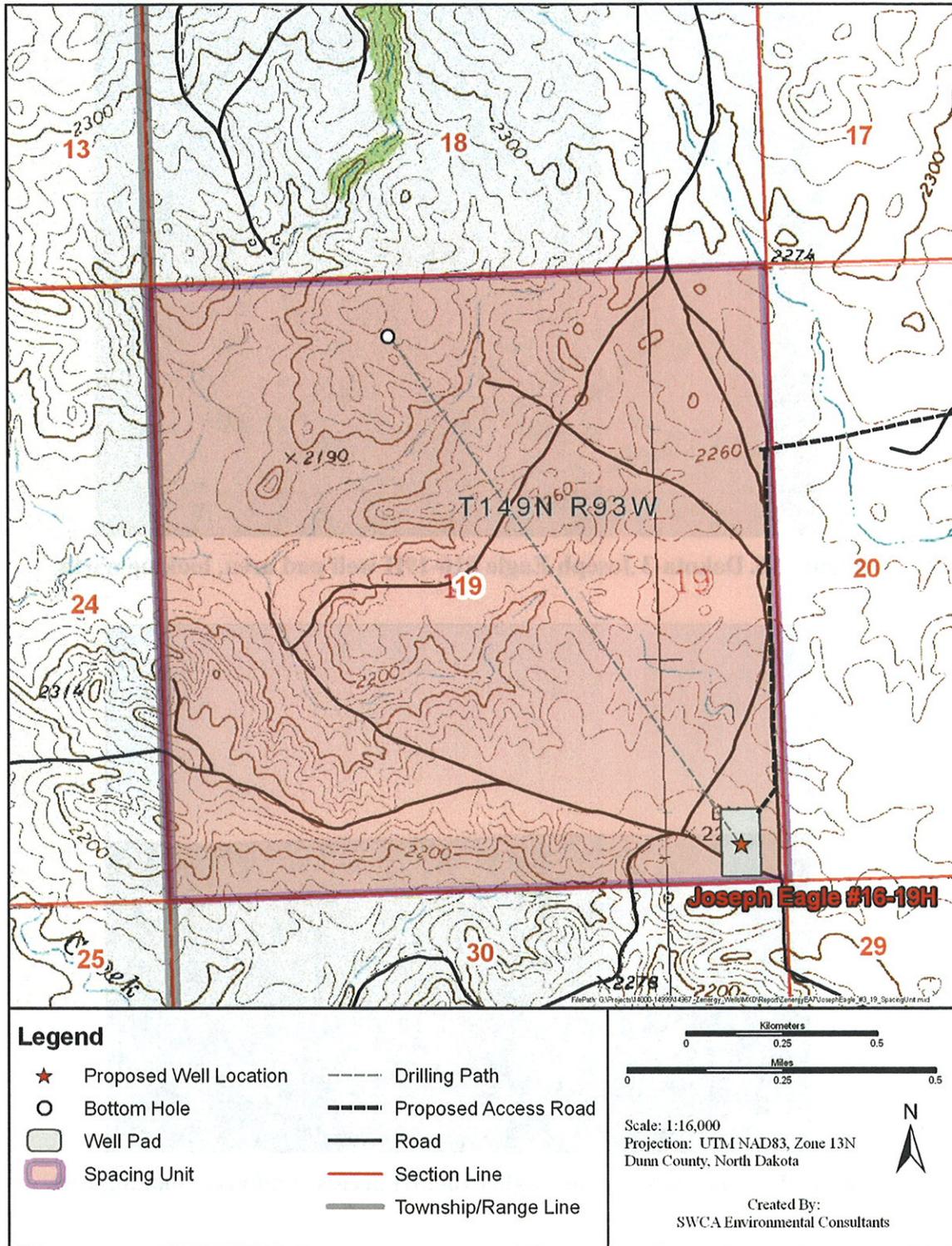


Figure 18. Dakota-3 Joseph Eagle #16-19H proposed location showing spacing unit and drilling target.

2.2.8.4 Dakota-3 Fettig (860 A-B) #16-22H

The proposed Dakota-3 Fettig (860 A-B) #16-22H well site, seen in Figure 19, is located approximately 2.1 miles northeast of Mandaree in the SE¼ SE¼ of Section 22, T149N, R94W, McKenzie County, North Dakota. A new access road and utility corridor approximately 3,696 feet long would be constructed from the well site to the existing Dakota-3 Wolf #3-27H access road. The existing Dakota-3 Wolf #3-27H access road (Figure 20) (3,168 feet) would connect to State Highway 22. The new road and corridor would disturb approximately 10.4 acres and the proposed well pad would disturb approximately 3.7 acres; the total anticipated new disturbance to 14.1 acres. Gathering lines placed in the utility corridor would include 6-inch oil, 4-inch produced water, and 6-inch gas lines. The gathering lines would tie into Phase 1B of the Arrow gathering system (Figure 5).

The spacing unit consists of 320 acres (+/-) with the bottom hole located in the NW¼ NE¼ of Section 22, T149N, R94W (Figure 21). Vertical drilling would be completed at approximately 10,197 feet, at which point drilling would turn roughly horizontal to an approximate TVD of 10,747 feet. The drill string would total approximately 11,047 feet at the TMD, including approximately 4,500 feet of lateral reach into the Middle Bakken Formation. The drilling target is located about 550 feet FNL and 1,980 feet FEL about 4,735 feet northwest of the surface hole location. A setback of at least 500 feet would be maintained.

2.2.8.5 Dakota-3 Morsette #35-26H

The proposed Dakota-3 Morsette #36-26H well site, seen in Figure 22, is located approximately 1.8 miles south of Mandaree in the NW¼ SE¼ of Section 35, T150N, R94W, McKenzie County, North Dakota. A new access road and utility corridor approximately 528 feet long would be constructed from the well site to an existing access road (Dakota-3 Nathan #4-25H access road and Turney Rodge Road (17,952 feet). The existing access road (Figure 23) would connect to State Highway 22. The new road and corridor would disturb approximately 0.8 acres and the proposed well pad would disturb approximately 3.7 acres; the total anticipated new disturbance to 4.5 acres. Gathering lines placed in the utility corridor would include 4-inch oil, 4-inch produced water, and 4-inch gas lines. The gathering lines would tie into Phase 1A Northern Extension Pipeline of the Arrow gathering system (Figure 6).

The spacing unit consists of 1,280 acres (+/-) with the bottom hole located in the NW¼ NE¼ of Section 26, T150N, R94W (Figure 24). Vertical drilling would be completed at approximately 9,611 feet, at which point drilling would turn roughly horizontal to an approximate TVD of 10,161 feet. The drill string would total approximately 19,461 feet at the TMD, including approximately 9,000 feet of lateral reach into the Middle Bakken Formation. The drilling target is located approximately 550 feet FNL and 2,090 feet FEL, approximately 8,551 feet north of the surface hole location. A setback of at least 500 feet would be maintained.



Figure 19. Dakota-3 Fettig (860 A-B) #16-22H well pad area, looking east.



Figure 20. Dakota-3 Fettig (860 A-B) #16-22H access road area, looking north.

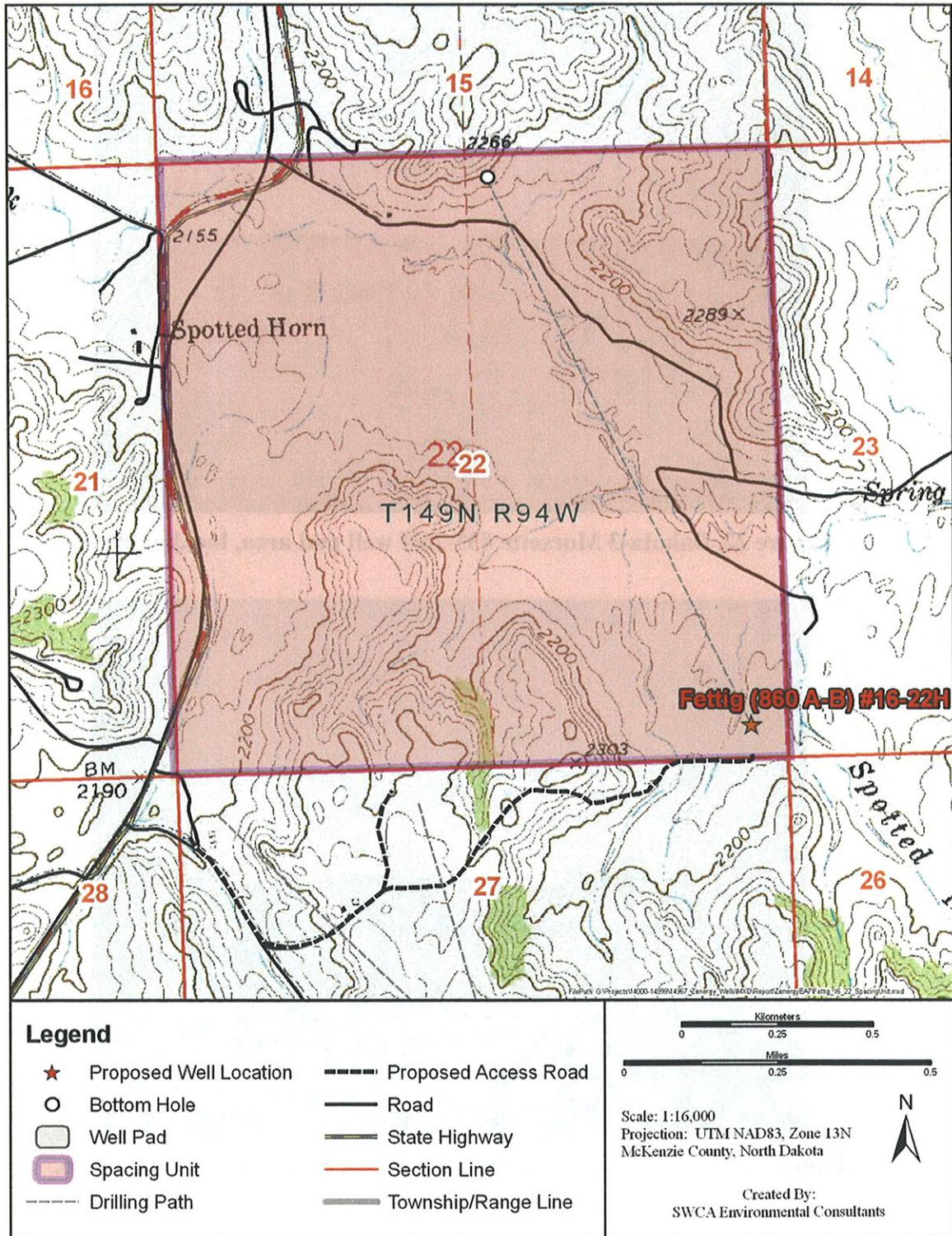


Figure 21. Dakota-3 Fettig (860 A-B) #16-22H proposed location showing spacing unit and drilling target.



Figure 22. Dakota-3 Morsette #35-26H well pad area, looking north.



Figure 23. Dakota-3 Morsette #35-26H access road area, looking north.

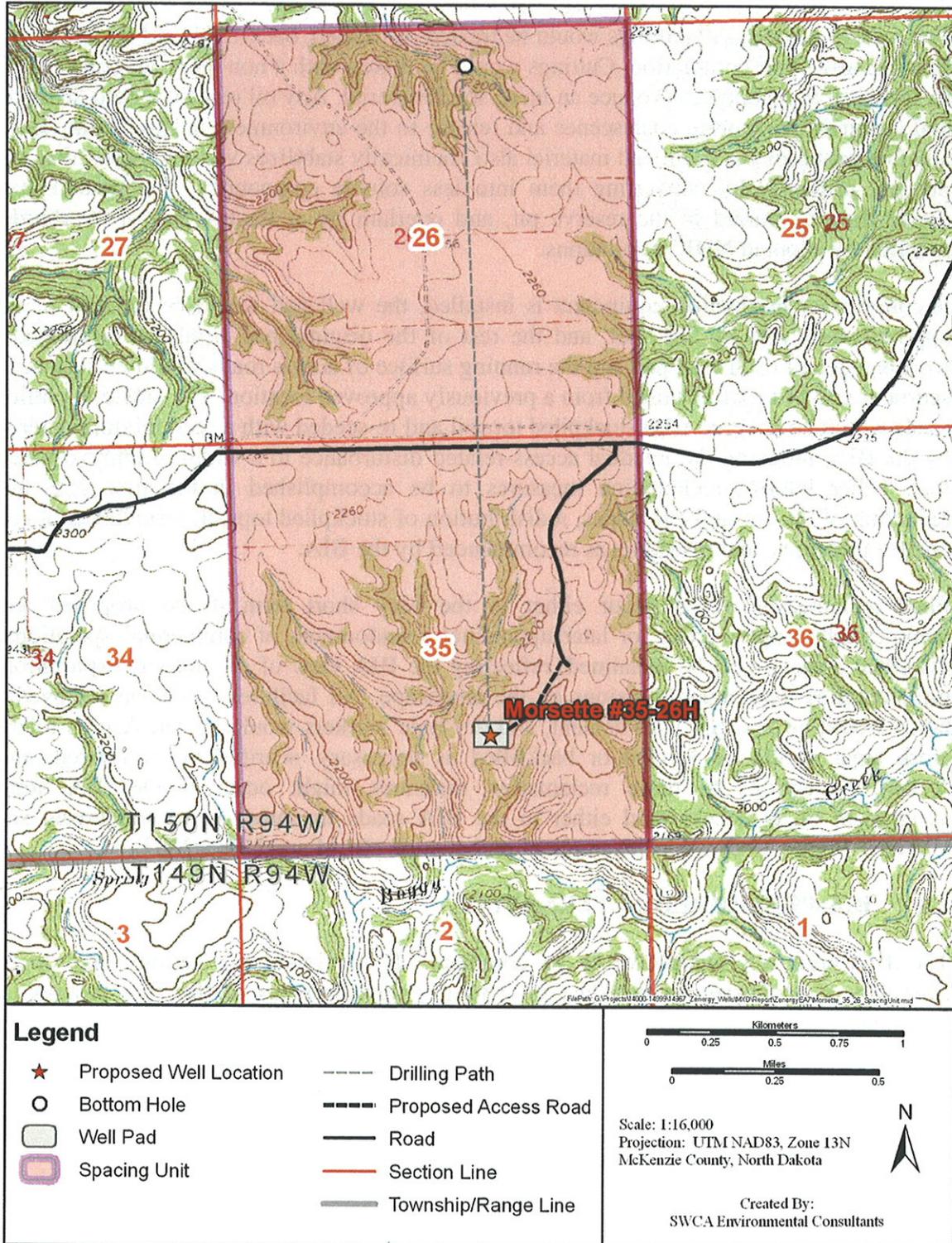


Figure 24. Dakota-3 Morsette #35-26H proposed location showing spacing unit and drilling target.

2.2.9 Reclamation

The reserve pit and drill cuttings would be treated, solidified, backfilled, and buried as soon as possible after well completion. Cuttings would be mixed with a non-toxic reagent resulting in an irreversible reaction to produce an inert, solid material. Any oil residue would be dispersed and captured, preventing coalescence and release to the environment at significant rates. The alkaline nature of the stabilized material also chemically stabilizes various metals that may be present, primarily by converting them into less soluble compounds. The treated material would then be buried in the reserve pit, and overlain by at least 4 feet of overburden as required by adopted NDIC regulations.

If commercial production equipment is installed, the well pad would be reduced in size to approximately 300 by 200 feet, and the rest of the original pad would be reclaimed. The working area of each well pad and the running surface of access roads would be surfaced with scoria or crushed rock obtained from a previously approved location. The outslope portions of roads would be covered with stockpiled topsoil and re-seeded with a seed mixture determined by the BIA, reducing the residual access-related disturbance to a width of approximately 28 feet. Other interim reclamation measures to be accomplished in the first year include reduction of the cut-and-fill slopes, redistribution of stockpiled topsoil, installation of erosion control measures, and reseeded as recommended by the BIA.

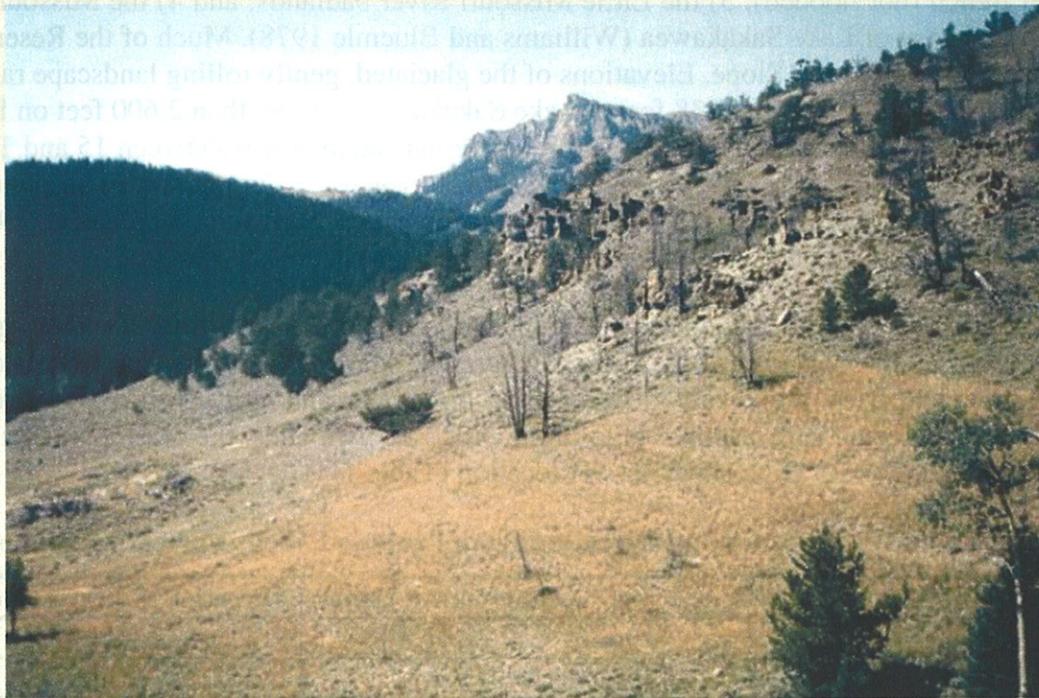
Final reclamation would occur either in the very short term if the proposed well is commercially unproductive, or later upon final abandonment of commercial operations. All disturbed areas would be reclaimed, reflecting the BIA view of oil and gas exploration and production as temporary intrusions on the landscape. All facilities would be removed, well bores would be plugged with cement, and dry hole markers would be set. Access roads and work areas would be leveled or backfilled as necessary, scarified, re-contoured, and re-seeded. Exceptions to these reclamation measures might occur if the BIA approves assignment of an access road either to the BIA roads inventory or to concurring surface allottees. Figure 25 shows an example of reclamation (BLM and USFS 2007).

2.3 BIA-PREFERRED ALTERNATIVE

The BIA-preferred alternative is to complete all administrative actions and approvals necessary to authorize or facilitate oil and gas developments at the five proposed well locations.



The well pad and access road are constructed to the minimum size necessary to safely conduct drilling and completion operations.



The well pad and access road have been recontoured back to the original contour, the topsoil respread, and the site revegetated.

Figure 25. Example of reclamation from the BLM Gold Book (USDI and USDA 2007).

3.0 THE AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

The Fort Berthold Indian Reservation is the home of the MHA Nation. Located in west-central North Dakota, the Reservation encompasses more than one million acres, of which almost half are held in trust by the United States for either the MHA Nation or individual allottees. The remainder of the land is owned in fee simple title, sometimes by the MHA Nation or tribal members, but usually by non-Indians. The Reservation occupies portions of six counties, including Dunn, McKenzie, McLean, Mercer, Mountrail, and Ward. In 1945, the Garrison Dam was completed, inundating much of the Reservation. The remaining land was divided into three sections near Lake Sakakawea, an impoundment of the Missouri River upstream of the Garrison Dam.

The proposed wells and access roads are geologically situated in the Williston Basin, where the shallow structure consists of sandstones, silts, and shales dating to the Tertiary Period (65 to 2 million years ago), including the Sentinel Butte and Golden Valley Formations. The underlying Bakken Formation is a well-known source of hydrocarbons; its middle member is targeted by the proposed project. Although earlier oil/gas exploration activity in the Reservation was limited and commercially unproductive, recent economic changes and technological advances now make accessing oil in the Bakken Formation feasible.

The Reservation is within the northern Great Plains ecoregion, which consists of four physiographic units: 1) the Missouri Coteau Slope north of Lake Sakakawea; 2) the Missouri River trench (not flooded); 3) the Little Missouri River badlands; and 4) the Missouri Plateau south and west of Lake Sakakawea (Williams and Bluemle 1978). Much of the Reservation is on the Missouri Coteau Slope. Elevations of the glaciated, gently rolling landscape range from a normal pool elevation of 1,838 feet at Lake Sakakawea to more than 2,600 feet on Phaelan's Butte near Mandaree. Annual precipitation on the plateau averages between 15 and 17 inches. Mean temperatures fluctuate between -3 and 21 degrees Fahrenheit (°F) in January and between 55 and 83°F in July, with 95 to 130 frost-free days each year (Bryce et al. 1998; High Plains Regional Climate Center 2008).

The proposed well sites and spacing units are in a rural area consisting of mostly grassland, shrubland, and cropland that is currently farmed, idle, or used to graze livestock. The landscape has been previously disturbed by dirt trails and gravel and paved roadways. Seventeen residences are within a mile of the proposed well sites, the closest being 1,758 feet south of the Dakota-3 High Hawk #4-9H location (Table 1).

Table 1. Distance and Direction from Proposed Wells to Nearest Home.

Proposed Well	Feet to Nearest Home	Direction to Nearest Home
Benson #3-9H	4,241	south
High Hawk #4-9H	1,758	south
Joseph Eagle #16-19H	3,933	northeast
Fettig (860 A-B) #16-22H	4,806	west
Morsette #35-26H	3,769	south

The broad definition of the human and natural environment under NEPA leads to the consideration of the following elements: air quality, public health and safety, water resources, wetland/riparian habitat, threatened and endangered species, soils, vegetation and invasive species, cultural resources, socioeconomic conditions, and environmental justice. Potential impacts to these elements are analyzed for both the No Action Alternative (described in Section 2.1) and the Proposed Action. Impacts may be beneficial or detrimental, direct or indirect, and short-term or long-term. This EA also analyzes the potential for cumulative impacts, and ultimately makes a determination as to the significance of any impacts. In the absence of significant negative consequences, it should be noted that a significant benefit from the project does *not* in itself require preparation of an EIS.

3.1 AIR QUALITY

3.1.1 Introduction

The federal Clean Air Act (CAA), as amended in 1990, established national ambient air quality standards for criteria pollutants to protect public health and welfare. It also set standards for cancer-causing compounds, regulated emissions that cause acid rain, and required federal permits for large sources. National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter (PM), and lead. These standards were set for pervasive compounds that are generally emitted by industry or motor vehicles. Standards for each pollutant meet specific public health and welfare criteria; thus they are called the “criteria pollutants.” Some states have adopted more stringent standards for criteria pollutants, or have chosen to adopt new standards for other pollutants. For instance, North Dakota has a standard for hydrogen sulfide that the Environmental Protection Agency (EPA) does not.

3.1.2 Atmospheric Stability and Dispersion, and Pollutant Concentrations

The quantity of pollutant emissions in an area and the degree to which these pollutants disperse directly affects resulting concentrations (and hence affects health). Pollutant dispersion, in turn, is directly affected by atmospheric stability. Atmospheric stability determines the amount of vertical and horizontal air exchange, or mixing, that can occur within a given air basin. Restricted mixing and low wind speeds characterize a high degree of atmospheric stability. These conditions are characteristic of temperature inversions. The height of the inversion determines the mixing volume trapped below.

Three types of temperature inversions typically occur that affect air quality: subsidence, katabatic, and radiation. A subsidence inversion occurs when a mass of aloft high-pressure (cold) air slowly sinks toward the surface. This causes the air underneath to heat as it is compressed. These subsiding layers are more stable than they were at their original higher altitudes. These inversions break up when a low-pressure front moves into the area and causes turbulence.

Katabatic inversions occur when air cooling at higher elevations (e.g., hills) slides, because it is more dense, down into valleys. This cool air in turn lifts warmer air, creating a strong boundary layer. If pollutants are emitted into the air near the surface after this inversion forms, there will be little vertical mixing until the inversion breaks. Katabatic inversions

typically break when the sun warms the earth's surface and allow warmer air to float up through the boundary layer, thus creating vertical mixing.

Radiation inversions form when the lowest levels of the atmosphere are cooled by contact with the earth's surface, which cools by emitting radiation. Factors that help a radiation inversion form include calm winds, dry air, clear skies, long nights, and moist ground surface. Radiation inversions often occur in winter after rainstorms. They are often marked by strong surface fog. Like katabatic inversions, these inversions typically break up when the sun's energy penetrates to the surface, causing vertical mixing to occur.

The winds and unstable air conditions experienced during the passage of storms result in low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the valley floors and in low areas. This creates strong low-level temperature inversions and very stable air conditions. This situation can lead to foggy conditions. If acidic compounds such as sulfur dioxide are present, the fog may become acidic as chemicals adsorb onto water droplets. Fog measurements in some areas of the Western U.S. have found acid levels the same as table vinegar (ph 3.5).

Conditions favorable to fog formation are also conditions favorable to high concentrations of CO and PM_{2.5}. Maximum CO concentrations tend to occur on clear, cold nights when a strong surface inversion is present and large quantities of emissions are occurring. The water droplets in fog, however, can act as a sink for CO and NO_x, temporarily lowering pollutant concentrations. At the same time, though, fog can also help in the formation of secondary particulates such as ammonium sulfate. These secondary particulates are believed to be a significant contributor of high winter PM_{2.5} levels.

3.1.3 Greenhouse Gas Emissions and Climate Change

In 1824, the French mathematician Joseph Fourier first postulated the ability of atmospheric gases to act as an insulator for a planet (known as the greenhouse effect). In 1896, Svante Arrhenius, a Nobel laureate, developed the mathematical equations that explain how atmospheric carbon dioxide and water vapor can alter surface temperature. His original equation is still in use today. The Intergovernmental Panel on Climate Change (IPCC) has researched and reported on global warming since the late 1980s. The IPCC has produced four formal reports and was awarded the Nobel Peace Prize in 2007 for this work.

Carbon dioxide (CO₂) is the primary greenhouse gas (GHG), responsible for approximately 90 percent of radiative forcing (the rate of energy change as measured at the top of the atmosphere; this can be positive [warmer] or negative [cooler]). To simplify discussion of the various GHGs, the term "equivalent CO₂, or CO₂e" has been developed. CO₂e is the amount of carbon dioxide that would cause the same level of radiative forcing as a unit of one of the other greenhouse gases. For example, 1 ton of methane (CH₄) has a CO₂e of 22 tons; therefore, 22 tons of CO₂ would cause the same level of radiative forcing as 1 ton of CH₄. N₂O has a CO₂e value of 310. Thus, control strategies often focus on the gases with the highest CO₂e value. CH₄ is a common fugitive gas emission in oil and gas fields and is emitted at many phases of exploration and production.

In general, various terrestrial and marine systems have kept the earth's average temperature and precipitation in a narrow range for the last 10,000 years, approximately. This stable climate has allowed the development of agriculture and the rise of the human population. Human emissions of chemical compounds into the atmosphere and land use changes (that may reduce carbon uptake and sequestration) are primary causes of climate change. Human population has increased from approximately 1.2 billion in 1850 to approximately 6.6 billion today, whereas atmospheric CO₂ has increased from approximately 280 ppm in 1750 to 389 ppm as of June 2009 (Swanson, CO2Now.org). Atmospheric CO₂ levels are now higher than at any time in the last 800,000 years. The primary source of CO₂ increases is the combustion of fossil fuels that release carbon buried in the earth into the atmosphere. Release of CH₄ and other GHG compounds such as nitrous oxide (N₂O) is also increasing.

What does this mean? According to the Pew Center, "Over the past 50 years, the (worldwide) data on extreme temperatures have shown similar trends of rising temperatures: cold days, cold nights, and frosts occurred less frequently over time, while hot days, hot nights, and heat waves occurred more frequently." Generally, the earth's temperature has increased about 1 degree Celsius since 1850, but some areas have seen an increase of 4 degrees. Sea levels are also rising, mountain glaciers are disappearing, and ocean currents such as the Gulf Stream are slowing. According to the IPCC, sea levels could rise by 2.5 feet to more than 6.6 feet depending on the rate of melt in the Polar Regions. Much of the increase is due to thermal expansion. Changes of this magnitude will affect rainfall patterns worldwide.

The retreat of ice sheets at both poles also changes the earth's albedo (light reflectance) so that more sunlight is absorbed and more heat retained. There is a substantial concern that, as the Arctic ice melts, the tundra will release trapped CH₄, essentially creating a positive feedback loop for radiative forcing. These factors contribute to a positive feedback loop that increases the rate of polar change. If one of the polar ice sheets on Greenland or West Antarctica becomes unstable because of rapid warming, sea level is likely to continue to rise for more than a thousand years, and could rise by 20 feet or more. This would permanently flood virtually all of world's major coastal cities (IPCC, "Summary for Policymakers," in *Climate Change 2007: The Physical Science Basis*).

According to the Center for Integrative Environmental Research at the University of Maryland, climate change will affect North Dakota's climate significantly over time. "North Dakota will experience an increase in the unpredictability of droughts, floods, and pests. This will make it hard for farmers—and especially small farmers—to remain in the agricultural industry. Damages to the agricultural industry will in turn have negative effects on the livestock industry. Furthermore, the hunting, fishing, and tourism industries will suffer losses due to reductions in habitats and receding water levels. These losses can, and are likely to be, devastating to North Dakota's economy, which has a small population and relies heavily on the revenue procured by these industries."

3.1.4 Criteria Pollutants

Ozone is a colorless gas with a pungent, irritating odor, and creates a widespread air quality problem in most of the world's industrialized areas. Ozone smog is not emitted directly into the atmosphere but is primarily formed through the reaction of hydrocarbons and nitrogen oxides in the presence of sunlight. Ozone's health effects can include reduced lung function;

aggravated respiratory illness; and irritated eyes, nose, and throat. Chronic exposure can cause permanent damage to the alveoli of the lungs. Ozone can persist for many days after formation, and travel several hundred miles.

Respirable particulate matter is a class of compounds that can lodge deep in the lungs causing health problems. Based on extensive health studies, particulate matter is regulated under two classes. PM₁₀ describes particles 10 microns or smaller, and PM_{2.5} is 2.5 microns or smaller. Respirable particulate matter can range from inorganic wind-blown soil to organic and toxic compounds found in diesel exhaust. Toxic compounds such as benzene often find a route into the body via inhalation of fine particulate matter.

Nitrogen dioxide (NO₂) is a reddish-brown gas with an irritating odor. Primary sources include motor vehicles, industrial facilities, and power plants. In the summer months, NO₂ is a major component of photochemical smog. Nitrogen dioxide is an irritating gas that may constrict airways, especially of asthmatics, and increase the susceptibility to infection in the general population. Nitrogen dioxide is also involved in ozone smog production.

Carbon monoxide (CO) is a colorless, odorless gas that is a byproduct of incomplete combustion. Carbon monoxide concentrations typically peak nearest a source such as roadways or areas with high fireplace use, and decrease rapidly as distance from the source increases. Ambient levels are typically found during periods of stagnant weather, such as on still winter evenings with a strong temperature inversion. Carbon monoxide is readily absorbed into the body from the air. It decreases the capacity of the blood to transport oxygen, leading to health risks for unborn children and people suffering from heart and lung disease. The symptoms of excessive exposure are headaches, fatigue, slow reflexes, and dizziness.

Sulfur dioxide (SO₂) is a colorless gas with a strong, suffocating odor. Sulfur dioxide is produced by burning coal, fuel oil, and diesel fuel. Sulfur dioxide can trigger constriction of the airways, causing particular difficulties for asthmatics. Long-term exposure is associated with increased risk of mortality from respiratory or cardiovascular disease. SO₂ emissions are also a primary cause of acid rain and plant damage.

The federal and state governments have set standards based on set criteria for various air pollutants caused by human activity. Table 2 shows standards for these criteria pollutants.

Table 2. Air Quality Standards and Monitored Data.

Pollutant	Averaging Period	NAAQS ($\mu\text{g}/\text{m}^3$) or (ppm)	Year		
			2006	2007	2008
SO ₂ (in ppm)	24-hour	0.14	0.011	0.011	0.009
	Annual Mean	0.03	0.002	0.002	0.002
PM ₁₀ (in $\mu\text{g}/\text{m}^3$)	24-hour	150	50	57	108
	Annual Mean	50	14	13	16
PM _{2.5} (in $\mu\text{g}/\text{m}^3$)	24-hour	35	18.9	13.5	16.4
	Weighted Annual Mean	15	6.3	6.6	6.7
NO ₂ (in ppm)	Annual Mean	0.053	0.003	0.003	0.003
O ₃ (in ppm)	1-hour	0.12	0.076	0.076	0.069
	8-hour	0.08	0.067	0.065	0.063

Source: EPA 2009. $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter. ppm = parts per million

Note: For PM_{2.5} the fourth-highest 24-hour value is reported per EPA attainment evaluation protocol.

3.1.5 Hazardous Air Pollutants (HAP)

These are a class of compounds known to cause cancer, mutation, or other serious health problems. HAPs are usually a localized problem near an emission source. HAPs are regulated separately from criteria air pollutants. There are several hundred HAPs recognized by the EPA and the State of North Dakota. Health effects of HAPs may occur at exceptionally low levels; for many HAPs, it is not possible to identify exposure levels that do *not* produce adverse health effects. Major sources of toxic air contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), wood smoke, and motor vehicle exhaust. Unlike regulations for criteria pollutants, there are no ambient air quality standards for HAPs. Examples of HAPs found in gases released by oil field development and operation include benzene, toluene, xylene, and formaldehyde (BLM 2009). HAP emissions receive evaluation based on the degree of exposure that can cause risk of premature mortality, usually from cancer.

Risk assessments express premature mortality in terms of the number of deaths expected per million persons. The North Dakota Department of Health (NDDH) typically reviews projects and either requires an applicant to prepare a risk assessment or assign the state engineers to do the work. The state requires that maximum individual cancer risk be calculated using its adopted protocol (the Determination of Compliance in the state's Air Toxics Policy). For new sources emitting HAPs with known negative health effects, an applicant must demonstrate that the combined impact of new HAP emission does not result in a maximum individual cancer risk greater than 1×10^{-5} (1 in 100,000).

3.1.6 Air Monitoring

The NDDH operates a network of monitoring stations around the state that continuously measure pollution levels. Industry also operates monitoring stations as required by the state. The data from all these stations is subject to quality assurance, and when approved, it is published on the Internet (available from the EPA and other sources). Monitoring stations near the project site include Watford City in McKenzie County, Dunn Center in Dunn

County, and Beulah in Mercer County. These stations are located west, south, and southeast of the proposed well sites. Criteria pollutants measured include SO₂, PM₁₀, NO₂, and ozone. Lead and carbon monoxide are not monitored by any of the three stations. Table 2 summarizes federal air quality standards and available air quality data from the three county study areas. The highest value at any of the three monitoring locations is shown for each year.

Note that North Dakota has separate state standards for several pollutants that are different from the federal criteria standards. These are:

- SO₂ (ppm) – 0.023 annual arithmetic mean, 0.099 24-hour concentration, and 0.273 one-hour concentration
- H₂S (ppm) – 10 instantaneous, 0.20 one-hour, 0.10 24-hour, and 0.02 three-month arithmetic mean

All other state criteria pollutant standards are the same as federal ones (shown in Table 2). North Dakota was one of 13 states that met standards for all federal criteria pollutants in 2008.

The CAA mandates prevention of significant deterioration (PSD) in the designated attainment areas. Class I attainment areas have national significance and include national parks greater than 6,000 acres, national monuments, national seashores, and federal wilderness areas larger than 5,000 acres that were designated prior to 1977. Theodore Roosevelt National Park, a Class I area that covers about 110 square miles in three units within the Little Missouri National Grassland, lies between Medora and Watford City and is roughly 30–40 miles west of the proposed well sites. All other parts of the state, including the Reservation, are classified as Class II, affording them a lower level of protection from significant deterioration.

3.1.7 Response to the Threat of Climate Change

The EPA has proposed an endangerment finding that would allow regulation of GHGs under the CAA. The first step is a regulation that requires sources emitting 25,000 tons or more CO₂e to report their emissions. The EPA and the National Highway Traffic Safety Administration have increased corporate fuel economy standards to promote national energy security and reduce GHGs. Standards will equal 35 miles per gallon by 2020, with an estimated savings to drivers of \$100 billion annually. Many U.S. states and foreign nations have adopted goals and actions to reduce GHGs to levels scientists forecast will allow the earth's climate to stabilize at 1 to 2 degrees Celsius above the current level. Additional regulation is currently being developed by Congress to roll back emissions to levels recommended by atmospheric scientists.

3.1.8 Project Emissions

Oilfield emissions encompass three primary areas: combustion, fugitive, and vented.

- Combustion emissions include SO₂, ozone precursors called VOCs, GHGs, and HAPs. Sources include engine exhaust, dehydrators, and flaring.

- Fugitive emissions include criteria pollutants, H₂S, VOCs, HAPs, and GHGs. Sources include equipment leaks, evaporation ponds and pits, condensate tanks, storage tanks, and windblown dust (from truck and construction activity).
- Vented emissions include GHGs, VOCs, and HAPs. Primary sources are emergency pressure relief valves and dehydrator vents.

Pad and road construction, drilling activities, and tanker traffic would generate emissions of criteria pollutants and HAPs. Primary emissions sources during drilling are diesel exhaust, wind-blown dust from disturbed areas and travel on dirt roads, evaporation from pits and sumps, and gas venting. Diesel emissions are being progressively controlled by the EPA in a nationwide program. This program takes a two-pronged approach. First, fuels are improving to the ultra-low sulfur standard, and second, manufacturers must produce progressively lower engine emissions.

3.1.9 Regulatory Emission Controls

Under the CAA, federal land management agencies have an affirmative responsibility to help protect air quality. The tribes, federal land managers, and the State of North Dakota can make emission controls part of a lease agreement. The proposed project is similar to other projects installed nearby with state approval. State policy for permitting new oil and gas wells is as follows: Any oil or gas well production facility that emits or has the potential to emit 250 tons per year or more of any air contaminant regulated under North Dakota code must comply with state permitting requirements. The discussion outlines requirements for control of emissions from treaters, separators, flares, tanks, and other on-site equipment.

The North Dakota Air Pollution Control Rules require that the owner/operator submit an oil/gas facility registration form. This form must include an analysis of any gas produced from the well. The following sources must register oil and gas wells with the NDDH:

1. Any oil and gas well that is/was completed or re-completed on or after July 1, 1987. The registration form must be submitted within 90 days of the completion or re-completion of the well.
2. The owner or operator of any oil or gas well shall inform the NDDH of any change to the information contained on the registration form for a particular well. The owner shall submit a new gas analysis if the composition or the volume of the gas produced from the well has changed from the previous analysis, and caused an increase of 10 tons per year or more in sulfur compounds.
3. North Dakota rules require that all new sources of H₂S and VOCs be flared or treated in an equally effective manner. Flares must have an auto igniter or pilot light. The stack height of flares will be sufficient to allow dispersion of the flared gas. The gas produced from the Bakken Formation is typically low in H₂S, so odors from fugitive gas leaks are not expected to be a problem.
4. Chapter 33-15.03.03 of the North Dakota Air Pollution Control Rules specify that fugitive dust emissions greater than 40% opacity cannot leave the project site for more than one 6-minute period per hour. This applies to all construction and unpaved road emission sources.

3.1.10 Best Management Practices (BMPs)

Under the CAA, federal land management agencies have an affirmative responsibility to protect air quality. Tribes, federal land managers, and private entities can make emission controls part of a lease agreement. BMPs can be adopted for various portions of an oil/gas wells lifecycle. BMPs fall into six general categories:

- Transportation
- Drilling
- Unplanned or emergency releases
- Vapor recovery
- Inspection and maintenance
- Monitoring and repair

The BLM has developed a set of BMPs for oil and gas extraction. As documented in case studies, applying many of the recommended BMPs produced substantial savings and increased revenue from fixed assets. The leasing agent (e.g., BLM) will negotiate a set of BMPs with the applicant before final sale. These BMPs will be formally presented, in writing, to the NDDH as part of the oil/gas facility registration process. They will also run with the land so that any transfer requires the new operator to meet or exceed the same standards for emission control.

3.2 WATER RESOURCES

3.2.1 Surface Water

As shown in Figure 26, no perennial water bodies are located near the proposed project areas. Given the topography of the individual sites over the project area, runoff occurs largely as sheet-flow. Runoff that concentrates near the proposed project well areas will flow to Upper Squaw Creek, Shell Creek, Boggy Creek, and subsequently onto Lake Sakakawea.

The proposed Benson #3-9H is located in the Lower Squaw Creek/Squaw Creek Bay sub-watershed (Figure 26) (hydrologic unit code [HUC] 101102050608) of the Waterchief Bay Watershed. It is part of the Lower Little Missouri subbasin, Little Missouri basin, Little Missouri subregion, and Missouri region. Runoff from the well pad will flow to the northwest into an ephemeral unnamed tributary of Lower Squaw Creek (Figure 27) (HUC 10110205000008) and travel approximately 8.7 miles until reaching perennial waters in Lake Sakakawea.

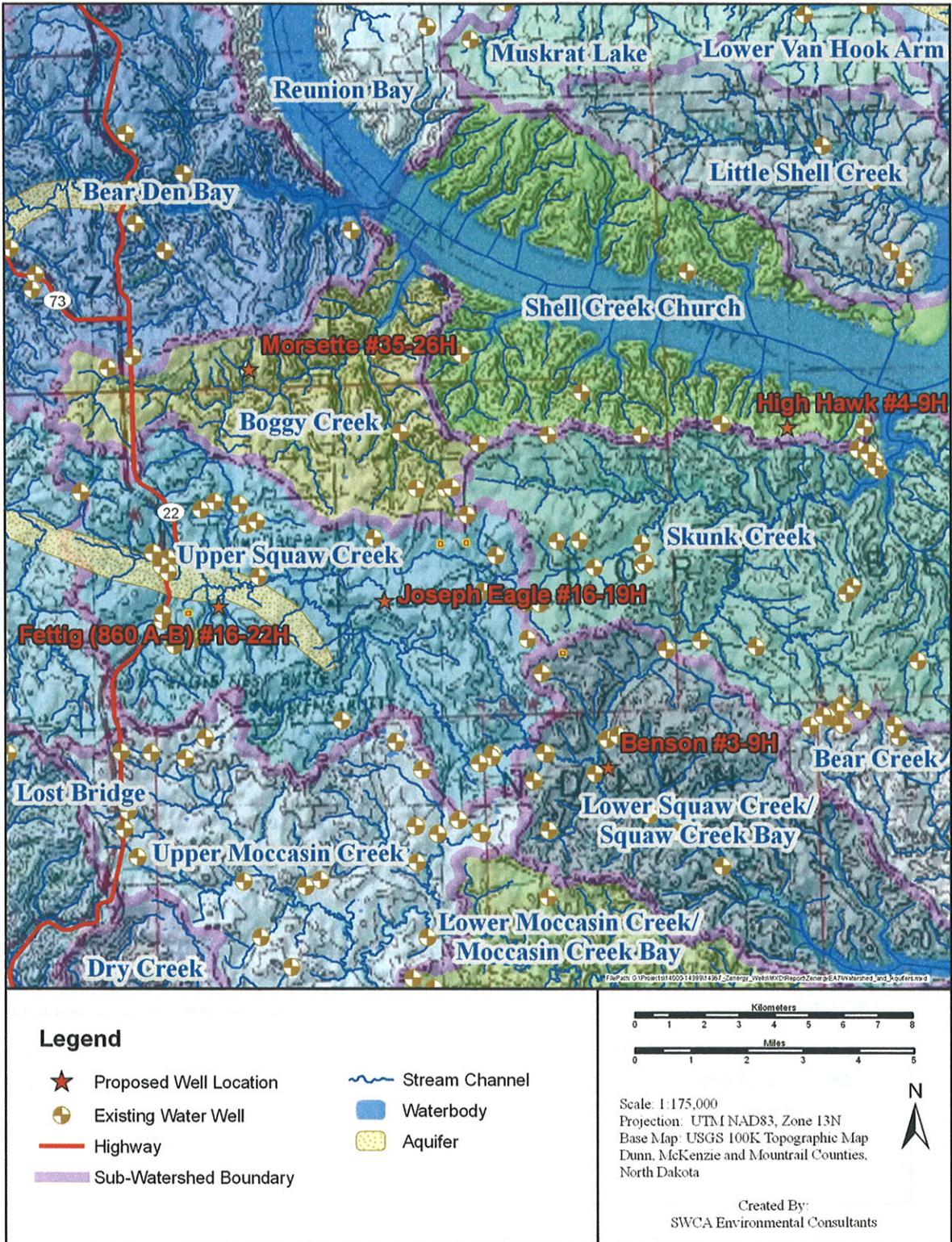


Figure 26. Watersheds and aquifers.

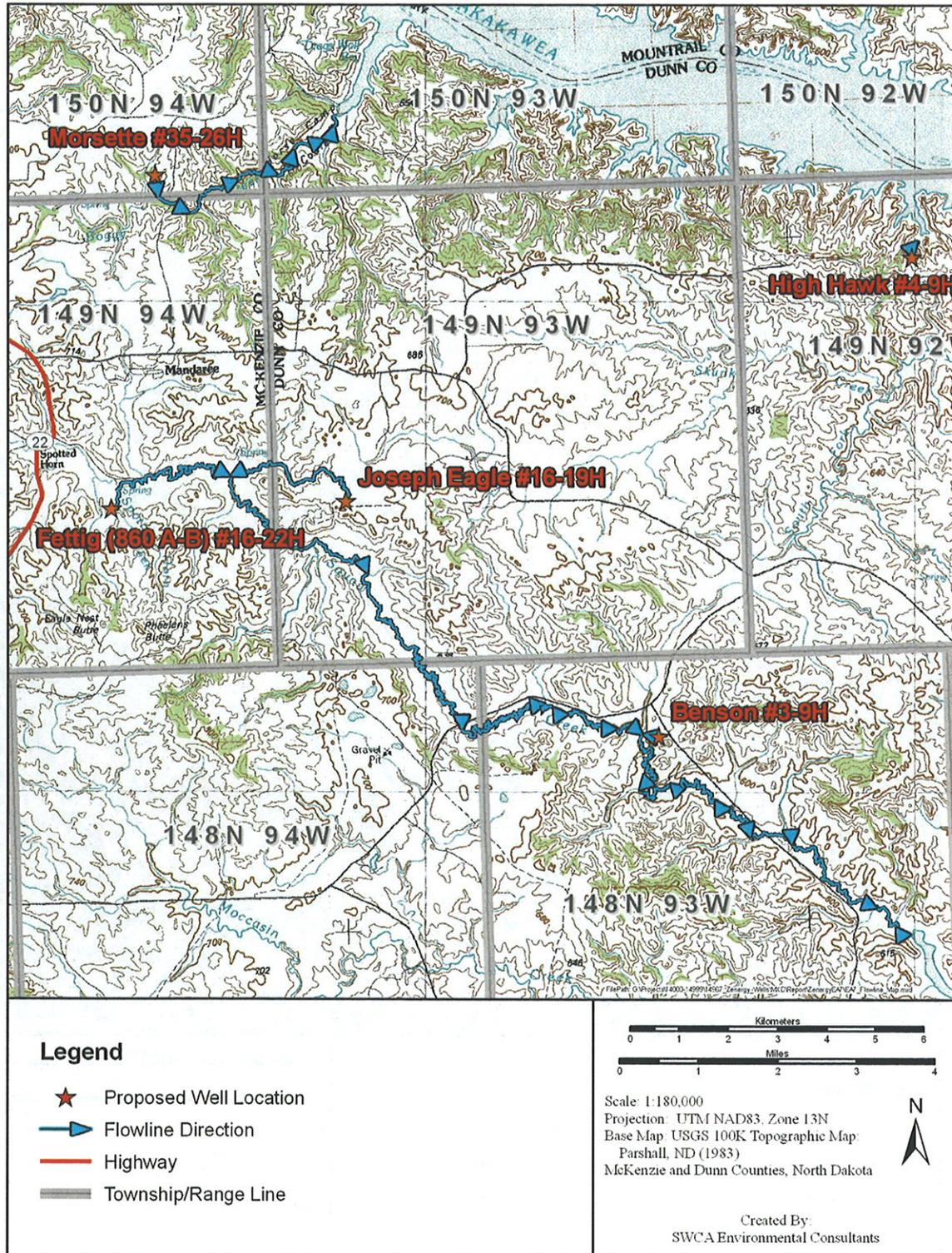


Figure 27. Flow lines from the well pad locations.

The proposed Dakota-3 High Hawk #4-9H well site is located in the Shell Creek Church sub-watershed (Figure 26) (HUC 101101012103) of the Independence Point Bay Watershed. It is part of the Lake Sakakawea subbasin, the Lake Sakakawea basin, the Little Missouri River and subregion, and the Missouri region. Runoff from the well pad would flow to the north into an ephemeral unnamed draw that flows directly into Lake Sakakawea. Runoff would travel approximately 0.3 miles until reaching perennial waters in Lake Sakakawea (Figure 27).

The proposed Joseph Eagle #16-19H well site is located in the Upper Squaw Creek sub-watershed (Figure 26) (HUC 1011020050607) of the Waterchief Bay Watershed. It is part of the Lower Little Missouri River subbasin, the Little Missouri basin and subregion, and the Missouri region. Runoff from the well pad would flow to the northwest into an ephemeral unnamed tributary of Upper Squaw Creek (HUC 10110205006070) and travel approximately 23.7 miles until reaching perennial waters in Lake Sakakawea (Figure 27).

The proposed Dakota-3 Fettig (860 A-B) #16-22H well site is located in the Upper Squaw Creek sub-watershed (HUC 1011020050607) of the Waterchief Bay Watershed (Figure 26). It is part of the Lower Little Missouri River subbasin, the Little Missouri basin and subregion, and the Missouri region. Runoff from the well pad would flow to the north into Spotted Horn Creek, an ephemeral tributary of Squaw Creek (HUC 10110205006150), and travel approximately 24.3 miles until reaching perennial waters in Lake Sakakawea (Figure 27).

The proposed Morsette #35-26H well site is located in the Boggy Creek sub-watershed (Figure 26) (HUC 101101012101) of the Independence Point Watershed. It is part of the Lake Sakakawea subbasin, the Lake Sakakawea basin, the Little Missouri subregion, and the Missouri region. Runoff from the well pad would flow to the south into Boggy Creek (HUC 10110101001123) and travel approximately 4.1 miles until reaching perennial waters in Lake Sakakawea (Figure 27).

The proposed project would be engineered and constructed to minimize the suspended sediment (i.e., turbidity) concentration of surface runoff, avoid disruption of drainages, and avoid direct impacts to surface water. No surface water would be used for well drilling operations. Any chemicals or potentially hazardous materials would be handled in accordance with the operator's spill prevention, control, and countermeasure plan. Provisions established under this plan would minimize potential impacts to any surface waters associated with an accidental spill.

Aquifers in the project area include (from deepest to shallowest) the Cretaceous Fox Hills and Hell Creek Formations and the Tertiary Ludlow, Tongue River, and Sentinel Butte Formations (Table 3). Several shallow aquifers related to post-glacial outwash composed of till, silt, sand, and gravel are located in Dunn and McKenzie Counties. However, none are within the proposed project areas, although the Fettig #16-22H well is approximately 0.12 miles south of the mapped boundary of the alluvial aquifer (Figure 26). The shallow Sentinel Butte Formation, commonly used for domestic supply in the area, outcrops in Dunn County and meets NDDH standards (Croft 1985). Detailed analyses are available from the North Dakota Geological Survey, Bulletin 68, Part III, 1976.

3.4.1 Groundwater

Table 3. Common Aquifers in the Proposed Project Area and Surrounding Region.

Period	Formation		Depth Range (feet)	Thickness (feet)	Lithology	Water-yielding Characteristics
Quaternary	Alluvium		0-40	40	Silt, sand, and gravel	Maximum yield of 50 gal/min to individual wells from sand and gravel deposits
Tertiary	Fort Union Group	Sentinel Butte	0-670	0-670	Silty, clay, sand and lignite	5 to 100 gal/min in sandstone. 1 to 200 gal/min in lignite
		Tongue River	140-750	350-490	Silty, clay, sand and lignite	Generally less than 100 gal/min in sandstone
		Cannonball/Ludlow	500-1,150	550-660	Fine- to medium-grained sandstone, siltstone, and lignite	Generally less than 50 gal/min in sandstone
Cretaceous	Hell Creek		1,000-1,750	200-300	Claystone, sandstone, and mudstone	5 to 100 gal/min in sandstone
	Fox Hills		1,100-2,000	200-300	Fine- to medium-grained sandstone and some shale	Generally less than 200 gal/min in sandstone; some up to 400 gal/min

Source: Croft (1985) and Klausning (1979). gal/min = gallons per minute

Review of electronic records of the North Dakota State Water Commission revealed 121 existing water wells within an approximate 5-mile boundary of the proposed project areas (Table 4). No water wells are found within 1 mile of Morsette #35-26H, no water wells within 1 mile of Dakota-3 High Hawk #4-9H, no water wells within 1 mile of Joseph Eagle #16-19H, five water wells within 1 mile of Benson #3-9H, and five water wells within 1 mile of Fettig #16-22H. Water quality would be protected by drilling with freshwater to a point below the base of the Fox Hills Formation, implementing proper hazardous materials management, and using appropriate casing and cementing. Drilling would proceed in compliance with *Onshore Oil and Gas Order 2, Drilling Operations* (43 CFR 3160).

Table 4. Existing Water Wells near the Project Area.

Well Number	Owner	Date Drilled	Section	Township/ Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
148-092-06AAD	Rita Blackhawk	1981	6	148N/ 92W	Domestic	210	Unknown	3-9H	4.6
148-092-06ABB	USGS	1994	6	148N/ 92W	Monitoring	200	Unknown	3-9H	4.3
148-092-06ACC	Geraldine VanDike	1996	6	148N/ 92W	Stock	450	Unknown	3-9H	4.3
148-092-06BAD	G. VanDike	1967	6	148N/ 92W	Domestic/Stock	133	Sentinel Butte	3-9H	4.2
148-092-06BCA	P. VanDike	1971	6	148N/ 92W	Stock	89	Sentinel Butte	3-9H	4.1
148-092-06BDB	P. VanDike	1966	6	148N/ 92W	Stock	98	Sentinel Butte/ Tongue River	3-9H	4.0
148-093-01ADD	Geraldine VanDyke	2000	1	148N/ 93W	Domestic	548	Unknown	3-9H	4.0
148-093-04	Pat Fredericks	1985	4	148N/ 93W	Domestic	71	Unknown	3-9H	0.6
148-093-04CAB1	NDSWC	1973	4	148N/ 93W	Monitoring	340	Tongue River	3-9H	0.5
148-093-04CAB2	NDSWC	1973	4	148N/ 93W	Monitoring	190	Sentinel Butte Tongue River	3-9H	0.5
148-093-05CCA1	O. Standish	Unknown	5	148N/ 93W	Unused	102	Sentinel Butte	3-9H	1.2
148-093-05CCA2	O. Standish	1968	5	148N/ 93W	Domestic	72	Buried Glaciofluvial	3-9H	1.2
148-093-06CCA	Rudolph Sanders	1981	6	148N/ 93W	Stock	120	Unknown	3-9H	2.1
148-093-07ADA	R. Goodbird	Unknown	7	148N/ 93W	Unused	Unknown	Unknown	3-9H	1.4
148-093-09BBC	Tribal	1950	9	148N/ 93W	Unused	40	Buried Glaciofluvial	3-9H	0.3
148-093-09BBC	Tribal	1950	9	148N/ 93W	Unused	40	Buried Glaciofluvial	3-9H	0.3
148-093-10CCC	NDSWC	1974	10	148N/ 93W	Unused	103	Sentinel Butte	3-9H	1.2
148-093-14CDC	NDSWC	1974	14	148N/ 93W	Unused	57	Sentinel Butte	3-9H	2.7
148-093-15ACB	NDSWC	1971	15	148N/ 93W	Unknown	40	Unknown	3-9H	1.7
148-093-17BBD	J. McKinze	Unknown	17	148N/ 93W	Unused	160	Sentinel Butte	3-9H	1.6
148-093-20BCA	Tribal	1950	20	148N/ 93W	Unused	450	Unknown	3-9H	2.6

Well Number	Owner	Date Drilled	Section	Township/Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
148-093-32CDB	Tribal	1950	32	148N/93W	Unused	400	Unknown	3-9H	4.8
148-094-01DDD	NDSWC	1971	1	148N/94W	Unused	80	Unknown	3-9H	2.3
148-094-02	Garland Beston	1982	2	148N/94W	Domestic	196	Unknown	16-19H	2.6
148-094-03ABB	Tribal	1950	3	148N/94W	Unused	450	Unknown	16-19H	2.3
148-094-05BCB	USGS	1994	5	148N/94W	Monitoring	104	Unknown	16-22H	2.4
148-094-06CBB	Gabe Fettig	2002	6	148N/94W	Stock	1848	Unknown	16-22H	2.9
148-094-06DBD	Tribal	Unknown	6	148N/94W	Stock	Unknown	Sentinel Butte Tongue River	16-22H	2.8
148-094-11AAA2	USGS	1994	11	148N/94W	Monitoring	58	Unknown	16-19H	3.1
148-094-12DCC	USGS	1992	12	148N/94W	Monitoring	51	Unknown	3-9H	2.8
148-094-13AAD	Tribal	1950	13	148N/94W	Unused	450	Unknown	3-9H	2.6
148-094-13BBD	R. Hall	1967	13	148N/94W	Domestic\Stock	30	Sentinel Butte Tongue River	3-9H	3.2
148-094-14AAB	USGS	1992	14	148N/94W	Monitoring	315	Tongue River	3-9H	3.6
148-094-14DAC	R. Hall	1968	14	148N/94W	Stock	100	Buried Glaciofluvial	3-9H	3.8
148-094-17DCD2	USGS	1994	17	148N/94W	Monitoring	70	Unknown	16-22H	5.0
148-094-26AAA	Matt Young Bird	1973	26	148N/94W	Domestic	124	Unknown	3-9H	4.4
148-095-01DBB	Tribal	Unknown	1	148N/95W	Unknown	240	Sentinel Butte	16-22H	3.1
148-095-03	Daryl Young Bird	1985	3	148N/95W	Domestic	247	Unknown	16-22H	4.6
148-095-12DB	Joe Woundedface	1993	12	148N/95W	Domestic	58	Unknown	16-22H	4.0
148-095-12DB	Joe Woundedface	1993	12	148N/95W	Domestic	15	Unknown	16-22H	4.0
148-095-12DCC2		1992	12	148N/95W	Monitoring	52	Sentinel Butte/ Tongue River	16-22H	4.4
148-095-13ADC	Tribal	1950	13	148N/95W	Unknown	400	Unknown	16-22H	4.8

Well Number	Owner	Date Drilled	Section	Township/ Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
149-092-10	John Bang	1992	10	149N/ 92W	Domestic	118	Unknown	4-9H	1.3
149-092-10	Les Simnioniw	1990	10	149N/ 92W	Domestic	190	Unknown	4-9H	1.3
149-092-10AB	Clyde Perzinski	1997	10	149N/ 92W	Domestic	140	Unknown	4-9H	1.3
149-092-10AB	Ray Gress	1999	10	149N/ 92W	Domestic	180	Unknown	4-9H	1.3
149-092-10D	Kevin Stockert	1989	10	149N/ 92W	Domestic	345	Unknown	4-9H	1.6
149-092-10DAC	Ed Burich	1987	10	149N/ 92W	Domestic	125	Unknown	4-9H	1.5
149-092-10DB	Jim Danks	1986	10	149N/ 92W	Domestic	125	Unknown	4-9H	1.5
149-092-10DD	Skunk Brother - Tom Knutson	1986	10	149N/ 92W	Domestic	135	Unknown	4-9H	1.7
149-092-10DD	Skunk Brother - Tom Knutson	1987	10	149N/ 92W	Domestic	195	Unknown	4-9H	1.7
149-092-10DDB	Dakota Poultry	1987	10	149N/ 92W	Domestic	200	Unknown	4-9H	1.7
149-092-22CDC	R. Smith	Unknown	22	149N/ 92W	Unknown	40	Sentinel Butte	4-9H	3.1
149-092-27BBA2	USGS	1994	27	149N/ 92W	Monitoring	65	Unknown	4-9H	3.2
149-092-29DCC	Tribal	Unknown	29	149N/ 92W	Unused	404	Unknown	3-9H	3.4
149-092-30DCB	Ted Linefight III	2003	30	149N/ 92W	Domestic	307	Unknown	3-9H	2.8
149-092-35BDA	Linda Baker	2008	35	149N/ 92W	Domestic	433	Unknown	4-9H	4.8
149-093-02ACB	C. Perkins	1962	2	149N/ 93W	Unknown	647	Sentinel Butte Tongue River	4-9H	3.7
149-093-05CDC	NDSWC	1961	5	149N/ 93W	Unknown	84	Sentinel Butte Tongue River	35-26H	2.6
149-093-08DCC	M. Fox	1960	8	149N/ 93W	Unknown	500	Sentinel Butte Tongue River	16-19H	2.1
149-093-09ABD	Dale McGrady	1981	9	149N/ 93W	Stock	150	Unknown	16-19H	3.3
149-093-09CCC	St. Anthony's Mission	1988	9	149N/ 93W	Domestic	440	Unknown	16-19H	2.3

Well Number	Owner	Date Drilled	Section	Township/Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
149-093-09CCD	St. Anthony's Mission	1952	9	149N/ 93W	Unknown	65	Sentinel Butte Tongue River	16-19H	2.3
149-093-10AAA	Tribal	1950	10	149N/ 93W	Unused	450	Unknown	16-19H	4.1
149-093-12AB	Ivan Johnson	1976	12	149N/ 93W	Stock	Unknown	Unknown	4-9H	2.6
149-093-14CCC	Tribal	Unknown	14	149N/ 93W	Unused	432	Sentinel Butte	16-19H	3.3
149-093-14CDD2	USGS	1994	14	149N/ 93W	Monitoring	35	Unknown	16-19H	3.6
149-093-16BDD	Paul Rosario	1994	16	149N/ 93W	Domestic	450	Unknown	16-19H	2.1
149-093-18DDB	Tribal	Unknown	18	149N/ 93W	Unused	465	Sentinel Butte	16-19H	1.1
149-093-21AAD	Gerald Fox	2000	21	149N/ 93W	Domestic	99	Unknown	16-19H	2.1
149-093-21DCA	E. Wicker	Unknown	21	149N/ 93W	Unknown	35	Sentinel Butte Tongue River	16-19H	1.7
149-093-22CCD	Arla Muzzy	2002	22	149N/ 93W	Domestic	92	Unknown	16-19H	2.2
149-093-23ACD	Unknown	Unknown	23	149N/ 93W	Unused	34	Sentinel Butte	3-9H	3.6
149-093-24ABB	USGS	1994	24	149N/ 93W	Monitoring	35	Unknown	4-9H	3.4
149-093-24AC	Mobile Oil	Unknown	24	149N/ 93W	Unknown	11331	Unknown	4-9H	3.5
149-093-24ACC2	USGS	1994	24	149N/ 93W	Monitoring	33	Unknown	4-9H	3.5
149-093-25DDD	Tribal	Unknown	25	149N/ 93W	Unused	147	Sentinel Butte	3-9H	2.4
149-093-27ABA	Patricia McKenzie	2004	27	149N/ 93W	Domestic	89	Unknown	16-19H	2.7
149-093-27ABA	M. Youngbird	Unknown	27	149N/ 93W	Domestic	65	Sentinel Butte	16-19H	2.7
149-093-27BAA	USGS	1994	27	149N/ 93W	Monitoring	60	Unknown	16-19H	2.5
149-093-27CAD	USGS	1994	27	149N/ 93W	Monitoring	165	Unknown	16-19H	2.6
149-093-34ACA	Tribal	Unknown	34	149N/ 93W	Unused	357	Sentinel Butte	3-9H	2.0
149-094-08DCB	Randy Binger	1992	8	149N/ 94W	Domestic	195	Unknown	16-22H	3.1
149-094-14	Mandaree School	1994	14	149N/ 94W	Monitoring	16	Unknown	16-22H	1.5

Well Number	Owner	Date Drilled	Section	Township/ Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
149-094-14	Mandaree School	1988	14	149N/ 94W	Monitoring	16	Unknown	16-22H	1.5
149-094-14	BIA	2002	14	149N/ 94W	Monitoring	29	Unknown	16-22H	1.5
149-094-14	BIA	2002	14	149N/ 94W	Monitoring	28	Unknown	16-22H	1.5
149-094-14	BIA	2002	14	149N/ 94W	Monitoring	30	Unknown	16-22H	1.5
149-094-14	BIA	2000	14	149N/ 94W	Monitoring	25	Unknown	16-22H	1.5
149-094-16DDC	Jimmy Stone	1981	16	149N/ 94W	Domestic	200	Unknown	16-22H	1.5
149-094-21AAD	NDSWC	1980	21	149N/ 94W	Unused	147	Unknown	16-22H	1.3
149-094-22BBB	NDSWC	1980	22	149N/ 94W	Unused	140	Unknown	16-22H	1.2
149-094-22BCB	NDSWC	1980	22	149N/ 94W	Unused	80	Unknown	16-22H	1.1
149-094-23ACD	USGS	1994	23	149N/ 94W	Monitoring	109	Unknown	16-22H	0.9
149-094-23BBA	USGS	1994	23	149N/ 94W	Monitoring	58	Unknown	16-22H	0.9
149-094-27	Margaret Wolf	1982	27	149N/ 94W	Domestic	63	Unknown	16-22H	0.7
149-094-27ACD	George Wolf	1973	27	149N/ 94W	Domestic	36	Unknown	16-22H	0.6
149-094-27CB	NDSWC	1973	27	149N/ 94W	Domestic	36	Unknown	16-22H	1.1
149-094-28AAA	USGS	1992	28	149N/ 94W	Monitoring	120	Sentinel Butte Tongue River	16-22H	1.0
149-92-05CCC	MHA Nation	570	5	149N/ 92W	Stock	570		4-9H	1.2
150-092-26BDA	Maynard Haddeland	1972	26	150N/ 92W	Stock	156	Unknown	4-9H	3.5
150-092-26BDA	Maynard Haddeland	1973	26	150N/ 92W	Stock	262	Unknown	4-9H	3.5
150-092-26BDD	Darrel Brady	2004	26	150N/ 92W	Domestic	125	Unknown	4-9H	3.4
150-092-30ABC	L.L. Stout	1925	30	150N/ 92W	Domestic	26	Unknown	4-9H	3.3
150-093-19ACB	Waterford City	1988	19	150N/ 93W	Municipal;	95	Unknown	35-26H	3.1
150-093-31ADD	Tribal	1961	31	150N/ 93W	Unknown	336	Sentinel Butte Tongue River	35-26H	2.1

Well Number	Owner	Date Drilled	Section	Township/ Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
150-093-33CAA	W. Face	1960	33	150N/ 93W	Unknown	388	Sentinel Butte Tongue River	35-26H	3.5
150-094-15ABC	Nick Fox	1962	15	150N/ 94W	Unknown	414	Fort Union	35-26H	3.9
150-094-16ACC1	NDSWC	1980	16	150N/ 94W	Unused	40	Unknown	35-26H	4.2
150-094-16ACC2	NDSWC	1980	16	150N/ 94W	Unused	40	Unknown	35-26H	4.2
150-094-16CAA	Diane Avery	1994	16	150N/ 94W	Domestic	250	Unknown	35-26H	4.2
150-094-19DD	Veronica Serdahl	1989	19	150N/ 94W	Domestic	820	Unknown	35-26H	4.5
150-094-22CBA	Youngwolf	1964	22	150N/ 94W	Unknown	327	Fort Union	35-26H	2.9
150-094-30AAC	Lawrence Birdsbill	1986	30	150N/ 94W	Stock	200	Unknown	35-26H	4.4
150-094-33ACC	USGS	1992	33	150N/ 94W	Monitoring	195	Unknown	35-26H	2.4
150-094-33CB	Occidental	1964	33	150N/ 94W	Unknown	11630	Unknown	35-26H	2.8
150-94-21ABA	Youngwolf	1964	21	150N/ 94W	Unknown	380	Fort Union	35-26H	3.6
148-092-06ABB	USGS	1994	6	148N/ 92W	Monitoring	200	Unknown	3-9H	4.3
148-092-06ACC	Geraldine VanDike	1996	6	148N/ 92W	Stock	450	Unknown	3-9H	4.3
148-092-06BAD	G. VanDike	1967	6	148N/ 92W	Domestic/Stock	133	Sentinel Butte	3-9H	4.2
148-092-06BCA	P. VanDike	1971	6	148N/ 92W	Stock	89	Sentinel Butte	3-9H	4.1

Source: North Dakota State Water Commission (2009)

Because none of the proposed project area is within the boundaries of the post-glacial outwash aquifers, low porosity bedrock near the project wells would act as confining layers to prevent impacts to groundwater resources. Additionally, well completion methods would prevent cross contamination between aquifers or the introduction of hazardous materials into aquifers. The majority of the identified groundwater wells may have minimal hydrologic connections due to their respective distance from the project wells.

3.3 WETLANDS, HABITAT, AND WILDLIFE

3.3.1 Wetlands

National Wetland Inventory maps maintained by the U.S. Fish and Wildlife Service (USFWS) do not identify any jurisdictional wetlands in the area of the proposed well pads or access roads (USFWS 2008a). No wetlands were observed along any access road ROWs or at any of

the well sites during surveys conducted in November 2008 and August, September, and October 2009. No riparian or wetland habitats are anticipated to be directly or indirectly impacted by the proposed access roads or wells.

According to the USFWS National Wetland Inventory database, several palustrine emergent (PEM) wetlands are located between 0.17 and 0.71 miles from the proposed project areas (Table 5). These PEM wetlands would not be impacted as a result of construction, drilling, or production activities associated with the proposed well pads and associated access roads.

Table 5. Distance and Bearings from Well Pad Locations to PEM Wetlands.

Well Pad Location	Distance (miles)	Bearings (degrees)
Benson #3-9H	0.71	173.3
High Hawk #4-9H	0.43	128.8
Joseph Eagle #16-19H	0.36	128.8
	0.42	97.4
	0.44	11.6
	0.46	128.5
	0.48	304.7
	0.48	327.9
Fettig (860 A-B) #16-22H	0.17	3.6
	0.19	305.2
	0.24	309.9
	0.26	312.7
	0.26	313.2
	0.30	320.8
	0.41	326.2
	0.41	329.9
Morsette #35-26H	n/a	n/a

3.3.2 Wildlife

Several wildlife species that may exist in Dunn and McKenzie Counties are listed as threatened or endangered under the Endangered Species Act (ESA). Listed species in Dunn and McKenzie Counties include the black-footed ferret, gray wolf, interior least tern, pallid sturgeon, piping plover, and whooping crane (USFWS 2008b). Although delisted in 2007, the bald eagle remains a species of special concern to the BIA and the Department of the Interior, and is effectively treated the same as a listed species. Tribes and states may recognize additional species of concern; such lists are taken under advisement by federal agencies but are not legally binding in the manner of the ESA. Listed species are described below.

Bald Eagle (*Haliaeetus leucocephalus*)

Status: Delisted in 2007

Likelihood of impact: May affect, but is not likely to adversely affect

Proposed project areas are located between 0.42 and 6.41 miles from Lake Sakakawea and do not contain suitable nesting/perching habitat, concentrated feeding areas, or other necessary

habitat. Thought delisted, the bald eagle is afforded some protection under the Migratory Bird Treaty Act (916 USC 703-711) and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c). No impacts are anticipated.

Black-footed Ferret

Status: Endangered

Likelihood of impact: No effect

Several isolated populations are known to exist in the United States. However, this species is presumed extirpated from North Dakota because it has not been observed in the wild for more than 20 years. No impacts are anticipated.

Dakota Skipper (*Hesperia dacotae*)

Status: Candidate

Likelihood of impact: May affect, but is not likely to adversely affect

Project areas are maintained for agricultural use including cultivation and pasture land. Therefore, undisturbed native prairie areas with a high diversity of wildflowers and grasses were not observed in the proposed project areas. The absence of suitable habitat makes the presence of Dakota skippers unlikely. No impacts are anticipated.

Golden Eagle (*Aquila chrysaetos*)

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

Likelihood of impact: May affect, but is not likely to adversely affect

The golden eagle prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs that provide nesting habitat. None of the proposed project areas contain suitable nesting habitat for golden eagles; however, eagle prey species may be present in and around the project area. No impacts are expected as a result of any activities associated with the construction, production, or reclamation of the project areas.

Gray Wolf (*Canis lupus*)

Status: Endangered

Likelihood of impact: No effect

The proposed project areas do not contain suitable habitat for occupation or colonization by gray wolves. Due to the distance of known gray wolf populations in Minnesota, Canada, Montana, and Wyoming, transient wolves are not expected to be present. No impacts are anticipated.

Interior Least Tern (*Sterna anillarum*)

Status: Endangered

Likelihood of impact: May affect, but is not likely to adversely affect

The proposed project areas would be located in upland areas that would not provide suitable nesting habitat for the interior least tern. Key habitat includes sparsely vegetated sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. Interior least tern nests are usually found along the shoreline and islands of Lake Sakakawea. Migrating or foraging interior least terns may transition through the project area; however, no adverse impact is expected as a result of construction, production, or reclamation activities.

Pallid Sturgeon (*Scaphirhynchus albus*)

Status: Threatened

Likelihood of impact: May affect, but is not likely to adversely affect

Activities associated with the construction, production, or reclamation of the proposed project areas are not anticipated to adversely affect water quality and subsequently the pallid sturgeon. Pallid sturgeons prefer turbid, main stem river channels. No proposed project area is closer than 0.42 miles from Lake Sakakawea, which will reduce the likelihood of adverse effects due to activities. No impact is anticipated.

Piping Plover (*Charadrius melodus*)

Status: Threatened

Likelihood of impact: May affect, but is not likely to adversely affect

The entire shoreline of Lake Sakakawea has been designated critical habitat for piping plover. These birds nest on sparsely vegetated shoreline beaches, peninsulas, and islands composed of sand, gravel, or shale. The nearest critical habitat would be greater than or equal to 0.42 miles from the proposed project areas. Individual piping plovers may transition across or forage at the proposed project areas during construction, drilling, production, or reclamation activities. However, no impact is anticipated, though minor impacts could occur as a result of the aforementioned activities.

Whooping Crane (*Grus americana*)

Status: Endangered

Likelihood of impact: May affect, but is not likely to adversely affect

No viable habitat including PEM wetlands is located within the proposed project areas. The lack of suitable foraging and nesting habitat makes the proposed project areas unsuitable for whooping cranes. No impact is anticipated.

The wildlife species listed in Table 6 were observed during field visits to the proposed project areas. All species listed were visually observed by an ecologist during the field survey (i.e., primary observation). Various secondary indicators, including scat, tracks, and animal carcasses were not observed in the proposed project areas.

The primary impacts to wildlife species will come as a result of the construction of five well pad areas including the reconstruction of existing two-track roads, construction of new access roads, increased vehicular traffic density, drilling activities, and potential commercial production. No impacts to listed species are anticipated because of the low likelihood of their occurrence in the proposed project areas, confirmed by on-site assessments conducted by SWCA biologists. Ground clearing might impact habitat for unlisted species, including small birds, small mammals, and other wildlife species. Proposed projects may affect raptor and migratory bird species through direct mortality, habitat degradation, and/or displacement of individual birds. These impacts are regulated in part through the Migratory Bird Treaty Act of 1918 (916 USC 703-711). Fragmentation of native prairie habitat can detrimentally affect grouse species; however, due to the ratio of each project area to the total landscape area, the overall disturbance would be negligible.

Table 6. Wildlife Observed during Field Surveys at the Proposed Project Areas.

Well Pad	Common Name	Scientific Name	Observation Type	Habitat
Benson #3-9H	None Observed	N/A	N/A	Mixed Grass Prairie
High Hawk #4-9H	Mule Deer	<i>Odocoileus hemionus</i>	Primary	Mixed Grass Prairie
	Clay-colored Sparrow	<i>Spizella pallida</i>	Primary	Mixed Grass Prairie
	Bullsnake	<i>Pituophis catenifer sayi</i>	Primary	Mixed Grass Prairie
Joseph Eagle #16-19H	None Observed	N/A	N/A	Mixed Grass Prairie
Fettig (860 A-B) #16-22H	None Observed	N/A	N/A	Mixed Grass Prairie
Morsette #35-26H	Eastern Meadowlark	<i>Sturna magna</i>	Primary	Active Pasture

Several precautions that may limit or reduce the possible impact to all wildlife species include:

- Locating well pads over areas with existing disturbances
- Netting the reserve pit between drilling and reclamation
- Removing any oil found in pits and ponds
- Installing covers under drip buckets and spigots
- Conducting interim reclamation of at least half the disturbed area

Reclamation would begin without delay if a well is determined to be unproductive, or upon completion of commercial production. Any wildlife species inhabiting the project area are likely to adapt to changing conditions, and continue to persist without adverse impact.

3.4 SOILS

The proposed project areas are located toward the center of the Williston Basin. The Greenhorn Formation, which consists of thin limestone and dark gray to black organic-rich shale, is found from the surface to a depth of approximately 4,000 feet. The Greenhorn is subdivided into lower and upper intervals of limestone and calcareous shale with a middle interval of shale. Near-surface sediment is of Recent, Pleistocene, or Tertiary age, and includes Sauk, Tippecanoe, Kaskaskia, Absaroka, Zuni, and Tejas Sequences.

3.4.1 Natural Resources Conservation Service Soil Data

The Natural Resources Conservation Service (NRCS 2009) soil series present on the well pads and access road area, and the respective acreages, can be found in Table 7. The acreage shown in Table 7 is based on the spatial extent of soil series combinations derived from NRCS data (Figures 28 through 32), therefore the acreage is approximate and used as a best estimate of soil series distribution at each of the proposed project areas.

The following soil series descriptions represent individual soil series reported to exist within the proposed project area (NRCS 2009). Each individual soil series does not exist individually in the project areas but rather in combination with other soil types (Table 6).

Amor: The Amor series consists of moderately deep, well-drained, moderately permeable soils found on sandstone bedrock uplands with slopes ranging from approximately 0 to 25 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 15 inches, and mean annual air temperature is approximately 42°F. This soil type is largely used for cultivation of small grains, flax, and corn. Native vegetation species common to this soil type include needle and thread (*Hesperostipa comata*), western wheatgrass (*Pascopyrum smithii*), and blue grama (*Bouteloua gracilis*) (NRCS 2009).

Arikara: The Arikara series consists of very deep, well-drained soils found on wooded slopes. Permeability is moderate, with slopes ranging from approximately 9 to 70 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 15 inches, and mean annual air temperature is approximately 40°F. This soil type is used most often for woodland grazing. Native vegetation species common to this soil type include bur oak (*Quercus macrocarpa*), green ash (*Fraxinus pennsylvanica*), quaking aspen (*Populus tremuloides*), paper birch (*Betula papyrifera*), and Rocky Mountain juniper (*Juniperus scopulorum*) (NRCS 2009).

Badland: The Badland, outcrop-Patent complex has slopes ranging from 6 to 25 percent slopes. Badland occurs on the barren shoulders and backslopes of ridges. Patent soils occur on alluvial fans. This map unit occurs in badlands (NRCS McKenzie County, North Dakota, 2003).

Table 7. Percentage of the Project Area Composed of Specific Soil Types.

Feature	Soil Series	Percentage of Location	Acres
Benson #3-9H			
New Access Road	Cherry-Vanda complex, 2 to 9 percent slopes, gullied	19.5	0.8
Well Pad	Cherry-Vanda complex, 2 to 9 percent slopes, gullied	80	3.3
High Hawk #4-9H			
New Access Road	Williams loam, 6 to 9 percent slopes	36.89	1.9
Well Pad	Williams loam, 6 to 9 percent slopes	63.11	3.24
Joseph Eagle #16-19H			
New Access Road	Amor loam, 6 to 9 percent slopes	39.68	5.30
New Access Road	Farland-Rhoades silt loam, 0 to 6 percent slopes	5.82	0.78
New Access Road	Williams loam, 3 to 6 percent slopes	6.81	0.91
New Access Road	Williams loam, 6 to 9 percent slopes	15.40	2.06
New Access Road	Zahl-Williams loams, 9 to 15 percent slopes	6.45	0.86
Well Pad	Williams loam, 0 to 3 percent slopes	15.80	2.11
Well Pad	Williams loam, 3 to 6 percent slopes	10.04	1.34
Fettig (860 A-B) #16-22H			
New Access Road	Dogtooth-Janesburg-Cabba complex, 6 to 30 percent slopes	8.28	0.76
New Access Road	Golva silt loam, 0 to 2 percent slopes	6.71	0.61
New Access Road	Harriet silt loam, 0 to 2 percent slopes	9.42	0.86
New Access Road	Rhoades-Daglum complex, 0 to 6 percent slopes	5.78	0.53
New Access Road	Williams loam, 6 to 9 percent slopes	9.94	0.91
New Access Road	Williams-Bowbells loams, 3 to 6 percent slopes	9.48	0.87
New Access Road	Zahl-Cabba-Arikara complex, 9 to 70 percent slopes	13.54	1.24
Well Pad	Golva silt loam, 0 to 2 percent slopes	29.06	2.66
Well Pad	Harriet silt loam, 0 to 2 percent slopes	7.81	0.71
Morsette #36-25H			
New Access Road	Arikara-Shambo-Cabba loams, 9 to 70 percent slopes	3	0.2
New Access Road	Cabba-Sen-Chama silt loams, 15 to 70 percent slopes	5	0.28
New Access Road	Dogtooth-Janesburg-Cabba complex, 6 to 30 percent slopes	24	1.24
New Access Road	Noonan-Williams loams, 6 to 9 percent slopes	3	0.14
Well Pad	Williams loam, 6 to 9 percent slopes	64	3.26

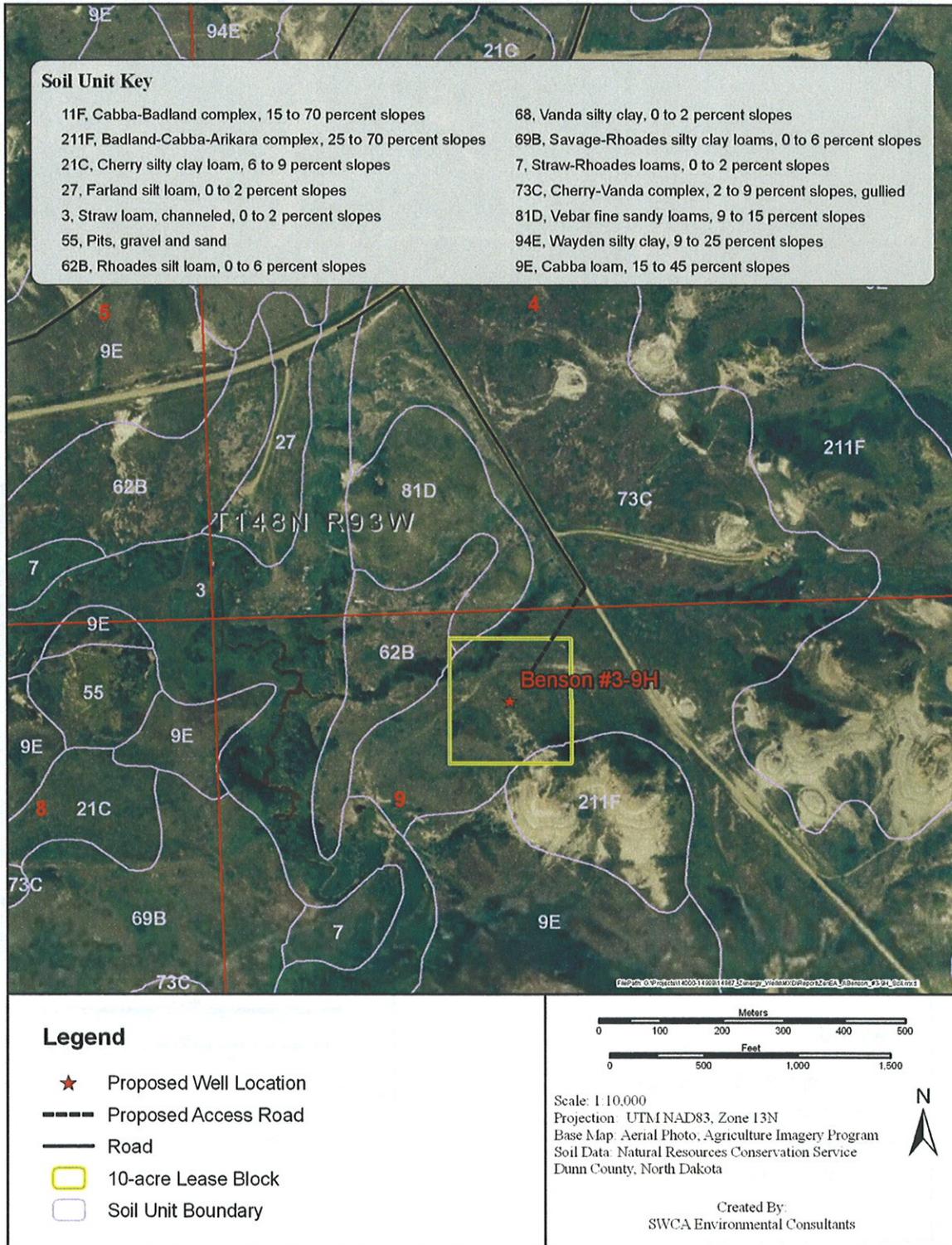


Figure 28. Approximate spatial extent of soil types in and around Dakota-3 Benson #3-9H.

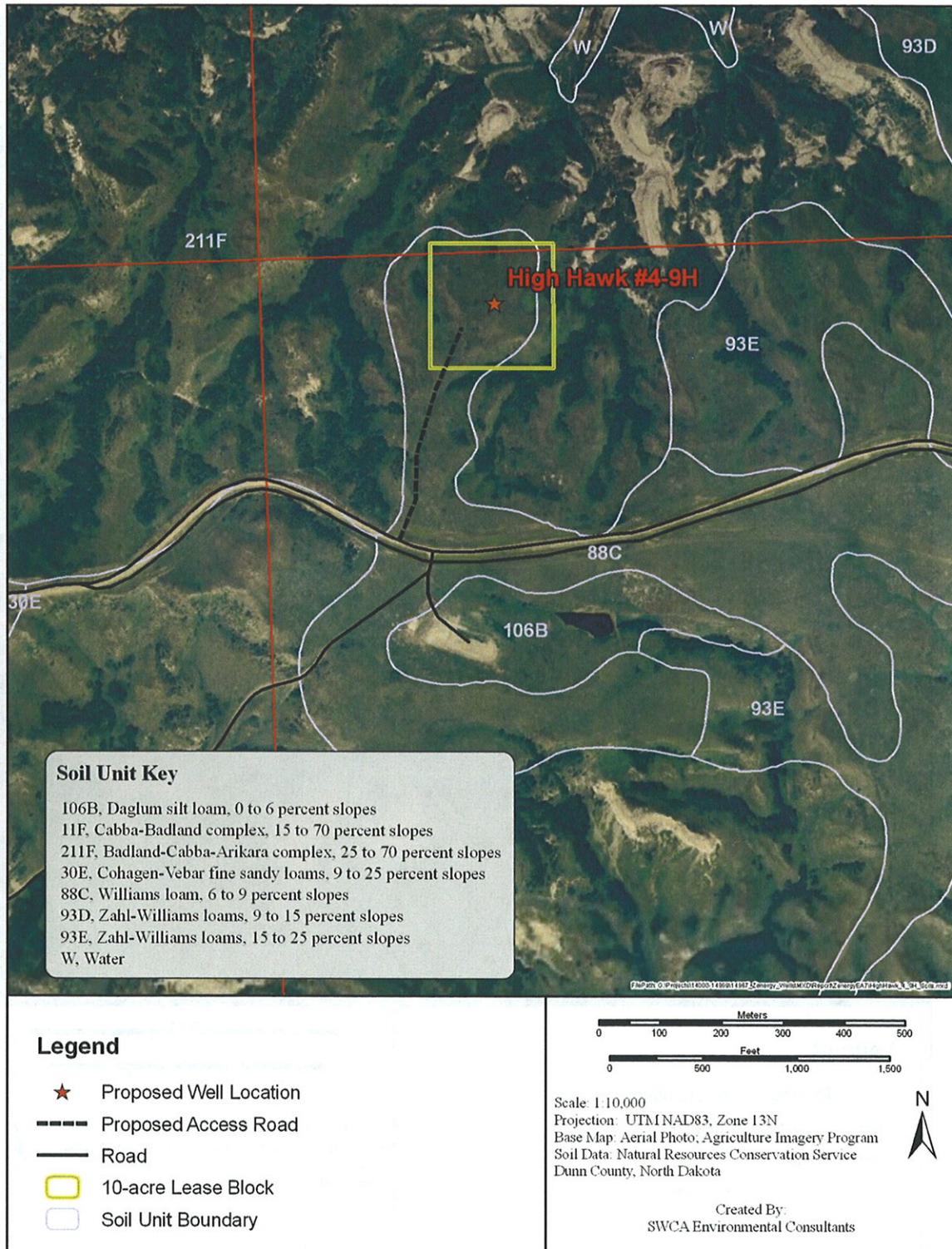


Figure 29. Approximate spatial extent of soil types in and around Dakota-3 High Hawk #4-9H.

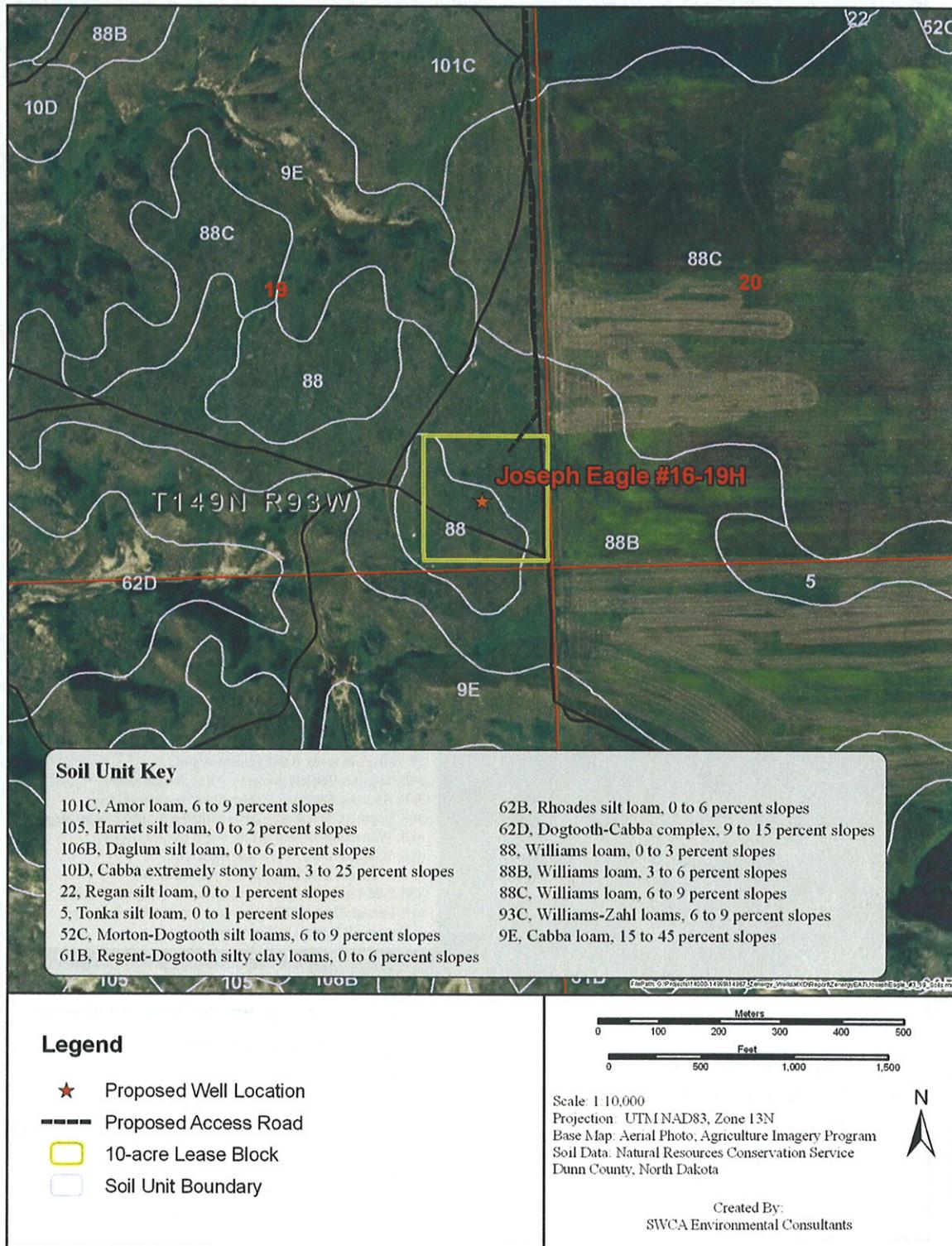


Figure 30. Approximate spatial extent of soil types in and around Dakota-3 Joseph Eagle #16-19H.

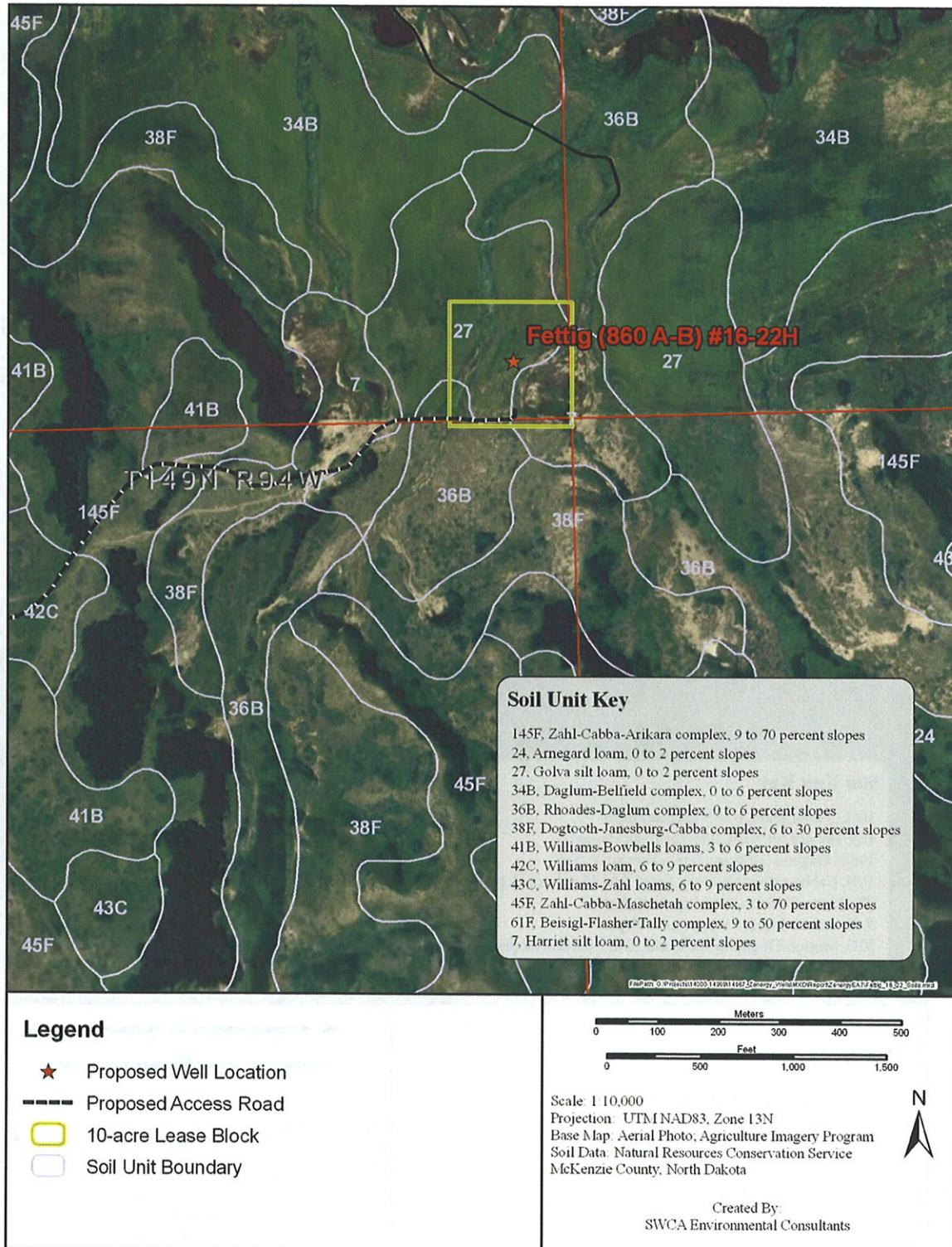


Figure 31. Approximate spatial extent of soil types in and around Dakota-3 Fettig (860 A-B) #16-22H.

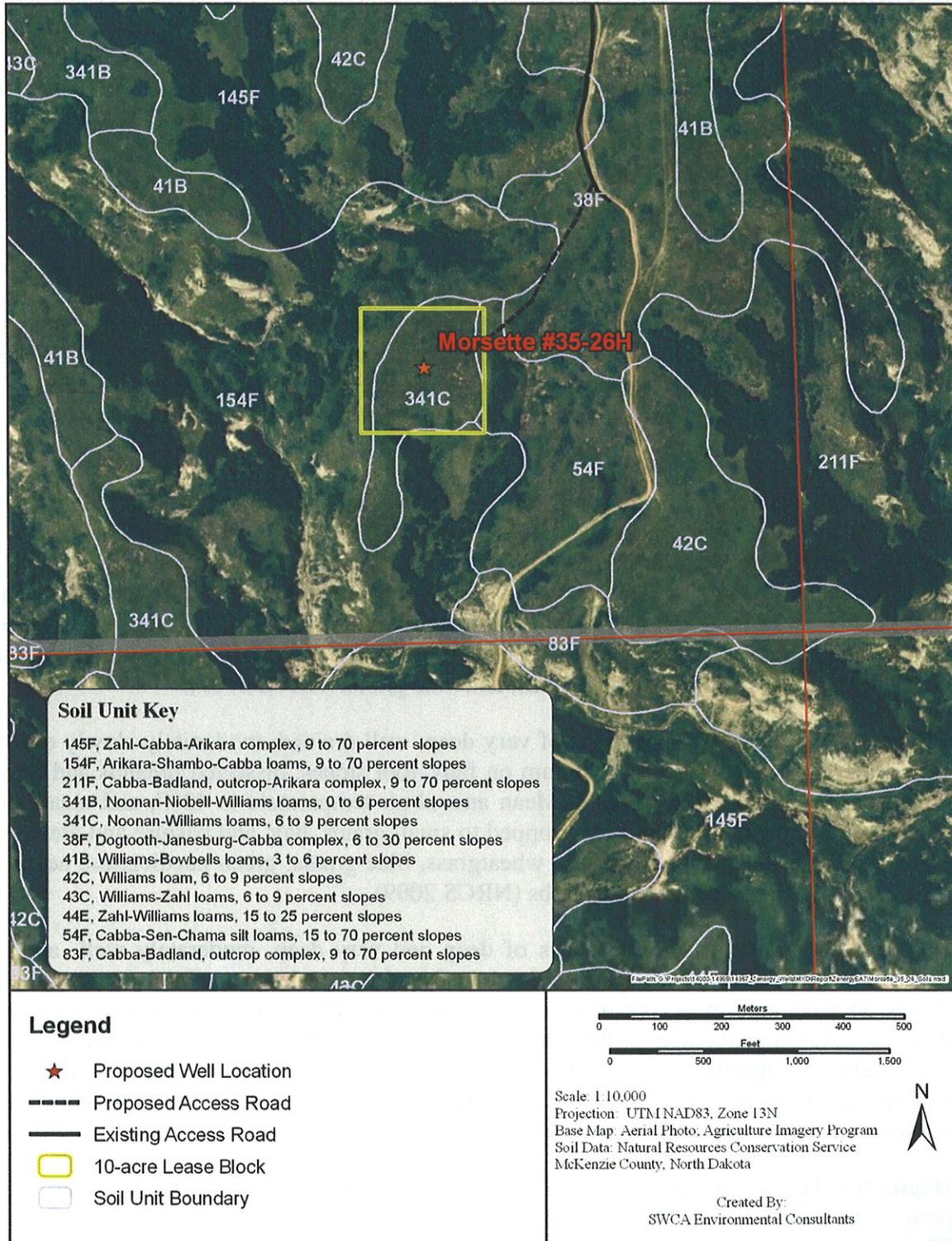


Figure 32. Approximate spatial extent of soil types in and around Morsette #35-26H.

Bowbells: The Bowbells series consists of very deep, well- and moderately well-drained soils found on glacial till plains and moraines. Permeability is moderate in the upper portions and moderately slow to slow in the substratum. Slopes range from approximately 0 to 9 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches, and mean annual air temperature is approximately 42°F. This soil type is used for cultivation of small grains. Native vegetation species historically common to this soil type include western wheatgrass, green needlegrass (*Nasella viridula*), and big bluestem (*Andropogon gerardii*) (NRCS 2009).

Cabba: The Cabba series consists of shallow, well-drained, moderately permeable soils found on hills, escarpments, and sedimentary plains. The soil slopes broadly range between 2 and 70 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 16 inches, and mean annual air temperature is approximately 43°F. The most common vegetation species found on this soil type are little bluestem (*Schizachyrium scoparium*), green needlegrass, and other various herbs, forbs, and shrub species (NRCS 2009).

Chama: The Chama soil series consists of well-drained soils found in materials weathered from soft siltstone, mudstone, and shale on uplands. These soils are reasonably deep to soft siltstone, mudstone, or shale. These soils are moderately or moderately slowly permeable. The slope ranges from 0 to 45 percent. Mean annual air temperature is 42°F, and mean annual precipitation is 15 inches. Soils are cropped to small grains, which are mostly wheat, where a significant acreage is in rangeland. The native vegetation is principally western wheatgrass, needle and thread (*Hesperostipa comata*), and blue grama (NRCS 2009).

Cherry: The Cherry series consists of very deep, well drained, moderately slowly or slowly permeable soils that formed in alluvium on fans, foot slopes, dissected uplands and terraces. Slopes range from 0 to 25 percent. Mean annual air temperature is 42°F, and mean annual precipitation is 14 inches. Soils are cropped to small grains, hay, and pasture and are used for grazing. Native vegetation is western wheatgrass, blue grama, green needlegrass, needle and thread, and a variety of forbs and shrubs (NRCS 2009).

Daglum: The Daglum series consists of deep and very deep, moderately well- and well-drained, slow to very slowly permeable soils found on swales on upland terraces and foot slopes. Slopes range from approximately 0 to 9 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 16 inches, and mean annual air temperature is approximately 42°F. This soil type is used for rangeland foraging and cultivation of small grains. Native vegetation species common to this soil type include western wheatgrass, blue grama, and green needlegrass (NRCS 2009).

Dogtooth: The Dogtooth series consists of moderately deep, well-drained, very slowly permeable soils found in uplands where the predominant slope is between 0 and 25 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 15 inches, and mean annual air temperature is approximately 42°F. The most common vegetation species found on this soil type are range and pasture grasses including western wheatgrass and blue grama (NRCS 2009).

Golva: The Golva series consists of very deep and deep, well-drained, moderately permeable soils that formed in silty alluvium. These soils are on fans and terraces, and in shallow concave swales. Slope ranges from 0 to 15 percent. Mean annual air temperature is 42°F, and mean annual precipitation is 14 inches. This series is used mainly for small grains; some row crops, hay, and pasture. Native vegetation is mid and short prairie grasses such as blue grama, green needlegrass, western wheatgrass, and some forbs (NRCS 2009).

Harriet: The Harriet series consists of very deep, poorly drained, slowly and very slowly permeable soils that formed in calcareous alluvium. These soils are on low-lying flats, terraces, drainageways, and bottom lands. Slope ranges from 0 to 3 percent. Mean annual air temperature is approximately 42°F, and mean annual precipitation is about 16 inches. Almost all areas of Harriet soils are used for native rangeland or hayland. Native vegetation consists mainly of western wheatgrass, Nuttall's alkaligrass (*Puccinellia nuttalliana*), and inland saltgrass (*Distichlis spicata*) (NRCS 2009).

Janesburg: The Janesburg series consists of moderately deep, well-drained soils formed in residuum weathered from alkaline, soft shale, siltstone, and mudstone. These soils have slow or very slow permeability. They are on upland plains and have slopes of 0 to 25 percent. Mean annual air temperature is approximately 42°F, and mean annual precipitation is approximately 15 inches. Used for range, pasture, and small grains. Native vegetation is western wheatgrass, blue grama, green needlegrass, sedges, and forbs (NRCS 2009).

Noonan: The Noonan series consists of very deep, well-drained or moderately well-drained soils formed in till. Permeability is moderate on the surface and slow in the Btn horizons. These soils are on till plains and uplands with slopes of 0 to 15 percent. Mean annual air temperature is 39°F, and mean annual precipitation is 14 inches. Used for spring seeded small grains and pasture. Native vegetation includes western wheatgrass and blue grama (NRCS 2009).

Rhoades: The Rhoades series consists of deep and very deep, well- to moderately well-drained, very slowly permeable soils found on swales and uplands with slopes ranging from approximately 0 to 25 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 16 inches, and mean annual air temperature is 42°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass and blue grama (NRCS 2009).

Shambo: The Shambo series consists of deep and very deep, well-drained, moderately permeable soils that formed in calcareous alluvium mainly from soft sandstone, mudstone, and shale. These soils are on terraces and fans along stream valleys and on fans in uplands. Slope ranges from 0 to 35 percent. Mean annual air temperature is 42°F, and mean annual precipitation is 15 inches. Soils are cropped to small grains, hay, and pasture. Some are irrigated and some are in native rangeland. Native vegetation includes green needlegrass, needle and thread, western wheatgrass, prairie junegrass, blue grama, and a variety of forbs (NRCS 2009).

Vanda: The Vanda series consists of very deep, well-drained soils that formed in alluvium derived mainly from semiconsolidated sedimentary bedrock or from glaciolacustrine or

glaciofluvial deposits. These soils are on alluvial fans, lake plains, sedimentary plains, drainageways, and stream terraces. Slopes are 0 to 15 percent. Mean annual precipitation is approximately 12 inches. Mean annual air temperature is approximately 43°F. Vanda soils are used mainly for range. The potential native vegetation is mainly western wheatgrass, Nuttall's alkaligrass, big sagebrush (*Artemisia tridentata*), blue grama, alkali sacaton (*Sporobolus airoides*), forbs, and shrubs (NRCS 2009).

Vebar: The Vebar series consists of moderately deep, moderately rapidly permeable, well-drained soils found on uplands with slopes ranging from approximately 0 to 65 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 16 inches, and mean annual air temperature is approximately 42°F. This soil type is largely used for cultivation of corn and small grains. Native vegetation species common to this soil type include needle and thread, and prairie sandreed (*Calamovilfa longifolia*) (NRCS 2009).

Williams: The Williams series consists of very deep, slowly permeable, well-drained soils found on glacial till plains and moraines with slopes at approximately 0 to 35 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches, and mean annual air temperature is approximately 40°F. This soil type is largely used for cultivation. Native vegetation species common to this soil type include western wheatgrass, needle and thread, blue grama, and green needlegrass (NRCS 2009).

Zahl: The Zahl series consists of very deep, slowly permeable, well-drained soils found on glacial till plains, moraines, and valley side slopes at approximately 1 to 60 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches, and mean annual air temperature is approximately 40°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass, little bluestem, and needle and thread (NRCS 2009).

3.4.2 Field-derived Soil Data

Soil data derived from on-site excavated soil pits, including the matrix value, hue, chroma, and color name are summarized in Table 8. Additionally, redoximorphic features (i.e., reduced/oxidized iron or manganese) deposits and soil texture were looked for at each location and noted where found. A Munsell soil color chart was used to determine the color of moist soil samples.

Soil erodibility (or K Factor) indicates the vulnerability of material less than 2 mm in size to sheet and rill erosion by water. Values can range from 0.02 (i.e., lowest erosion potential) to 0.69 (i.e., greatest erosion potential). T represents the maximum volume of soil loss, measured in tons/acre/year, which could occur and still allow for maintenance of high levels of crop production.

Table 8. Soil Data Obtained through the Excavation of Soil Pits in the Proposed Project Area.

Feature	Pit Depth (inches)	Soil Matrix Color (color name)	Redoximorphic Feature Color	Texture	Slope (°)	K Factor
Benson #3-9H (T=2 tons of soil/ acre/ year)						
Well Pad/ Access Road	0-7	2.5Y 5/2	N/A	Silt Clay	3-5	0.32
Well Pad/ Access Road	7-10	2.5Y 6/2	N/A	Slit Clay	3-5	0.32
Well Pad/ Access Road	10-16	10YR 4/2	N/A	Silt Loam	3-5	0.32
High Hawk #4-9H (T=5 tons of soil/ acre/ year)						
Well Pad	0 - 4	10YR 4/2	N/A	Silt	1-3	0.28
Well Pad	4-16	10YR 5/3	N/A	Silt clay	1-3	0.28
Access Road	0-8	10YR 4/3	N/A	Silt	5-8	0.28
Access Road	8-16	10YR 5/4	N/A	Silt clay loam	5-8	0.28
Joseph Eagle #16-19H (T=2 tons of soil/ acre/ year)						
Well Pad/ Access Road	0-15	10YR 2/2	N/A	Clay loam	1-3	0.28
Well Pad/ Access Road	15-20	10YR 4/2	N/A	Clay loam	1-3	0.28
Fettig (860 A-B) #16-22H (T=2 tons of soil/ acre/ year)						
Well Pad	0-16	10YR 3/6	N/A	Clay loam	1-5	0.37
Access Road	0-10	(98%) 10YR 3/2	(2%) 10YR 4/6	Loam	1-3	0.37
Access Road	10-16	(95%) 10YR 3/2	(5%) 10YR 4/6	Loam	1-3	0.37
Morsette #35-26H (T=2 tons of soil/ acre/ year)						
Well Pad/ Access Road	0-6	10YR 4/2	N/A	Silt clay loam	1-3	0.32
Well Pad/ Access Road	6-16	10YR 3/2	N/A	Silt clay	1-3	0.32

3.4.3 Conclusions Regarding Soil Erosion Potential

3.4.3.1 Dakota-3 Benson #3-9H

- The Benson #3-9H well pad and proposed new access road are both dominated (80% and 19.5%, respectively) by a Cherry-Vanda complex (Table 7).
- This soil type has low runoff potential, with slopes ranging between 2% and 9% (NRCS 2009).
- Reclamation of vegetative communities should be easily obtainable due to the affinity of native grassland species to this soil type (NRCS 2009).
- This location has a K Factor of 0.32. Using the Revised Universal Soil Loss Equation (RUSLE), there could be 3.46 tons/acre/year of soil loss from the site if it is not

properly managed to prevent such loss. The site would be monitored during and after construction, and BMPs would be used to prevent erosion, minimize runoff and loss of sediment, and ensure soil stabilization.

- The soil series are capable of supporting native short and mid grass prairie vegetative communities, which may substantially increase the probability for successful and permanent reclamation (NRCS 2009).

3.4.3.2 Dakota-3 High Hawk #4-9H

- The High Hawk #4-9H well pad and proposed new access road are both dominated (63.11% and 36.89%, respectively) by a Williams loam complex (Table 7).
- This soil type has low runoff potential, with slopes ranging between 6% and 9% (NRCS 2009).
- Reclamation of vegetative communities should be easily obtainable due to the affinity of native grassland species to this soil type (NRCS 2009).
- This location has a K Factor of 0.28. Using the RUSLE, there could be 3.73 tons/acre/year of soil loss from the site if it is not properly managed. The site would be monitored during and after construction, and BMPs would be used to prevent erosion, minimize runoff and loss of sediment, and ensure soil stabilization.
- The soil series are capable of supporting native short and mid grass prairie vegetative communities, which may substantially increase the probability for successful and permanent reclamation (NRCS 2009).

3.4.3.3 Dakota-3 Joseph Eagle #16-19H

- The Joseph Eagle #16-19H well pad is dominated by the Williams loam (15.80%) and the proposed new access road is dominated by the Amor loam (39.68%) (Table 7).
- These soil types have low runoff potential, with slopes ranging between 0% and 3% for the Williams loam and 6% and 9% for the Amor loam (NRCS 2009).
- Reclamation of vegetative communities should be easily obtainable due to the affinity of native grassland species to this soil type (NRCS 2009).
- This location has a K factor of 0.32. Using the RUSLE, there could be 1.33 tons/acre/year of soil loss from the site if it is not properly managed. The site would be monitored during and after construction, and BMPs would be used to prevent erosion, minimize runoff and loss of sediment, and ensure soil stabilization.
- Both soil series are capable of supporting native short and mid grass prairie vegetative communities, which may substantially increase the probability for successful and permanent reclamation (NRCS 2009).

3.4.3.4 Dakota-3 Fettig (860 A-B) #16-22H

- The Fettig (860 A-B) #16-22H well pad is dominated by the Golva silt loam (29.06%) and the proposed new access road is dominated by the Zahl-Cabba-Arikara complex (13.54%) (Table 7).

- The Golva silt loam has low runoff potential with slopes ranging between 0% and 2%. The Zahl-Cabba-Arikara complex may have highly variable runoff depending on the slope, which ranges between 9% and 70% (NRCS 2009).
- Reclamation of vegetative communities should be easily obtainable due to the affinity of native grassland species to this soil type (NRCS 2009).
- This location has a K Factor of 0.37. Using the RUSLE, there could be 1.39 tons/acre/year of soil loss from the site if it is not properly managed. The site would be monitored during and after construction, and BMPs would be used to prevent erosion, minimize runoff and loss of sediment, and ensure soil stabilization.
- Both soil series are capable of supporting native short and mid grass prairie vegetative communities, which may substantially increase the probability for successful and permanent reclamation (NRCS 2009).

3.4.3.5 Dakota-3 Morsette #35-26H

- The Morsette #35-26H well pad is dominated by the Williams loam (64%) and the proposed new access road is dominated by the Dogtooth-Janesburg-Cabba complex (24%) (Table 7).
- The Williams loam has low runoff potential with slopes ranging between 6% and 9%. The Zahl-Cabba-Arikara complex has variable runoff depending on the slope, which ranges between 6% and 30% (NRCS 2009).
- Reclamation of vegetative communities should be easily obtainable due to the affinity of native grassland species to this soil type (NRCS 2009).
- This location has a K Factor of 0.32. Using the RUSLE, there could be 5.82 tons/acre/year of soil loss from the site if it is not properly managed. The site would be monitored during and after construction, and BMPs would be used to prevent erosion, minimize runoff and loss of sediment, and ensure soil stabilization.
- Both soil series are capable of supporting native short and mid grass prairie vegetative communities, which may substantially increase the probability for successful and permanent reclamation (NRCS 2009).

3.4.3.6 General

Due to the presence of loamy soils and minimal slopes in each of the five proposed project areas, no limitations on construction activities in the project areas are anticipated. The soil types are not expected to create unmanageable erosion issues or interfere with reclamation of the area. Proven BMPs are known to significantly reduce erosion of various types of soil, including those in the project area (BLM Instruction Memorandum 2004-124, www.blm.gov/bmp; BLM/USFS 2007; BLM 2003, 2007; Grah 1997). Topsoil stripped from areas of new construction would be retained for use during reclamation. Any areas stripped of vegetation during construction would be reseeded once construction activities have ceased. The implementation of BMPs by the operator is projected to reduce and maintain negligible levels of erosion.

3.5 VEGETATION AND INVASIVE SPECIES

The proposed project areas occur in the Missouri Plateau Ecoregion (Missouri Slope), which is a western mixed-grass and short-grass prairie ecosystem (Bryce et al. 1998). Native grasses include big blue stem, little bluestem, blue grama, side-oats grama (*Bouteloua curtipendula*), green needlegrass, and western wheatgrass. Common wetland vegetation includes various sedge species (*Carex* spp.), bulrush (*Scirpus* spp.), and cattails (*Typha* spp.). Common plant species found in woody draws, coulees, and drainages include chokecherry (*Prunus virginiana*), silver buffaloberry (*Shepherdia argentea*), and western snowberry (*Symphoricarpos occidentalis*).

3.5.1.1 Dakota-3 Benson #3-9H

Vegetation noted at the Benson #3-9H project area includes green needlegrass, little bluestem, fringed sagewort (*Artemisia frigida*), silver sage (*Salvia argentea* L.), prairie coneflower (*Rudbeckia fulgida*), and western snowberry.

3.5.1.2 Dakota-3 High Hawk #4-9H

Vegetation noted at the High Hawk #4-9H project area includes the invasive species leafy spurge (purple as well as coneflower), green needlegrass, fringed sagewort (*Artemisia frigida*), little bluestem, goatsbeard (*Tragopogon* L.), and black-eyed Susan (*Rudbeckia hirta*).

3.5.1.3 Dakota-3 Joseph Eagle #16-19H

Vegetation noted at the Joseph Eagle #16-19H project area includes green needlegrass, western snowberry, fringed sagewort, and little barley (*Hordeum pusillum*).

3.5.1.4 Dakota-3 Fettig (860 A-B) #16-22H

Vegetation noted at the Fettig (860 A-B) #16-22H project area includes western wheatgrass, field brome, prairie sagewort (*Artemisia frigida*), sweet clover (*Melilotus* Mill.), foxtail barley (*Hordeum jubatum*), and goatsbeard.

3.5.1.5 Dakota-3 Morsette #35-26H

Vegetation noted at the Morsette #35-26H project area includes silver sage, green needlegrass, fringed sagewort, western snowberry, buffaloberry, and coneflowers.

Noxious weeds have the potential to detrimentally affect public health, ecological stability, and agricultural practices. The *North Dakota Century Code* (Chapter 63-01.1) recognizes 12 species as noxious; five species are known to exist in Dunn County and seven in McKenzie County. Table 9 indicates total acreage for each noxious species by county. Additional information is available from the NRCS Plants Database for North Dakota at <http://www.plants.usda.gov>.

Table 9. Occupied Area for Recognized Noxious Weeds in Dunn and McKenzie Counties, North Dakota.

Common Name	Scientific Name	County	
		Dunn (acres)	McKenzie (acres)
absinth wormwood	<i>Artemisia absinthium</i>	38,600	43

Canada thistle	<i>Cirsium arvense</i>	32,800	4,300
Dalmatian toadflax	<i>Linaria dalmatica</i>	2	--
diffuse knapweed	<i>Centaurea diffusa</i>	--	--
field bindweed	<i>Convolvulus arvensis</i>	33,000	--
leafy spurge	<i>Euphorbia esula</i>	10,500	1,300
musk thistle	<i>Carduus nutans</i>	2	2
purple loosestrife	<i>Lythrum salicaria</i>	--	--
Russian knapweed	<i>Acroptilon repens</i>	--	1
salt cedar	<i>Tamarix ramosissima</i>	0	1
spotted knapweed	<i>Centaurea stoebe</i>	--	1
yellow starthistle	<i>Centaurea solstitialis</i>	--	--

Source: North Dakota Department of Agriculture 2007

“Invasive” is a general term used to describe plant species that are not native to a given area, spread rapidly, and have adverse ecological and economic impacts. These species may exhibit high reproductive rates and are usually adapted to occupy a diverse range of habitats otherwise occupied by native species. These species may subsequently out-compete native plant species for resources, causing a reduction in native plant populations and an increase in noxious weed populations.

Evaluation of the existing vegetation during on-site assessments conducted in November 2008 and August, September, and October 2009 indicated no invasive species were present at any of the proposed sites. However, potential disturbance of approximately 37.9 acres and removal of existing vegetation may facilitate the spread of invasive species. The APD and this EA require the operator to control noxious weeds throughout the project areas. Surface disturbance and vehicular traffic must not take place outside approved ROWs or the well pad. Areas that are stripped of topsoil must be re-seeded and reclaimed at the earliest opportunity. Additionally, certified weed-free straw and seed must be used for all construction, seeding, and reclamation efforts. Prompt and appropriate construction, operation, and reclamation are expected to maintain minimal levels of adverse impacts to vegetation and will reduce the potential establishment of invasive vegetation species.

3.6 CULTURAL RESOURCES

Cultural resources is a broad term encompassing sites, objects, or practices of archaeological, historical, cultural and religious significance. Cultural resources on federal or tribal lands are protected by many laws, regulations and agreements. The *National Historic Preservation Act of 1966* (16 USC 470 *et seq.*) at Section 106 requires, for any federal, federally assisted or federally licensed undertaking, that the federal agency take into account the effect of that undertaking on any district, site, building, structure or object that is included in the National Register of Historic Places (National Register) before the expenditure of any federal funds or the issuance of any federal license. Eligibility criteria (36 CFR 60.6) include association with important events or people in our history, distinctive construction or artistic characteristics, and either a record of yielding or a potential to yield information important in prehistory or history. In practice, properties are generally not eligible for listing on the National Register if they lack diagnostic artifacts, subsurface remains or structural features, but those considered

eligible are treated as though they were listed on the National Register, even when no formal nomination has been filed. This process of taking into account an undertaking's effect on historic properties is known as "Section 106 review," or more commonly as a cultural resource inventory.

The area of potential effect (APE) of any federal undertaking must also be evaluated for significance to Native Americans from a cultural and religious standpoint. Sites and practices may be eligible for protection under the *American Indian Religious Freedom Act of 1978* (42 USC 1996). Sacred sites may be identified by a tribe or an authoritative individual (Executive Order 13007). Special protections are afforded to human remains, funerary objects, and objects of cultural patrimony under the *Native American Graves Protection and Repatriation Act* (NAGPRA, 25 USC 3001 *et seq.*).

Whatever the nature of the cultural resource addressed by a particular statute or tradition, implementing procedures invariably include consultation requirements at various stages of a federal undertaking. The MHA Nation has designated a Tribal Historic Preservation Officer (THPO) by Tribal Council resolution, whose office and functions are certified by the National Park Service. The THPO operates with the same authority exercised in most of the rest of North Dakota by the State Historic Preservation Officer (SHPO). As a result, BIA consults and corresponds with the THPO on all projects proposed within the exterior boundaries of the Fort Berthold Reservation. The MHA Nation has also designated responsible parties for consultations and actions under NAGPRA and cultural resources generally.

Cultural resource inventories of these well pads and access roads were conducted by personnel of SWCA Environmental Consultants, using a pedestrian methodology. For the D-3 Benson #3-9H project approximately 11.07 acres were intensively inventoried on November 11, 2008 (Ferris 2009). No historic properties were located that appear to possess the quality of integrity and meet at least one of the criteria (36 CFR 60.6) for inclusion on the National Register. As the lead federal agency, and as provided for in 36 CFR 800.5, on the basis of the information provided, BIA reached a determination of **no historic properties affected** for this undertaking. This determination was communicated to the THPO on April 3, 2009, and the THPO concurred on April 7, 2009 (see Part 4). For the D-3 High Hawk #4-9H project approximately 12.2 acres were inventoried on August 4, 2009 (Higgins and Cooper 2009); for the D-3 Joseph Eagle #16-19H project approximately 25.1 acres were inventoried on September 18, 2009 (Fife, Cooper, *et al.* 2009); for the D-3 Fettig #16-22H project approximately 41.5 acres were inventoried between August 12 and September 18, 2009 (Fife, Lechert, *et al.* 2009); and for the D-3 Morsette #35-26H project approximately 38 acres were inventoried on September 24, 2009 (Hutchinson *et al.* 2009). Although four archaeological sites were located that may be eligible for the National Register, field decisions were made to shift the location of one project and to cancel two projects and choose new well pad sites so as to avoid the archaeological sites. Thus, on the basis of the information provided, BIA reached a determination of **no historic properties affected** for these undertakings. This determination was communicated to the THPO on December 10, 2009; however, no response was received from the THPO within the allotted 30-day comment period.

3.7 SOCIOECONOMICS

Socioeconomic conditions are affected by population, demographics, income, employment, and housing. This analysis focuses on the Reservation, the four counties that overlap the reservation, and the State of North Dakota. The state population showed little change between the last two censuses (1990–2000), but there were notable changes at the local level (Table 10). Populations in Dunn and McKenzie Counties declined by 5% to 11%, whereas populations on the Reservation increased by approximately 10%. These population changes are anticipated to continue (Rathge et al. 2002). Although American Indians are the predominant group on the Reservation, they are considered the minority in all other areas of North Dakota. Tribal members comprise more than 67% of the population currently residing on the Reservation.

Employment types on the Reservation are similar to those outside of the Reservation and include ranching, farming, tribal government, tribal private businesses, schools, and federal agencies. The MHA Nation’s Four Bears Casino and Lodge, 4 miles west of New Town, employs approximately 320 people, 90% of whom are tribal members (Three Affiliated Tribes 2008).

Table 10. Population and Demographics (NWAFF 2008).

County or Reservation	Population in 2000	Percent of State Population	Percent Change between 1990–2000	Predominant Group	Predominant Minority (percent of population)
Dunn	3,600	0.56	-10.1	Caucasian	American Indian (12%)
McKenzie	5,737	0.89	-10.1	Caucasian	American Indian (21%)
McLean	9,311	1.45	-11	Caucasian	American Indian (6%)
Mountrail	6,631	1.03	-5.6	Caucasian	American Indian (30%)
Fort Berthold Reservation	5,915	0.92	9.8	American Indian	White (27%)
Statewide	642,200	100	0.005	Caucasian	American Indian (5%)

Counties that overlap the Reservation tend to have per capita incomes, median household incomes, and employment rates below North Dakota statewide averages (Table 11). Subsequently, Reservation residents and MHA Nation members tend to have per capita incomes, median household incomes, and employment rates below the averages of the encompassing counties as well as statewide (Table 11). MHA Nation members are considered disadvantaged relative to overall lower Reservation incomes and higher unemployment rates. Per capita income for Reservation residents is approximately 32% lower than the statewide average. The median household income reported for the reservation (\$26,274) is likely skewed upward due to overcrowded housing conditions, but is 64% below the statewide median. A BIA report in 2003 found that 33% of employed MHA Nation members were

living below federal poverty levels. The unemployment rate reported for MHA Nation members is approximately 10.9% and 18.8% greater than the Reservation and North Dakota statewide averages, respectively.

Availability and affordability of housing could impact oil and gas development and operations. The number of owner-occupied housing units (1,122) on the Reservation is approximately 57% lower than the average number of owner-occupied housing units found in the four counties that encompass the Reservation (2,601.5). Additionally, these four counties are ranked extremely low for both the state and national housing starts (Table 12). Housing on the Reservation typically consists of mutual-help homes built with the help of various government programs, low-rent housing units, and scattered-site homes. Private purchase and rental housing are available in New Town. A marked increase in new home building can be seen throughout much of the Reservation, though availability of such homes remains low.

Table 101. Income and Unemployment (NWA 2008).

Unit of Analysis	Per Capita Income	Median Household Income	Unemployment Rate (2007)	Employed but below Poverty Level	Percent of All People in Poverty
MHA Nation members	--	--	22%	33%	Unknown
Fort Berthold Reservation	10,291	\$26,274	11.10%	--	Unknown
Mountrail County	29,071	\$34,541	5.80%	--	15.40
Dunn County	27,528	\$35,107	3.40%	--	13
McKenzie County	27,477	\$35,348	3.10%	--	15.80
McLean County	32,387	\$37,652	4.70%	--	12.80
North Dakota	31,871	\$40,818	3.20%	--	11.20

Table 112. Housing Development Data for the Reservation and Encompassing Counties (NWA 2008).

Housing Development	Reservation	North Dakota County			
	Fort Berthold	Dunn	McKenzie	McLean	Mountrail
New Private Housing Building Permits 2000–2005	--	18	4	135	113
Housing Starts, State Rank	--	51 / 53	15 / 53	21 / 53	17 / 53
Housing Starts, National Rank	--	3,112 / 3,141	2,498 / 3,141	2,691 / 3,141	2,559 / 3,141
Owner-occupied Units	1,122	1,570	2,009	4,332	2,495
Renter-occupied Units	786	395	710	932	941
Total	1,908	1,965	2,719	5,264	3,436

Adverse impacts to socioeconomic stability as a result of the proposed project are not anticipated. However, the proposed project may create relatively high-paying construction

jobs—though they are likely to be only temporary during exploration or the development of oil and gas reserves on the Reservation. Long-term production would require one or two full-time employees during commercial activities. Short-term construction employment would provide some economic benefit whereas long-term commercial production could result in significant royalties and indirect economic benefits.

3.8 ENVIRONMENTAL JUSTICE

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, signed in 1994 by President Clinton, requires agencies advance environmental justice (EJ) by pursuing fair treatment and meaningful involvement of minority and low-income populations. Fair treatment means such groups should not bear a disproportionately high share of negative environmental consequences from federal programs, policies, decisions, or operations. Meaningful involvement means federal officials actively promote opportunities for public participation and federal decisions can be materially affected by participating groups and individuals.

The EPA headed the interagency workgroup established by the 1994 Order and is responsible for related legal action. Working criteria for designation of targeted populations are provided in *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses* (EPA 1998). This guidance uses a statistical approach to consider various geographic areas and scales of analysis to define a particular population's status under the Order.

EJ is an evolving concept with potential for disparity concerning the scope of analysis and the implications for federal responsiveness. Nevertheless, it is clear that tribal members on the Great Plains qualify for EJ consideration as both minority and low-income populations. The majority population residing in the Dakotas is Caucasian. On the Reservation, 70% of residents are tribal members; Indians living off the Reservation comprise only 5% of the reported North Dakota population and 12% of the Dunn County population. Even in a state with relatively low per capita and household income, Indian individuals and households are distinctly disadvantaged.

However, there are some unusual considerations when proposed federal actions could benefit tribal members. Determination of fair treatment includes the distribution of both benefits and negative impacts, due to variation in the interests of various tribal groups and individuals. There is also potential for major differences in impacts to resident tribal members and those enrolled but living elsewhere. Benefits to the MHA Nation government and infrastructure have already resulted from tribal leasing, fees, and taxes. Oil and gas leasing has also brought much-needed income to MHA Nation members who hold mineral interests, some of whom might eventually benefit further from royalties on commercial production. Profitable production rates at proposed locations might lead to exploration and development of additional tracts owned by currently non-benefitting allottees. The absence of lease and royalty income for individuals does not preclude other, Reservation-wide benefits. Exploration and development could provide many relatively high-paying jobs through the involvement of the Tribal Employment Rights Office.

The owners of allotted surface in the project areas may not necessarily hold mineral rights. In such cases, surface owners do not receive oil and gas lease or royalty income and their only related income would be compensatory for productive acreage lost to road and well pad construction. Tribal members without either surface or mineral rights would not receive any direct benefits whatsoever. Indirect benefits of employment and general tribal gains would be the only potential offsets to negative impacts.

Potential impacts to tribes and tribal members include disturbance of cultural resources. This potential is significantly reduced following the surveys of proposed well locations and access road routes, and determination by the BIA that there would be no effect to historic properties. As discussed in Section 3.6, Cultural Resources, there are no known historic properties in the project area that qualify as TCPs or for protection under the American Indian Religious Freedom Act. Potential for disproportionate impacts of undiscovered TCPs would be mitigated by requirements for immediate work stoppage following an unexpected discovery of cultural resources of any type. Mandatory consultation will take place during any such work stoppage, affording an opportunity for all affected parties to assert their interests and contribute to an appropriate resolution, regardless of their home location or tribal affiliation.

The proposed project poses no threat for significant impact to any other critical element including air quality, public health and safety, water quality, wetlands, wildlife, soils, or vegetation in the human environment. Through the avoidance of such impacts, no disproportionate impact is expected to low-income or minority populations. The proposed action offers many positive consequences for tribal members, while recognizing EJ concerns. Procedures summarized in this document and in the APD are binding and sufficient. No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required.

3.9 MITIGATION AND MONITORING

Many protective measures and procedures are described in this document and in the APD. No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required. Monitoring of cultural resource impacts by qualified personnel is recommended during all ground-disturbing activities. Each phase of construction and development through production will be monitored by the BLM, BIA, and representatives of the tribe to ensure the protection of cultural, archaeological, and natural resources. In conjunction with 43 CFR 46.30, 46.145, 46.310, and 46.415, a report will be developed by the BLM and BIA that documents the results of monitoring in order to adapt the projects to eliminate any adverse impact on the environment.

3.10 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Removal and consumption of oil and/or gas from the Bakken Formation would be an irreversible and irretrievable commitment of resources. Other potential resource commitments include land area devoted to the disposal of cutting, soil lost to erosion (i.e., wind and water), unintentionally destroyed or damage cultural resources, wildlife killed as a result of collision with vehicles (e.g., construction machinery and work trucks), and energy expended during construction and operation.

3.11 SHORT-TERM USE VERSUS LONG-TERM PRODUCTIVITY

Short-term development activities would not detract significantly from long-term productivity and use of the project areas. The construction of access roads and well pad areas would eliminate any forage or habitat use by wildlife and/or livestock. Any allottees to which compensation for land disturbance is owed will be properly compensated for the loss of land use. The initial disturbance area would decrease considerably once the wells were drilled and non-necessary areas had been reclaimed. Rapid reclamation of the project area would facilitate revived wildlife and livestock usage, stabilize soil, and reduce the potential for erosion and sedimentation.

3.12 CUMULATIVE IMPACTS

Environmental impacts may accumulate either over time or in combination with similar events in the area. Unrelated and dissimilar activities may also have negative impacts on critical elements, thereby contributing to the cumulative degradation of the environment. Past and current disturbances near the project area include farming, grazing, roads, and other oil and gas wells. Reasonably foreseeable future impacts must also be considered. Should development of these wells prove productive, it is likely that Zenergy and possibly other operators would pursue additional development in the area. Current farming and ranching activities are expected to continue with little change because virtually all available acreage is already organized into range units to use surface resources for economic benefit. Undivided interests in the land surface, range permits, and agricultural leases are often held by different tribal members than those holding mineral rights. Over the past several years, exploration has accelerated over the Bakken Formation. Most of this exploration has taken place outside the Reservation boundary on fee land, but for purposes of cumulative impact analyses, land ownership and the Reservation boundary are immaterial. Although it is the dominant activity currently taking place in the area, oil and gas development is not expected to have more than a minor cumulative effect on land use patterns.

Three active wells are found within 1 mile of project location (Table 14). There are 54, 204, and 1,538 oil and gas wells (active, confidential, and permitted) within 5, 10, and 20 miles respectively of the proposed project areas (Tables 13 through 16; Figure 33).

Table 123. Confidential, Active, and Permitted Wells within a 1-mile Radius of the Project Area.

	Benson #3-9H		High Hawk #4-9H		Joseph Eagle #16-19H		Fettig (860A-B) #16-22H		Morsette #35-26H	
	on	off	on	off	on	off	on	off	on	off
Reservation (on/off)	on	off	on	off	on	off	on	off	on	off
Confidential Wells	0	-	0	-	0	-	0	-	1	-
Active Wells	1	-	2	-	0	-	0	-	0	-
Permitted Wells	0	-	0	-	0	-	0	-	0	-

Table 13. Confidential, Active, and Permitted Wells within a 5-mile Radius of the Project Area.

	Benson #3-9H		High Hawk #4-9H		Joseph Eagle #16-19H		Fettig (860A-B) #16-22H		Morsette #35-26H	
	on	off	on	off	on	off	on	off	on	off
Reservation (on/off)	on	off	on	off	on	off	on	off	on	off
Confidential Wells	10	-	4	-	6	-	5	-	4	-
Active Wells	14	-	2	-	3	-	3	-	3	-
Permitted Wells	0	-	0	-	0	-	0	-	0	-

Table 145. Confidential, Active, and Permitted wells within a 10-mile Radius of the Project Area.

	Benson #3-9H		High Hawk #4-9H		Joseph Eagle #16-19H		Fettig (860A-B) #16-22H		Morsette #35-26H	
	on	off	on	off	on	off	on	off	on	off
Reservation (on/off)	on	off	on	off	on	off	on	off	on	off
Confidential Wells	15	0	25	-	27	2	22	0	18	9
Active Wells	8	0	8	-	14	3	8	15	15	15
Permitted Wells	0	0	0	-	0	0	0	0	0	0

Table 15. Confidential, Active, and Permitted Wells within a 20-mile Radius of the Project Area.

	Benson #3-9H		High Hawk #4-9H		Joseph Eagle #16-19H		Fettig (860A-B) #16-22H		Morsette #35-26H	
	on	off	on	off	on	off	on	off	on	off
Reservation (on/off)	on	off	on	off	on	off	on	off	on	off
Confidential Wells	31	50	106	22	60	58	51	68	38	48
Active Wells	15	165	67	44	40	199	39	221	31	173
Permitted Wells	2	0	16	1	0	0	0	0	2	1

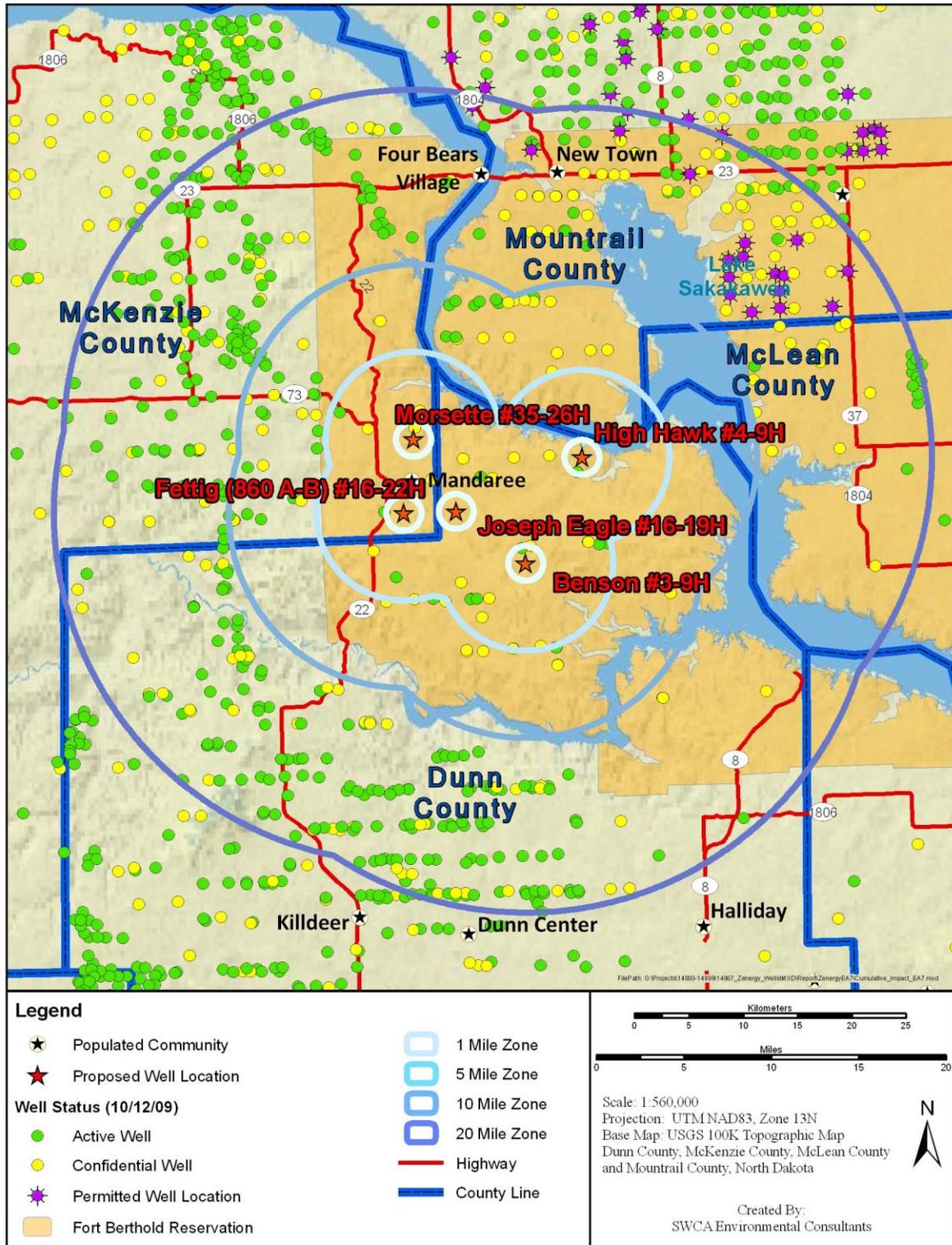


Figure 33. Active, confidential, and permitted wells within a 1-, 5-, 10-, and 20-mile radius of the proposed project locations.

Within the Reservation and near the proposed project areas, development projects remain few and widely dispersed. None of the project areas proposed in this EA would share access roads with any other proposed wells, but this may change in the future. If successful commercial production is achieved, new exploratory wells may be proposed, though such developments are merely speculation until APDs are submitted to the BLM and BIA for approval. Zenergy has suggested but not yet formally proposed that potentially 25 more wells may eventually be drilled in the same general area as the proposed project, using many of the same main access roads and minimizing the disturbance as much as possible.

It is anticipated that the pace and level of natural gas development in this region of the state will continue at the current rate over the next few years and contribute to cumulative air quality impacts. The Proposed Action would incrementally contribute to emissions occurring in the region. In general, however, the increase in emissions associated with the Proposed Action—most of which would occur during well construction—would be localized, largely temporary, and limited in comparison with regional emissions.

No surface discharge of water would occur under the Proposed Action, nor would any surface water or groundwater be used during project development. The Proposed Action, when combined with other actions (cattle grazing, other oil and gas development, and agriculture) that are likely to occur in and near the project area in the future, would increase sedimentation and runoff rates. Sediment yield from active roadways could occur at higher rates than background rates and continue indefinitely. Thus, the Proposed Action could incrementally add to existing and future sources of water quality degradation in the Lower Squaw Creek/Squaw Creek Bay, Shell Creek Church, Upper Squaw Creek, and Boggy Creek sub-watersheds, but increases in degradation would be reduced by Zenergy's commitment to minimizing disturbance, using erosion control measures as necessary, and implementing BMPs designed to reduce impacts.

Unlike well pads, active roadways are not typically reclaimed, thus sediment yield from roads can continue indefinitely at rates two to three times the background rate. The Proposed Action would create additional lengths of unpaved roadway in the project area. Thus, the Proposed Action would incrementally add to existing and future impacts to soil resources in the general area. However, Zenergy is committed to using BMPs to mitigate these effects. BMPs would include implementing erosion and sedimentation control measures such as installing culverts with energy-dissipating devices at culvert outlets to avoid sedimentation in ditches, constructing water bars alongside slopes, and planting cover crops to stabilize soil following construction and before permanent seeding takes place.

Vegetation resources across the project area could be affected by various activities, including additional energy development and surface disturbance of quality native prairie areas that have been largely undisturbed by development activities, grazing, and agriculture. Indirect impacts to native vegetation may be possible due to soil loss, compaction, and increased encroachment of unmanaged invasive weed species. Continued oil and gas development within the Reservation could result in the loss and further fragmentation of native mixed-grass prairie habitat. Past, present, and reasonably foreseeable future activities in the general area have reduced and would likely continue to reduce the amount of available habitat for listed species.

Significant archaeological resources are irreplaceable and often unique; any destruction or damage of such resources can be expected to diminish the archaeological record as a whole. However, no such damage or destruction of significant archaeological resources is anticipated as a result of the Proposed Action because these resources would be avoided, negating the cumulative impacts to the archaeological record.

The Proposed Action would incrementally add to existing and future socioeconomic impacts in the general area. The Proposed Action includes five wells, which would be an additional source of revenue for some residents of the Reservation. Increases in employment would be temporary during the construction, drilling, and completion phases of the proposed project. Therefore, little change in employment would be expected over the long term.

Current impacts from oil and gas-related activities are still fairly dispersed, and the required BMPs would limit potential impacts. No significant negative impacts are expected to affect any critical element of the human environment; impacts would generally be low and mostly temporary. Zenergy has committed to implementing interim reclamation of the roads and well pads immediately following construction and completion. Implementation of both interim and permanent reclamation measures would decrease the magnitude of cumulative impacts.

4.0 CONSULTATION AND COORDINATION

The BIA must continue to make efforts to solicit the opinions and concerns of all stakeholders (Table 17). For the purpose of this EA, a stakeholder is considered any agency, municipality, or individual person that the proposed action may affect either directly or indirectly in the form of public health, environmental, or socioeconomic issues. A scoping letter declaring the location of the proposed project areas and explaining the actions proposed at each site was sent in advance of this EA to allow stakeholders ample time to submit comments or requests for additional information. Additionally, a copy of this EA should be submitted to all federal agencies with interests either in, near, or potentially affected by the proposed actions.

Table 167.Scoping Comments.

Name	Organization	Comment	Response to Comment
Bagley, Lonny	BLM	No Comment	
Benson, Barry	MHA Nation	No Comment	
Bercier, Marilyn	BIA	No Comment	
Berg, George	NoDak Electric Cooperative, Inc.	No Comment	
Black, Mike	BIA	No Comment	
Boyd, Bill	Midcontinent Cable Company	No Comment	
Brady, Perry	THPO, Three Affiliated Tribes	No Comment	
Brien, David	Chairman, Turtle Mountain Band of Chippewa	No Comment	
Brugh, V. Judy	MHA Nation	No Comment	
Cayko, Richard	McKenzie County	No Comment	
Christenson, Ray	Southwest Water Authority	No Comment	
Cimarosti, Dan	USACE	Patsy Crooke: Check fact sheet and review need for permits or notifications.	Noted
U.S. Army Corps of Engineers, Omaha District	Garrison Project Office	No Comment	
Danks, Marvin	Fort Berthold Rural Water Director	No Comment	
Dhieux, Joyce	EPA	No Comment	
Director, Insurance & Hazard	Federal Emergency Management Agency	No Comment	
Dixon, Doug	Montana Dakota Utilities	No Comment	
Erickson, Carroll	Ward County Board of Commissioners	No Comment	
Flores, J.R.	U.S. Department of Agriculture	No Comment	
Fox, Fred	MHA Nation	No Comment	
Glatt, David	NDDH	Impacts will be minor and can be controlled by proper construction methods.	Noted
Glover, John	Natural Resources Conservation Service	Farmland Protection Policy Act does not apply to this area and NRCS recommends wetlands are avoided.	No wetlands are located in the project area.
Gorton, Candace	USACE	No Comment	
Guzman, Frank	USFS	No Comment	

Name	Organization	Comment	Response to Comment
Hall, Todd	MHA Nation	No Comment	
Hanson, Jesse	North Dakota Parks and Recreation	Two occurrences of animal species of concern were noted in the area where the proposed Fettig (860 A-B) #16-22H well would be located. Department recommends that the project be completed with minimal impacts and all efforts be made to ensure that critical habitats not be disturbed. During reclamation, revegetated with native species.	See Section 2.2.9, Reclamation. Animals in question are within 1 mile of the project area, but no disturbance is planned in these areas.
Hauck, Reinhard	Dunn County	No Comment	
His Horse Is Thunder, Ron	Chairman, Standing Rock Sioux Tribe	No Comment	
Hoffman, Warren	Killdeer, Weydahl Field	No Comment	
Hovda, Roger	Reservation Telephone Cooperative	No Comment	
Hudson-Schenfisch, Julie	McLean County Board of Commissioners	No Comment	
Hynek, David	Chair, Mountrail Board of County Commissioners	No Comment	
Johnson, Harley	New Town Municipal Airport	No Comment	
Kadmas, Ray	Dunn County	No Comment	
Kuehn, John	Parshall-Hankins Field Airport	No Comment	
Kulas, Cheryl	Indian Affairs Commission	No Comment	
Land Department	Northern Border Pipeline Company	No Comment	
Laux, Eric	USACE	Brad Thompson: Coordinate with the EPA, USFWS, NDGF, SHPO. Consult the floodplain management office.	Necessary consultations have been or will be made.
Lindemann, Larry	Airport Manager, Barnes County Municipal Airport	No Comment	
Manager	Xcel Energy	No Comment	
McKenna, Mike	North Dakota Game and Fish Department	Steven Dyke: Concerned about fragmentation and loss of wildlife habitat due to well pad and access road construction.	Well pads and access roads have been positioned to use existing roads for access to the greatest extent possible.

Name	Organization	Comment	Response to Comment
Mercer County	Mercer County Board of Commissioners	No Comment	
Missile Engineer, Chief	Minot Air Force Base	No Comment	
NAGPRA Office	MHA Nation	No Comment	
Nash, Mike	BLM	No Comment	
Natural Resources Department	MHA Nation	No Comment	
Nelson, Richard	U.S. Bureau of Reclamation	Ronald Melhouse: High Hawk #4-9H and Fettig (860 A-B) #16-22H is in the vicinity of a water pipeline. Consult with Marvin Danks, Fort Berthold Rural Water Director.	Operator notified.
Obenauer, Steve	FAA	No Comment	
Olson, Frances	McKenzie County	No Comment	
Paaverud, Merl	State Historical Society	Send copy of reports and forms to keep archives current. Consider putting TCP-related info in separate reports not sent to SHPO.	Noted.
Packineau, Mervin	MHA Nation	No Comment	
Paulson, Gerald	Western Area Power Administration	No Comment	
Pearson, Myra	Spirit Lake Sioux Tribe	No Comment	
Peterson, Walter	North Dakota Department of Transportation	No Comment	
Poitra, Fred	MHA Nation	No Comment	
Prchal, Doug	North Dakota Parks and Recreation Department	No Comment	
Representative, Mandaree Segment	MHA Nation	No Comment	
Rudolph, Reginald	McLean Electric Cooperative, Inc.	No Comment	
Schelkoph, David	West Plains Electric Cooperative, Inc.	No Comment	
Selvage, Michael	Chairman, Sisseton-Wahpeton Sioux Tribe	No Comment	
Shortbull, Marietta	Fort Berthold Agency	No Comment	

Name	Organization	Comment	Response to Comment
Sorensen, Charles	USACE	Due to close proximity to lake Sakakawea, a closed loop system is recommended; living quarters sewage systems have a closed system, Zenergy obtains proper permits, and fill is certified as weed-free.	Operator notified.
Svoboda, Larry	EPA	No Comment	
Thorson, Gary	McKenzie Electric Cooperative	No Comment	
Towner, Jeffrey	USFWS	No Comment	
Chevance, Nick	National Park Service, Midwest Region	No Comment	
Vodehnal, Dale	EPA	No Comment	
Wells, Marcus	Chairman, MHA Nation	No Comment	
Whitcalf, Frank	MHA Nation	No Comment	
Williams, Damon	MHA Nation	No Comment	
Wolf, Malcolm	MHA Nation	No Comment	



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E.
Aberdeen, South Dakota 57401



IN REPLY REFER TO:
DESCRM
MC-208

APR 03 2009

Perry 'No Tears' Brady, THPO
Mandan, Hidatsa and Arikara Nation
404 Frontage Road
New Town, North Dakota 58763

Dear Mr. Brady:

We have considered the potential effects on cultural resources of three oil well pads and access roads in Dunn County, North Dakota. Approximately 34.95 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the areas depicted in the enclosed reports. No historic properties were located that appear to possess the quality of integrity and meet at least one of the criteria (36 CFR 60.4) for inclusion on the National Register of Historic Places. No properties were located that appear to qualify for protection under the American Indian Religious Freedom Act (16 USC 1996).

As the surface management agency, and as provided for in 36 CFR 800.5, we have therefore reached a determination of **no historic properties affected** for these undertakings. Catalogued as **BIA Case Number AAO-1602/FB/09**, the proposed undertakings, locations, and project dimensions are described in the following reports:

Ferris, Kade M.

- (2009) A Cultural Resource Inventory of the Dakota 3-TAT #15-1H Well Pad and Access Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota. SWCA Environmental Consultants for Zenergy, Inc., Tulsa, OK.
- (2009) A Cultural Resource Inventory of the Dakota-3 TAT #2-4H Well Pad and Access Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota. SWCA Environmental Consultants for Zenergy, Inc., Tulsa, OK.
- (2009) A Cultural Resource Inventory of the Dakota-3 Benson #3-9H Well Pad and Access Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota. SWCA Environmental Consultants for Zenergy, Inc., Tulsa, OK.

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If your office concurs with this determination, consultation will be completed under the National Historic Preservation Act and its implementing regulations. The Standard Conditions of Compliance will be adhered to.

If you have any questions, please contact Dr. Carson N. Murdy, Archeologist, at (605) 226-7656.

Sincerely,



Regional Director

Enclosures

cc: Chairman, Three Affiliated Tribes
Superintendent, Fort Berthold Agency



TRIBAL HISTORIC PRESERVATION

Mandan Hidatsa Arikara
Perry 'No Tears' Brady, Director.
404 Frontage Road,
New Town, North Dakota 58763
Ph/701-862-2474 fax/701-862-2490
pbrady@mhanation.com

April 7, 2009

Dr. Carson N. Murdy
Regional Archeologist
Bureau of Indian Affairs
Great Plains Regional Office
115 Fourth Ave. S.E.
Aberdeen, SD, 57401

RE: Project # AAO-1602/FB/09

Dakota 3-TAT #15-1H
Dakota 3-TAT #2-4H
Dakota 3-TAT #3-9H

Dr. Murdy:

After review of the documentation provided by your Office, the Mandan Hidatsa Arikara Nations Tribal Historic Preservation Office concurs with the determination of 'No Adverse Affect'/No Historic Properties Affected' to any pre and post-historic relics, artifacts or sacred and cultural resources in the proposed Project area.

We respectfully request to be notified should any NAGPRA issues arise as the Project progresses.

Sincerely,


Perry 'No Tears' Brady,
Tribal Historic Preservation Officer,
Mandan Hidatsa Arikara Nations.



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E.
Aberdeen, South Dakota 57401



IN REPLY REFER TO:
DESCRM
MC-208

DEC 10 2009

Perry 'No Tears' Brady, THPO
Mandan, Hidatsa and Arikara Nation
404 Frontage Road
New Town, North Dakota 58763

Dear Mr. Brady:

We have considered the potential effects on cultural resources of five oil well pads and access roads in Dunn and McKenzie Counties, North Dakota. Approximately 126.8 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the areas depicted in the enclosed reports. Four archaeological sites (32DU1469, 32MZ2016, 32MZ2020 and 32MZ2021) were located that may possess the quality of integrity and meet at least one of the criteria (36 CFR 60.4) for inclusion on the National Register of Historic Places. No properties were located that appear to qualify for protection under the American Indian Religious Freedom Act (42 USC 1996).

As the surface management agency, and as provided for in 36 CFR 800.5, we have therefore reached a determination of **no historic properties affected** for these undertakings. Site 32DU1469 will be avoided, and sites 32MZ2016, 32MZ2020 and 32MZ2021 have been avoided by cancelling the proposed well pads and choosing new well pad sites. Catalogued as **BIA Case Number AAO-1704/FB/10**, the proposed undertakings, locations, and project dimensions are described in the following reports:

Fife, R. Ashley, Judith Cooper and Norma Crumbley

(2009) A Class I and Class III Cultural Resources Inventory of the Zenergy Joseph Eagle 16-19H Well and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota. SWCA Environmental Consultants for Zenergy Operating Company, LLC, Tulsa, OK.

Fife, R. Ashley, Stephanie Lechert, Judith Cooper, Victoria Rose and Norma Crumbley

(2009) A Class I and Class III Cultural Resources Inventory of the Zenergy Wolf 27-34H and Fettig 16-22H Wells and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. SWCA Environmental Consultants for Zenergy Operating Company, LLC, Tulsa, OK.

Higgins, Courtney, and Judith Cooper

(2009) A Class III Cultural Resource Inventory of the High Hawk 4-9H Well Pad and Access Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota. SWCA Environmental Consultants for Zenergy Operating Company, LLC, Tulsa, OK.

Hutchinson, Alan, R. Ashley Fife and Norma Crumbley

(2009) A Class I and Class III Cultural Resource Inventory of the Zenergy Morsette 35-26H Well Pads, Access Roads and Gathering Line, Fort Berthold Indian Reservation, McKenzie County, North Dakota. SWCA Environmental Consultants for Zenergy Operating Company, LLC, Tulsa, OK.

Page 2

If your office concurs with this determination, consultation will be completed under the National Historic Preservation Act and its implementing regulations. The Standard Conditions of Compliance will be adhered to.

If you have any questions, please contact Dr. Carson N. Murdy, Regional Archaeologist, at (605) 226-7656.

Sincerely,



Regional Director

Enclosures

cc: Chairman, Three Affiliated Tribes
Superintendent, Fort Berthold Agency

List of Preparers

An interdisciplinary team contributed to this document, following guidance in Part 1502.6 of CEQ regulations. This document was drafted by SWCA under the direction of the BIA. Information was compiled from various sources within SWCA.

Zenergy

- Kelley Bryan, Williston Basin Land Manager

SWCA

- Sarah Ruffo, Wildlife Biologist
Prepared the EA.
- Michael J. Cook, Ecologist
Conducted natural resource surveys for well pads and access roads.
- Joshua Ruffo, Wildlife Biologist
Conducted natural resource surveys for well pads and access roads.
- Christopher McLaughlin, Biologist
Conducted natural resource surveys for well pads and access roads.
- Jon Markman, Archaeologist/Field Coordinator
Conducted cultural resource surveys for well pads and access roads.
- Stephanie Lechert, Archaeologist
Conducted cultural resource surveys for well pads and access roads.
- Todd Kolher, Archaeologist
Conducted cultural resource surveys for well pads and access roads.
- Alan Hutchinson, Archaeologist
Conducted cultural resource surveys for well pads and access roads.
- Amarina Wuenschel, GIS Specialist
Created maps and spatially derived data.
- Brent Sobotka, Hydrologist/CPESC
Completed water resources and soil erosion sections.
- Richard Wadleigh, NEPA Coordinator
Reviewed document for content and adequacy.
- Judy Cooper, Archaeologist
Completed cultural section and reports.

5.0 REFERENCES

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6.0 ACRONYMS

°F	degrees Fahrenheit
AAQM	Ambient Air Quality Monitoring (site)
APD	application for permit to drill
APE	area of potential effect
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	best management practice
CFR	Code of Federal Regulations
EA	environmental assessment
EIS	environmental impact statement
EJ	environmental justice
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FONSI	finding of no significant Impact
HUC	hydrologic unit code
MHA Nation	Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation
NAGPRA	Native American Graves Protection and Repatriation Act
NDCC	North Dakota Century Code
NDDH	North Dakota Department of Health
NDIC	North Dakota Industrial Commission
NEPA	National Environmental Policy Act
NOS	notice of staking
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTL	notice to lessees
PEM	palustrine emergent
ROW	right-of-way
SHPO	State Historic Preservation Officer
TCP	traditional cultural property
THPO	Tribal Historic Preservation Officer
TMD	total measured depth
TVD	total vertical depth
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
1616 CAPITOL AVENUE
OMAHA NE 68102-4901

November 3, 2009

Planning, Programs, and Project Management Division

Ms. Sarah Ruffo
SWCA Environmental Consultants
115 North 4th Street, Suite 1
Bismarck, North Dakota 58501

Dear Ms. Ruffo:

The U.S. Army Corps of Engineers, Omaha District (Corps) has reviewed your letter postmarked October 7, 2009 regarding the proposed drilling and completion of up to five exploratory oil and gas wells on the Fort Berthold Reservation, North Dakota. The Corps offers the following comments:

To determine if the proposed project may impact areas designated as a Federal Emergency Management Agency special flood hazard area please consult the following floodplain management office.

North Dakota State Water Commission
Jeff Klein
900 East Boulevard Avenue
Bismarck, North Dakota 58505-0850
jjkein@nd.gov
T-701-328-4898
F-701-328-3747

Your plans should be coordinated with the U.S. Environmental Protection Agency, which is currently involved in a program to protect groundwater resources. If you have not already done so, it is recommended you consult with the U.S. Fish and Wildlife Service and the North Dakota Game and Fish Department regarding fish and wildlife resources. In addition, the North Dakota State Historic Preservation Office should be contacted for information and recommendations on potential cultural resources in the project area. It does not appear that any cultural resources are present on Corps owned lands.

Any proposed placement of dredged or fill material into waters of the United States (including jurisdictional wetlands) requires Department of the Army authorization under Section 404 of the Clean Water Act. You can visit the Omaha District's Regulatory website for permit applications and related information. Please review the information on the provided web site (<https://www.nwo.usace.army.mil/html/od-r/district.htm>) to determine if this project requires a 404 permit. For a detailed review of permit requirements, preliminary and final project plans should be sent to:

U.S. Army Corps of Engineers
Bismarck Regulatory Office
Attention: CENWO-OD-R-ND/Cimarosti
1513 South 12th Street
Bismarck, North Dakota 58504

If you have any questions, please contact Mr. John Shelman of my staff at (402) 995-2708.

Sincerely,



for Brad Thompson
Chief, Environmental Resources and Missouri Recovery
Program and Plan Formulation, Planning Branch
Planning, Programs and Project Management Division



REPLY TO
ATTENTION OF

North Dakota Regulatory Office

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
NORTH DAKOTA REGULATORY OFFICE
1513 SOUTH 12TH STREET
BISMARCK ND 58504-6640
October 13, 2009

[NWO-2009-2545-BIS
NWO-2009-2546-BIS
NWO-2009-2552-BIS]

SWCA Environmental Consultants
ATTN: Ms. Sarah Ruffo
115 North 4th Street, Suite 1
Bismarck, North Dakota 58501

Dear Ms. Ruffo:

This is in response to your request for comments on behalf of the Bureau of Indian Affairs who will be preparing an Environmental Assessment for proposed construction of fifteen (15) separate exploratory oil and gas wells on the Fort Berthold Reservation by Zenergy Operating Company, LLC. These wells are located in Dunn and McKenzie Counties, North Dakota.

The Corps of Engineers regulates the discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act. If the work, including the associated facilities, would include a discharge of dredged or fill material in waters of the U.S., even temporarily, a permit would be required. Nationwide Permit No.12 may cover the work proposed provided all the terms and conditions of the nationwide permit, including water quality certification, are met. In certain instances, the current nationwide permit does not require notification to the Corps. Please review the attached Fact Sheet to see if these projects require notification.

If you believe this project will result in a discharge of fill material in waters of the U.S. please fill out the enclosed application and return to our office.

If you have any questions regarding this letter or our program, please do not hesitate to write me at the above address, or call this office at (701) 255-0015.

Sincerely,

Patsy Crooke
Project Manager
North Dakota Regulatory Office

Enclosures

FACT SHEET
NATIONWIDE PERMIT 12
(2007)

UTILITY LINE ACTIVITIES. Activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2 acre of waters of the United States.

Utility lines: This NWP authorizes the construction, maintenance, or repair of utility lines, including outfall and intake structures, and the associated excavation, backfill, or bedding for the utility lines, in all waters of the United States, provided there is no change in pre-construction contours. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term "utility line" does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a power line or utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2 acre of waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for overhead utility line towers, poles, and anchors: This NWP authorizes the construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the United States, provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the United States, provided the total discharge from a single and complete project does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (See 33 CFR Part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or

under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP also authorizes temporary structures, fills, and work necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if any of the following criteria are met: (1) the activity involves mechanized land clearing in a forested wetland for the utility line right-of-way; (2) a section 10 permit is required; (3) the utility line in waters of the United States, excluding overhead lines, exceeds 500 feet; (4) the utility line is placed within a jurisdictional area (i.e., water of the United States), and it runs parallel to a stream bed that is within that jurisdictional area; (5) discharges that result in the loss of greater than 1/10-acre of waters of the United States; (6) permanent access roads are constructed above grade in waters of the United States for a distance of more than 500 feet; or (7) permanent access roads are constructed in waters of the United States with impervious materials. (Sections 10 and 404)

Note 1: Where the proposed utility line is constructed or installed in navigable waters of the United States (i.e., section 10 waters), copies of the pre-construction notification and NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, accordance with the requirements for temporary fills.

Note 3: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to Section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15).

General Conditions: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as appropriate, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

15. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

16. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

17. Endangered Species. (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical

habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide Web pages at <http://www.fws.gov/> and <http://www.noaa.gov/fisheries.html> respectively.

18. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

19. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment. The district engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 27, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

20. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require pre-construction notification, unless the district engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. For wetland losses of 1/10 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2 acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address

documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

21. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality. *Specifically in North Dakota, the North Dakota Department of Health has denied certification for projects under this Nationwide Permit proposed to cross **all classified rivers, tributaries and lakes**; individual certification for project in these waterways must be obtained by the project proponent prior to authorization under this Nationwide Permit. For utility line crossings of all other waters, the Department of Health has issued water quality certification provided the attached Construction and Environmental Disturbance Requirements are followed.*

22. Coastal Zone Management. *Not Applicable.*

23. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

24. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

25. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:
“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

26. Compliance Certification. Each permittee who received a NWP verification from the Corps must submit a signed certification regarding the completed work and any required mitigation. The certification form must be forwarded by the Corps with the NWP verification letter and will include:

- (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general or specific conditions;
- (b) A statement that any required mitigation was completed in accordance with the permit conditions; and
- (c) The signature of the permittee certifying the completion of the work and mitigation.

27. Pre-Construction Notification. *See attached pages.*

28. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

General Condition 27. Pre-Construction Notification.

(a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, as a general rule, will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) Forty five calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 17 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 18 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) is completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee cannot begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided result in a quicker decision.);

(4) The PCN must include a delineation of special aquatic sites and other waters of the United States on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters of the United States, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, where appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10 acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring pre-construction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps multiple copies of pre-construction notifications to expedite agency coordination.

(5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.

(e) District Engineer's Decision: In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP.

If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan.

**2007 NATIONWIDE PERMITS
REGIONAL CONDITIONS
STATE OF NORTH DAKOTA
OMAHA DISTRICT – CORPS OF ENGINEERS**

The U.S. Army Corps of Engineers has adopted the following regional conditions for activities authorized by nationwide permits within the State of North Dakota. However, the pre-construction notification requirements defined below are not applicable to Nationwide Permit 47.

1. Wetlands Classified as Fens

All Nationwide Permits, with the exception of 3, 5, 20, 32, 38, 45, and 47, are revoked for use in fens in North Dakota. For nationwide permits 3, 5, 20, 32, 38, and 45 permittees must notify the Corps in accordance with General Condition 27 (Notification) prior to initiating any regulated activity impacting fens in North Dakota.

Fens are wetlands that develop where a relatively constant supply of ground water to the plant rooting zone maintains saturated conditions most of the time. The water chemistry of fens reflects the mineralogy of the surrounding and underlying soils and geological materials. The substrate is carbon-accumulating, ranging from muck to peat to carbonates. These wetlands may be acidic to alkaline, have pH ranging from 3.5 to 8.4 and support a range of vegetation types. Fens may occur on slopes, in depressions, or on flats (i.e., in different hydrogeomorphic classes; after: Brinson 1993).

2. Waters Adjacent to Natural Springs

For all Nationwide Permits permittees must notify the Corps in accordance with General Condition No. 27 (Notification) for regulated activities located within 100 feet of the water source in natural spring areas in North Dakota. For purposes of this condition, a spring source is defined as any location where there is artesian flow emanating from a distinct point at any time during the growing season. Springs do not include seeps and other groundwater discharge areas where there is no distinct point source.

3. Missouri River, including Lake Sakakawea and Lake Oahe within the State of North Dakota

For all Nationwide Permits permittees must notify the Corps in accordance with General Condition No. 27 (Notification) prior to initiating any regulated activity in the Missouri River, including Lake Sakakawea and Lake Oahe, within the State of North Dakota.

4. Historic Properties

That the permittee and/or the permittee's contractor, or any of the employees, subcontractors or other persons working in the performance of a contract(s) to complete the work authorized herein, shall cease work and report the discovery of any previously unknown historic or archeological remains to the North Dakota Regulatory Office. Notification shall be by telephone or fax within 24 hours of the discovery and in writing within 48 hours. Work shall not resume until the permittee is notified by the North Dakota Regulatory Office.

5. Spawning Condition

That no regulated activity within waters of the United States listed as Class III or higher on the 1978 Stream Evaluation Map for the State of North Dakota or on the North Dakota Game and Fish Department's website as a North Dakota Public Fishing Water shall occur between 15 April and 1 June. No regulated activity within the Red River of the North shall occur between 15 April and 1 July.

Additional Information

Permittees are reminded that General Condition No. 6 prohibits the use of unsuitable material. In addition, organic debris, some building waste, and materials excessive in fines are not suitable material.

Specific verbiage on prohibited materials and the 1978 Stream Evaluation Map for the State of North Dakota can be accessed on the North Dakota Regulatory Office's website at:
<https://www.nwo.usace.army.mil/html/od-rnd/ndhome.htm>



Construction and Environmental Disturbance Requirements

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

Soils

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

Surface Waters

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

Fill Material

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

**Instructions for Preparing a
Department of the Army Permit Application**

Blocks 1 through 4. To be completed by Corps of Engineers.

Block 5. Applicant's Name. Enter the name and the E-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the application, please attach a sheet with the necessary information marked Block 5.

Block 6. Address of Applicant. Please provide the full address of the party or parties responsible for the application. If more space is needed, attach an extra sheet of paper marked Block 6.

Block 7. Applicant Telephone Number(s). Please provide the number where you can usually be reached during normal business hours.

Blocks 8 through 11. To be completed, if you choose to have an agent.

Block 8. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, or any other person or organization. Note: An agent is not required.

Blocks 9 and 10. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where he / she can be reached during normal business hours.

Block 11. Statement of Authorization. To be completed by applicant, if an agent is to be employed.

Block 12. Proposed Project Name or Title. Please provide name identifying the proposed project, e.g., Landmark Plaza, Burned Hills Subdivision, or Edsall Commercial Center.

Block 13. Name of Waterbody. Please provide the name of any stream, lake, marsh, or other waterway to be directly impacted by the activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

Block 14. Proposed Project Street Address. If the proposed project is located at a site having a street address (not a box number), please enter it here.

Block 15. Location of Proposed Project. Enter the latitude and longitude of where the proposed project is located. If more space is required, please attach a sheet with the necessary information marked Block 15.

Block 16. Other Location Descriptions. If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality that the site is located in.

Block 17. Directions to the Site. Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide description of the proposed project location, such as lot numbers, tract numbers, or you may choose to locate the proposed project site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed project site if known

Block 18. Nature of Activity. Describe the overall activity or project. Give appropriate dimensions of structures such as wing walls, dikes (identify the materials to be used in construction, as well as the methods by which the work is to be done), or excavations (length, width, and height). Indicate whether discharge of dredged or fill material is involved. Also, identify any structure to be constructed on a fill, piles, or float-supported platforms.

The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 18.

Block 19. Proposed Project Purpose. Describe the purpose and need for the proposed project. What will it be used for and why? Also include a brief description of any related activities to be developed as the result of the proposed project. Give the approximate dates you plan to both begin and complete all work.

Block 20. Reasons for Discharge. If the activity involves the discharge of dredged and/or fill material into a wetland or other waterbody, including the temporary placement of material, explain the specific purpose of the placement of the material (such as erosion control).

Block 21. Types of Material Being Discharged and the Amount of Each Type in Cubic Yards. Describe the material to be discharged and amount of each material to be discharged within Corps jurisdiction. Please be sure this description will agree with your illustrations. Discharge material includes: rock, sand, clay, concrete, etc.

Block 22. Surface Areas of Wetlands or Other Waters Filled. Describe the area to be filled at each location. Specifically identify the surface areas, or part thereof, to be filled. Also include the means by which the discharge is to be done (backhoe, dragline, etc.). If dredged material is to be discharged on an upland site, identify the site and the steps to be taken (if necessary) to prevent runoff from the dredged material back into a waterbody. If more space is needed, attach an extra sheet of paper marked Block 22.

Block 23. Description of Avoidance, Minimization, and Compensation. Provide a brief explanation describing how impacts to waters of the United States are being avoided and minimized on the project site. Also provide a brief description of how impacts to waters of the United States will be compensated for, or a brief statement explaining why compensatory mitigation should not be required for those impacts.

Block 24. Is Any Portion of the Work Already Complete? Provide any background on any part of the proposed project already completed. Describe the area already developed, structures completed, any dredged or fill material already discharged, the type of material, volume in cubic yards, acres filled, if a wetland or other waterbody (in acres or square feet). If the work was done under an existing Corps permit, identify the authorization, if possible.

Block 25. Names and Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Project Site. List complete names and full mailing addresses of the adjacent property owners (public and private) lessees, etc., whose property adjoins the waterbody or aquatic site where the work is being proposed so that they may be notified of the proposed activity (usually by public notice). If more space is needed, attach an extra sheet of paper marked Block 24.

Information regarding adjacent landowners is usually available through the office of the tax assessor in the county or counties where the project is to be developed.

Block 26. Information about Approvals or Denials by Other Agencies. You may need the approval of other federal, state, or local agencies for your project. Identify any applications you have submitted and the status, if any (approved or denied) of each application. You need not have obtained all other permits before applying for a Corps permit.

Block 27. Signature of Applicant or Agent. The application must be signed by the owner or other authorized party (agent). This signature shall be an affirmation that the party applying for the permit possesses the requisite property rights to undertake the activity applied for (including compliance with special conditions, mitigation, etc.).

DRAWINGS AND ILLUSTRATIONS

General Information.

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View or a Typical Cross-Section Map. Identify each illustration with a figure or attachment number.

Please submit one original, or good quality copy, of all drawings on 8½ x11 inch plain white paper (electronic media may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations.

Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross-section). **While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.**

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 August 2012

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This Information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
--------------------	----------------------	------------------	------------------------------

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Middle - Last - Company - E-mail Address -	8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required) First - Middle - Last - Company - E-mail Address -
---	---

6. APPLICANT'S ADDRESS Address - City - State - Zip - Country -	9. AGENT'S ADDRESS Address - City - State - Zip - Country -
--	--

7. APPLICANT'S PHONE NOs. W/AREA CODE a. Residence b. Business c. Fax	10. AGENT'S PHONE NOs. W/AREA CODE a. Residence b. Business c. Fax
--	---

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE

DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

13. NAME OF WATERBODY, IF KNOWN (if applicable)

14. PROJECT STREET ADDRESS (if applicable)

Address

15. LOCATION OF PROJECT

Latitude: °N
Longitude: °W

City - State - Zip -

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality
Section - Township - Range -

17. DIRECTIONS TO THE SITE

18. Nature of Activity (Description of project, include all features)

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Type	Type
Amount in Cubic Yards	Amount in Cubic Yards	Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres
Or
Liner Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Address –
City – State – Zip –

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
--------	----------------	-----------------------	--------------	---------------	-------------

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

Sarah Ruffo

From: Sorensen, Charles G NWO [Charles.G.Sorensen@usace.army.mil]
Sent: Thursday, October 08, 2009 11:52 AM
To: Sarah Ruffo
Cc: charles.g.sorensen@usace.army.mil
Subject: Comments for the Dakota-3 High Hawk # 4-9 Well location

Ms. Ruffo

Due to the close proximity of the well location to lands managed by the U.S. Army Corps of Engineers (USACE) and the potential of possible contamination of Lake Sakakawea due to the loss of drilling mud's and or fluids it is USACE recommendation that a Closed Loop mud and drilling fluid system be used vs. the standard pit containment methods for drilling fluids.

That a catch trench be established on the that side of the pad closest to the COE boundary for the purpose of catching, holding, and preventing any run off from the pad and associated facilities from entering tributaries to Lake Sakakawea and Lake Sakakawea its self. . All fluids that accumulate in said trench are to be pumped out of the trench and disposed of properly.

If living quarters will be onsite it is requested that all sewage collection systems are to be of a closed system ensuring that there are no open or exposed tanks, catch basins, etc.

That Zenergy obtain the proper permits for any directional drilling that will be done under the lake bed of Lake Sakakawea.

That all additional fill material come from a private source that has been certified as being free of all noxious weeds; so as to prevent the spreading of said weeds on to COE lands.

If you have any questions regarding the above conditions or recommendations please feel free to contact me

Thank you

Charles Sorensen
Natural Resource Specialist
U.S. Army Corps of Engineers
Riverdale, North Dakota Office
(701) 654 7411 ext 232

10/8/2009



**STATE
HISTORICAL
SOCIETY
OF NORTH DAKOTA**

John Hoeven
Governor of North Dakota

North Dakota
State Historical Board

Chester E. Nelson, Jr.
Bismarck - President

Gereld Gerntholz
Valley City - Vice President

Richard Kloubec
Fargo - Secretary

Albert I. Berger
Grand Forks

Calvin Grinnell
New Town

Diane K. Larson
Bismarck

A. Ruric Todd III
Jamestown

Sara Otte Coleman
*Director
Tourism Division*

Kelly Schmidt
State Treasurer

Alvin A. Jaeger
Secretary of State

Douglass Prchal
*Director
Parks and Recreation
Department*

Francis Ziegler
*Director
Department of Transportation*

Merlan E. Paaverud, Jr.
Director

Accredited by the
American Association
of Museums

October 14, 2009

Ms. Sarah Ruffo
SWCA Environmental Consultants
Bismarck Office 115 North 4th St, Suite 1
Bismarck ND 58501

**NDSHPO REF. 10-0052 BIA/MHAN/BLM Environmental Assessment for
5 well pads and access roads Fort Berthold Reservation Dakota-3
High Hawk 4-9H in portions of [NW NW ¼ T149N R92W Section 9]
Dunn County
Joseph Eagle 3-19H [SE SE T149N R93W Section 19] Dunn County
Fettig (860 A-B) 16-22H [SE SE T149N R94W Section 22] McKenzie
County
Wolf 4-27H in a portion of [NW NW T149N R94W Section 27] McKenzie
County
Morsette 35-26H [SE SE T150N R49W Section 35] McKenzie County,
North Dakota**

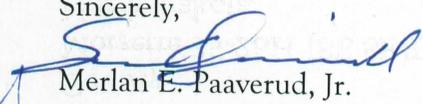
Dear Ms. Ruffo,

We received your letter regarding NDSHPO REF. 10-0052 BIA/MHAN/BLM Environmental Assessment for 5 well pads and access roads Fort Berthold Reservation Dakota-3, North Dakota. We request that a copy of cultural resource site forms and reports be sent to this office so that the cultural resources archives can be kept current. Perhaps one might consider putting TCP (Traditional Cultural Properties) related information in separate reports not sent to this office.

Thank you for your consideration.
Consultation is with MHAN THPO.

If you have any questions please contact Susan Quinnell, Review & Compliance Coordinator at (701)328-3576 or squinnell@nd.gov

Sincerely,


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



John Hoeven, Governor
Douglass A. Prchal, 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

October 23, 2009

Sarah Ruffo
SWCA Environmental Consultants
115 North 4th Street, Suite 1
Bismarck, ND 58501

Re: Zenergy Operating Company LLC Drilling of Five Exploratory Oil and Gas Wells
Fort Berthold Reservation

Dear Ms. Ruffo:

The North Dakota Parks and Recreation Department (the Department) has reviewed the above referenced project proposal for Zenergy Operating Company LLC to drill five exploratory oil and gas wells in Section 9, T149N, R92W and Section 19, T149N, R93W, Dunn County; Sections 22 and 27, T149N, R94W and Section 35, T150N, R94W, McKenzie County.

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

The North Dakota Parks and Recreation Department is responsible for coordinating North Dakota's Scenic Byway and Backway Program. This proposed project is in proximity to a Scenic Byway and as such we recommend any project development be completed with the least amount of or no visual impact to the immediate and distant views from that Byway. North Dakota Parks and Recreation Department staff should be contacted at 701-328-5355 to assist in mitigation of any potential impacts.

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, two occurrences, *Hesperia dacotae* (Dakota skipper) and *Anthus spragueii* (Sprague's pipit), have been identified within or adjacent to the project area. Please see the attached spreadsheet and map for more specific information on these species. We defer further comments regarding animal species to the North Dakota Game and Fish Department and the United States Fish and Wildlife Service.

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

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

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

Sincerely,

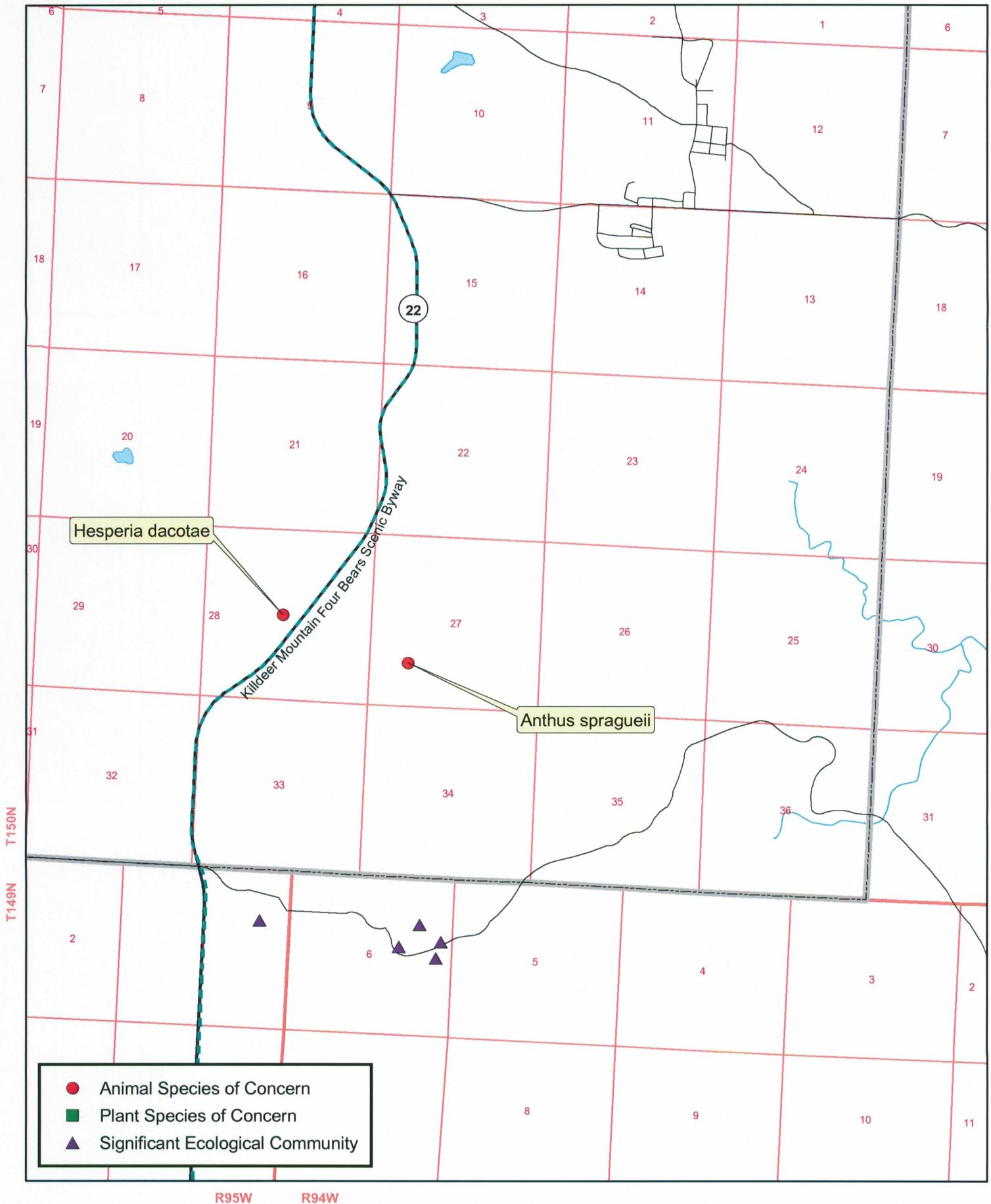
Jesse Hanson, Coordinator
Planning and Natural Resources Division

R.USNDNHI*2009-281

.....
Play in our backyard!

North Dakota Natural Heritage Inventory

Species of Concern and Significant Ecological Communities



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

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
<i>Hesperia dacotae</i>	Dakota Skipper	S2	G2	C	149N094W - 28	McKenzie	1997-07-05		S
<i>Anthus spragueii</i>	Sprague's Pipit	S3	G4		149N094W - 27	McKenzie	1976-06		S

North Dakota Natural Heritage Inventory Biological and Conservation Data Disclaimer

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

Estimated Representation Accuracy

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

Very high (>95%)

High (>80%, <= 95%)

Medium (>20%, <= 80%)

Low (>0%, <= 20%)

Unknown

(null) - Not assessed

Precision

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

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

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

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

U - Unmappable



"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

October 29, 2009

Sarah Ruffo
Environmental Specialist
SWCA Environmental Consultants
115 North 4th Street, Suite 1
Bismarck, ND 58501

Dear Ms. Ruffo:

RE: Exploratory Oil & Gas Wells
Forth Berthold Reservation

Zenergy Operating Company, LLC has proposed thirteen exploratory oil and gas wells on the Fort Berthold Reservation in sections 5, 27 & 36, T148N, R93W; sections 9 & 32, T149N, R92W; and sections 19, 27 & 34, T149N, R93W of Dunn County; and sections 22 & 27, T149N, R94W; and section 35, T150N, R94W of McKenzie County, North Dakota. The wells would be positioned to utilize existing roadways for access to the greatest extent possible.

Our primary concern with oil and gas development is the fragmentation and loss of wildlife habitat associated with construction of the well pads and access roads. We recommend that construction be avoided to the extent possible within native prairie, wooded draws, riparian corridors, and wetland areas.

We also suggest that botanical surveys be completed during the appropriate season and aerial surveys be conducted for raptor nests before construction begins.

Sincerely,

A handwritten signature in blue ink that reads "Steve Dyke".

(for)

Michael G. McKenna
Chief
Conservation & Communication Division

js



October 12, 2009

Sarah Ruffo, Environmental Specialist
SWCA Environmental Consultants
115 North 4th Street, Suite 1
Bismarck, ND 58501

Re: Zenergy Operating Co., LLC
Five Exploratory Oil & Gas Wells on
Fort Berthold Reservation, Dunn and McKenzie Counties

Dear Ms. Ruffo:

This department has reviewed the information concerning the above-referenced project with respect to possible environmental impacts.

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

1. Development of the production facilities and any access roads or well pads should have a minimal effect on air quality provided measures are taken to minimize fugitive dust. However, operation of the wells has the potential to release air contaminants capable of causing or contributing to air pollution. We encourage the development and operation of the wells in a manner that is consistent with good air pollution control practices for minimizing emissions.
2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.
3. Oil and gas related construction activities located within tribal boundaries within North Dakota may be required to obtain a permit to discharge storm water runoff from the U.S. Environmental Protection Agency. Further information may be obtained from the U.S. EPA's website or by calling the U.S. EPA – Region 8 at (303) 312-6312. Also, cities or counties may impose additional requirements and/or specific best management practices for

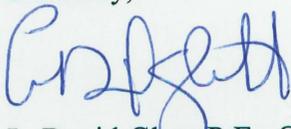
construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.

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

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

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

Sincerely,

A handwritten signature in blue ink, appearing to read "L. David Glatt".

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

LDG:cc
Attach.



Construction and Environmental Disturbance Requirements

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

Soils

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

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

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



Natural Resources Conservation Service
P.O. Box 1458
Bismarck, ND 58502-1458

October 19, 2009

Sarah Ruffo
SWCA Environmental Consultants
Bismarck Office
115 North 4th Street, Suite 1
Bismarck, ND 58501

RE: Construction, Drilling, Completion and Production by Zineryg Operation Company, LLC
Five exploratory oil and gas wells on six locations in Dunn County

Dear Ms. Ruffo:

The Natural Resources Conservation Service (NRCS) has reviewed your letter regarding the referenced activity and acknowledges your request to determine whether your project affects farmland as defined in Sec. 658.2(a) of the Code of Federal Regulations (CFR) dealing with the Farmland Protection Policy Act (FPPA).

Important Farmlands - NRCS has a major responsibility with FPPA in documenting conversion of farmland (i.e., prime, statewide, and local importance) to non-agricultural use. Your proposed project was previously committed to urban build-up site where FPPA does not apply; therefore, no further action is required.

Wetlands – The Wetland Conservation Provisions of the 1985 Food Security Act, as amended, provide that if a USDA participant converts a wetland for the purpose of, or to have the effect of, making agricultural production possible, loss of USDA benefits could occur. NRCS has developed the following guidelines for the installation of buried utilities. If these guidelines are followed, the impacts to the wetland(s) will be considered minimal allowing USDA participants to continue to receive USDA benefits. Following are the requirements: 1) Disturbance to the wetland(s) must be temporary, 2) no drainage of the wetland(s) is allowed (temporary or permanent), 3) mechanized landscaping necessary for installation is kept to a minimum and preconstruction contours are maintained, 4) temporary side cast material must be placed in such a manner not to be dispersed in the wetland, and 5) all trenches must be backfilled to the original wetland bottom elevation.



Ms. Ruffo

Page 2

NRCS would recommend that impacts to wetlands be avoided. If the project requires passage through or disturbance of a wetland, NRCS can complete a certified wetland determination, if requested by the landowner/operator.

If you have additional questions pertaining to FPPA, please contact Steve Sieler, State Soil Liaison, at (701) 530-2019.

Sincerely,

A handwritten signature in blue ink, appearing to read "John Glover", is written over the printed name.

JOHN GLOVER

Acting State Conservationist

cc:

Kyle S. Hartel, DC, NRCS, Watford City, ND

Susan J. Tuhy, DC, NRCS, Killdeer, ND

Terrance J. Gisvold, ASTC (FO), NRCS, Dickinson, ND



DK-5000
ENV-6.00

United States Department of the Interior

BUREAU OF RECLAMATION

Dakotas Area Office
P.O. Box 1017
Bismarck, North Dakota 58502



OCT 16 2009

Ms. Sarah Ruffo
Environmental Specialist
SWCA Environmental Consultants
115 North 4th Street, Suite 1
Bismarck, ND 58501

Subject: Solicitation for Environmental Assessment for Drilling and Completion of Thirteen Proposed Oil and Gas Exploratory Wells on the Fort Berthold Reservation in Dunn and McKenzie Counties, North Dakota

Dear Ms. Ruffo:

This letter is written to inform you that we received two of your letters on October 8 and the information and maps have been reviewed by Bureau of Reclamation staff.

Proposed oil well sites located in Dunn and McKenzie Counties could potentially affect Reclamation facilities in the form of the rural water pipelines of the Fort Berthold Rural Water System. There are water lines either existing or proposed for construction in the vicinity of the following well site locations:

Dunn County

Dakota -3 Standish #15-5H: SW $\frac{1}{4}$ SE $\frac{1}{4}$ section 5, T148N, R93W
Dakota -3 Packineau (651A) #3-32H: NE $\frac{1}{4}$ NW $\frac{1}{4}$ section 32, T149N, R92W
Dakota -3 Young Bird (3099) #16-27H: SE $\frac{1}{4}$ SW $\frac{1}{4}$ section 27, T149N, R93W
Dakota -3 High Hawk #4-9H: NW $\frac{1}{4}$ NW $\frac{1}{4}$ section 9, T149N, R92W

McKenzie County

Dakota -3 Fettig (860 A-B) #16-22H: SE $\frac{1}{4}$ SE $\frac{1}{4}$ section 22, T149N, R94W
Dakota -3 Wolf #4-27H: NW $\frac{1}{4}$ NW $\frac{1}{4}$ section 27, T149N, R94W

However, there are no water lines proposed for construction in the vicinity of the following well site locations:

Dunn County

Dakota -3 Mann #16-27H/ Paul Peter Coffey #4-35H: SE $\frac{1}{4}$ SE $\frac{1}{4}$ section 27, T148N, R93W
Dakota -3 Good Bird #36-25H/ Black Hawk #1-12H: SE $\frac{1}{4}$ SE $\frac{1}{4}$ section 36, T148N, R93W
Dakota -3 Wicker #14-34H: SE $\frac{1}{4}$ SW $\frac{1}{4}$ section 34, T149N, R93W
Dakota -3 Joseph Eagle #3-19H: SE $\frac{1}{4}$ SE $\frac{1}{4}$ section 19, T149N, R93W

McKenzie County

Dakota -3 Morsette #35-26H: SE $\frac{1}{4}$ SE $\frac{1}{4}$ section 35, T150N, R94W

We are providing maps depicting the proposed water line alignments in the vicinity of well sites that could potentially affect Reclamation facilities. Since Reclamation is the lead Federal agency for the Fort Berthold Rural Water System, we request that any work planned on the reservation be coordinated with Mr. Marvin Danks, Fort Berthold Rural Water Director, Three Affiliated Tribes, 308 4 Bears Complex, New Town, North Dakota 58763.

Thank you for providing the information and opportunity to comment. If you have any further questions, please contact me at 701-221-1288.

Sincerely,



Ronald D. Melhouse
Environmental Specialist

Enclosure

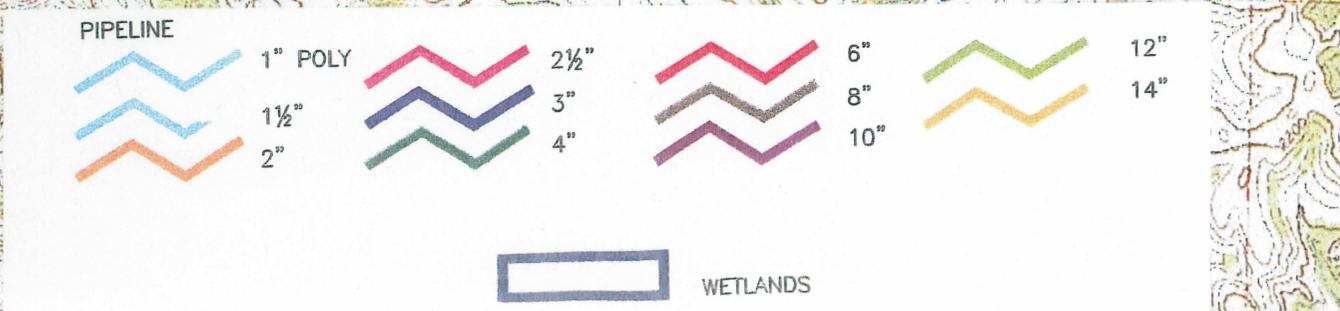
cc: Mr. Marvin Danks
Fort Berthold Rural Water Director
Three Affiliated Tribes
308 4 Bears Complex
New Town, ND 58763

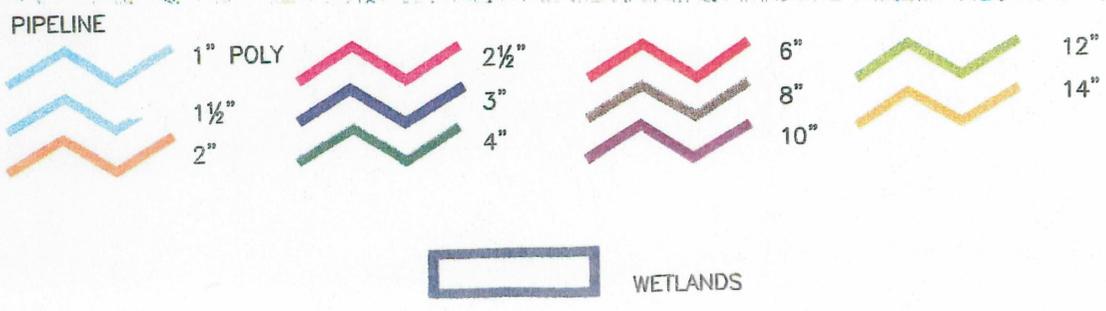
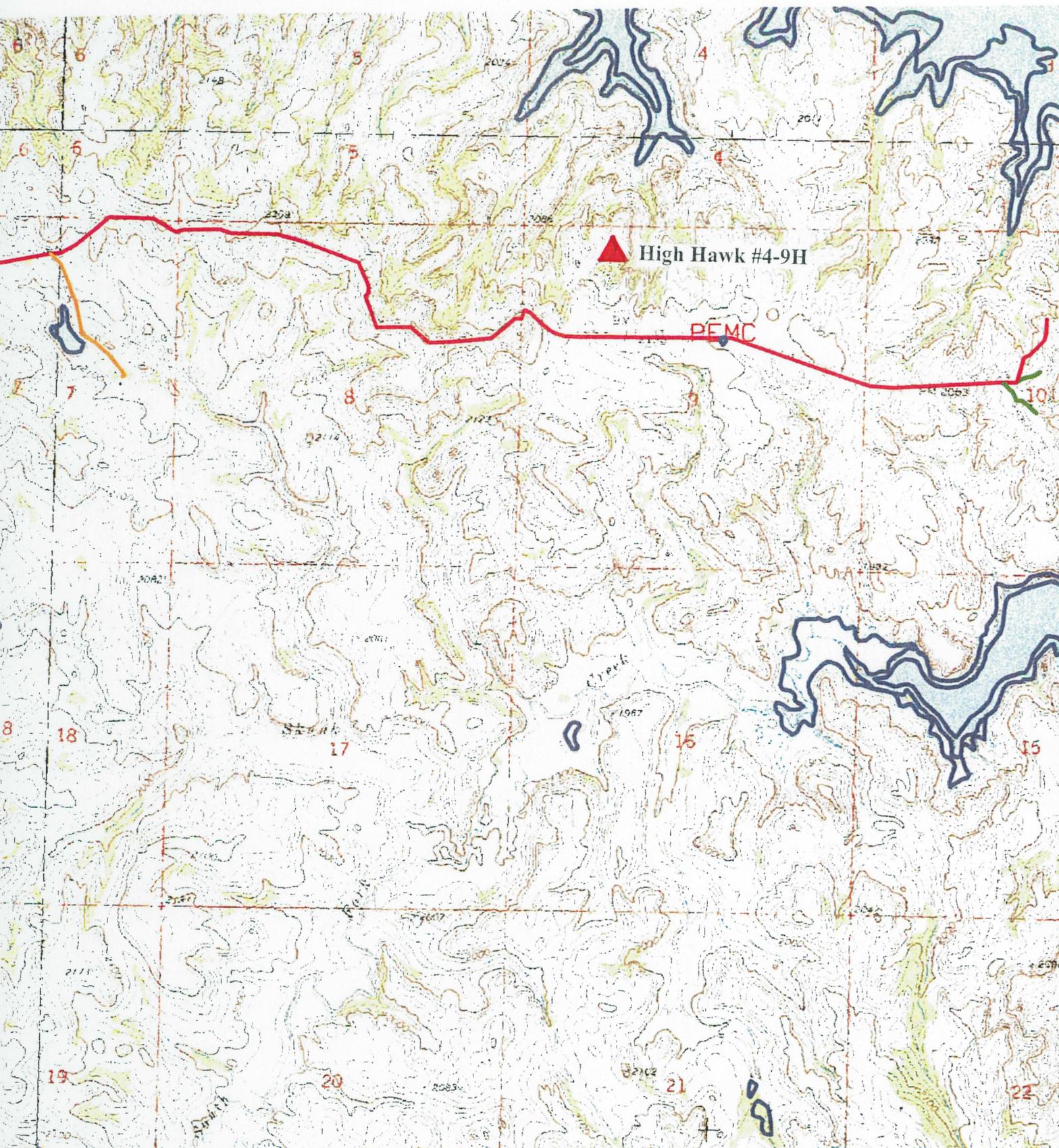
Bureau of Indian Affairs
Great Plains Regional Office
Attention: Ms. Marilyn Bercier
Regional Environmental Scientist
115 Fourth Avenue S.E.
Aberdeen, SD 57401
(w/encl)

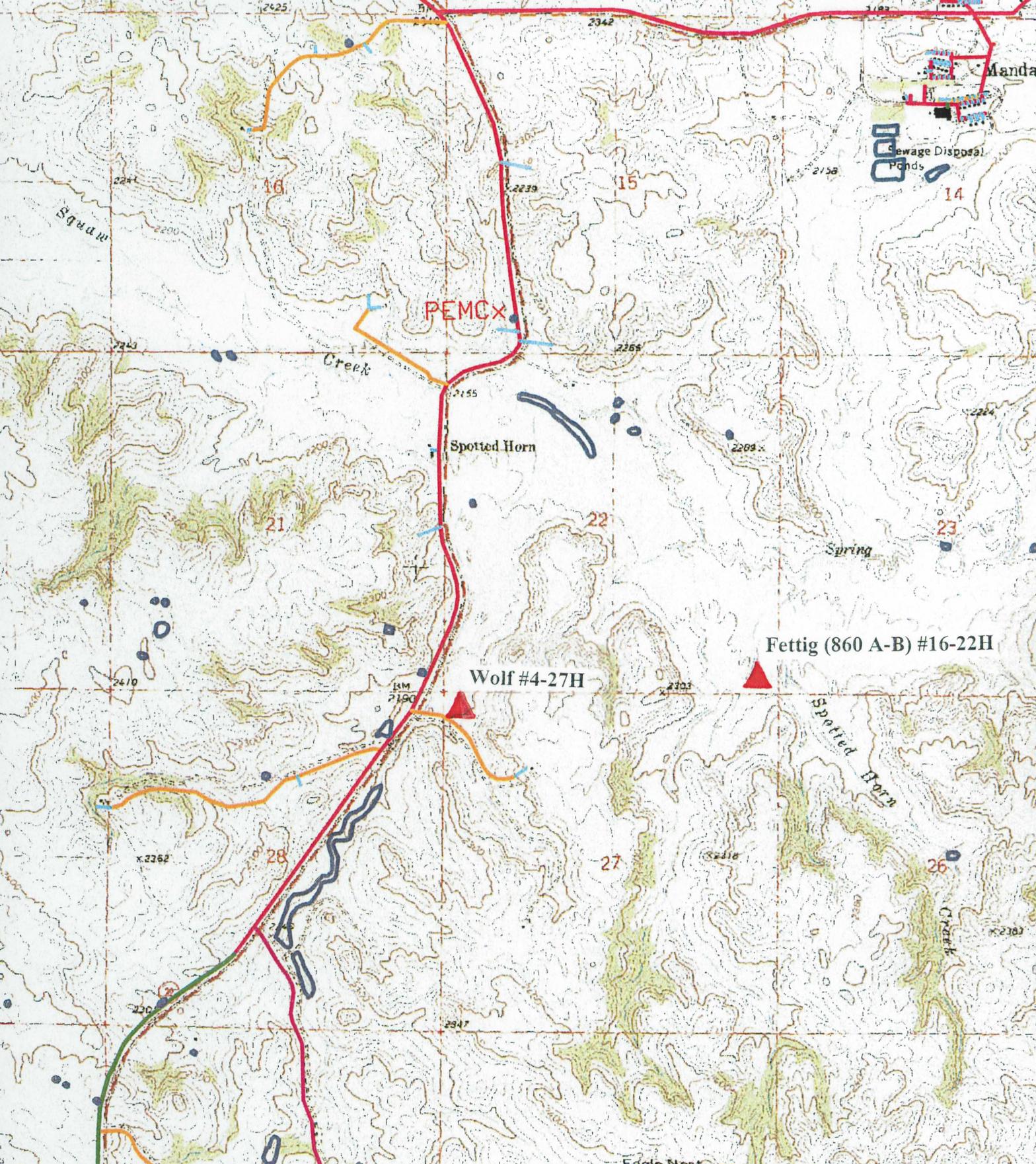


PIPELINE			
	1" POLY		2½"
	1½"		3"
	2"		4"
			6"
			8"
			10"
			12"
			14"

 WETLANDS







PIPELINE

- | | | | | | | | |
|---|---------|---|-----|--|-----|---|-----|
|  | 1" POLY |  | 2½" |  | 6" |  | 12" |
|  | 1½" |  | 3" |  | 8" |  | 14" |
|  | 2" |  | 4" |  | 10" | | |



WETLANDS