

# **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**

**Four Bakken Formation Exploratory Oil Wells:**

**Dakota-3 Birdsbill #14-16H  
Dakota-3 Clark Fox #16-17H  
Dakota-3 Birdsbill (894A) #4-35H  
Dakota-3 Wolf #3-27H**

**Fort Berthold Indian Reservation**

**October 2009**

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

**TABLE OF CONTENTS**

	<u>Page</u>
1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION.....	1
2.0 PROPOSED ACTION AND ALTERNATIVES.....	3
2.1 Field Camps.....	4
2.2 Access Roads.....	4
2.3 Well Pads.....	5
2.4 Drilling.....	6
2.5 Casing and Cementing.....	7
2.6 Completion and Evaluation.....	7
2.7 Commercial Production.....	7
2.8 Construction Details at Individual Sites.....	9
2.8.1 Birdsbill #14-16H.....	9
2.8.2 Clark Fox #16-17H.....	11
2.8.3 Birdsbill (894A) #4-35H.....	14
2.8.4 Wolf #3-27H.....	16
2.9 Reclamation.....	19
2.10 Preferred Alternative.....	19
3.0 THE AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS.....	21
3.1 The No Action Alternative.....	22
3.2 Air Quality.....	22
3.3 Public Health and Safety.....	23
3.4 Water Resources.....	25
3.4.1 Surface Water.....	25
3.4.2 Groundwater.....	28
3.5 Wetlands, Habitat, and Wildlife.....	33
3.5.1 Wetlands.....	33
3.5.2 Wildlife.....	33
3.6 Soils.....	36
3.6.1 Natural Resources Conservation Service Soil Data.....	36
3.6.2 Field-Derived Soil Data.....	44
3.6.3 Conclusions Regarding Soil Erodibility and Feasibility.....	46
3.7 Vegetation and Invasive Species.....	47
3.8 Cultural Resources.....	49
3.9 Socioeconomics.....	49
3.10 Environmental Justice.....	52
3.11 Mitigation and Monitoring.....	52
3.12 Irreversible and Irrecoverable Commitment of Resources.....	54
3.13 Short-Term Use versus Long-Term Productivity.....	54
3.14 Cumulative Impacts.....	55
4.0 CONSULTATION AND COORDINATION.....	59
4.1 List of Preparers.....	60
5.0 REFERENCES AND ACRONYMS.....	63
6.0 ACRONYMS.....	65

**Finding of No Significant Impact  
Zenergy Operating Company , LLC**

**Four Bakken Exploratory Oil Wells:  
Dakota-3 Birdsbill #14-16H  
Dakota-3 Clark Fox #16-17H  
Dakota-3 Birdsbill (894A) #4-35H  
Dakota-3 Wolf #3-27H**

**Fort Berthold Indian Reservation  
Dunn and McKenzie County, North Dakota**

The U.S. Bureau of Indian Affairs (BIA) has received a proposal for four oil/gas wells, access roads and related infrastructure on the Fort Berthold Indian Reservation to be located in Section 16, Township (T) 149 North (N), Range (R) 93 West (W), Dunn County, Section 17, T149N, R93W, Dunn County, Section 26, T149N, R93W, Dunn County and Section 27, T149N, R94W, McKenzie County. 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 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

**LIST OF TABLES**

<b><u>Table</u></b>		<b><u>Page</u></b>
Table 1.	Distance and Direction from Proposed Wells to Nearest Home. ....	22
Table 2.	Air Quality Standards and Data. ....	23
Table 3.	Common Aquifers in the Proposed Project Area and Surrounding Region. ....	28
Table 4.	Existing Water Wells near the Project Area. ....	29
Table 5.	Wildlife Observed during Field Surveys at the Proposed Project Areas. ....	36
Table 6.	Percentage of the Project Area Comprised of Specific Soil Types. ....	38
Table 7.	Soil Data Obtained through the Excavation of Soil Pits within the Proposed Project Area. ....	45
Table 8.	Occupied Area for Recognized Noxious Weeds in Dunn and McKenzie Counties, North Dakota. ....	49
Table 9.	Population and Demographics. ....	51
Table 10.	Income and Unemployment. ....	51
Table 11.	Housing Development Data for the Reservation and Encompassing Counties. ....	52
Table 12.	Confidential, Active, and Permitted Wells within a 1-mile Radius of the Project Area. ....	55
Table 13.	Confidential, Active, and Permitted Wells within a 5-mile Radius of the Project Area. ....	56
Table 14.	Confidential, Active, and Permitted wells within a 10-mile Radius of the Project Area. ....	56
Table 15.	Confidential, Active, and Permitted Wells within a 20-mile Radius of the Project Area. ....	56

**LIST OF FIGURES**

<b><u>Figure</u></b>	<b><u>Page</u></b>
1. Proposed well locations.....	2
2. Typical road cross sections (BLM and USFS 2007).....	5
3. Typical drilling rig .....	6
4. Typical producing oil well pad (Sobotka 2008).....	8
5. Birdsbill #14-16H well pad area, looking north. ....	9
6. Birdsbill #14-16H proposed location showing spacing unit and drilling target. ....	10
7. Birdsbill #14-16H access road, looking south. ....	11
8. Clark Fox #16-17H well pad area, looking north. ....	12
9. Clark Fox #16-17H access road area, looking south.....	12
10. Clark Fox #16-17H proposed location showing spacing unit and drilling target. ....	13
11. Birdsbill (894A) #4-35H well pad area, looking north. ....	14
12. Birdsbill (894A) #4-35H proposed location showing spacing unit and drilling target...	15
13. Birdsbill (894A) #4-35H access road area, looking north. ....	16
14. Wolf #3-27H well pad area, looking north. ....	17
15. Wolf #3-27H access road area, looking south. ....	17
16. Wolf #3-27H proposed location showing spacing unit and drilling target. ....	18
17. Example of reclamation from the BLM Gold Book (USDI and USDA 2007).....	20
18. Watersheds, surface runoff direction, and aquifers near the project area. ....	26
19. Drainage direction from each of the proposed well pads.....	27
20. Approximate spatial extent of soil types within and around Birdsbill #14-16H.....	39
21. Approximate spatial extent of soil types within and around Clark Fox #16-17H. ....	40
22. Approximate spatial extent of soil types within and around Birdsbill (894A) #4-35H. .	41
23. Approximate spatial extent of soil types within and around Wolf #3-27H. ....	42
24. Active, confidential, and permitted wells within a 1-, 5-, 10-, and 20-mile radius of the proposed project locations.....	57

## **1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION**

Zenergy Operating Company, LLC (Zenergy) has acquired the leases and is proposing to drill four 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 located in the Middle Bakken Dolomite member of the Bakken Formation, a known oil reserve. The following proposed well sites, shown in Figure 1, will be located within the Reservation.

- Dakota-3 Birdsbill #14-16H: SE $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 16, Township (T) 149 North (N), Range (R) 93 West (W), Dunn County
- Dakota-3 Clark Fox #16-17H: SE $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 17, T149N, R93W, Dunn County
- Dakota-3 Birdsbill (894A) #4-35H: SW $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 26, T149N, R93W, Dunn County
- Dakota-3 Wolf #3-27H: NE $\frac{1}{4}$ NW $\frac{1}{4}$  of Section 27, T149N, R94W, McKenzie County

The BIA's general mission is to represent the interests, including the Trust Resources, belonging to members of the Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara (MHA) Nation as well as individual tribal members. All members of the Three Affiliated Tribes and individual tribal members will benefit substantially from the development of oil and gas developments on the Reservation. Oil and gas exploration and subsequent developments 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 projects includes approving easements, leases, and rights-of-way (ROWs), determining effects on cultural resources and making recommendations to the Bureau of Land Management (BLM).

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 should arise as a result of any of the aforementioned actions.

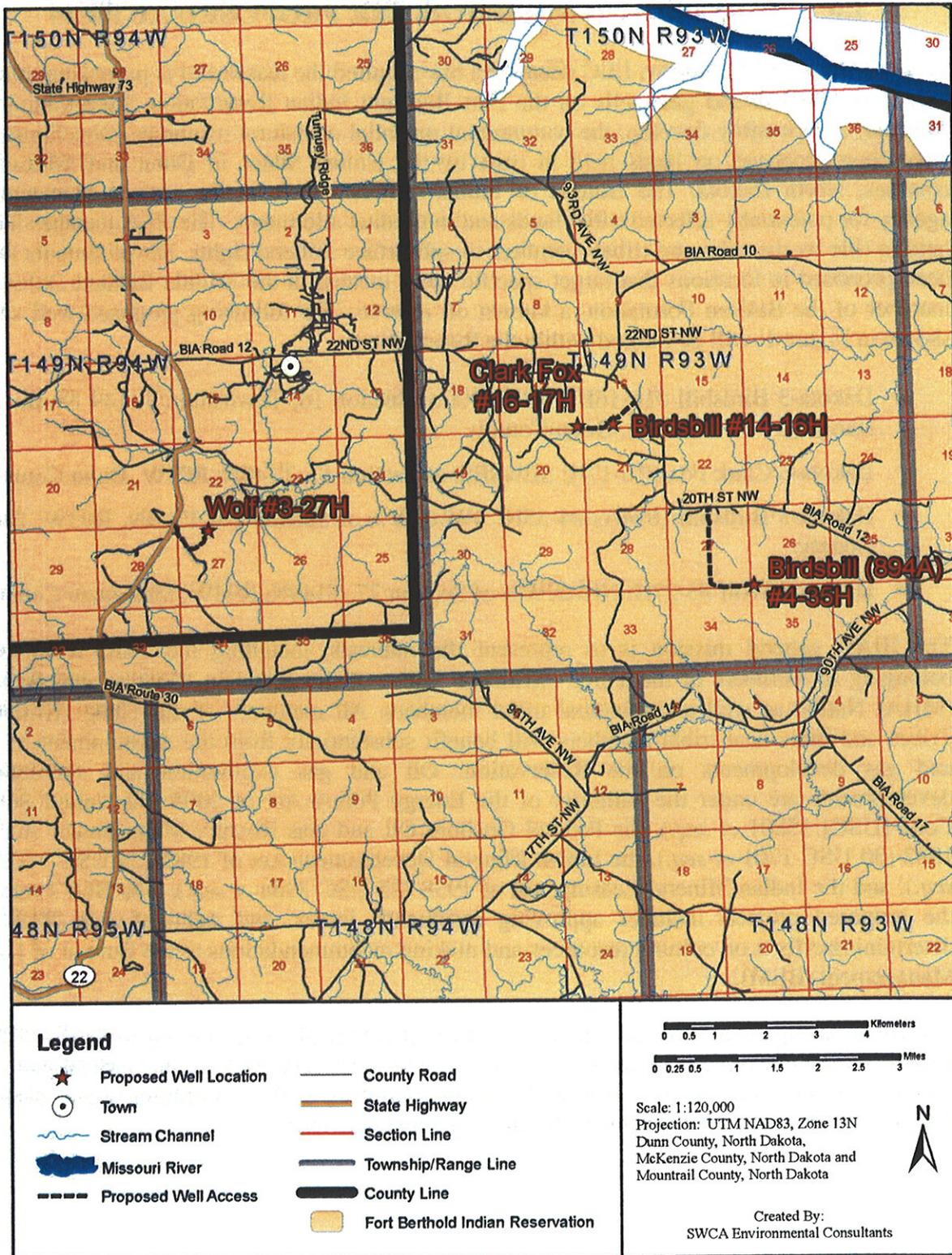


Figure 1. Proposed well locations.

Compliance with the Council on Environmental Quality regulations (CEQ, 40 CFR 1500-1508) and the National Environmental Policy Act of 1969 (NEPA) are required due to the projects' location on federal lands. The APDs were submitted by Zenergy to describe the procedures (i.e., development, recreational, reclamation) and technical practices. The procedures and practices explained will help to describe the impacts to the land. This Environmental Assessment (EA) will either result in a Finding of No Significant Impact (FONSI) or result in the preparation of an Environmental Impact Statement (EIS).

Various components will be associated with the construction and subsequent operation of each of the proposed well sites. Existing access roads will be upgraded and new access roads will be constructed in order to facilitate the installation and operation of each proposed well pad. Well pads will be constructed to accommodate drilling activities. Pits constructed for drill cuttings will be used during drilling operations and reclaimed once operations have ceased. Should any of the proposed well sites enter into a period of long-term commercial production, supporting facilities may be constructed on site. All components (i.e., roads, well pads, supporting facilities) will be reclaimed unless formally transferred, with federal approval, to either the BIA or the landowner. The proposed wells are exploratory, meaning that the results of these drilling operations could initiate further exploration of surrounding areas. This EA however only addresses the potential effects associated with the installation 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. Once these projects are authorized, they must 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 ALTERNATIVES**

A "No Action Alternative" must be considered within an EA. If the "No Action Alternative" is decided upon, the BIA will not approve leases, ROWs, etc. for one or more of the proposed locations, the APDs would not be approved, and land would remain in its current state.

This document analyzes the potential impacts of specific projects—four exploratory oil and gas wells with varied surface and mineral estates. The specific sites have been chosen by the proponent in consultation with the Tribal and BIA resource managers to assist in defining further potential production. The specific locations were chosen after a pre-clearance process which included surveys of cultural, archaeological, and natural (i.e., biological and physical) resources. The proposed well locations are in the west-central portions of the Reservation in Dunn and McKenzie Counties. The proposed wells would test the commercial potential of the Middle Bakken Dolomite Member of the Bakken Formation. Site-specific components of these sites may include access road upgrade and/ or construction, well pad construction, drilling operations, installation of production facilities, increased traffic from tankers, and reclamation.

The APDs, EA, lease stipulations, guidelines and standards in the Surface Operating Standards for Oil and Gas Exploration and Development also known as the Gold Book

(BLM/U.S. Forest Service [USFS], 4th Edition), and any special actions required by the BIA or BLM would be followed during construction. Operations would be in full compliance with laws and regulations that are applicable including Title 43 Code of Federal Regulations (CFR) 3100; Onshore Oil and Gas Orders Nos. 1, 2, 6, and 7; approved operation plans and Notices to Lessees.

## **2.1 FIELD CAMPS**

A few personnel may 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 ACCESS ROADS**

Up to 16,368 feet (i.e., 3.1 miles) of new access roads would be constructed and 174.49 feet (i.e., 0.03 mile) of road to the four proposed well locations would be upgraded or improved. Signed agreements would be in place allowing road construction across affected surface allotments and private land surfaces, and any applicable approach permits and/or easements would be obtained prior to any construction activity. A maximum disturbed ROW width of 66 feet for each access road would result in up to 24.8 acres of new surface disturbance.

Construction would follow road design standards outlined in the BLM Gold Book (BLM and USFS 2006). Six inches of topsoil, at a minimum, would be removed from the access road corridors. This stockpiled topsoil would then be placed on the outslopes 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 12. The access roads would need to be surfaced with a minimum of 4 inches of aggregate for those sites to be established as commercial production sites. Also, the roadways would remain for the life of the well(s). Details of road construction are addressed in the APDs. A typical cross section is shown in Figure 2.

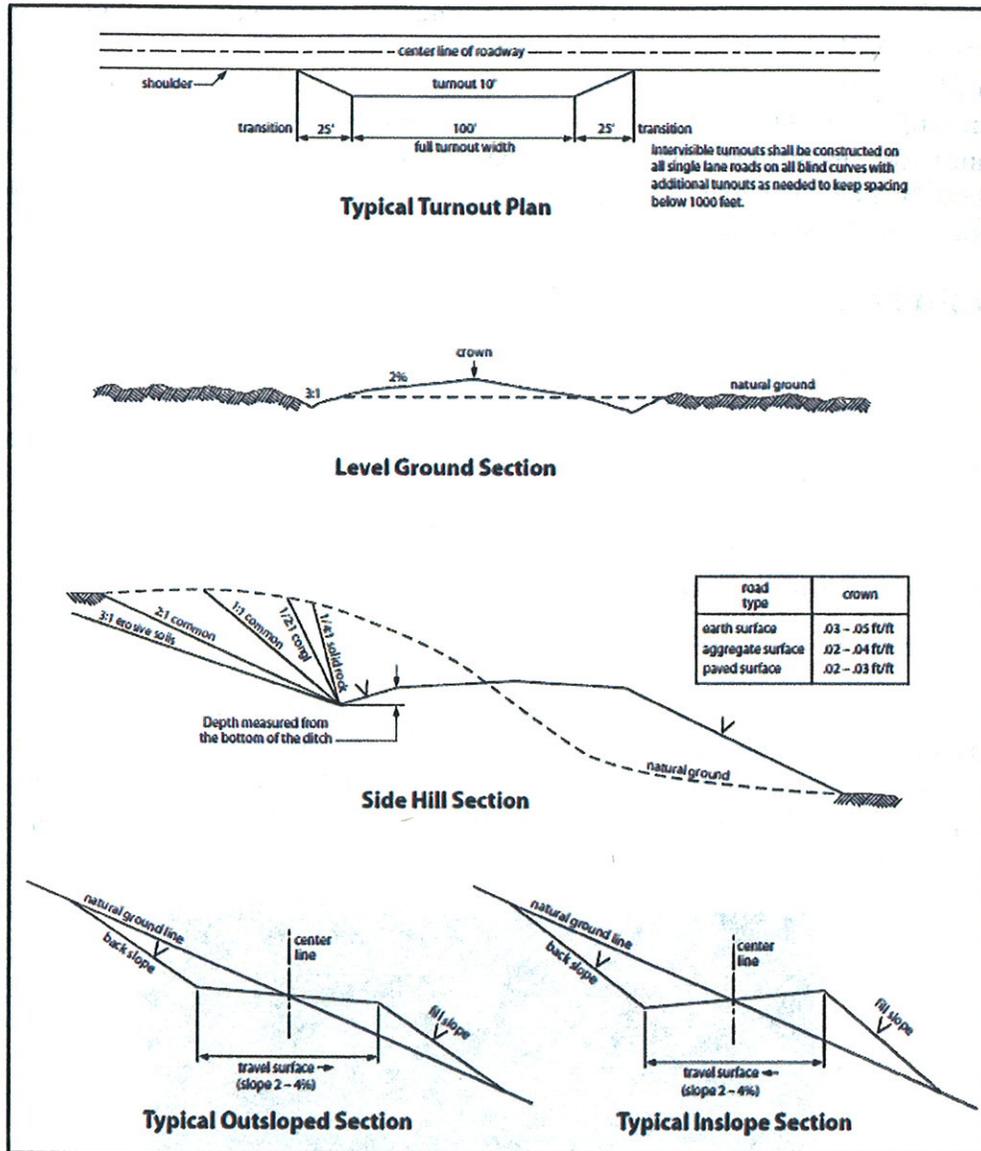


Figure 2. Typical road cross sections (BLM and USFS 2007).

### 2.3 WELL PADS

The proposed wells would mainly consist of two parts: a level area and a pit. The level area would be used for the drilling rig and other equipment and the pit would be excavated for drilling fluids, drill cuttings, and fluids produced while drilling. The pad areas would be stripped of topsoil and graded and, therefore, would retain no vegetation. The topsoil would be stockpiled and stabilized. It would be used to reclaim and re-vegetate the disturbed areas at a later time. The sub-soils would be used in the construction of the pads and the finished pads would be graded so that water drains away from the pad. Multiple erosion controls would be in place, including re-vegetation, and surface water drainage controls such as berms, water bars, and diversion ditches.

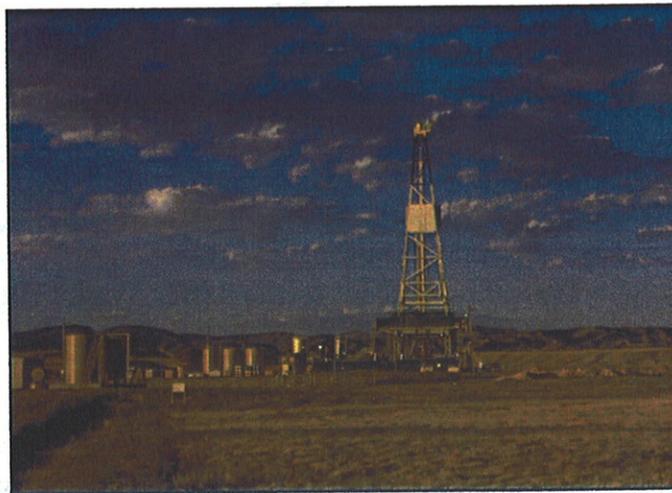
The level area of the well pads used for drilling and completion operations (including a reserve pit for drill cuttings) would be approximately 430 by 330 feet (3.3 acres per well pad). Cut and fill slopes and stockpiled topsoil and reserve pit backfill on the edge of pads would result in approximately 0.4 acre of additional surface disturbance. The total surface disturbance for each well pad would be approximately 3.7 acres and would total approximately 14.8 acres for all of the well pads together. Details of pad construction and reclamation are diagrammed in the APDs.

## **2.4 DRILLING**

After securing mineral leases, Zenergy submitted the Notice of Staking (NOS) to the BLM on the following dates.

- Dakota-3 Birdsbill #14-16H: July 2, 2009
- Dakota-3 Clark Fox #16-17H: July 22, 2009
- Dakota-3 Birdsbill (894A) #4-35H: June 4, 2009
- Dakota-3 Wolf #3-27H: June 29, 2009

The BIA's office in New Town, North Dakota received copies of the APDs that the BLM North Dakota Field Office forwarded on for review. The BLM will only approve an APD once the BIA completes the NEPA process and recommends approval of the APD. Only after a permit from the BLM is obtained can construction and drilling begin. A typical drilling rig is shown in Figure 3.



**Figure 3. Typical drilling rig**

Rig transport and on-site assembly would take roughly seven days for each well. 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 the 7-inch casing point. Oil-based drilling fluids reduce the potential for hole sloughing while drilling through water-sensitive formations (shales). Approximately 4,725 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.

## **2.5 CASING AND CEMENTING**

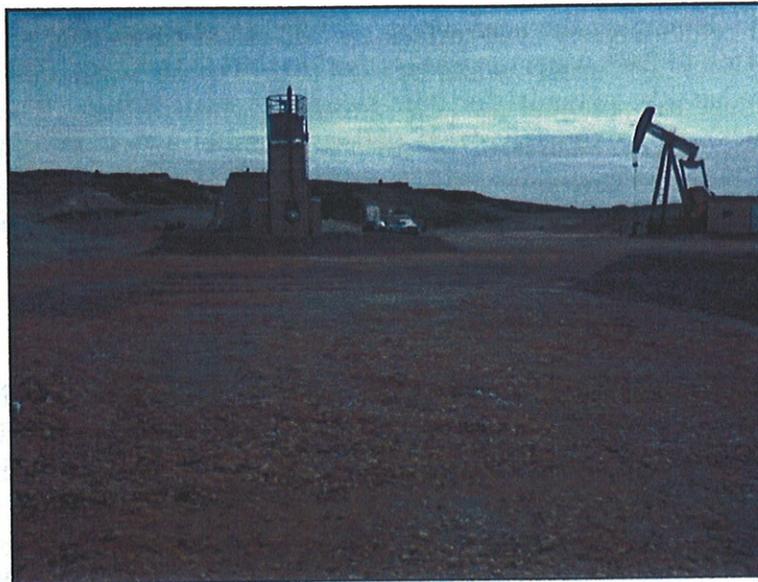
Surface casing would be set at an approximate depth of 2,500 feet and cemented back to the surface during drilling, isolating all near-surface freshwater aquifers in each project area. The Fox Hills Formation and Pierre Shale Formation would be encountered at depths of approximately 1,700 and 1,800 feet, respectively. A 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).

## **2.6 COMPLETION AND EVALUATION**

A completion unit (i.e., work-over) unit would be moved on-site upon completion of drilling and casing activities. Approximately thirty (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 is to pump a mixture of sand and a carrier (e.g., water and/or nitrogen) under extreme pressure downhole. The resulting fractures are propped open by the sand, which increases the capture zone of the well and subsequently maximizes the efficient drainage of the field. After fracturing, the well is flowed back to the surface where fracture fluids are recovered. Fluids captured in the completion procedures would be disposed of in strict accordance to North Dakota Industrial Commission (NDIC) rules and regulations.

## **2.7 COMMERCIAL PRODUCTION**

If drilling, testing, and production support commercial production from any of the four 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 4). An impervious dike sized to hold 100% of the capacity of the largest tank plus one full day's production would surround production tanks and the heater/treater. Load out lines would be located inside the diked area, with a heavy screen-covered drip barrel 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, that would blend with the natural color of the landscape.



**Figure 4. Typical producing oil well pad (Sobotka 2008).**

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 product and 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 produce approximately 500 barrels of oil per day and 100 barrels of water during the first year of production. After the initial 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.

In the future, 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. This EA does not address the impacts of construction or operation of such ancillary developments.

Large volumes of gas are not expected from these locations. Small volumes would be flared in accordance with the 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). Results could also encourage additional exploration. 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.

## **2.8 CONSTRUCTION DETAILS AT INDIVIDUAL SITES**

### **2.8.1 Birdsbill #14-16H**

The proposed Birdsbill #14-16H well site, seen in Figure 5, would be approximately 3.97 miles east-southeast of Mandaree in the SE $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 16, T149N, R93W, Dunn County, North Dakota. A new access road approximately 1,584 feet long would be constructed to connect to BIA 12 (Figures 6 and 7). The new road would disturb approximately 2.4 acres while the proposed well pad would disturb approximately 3.3 acres bringing the total anticipated new disturbance to 5.7 acres.

The spacing unit consists of 320 acres (+/-) with the bottom hole located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$  of Section 16, T149N, R93W (Figure 6). Vertical drilling would be completed at approximately 8,510 feet, at which point drilling would turn roughly horizontal to an approximate total vertical depth (TVD) of 9,166 feet. The total drill string would be approximately 10,885 feet at the TVD, including approximately 4,600 feet of lateral reach into the Middle Bakken Formation. The drilling target is located about 550 feet from north line (FNL) and 550 feet from west line (FWL) about 4,692 feet northwest of the surface hole location. A setback of at least 500 feet would be maintained.



**Figure 5. Birdsbill #14-16H well pad area, looking north.**

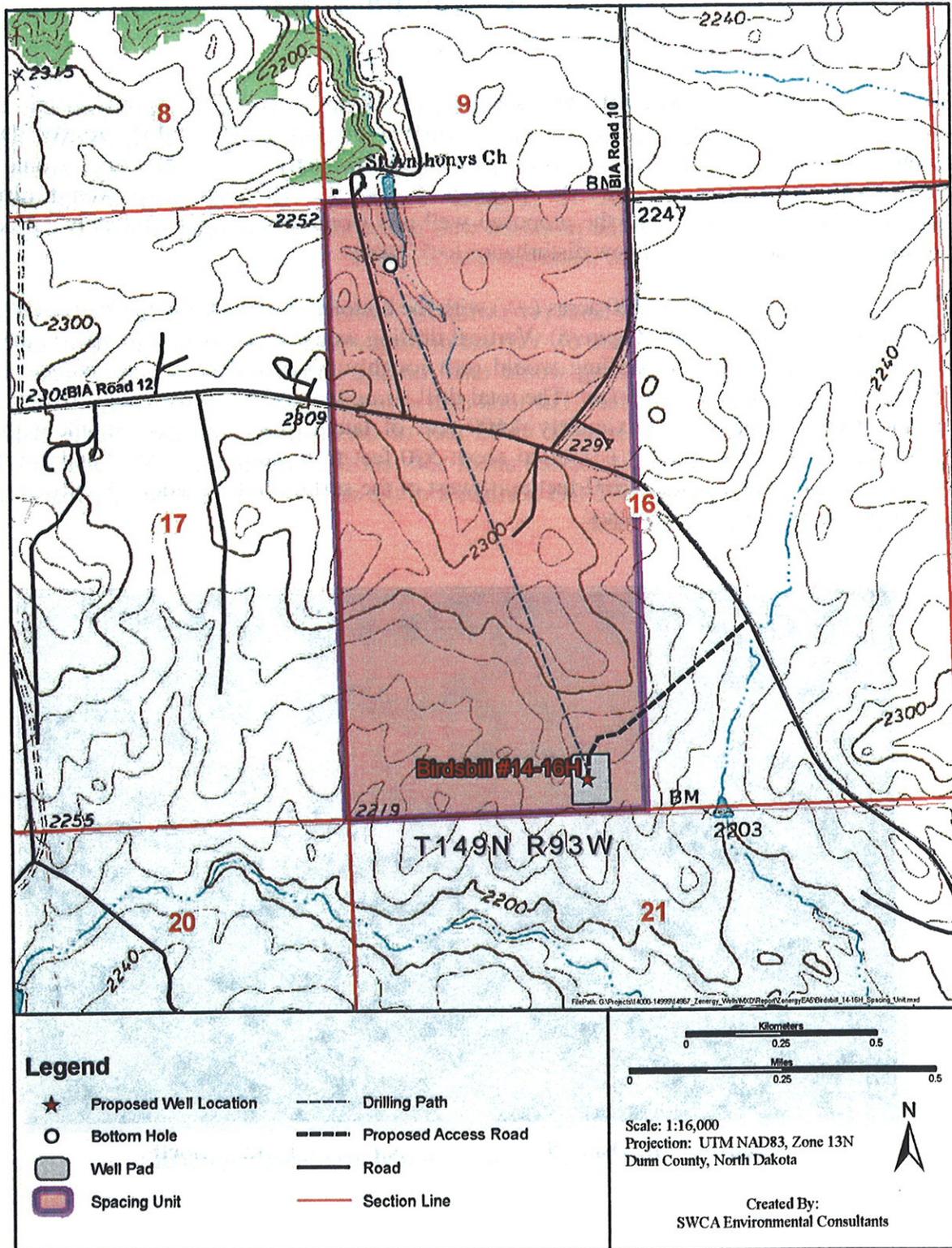


Figure 6. Birdsill #14-16H proposed location showing spacing unit and drilling target.



**Figure 7. Birdsbill #14-16H access road, looking south.**

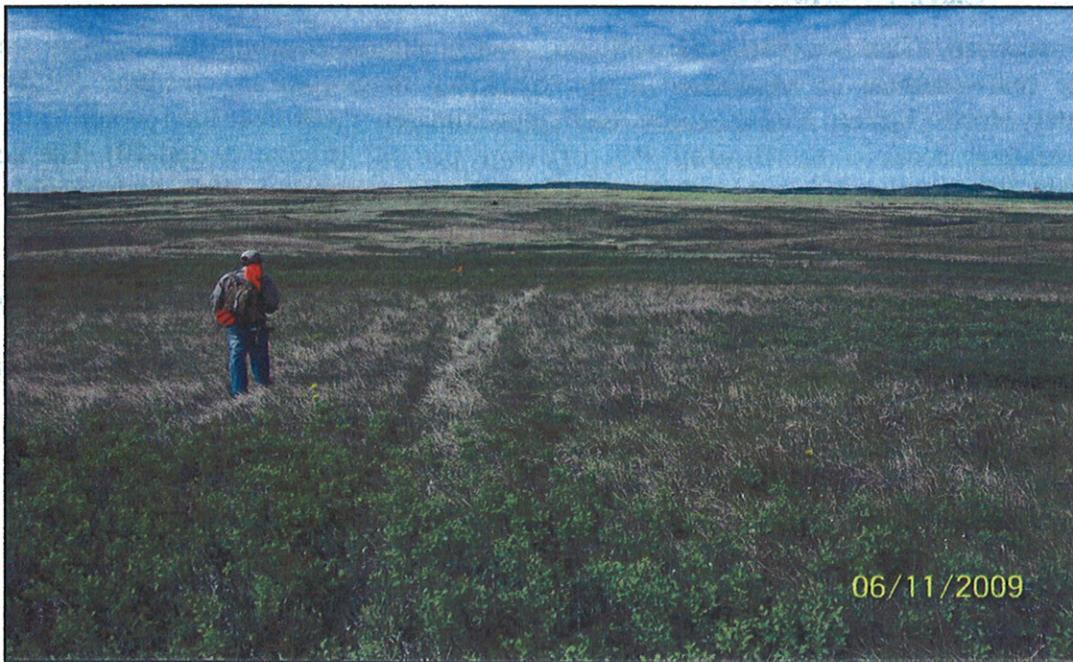
### **2.8.2 Clark Fox #16-17H**

The proposed Clark Fox #16-17H well site, seen in Figure 8, would be approximately 3.63 miles east-southeast of Mandaree in the SE $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 17, T149N, R93W, Dunn County, North Dakota. A new access road approximately 2,640 feet long would extend from the existing access to the Birdsbill #14-16H well pad site (Figures 9 and 10). The new road would disturb approximately 4.00 acres while the proposed well pad would disturb approximately 3.21 acres, bringing the total anticipated new disturbance to 7.21 acres.

The spacing unit consists of 640 acres (+/-) with the bottom hole located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$  of Section 17, T149N, R93W (Figure 10). Vertical drilling would be completed at approximately 8,510 feet, at which point drilling would turn roughly horizontal to an approximate TVD of 9,166 feet. The total drill string would be approximately 10,885 feet at the TVD, including approximately 4,600 feet of lateral reach into the Middle Bakken Formation. The drilling target is located about 550 feet FNL and 550 feet FWL, about 6,268 feet north-northwest from the surface hole location. A setback of at least 500 feet would be maintained.



**Figure 8. Clark Fox #16-17H well pad area, looking north.**



**Figure 9. Clark Fox #16-17H access road area, looking south.**

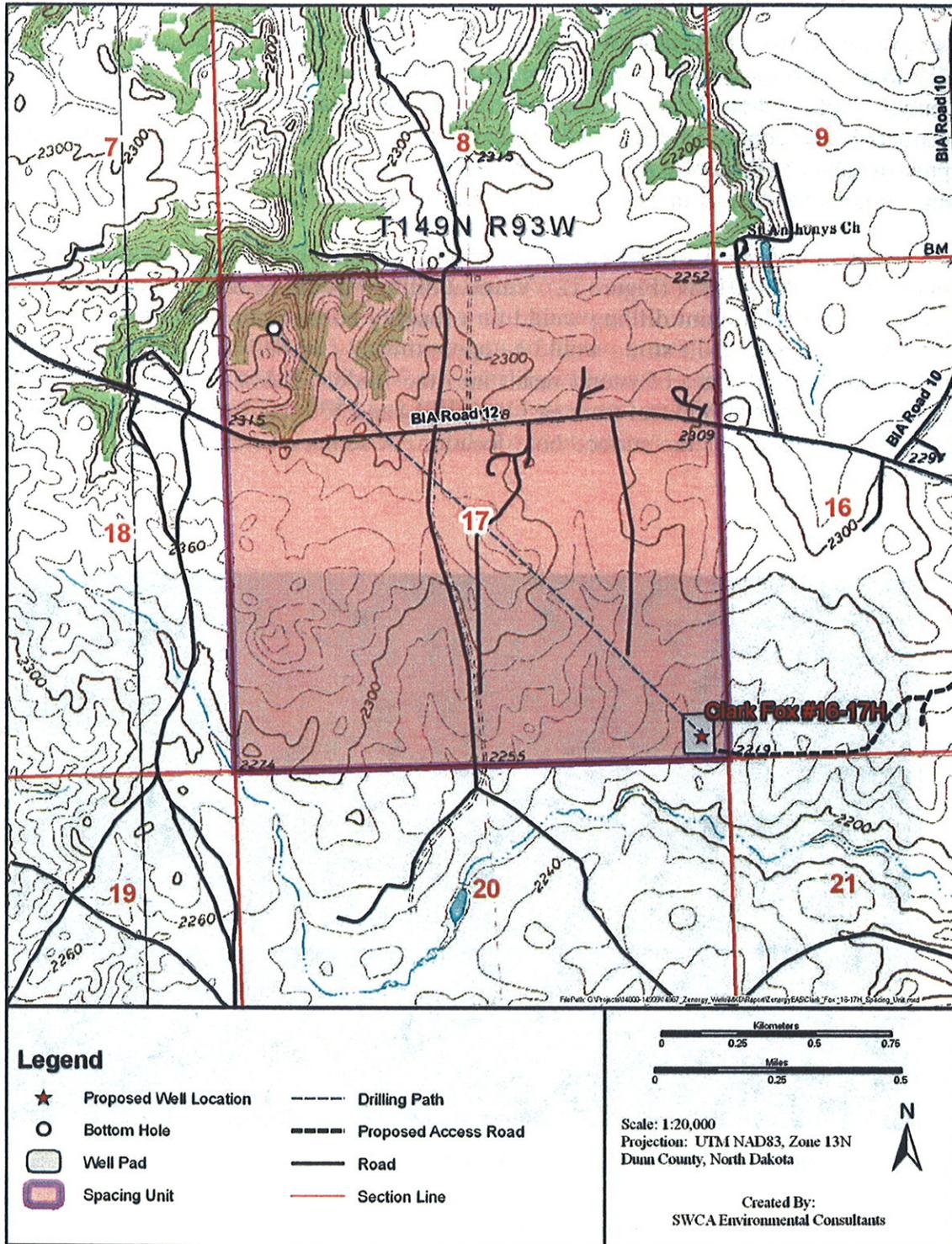


Figure 10. Clark Fox #16-17H proposed location showing spacing unit and drilling target.

### **2.8.3 Birdsbill (894A) #4-35H**

The proposed Birdsbill (894A) #4-35H well site, seen in Figure 11, would be approximately 6.29 miles southeast of Mandaree in the SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> of Section 26, T149N, R93W, Dunn County, North Dakota. A new access road approximately 7,920 feet long would be constructed to connect to BIA 12 (Figures 12 and 13). The new road would disturb approximately 12.00 acres while the proposed well pad would disturb approximately 3.27 acres, bringing the total anticipated new disturbance to 15.27 acres.

The spacing unit consists of 640 acres (+/-) with the bottom hole located in the SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> of Section 35, T149N, R93W (Figure 12). Vertical drilling would be completed at approximately 8,480 feet, at which point drilling would turn roughly horizontal to an approximate TVD of 8,950 feet. The total drill string would be approximately 10,680 feet at the TVD, including approximately 4,600 feet of lateral reach into the Middle Bakken Formation. The drilling target is located about 500 feet from east line (FEL) and 550 feet from south line (FSL) about 6,608 feet southeast of the surface hole location. A setback of at least 500 feet would be maintained.



**Figure 11. Birdsbill (894A) #4-35H well pad area, looking north.**

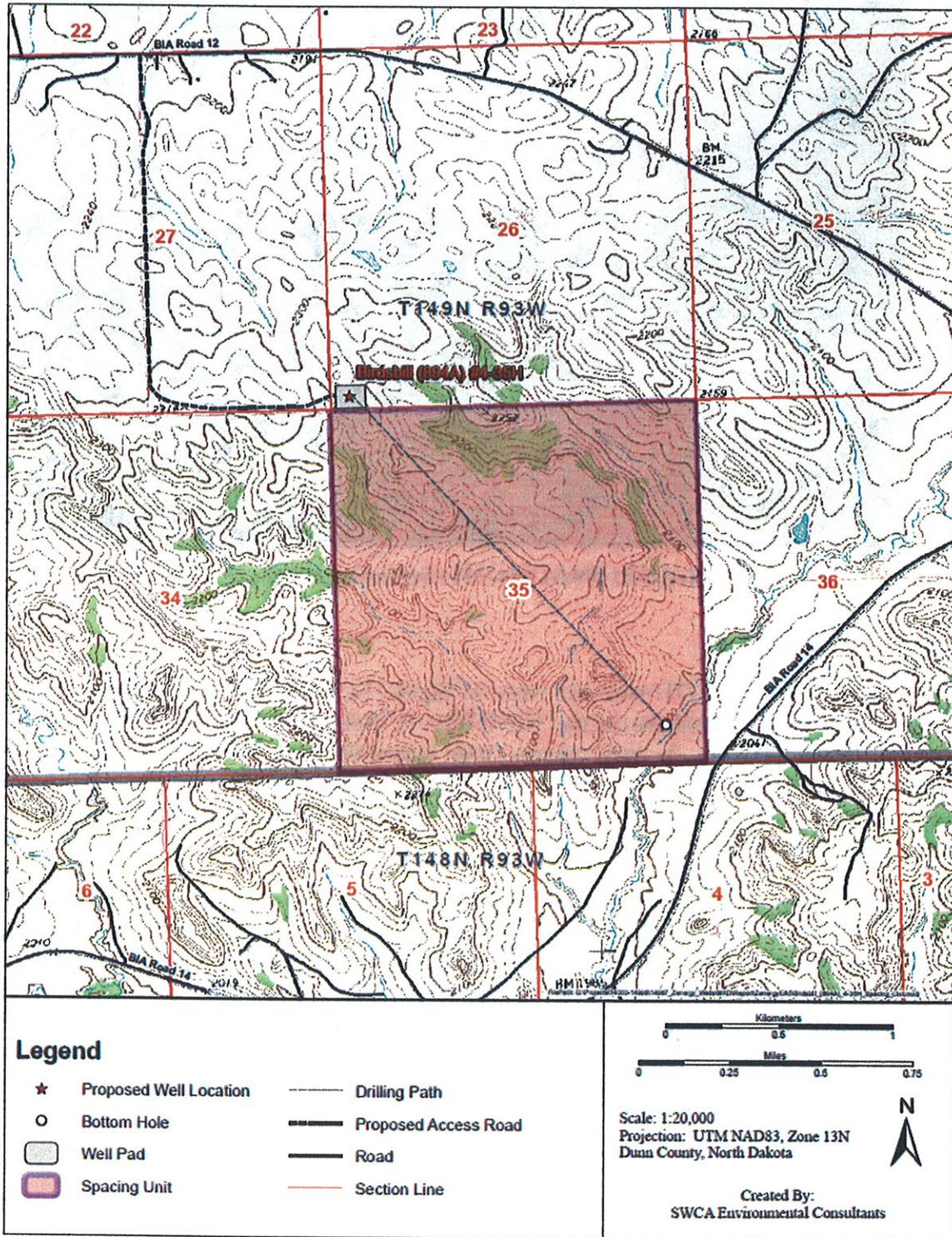


Figure 12. Birdsbill (894A) #4-35H proposed location showing spacing unit and drilling target.



**Figure 13. Birdsbill (894A) #4-35H access road area, looking north.**

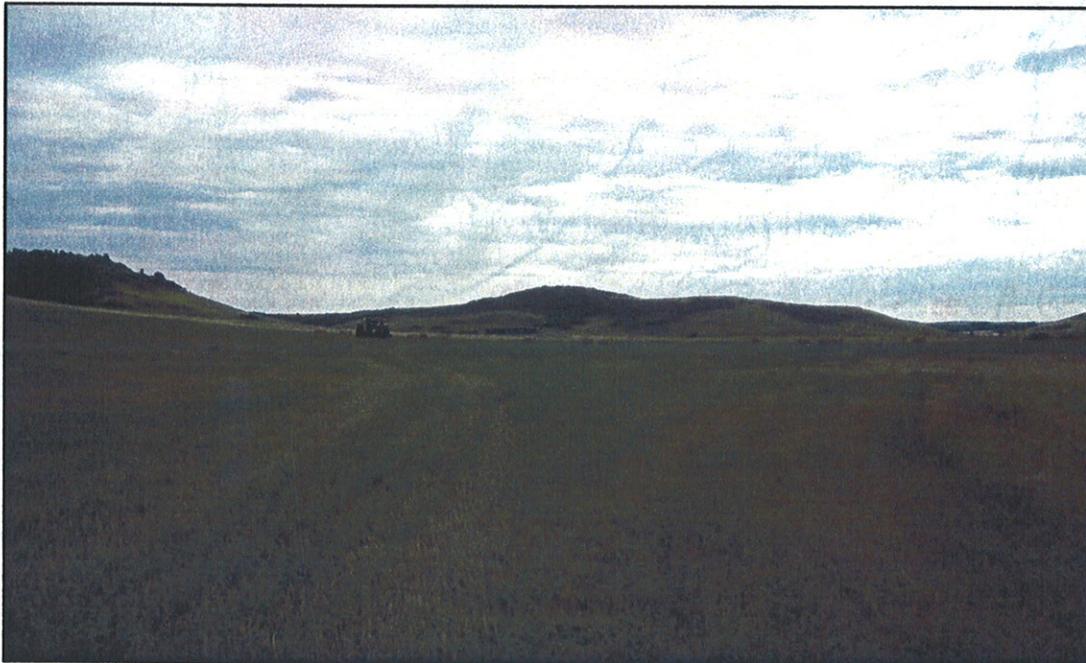
#### **2.8.4 Wolf #3-27H**

The proposed Wolf #3-27H well site, seen in Figure 14, would be approximately 2.27 miles south-southwest of Mandaree in the NE $\frac{1}{4}$ NW $\frac{1}{4}$  of Section 27, T149N, R94W, McKenzie County, North Dakota. A new access road approximately 4,224 feet long would be constructed to connect to State Highway 22 (Figures 15 and 16). The new road would disturb approximately 6.40 acres while the proposed well pad would disturb approximately 3.76 acres, bringing the total anticipated new disturbance to 10.16 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 27, T149N, R94W (Figure 16). Vertical drilling would be completed at approximately 8,628 feet, at which point drilling would turn roughly horizontal to an approximate TVD of 9,166 feet. The total drill string would be approximately 10,885 feet at the TVD, including approximately 4,600 feet of lateral reach into the Middle Bakken Formation. The drilling target is located about 550 feet FSL and 2,090 feet FEL, about 4,558 feet south-southeast of the surface hole location. A setback of at least 500 feet would be maintained.



**Figure 14. Wolf #3-27H well pad area, looking north.**



**Figure 15. Wolf #3-27H access road area, looking south.**

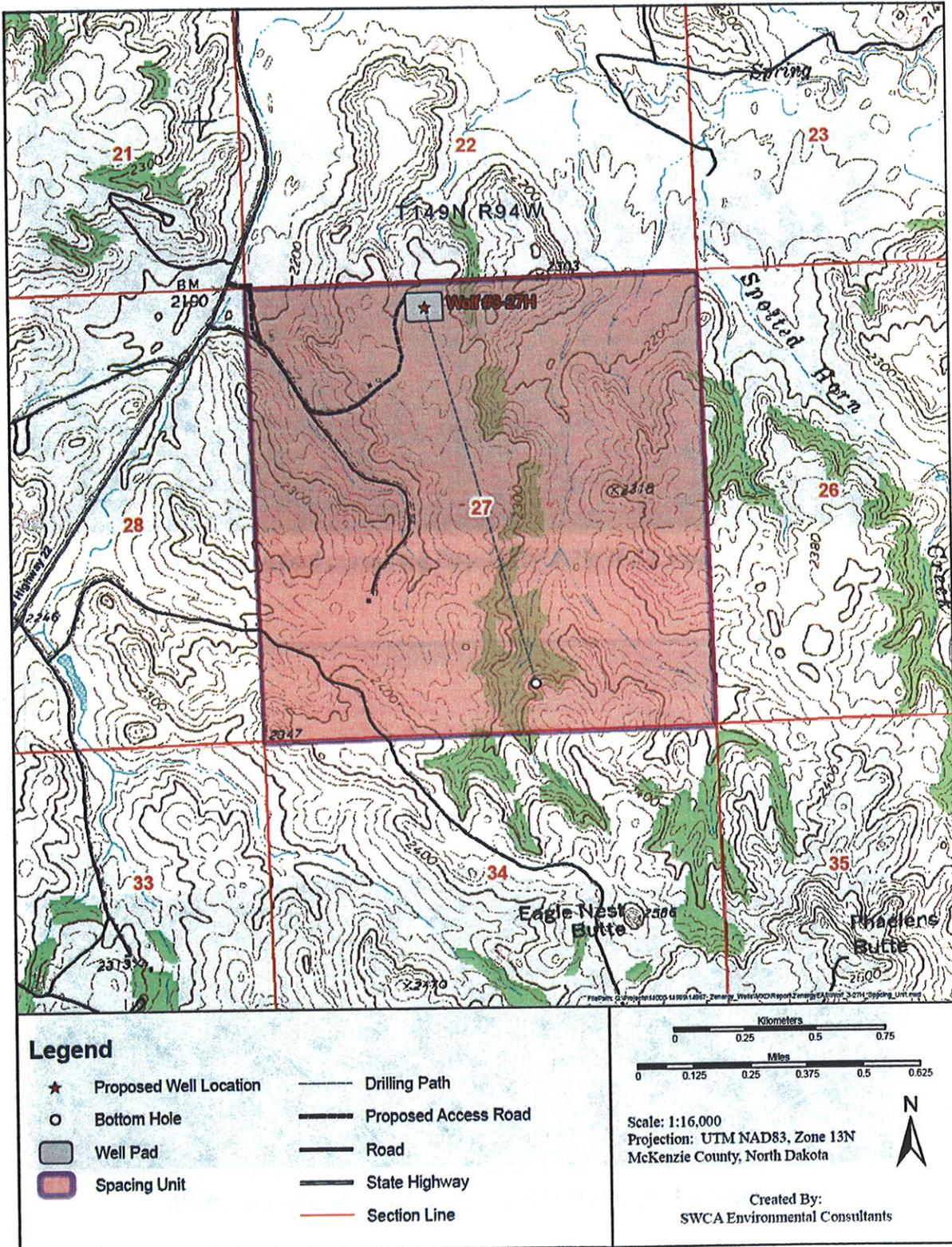


Figure 16. Wolf #3-27H proposed location showing spacing unit and drilling target.

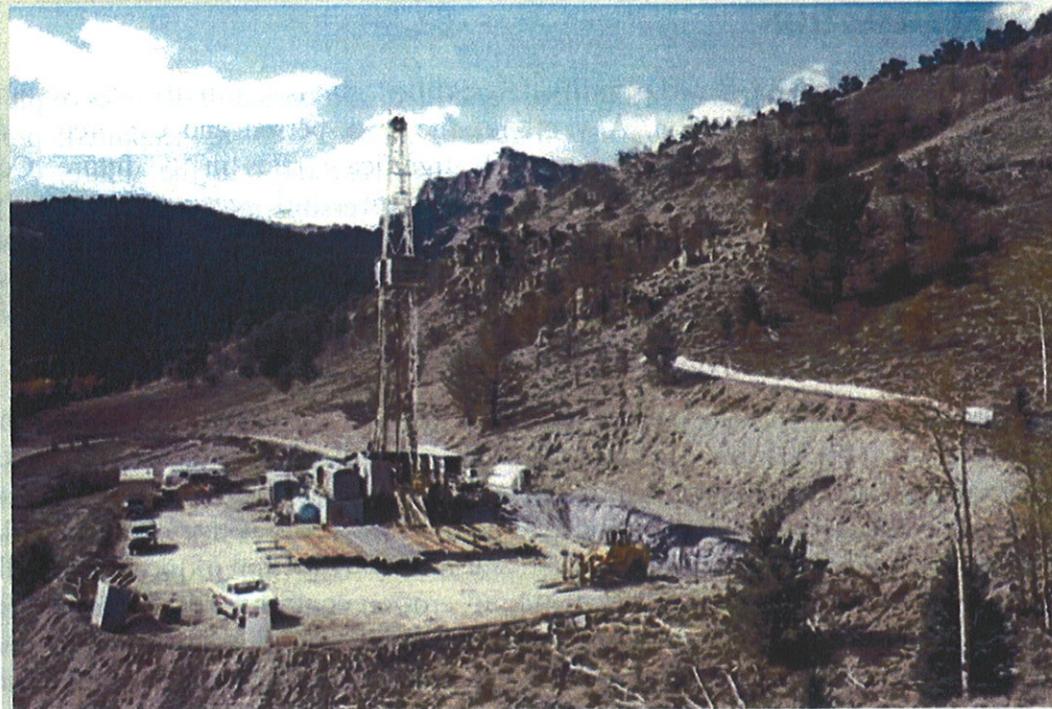
## **2.9 RECLAMATION**

The drill cuttings would be treated, solidified, backfilled, and buried in the reserve pit as soon as possible after well completion. Any oil residue is dispersed and captured, preventing coalescence and release to the environment at significant rates in the future. Controlled mixing of cuttings with a non-toxic reagent causes an irreversible reaction that quickly results in an inert, solid material. The alkaline nature of the stabilized material also chemically stabilizes various metals that may be present, primarily by transforming them into less soluble compounds. 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, with the rest of the original pad 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. Other interim reclamation measures to be accomplished within 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. The outslope portions of roads would be covered with stockpiled topsoil and re-seeded, reducing the residual access-related disturbance to a width of about 28 feet. 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 17 shows an example of reclamation (BLM and USFS 2007).

## **2.10 PREFERRED ALTERNATIVE**

The preferred alternative is to complete all administrative actions and approvals necessary to authorize and facilitate oil and gas developments at the four 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 17. 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 Three Affiliated Tribes 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 1954, the Garrison Dam was completed, inundating much of the Reservation. The remaining land was divided into three sections by Lake Sakakawea, an impoundment of the Missouri River upstream of the dam.

The proposed wells and access roads are situated geologically within 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 projects. Although earlier oil/gas exploration activity within 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 (that part 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 formerly glaciated, gently rolling landscape ranges from a normal pool elevation of 1,838 feet at Lake Sakakawea to over 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 graveled and paved roadways. Four residences are within 1 mile of the proposed well sites, but none closer than 1,806 feet (Table 1). 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 and the Preferred Alternative. 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 a project does *not* in itself require preparation of an EIS. Following discussion of the No Action Alternative below, existing conditions and potential impacts from the proposed projects are described.

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

<b>Proposed Well</b>	<b>Feet to Nearest Home</b>	<b>Direction to Nearest Home</b>
Birdsbill #14-16H	2,808	Northeast
Clark Fox #16-17H	2,262	North
Birdsbill (894A) #4-35H	4,632	North
Wolf #3-27H	1,806	West

### **3.1 THE NO ACTION ALTERNATIVE**

Under the No Action Alternative the proposed projects would not be constructed, drilled, installed, or operated. Existing conditions would not be impacted for 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 or environmental justice. There would be no project-related ground disturbances, use of hazardous materials, or trucking of product to collection areas. Surface disturbance, deposition of potentially harmful biological material, trucking, and other traffic 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 resulting from the discovery of resources at these well locations.

### **3.2 AIR QUALITY**

The North Dakota Department of Health (NDDH) network of Ambient Air Quality and Monitoring (AAQM) stations includes 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 tracked under National Ambient Air Quality Standards (NAAQS) of the *Clean Air Act* include sulfur dioxide (SO<sub>2</sub>), particulate matter (PM<sub>10</sub>), nitrogen dioxide (NO<sub>2</sub>), and ozone (O<sub>3</sub>). Two other criteria pollutants—lead (Pb) and carbon monoxide (CO)—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 area.

North Dakota was one of only nine states in 2006 that met standards for all criteria pollutants. The state also met standards for fine particulates and the eight-hour ozone standards established by the U.S. Environmental Protection Agency (EPA) (NDDH 2007). The three counties addressed in Table 2 are also in full attainment and usually far below established limits for these pollutants (American Lung Association 2006). The Clean Air Act mandates prevention of significant deterioration in designated attainment areas. Class I areas are of national significance and include national parks greater than 6,000 acres in size, national monuments, national seashores, and federal wilderness areas larger than 5,000 acres and designated prior to 1977. A Class I airshed exists above the nearby Theodore Roosevelt National Park, which covers about 110 square miles in three units within the Little Missouri National Grassland between Medora and Watford City, 30 to 40 miles west of the proposed well sites. The Reservation can be considered a Class II attainment airshed, which affords it a lower level of protection from significant deterioration.

**Table 2. Air Quality Standards and Data.**

Pollutant	Averaging Period	NAAQS ( $\mu\text{g}/\text{m}^3$ )	NAAQS (ppm)	County		
				Dunn	McKenzie	Mercer
SO <sub>2</sub>	24-hour	365	0.14	0.004 ppm	0.004 ppm	0.011 ppm
	Annual Mean	80	0.03	0.001 ppm	0.001 ppm	0.002 ppm
PM <sub>10</sub>	24-hour	150	--	50 ( $\mu\text{g}/\text{m}^3$ )	35 ( $\mu\text{g}/\text{m}^3$ )	35 ( $\mu\text{g}/\text{m}^3$ )
	Annual Mean	50	--	--	--	--
PM <sub>2.5</sub>	24-hour	35	--	--	--	--
	Weighted Annual Mean	15	--	--	--	--
NO <sub>2</sub>	Annual Mean	100	0.053	0.002	0.01	0.003
CO	1-hour	40,000	35	--	--	--
	8-hour	10,000	9	--	--	--
Pb	3-month	1.5	--	--	--	--
O <sub>3</sub>	1-hour	240	0.12	0.071 ppm	0.072 ppm	0.076 ppm
	8-hour	--	0.75	0.061 ppm	0.066 ppm	0.067 ppm

Source: U.S. Environmental Protection Agency (EPA) 2006.  
 $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter; ppm = parts per million

The proposed projects are similar to other projects installed nearby with the approval of state offices. Construction, drilling, and tanker traffic would generate temporary, intermittent, and nearly undetectable gaseous emissions of particulates, SO<sub>2</sub>, NO<sub>2</sub>, CO, and volatile organic compounds. Road dust would be controlled as necessary and other best management practices (BMPs) implemented as necessary to limit emissions to each immediate project area (BLM and USFS 2007). No detectable or long-term impacts to air quality or visibility are expected within the airsheds of the Reservation, state, or Theodore Roosevelt National Park. No laws, regulations, or other requirements have been waived; no monitoring of compensatory measures is required.

### 3.3 PUBLIC HEALTH AND SAFETY

Health and safety concerns include naturally-occurring toxic gases, hazardous materials used or generated during installation or production, and hazards posed by heavy truck traffic associated with drilling, completion, and production activities.

Hydrogen sulfide gas (H<sub>2</sub>S) is extremely toxic in concentrations above 500 parts per million, but it has not been found in measurable quantities in the Bakken Formation. Before reaching the Bakken, however, drilling would penetrate the Mission Canyon Formation, which is known to contain varying concentrations of H<sub>2</sub>S. Release of H<sub>2</sub>S at dangerous concentration levels is very unlikely. Contingency plans submitted to the BLM comply fully with relevant portions of Onshore Oil and Gas Order No. 6 to minimize potential for gas leaks during drilling. Emergency response plans protect both the drilling crew and the general public

within 1 mile of a well; precautions include automated sampling and alarm systems operating continuously at multiple locations on the well pad.

As listed in Table 1, satellite imagery identified four homes within 1 mile of any proposed site. The nearest homes are 1,806 feet from Wolf #3-27H, 2,262 feet from Clark Fox #16-17H, 2,808 feet from Birdsbill #14-16H, and 4,632 feet from Birdsbill (894A) #4-35H. None of the aforementioned nearby homes is located in the principal downwind direction, according to 2006 data from the AAQM site at the Dunn Center monitoring site (NDDH 2007). No direct impacts from H<sub>2</sub>S are anticipated.

Negative impacts from construction would be largely temporary. Noise, fugitive dust, and traffic hazards would be present for about 60 days during construction, drilling, and well completion, and then diminish sharply during commercial operations. For each of the four proposed well sites, it is anticipated that about 50 trips, over the course of several days, would be required to transport the drilling rig and associated equipment to the site, with the same traffic later needed to remove the rig and other temporary facilities.

If any well proves productive, one small truck would travel to the pad each day to check the pump. Gas would be flared initially, while oil and produced water would be hauled out by tankers, with tanker traffic depending directly on production. A successful Bakken Formation well usually produces both oil and water at a high rate initially. In the vicinity of the proposed projects, 500 barrels of oil per day might be expected at first, along with about 100 barrels of water. Over the next several months, daily production typically falls by 50% or more. An oil tanker can usually haul 140 barrels of oil per load, while a water tanker usually holds 110 barrels. Production service might then start at four oil tankers and one water hauler in and out daily, before declining to two or three oil tankers and occasional water service. Established load restrictions for state and BIA roadways would be followed and haul permits would be acquired as appropriate. All traffic must be confined to approved routes and conform to load and speed limits.

The EPA specifies chemical reporting requirements under Title III of the *Superfund Amendments and Reauthorization Act* of 1986 (SARA), as amended. No materials used or generated by these projects for production, use, storage, transport, or disposal are on either the SARA list or on EPA's list of extremely hazardous substances in 40 CFR 355. Project design and operational precautions mitigate against impacts from toxic gases, hazardous materials, or traffic. All operations, including flaring, would conform to instructions from BIA fire management staff. Impacts from the proposed projects are considered minimal, unlikely, and insignificant. No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required.

### **3.4 WATER RESOURCES**

#### **3.4.1 Surface Water**

As shown in Figure 18, no perennial water bodies are located near the proposed project areas. Given the topography of the individual sites, runoff occurs largely as sheet-flow. Runoff that concentrates near the proposed well areas will flow to Upper or Lower Squaw Creek and subsequently into Lake Sakakawea.

The proposed Birdsbill #14-16H site is located in the Upper Squaw Creek sub-watershed (hydrologic unit code [HUC] 101101012102) of the Waterchief Bay Watershed (Figure 18). It is part of the Lower Little Missouri River sub-basin, the Little Missouri basin and sub-region, and the Missouri region. Runoff from the well pad would flow to the south into an ephemeral unnamed tributary of Upper Squaw Creek (HUC 10110205000012) and travel approximately 17.8 miles before reaching perennial waters in Lake Sakakawea (Figure 19).

The proposed Clark Fox #16-17H site is located in the Upper Squaw Creek sub-watershed (HUC 101101012102) of the Waterchief Bay Watershed (Figure 18). It is part of the Lower Little Missouri River sub-basin, the Little Missouri basin and sub-region, and the Missouri region. Runoff from the well pad would flow to the south into an ephemeral unnamed tributary of Upper Squaw Creek (HUC 10110205000012) and travel approximately 17 miles before reaching perennial waters in Lake Sakakawea (Figure 19).

The proposed Birdsbill (894A) #4-35H site is located in the Lower Squaw Creek/Squaw Creek Bay sub-watershed (HUC 101101012101) of the Waterchief Bay Watershed (Figure 18). It is part of the Lower Little Missouri River sub-basin, the Little Missouri basin and sub-region, and the Missouri region. Runoff from the well pad would flow to the south into an ephemeral unnamed tributary of Upper Squaw Creek (HUC 10110205001697) and travel approximately 11 miles before reaching perennial waters in Lake Sakakawea (Figure 19).

The proposed Wolf #3-27H site is located in the Upper Squaw Creek sub-watershed (HUC 101101012102) of the Waterchief Bay Watershed (Figure 18). It is part of the Lower Little Missouri River sub-basin, the Little Missouri basin and sub-region, and the Missouri region. Runoff from the well pad would flow to the east into an ephemeral unnamed tributary (HUC 10110205006109) of Spring Creek, which flows into Upper Squaw Creek, and would travel approximately 25.2 miles before reaching perennial waters in Lake Sakakawea (Figure 19).

The proposed projects would be engineered and constructed to minimize the suspended solid (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 (SPCC) plan. Provisions established under this plan would minimize potential impacts to any surface waters associated with an accidental spill.

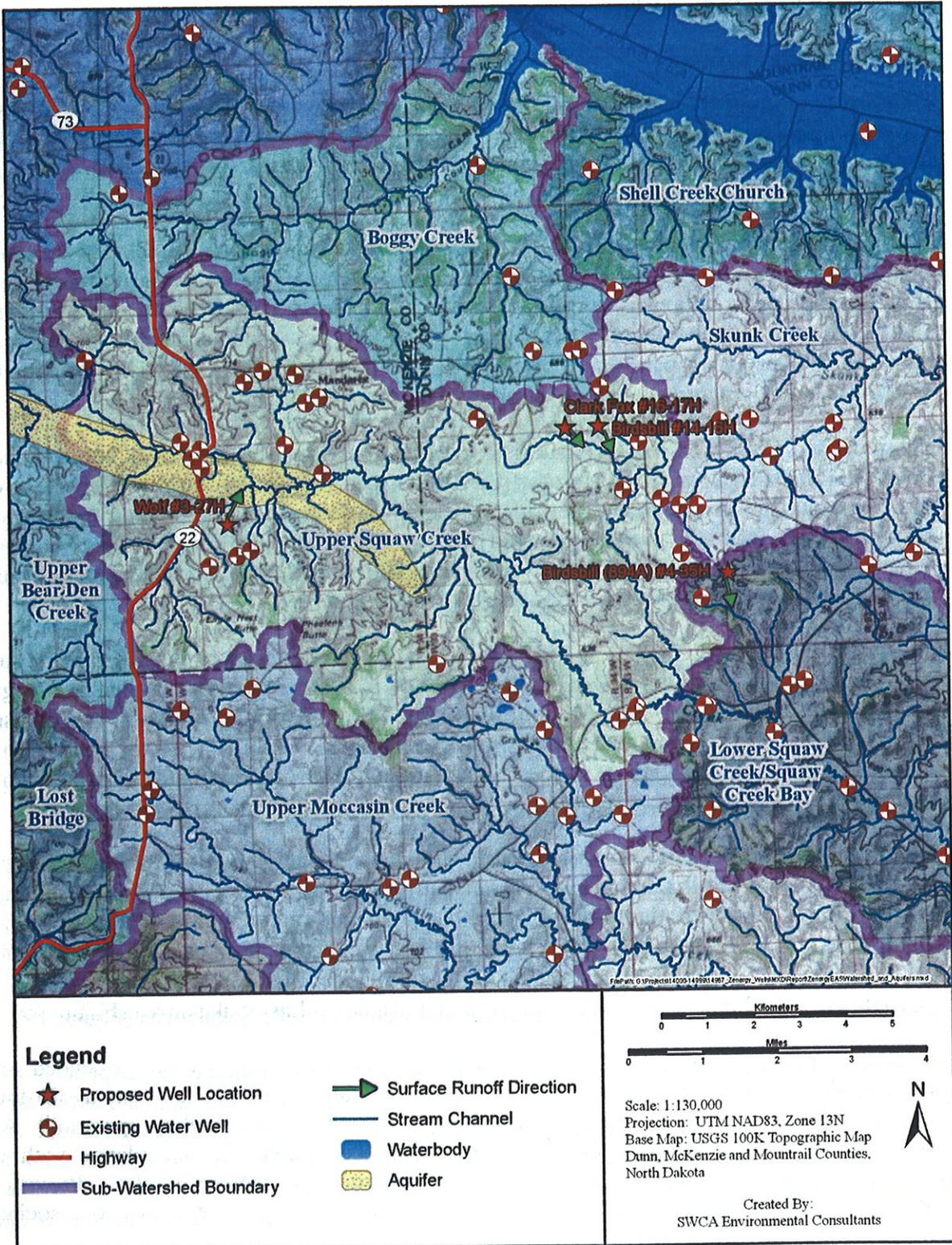


Figure 18. Watersheds, surface runoff direction, and aquifers near the project areas.

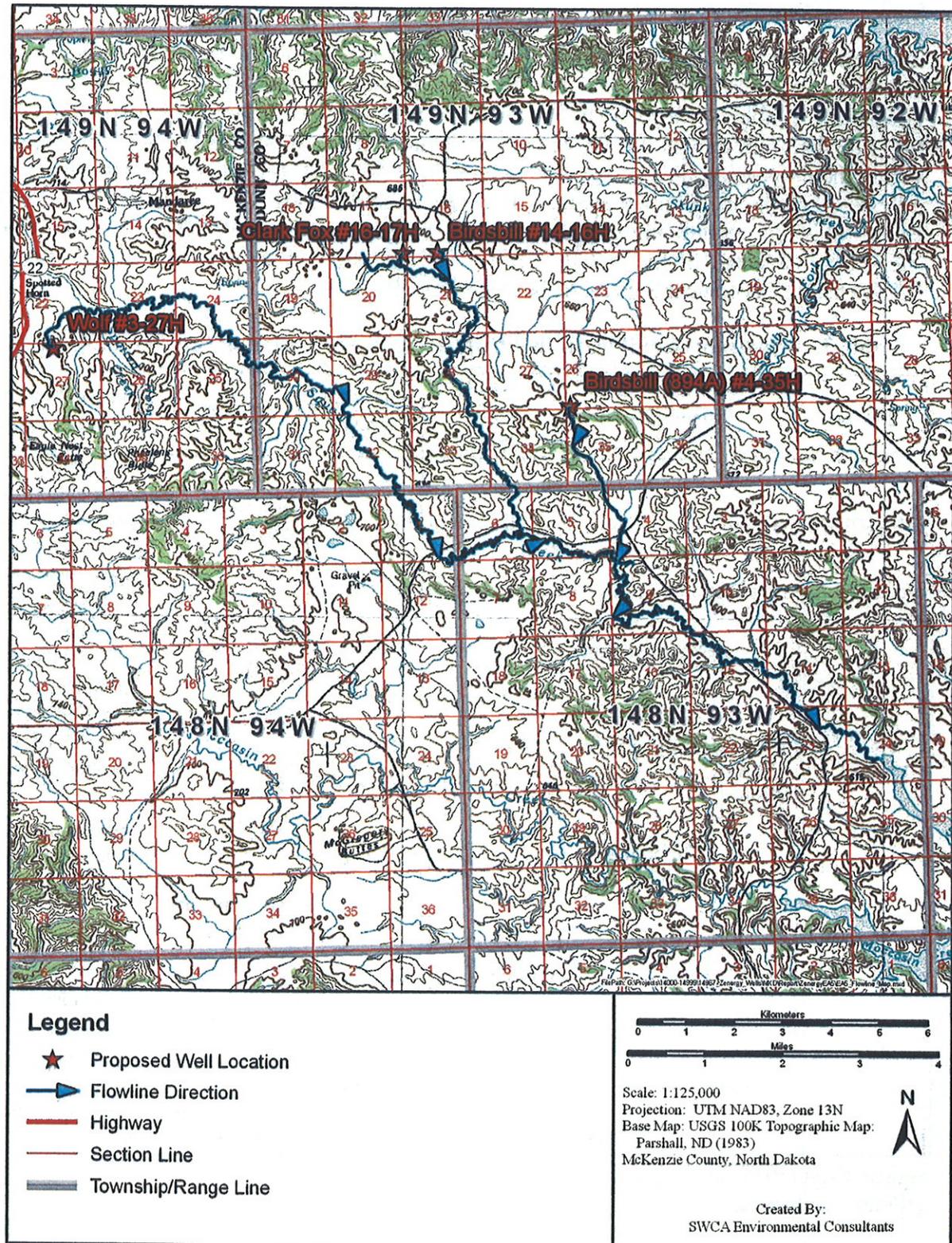


Figure 19. Drainage direction from each of the proposed well pads.

### 3.4.2 Groundwater

Aquifers in the project areas 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 Wolf #3-27H well site lies approximately 0.25 mile south of the mapped boundary of the alluvial aquifer (Figure 18). The shallow Sentinel Butte Formation, commonly used for domestic supply in the area, outcrops in Dunn County and meets standards of the NDDH (Croft 1985). Detailed analyses are available from the North Dakota Geological Survey, Bulletin 68, Part III, 1976.

**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 92 existing water wells within an approximate 5-mile boundary of the proposed project areas (Table 4). Four water wells are found within 1 mile of the Birdsbill #14-16H site, three water wells with 1 mile of the Clark Fox #16-17H site, five water wells within 1 mile of the Wolf

#3-27H site, and two water wells within 1 mile of the Birdsbill (894A) #4-35H site. 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 No. 2, Drilling Operations (43 CFR 3160).

**Table 4. Existing Water Wells near the Project Areas.**

Well Number	Owner	Date Drilled	Section	Township/Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
148-092-06BDB	P. VanDike	1966	6	148N/92W	Stock	98	SB/TR	4-35H	5.0
148-092-06BCA	P. VanDike	1971	6	148N/92W	Stock	89	SB	4-35H	4.9
148-093-01ADD	Geraldine VanDyke	2000	1	148N/93W	Domestic	548	UNK	4-35H	4.6
148-093-04CAB1	NDSWC	1973	4	148N/93W	Monitoring	340	TR	4-35H	1.7
148-093-04CAB2	NDSWC	1973	4	148N/93W	Monitoring	190	SB/TR	4-35H	1.7
148-093-04	Indian Health Services	1985	4	148N/93W	Public Supply	71	UNK	4-35H	1.8
148-093-04CAB1	NDSWC	1973	4	148N/93W	Unused	340	TR	4-35H	1.7
148-093-04CAB2	NDSWC	1973	4	148N/93W	Unused	190	SB	4-35H	1.7
148-093-05CCA1	O. Standish	Unknown	5	148N/93W	Unused	102	SB	4-35H	1.8
148-093-05CCA2	O. Standish	1968	5	148N/93W	Domestic	72	BCF	4-35H	1.8
148-093-06CCA	Rudolph Sanders	1981	6	148N/93W	Stock	120	UNK	4-35H	2.2
148-093-07ADA	R. Goodbird	UNK	7	148N/93W	Unused	UNK	UNK	4-35H	2.3
148-093-09BBC	Tribal	1950	9	148N/93W	Unused	40	BCF	4-35H	2.3
148-093-10CCC	NDSWC	1974	10	148N/93W	Unused	103	SB	4-35H	3.3
148-093-14CDC	NDSWC	1974	14	148N/93W	Unused	57	SB	4-35H	4.8
148-093-15ACB	NDSWC	1971	15	148N/93W	UNK	40	UNK	4-35H	3.8
148-093-17BBD	J. McKinze	UNK	17	148N/93W	Unused	160	SB	4-35H	3.1
148-093-20BCA	Tribal	1950	20	148N/93W	Unused	450	UNK	4-35H	4.4
148-094-01DDD	NDSWC	1971	1	148N/94W	Unused	80	UNK	4-35H	2.4
148-094-02	Garland Beston	1982	2	148N/94W	Domestic	196	UNK	4-35H	3.3

*Environmental Assessment: Zenergy Operating Company, LLC, Dakota-3 Birdsbill #14-16H, Dakota-3 Clark Fox #16-17H, Dakota-3 Birdsbill (894A) #4-35H, and Dakota-3 Wolf #3-27H*

Well Number	Owner	Date Drilled	Section	Township/Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
148-094-03ABB	Tribal	1950	3	148N/94W	Unused	450	UNK	3-27H	3.4
148-094-05BCB	USGS	1994	5	148N/94W	Monitoring	104	UNK	3-27H	2.2
148-094-06CBB	Gabe Fettig	2002	6	148N/94W	Stock	1848	UNK	3-27H	2.6
148-094-06DBD	Tribal	UNK	6	148N/94W	Stock	UNK	UNK	3-27H	2.6
148-094-11AAA2	USGS	1994	11	148N/94W	Monitoring	58	UNK	4-35H	3.3
148-094-12DCC	USGS	1992	12	148N/94W	Monitoring	51	UNK	4-35H	3.5
148-095-12DB	Joe Woundedface	1993	12	148N/95W	Domestic	15	UNK	3-27H	3.4
148-094-13AAD	Tribal	1950	13	148N/94W	Unused	450	UNK	4-35H	3.5
148-094-13BBD	R. Hall	1967	13	148N/94W	Domestic\ Stock	30	SB/TR	4-35H	3.9
148-094-14AAB	NDSWC	1992	14	148N/94W	Monitoring	315	TR	4-35H	4.0
148-094-14AAB	USGS	1992	14	148N/94W	Monitoring	300	UNK	4-35H	4.0
148-094-14DAC	R. Hall	1968	14	148N/94W	Stock	100	BCF	4-35H	4.6
148-094-14AAB1	USGS	1992	14	148N/94W	Monitoring	300	TR	4-35H	4.0
148-094-15CCC2	USGS	1994	15	148N/94W	Monitoring	36	UNK	3-27H	4.0
148-094-17DCD2	USGS	1994	17	148N/94W	Monitoring	70	UNK	3-27H	4.9
148-095-03	Daryl Young Bird	1985	3	148N/95W	Domestic	247	UNK	3-27H	4.1
149-092-29DCC	Tribal	UNK	29	149N/92W	Unused	404	UNK	4-35H	3.5
149-092-30DCB	Ted Linefight III	2003	30	149N/92W	Domestic	307	UNK	4-35H	2.5
149-093-02ACB	C. Perkins	1962	2	149N/93W	UNK	647	SB/TR	14-16H	3.4
149-093-05CDC	NDSWC	1961	5	149N/93W	UNK	84	SB/TR	16-17H	2.1
149-093-08DCC	M. Fox	1960	8	149N/93W	UNK	500	SB/TR	16-17H	1.1
149-093-09CCD	St. Anthony's Mission	1952	9	149N/93W	UNK	65	SB/TR	14-16H	1.0
149-093-09CCC	St. Anthony's Mission	1988	9	149N/93W	Domestic	440	UNK	16-17H	1.0
149-093-09ABD	Dale McGrady	1981	9	149N/93W	Stock	150	UNK	14-16H	1.8

*Environmental Assessment: Zenergy Operating Company, LLC, Dakota-3 Birdsbill #14-16H, Dakota-3 Clark Fox #16-17H, Dakota-3 Birdsbill (894A) #4-35H, and Dakota-3 Wolf #3-27H*

Well Number	Owner	Date Drilled	Section	Township/Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
149-093-10AAA	Tribal	1950	10	149N/93W	Unused	450	UNK	14-16H	2.5
149-093-12AB	Ivan Johnson	1976	12	149N/93W	Stock	UNK	UNK	14-16H	3.7
149-093-14CDD2	USGS	1994	14	149N/93W	Monitoring	35	UNK	14-16H	2.1
149-093-14CCC	Tribal	UNK	14	149N/93W	Unused	432	SB	14-16H	1.7
149-093-16BDD	Paul Rosario	1994	16	149N/93W	Domestic	450	UNK	14-16H	0.5
149-093-18DDB	Tribal	UNK	18	149N/93W	Unused	465	SB	16-17H	1.2
149-093-21DCA	E. Wicker	UNK	21	149N/93W	UNK	35	SB/TR	14-16H	0.5
149-093-21AAD	Gerald Fox	2000	21	149N/93W	Domestic	99	UNK	14-16H	0.6
149-093-22CCD	Arla Muzzy	2002	22	149N/93W	Domestic	92	UNK	14-16H	1.3
149-093-23ACD	UNK	UNK	23	149N/93W	Unused	34	SB	4-35H	1.6
149-093-24ACC2	USGS	1994	24	149N/93W	Monitoring	33	UNK	4-35H	2.2
149-093-24AC	Mobile Oil	UNK	24	149N/93W	UNK	11,331	UNK	4-35H	2.2
149-093-24ABB	USGS	1994	24	149N/93W	Monitoring	35	UNK	4-35H	2.4
149-093-25DDD	Tribal	UNK	25	149N/93W	Unused	147	SB	4-35H	1.9
149-093-27CAD	USGS	1994	27	149N/93W	Monitoring	165	UNK	4-35H	0.7
149-093-27BAA	USGS	1994	27	149N/93W	Monitoring	60	UNK	4-35H	1.1
149-093-27ABA	Patricia McKenzie	2004	27	149N/93W	Domestic	89	UNK	4-35H	1.0
149-093-27ABA	M. Younbird	UNK	27	149N/93W	Domestic	65	SB	4-35H	1.0
149-093-34ACA	Tribal	UNK	34	149N/94W	Unused	357	SB	4-35H	0.5
149-094-08DCB	Randy Binger	1992	8	149N/94W	Domestic	195	UNK	3-27H	2.9
149-094-14	Mandaree School	1994	14	149N/94W	Monitoring	16	UNK	3-27H	1.9
149-094-14	Mandaree School	1988	14	149N/94W	Monitoring	16	UNK	3-27H	1.9
149-094-14	BIA	2002	14	149N/94W	Monitoring	29	UNK	3-27H	1.9
149-094-14	BIA	2002	14	149N/94W	Monitoring	28	UNK	3-27H	1.9
149-094-14	BIA	2002	14	149N/94W	Monitoring	30	UNK	3-27H	1.9
149-094-14	BIA	2000	14	149N/94W	Monitoring	25	UNK	3-27H	1.9

*Environmental Assessment: Zenergy Operating Company, LLC, Dakota-3 Birdsbill #14-16H,  
Dakota-3 Clark Fox #16-17H, Dakota-3 Birdsbill (894A) #4-35H, and Dakota-3 Wolf #3-27H*

Well Number	Owner	Date Drilled	Section	Township/ Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
149-094-14ACD	Mike Mason	1973	14	149N/94W	Domestic	66	UNK	3-27H	2.1
149-094-14BA	Mandaree 3	1970	14	149N/94W	Public Supply	1,745	HC/FH	3-27H	2.2
149-094-15AAA	Sandy Youngbird	2006	15	149N/94W	Domestic	278	UNK	3-27H	2.1
149-094-15ABD	Tilly Lone Fight	2005	15	149N/94W	Domestic	335	UNK	3-27H	1.9
149-094-16DDC	Jimmy Stone	1981	16	149N/94W	Domestic	200	UNK	3-27H	1.3
149-094-21AAD	NDSWC	1980	21	149N/94W	Unused	147	UNK	3-27H	1.0
149-094-22BBB	NDSWC	1980	22	149N/94W	Unused	140	UNK	3-27H	1.1
149-094-22BCB	NDSWC	1980	22	149N/94W	Unused	80	UNK	3-27H	0.8
149-094-23ACD	USGS	1994	23	149N/94W	Monitoring	109	UNK	3-27H	1.4
149-094-23BBA	USGS	1994	23	149N/94W	Monitoring	58	UNK	3-27H	1.3
149-094-27CB	NDSWC	1973	27	149N/94W	Domestic	36	UNK	3-27H	0.6
149-094-27	Margaret Wolf	1982	27	149N/94W	Domestic	63	UNK	3-27H	0.4
149-094-27ACD	George Wolf	1973	27	149N/94W	Domestic	36	UNK	3-27H	0.5
149-094-28AAA	USGS	1992	28	149N/94W	Monitoring	120	SB/TR	3-27H	0.5
149-094-28AAD	USGS	1992	28	149N/94W	Monitoring	295	UNK	3-27H	0.5
149-095-12CAA	BIA	1999	12	149N/95W	Monitoring	20	UNK	3-27H	4.6
149-095-12CBA	BIA	1999	12	149N/95W	Monitoring	25	UNK	3-27H	4.8
150-093-31ADD	Tribal	1961	31	150N/93W	UNK	336	SB/TR	16-17H	3.6
150-093-33CAA	W. Face	1960	33	150N/93W	UNK	388	SB/TR	14-16H	3.4
150-094-33ACC	USGS	1992	33	150N/94W	Monitoring	195	UNK	3-27H	4.7
150-094-33CB	Occidental	1964	33	150N/94W	UNK	11,630	UNK	3-27H	4.6
148-092-06BDB	P. VanDike	1966	6	148N/92W	Stock	98	SB/TR	4-35H	5.0

Source: North Dakota State Water Commission (2009).

SB = Sentinel Butte. TR = Tongue River. BGF = Buried Glaciaofluvial. HC = Hell Creek. FH = Fox Hills.  
UNK = Unknown.

Since none of the proposed project areas lie 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.

### **3.5 WETLANDS, HABITAT, AND WILDLIFE**

#### **3.5.1 Wetlands**

National Wetland Inventory maps maintained by the U.S. Fish and Wildlife Service (USFWS) do not identify any jurisdictional wetlands within the proposed well pads or access roads (USFWS 2008a). No wetlands were observed along any access road rights-of-way (ROWs) or at any of the well sites during surveys conducted in April, May, June, and August 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 0.09 mile and 0.5 mile from the proposed project areas. Three PEM wetlands are located at a distance of 0.28 mile and bearings of 277.68°, 183.60°, and 117.57° from the Birdsbill #14-16H well pad area. One PEM wetland is located at a distance of 0.09 mile and a bearing of 112.45° from the Clark Fox #16-17H well pad area. One PEM wetland is located at a distance of 0.36 mile and a bearing of 13.32° from the Birdsbill (894A) #4-35H well pad area. One PEM wetland is located at a distance of 0.43 mile and a bearing of 58.92° from the Wolf #3-27H well pad area. These PEM wetlands would not be impacted as a result of construction, drilling, or production activities associated with the proposed well pad areas and associated access roads.

#### **3.5.2 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 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. Species listed by either the USFWS or the state, in either Dunn or McKenzie County, are described below.

##### **Bald Eagle (*Haliaeetus leucocephalus*)**

**Status:** Delisted in 2007

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

Project areas are located between 4.0 and 6.3 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 (*Mustela nigripes*)**

**Status:** Endangered

**Likelihood of impact:** No effect

Several isolated populations are known to exist within the United States. However, this species is presumed extirpated from North Dakota because it has not been observed in the wild for over 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 within 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 which provide nesting habitat. None of the proposed project areas contain suitable nesting habitat for golden eagles; however, eagle prey species may be present within and around any of the project areas. 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 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 which 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 areas; 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 project areas are not anticipated to adversely affect water quality and subsequently the pallid sturgeon. Pallid sturgeons prefer turbid, main stem river channels. No project area is closer than 4 miles from Lake Sakakawea, which will reduce the likelihood of adverse effect 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 4 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 5 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, such as scats, tracks, or animal carcasses were not observed within the proposed project areas.

The primary impacts to wildlife species will come as a result of the construction of four well pad areas including the reconstruction of existing two-track roads, construction of new access roads, the vehicular traffic associated with such activities, drilling, and potential commercial production. No impact on listed species is anticipated due to the low likelihood of their occurrence within the proposed project areas. On-site assessments confirmed that no threatened or endangered species would be impacted by proposed roads or wells. Ground clearing might impact habitat for unlisted species, including small birds, small mammals, and other wildlife species. The 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 5. Wildlife Observed during Field Surveys at the Proposed Project Areas.**

Well Pad Area	Common Name	Scientific Name	Observation Type	Habitat
Birdsbill #14-16H	N/A	N/A	No Species Observed	N/A
Clark Fox #16-17H	bobolink	<i>Dolichonyx oryzivorus</i>	Primary	Mixed Grass Prairie
	western kingbird	<i>Tyrannus verticalis</i>	Primary	Mixed Grass Prairie
	western meadowlark	<i>Sturnella neglecta</i>	Primary	Mixed Grass Prairie
	northern harrier	<i>Circus cyaneus</i>	Primary	Mixed Grass Prairie
Birdsbill (894A) #4-35H	sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	Primary	Mixed Grass Prairie
	Brewer's blackbird	<i>Euphagus cyanocephalus</i>	Primary	Mixed Grass Prairie
	western meadowlark	<i>Sturnella neglecta</i>	Primary	Mixed Grass Prairie
	pronghorn	<i>Antilocapra americana</i>	Primary	Mixed Grass Prairie
Wolf #3-27H	western meadowlark	<i>Sturnella neglecta</i>	Primary	Pasture (heavily grazed)
	white pelican	<i>Pelecanus erythrorhynchos</i>	Primary	Pasture (heavily grazed)

Several precautions which may limit or reduce the possible impacts to all wildlife species are listed below.

1. The well pad can be located over areas with existing disturbances.
2. The reserve pit can be netted between drilling and reclamation.
3. Any oil found in pits and ponds can be promptly removed.
4. Covers can be installed under drip buckets and spigots.
5. Interim reclamation of at least half the disturbed area can be quickly completed.

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 areas are likely to adapt to changing conditions, and continue to persist without adverse impact.

### 3.6 SOILS

#### 3.6.1 Natural Resources Conservation Service Soil Data

The Natural Resources Conservation Service (NRCS 2009) soil series present on the well pads and access road areas, and their respective acreages, can be found in Table 6. The

acreage shown in Table 6 is based on the spatial extent of soil series combinations derived from NRCS data (Figures 20 through 23), 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 areas (NRCS 2009). Each individual soil series does not exist individually within the project areas but rather in combination with other soil types (Table 6).

#### 3.6.1.1 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%. 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 needle grass (*Nasella viridula*), and other various herbs, forbs, and shrub species (NRCS 2009).

#### 3.6.1.2 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%. 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 (*Pascopyrum smithii*) and blue grama (*Bouteloua gracilis*) (NRCS 2009).

#### 3.6.1.3 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%. 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 (*Hesperostipa comata*) (NRCS 2009).

#### 3.6.1.4 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%. 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 needle grass (NRCS 2009).

**Table 6. Percentage of the Project Areas Comprised of Specific Soil Types.**

Feature	Soil Series	Percentage of Location	Acres
<b>Birdsbill #14-16H</b>			
New Access Road	Dogtooth-Cabba complex, 9 to 15% slopes	100.00%	2.800
Well Pad	Cabba loam, 15 to 45% slopes	79.65%	2.578
Well Pad	Dogtooth-Cabba complex, 9 to 15% slopes	20.35%	0.659
<b>Clark Fox #16-17H</b>			
New Access Road	Cabba loam, 15 to 45% slopes	46.38%	1.770
New Access Road	Amor-Cabba loams, 9 to 15% slopes	32.00%	1.220
New Access Road	Dogtooth-Cabba complex, 9 to 15% slopes	21.62%	0.820
Well Pad	Amor-Cabba loams, 9 to 15% slopes	81.13%	2.601
Well Pad	Dogtooth-Cabba complex, 9 to 15% slopes	18.87%	0.605
<b>Birdsbill (894A) #4-35H</b>			
New Access Road	Cohagen-Vebar fine sandy loams, 9 to 25% slopes	27.23%	3.180
New Access Road	Grail silt loam, 0 to 2% slopes	18.45%	2.150
New Access Road	Zahl-Williams loams, 9 to 15% slopes	14.47%	1.690
New Access Road	Zahl-Williams loams, 15 to 25% slopes	13.28%	1.550
New Access Road	Dogtooth-Cabba complex, 9 to 15% slopes	9.00%	1.050
New Access Road	Cabba loam, 15 to 45% slopes	7.10%	0.830
New Access Road	Vebar-Parshall fine sandy loams, 6 to 9% slopes	6.40%	0.750
New Access Road	Flaxton-Williams complex, 6 to 9% slopes	4.07%	0.470
Well Pad	Cohagen-Vebar fine sandy loams, 9 to 25% slopes	100.00%	3.257
<b>Wolf #3-27H</b>			
New Access Road	Williams-Bowbells loams, 3 to 6% slopes	27.50%	1.690
New Access Road	Arnegard loam, 0 to 2% slopes	24.66%	1.510
New Access Road	Belfield-Grail silty clay loams, 0 to 2% slopes	21.52%	1.320
New Access Road	Zahl-Cabba-Maschetah complex, 3 to 70% slopes	20.38%	1.250
New Access Road	Korchea loam, channeled, 0 to 2% slopes	5.94%	0.360
Well Pad	Williams-Bowbells loams, 3 to 6% slopes	95.98%	3.130
Well Pad	Zahl-Cabba-Arikara complex, 9 to 70% slopes	2.33%	0.076
Well Pad	Williams loam, 6 to 9% slopes	1.30%	0.042
Well Pad	Zahl-Cabba-Maschetah complex, 3 to 70% slopes	0.38%	0.012



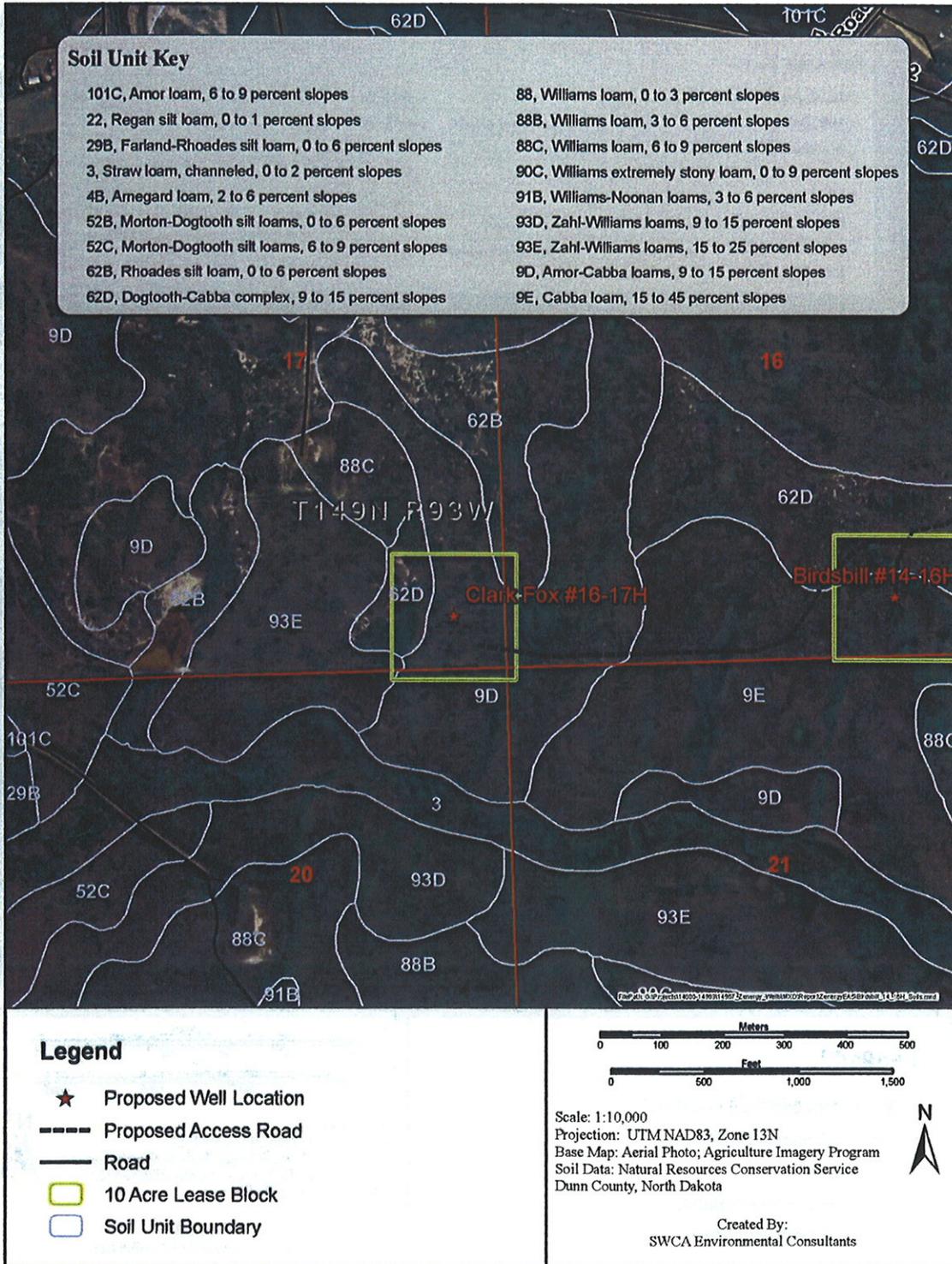


Figure 21. Soil types within and around the Clark Fox #16-17H site.

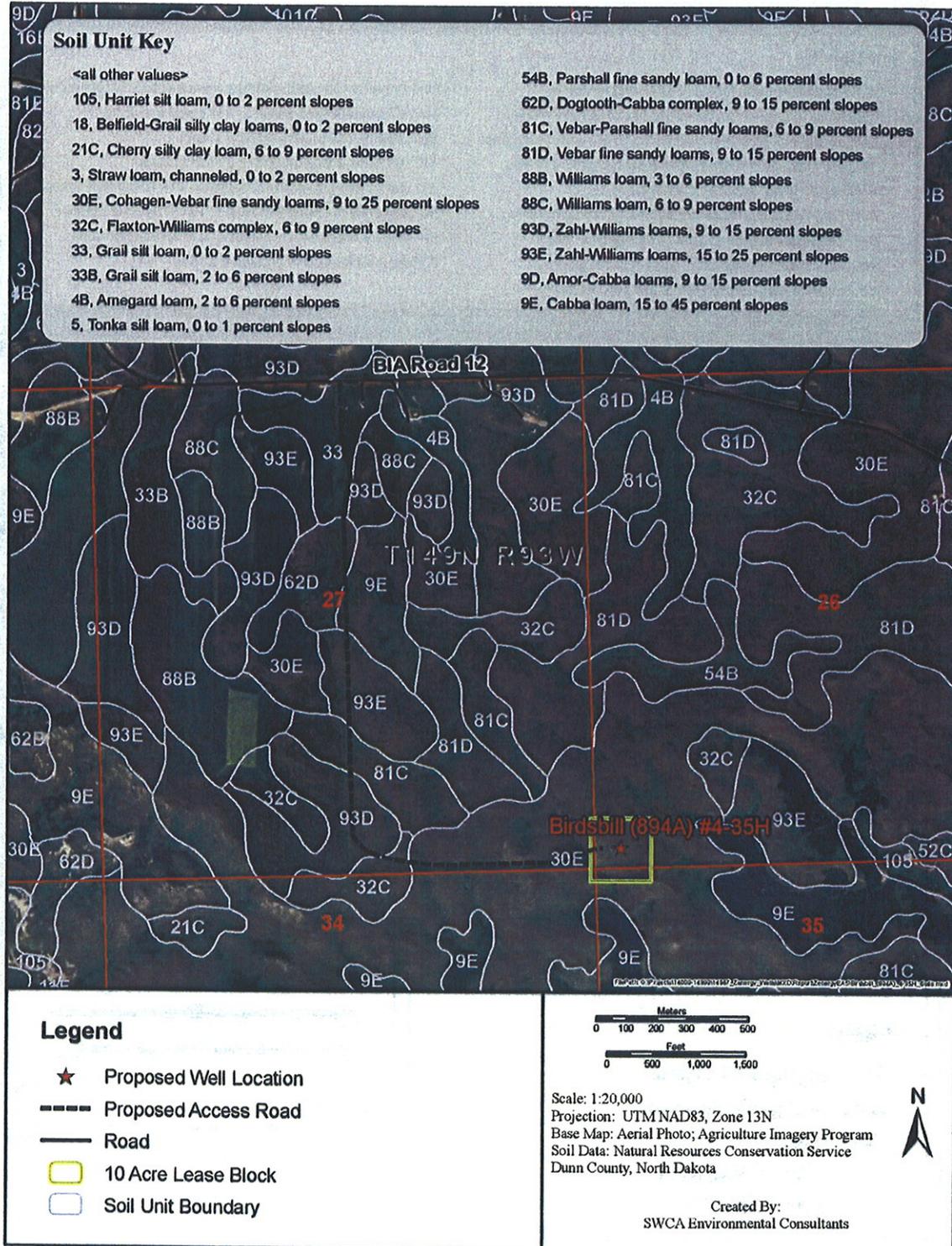


Figure 22. Soil types within and around the Birdsbill (894A) #4-35H site.

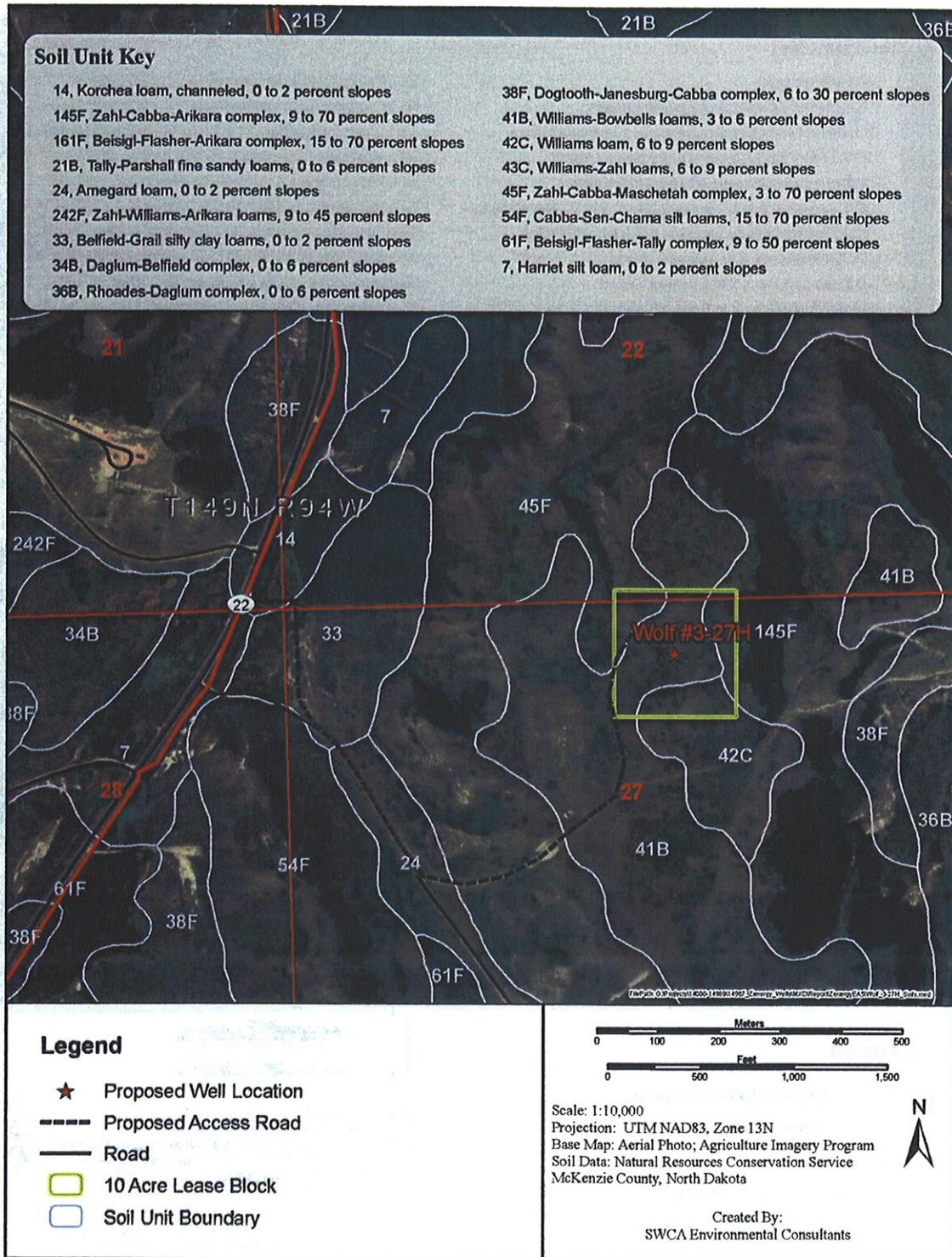


Figure 23. Soil types within and around the Wolf #3-27H site.

#### 3.6.1.5 Grail

The Grail series consists of deep to very deep, slowly permeable soils which are well to moderately well drained. This soil type is found on uplands with slopes ranging from 0 to 15%. 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 cultivating crops. Native vegetation species common to this soil type include western wheatgrass, big bluestem (*Andropogon gerardii*), and green needle grass (NRCS 2009).

#### 3.6.1.6 Korchea

The Korchea series consists of very deep, well drained soils found on floodplains and low stream terraces. Permeability is moderate with slopes ranging from approximately 0 to 6%. 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 used most often for cultivation of small grains, hay, and corn. Alternatively, this soil is used for rangeland foraging. Native vegetation species common to this soil type include needle and thread, green needle grass, and western wheatgrass (NRCS 2009).

#### 3.6.1.7 Belfield

The Belfield series consists of deep and very deep, well to moderately well drained, very slowly permeable soils found on upland flats, terraces, and swales with slopes ranging from approximately 0 to 9%. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 15 inches and mean annual air temperature is approximately 43°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass, blue grama, and green needle grass (NRCS 2009).

#### 3.6.1.8 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%. 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 needle grass (NRCS 2009).

#### 3.6.1.9 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%. 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).

#### 3.6.1.10 Maschetah

The Maschetah series consists of very deep, well drained soils found on sedimentary plains and hills. Slopes range from approximately 0 to 45%. The mean annual precipitation found

throughout the spatial extent of this soil type is approximately 17 inches and mean annual air temperature is approximately 43°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, green needle grass, and fringed sagewort (*Artemisia frigida*) (NRCS 2009).

#### 3.6.1.11 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%. 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 needle grass, and big bluestem (NRCS 2009).

#### 3.6.1.12 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%. 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).

### **3.6.2 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 7. Additionally, redoximorphic features (i.e., reduced/oxidized iron or manganese) deposits and soil texture were noted at each soil pit. A Munsell Soil Color Chart was used to determine the color of moist soil samples.

K Factor indicates the erodibility of material less than 2 millimeters 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 amount of soil loss, measured in tons/acre/year, allowed in order to maintain high levels of crop production.

Table 7. Soil Data Obtained through the Excavation of Soil Pits within the Proposed Project Area.

Feature	Pit Depth (inches)	Soil Matrix Color (color name)	Redoximorphic Feature Color	Texture	Slope (°)	K Factor
<b>Birdsbill #14-16H (T = 8.25 tons of soil/acre/year)</b>						
Well Pad	0-10	10YR 3/1 (very dark gray)	None Observed	Silty Loam	0-1	0.32
Well Pad	10-16	2.5Y 3/3 (dark olive brown)	None Observed	Silty Clay Loam	0-1	0.32
Access Road	0-9	10YR 3/2 (very dark grayish-brown)	None Observed	Silty Clay Loam	0-3	0.32
Access Road	9-16	10YR 3/1 (very dark gray)	None Observed	Silty Clay Loam	0-3	0.32
<b>Clark Fox #16-17H (T = 3.89 tons of soil/acre/year)</b>						
Well Pad	0-8	10YR 3/2 (very dark grayish-brown)	None Observed	Silty Clay	0-1	0.24
Well Pad	8-16	10YR 4/3 (olive brown)	None Observed	Clay Loam	0-1	0.24
Access Road	0-7	10YR 3/1 (very dark gray)	None Observed	Silty Clay Loam	0-3	0.24
Access Road	7-16	10YR 4/2 (dark grayish-brown)	None Observed	Clay Loam	0-3	0.24
<b>Birdsbill (894A) #4-35H (T = 3.24 tons of soil/acre/year)</b>						
Well Pad	0-20	10YR 3/2 (very dark grayish-brown)	None Observed	Sandy Loam	0-1	0.20
Access Road	0-10	10YR 3/2 (very dark grayish-brown)	None Observed	Silty Clay Loam	0-1	0.20
Access Road	10-16	10YR 4/3 (olive brown)	None Observed	Silty Clay	0-1	0.20
<b>Wolf #3-27H (T = 1.98 tons of soil/acre/year)</b>						
Well Pad	0-9	10YR 3/2 (very dark grayish-brown)	None Observed	Silty Clay Loam	0-1	0.28
Well Pad	9-16	2.5Y 4/3 (olive brown)	None Observed	Silty Clay Loam	0-1	0.28
Access Road	0-4	10YR 3/1 (very dark gray)	None Observed	Silty Clay Loam	0-1	0.28
Access Road	4-16	2.5Y 4/2 (dark grayish-brown)	None Observed	Silty Clay	0-1	0.28

### **3.6.3 Conclusions Regarding Soil Erodibility and Feasibility**

#### **3.6.3.1 Birdsbill #14-16H**

1. The Birdsbill #14-16H well pad is dominated (i.e., 79.65%) by the Dogtooth-Cabba complex soil series (Table 6). The proposed new access road is dominated (i.e., 100%) by a Cabba loam (Table 6).
2. These soil types may have variable run-off depending on the slope which ranges between 2 and 70% for Cabba series and 1 to 15% for the Dogtooth series (NRCS 2009).
3. Reclamation of vegetative communities should be easily obtainable due to the affinity of native grassland species to this soil type (NRCS 2009).
4. High levels of soil erosion ( $K = 0.32$ ) are not anticipated within the project area.
5. While Birdsbill #14-16H has the highest K factor of all the proposed project areas, it also has the greatest T value (i.e., 8.25 tons/acre/year) indicating an acceptable loss of this amount of soil while maintaining conditions necessary for high crop yield.

#### **3.6.3.2 Clark Fox #16-17H**

1. The Clark Fox #16-17H well pad is dominated (i.e., 81.13%) by the Amor-Cabba complex while the majority (i.e., 46.38%) of the new access road would be constructed on Cabba soil type (Table 6).
2. The soil series description for hue, value, chroma, and texture provided by the NRCS (2009) concur with moist soil field data derived from the excavation of a soil pit at the proposed well pad site.
3. The Amor soil series is found on slopes typically ranging from 0 to 10% and occasionally as great as 25%. The Cabba soil series is found on slopes ranging from 2 to 70% (NRCS 2009).
4. 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).
5. High levels of soil erosion ( $K = 0.24$ ) are not anticipated with the dominant soil types.

#### **3.6.3.3 Birdsbill (894A) #4-35H**

1. The Birdsbill (894A) #4-35H well pad and new access road are dominated (i.e., 100% and 27.23%, respectively) by the Cohagen and Vebar soil series (Table 6).
2. The soil series description for hue, value, chroma, and texture provided by the NRCS (2009) concur with moist soil field data derived from the excavation of a soil pit at the proposed well pad site.
3. The Cohagen soil series is found on slopes typically ranging from 3 to 70%. The Vebar series is found on slopes ranging from 0 to 65%. The Cohagen-Vebar complex present within the project area is found on slopes ranging from 9 to 25% (NRCS 2009).

4. Both of the dominant soil series are capable of supporting native prairie vegetative communities which may substantially increase the probability for successful and permanent reclamation (NRCS 2009).
5. High levels of soil erosion ( $K = 0.20$ ) are not anticipated with the dominant soil types.

#### 3.6.3.4 Wolf #3-27H

1. The Wolf #3-27H well pad is dominated (i.e., 95.98%) by Williams-Bowbells loams. The proposed new access road is dominated by Williams-Bowbells loams (i.e., 27.50%) and Arnegard loam (i.e., 24.66%) (Table 6).
2. The soil series description for hue, value, chroma, and texture provided by the NRCS (2009) concur with moist soil field data derived from the excavation of a soil pit at the proposed well pad site.
3. The Williams soil series is usually found on a slope less than 9%, and exists on slopes ranging from 3 to 6% within the project area. The Bowbells soil series is usually found on slopes less than 2% but can range between 0 and 9%. The Arnegard soil series is found on slopes ranging from 0 to 25% (NRCS 2009).
4. All three soil series are known to support native grassland vegetation including short-, mid-, and tall-grass prairies which may substantially increase the probability for successful and permanent reclamation (NRCS 2009).
5. High levels of soil erosion ( $K = 0.28$ ) are not anticipated with the dominant soil types.

#### 3.6.3.5 General

Due to the presence of loamy soils and minimal slopes within each of the four proposed project areas, no limitations are anticipated to constrain construction activities within the project areas. The soil types are not anticipated to create unmanageable erosion troubles nor interfere with reclamation of the area. Proven practices are known to significantly reduce erosion of various types of soil, including those in these project areas (BLM Instruction Memorandum 2004-124, [www.blm.gov/bmp](http://www.blm.gov/bmp); BLM/USFS 2006; 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.

### **3.7 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 (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), blue grama (*Bouteloua gracilis*), side-oats grama (*Bouteloua curtipendula*), green needle grass (*Nassella viridula*), and western wheatgrass (*Pascopyrum smithii*). 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*).

3.7.1.1 Birdsbill #14-16H

Vegetation noted at the Birdsbill #14-16H project area includes green needlegrass, western snowberry, field brome (*Bromus arvensis*), fringed sagewort (*Artemisia frigida*), and downy hawthorn (*Crataegus mollis*).

3.7.1.2 Clark Fox #16-17H

Vegetation noted at the Clark Fox #16-17H project area includes western snowberry, green needle grass, Kentucky bluegrass (*Poa pratensis*), fringed sagewort, downy hawthorn, prairie rose (*Rosa arkansana*), prairie turnip (*Pedimelum esculenta*), and field brome.

3.7.1.3 Birdsbill (894A) #4-35H

Vegetation noted at the Birdsbill (894A) #4-35H project area was dominated by little bluestem. Other vegetation observed includes green needle grass, western snowberry, and fringed sagewort.

3.7.1.4 Wolf #3-27H

Vegetation noted at the Wolf #3-27H project area includes green needle grass, western snowberry, and fringed sagewort.

“Invasive species” is a general term used to describe plants that are not native to a given area, spread rapidly, and have adverse ecological and economic impacts. These species may have high reproduction rates and are usually adapted to occupy a diverse range of habitats 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. Noxious weeds have the potential to detrimentally affect public health, ecological stability, and agricultural practices. *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 8 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>.

Evaluation of the existing vegetation during on-site assessments conducted in April, May, and June 2009 indicated no invasive species were present at any of the proposed sites. However, potential disturbance of approximately 24.8 acres and removal of existing vegetation may facilitate the spread of invasive species. The APDs 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 pads. 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 for establishment of invasive vegetation species.

**Table 8. 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

### 3.8 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 SHPO may have useful information, but has no official role regarding proposed federal actions on trust land. 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 an intensive pedestrian methodology. For the Birdsbill #4-35 project approximately 33.39 acres were inventoried between April 17 and 21, 2009 (Berg 2009). For the Birdsbill #14-16H project approximately 13.78 acres were inventoried on May 13, 2009 (Lechert 2009a); for the Clark Fox #16-17H project approximately 19.59 acres were inventoried on June 11, 2009 (Lechert 2009b); and for the Wolf #3-27H project approximately 18.97 acres were inventoried on May 13, 2009 (Klitzka 2009). Two archaeological sites (32DU1449, 32MZ1970) 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. One ineligible isolated find was also recorded. No properties were located that appear to qualify for protection under the American Indian Religious Freedom Act (16 USC 1996). 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 these undertakings, as the archaeological sites will be avoided. This determination was communicated to the THPO on September 2, 2009; however, no response was received from the THPO within the allotted 30-day comment period (see Part 4).

### **3.9 SOCIOECONOMICS**

Socioeconomic conditions include population, demographics, income, employment, and housing. These conditions can be analyzed and compared at various scales. 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%, while populations on the Reservation increased by approximately 10%. These population changes are anticipated to continue (Rathge *et al.* 2002). While American Indians are the predominant group on the Reservation, they are considered the minority in all other areas of North Dakota. Over 67% of the population currently residing within the Reservation are tribal members.

**Table 9. Population and Demographics.**

<b>County or Reservation</b>	<b>Population in 2000</b>	<b>% of State Population</b>	<b>% Change between 1990-2000</b>	<b>Predominant Group</b>	<b>Predominant Minority (Percent of Population)</b>
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%)

Residents of the Reservation are employed in similar ventures as those outside of the Reservation. Common mainstays of employment include ranching, farming, tribal government, tribal enterprises, schools, and federal agencies. The MHA Nation's Four Bears Casino and Lodge, 4 miles west of New Town, employs approximately 320 people, of which 90% are tribal members (Three Affiliated Tribes 2008).

Counties which overlap the Reservation tend to have per capita incomes, median household incomes, and employment rates which are 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 therefore disadvantaged relative to overall Reservation incomes and unemployment rates that average in non-Indian data. Per capita income for Reservation residents is approximately 32% lower than the statewide average. The median household income reported for the reservation (i.e., \$26,274) is likely skewed upward due to overcrowded housing conditions. This median income is approximately 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 (i.e., 1,122) within the Reservation is approximately 57% lower than the average number of owner-occupied housing units found in the four counties which encompass the Reservation (i.e., 2,601.5). Additionally, the four counties which encompass the Reservation 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 through 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 10. Income and Unemployment.**

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%

There is no anticipated detrimental affect regarding socioeconomic stability as a result of the proposed project. 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 while long-term commercial production would bare significant royalties and indirect economic benefits.

**Table 11. Housing Development Data for the Reservation and Encompassing Counties.**

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
<b>Total</b>	1,908	1,965	2,719	5,264	3,436

### 3.10 ENVIRONMENTAL JUSTICE

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, was signed by President Clinton in 1994. The Order requires agencies to advance environmental justice (EJ) by pursuing fair treatment and meaningful involvement of minority and low-income populations in federal programs,

policies, decisions and operations. Fair treatment means such groups should not bear a disproportionately high share of negative environmental consequences from such undertakings. Meaningful involvement means federal officials actively promote opportunities for public participation and that federal decisions can be materially affected by participating groups and individuals.

The U.S. Environmental Protection Agency (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.

Environmental Justice is an evolving concept with potential for disagreement over the scope of analysis and the implications for federal responsiveness. It is nevertheless clear that tribal members on the Great Plains qualify for EJ consideration as both a minority and low-income population. The population of the Dakotas is predominantly Caucasian. While some 70% of Reservation residents are tribal members, Indians comprise only 5% of North Dakota residents and 12% of the population of Dunn County. Even in a state with relatively low per capita and household income, Indian individuals and households are distinctly disadvantaged.

There are, however, some unusual EJ considerations when proposed federal actions are meant to benefit tribal members. Determination of fair treatment necessarily considers 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 or living elsewhere. A general benefit to MHA Nation government and infrastructure has already resulted from tribal leasing, fees and taxes. Oil and gas leasing has also already 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 on additional tracts owned by currently non-benefitting allottees. The absence of lease and royalty income does not, moreover, preclude other benefits. Exploration and development would provide many relatively high-paying jobs, with oversight from the Tribal Employment Rights Office.

The owners of allotted surface within the project areas may not 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 or pipeline 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. There is potential for disproportionate impacts, especially if the impacted tribes and members do not reside within the Reservation and therefore do not share in direct or indirect benefits. This potential is significantly reduced following the surveys of proposed project locations and

determination by the BIA that there will be no historic properties affected. Nothing is known to be present, furthermore, that qualifies for protection under the *American Indian Religious Freedom Act*. Potential for disproportionate impacts is further mitigated by requirements for immediate work stoppage following an unexpected discovery of cultural resources of any type. Mandatory consultations would 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 projects have not been found to pose significant impacts to any other critical element—air, public health and safety, water, wetlands, wildlife, soils or vegetation—within the human environment. Avoiding or minimizing such impacts also makes unlikely disproportionate impacts to low-income or minority populations. The proposed actions offer many positive consequences for tribal members, while recognizing Environmental Justice concerns. Procedures summarized in this document and in applicable laws, rules and orders are binding and sufficient. No laws, regulations or other requirements have been waived; no compensatory mitigation measures are required.

### **3.11 MITIGATION AND MONITORING**

Many protective measures and procedures are described in this document and in the APDs. 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, & 46.415*, a report will be developed by the BLM and BIA which documents the results of monitoring in order to adapt the projects to eliminate any adverse impact on the environment.

### **3.12 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 cuttings, soil lost to erosion (i.e., wind and water), unintentionally destroyed or damaged cultural resources, wildlife killed as a result of collision with vehicles (i.e., construction machinery and work trucks), and energy expended during construction and operation.

### **3.13 SHORT-TERM USE VERSUS LONG-TERM PRODUCTIVITY**

Short-term activities would not detract significantly from long-term productivity of the project areas. The development of access roads and well pad areas would diminish 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 areas would decrease considerably once the wells are drilled and non-necessary areas have been reclaimed. Rapid reclamation of the project areas would facilitate revived wildlife and livestock usage, stabilize the soil, and reduce the potential for erosion and sedimentation. The

foremost resource loss associated with long-term activities is the extraction of hydrocarbons from the Bakken Formation, which is the purpose of these projects.

### 3.14 CUMULATIVE IMPACTS

Environmental impacts may accumulate either over time or in combination with similar events in the region. 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 in the vicinity of the project areas 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 region. Current farming and ranching is 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; oil and gas development is not expected to have more than a minor effect on land use patterns.

The major activity with potential to impact critical elements of the human environment is oil field development. 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. Two active wells are found within 1 mile of Birdsbill #14-16H and Wolf #3-27H (Table 12).

There are 54, 164, and 1,238 oil and gas wells (active, confidential, and permitted) within 5, 10, and 20 miles respectively of the proposed project areas (Tables 14 through 16; Figure 24). In total, there are approximately 1,456 wells within a 20-mile radius of the proposed project areas, including all active, confidential, and permitted wells.

**Table 12. Confidential, Active, and Permitted Wells within a 1-mile Radius of the Project Areas.**

Reservation (On/Off)	Birdsbill #14-16H		Clark Fox #16-17H		Birdsbill (894A) #4-35H		Wolf #3-27H	
	On	Off	On	Off	On	Off	On	Off
Confidential Wells	0	0	0	0	0	0	0	0
Active Wells	1	0	0	0	0	0	1	0
Permitted Wells	0	0	0	0	0	0	0	0

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

	Birdsbill #14-16H		Clark Fox #16-17H		Birdsbill (894A) #4-35H		Wolf #3-27H	
	On	Off	On	Off	On	Off	On	Off
Reservation (On/Off)	On	Off	On	Off	On	Off	On	Off
Confidential Wells	7	0	15	0	12	0	5	0
Active Wells	2	0	6	0	4	0	3	0
Permitted Wells	0	0	0	0	0	0	0	0

**Table 14. Confidential, Active, and Permitted wells within a 10-mile Radius of the Project Area.**

	Birdsbill #14-16H		Clark Fox #16-17H		Birdsbill (894A) #4-35H		Wolf #3-27H	
	On	Off	On	Off	On	Off	On	Off
Reservation (On/Off)	On	Off	On	Off	On	Off	On	Off
Confidential Wells	24	0	27	8	22	0	12	5
Active Wells	15	0	15	0	12	0	8	8
Permitted Wells	0	0	0	0	0	0	8	0

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

	Birdsbill #14-16H		Clark Fox #16-17H		Birdsbill (894A) #4-35H		Wolf #3-27H	
	On	Off	On	Off	On	Off	On	Off
Reservation (On/Off)	On	Off	On	Off	On	Off	On	Off
Confidential Wells	49	26	48	26	49	26	37	60
Active Wells	35	120	35	120	35	120	28	212
Permitted Wells	5	0	5	0	5	0	26	171

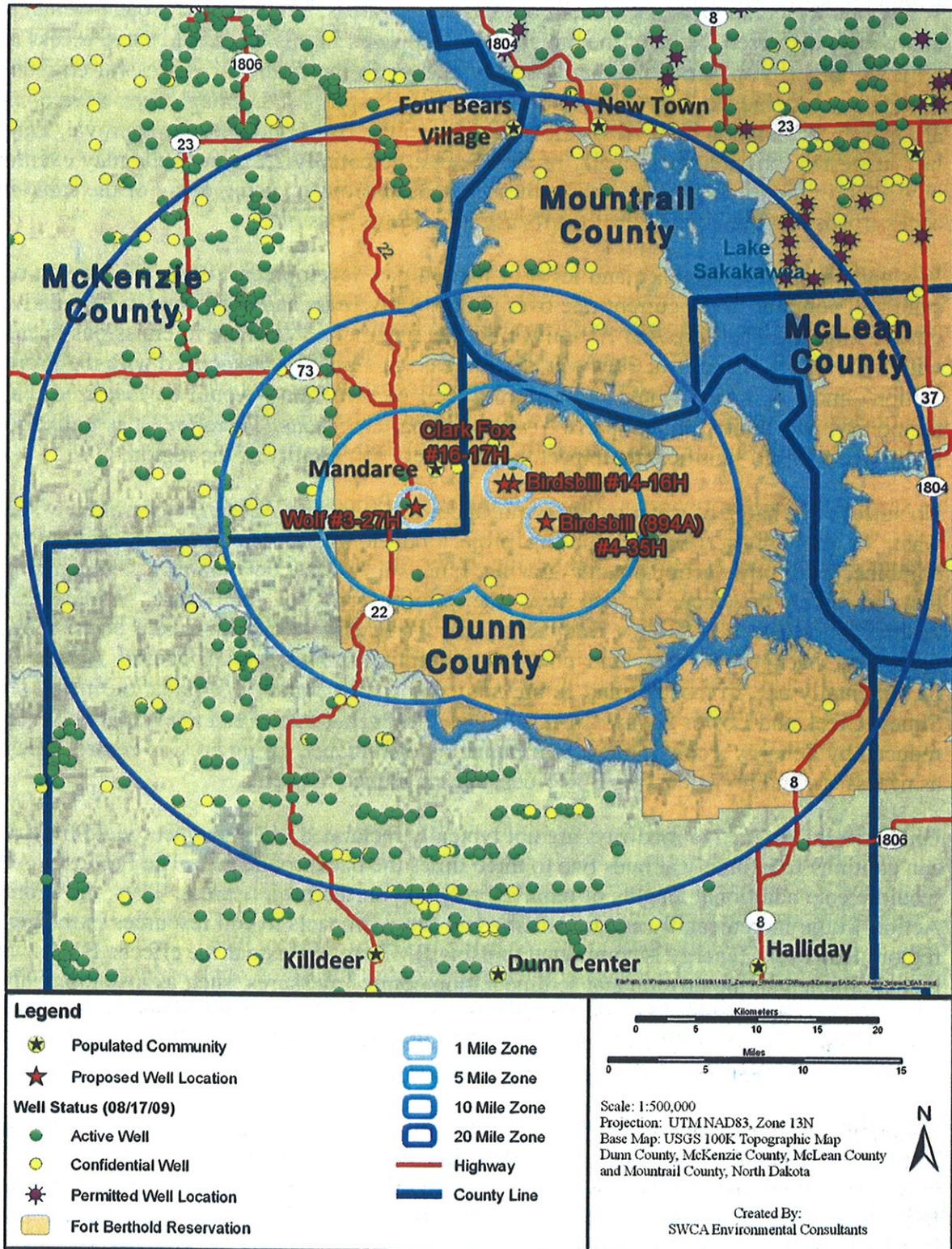


Figure 24. Active, confidential, and permitted wells within a 1-, 5-, 10-, and 20-mile radius of the proposed project locations.

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 these proposed projects, 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 within 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 within 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. Therefore, it is unlikely that the projects would significantly impact the cumulative air quality of the region.

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 areas 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 Upper Squaw Creek and Lower Squaw 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 areas. Thus, the Proposed Action would incrementally add to existing and future impacts to soil resources in the general region. 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 along side slopes, planting cover crops to stabilize soil following construction and before permanent seeding takes place.

Vegetation resources across the region could be affected by various activities, including additional energy development and surface disturbance of quality native prairie areas that have been largely undisturbed by previous 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 within 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, as 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 four 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 projects. 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. For the purpose of this EA, a stakeholder is considered any agency, municipality, or individual person to which 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. Correspondence with the Fort Berthold THPO is reproduced below.



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

SEP 02 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 and McKenzie, North Dakota. Approximately 81.67 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the areas depicted in the enclosed reports. Two archaeological sites (32DU1449, 32MZ1970) 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. One ineligible isolated find was also recorded. 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, as the archaeological sites will be avoided. Catalogued as **BIA Case Number AAO-1649/FB/09**, the proposed undertakings, locations, and project dimensions are described in the following reports:

Berg, Caryn M.

(2009) A Class III Cultural Resources Inventory of the Zenergy Birdsbill 4-35 Well and Access Road, Dunn County, North Dakota. SWCA Environmental Consultants for Zenergy Operating Company, Tulsa, OK.

Klitzka, Nelson

(2009) A Class III Cultural Resources Inventory of the Zenergy Wolf 3-27H Well Pad and Access Road, McKenzie County, North Dakota. SWCA Environmental Consultants for Zenergy Operating Company, LLC, Tulsa, OK.

Lechert, Stephanie

(2009) A Cultural Resource Inventory of the Dakota-3 Clark Fox 16-17H 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.

(2009) A Cultural Resource Inventory of the Birdsbill 14-16H 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.

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  
Chief, Division of Energy and Environment

## **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 Environmental Consultants under the direction of the BIA. Information was compiled from various sources within SWCA Environmental Consultants.

### **Zenergy Operating Company, LLC**

- Kelley Bryan, Williston Basin Land Manager

### **SWCA Environmental Consultants**

- Michael J. Cook, Ecologist  
*Prepared the EA. Completed limited natural resource field surveys for access roads.*
- Joshua Ruffo, Project Manager/Wildlife 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.*
- Richard Wadleigh, Senior NEPA Planner  
*Reviewed and edited the EA.*
- Stephanie Lechert, Archaeologist  
*Conducted cultural resource surveys for well pads and access roads.*
- Eric Munscher, Ecologist  
*Conducted natural resource surveys for well pads and access roads.*
- Wade Epperson, GIS Specialist  
*Created maps and spatially derived data.*
- Brent Sobotka, Hydrologist/CPESC  
*Completed water resources section.*
- Christopher McLaughlin, Ecologist  
*Conducted natural resource surveys for well pads and access roads.*

### **Bureau of Indian Affairs**

- Division of Environmental, Safety and Cultural Resource Management  
*Conducted final review and finalized.*

## **5.0 REFERENCES AND ACRONYMS**

- American Lung Association. 2006. State of the Air 2006. Available online at [http://lungaction.org/reports/sota06\\_analyses5.html#region8](http://lungaction.org/reports/sota06_analyses5.html#region8). Accessed April 22, 2008.
- Berg, Caryn M. 2009. A Class III Cultural Resources Inventory of the Zenergy Birdsbill 4-35 Well and Access Road, Dunn County, North Dakota. SWCA Environmental Consultants for Zenergy Operating Company, Tulsa, OK.
- Bryce, S., J.M. Omernik, D.E. Pater, M. Ulmer, J. Schaar, J. Freeouf, R. Johnson, P. Kuck, and S.H. Azevedo. 1998. Ecoregions of North Dakota and South Dakota. Jamestown, North Dakota: Northern Prairie Wildlife Research Center Online, available at <http://www.npwr.usgs.gov/resource/habitat/ndsdeco/index.htm>. Accessed June 2008.
- Croft, M.G. (1985). Groundwater Resources of McKenzie County, North Dakota. Bulletin 80 – Part III. North Dakota Geological Survey.
- Grah, O.J. 1997. Soils, Water, and Vegetation Resources Technical Report. Report prepared for the Cave Gulch-Bullfrog-Waltman Natural Gas Development Project Environmental Impact Statement. Prepared for the Casper District Office, Bureau of Land Management and Gary Holsan Environmental Planning, Thayne, Wyoming, by ECOTONE Environmental Consulting, Inc. Logan, Utah. 101 pp.
- High Plains Regional Climate Center. 2008. Historical Climate Data Summaries. Available online at <http://www.hprcc.unl.edu/data/historicl>. Accessed May 2008.
- Klausing, Robert L. (1979). Groundwater Resources of Dunn County, North Dakota. Bulletin 68 – Part III. North Dakota Geological Survey.
- Klitzka, Nelson. 2009. A Class III Cultural Resources Inventory of the Zenergy Wolf 3-27H Well Pad and Access Road, McKenzie County, North Dakota. SWCA Environmental Consultants for Zenergy Operating Company, LLC, Tulsa, OK.
- Lechert, Stephanie. 2009a. A Cultural Resource Inventory of the Birdsbill 14-16H 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.
- Lechert, Stephanie. 2009b. A Cultural Resource Inventory of the Dakota-3 Clark Fox 16-17H 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.
- Natural Resources Conservation Service (NRCS). 2009. Web Soil Survey. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Soils data for portions of Sections 21, 22, and 27, Township 147 North, Range 91 West were downloaded from the NRCS websoil survey site in May 2009. Available online at <http://websoilsurvey.nrcs.usda.gov> and <http://soildatamart.nrcs.usda>.

- North Dakota Department of Agriculture. 2007. 2006 Noxious Weed List Survey – Reported Acres. North Dakota Department of Agriculture. Bismarck, North Dakota. 2 pp. Available online at <http://agdepartment.com/Programs/Plant/NoxiousWeeds.html>.
- North Dakota Department of Health (NDDH). 2007. Annual Report: North Dakota Air Quality Monitoring Data Summary 2006. North Dakota Department of Health. Bismarck, North Dakota. 70 pp. Report downloaded May 2008 and available at <http://www.health.state.nd.us/AQ/AmbientMonitoring/htm>.
- North Dakota State Water Commission. North Dakota State Water Commission Mapservice. Online: <http://mapservice.swc.state.nd.us/> Accessed 24 August, 2009.
- Rathge, R., M. Clemson, and R. Danielson. 2002. North Dakota Population Projections 2005-2020. North Dakota State Data Center at North Dakota State University. Fargo, North Dakota. September.
- Sobotka, Brent. 2008. Photo of well drilling operations in Wyoming. Personal photo by Brent Sobotka.
- Three Affiliated Tribes. 2008. Mandan, Hidatsa, Arikara Website. Available online at [http://www.mhanation.com/main/history\\_economic\\_social.html](http://www.mhanation.com/main/history_economic_social.html). Accessed April 2008.
- United States Department of the Interior and United States Department of Agriculture (USDI and USDA). 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.
- U.S. Environmental Protection Agency (EPA). 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. Office of Federal Activities, U.S. Environmental Protection Agency. Washington, D.C. 70 pp. + appendices.
- United States Fish and Wildlife Service (USFWS). 2008a. National Wetlands Inventory: Wetlands Online Mapper. Available online at <http://wetlandsfew.er.usgs.gov/wtlnds/launch.html>.
- \_\_\_\_\_. 2008b. Dakota Skipper. Available online at [http://www.fws.gov/northdakotafieldoffice/endspecies/species/dakota\\_skipper.htm](http://www.fws.gov/northdakotafieldoffice/endspecies/species/dakota_skipper.htm).
- Williams, B.B., and M.E. Bluemle. 1978. Status of Mineral Resource Information for the Fort Berthold Indian Reservation, North Dakota. Administrative report BIA-40. 35 pp.

## 6.0 ACRONYMS

<b>°F</b>	degrees Fahrenheit
<b>AAQM</b>	Ambient Air Quality Monitoring (site)
<b>APD</b>	Application for Permit to Drill
<b>APE</b>	Area of Potential Effect
<b>BIA</b>	Bureau of Indian Affairs
<b>BLM</b>	Bureau of Land Management
<b>BMP</b>	Best Management Practice
<b>CFR</b>	Code of Federal Regulations
<b>EA</b>	Environmental Assessment
<b>EIS</b>	Environmental Impact Statement
<b>EJ</b>	Environmental Justice
<b>EPA</b>	Environmental Protection Agency
<b>ESA</b>	Endangered Species Act
<b>FONSI</b>	Finding of No Significant Impact
<b>HUC</b>	hydrologic unit code
<b>MHA Nation</b>	Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation
<b>NAGPRA</b>	Native American Graves Protection and Repatriation Act
<b>NDCC</b>	North Dakota Century Code
<b>NDDH</b>	North Dakota Department of Health
<b>NDIC</b>	North Dakota Industrial Commission
<b>NEPA</b>	National Environmental Policy Act
<b>NOS</b>	Notice of Staking
<b>NRCS</b>	Natural Resources Conservation Service
<b>NRHP</b>	National Register of Historic Places
<b>NTL</b>	Notice to Lessees
<b>PEM</b>	palustrine emergent
<b>ROW</b>	right-of-way
<b>SHPO</b>	State Historic Preservation Officer
<b>TCP</b>	Traditional Cultural Property
<b>THPO</b>	Tribal Historic Preservation Officer
<b>TVD</b>	Total Vertical Depth
<b>USC</b>	United States Code
<b>USFS</b>	U.S. Forest Service
<b>USFWS</b>	U.S. Fish and Wildlife Service
<b>USGS</b>	U.S. Geological Survey

# **Notice of Availability and Appeal Rights**

Zenergy: Dakota-3 Birdsbill #14-16H  
Dakota-3 Clark Fox #16-17H  
Dakota-3 Birdsbill (894A) #4-35H  
Dakota-3 Wolf #3-27H

**The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals related to installation of an oil/gas wells as shown on the attached map. Construction by Zenergy is expected to begin in 2009.**

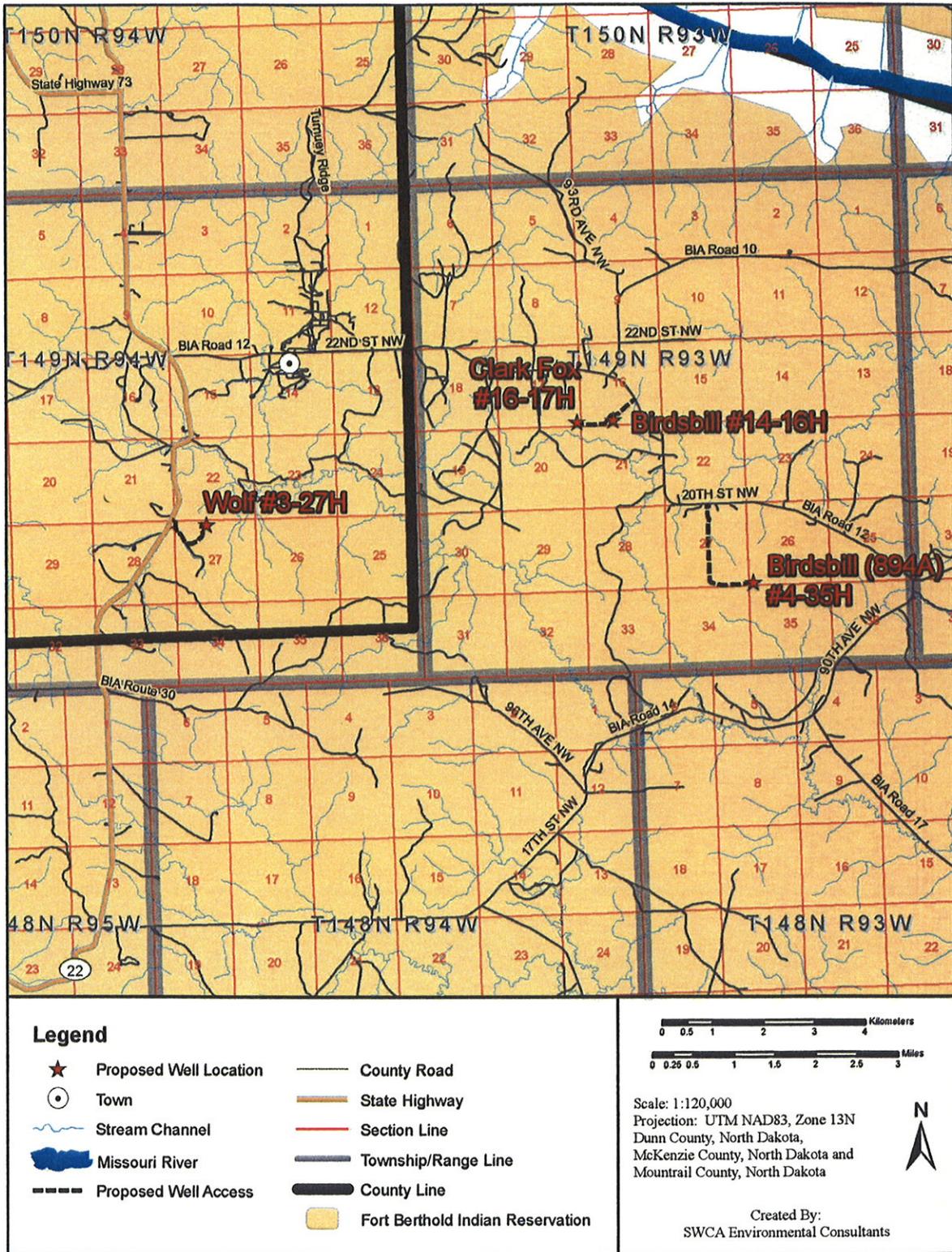
**An environmental assessment (EA) determined that proposed activities will not cause significant impacts to the human environment. An environmental impact statement is not required. Contact Howard Bemer, Superintendent at 701-627-4707 for more information and/or copies of the EA and the Finding of No 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 November 5, 2009, 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.**



# **Notice of Availability and Appeal Rights**

Zenergy: Dakota-3 Birdsbill #14-16H  
Dakota-3 Clark Fox #16-17H  
Dakota-3 Birdsbill (894A) #4-35H  
Dakota-3 Wolf #3-27H

**The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals related to installation of an oil/gas wells as shown on the attached map. Construction by Zenergy is expected to begin in 2009.**

**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 November 6, 2009, 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.**

