# BakkenLink Pipeline: A Class II and Class III Cultural Resource Inventory in Billings, Stark, Dunn, McKenzie and Williams County, North Dakota

Prepared for:
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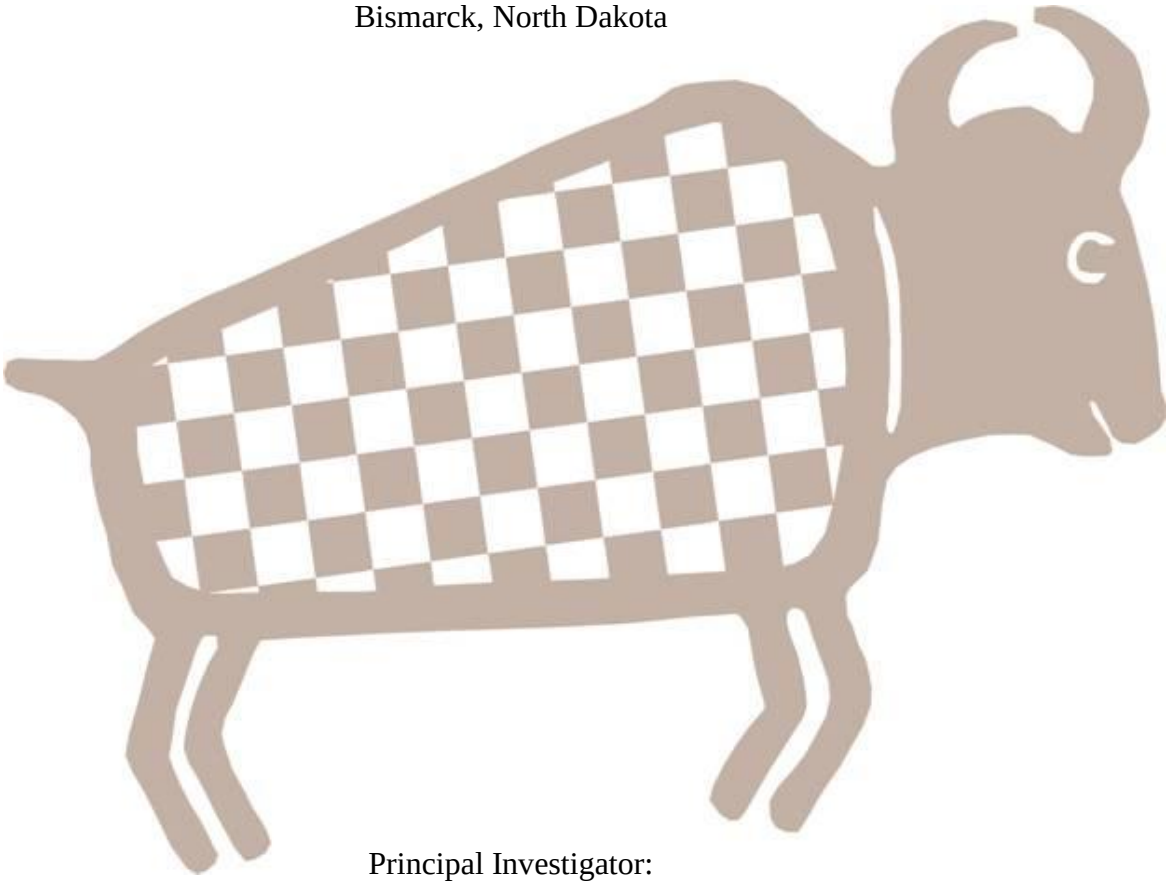

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## Abstract

BakkenLink Pipeline, LLC, plans to build a crude oil pipeline in western North Dakota. The BakkenLink pipeline will be approximately 160.5 miles long and cross through Williams, McKenzie, Dunn, Stark, and Billings counties, North Dakota. The Bureau of Land Management is the lead federal agency for this undertaking, and the North Dakota Public Services Commission is the lead state agency. Bartlett and West Engineering, the main engineering contractor for the undertaking, contracted with Metcalf Archaeological Consultants to conduct a Class II and Class III cultural resources inventory of the proposed undertaking.

Metcalf Archaeological Consultants conducted the inventory between July 20 and February 21, 2012. Approximately 162.3 miles of the pipeline was intensively inventoried. The survey right-of-way was 200 feet wide. The survey also included an approximately 10 acre extra work space on the south side of Lake Sakakawea. Thus approximately 3945 acres were inventoried.

Sixty-two cultural resources have been documented as a result of this inventory. Twenty-four are precontact isolated finds, 29 are precontact sites, and nine are historic-era sites. The isolated finds are all recommended not eligible for inclusion on the National Register of Historic Places. The National Register status of the precontact sites is undetermined. The postcontact sites are recommended to be not eligible for inclusion on the National Register with two exceptions. One is an abandoned segment of the US 85 roadbed. US 85 previously has been recommended eligible for inclusion on the National Register. Mitigation will be determined in consultation with the Bureau of Land Management and the North Dakota State Historic Preservation Office. The other is a wagon trail. A reroute around that site has been surveyed. Bartlett & West intends to avoid National Register eligible sites where practical as well as those sites whose eligibility has not been determined.

## Table of Contents

## List of Figures

## List of Tables

# Chapter 1: Introduction

BakkenLink Pipeline, LLC, (BLPL) proposes to construct and operate a crude oil pipeline intended to move petroleum from the Bakken oil fields in western North Dakota to a railroad transshipment location near Fryburg in southwest North Dakota. Future expansion plans may include extending the pipeline to the vicinity of Baker, Montana and tying into the Keystone XL pipeline. In the current construction phase, the pipeline will originate at a collection facility approximately seven miles south of Tioga, pass through Williams, McKenzie, Dunn, Stark, and Billings counties, terminating at Fryburg. Bartlett & West Engineering, the main engineering contractor for the pipeline, contracted with Metcalf Archaeological Consultants, Inc., (MAC) to conduct cultural resources investigations for this undertaking.

The pipeline crosses portions of the Little Missouri National Grasslands and land owned by the US Army Corps of Engineers. The Bureau of Land Management is the lead federal agency. The Public Service Commission (PSC) is the lead state agency. The cultural resource investigations herein documented were undertaken to ensure compliance with the National Historic Preservation Act (NHPA [Public Law 89-665]), as amended, and its implementing regulations (36 CFR Part 800).

This report documents the results of the Class II and Class III cultural resources investigations. Chapter 1 is an overview of the project, including the project description and locations. Chapter 2 discusses the environmental setting and archaeological/cultural context of the project area. Chapter 3 presents the methodology employed and personnel involved in the inventories. Chapter 4 details the results of the Class II and Class III inventory. Chapter 5 includes a summary of results and recommendations. Appendix A comprises 1:24,000 USGS maps with the pipeline route, the results of the Class I files search and the current investigations plotted on them.

## Project Description

The BakkenLink pipeline includes both the mainline, running from near Tioga to near Fryburg and two lateral collection lines, one extending east to near Killdeer and one from the mainline approximately 3.5 miles east, in the vicinity of Belfield. The mainline pipeline will be 12 inches in diameter and the laterals will be 8 inches. The construction right-of-way (ROW) will be 100 feet wide, except on US Forest Service lands, where the construction ROW will be 50 feet. At some locations, the construction ROW will be reduced to 25 feet to avoid impacting cultural resources. To help ensure impacts to cultural resources are avoided, the cultural resources survey corridor was 200 feet wide.

Bartlett & West, the main engineering contractor for the pipeline, contracted with MAC to conduct cultural resource investigations associated with this project. MAC conducted the Class I site and manuscript search (literature review) during the winter and spring of 2010-2011. As the route for the pipeline had not been determined at that point, the searched area was at least three miles wide and included many areas not now part of the project. The results of this search have been submitted to the North Dakota State Historic Preservation Office (NDSHPO) under separate cover.

Following the review of the Class I literature search, the NDSHPO recommended that the ROW be subjected to a Class II (reconnaissance) and Class III (intensive) cultural resource inventories. Based on a reconnaissance survey of the ROW and the investigator's judgment, segments of the ROW judged to have a moderate to high potential to contain cultural resources were then intensively inventoried. Because much of the pipeline route either crosses high potential terrain or is not easily observable from roadways, almost all the ROW was intensively inventoried.

The survey also included an approximately 10 acre extra work space on the south side of Lake Sakakawea. Including reroutes, 162.3 miles or 3935 acres, of the pipeline centerline(s) were intensively inventoried. Including the extra work space, 3945 acres were inventoried. The inventory was conducted between July 20, 2011 and February 14, 2012.

**Project Location**

The undertaking's area of potential effect (APE) is located in portions of Williams, McKenzie, Dunn, Stark and Billings counties (Figure 1 and Appendix A). The legal descriptions of the APE are listed below (Table 1).

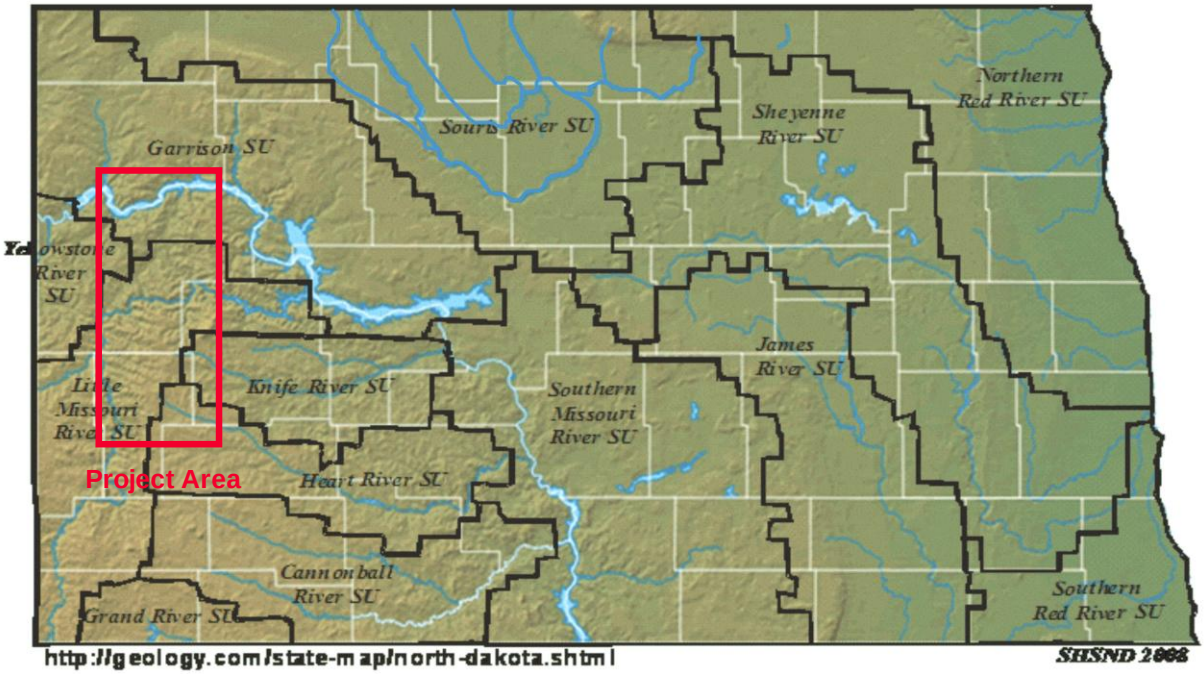


**Figure 1:** General Location of the APE.

**Table 1:** Legal Locations of BakkenLink Pipeline

| T/R-S | County | Map (Appendix A) |
|---|---|---|
| 139/100-2, 3, 10, 11 | Stark | 43 |
| 140/100-35, 36 | Stark | 42 |
| 140/99-6*-7*, 14, 15, 16, 17, 18, 19, 30, 31 | Stark | 40, 41, 42 |
| 141/99-3,10, 15, 22, 27, 34 | Billings | 38, 39 |

| **Table 1:** Legal Locations of BakkenLink Pipeline | | |
|---|---|---|
| **T/R-S** | **County** | **Map (Appendix A)** |
| 142/99-3, 10, 15, 22, 27, 34 | Billings | 36, 37 |
| 143/99-2, 10*, 11, 15, 22, 27, 34 | Billings | 34, 35 |
| 144/99-1, 2, 11, 14, 24, 25, 26, 35 | Billings | 32-33 |
| 145/95-19, 20, 21, 30 | Dunn | 31 |
| 145/96-24, 25, 26, 27, 28*, 30, 31, 32 | Dunn | 29, 30, 31 |
| 145/97-31, 32, 33, 34, 35, 36* | Dunn | 28, 29 |
| 145/98-7, 18, 19, 20, 28, 29, 33, 34, 35, 36 | McKenzie | 26, 27 |
| 145/99-1, 12 | McKenzie | 26 |
| 146/99-1, 12, 13, 24, 25, 36 | McKenzie | 24, 25 |
| 147/98-6*, 7, 18 | McKenzie | 22 |
| 147/99-1, 13, 24, 25, 36 | McKenzie | 22, 23 |
| 148/99-3, 10, 11, 14, 23, 24, 25, 36 | McKenzie | 20, 21 |
| 149/98-6, 7, 18, 19, 30, 31 | McKenzie | 18, 19 |
| 150/95-6, 7, 17, 18, 20 | McKenzie | 11, 12 |
| 150/96-13, 14, 15, 16*, 17, 18 | McKenzie | 11, 12, 13 |
| 150/97-13, 14, 15, 16, 17, 18 | McKenzie | 13, 14, 15 |
| 150/98-13, 21, 22*, 23, 24, 28, 29, 31, 32 | McKenzie | 15, 16, 17 |
| 151/95-30, 31 | McKenzie | 10, 11 |
| 151/96-1, 12, 13, 24, 25 | McKenzie | 9, 10 |
| 152/96-1*, 12*, 13, 24, 25, 36 | McKenzie | 7, 8 |
| 153/95-3, 4, 9, 10, 16, 21*, 28*, 33* | McKenzie | 6, 7 |
| 154/95-4, 5, 9, 16, 21, 27*, 28*, 34 | Williams and McKenzie | 3, 4, 5 |
| 155/95-6, 7, 17, 18, 20, 29, 32, 33 | Williams | 1, 2, 3 |
| 156/95-31-32 | Williams | 1 |
| *Section surveyed at Class II level only | | |

**Management Recommendations**

In all, 61 cultural resources were documented during the survey (Table 2). These include 24 precontact isolated finds, 28 precontact sites, and nine historic-era sites (archaeological and architectural). Additionally, two sites that had been recorded within or immediately adjacent to the APE were not relocated during this inventory. The isolated finds are all recommended not eligible for inclusion on the National Register of Historic Places (NRHP). The NRHP statuses of the precontact sites are undetermined. The postcontact sites are recommended to be not eligible for inclusion on the National Register, with two exceptions. One is an abandoned segment of US Highway 85 (32MZ1560) which has previously been recommended eligible for the NRHP. The other is 32MZ1314, a wagon trail, which has been recommended as potentially eligible.

The BLPL intends to avoid National Register eligible sites as well as those whose eligibility has not been determined. However, where the Dunn Lateral segment of the pipeline crosses the Little Knife River, a cluster of sites is not easily avoided. The BLPL intends to test these sites, and if necessary, mitigate effects to these sites. Testing plans for these sites have been submitted under separate cover (Kulevsky 2012) and are summarized in this document (Chapter 5).

**Table 2:** Cultural Resources Along the BakkenLink Pipeline

| SITS # | Temp # | Location | Site Type | Site Description | Evaluation/Recommendation | Map # |
|---|---|---|---|---|---|---|
| 32BI453 | | 141/99-27 | Prehistoric | Cultural material scatter | Undetermined/No further work (NFW) | 39 |
| 32BI1098 | MAC-BL-AK-3 | 143/99-34 | Historic | Farmstead | Not Eligible pending deeds search/NFW | 35 |
| 32BI1099 | MAC-BL-AK-4 | 143/99-27 | Prehistoric | Cultural material scatter | Undetermined/Avoid | 35 |
| 32BI1100 | MAC-BL-ES-8 | 144/99-25, 26 | Prehistoric | Cultural material scatter | Undetermined/Avoid | 33 |
| 32BIx896 | MAC-BL-AK-2 | 141/99-22 | IF | Prehistoric | Not eligible/NFW | 39 |
| 32BIx897 | MAC-BL-AK-5 | 144/99-11 | IF | Chipped stone | Not eligible/NFW | 32 |
| 32BIx898 | MAC-BL-AK-16 | 139/100-2 | IF | Chipped stone | Not eligible/NFW | 43 |
| 32BIx899 | MAC-BL-AK-17 | 139/100-2 | IF | Chipped stone | Not eligible/NFW | 43 |
| 32BIx900 | MAC-BL-ES-1 | 139/100-10 | IF | Chipped stone | Not eligible/NFW | 43 |
| 32BIx901 | MAC-BL-ES-4 | 142/99-15 | IF | Chipped stone | Not eligible/NFW | 36 |
| 32BIx902 | MAC-BL-ES-5 | 143/99-22 | IF | Chipped stone | Not eligible/NFW | 35 |
| 32BIx903 | MAC-BL-ES-6 | 143/99-22 | IF | Chipped stone | Not eligible/NFW | 35 |
| 32BIx904 | MAC-BL-ES-7 | 143/99-22 | IF | Chipped stone | Not eligible/NFW | 35 |
| 32DU1703 | MAC-BL-AK-40 | 145/96-28 | Prehistoric | Cultural material scatter | Undetermined/Avoid | 30 |
| 32DUx925 | MAC-BL-AK-26 | 145/97-31 | IF | Chipped stone | Not eligible/NFW | 28 |
| 32MZ303 | MAC-BL-AK-8 | 145/98-33, 34 | Prehistoric | Cultural material scatter | Undetermined/Avoid | 27 |
| 32MZ304 | MAC-BL-ES-11 | 145/99-34 | Prehistoric | Lithic scatter | Undetermined/Avoid | 27 |
| 32MZ859 | | 149/98-6 | Prehistoric | Stone features | Undetermined/Avoid | 18 |
| 32MZ1311 | | 147/98-18 | Prehistoric | Cultural material scatter | Undetermined/Reroute surveyed | 22 |
| 32MZ1312 | | 147/98-18 | Prehistoric | Cultural material scatter | Undetermined/Reroute surveyed | 22 |
| 32MZ1313 | | 147/98-18 | Prehistoric | Cultural material scatter | Undetermined/Reroute surveyed | 22 |
| 32MZ1314 | | 147/98-18 | Historic | Wagon trail | Undetermined/Reroute Surveyed | 22 |
| 32MZ1461 | | 145/98-33, 34 | Prehistoric | Cultural material scatter | Undetermined/Avoid | 27 |
| 32MZ1560 | MAC-BL-AK-28 | 148/97-11 | Historic | Highway 85 | Eligible/Mitigate | 20 |
| 32MZ2307 | MAC-BL-AK-6 | 145/98-33 | Prehistoric | Cultural material scatter | Undetermined/Avoid | 27 |
| 32MZ2308 | MAC-BL-AK-15 | 153/95-4 | Historic | stone features | Not Eligible pending deeds search/NFW | 5 |
| 32MZ2309 | MAC-BL-AK-20 | 150/95-6 | Historic | Foundation | Not eligible pending deeds search/NFW | 11 |
| 32MZ2310 | MAC-BL-AK-21 | 150/95-6 | Historic | Foundation | Not eligible pending deeds search/NFW | 11 |
| 32MZ2311 | MAC-BL-AK-23 | 146/99-1 | Prehistoric | Cultural material scatter | Undetermined/NFW | 24 |
| 32MZ2312 | MAC-BL-AK-25 | 148/99-3 | Prehistoric | Cultural material scatter | Undetermined/Avoid | 20 |
| 32MZ2313 | MAC-BL-AK-27 | 148/99-10 | Prehistoric | Cultural material scatter | Undetermined/Avoid | 20 |
| 32MZ2314 | MAC-BL-AK-30 | 150/97-18 | Prehistoric | Stone features, cultural material scatter | Undetermined/Avoid | 15 |
| 32MZ2315 | MAC-BL-AK-31 | 150/97-17 | Prehistoric | Cultural material scatter | Undetermined/Avoid | 14 |
| 32MZ2316 | MAC-BL-AK-32 | 150/97-13 | Prehistoric | Cairn | Undetermined/Avoid | 13 |
| 32MZ2317 | MAC-BL-ES-10 | 145/98-34 | Prehistoric | Lithic scatter | Undetermined/Avoid | 27 |

**Table 2:** Cultural Resources Along the BakkenLink Pipeline

| SITS # | Temp # | Location | Site Type | Site Description | Evaluation/Recommendation | Map # |
|---|---|---|---|---|---|---|
| 32MZx1181 | MAC-BL-AK-7 | 145/98-35 | IF | Chipped stone | Not eligible/NFW | 27 |
| 32MZx1182 | MAC-BL-AK-9 | 145/98-33 | IF | Chipped stone | Not eligible/NFW | 27 |
| 32MZx1183 | MAC-BL-AK-10 | 145/98-33 | IF | Chipped stone | Not eligible/NFW | 27 |
| 32MZx1184 | MAC-BL-AK-11 | 145/98-34 | IF | Chipped stone | Not eligible/NFW | 27 |
| 32MZx1185 | MAC-BL-AK-18 | 151/95-30 | IF | Chipped stone | Not eligible/NFW | 10 |
| 32MZx1186 | MAC-BL-AK-19 | 150/95-6 | IF | Chipped stone | Not eligible/NFW | 11 |
| 32MZx1187 | MAC-BL-AK-22 | 149/98-19 | IF | Chipped stone | Not eligible/NFW | 19 |
| 32MZx1188 | MAC-BL-AK-24 | 150/95-6 | IF | Chipped stone | Not eligible/NFW | 11 |
| 32MZx1189 | MAC-BL-AK-29 | 148/97-11 | IF | Chipped stone | Not eligible/NFW | 20 |
| 32MZx1190 | MAC-BL-AK-39 | 150/96-24 | IF | Chipped stone | Not eligible/NFW | 12 |
| 32MZx1191 | MAC-BL-AK-41 | 150/95-7 | IF | Chipped stone | Not eligible/NFW | 11 |
| 32MZx1192 | MAC-BL-AK-42 | 148/99-10 | IF | Projectile point | Not eligible/NFW | 20 |
| 32SKx340 | MAC-BL-AK-1 | 140/99-30 | IF | Chipped stone (possible paleopoint) | Not eligible/NFW | 42 |
| 32SKx341 | MAC-BL-ES-2 | 140/99-19 | IF | Chipped stone | Not eligible/NFW | 42 |
| 32WI132 | | 154/95-16 | Prehistoric | Stone circle, cultural material scatter | Undetermined/Avoid | 4 |
| 32WI338 | | 154/95-16 | Prehistoric | Stone circle | Undetermined/Avoid | 4 |
| 32WI1215 | MAC-BL-AK-13 | 155/95-29 | Historic | Depression, cultural material scatter | Not eligible pending deeds search | 2 |
| 32WI1237 | MAC-BL-AK-12 | 155/95-12 | Prehistoric | Stone features | Undetermined/Avoid | 2 |
| 32WI1238 | MAC-BL-AK-38 | 154/95-16 | Prehistoric | Stone circle | Undetermined/Avoid | 4 |
| 32WI1239 | MAC-BL-AK-14 | 155/95-32 | Prehistoric | cairn | Undetermined | 3 |
| 32WI1240 | MAC-BL-AK-33 | 155/97-7 | Historic | Depression | Not eligible pending deeds search/NFW | 1 |
| 32WI1241 | MAC-BL-AK-34 | 155/97-7 | Prehistoric | Stone circle | Undetermined/Avoid | 1 |
| 32WI1242 | MAC-BL-AK-35 | 155/97-7 | Prehistoric | Stone features | Undetermined/Avoid | 1 |
| 32WI1243 | MAC-BL-AK-36 | 155/95-17 | Prehistoric | Stone circles | Undetermined/Avoid | 2 |
| 32WI1244 | MAC-BL-AK-37 | 155/95-17 | Historic | Architecture | Not eligible pending deeds search/NFW | 2 |
| 32WI1245 | MAC-BL-AK-43 | 155/95-20 | Prehistoric | Stone circles | Undetermined/Avoid | 2 |
| 32WI1246 | MAC-BL-MK-1 | 154/95-16 | Prehistoric | Stone circles | Undetermined/Avoid | 4 |

## Chapter 2: Project Setting

The project corridor crosses three study units as defined by *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component* (SHSND 2008). The study units include the Little Missouri River Study Unit (Unit #1), the Knife River Study Unit (Unit #3) and the Garrison Study Unit (Unit #6). The discussion below briefly outlines the physical setting for each study unit.

### Environmental Setting

*Little Missouri River Study Unit (Unit #1)*

This study unit is dominated by the Little Missouri Badlands. The headwaters of the Little Missouri are in northeastern Wyoming and the river flows northward through portions of South Dakota and Montana into North Dakota. The vegetation of the Little Missouri River Badlands is characterized as being much more diverse than that of the surrounding plains. The dominant floral community in the Badlands is the western wheatgrass-sagebrush ecosystem. Cottonwood forests grow along some of the bottomlands in the Little Missouri valley. The Little Missouri River Study Unit is also home to a variety of mammals, birds, and reptiles. Many species that were more common throughout the state in the past, like the bison, elk, pronghorn antelope, wolves, jackrabbits, and prairie dogs can still be found in protected areas within Theodore Roosevelt National Park. There are several locally available lithic resources in the study unit that would have provided Native American groups with adequate stone for making chipped and ground stone tools. These include Knife River flint, Tongue River silicified sediment, porcellanite, chalcedony, Antelope Creek chert, and Miocene flint. Clay from the surrounding landscape may have been used to make some pottery, while juniper timbers served as building material for conical timbered lodges. The pipeline route crosses the Little Missouri River once, approximately 20 miles south of Watford City (Figure 2).

**Figure 2:** View to the southwest across the APE in the Little Missouri Badlands (image 7-23-11-8951).

*Knife River Study Unit (Unit #3)*

The landscape of the Knife River Study Unit is one of flat or gently rolling prairie with buttes in the headwaters areas. The Knife River valley is approximately 90 miles in length. Spring Creek is the main tributary of the Knife River with a drainage area of 570 miles. The study unit is home to chokecherry (*Prunus virginiana*), juneberry (*Amelancier alnifolia*), and several other kinds of currents and gooseberries. Trees such as cottonwoods (*Populus deltoids*), box elder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), and burr oak (*Quercus macrocarpa*) are some of the major species that can be found in the Knife River Study Unit. Local fauna during prehistoric times includes bison, elk, white-tailed deer, pronghorn antelope, foxes, badgers, coyotes and sometimes wolves, beavers, and grizzly bears. Northern pike, walleye, and perch are commonly found in the Knife River and Spring Creek today.

The Knife River Study Unit cannot be properly discussed without mention of the most prominent resource; Knife River flint. The material has been quarried within this study unit for over 10,000 years and was traded and moved vast distances by Native Americans. Knife River flint is brown, translucent, crypto-crystalline silica that was collected and surface mined in North Dakota prehistory for use in tool making.

Only a small portion of the current APE is within the study unit. The eastern end of the Dunn Lateral, which crosses both the Little Knife River and Spring Creek, passes through the study unit (Figure 3).

**Figure 3:**View to the northeast of the APE in the Knife River Study Unit (image 2-14-12ES-207).

*Garrison Study Unit (Unit #6)*

The Garrison Study Unit lies within the glaciated Missouri Plateau Subsection of the Missouri Plateau Section of the Great Plains Physiographic Province. The region is characterized by gently rolling hills dissected by numerous rivers and creeks that drain to the Missouri River (now referred to as Lake Sakakawea or the Garrison Reservoir). The Missouri River valley has been modified by the man-made impoundment of Lake Sakakawea created by the Garrison Dam, which was completed in 1953. The landforms in the Study Unit consist of glacial uplands, draws, alluvial terraces, floodplains, and valley wall sideslopes (Figures 4-6). The mixed grass prairie once supported herds of bison and pronghorns with gallery forests growing along the Missouri River on the floodplain. Transition zones between the floodplain and grasslands offered habitat diversity for the growth of bur oak, green ash, and juniper as well as cover for a variety of game animals. Chokecherry, gooseberry, buffaloberry, and serviceberries can be found within the Study Unit. A wide array of animals from white-tailed deer, mule deer, mountain lions, wolves, coyotes, foxes, badgers, prairie dogs, cottontail rabbits, eagles, hawks, owls, grouse, prairie chickens, and a variety of fish, turtles, and mussels would have been valuable resources for prehistoric people. Glacial till and alluvial gravels abound within the Garrison Study Unit. There can be Knife River flint, cherts, jaspers, quartzite, and silicified woods, agate, porcellanite, basalt, and granite found in various places throughout the region.

**Figure 4:** View to the north of the Missouri River Valley along the APE (image 7-23-11-8960).

**Figure 5:** Lake Sakakawea/Missouri River Valley (image 9-14-11-8988).

**Figure 6:** View to the west of typical glacial uplands in the APE (image 10-25-11-9012).

**Cultural Chronology**

In terms of traditional archaeological spatial units, the project area comprises the Northwestern Plains, near Fryburg, at the south end of the APE, transitioning north through the Middle Missouri subarea and terminating in the Northeastern Plains near Tioga. For the northern Plains in general, prehistory can be broken up into several different chronological periods or traditions: Paleo-Indian, Plains Archaic, Plains Woodland, Plains Village, Equestrian Nomad, and Euro-American Settlement. An excellent overview of the cultural history of the Plains is *The North Dakota State Plan for Historic Preservation: Archeological Component (*SHSND 2008: B13-B49) and much of the following discussion is drawn from that document and from Wood 1998.

*Paleo-Indian Tradition (11,500 - 7,500 Years B.P.)*

The first evidence of humans occupying North Dakota and North America is referred to as the Paleo-Indian period. No Paleo-Indian sites have been identified within the immediate project area and the only indication of their presence is through artifacts documented in private collections. Paleoecological studies and the documentation and excavation of several sites near the project area (SHSND 2008:1.22 and 6.63) indicate that the study units were ice-free as early as 11,500 years B.P. The environment in North Dakota would have been suitable for human occupation beginning around this time. The Paleo-Indian period can be broken up into four major complexes, based primarily on tool variants and rare radiocarbon dates: Clovis, Goshen, Folsom, and Late Paleo-Indian. Clovis is considered the earliest; however tools from all four complexes can be found relatively contemporaneously.

People using Clovis technology spread throughout North America and northern Mexico within a 500-year time span while maintaining a distinctive toolkit that included a basally fluted projectile point, along with a highly developed bone and ivory technology. There are indications that Early Paleo-Indian people were following the movements of extinct Late Pleistocene megafauna such as mammoth, mastodon, bison, and camel and relying on them as their main means of subsistence. Presumably, these early people were subsisting on other fauna and flora besides megafauna, exploiting niche subsistence as they transitioned through different ecozones.

Early Paleo-Indian sites are rare in North Dakota and no Clovis sites have been documented in the Little Missouri River Study Unit. A single Knife River flint projectile point from the Clovis Period was identified at 32ME946 near Beaver Creek to the east of the current APE in the Garrison Study Unit.

The Goshen Complex is thought to fit between Clovis and Folsom with dates that average 11,200 years B.P. Archaeologists have recovered Goshen artifacts 15 miles to the southwest of the Little Missouri River Study Unit at the Mill Iron site in Montana. Goshen style projectile points have been identified near the Knife River flint main quarry source area in Dunn County, specifically at the Alkali Creek site (32DU336) (Metcalf and Ahler 1995).

Folsom components have produced dates ranging from 10,800-10,300 years B.P. Folsom fluted points are exquisitely crafted with a long channel flake removed from the base of the point, running well past the midline. Bison appears to be the most common mammal exploited by Folsom peoples, yet deer, rabbit, pronghorn and other smaller mammals have also been found in association with Folsom sites. Interestingly, the earliest known evidence of dog domestication in the Northern Plains comes during this time period as evidenced by a canine from the Folsom component at the Agate Basin site in Wyoming. In North Dakota, Folsom components have been identified at the Moe site and the Beacon Island site on the Missouri River and at several quarry sites at Lake Ilo in the Knife River flint quarry district (Dunn County).

Paleo-Indian sites become more common throughout North Dakota during the Late Paleo-Indian period with Agate Basin, Hell Gap, Alberta, and Cody components. Well-crafted lanceolate projectile points, typically exhibiting parallel flaking, represent these later complexes. Sites from the end of the period are typically associated with now extinct forms of bison.

*Plains Archaic Tradition (7,500 – 2,400 Years B.P.)*

The Plains Archaic is often divided into three periods: Early, Middle, and Late, based on distinct changes in material culture. The Archaic period falls between the post-Paleo-Indian megafauna hunting and the pre-ceramic cultures of the Northern Plains. The terminal Pleistocene brought about major environmental shifts, including the retreat of glacial ice sheets and the extinction of 31 genera of large mammals (Fagan 1987:189). These changes led to a shift in subsistence patterns that included the hunting of smaller mammals and an increased reliance on wild plant foods. The Early Archaic peoples hunted a form of bison intermediate between the late Paleo-Indian forms and the modern species. By the end of the Late Archaic, all hunted species were modern. During the end of the Archaic period there is evidence that domesticated dogs may

have been an important food surplus for Northeastern Plains peoples (Gregg, et al. 1996:83). There is evidence that the bow and arrow was in use at least by the Late Archaic period in North Dakota. It is also possible that by the Late Archaic incipient horticulture was in progress (SHSND 2008:B.72 and 1.78).

Early Archaic period sites are more common than Paleo-Indian sites in North Dakota, but are still rare in comparison to more recent periods. Early Archaic projectile points (e.g. Simonson) can be misidentified as late prehistoric Prairie Side-Notched points since they are relatively small and similar in morphology (SHSND 2008:B.31). Other Early Archaic projectile points include large side-notched Hawken and Mummy Cave Side-notched. A second area of confusion surrounding chronology has arisen due to the identification of points that look like those typically associated with the Late Archaic coming from well-documented Early Archaic components (Frison et al. 1996:19). The Oxbow complex seems to fall between the Early and the Middle Archaic and is typically grouped with the Early Archaic period, although this is not always the case. The Middle Archaic includes the McKean, Duncan and Hanna complexes. These three projectile point types are often found in association with one another as in the Gant site in South Dakota. In North Dakota, Pelican Lake points are the most common form of the Late Archaic period. Other unnamed corner-notched points from the Late Archaic are similar to corner-notched points of the Early Plains Woodland and in the absence of pottery can easily be misidentified as being from the Late Archaic.

The Archaic is well represented in the Little Missouri River Study Unit with a significant number of Archaic sites being recorded in the Garrison Study Unit as well. The Altithermal, or climactic warming and drying period took place on the Northern Plains during the Early Archaic causing the expansion of prairie and affecting the movements of humans and other flora and fauna. In large part due to the climate change, the majority of Archaic period sites identified in North Dakota date to the Middle and Late Archaic Period with fewer Early Archaic sites. The Mondrian Tree site (32MZ58) contains a deeply stratified sequence that has aided researchers in understanding the climate during the Archaic Period. The Moe Site, within the Garrison Study Unit, has yielded radiocarbon dates indicating occupations from the Late Archaic. The Cinnamon Creek site in the Little Missouri River Study Unit is representative of ridge tops in the badlands containing a high number of Archaic sites. The site contains a number of Oxbow points and dated deposits from about 3400 BC. A Hanna Point as well as Duncan point from the Middle Archaic has been identified near Lake Tschida and a number of other Middle Plains Archaic points have been recorded during the Northern Border Pipeline project (Billeck 1983).

*Plains Woodland Tradition (A.D. 2,400 Years B.P. – A.D. 1000)*

The Plains Woodland is typically divided into the Early, Middle and Late Plains Woodland periods. The development of ceramics is a hallmark of the Woodland tradition along with a complete replacement of the atlatl and dart by the bow and arrow. The Middle Woodland period is known for mortuary mounds that were common with the Sonota complex and the Late Woodland is marked by the first fortified villages (e.g., Menoken Village and Flaming Arrow Village in Burleigh County, North Dakota). Gardening appears to have been a more common practice by the Late Woodland period, yet still on too small of a scale to become the main form of subsistence. There are clear cultural links to the broader Upper Midwest during this time so

that by the Late Woodland tradition connections between local populations and people living at great distances across the Plains and Midwest. The extent of the influence is still under study but it is clear that the Woodland peoples of North Dakota were not completely reliant on the cultural developments of the Upper Midwest as evidenced by the dominant presence of bison remains in sites dating to this time period.

Artifacts and lifeways from the Early Woodland period are quite similar to those of the Late Archaic period. Projectile points that are antecedent to Besant and ceramic variants such as Black Duck are hallmarks of the Early Woodland period. Ceramic vessels are generally thick-walled conoidal forms with grit temper. The exteriors and sometimes the interiors are often cord roughened with decoration, if present, consisting of cord-marking, embossing, and trailing over cord-roughened surfaces.

The Middle Plains Woodland is well represented in the study units associated with this project and across North Dakota as a whole. Mound sites associated with the Middle Woodland period have been documented within the Garrison Study Unit. The material culture of the Middle Plains Woodland is known as the Sonota-Besant and includes Besant Side-notched points, small Samantha Side-notched points, corner-notched Pelican Lake like points, and Middle Plains Woodland ceramics. The vessels are conoidal in shape with cord-roughening on the exterior, occasionally smoothed, and with decorative bosses or punctuates along the rims. The people of the Middle Plains Woodland were participating in interregional trade with Hopewellian trade including obsidian, native copper and *Busycon* and *Marginella* shells. Many of the stone circle sites in North Dakota are believed to be associated with Sonota-Besant campsites.

Finely crafted side-notched arrowheads including Prairie Side-notched, Plains Side-notched, and Avonlea represent the Late Plains Woodland period. Avonlea pottery is more conical in shape and often net-impressions were created, although cord-roughened pottery is still dominant during the Late Woodland. Conical mounds were still being used during the Late Woodland and additional linear and effigy mounds were being created during this time period.

The appearance of Early Woodland sites within the Little Missouri River Study Unit is rare although many of the Pelican Lake components from this unit date to the Early Woodland period. The Besant and Sonota complexes can be difficult to differentiate between although there are sites where contemporaneous components of both have been identified and studied such as at the Doaks Butte site in Bowman County.

Early, Middle and Late Woodland sites are expected in the near-by Knife River Study Unit due to the study unit's close proximity to the Knife River flint main source area. In fact, over 75% of the lithic artifacts recovered from the Early Woodland site known as the Naze site located along the James River were made from Knife River flint. This indicates direct procurement of the material rather than acquisition through trade. A possible Late Woodland, Avonlea component at the Goodman Creek site in Mercer County, has the potential to shed light on a period that has not been researched in this portion of the state.

The Garrison Study Unit contains a significant number of Plains Woodland tradition sites. Most notably, there is a presence of mortuary sites of apparent Sonota/Besant origin such as at the

Boeckel-Renner site. This indicates that the area was used as more of a permanent occupation area and that this was a core territory of these people. The Evans site is a testament to the diversity in subsistence patterns during the Late Woodland period. The remains of bison, fox, coyote, deer, duck and plum seeds were recovered during excavation as well as bison scapula digging tools. The site also yielded pottery and stylistically varied projectile points.

*Plains Village Period (A.D. 1000 – 1780)*

The Plains Village tradition is represented by semi-sedentary hunter-gatherer-horticulturalists who lived in permanent villages for at least part of the year. These villagers practiced subsistence strategies including the gardening of maize, sunflowers, tobacco, etc., bison hunting, and generalized hunting and foraging. Although there are noticeable difference in subsistence patterns between the Late Woodland and Plains Village periods, bison hunting remained the main dietary staple for people living in North Dakota. During warmer climatic periods corn was grown as far north as Winnipeg, Manitoba along the Red River as well as along the James and Sheyenne rivers in North Dakota. The Northern Plains became warmer and droughts plagued the region between A.D. 1250 and 1500. This significantly reduced the amount of arable land, resulting in food shortages and an increase in warfare (Gregg, et al. 1996:86). These social upheavals are indicated by the appearance of fortification palisades and defensive ditches around village sites such as the Double Ditch site, along the Missouri River near present day Bismarck.

The tool kit of the Plains Village tradition include Plains and Prairie side-notched projectile points along with unnotched triangular points, bifacially flake end scrapers, and heavy-duty bifacial cutting tools. The Plains Village horticulturalists used the scapula hoe for their daily gardening activities. Pottery included globular jars with straight, out curved, or braced rims and grit, sand or shell temper. The exterior surfaces include smooth and unsmoothed cord roughened or check stamps. Decorative elements like trailed lines, tool impressions and cord wrapped tool impressions were often added to each vessel. Trade is indicated by the appearance of non-local items such as obsidian, Gulf and Pacific coast marine shells, and catlinite.

The Little Missouri River Study Unit contains several sites that can be correlated with the Plains Village period. Excavations at the Connel Ranch site recovered ceramics that date between the $17^{th}$ and $18^{th}$ centuries AD. An earlier site located on Cinnamon Creek Ridge (32MZ380D), overlies a paleosol dated to AD 1285 ±40. A stone circle excavation at the Bear Den site (32DU175) yielded flaking debris, chipped stone tools and a large number of pottery sherds that represented one Knife River Plainware vessel and one Knife River Fineware vessel. There is also evidence that conical timber lodges were being constructed in the Badlands during this time period (SHSND 2008:1.35).

To the east of the current APE, the Knife River Study Unit contains an overwhelming number of late Plains Village earthlodge residential bases, although there is clear evidence that the confluence of the Knife and Missouri rivers was occupied from the beginning of the period and during the preceding Formative Village times as well (SHSND 2008:3.73). Plains Village components are abundant along the Knife River with village sites that include Lower Hidatsa and Sakakawea villages. The written texts of several Euro-American trappers, traders, and explorers document many of the lifeways of the Plains Village people and this is often reflected in the

archaeological record. The materials that were traded and/or purchased by Native Americans from the Euro-Americans can now be used to date many of the Plains Village sites.

The Garrison Study Unit was mainly used as an area for hunting and temporary settlement during the Plains Village period. When the villages along the Knife and Heart rivers were abandoned after ca. AD 1780, the study unit became a refuge for those villagers.

*Equestrian Period (A.D. 1780 – 1880)*

The Equestrian Period, sometimes referred to as the Fur Trade Period, is a time of great change among Native American peoples and their way of life. The beginning of the period is marked by the introduction of horses followed by the rise of the Great Plain Equestrian Tradition and culminating with the incarceration of Native American groups on reservations at its conclusion. During this time, tribes like the Dakotas began moving onto the Great Plains due to the encroachment of Euro-American settlement from further east. It is near the project area in the Killdeer Mountains where the Sioux were engaged in battle by the United States Army in 1864 after the Minnesota uprising of 1862 (Carley 1976).

Within the current project boundaries, other groups of people have been associated with the period. These include, at various times, the Mandan, Hidatsa, Arikara, Crow and Sioux (Dakota, Lakota, and Nakota). The presence of these people is based largely on ethnographic accounts and it is often difficult to identify absolute cultural affiliation at each archaeological site.

Several difficulties exist for the identification of Equestrian period sites. Typically, these sites can only be identified through the presence of Euro-American trade goods. Diagnostic artifacts consisting of metal objects have usually rusted away. Trade beads are generally tiny and easily overlooked during pedestrian inventory.

The Crow were known to make their way through the Little Missouri River Study Unit on their way from this region to the Bighorn Mountains of Montana (SHSND 2008:1.38). To the east of the current APE, the Knife River and Heart River confluences with the Missouri River were witness to the arrival of trappers, traders, and explorers like Lewis and Clark. The Garrison Study Unit is the location of several key trading posts and forts like Fort Union and Fort Buford.

*Euro-American/Settlement*

Early Euro-American exploration in North Dakota was quite limited. Pierre La Verendrye and his sons traveled through the Red River area in the 1730s and journeyed along parts of the Souris and Missouri rivers in 1742-1744. More notably, Lewis and Clark traveled up the Missouri River in 1804-1806. Trappers and traders working for the Northwest and Hudson Bay companies began their work along the Red River in 1779 and the area soon became well known to trappers and traders working out of St. Paul, Minnesota, and Fort Garry, Manitoba (present day Winnipeg, Canada). Fur trappers moved down the Red River in canoes and overland on two-wheeled carts known as “Red River Carts.”

Railroads brought in the first substantial waves of settlers into Eastern North Dakota in the early 1870s. Settlers acquired land from the railroads or through the Homestead, Predemption, and Timber Culture acts of the 1870s. By 1883, practically all of the arable land in Central and Eastern North Dakota had been claimed. North Dakota gained statehood in 1889 with Bismarck established as the state capital. The railroad industry boomed from 1898 to 1915 leading to the rise in small towns across the state. Agricultural settlement followed a cyclical boom and bust pattern and in the 1930s the Great Depression made it impossible for smaller farms to succeed. Agriculture has always been the top economic force in North Dakota. The state has continued to boom and bust based on world wars, the Great Depression and a growing dependence on Federal Aid. The situation has not changed appreciably in subsequent years. Recently, the state has seen a significant rise in its economy from oil exploration and alternative energy research and development.

# Chapter 3: Methodology

## Introduction

The BakkenLink pipeline is approximately 168.5 miles long and crosses five counties, and private, federal and state lands. A small portion of the pipeline ROW was inventoried at a Class II (reconnaissance) level. Reroutes and route changes were continually being handed down during the course of field work. These changes were incorporated into the inventory on an on-going basis. Thus, approximately 162.3 miles were intensively inventoried (Class III), though this figure includes reroutes of segments of the ROW that may or may not already have been walked. Including a ten acre block for extra work space, a total of 3935 acres were inventoried. A portion of the ROW covered by the reconnaissance survey crosses the floodplain of the Little Missouri River. Because of the possibility of deeply buried cultural deposits in this alluvial environment, we are recommending archaeological monitoring during construction of the pipeline in this stretch.

## Personnel

The MAC crew included Kimball Banks, Principle Investigator; Ed Stine and Andrea Kulevsky, project directors; and Danielle Bailly, William Bluemle, Nathan Boyless, Bill Christensen, Melissa Fitzpatrick, Matt Kinsey, Ian Light, Meagan Schoendfelder, Mike Stolt, and Laura Williams. Elizabeth France coordinated field activities from MAC's Bismarck office.

## Field Conditions

Field conditions varied by geographical location. The ground cover consisted of pasture with both non-native and native prairie mixed grasses, forested areas, cultivated fields, and land enrolled in the Conservation Reserve Program (CRP). Ground surface visibility (GSV) varied by land use and ranged between 5% and 100%. Because the year has been so wet, field conditions were sometimes less than optimal: in some cases, pastures tended to be overgrown or not as well grazed as one might expect and alfalfa and hay fields were not mowed as expeditiously as one might hope. There were also numerous agricultural fields that were never planted and are best described as overgrown fallow.

Some work was conducted during the winter. During this work, there was generally no snow. In some fields there was a small amount of snow; at no location was snow cover greater than one percent, and at most locations there was no snow at all.

## Field Methods

The Class III inventory methodology employed zigzag pedestrian transects spaced no more than 15 meters apart. The pipeline route was not staked; rather GPS data provided by Bartlett & West were loaded onto Magellan CX GPS units. The GPS data were used in the field to maintain location and record cultural resources. Field conditions and cultural resources were documented with digital photographs and in field notes.

When a cultural resource was encountered, the immediate area was intensively scrutinized. Pin flags were used to mark all artifacts and features. Based on the number of artifacts encountered, an in-field determination was made as to whether the area was a site or an isolated find. An area that contained five or fewer artifacts was defined as an isolated find; six or more artifacts constituted a site. Sketch maps were drawn for each site and each site was photographed. All field notes, maps, and electronic photo images are on file at the MAC Bismarck office. The site area was determined and mapped with the GPS units. To the extent possible, attempts were made in the field to determine the NRHP eligibility of all cultural resources.

Areas with enhanced ground surface visibility such as cutbanks, blowouts, animal trails, two-tracks, and small mammal back dirt piles were closely examined during the course of the inventory. At select locations shovel probes were excavated. Generally, this was done at the location(s) of known cultural resources, to determine whether they extended into the APE and to help with determining how far the ROW would need to be moved to avoid cultural resources. Shovel probes were also excavated at the south side of Lake Sakakawea, where an exposed cutbank indicated a possible Paleosol. Five shovel probes were excavated; none produced cultural material.

## Chapter 4: Results

The cultural resources inventory resulted in the documentation of 62 cultural resources: 24 isolated finds (IFs), 29 precontact archaeological sites and nine historic (archaeological and architectural) sites (see Table 2). Four of the precontact sites and two of the historic sites have been previously recorded and are updated herein.

Two previously recorded sites within or immediately adjacent to the APE were not relocated. 32WI147 is a sparse lithic scatter in a plowed field originally recorded in 1985. Twenty auger probes were excavated at that time and no artifacts or evidence of buried cultural deposits were found. No further work is recommended at this location. 32WI414 is also a small, sparse lithic scatter located in a plowed field. It was originally recorded in 2000 and was revisited in 2007, at which time no artifacts were observed. MAC also observed no artifacts on our revisit. No further work is recommended at this location.

### Isolated Finds

Twenty-four isolated finds were recorded (Table 4). Isolates are defined as a concentration of five or fewer artifacts and are by their nature not eligible for inclusion on the NRHP. All 22 isolates are therefore recommended to be not eligible and no avoidance or other measures to avoid impacting the resources is recommended.

**Table 3:** Isolated Finds on the BakkenLink Pipeline

| SITS # | Field Code | T/R-Sec | Description | Map # |
|---|---|---|---|---|
| 32BIx896 | MAC-BL-AK-2 | 141/99-22 | 2 flakes | 39 |
| 32BIx897 | MAC-BL-AK-5 | 144/99-11 | 1 tool | 32 |
| 32BIx898 | MAC-BL-AK-16 | 139/100-2 | 3 flakes, 1 flake tool | 43 |
| 32BIx899 | MAC-BL-AK-17 | 139/100-2 | 1 flake | 43 |
| 32BIx900 | MAC-BL-ES-1 | 139/100-10 | 4 flakes, 1 biface fragment | 43 |
| 32BIx901 | MAC-BL-ES-4 | 142/99-15 | 1 flake | 36 |
| 32BIx902 | MAC-BL-ES-5 | 143/99-22 | Hafted biface fragment (non-diagnostic) | 35 |
| 32BIx903 | MAC-BL-ES-6 | 143/99-22 | 1 flake | 35 |
| 32BIx904 | MAC-BL-ES-7 | 143/99-22 | 1 flake | 35 |
| 32Dux925 | MAC-BL-AK-26 | 145/97-31 | 1 flake | 28 |
| 32MZx1181 | MAC-BL-AK-7 | 145/98-35 | 1 flake | 27 |
| 32MZx1182 | MAC-BL-AK-9 | 145/98-33 | 1 flake tool | 27 |
| 32MZx1183 | MAC-BL-AK-10 | 145/98-33 | 1 flake | 27 |
| 32MZx1184 | MAC-BL-AK-11 | 145/98-34 | 1 flake | 27 |
| 32MZx1185 | MAC-BL-AK-18 | 151/95-30 | 5 flakes | 10 |
| 32MZx1186 | MAC-BL-AK-19 | 150/95-6 | 2 flakes, 1 bone fragment | 11 |
| 32MZx1187 | MAC-BL-AK-22 | 149/98-19 | 2 flakes | 19 |
| 32MZx1188 | MAC-BL-AK-24 | 150/95-6 | 2 flakes, 1 core | 11 |
| 32MZx1189 | MAC-BL-AK-29 | 148/97-11 | Biface fragment | 20 |
| 32MZx1190 | MAC-BL-AK-39 | 150/96-24 | Porcellanite bifacial fragment (knife) | 12 |
| 32MZx1191 | MAC-BL-AK-41 | 150/95-7 | 1 core | 11 |
| 32MZx1192 | MAC-BL-AK-42 | 148/99-10 | Projectile Point (possible Avonlea) | 20 |
| 32SKx340 | MAC-BL-AK-1 | 140/99-30 | 4 flakes, 1 possible paleopoint | 42 |
| 32SKx341 | MAC-BL-ES-2 | 140/99-19 | 2 flakes | 42 |

**Sites**

Thirty-seven sites were recorded. Nine are postcontact: five are farmsteads, one of which includes several standing structures, one is a depression, one is a rock feature, one is a segment of a wagon trail, and one is the abandoned old Highway 85 road bed. The farmsteads, depression and rock feature sites are recommended not eligible for inclusion on the NRHP. Previously, both the highway (32MZ1560) and the wagon trail (32MZ1314) have been recommended eligible for inclusion on the NRHP. The remaining 29 sites are precontact: 16 are cultural material scatters, 12 are stone feature sites comprising either stone circles or cairns or a combination of both, and one site includes both stone features and cultural material.

Stone features play a prominent role as archaeological sites and/or Traditional Cultural Properties (TCPs) Stone circles have a number of possible functions; they are most commonly thought to have been used to hold down the edges of tipis, but other less familiar, though significant functions involving a variety of social/ceremonial activities are also possible. Cairns also served a number of purposes, including but not limited to, protective covers for human burials and various kinds of caches, as commemorative markers, as points of reference on the landscape, as offering piles, supports for post/pole structures, big game drive line markers, and the storage of selected rock for cooking construction and sweat bathing.

*32BI453*

32BI453 is a prehistoric lithic scatter located on the south side of a small rise in an agricultural field (Map 39, Figures 7-8). It was originally recorded in 1985 as part of an inventory for the Exxon CO2 pipeline. At that time eight artifacts were observed and the site was recommended as not eligible for inclusion on the NRHP. When MAC visited the site, only one artifact was observed, but there was a line of hay bales lying across the heart of the site. MAC excavated three shovel probes to determine whether the site existed within the APE. The probes were located in a line stretching from the edge of the site east toward the centerline. All probes were excavated into subsoil and none produced any cultural material. As the site does not appear to exist within the construction ROW, this undertaking therefore will have no impact to the site.

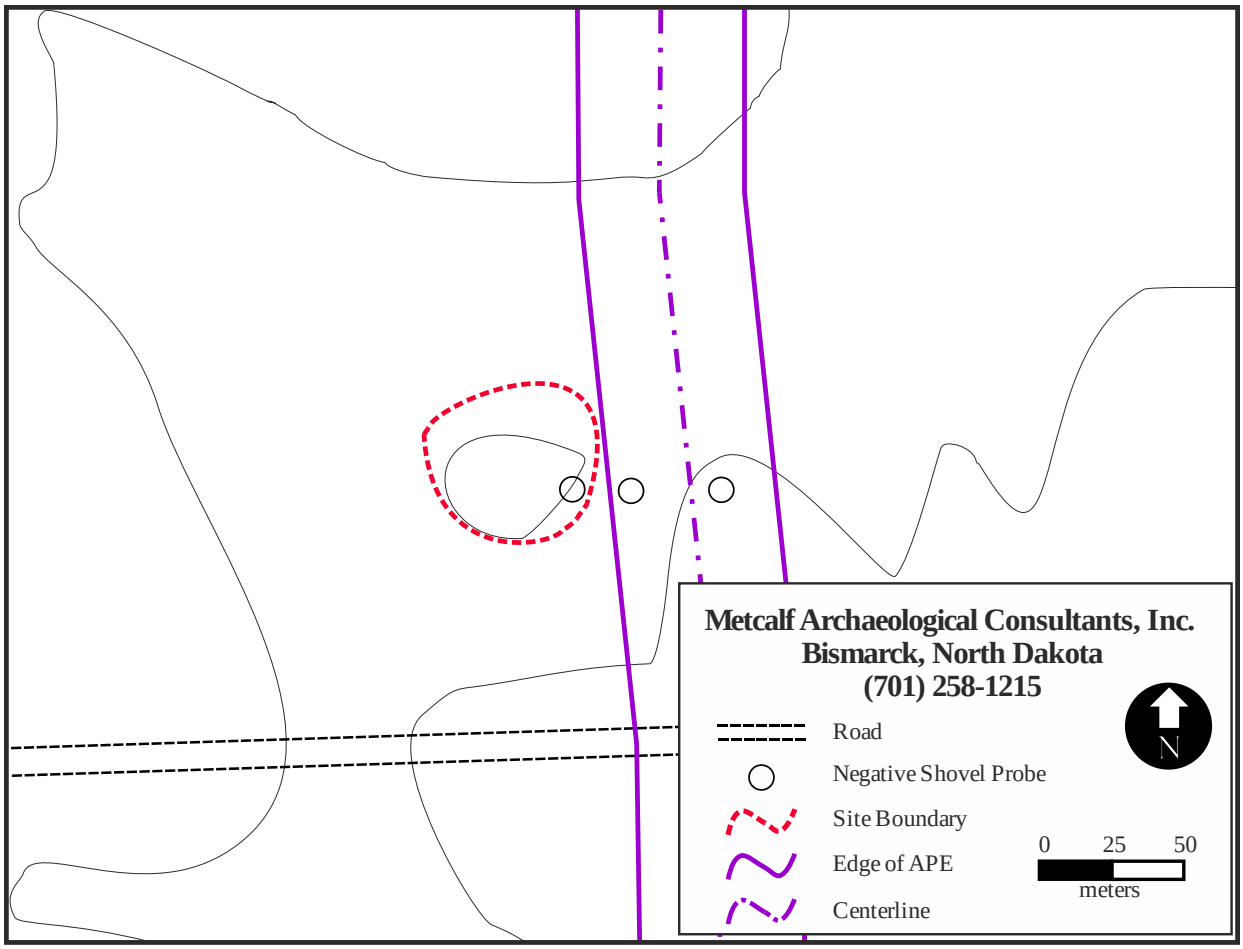


**Figure 7:** Sketch of 32BI453.

**Figure 8:** Shovel probes at 32BI453, view to the east (image 9-14-11-8982).

*32BI1098*

The site is an abandoned farmstead overlooking a small ephemeral drainage (Map 35). It consists of three depressions/foundations and one well (Figure 9). Feature 1 is a well lined with rock, masonry and lumber and Features 2, 3 and 4 are depressions. The two long sides of Feature 2 are lined by spoil piles. A rock pile (not assigned a feature number) corresponds to the location of a building as mapped on the USGS quad. If there are the remains of a structure at this location, they have been obscured by the field clear. Feature 4 probably corresponds with a second structure on the quad. A small pile of historic debris lies west of the field clear pile.

The artifact scatter comprises window and vessel glass (including a Lea and Perrins bottle fragment), historic ceramics, rubber, porcelain, and a two-hole shell button. Several large pieces of iron outside the relatively concentrated debris pile were observed.

A deeds search was conducted and the names found in that search were searched in the Biography Index at the NDSU Institute for Regional Studies (http://www.lib.ndsu.nodak.edu/ndirs/databased/bio.php). No data indicating those individuals are important to history was returned from that search.

Integrity of the site is poor. The USGS quad indicates that there were once at least two standing structures here in 1963 (the date of the USGS quad); none are left. The remains of one of these features appear to have been completely obscured by a recent pile of field clear.

MAC recommends the site as not eligible for inclusion on the NRHP. It does not appear to be especially associated with events that have made a significant contribution to the broad patterns of history (Criterion A). The deeds search does not indicate the site is associated with persons important to history (Criterion B). Given the lack of standing structures, it cannot be considered eligible under Criterion C (properties that embody the distinctive characteristics of a type, period or construction method, that represent the work of a master, or that have high artistic value). The site does not appear likely to be able to yield information important to history (Criterion D)

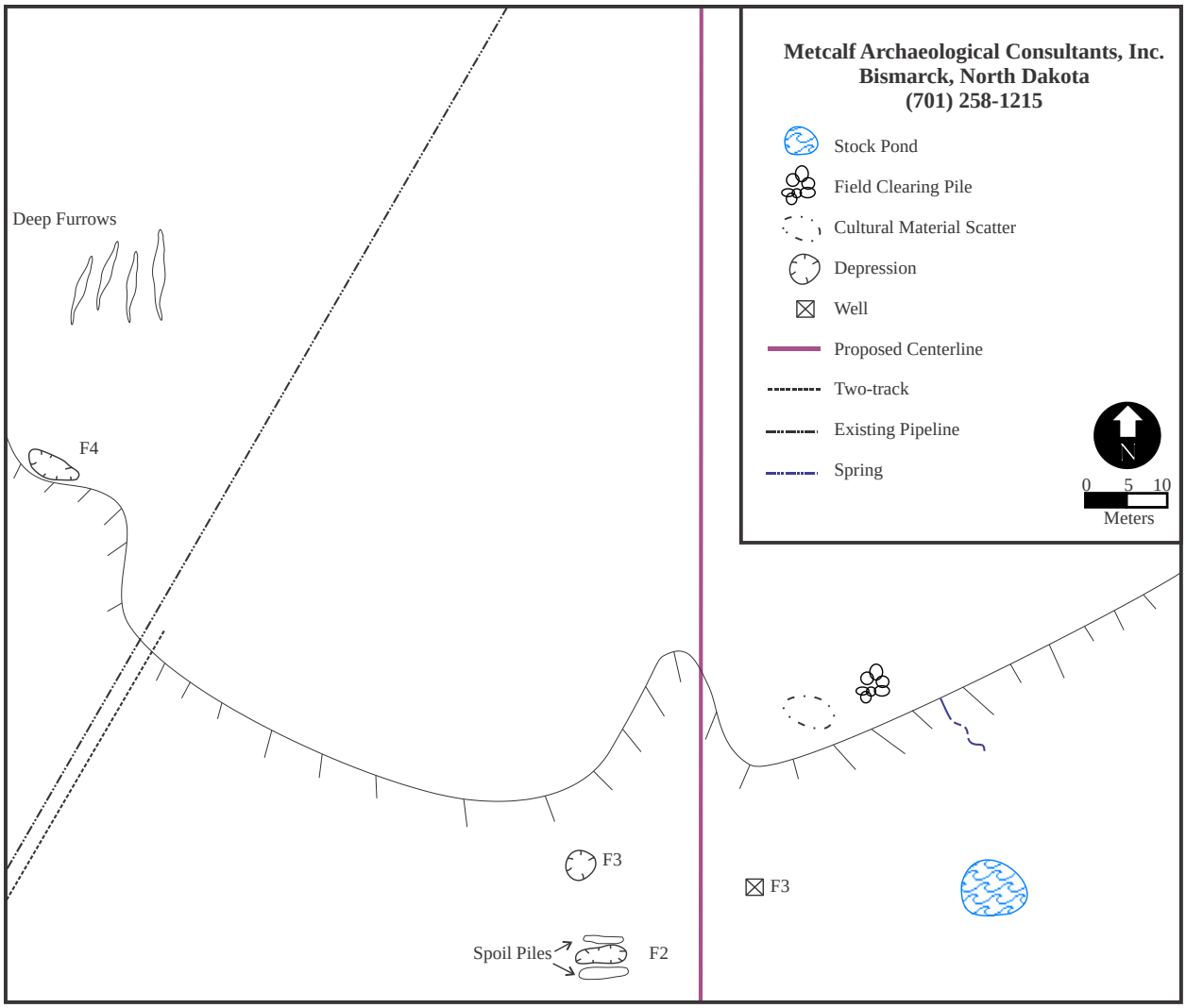


**Figure 9:** Sketch of 32BI1098.

*32BI1099*

The site is a sparse lithic scatter located on the sides and top of a small rise at the edge of a valley overlooking an ephemeral drainage (Map 35, Figure 10). Artifacts were generally observed in blowouts on the east and west sides of a small rise. The site area is unplowed native prairie, currently used as pasture. Thirty artifacts were observed, 29 of which are very fine-grained Tongue River silicified sediment. TRSS artifacts include 10 tertiary flakes, 13 secondary flakes, four primary flakes, and two flake tools. One secondary KRF flake was also noted.

Portions of the site are eroded. Artifacts were found only in erosional features, implying that there are intact cultural deposits where there is soil. The site retains the potential for buried cultural deposits and features. Significance is undetermined. Subsurface testing is necessary to determine integrity and the site's NRHP eligibility. Avoidance is recommended. The ROW has been shifted and the centerline now lies approximately 80 meters (262 feet) from the edge of the site. This undertaking will not impact the site.

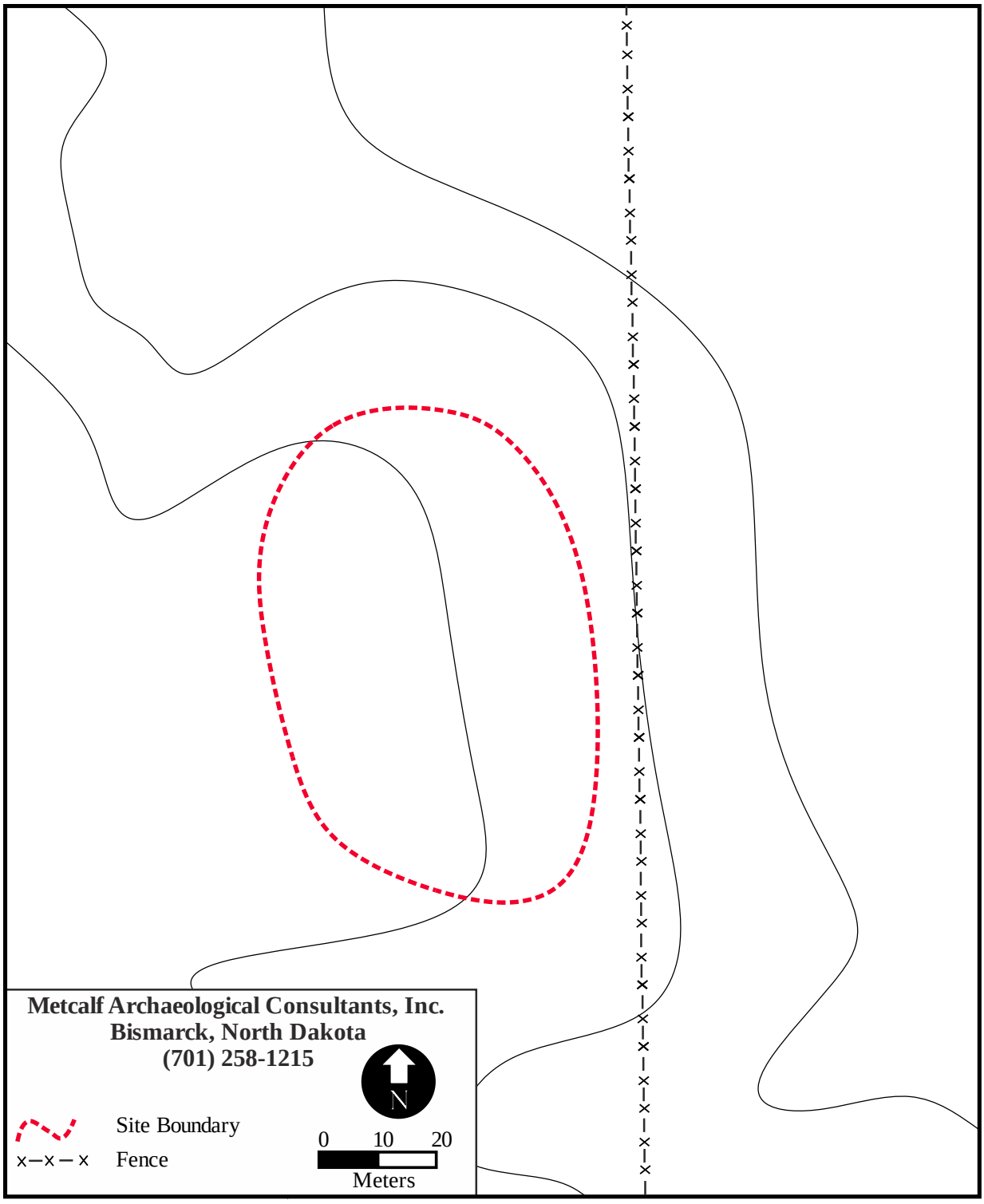


**Figure 10:** Sketch of 32BI1099.

*32BI1100*

This is a moderately dense cultural material scatter located on a flat plain overlooking an ephemeral drainage (Map 33, Figures 11-12). Observed artifacts include hundreds of pieces of

debitage, primarily KRF, though some TRSS was also identified. Flakes are mostly secondary and tertiary. Several pieces of fire cracked rock (FCR) were also observed. The site lies in a plowed field that currently supports alfalfa. The site lies entirely within Section 26; eight shovel probes excavated in the adjacent field (Section 25) were all negative (Figure 13).

Integrity of the site is fair. It has been impacted by plowing, which has probably completely penetrated Holocene soils. The site's NRHP eligibility is undetermined. Subsurface testing is necessary to adequately assess both integrity and NRHP eligibility. The pipeline can avoid impact to the site by restricting all construction activities to the east side of the section line fence.

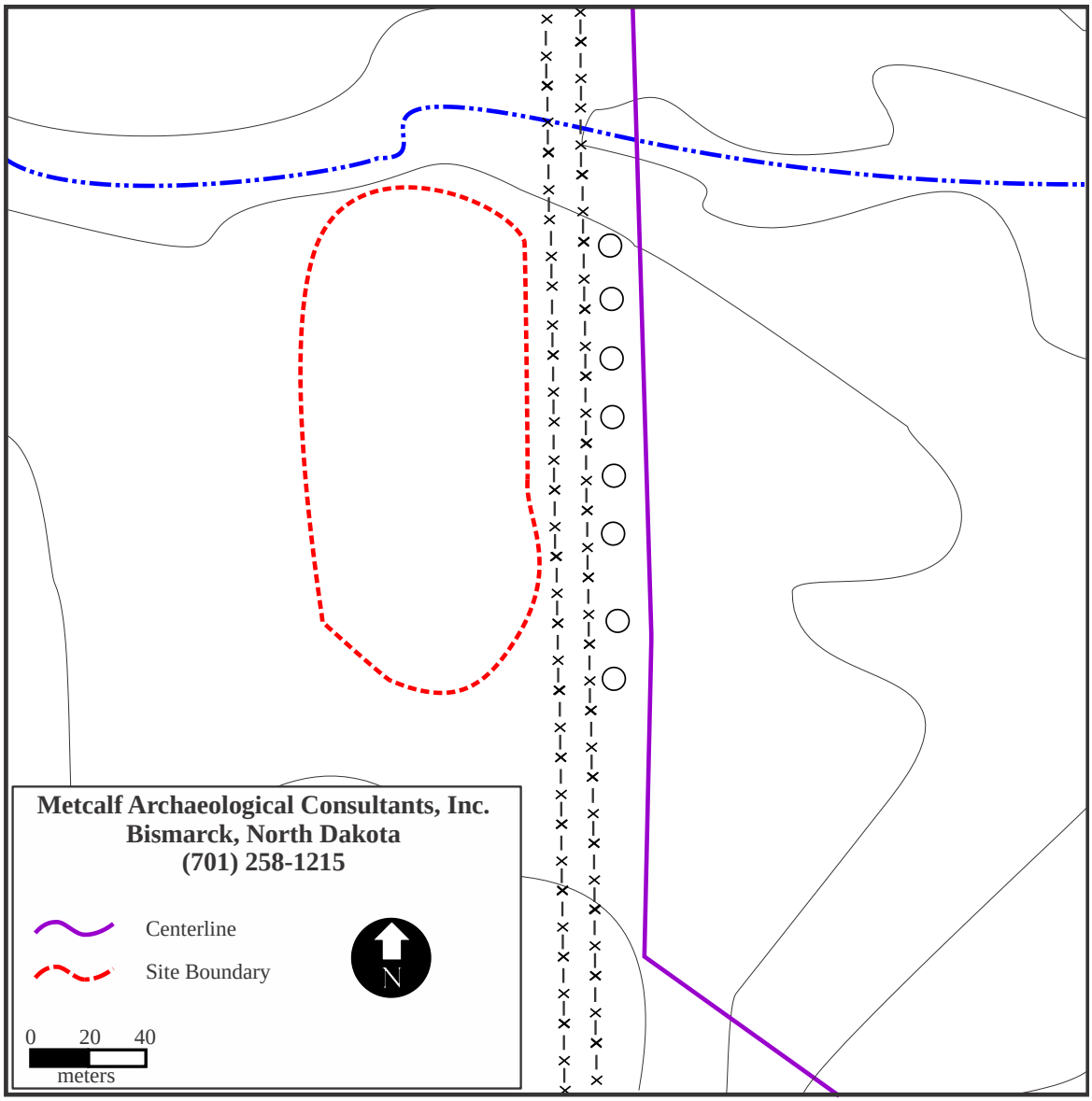


**Figure 11:** Sketch of 32BI1100.

**Figure 12:** 32BI1100, view to the north (image 7-20-11-1303).

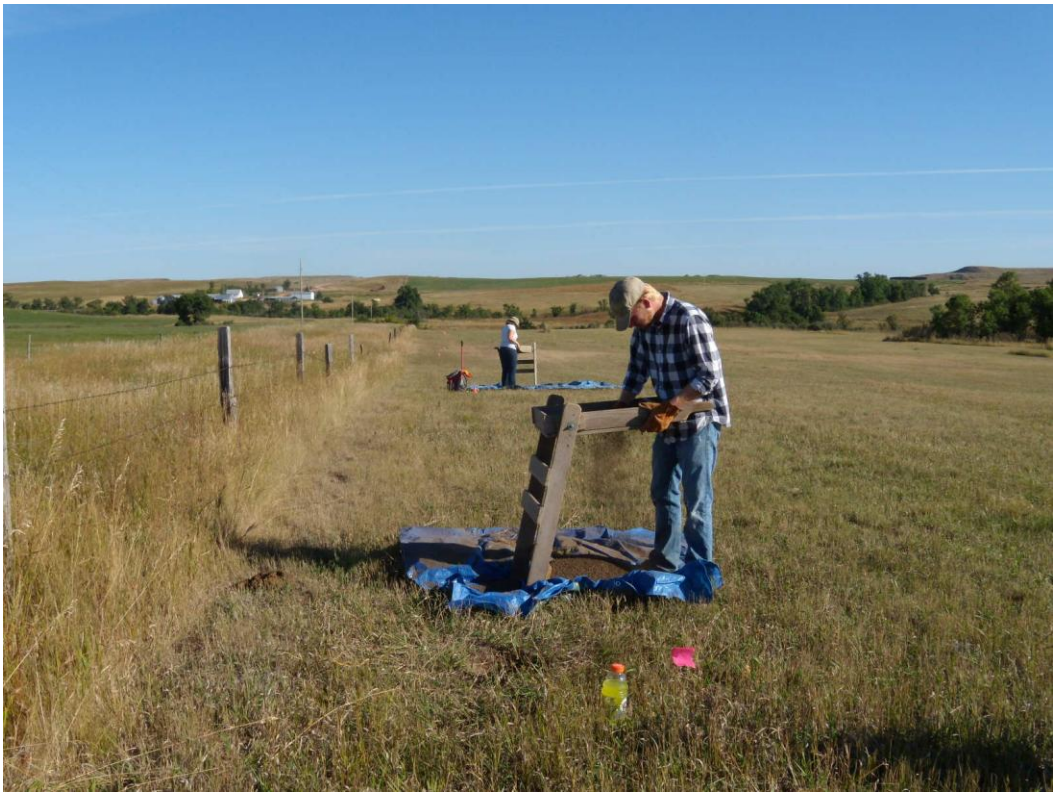

**Figure 13:** Shovel probes at 32BI1100, view to the north (image 9-14-11-8986).

*32DU1703*

This small, sparse lithic scatter was observed in a small grain stubble field with approximately 40% ground surface visibility (Map 30, Figures 14-15). The site is located on a small alluvial fan/playa. Artifacts are mostly manufactured of Knife River flint, most of which is of a very low quality, although some other chalcedonies are also represented. Observed artifacts include one biface fragment, one core fragment, three tertiary flakes, three secondary flakes and two pieces of shatter.

The site's integrity has been impacted by plowing, but it is possible that intact cultural deposits exist below the plow zone. Subsurface testing is necessary to assess integrity. The site's National Register eligibility is undetermined. Subsurface testing would be necessary both to adequately assess integrity and to determine whether significant cultural deposits exist. Until such time as the site's integrity and significance can be properly assessed, impact to it should be avoided. The site lies at the edge of survey ROW, outside the construction ROW. Fencing should be adequate to ensure that this undertaking does not impact the site.

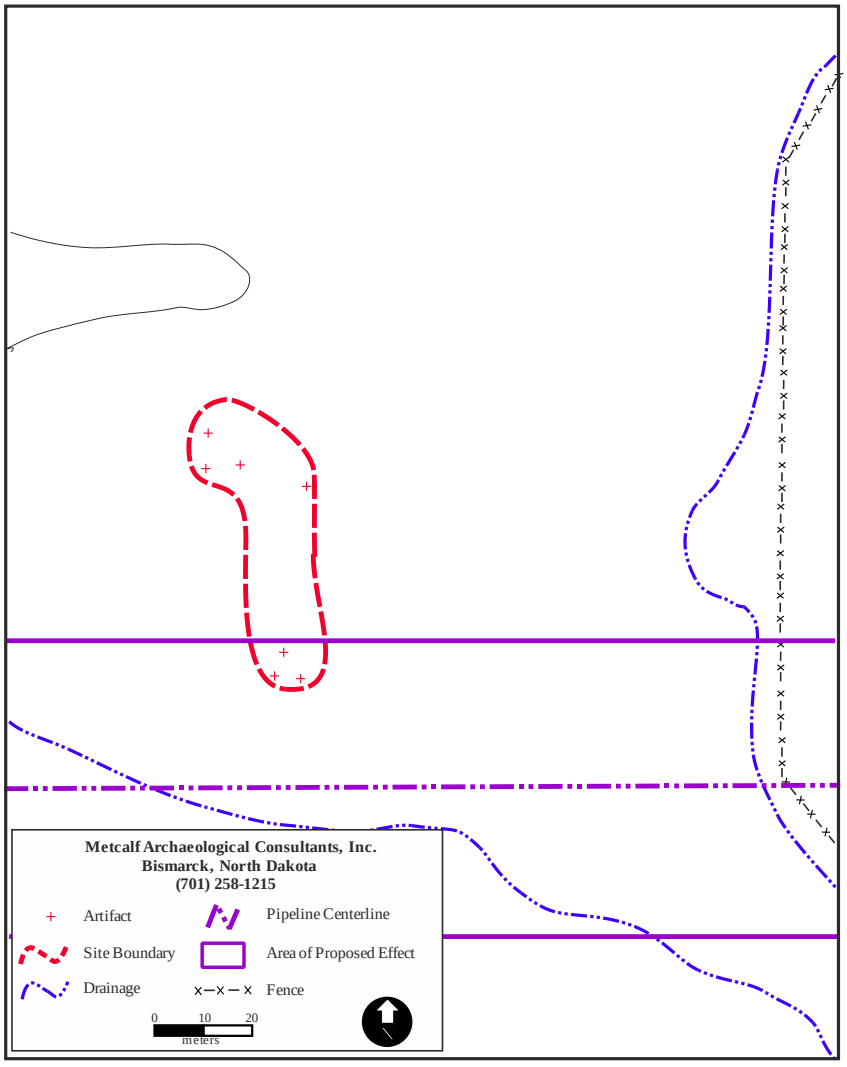


**Figure 14:** Sketch of 32DU1703.

**Figure 15:** 32DU1703, site overview looking north (image 1-10-12-9117).

*32MZ303*

The site is a sparse lithic scatter with medium-dense concentrations. The site is located along the Little Knife River, extending across a series of benches on to the uplands over the river valley (Map 27). Parts of the site are quite eroded (Figure 16), but aside from these eroded areas, ground surface visibility is poor (Figure 17) and cultural material is potentially much denser than observed. The site extends to the west into Section 33 but that section is CRP with very poor visibility so the western site boundary is essentially unknown (Figure 18). The site area includes previously documented isolate 32MZx234.

Approximately 75 artifacts spread over a large area were identified. Almost all of the artifacts are KRF, though one high quality TRSS utilized flake was observed. Tools include one stage 4/5 biface, one core, and the TRSS utilized flake. The majority of flakes are tertiary, although primary and secondary flakes were also observed.

Integrity has been impacted by erosion and utility line construction. Integrity is fair. The site's NRHP eligibility is undetermined. Subsurface testing is necessary to determine whether the site contains significant, intact cultural deposits. The BLPL proposes to test the site and, if necessary, mitigate effects to the site prior to construction. A testing plan has been submitted under separate cover and is summarized in Chapter 5 of this document.

**Figure 16** Cutbank in the northeast portion of 32MZ303, view to the southeast (image 7-23-11-8896).

**Figure 17:** Overview of 32MZ303, looking to the southeast (image 7-23-11-8888).

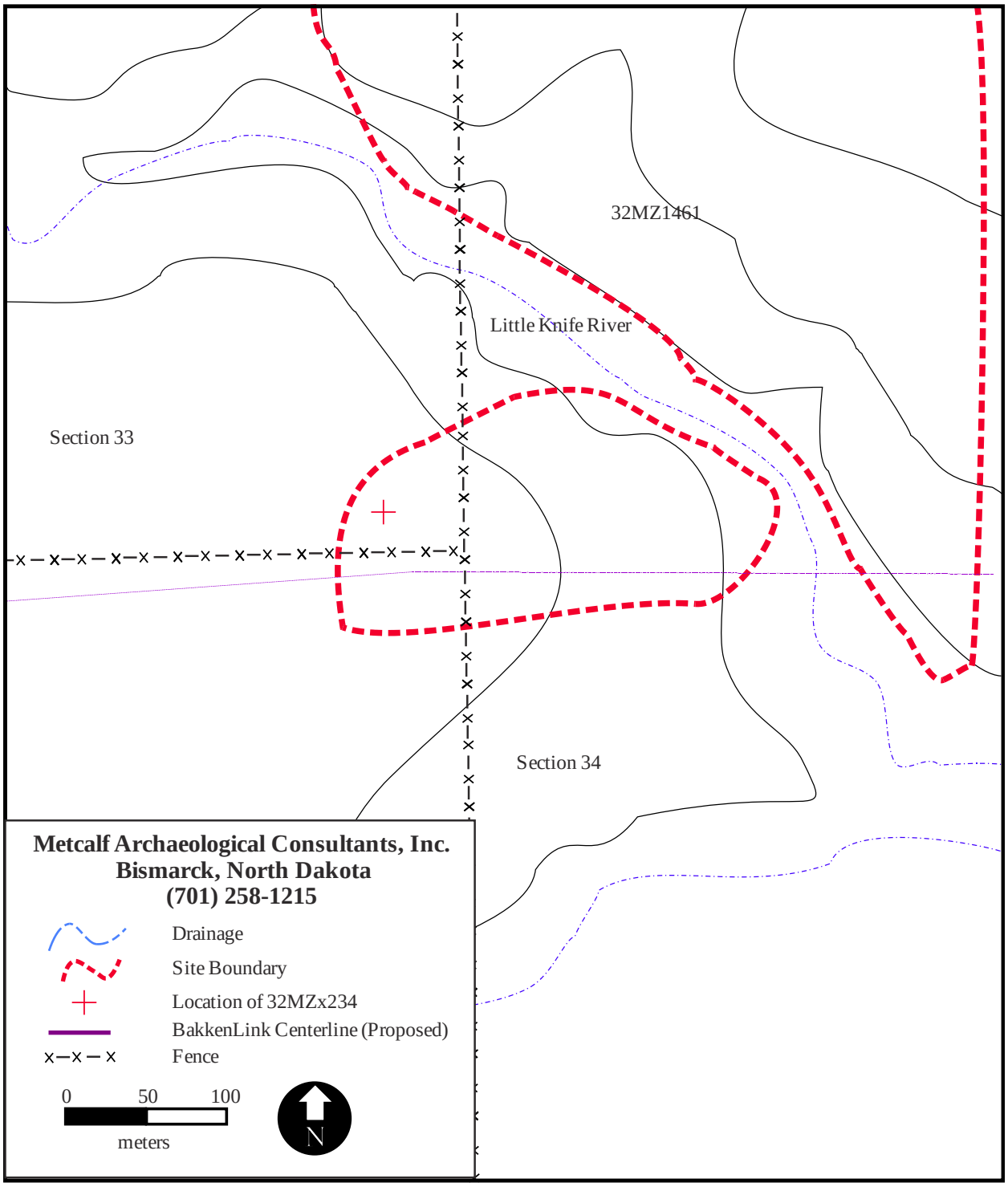


**Figure 18:** Sketch of 32MZ303.

*32MZ304*

The site is a large, sparse lithic scatter situated on the crest and south and east slopes of a subdued ridge/spur (Map 27, Figures 19-20). The north side of the site is well outside the APE and was not fully investigated. Artifacts include two porcellanite flakes (one secondary flake and one tertiary flake). The remaining artifacts are KRF and include 56 tertiary flakes, 31 secondary flakes, 4 primary flakes, 17 core/core fragments and 6 tools. The tools consist of 2 utilized flakes, 1 scraper, 1 early stage biface fragment and 1 late stage biface fragment. Neither is diagnostic. Most of the KRF is moderately to heavily patinated. The site is one of at least six similar lithic scatters, in the near vicinity along the Little Knife River.

The site area has been plowed and it is unknown if intact deposits exist beneath the plow zone. Plowing has reduced the site's integrity. The site has not been evaluated for NRHP eligibility. There may be intact cultural materials beneath the plow-zone but subsurface testing is needed to confirm this. The BLPL proposes to test the site and, if necessary, mitigate effects to the site prior to construction. A testing plan has been submitted under separate cover and is summarized in Chapter 5 of this document.

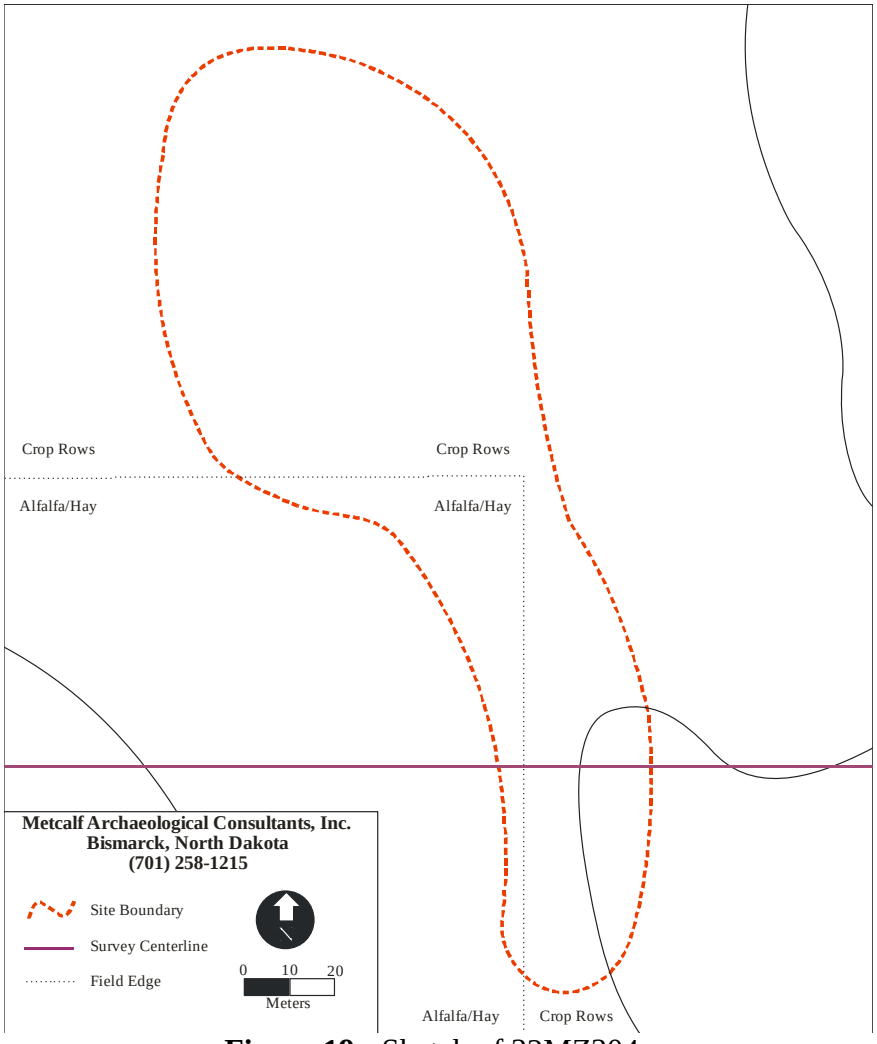


**Figure 19:** Sketch of 32MZ304.

**Figure 20:** 32MZ304, view to the southeast (image 7-20-11-1337).

*32MZ859*

The site is located on a small rise in rolling uplands approximately 1.5 miles from Spring Creek, north of the Little Missouri River (Map 18, Figure 21). This site was originally recorded in 1987. When it was recorded it consisted of one stone feature and three pieces artifacts. When MAC revisited the site, the stone circle was easily relocated and remains essentially as it was when originally recorded. No cultural materials were observed. The site retains excellent integrity. Deflation is the only modern impact to the site. The site's National Register eligibility is undetermined. Subsurface testing is necessary to adequately assess its significance. The site lies approximately 30 meters (100 feet) east of the centerline and construction should not impact the site. To help ensure this, MAC recommends the site be fenced prior to construction

**Figure 21:** 32MZ859, view to the north (image 1-6-12AK-9114)

*32MZ1311*

Prehistoric site 32MZ1311 was originally recorded by Floodman in 1997. It was described as sparse to medium dense lithic scatter located within the Little Missouri National Grasslands in the breaks on the south side of the Little Missouri River (Map 22). At that time, approximately 50 artifacts were observed, including a possible Late Prehistoric projectile point fragment (tip) and a scraper. Material types included primarily KRF and chalcedony with some porcellanite. Floodman suggested the site contained at least two components, based on differences in patination. When MAC revisited the site, only 14 artifacts were observed. This is largely due to worse ground surface visibility compared to when the site was originally recorded.

In an attempt to define site boundaries and determine a possible reroute, 12 shovel probes were excavated (Figures 22-23). Probes were placed in two transects: one along the proposed centerline and one parallel to the landform on which the site is located to the west of the centerline. Five of the probes produced cultural material. Shovel probes indicate that the site covers most of the landform on its west side and that the 200-foot corridor could not be used without impacting the site.

The site has been impacted by a two-track and associated blading, by a water pipeline and by erosion. However, the site retains good to excellent integrity. Shovel probes indicate that soil is 10 to 40 cm deep and that there are buried cultural deposits. Significance is undetermined. While only six artifacts were recovered from shovel probes and no evidence of features was found, only a small portion of the site was investigated. A reroute to the west of and off the landform on which the site is located has been surveyed (see Map 22).

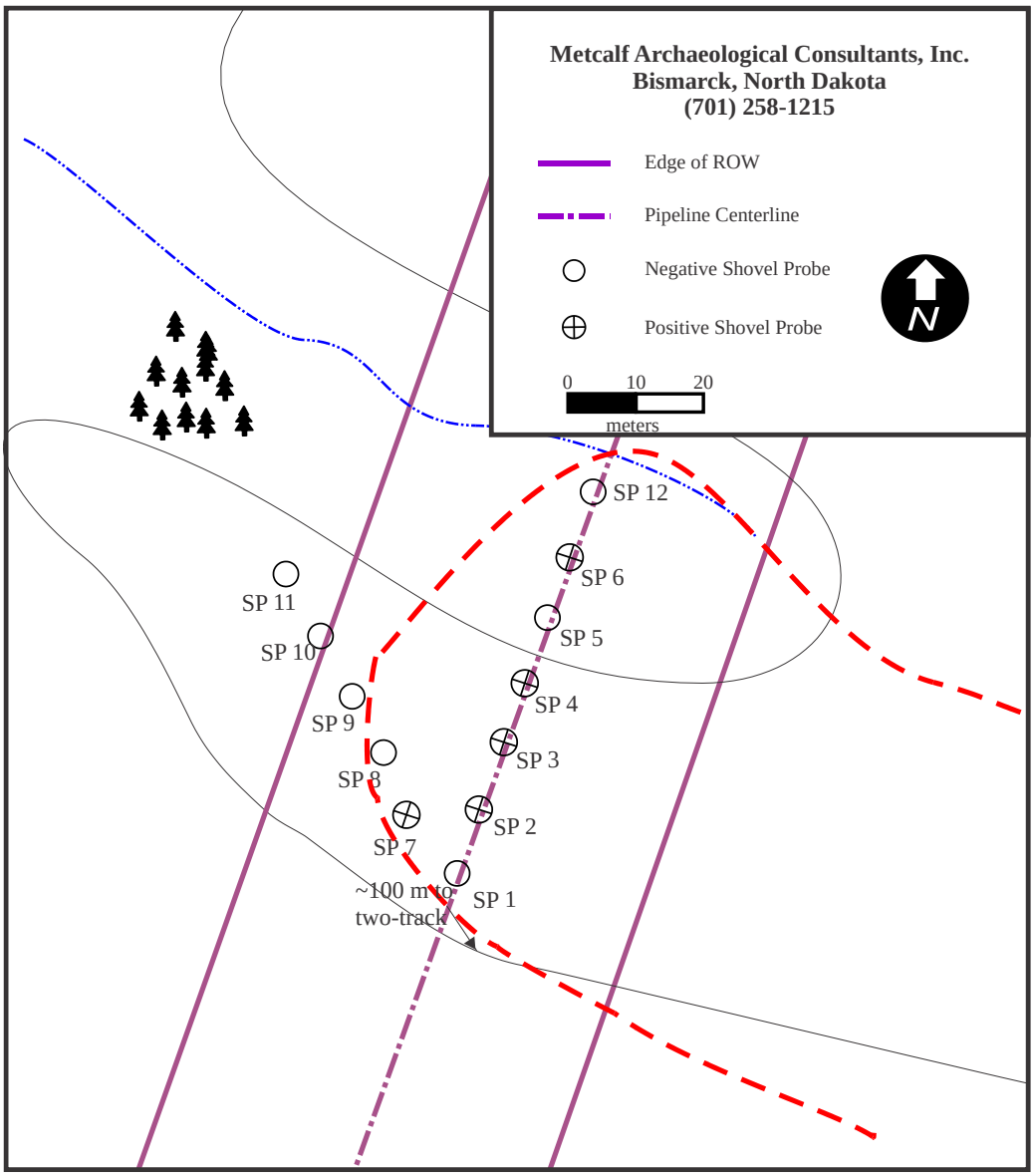


**Figure 22:** Sketch of shovel probes at 32MZ1311.

**Figure 23:** 32MZ1311, view to the east (image 7-23-11-8959).

*32MZ1312*

Site 32MZ1312 is a sparse lithic scatter, located within the Little Missouri National Grasslands in the breaks on the south side of the Little Missouri River (Map 22). It was originally recorded by Floodman in 1997. It was then described as a sparse lithic scatter, with only 12 artifacts identified, most evident in a bladed two-track and the nearby deflated surfaces. A Pelican Lake projectile point was collected. When MAC returned to the site, no artifacts were observed on the surface. Eleven shovel probes were excavated to try to determine site boundaries and whether the site could be avoided within the original 200-foot ROW (Figures 24-25). Five probes were positive, producing seven pieces of debitage. Two of the positive probes were west of the original APE. Artifacts were found in the A horizon, which generally is about 20 cm deep.

The site has been impacted by a two-track and associated blading, by a water pipeline and by erosion. However, the site retains good to excellent integrity. Shovel probes indicate that the A horizon is about 20 cm deep and that there are buried cultural deposits. Significance is undetermined. While only seven artifacts were recovered from shovel probes and no evidence of features was found, only a small portion of the site was investigated. A reroute to the west of and off the landform on which the site is located has been surveyed (see Map 22).

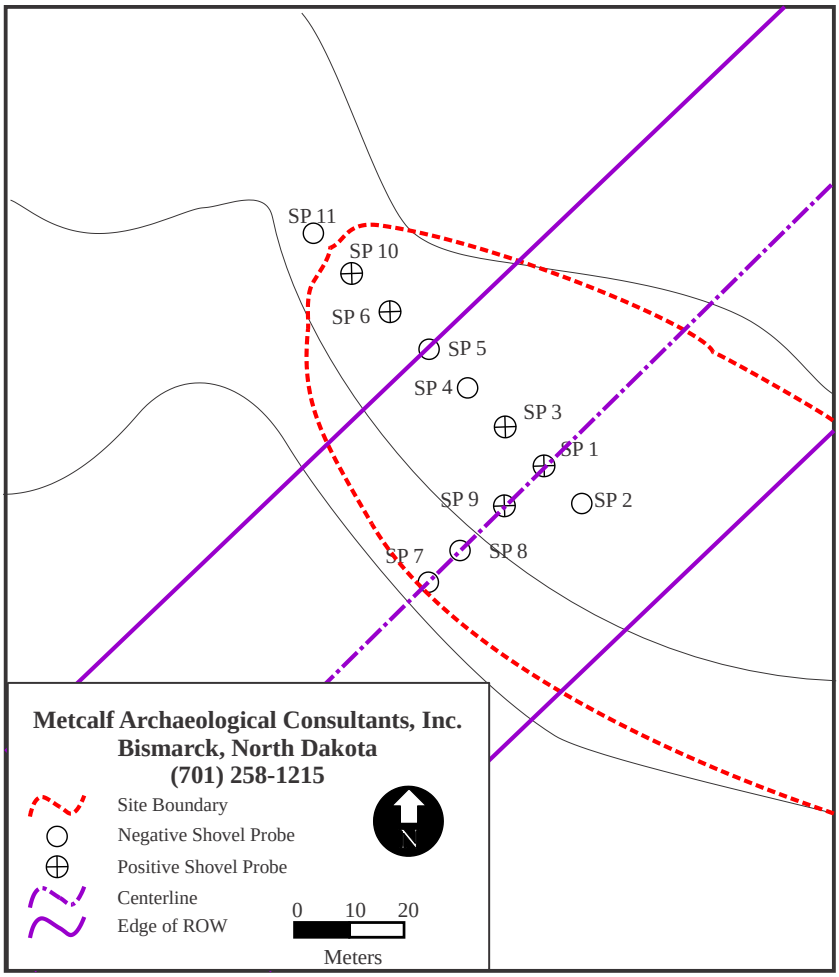


**Figure 24:** Sketch of shovel probes at 32MZ1312.

**Figure 25:** 32MZ1312, view to the south (image 7-23-11-8944).

*32MZ1313*

Site 32MZ1313 is a sparse lithic scatter, located within the Little Missouri National Grasslands in the breaks on the south side of the Little Missouri River (Map 22). It was originally recorded by Floodman in 1997. It was then described as a sparse lithic scatter, with only 10 artifacts identified, most evident in a bladed two-track and the nearby deflated surfaces. When MAC returned to the site, no artifacts were observed on the surface. Seven shovel probes were excavated to try to determine site boundaries and whether the site could be avoided within the original 200-foot ROW (Figures 26-27). The shovel probes were located at ten meter intervals along a single transect perpendicular to the centerline and running between the original site boundary and the ROW. One shovel probe was positive, producing one flake. The positive shovel probe is located approximately 15 meters west of the original site boundary and 15 meters east of the centerline. The artifact was found in the A horizon, which generally is about 20 cm deep.

The site has been impacted by a two-track and associated blading, by a water pipeline and by erosion. However, the site retains good to excellent integrity. Shovel probes indicate that the A horizon is about 20 cm deep and that there are buried cultural deposits. Significance is undetermined. While only one artifact was recovered from shovel probes and no evidence of features was found, only a small portion of the site was investigated. A reroute to the west of and off the landform on which the site is located has been surveyed (see map 22).

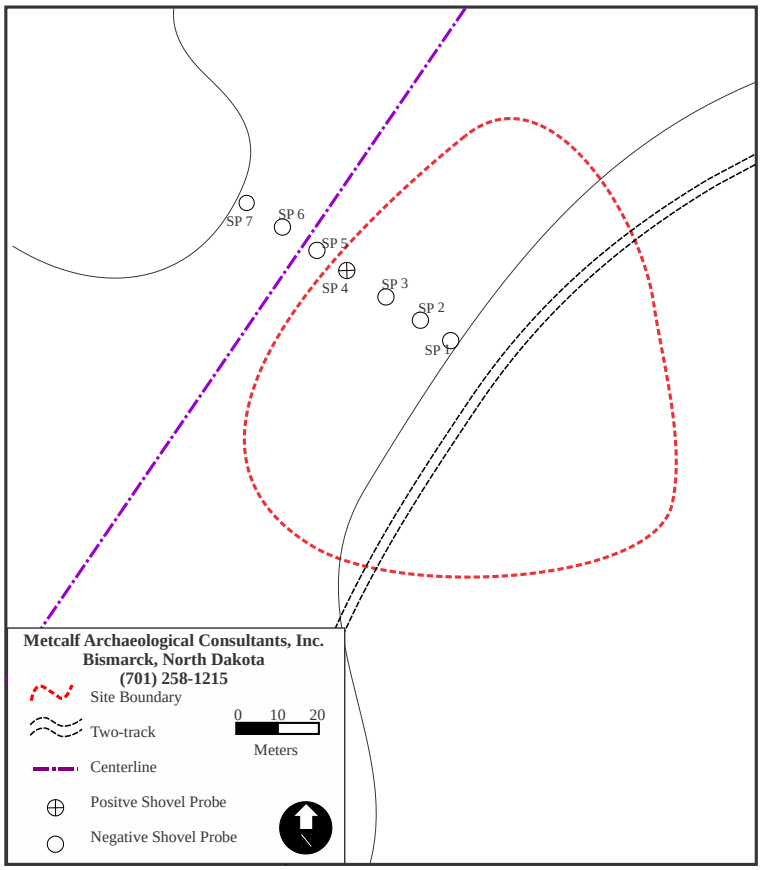


**Figure 26:** Sketch of 32MZ1313.

**Figure 27:** 32MZ1313, view to the north (image 7-23-11-8956).

*32MZ1314*

Historic site 32MZ1314 is the remnants of a wagon trail, located within the Little Missouri National Grasslands in the breaks on the south side of the Little Missouri River (Map 22). It was originally recorded in 1997; when MAC revisited the site, it was found to be essentially the same as when it was originally recorded. The trail segment is approximately 150 meters long and 1.37 meters (4.5 feet) from center of rut to center of rut (Figure 28). It runs essentially northeast-southwest (Figure 29). Cattle use of the trail has impacted its integrity; nonetheless, the site retains good integrity. Floodman, in his original recording, indicated that the site may be eligible for the NRHP under Criteria A (association with events that have made a significant contribution to the broad patterns of history) or Criteria D (has yielded or may yield information important to history). A search of the GLO (Government Land Office) original plats, dated 1907, shows what may be a trail in the general location of 32MZ1314 as currently recorded (Figure 30). MAC recommends the site is potentially eligible for inclusion on the NRHP under Criteria A. Originally, the proposed ROW passed approximately 15 meters to the west of the site. The pipeline has been rerouted and is now approximately 50 meters west of the site. Thus, this undertaking will not impact the site.

**Figure 28:** 32MZ1314, view to the southwest (7-23-11-8884).

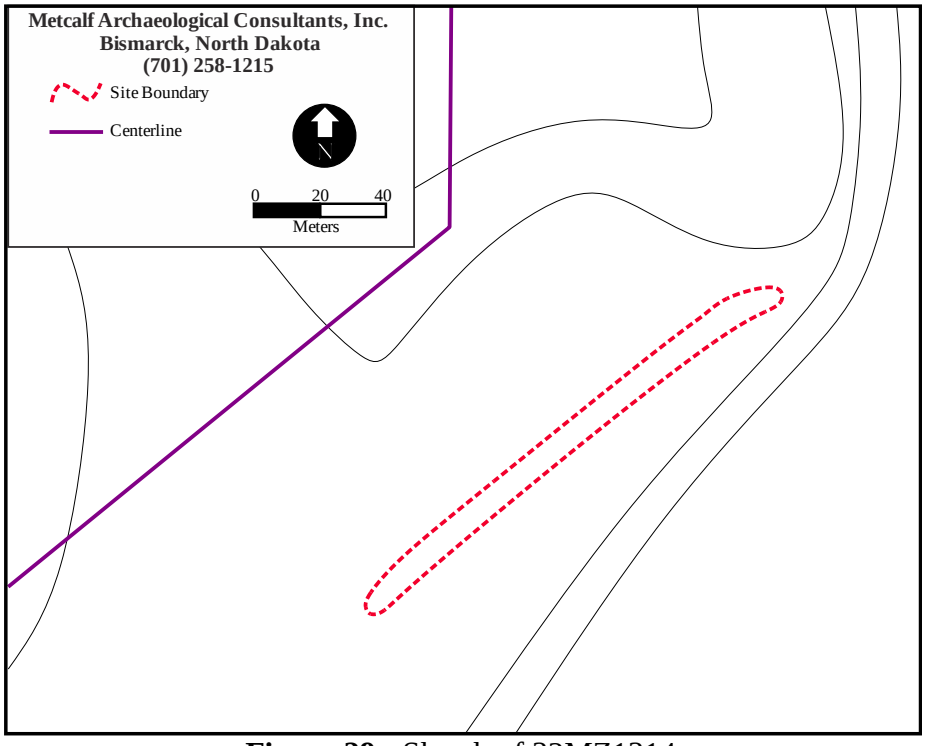


**Figure 29:** Sketch of 32MZ1314

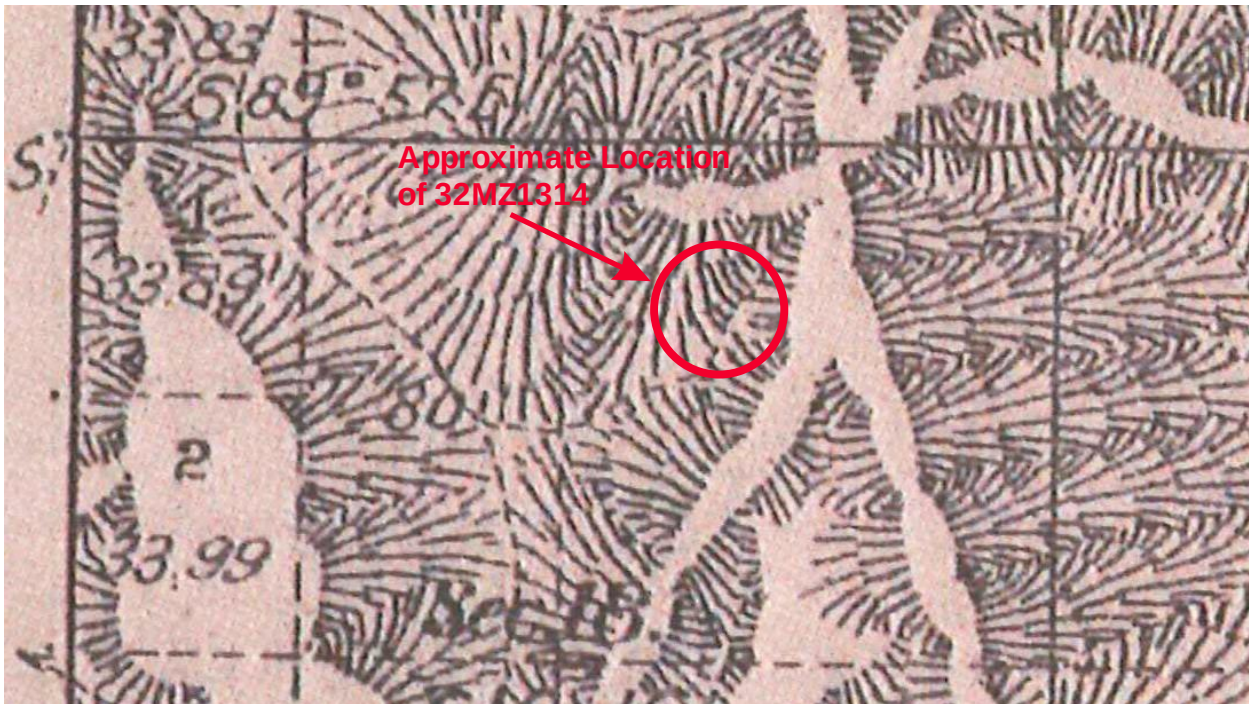


**Figure 30:** GLO plat of the area of 32MZ1314.

*32MZ1461*

This large, moderately dense cultural material scatter is located on the terraces of and the flats overlooking the Little Knife River (Map 27). In 1981 this site was recorded as an isolated find consisting of two heavily patinated Knife River flint (KRF) flakes. In 1999, the resource was updated and turned into a site. At that time, chipped stone was observed across an area covering approximately 52 acres. Artifacts included debitage from all stages of both core and tool reduction-production. Tools comprised bifaces, cores, and rejected and exhausted cores. Additionally buried lithics and faunal material, primarily bison, were observed in a cutbank of a small tributary of the Little Knife River. No diagnostic artifacts were observed. The geomorphologic setting of the site as well as the buried cultural strata suggests that intact cultural deposits may be present. The current undertaking crosses only a small portion of the site, transecting approximately 85 meters of the site near its southern end and only that portion of the site was investigated (Figure 31). MAC personnel observed approximately two dozen flakes within the undertaking APE, including a concentration of approximately one dozen flakes along the centerline adjacent to the Little Knife River. No artifacts were observed in the banks of the river, but the banks were overgrown and lacked good visibility.

Portions of the site have been impacted by a farmstead, by roads, by plowing and other modern developments. Nonetheless, the site appears to retain good integrity overall. Subsurface testing is necessary to confirm the assessment of integrity and to determine the site's NRHP eligibility. The BLPL proposes to test the site and, if necessary, mitigate effects to the site prior to construction. A testing plan has been submitted under separate cover and is summarized in Chapter 5 of this document.

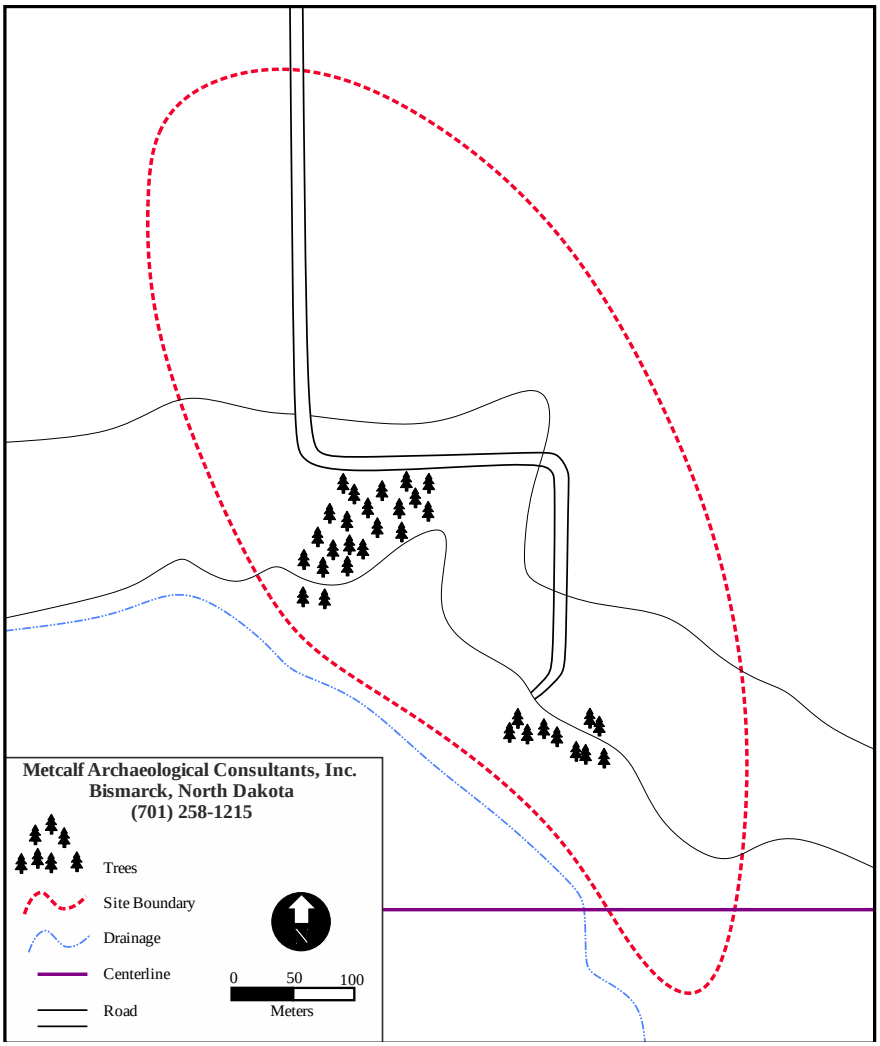


**Figure 31:** Sketch of 32MZ1461.

*32MZ1560*

32MZ1560 is the US 85 Highway ROW and comprises both active and abandoned segments of the highway (Map 20). It was originally recorded in 2001 at portions of its ROW that are crossed by a Western Area Power Administration power line. At that time, it was recommended as eligible for inclusion on the NRHP under Criterion A. The segment recorded herein is an abandoned segment of the highway, though it is still used as two-track. Integrity of this segment is poor: while the road bed still exists, all the concrete has been removed and the roadway is now indistinguishable from a standard crowned-and-ditched graveled two-track (Figure 32). There will be a temporary visual impact to the site during construction. However, as long as the BLPL either bores under the road or recontours to the original grade after open-cut construction, there will be no only a temporary visual impact to the site.

**Figure 32:** 32MZ1560, view to the southeast (image 10-25-11-9008).

*32MZ2307*

This is a very small, sparse lithic scatter (Map 27, Figure 33). All artifacts were observed in one blowout and no artifacts were observed in numerous other blowouts in the immediate vicinity. Observed artifacts include: two pieces of KRF shatter, two KRF secondary flakes, one moss agate tertiary flake, one white chert secondary flake and one TRSS secondary flake. Integrity is fair. Erosion has impacted the site, but there are no other modern impacts to the site. Given the sparse and limited diversity of cultural material and the eroded and/or shallow Holocene deposits here, the site is not likely to be eligible for inclusion on the NRHP. Subsurface testing is necessary to confirm this. The site is approximately 30 meters from the centerline and located across a fence from the centerline. As long as construction activities are restricted to the east side of the ½-section line fence, the undertaking will not impact the site.

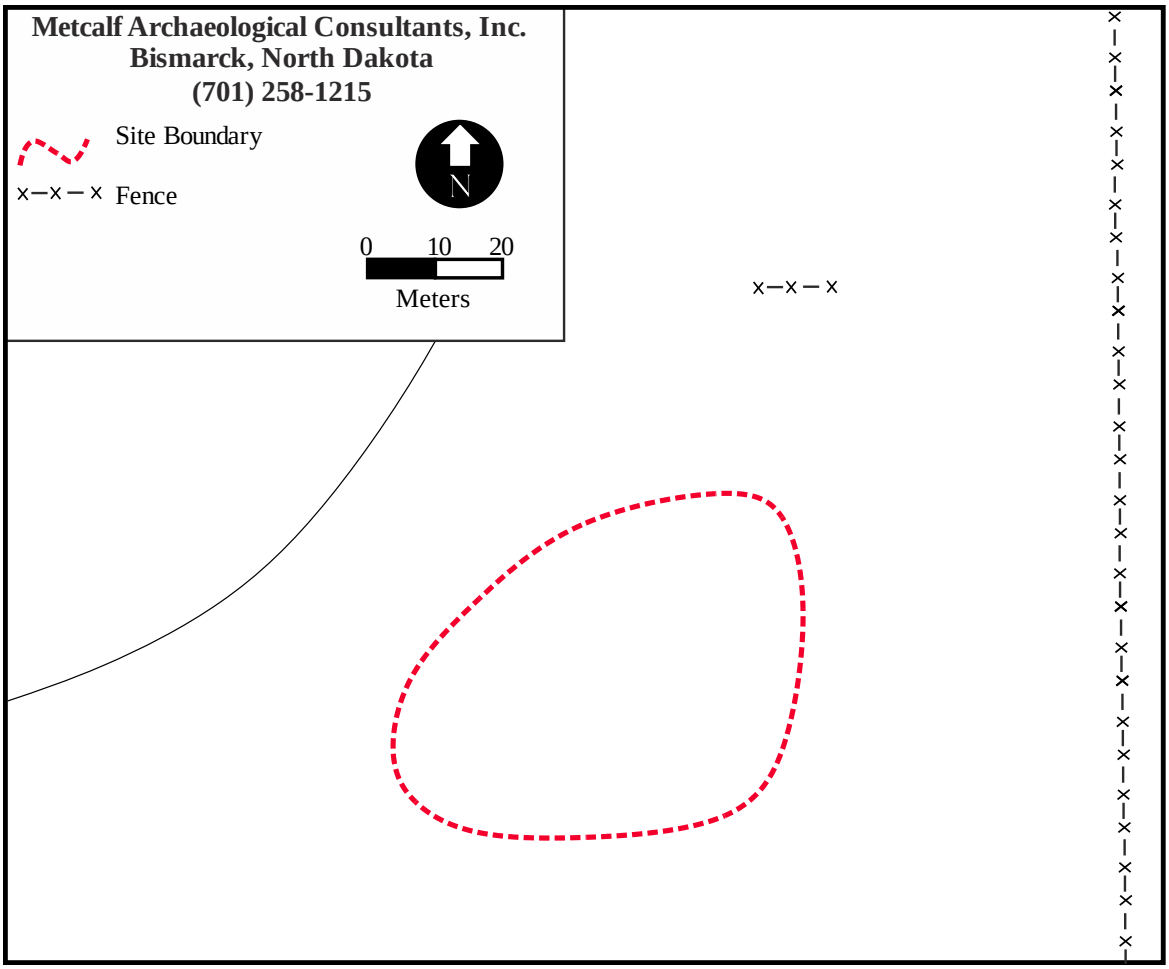


**Figure 33:** Sketch of 32MZ2307.

*32MZ2308*

This site is located in the Little Missouri National Grasslands approximately one mile south of Lake Sakakawea (Map 5). The site consists of two adjacent rock piles, most likely historic, surrounded by a square of rocks (Figures 34-35). There are several hundred rocks in each pile. They are separated by an intact area about one meter wide and relatively rock free. The rocks are piled about one meter high at their highest. The edges of the feature are quite square and it appears to have been deliberately laid.

A deeds search was conducted and the names found in that search were searched in the Biography Index at the NDSU Institute for Regional Studies (http://www.lib.ndsu.nodak.edu/ndirs/databased/bio.php). No data indicating those individuals are important to history was returned from that search.

MAC recommends the site as not eligible for inclusion on the NRHP. It does not appear to be especially associated with events that have made a significant contribution to the broad patterns of history (Criterion A). The deeds search does not indicate the site is associated with persons important to history (Criterion B). Given the lack of standing structures, it cannot be considered

eligible under Criterion C (properties that embody the distinctive characteristics of a type, period or construction method, that represent the work of a master, or that have high artistic value). The site does not appear likely to be able to yield information important to history (Criterion D).

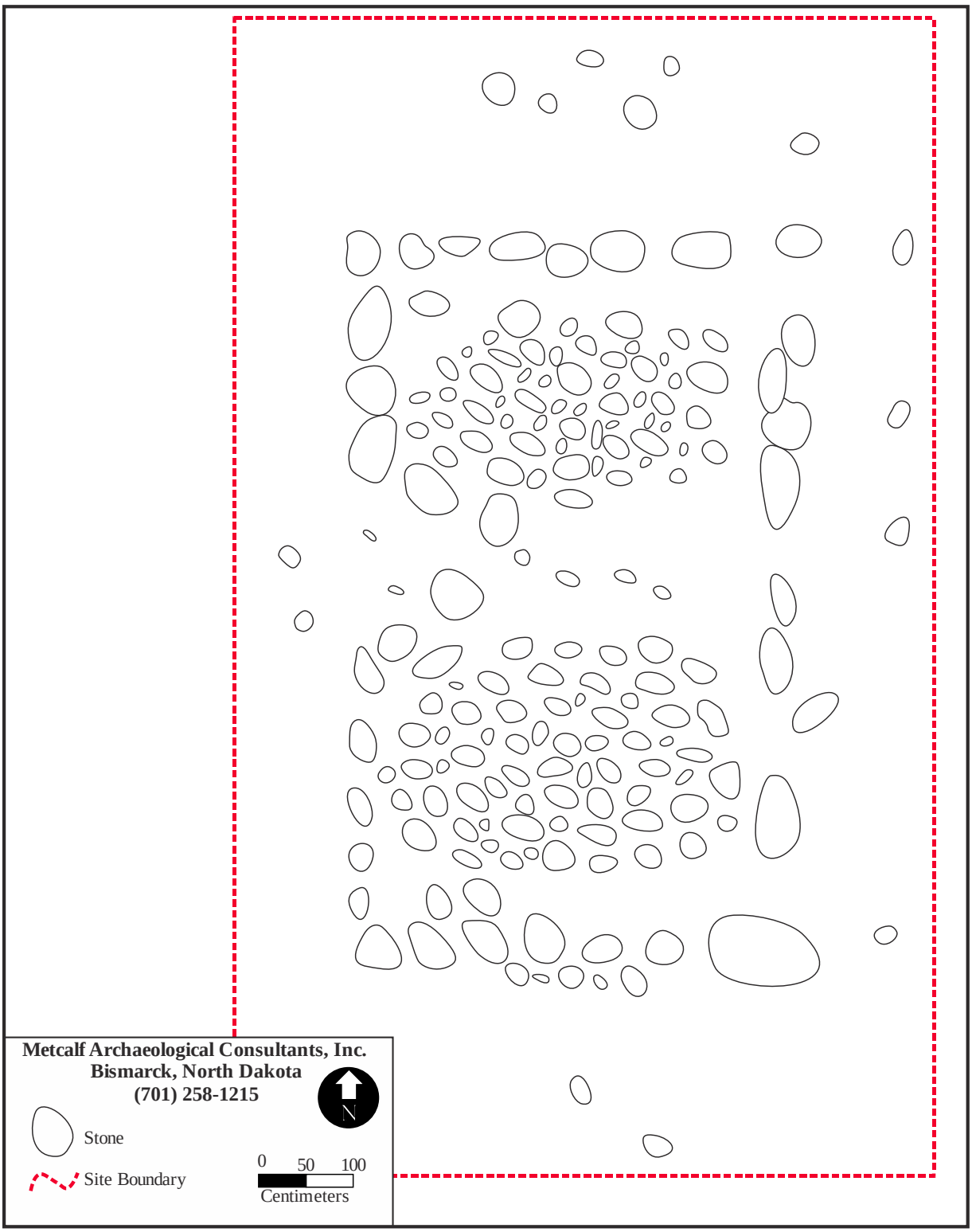


**Figure 34:** Sketch of 32MZ2309.

**Figure 35:** Feature 1 at 32MZ2308, view to the southeast (image 7-23-11-8922).

*32MZ2309*

This historic site is located on a series of benches overlooking an ephemeral drainage in the Blue Buttes area (Map 11). The site area is currently pasture. The site is comprised of three features and a sparse and amorphous cultural material scatter (Figure 36). Feature 1 is a stone lined foundation set into the side of a bench, measuring about 12 x 10 meters by 1 meter deep, and is open to the east. Feature 2 is a depression cut into the side of the bench, measuring about 4 x 4 m, about one meter deep, and filled with weeds. Feature 3 is a stone lined foundation, measuring approximately 11 x 6 meters (Figure 37). Stones on the north, west, and south are massive cut sandstone (some about one cubic meter). An extension to the east has smaller cut stones approximately eight inches wide, one course thick, essentially flush with the ground. An L-shaped projection of granite field stones lies to the north.

A sparse cultural materials scatter surrounds the features, primarily to the south of Features 2 and 3. Artifacts include stoneware, porcelain, flat glass, bottle glass (clear and aqua), white glass, a table knife, miscellaneous hardware (most likely from farm equipment), cast iron, a lid from a steel barrel and a brick in Feature 3.

A deeds search was conducted and the names found in that search were searched in the Biography Index at the NDSU Institute for Regional Studies (http://www.lib.ndsu.nodak.edu/ndirs/databased/bio.php). No data indicating those individuals are important to history was returned from that search.

MAC recommends the site as not eligible for inclusion on the NRHP. It does not appear to be especially associated with events that have made a significant contribution to the broad patterns of history (Criterion A). The deeds search does not indicate the site is associated with persons important to history (Criterion B). Given the lack of standing structures, it cannot be considered eligible under Criterion C (properties that embody the distinctive characteristics of a type, period or construction method, that represent the work of a master, or that have high artistic value). The site does not appear likely to be able to yield information important to history (Criterion D).

Since the site was recorded, the proposed centerline has been moved approximately one-tenth of a mile to the east. This undertaking, therefore, will not impact the site.

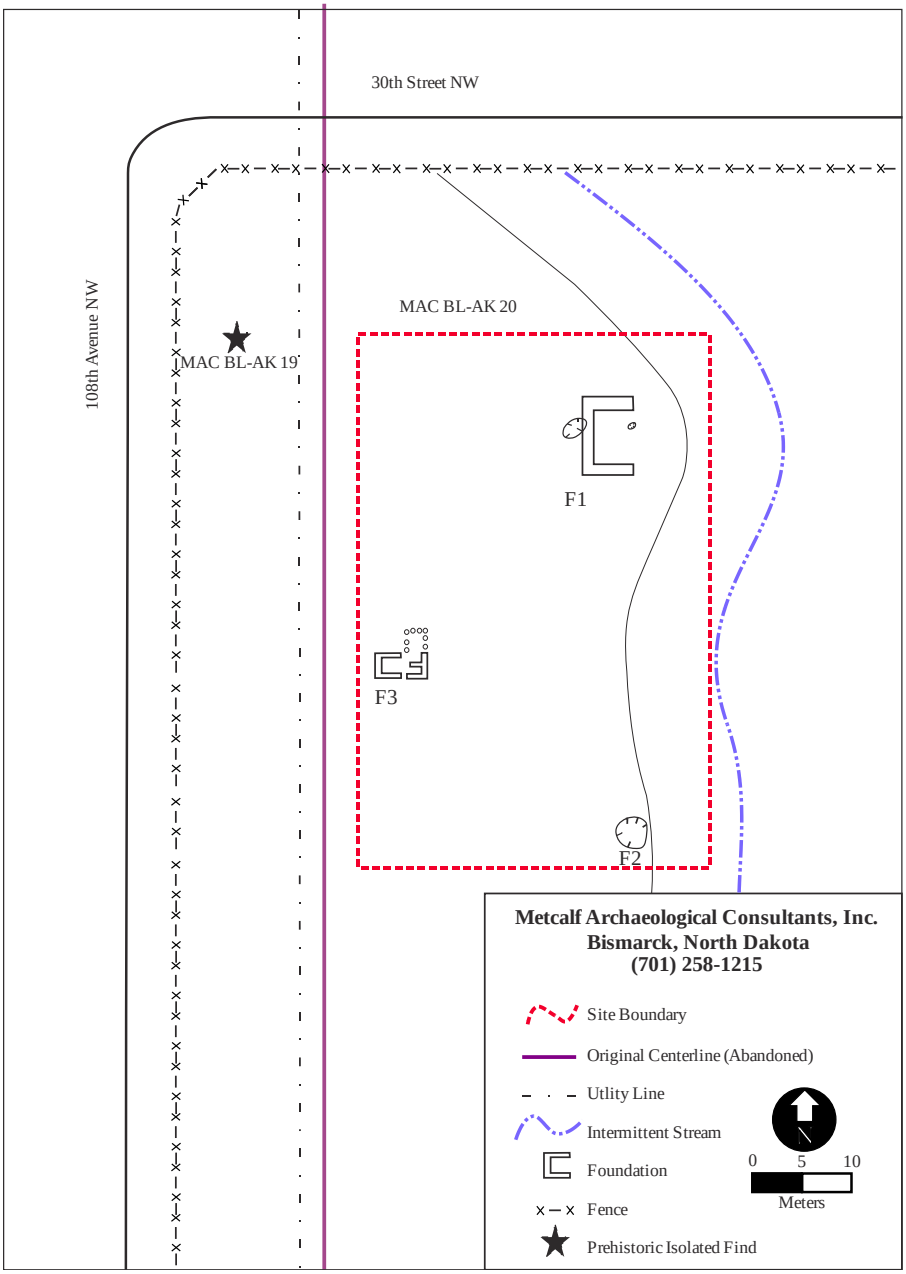


**Figure 36:** Sketch of 32MZ2309.

**Figure 37:** Feature 3 at 32MZ2309, view to the west (image 7-23-11-8933).

*32MZ2310*

This historic site is located on gently rolling uplands overlooking an ephemeral drainage to the north and east (Map 11). It consists of a foundation/depression and a sparse cultural material scatter (Figure 38). Feature 1 is a rectangular foundation composed of rounded and subangular granite and sandstone boulders measuring from thirty to eighty centimeters in diameter (Figure 39). Cornerstones are particularly large (about forty to eighty centimeters), subangular with some cut edges. It is partly filled with mid-twentieth century debris. Abutting its north edge is a small rise. The foundation measures about thirty feet east-west by about twenty feet north-south. There is a central depression indicating a smaller addition to the east, measuring approximately twenty feet north-south by twelve to fifteen feet east-west. Possible pier stones or foundation stones lie at the southeast and northeast corners.

Artifacts include metal drums, containers, pipes, a toy horse trailer, bottle, vessel and window glass, glazed red terracotta ceramic drainpipe, ceramic tableware, a metal bike frame and a mattress frame.

A deeds search was conducted and the names found in that search were searched in the Biography Index at the NDSU Institute for Regional Studies (http://www.lib.ndsu.nodak.edu/ndirs/databased/bio.php). No data indicating those individuals are important to history was returned from that search.

MAC recommends the site as not eligible for inclusion on the NRHP. It does not appear to be especially associated with events that have made a significant contribution to the broad patterns of history (Criterion A). The deeds search does not indicate the site is associated with persons important to history (Criterion B). Given the lack of standing structures, it cannot be considered eligible under Criterion C (properties that embody the distinctive characteristics of a type, period or construction method, that represent the work of a master, or that have high artistic value). The site does not appear likely to be able to yield information important to history (Criterion D).

Since the site was recorded, the proposed centerline has been moved approximately one-tenth of a mile to the east. This undertaking, therefore, will not impact the site.

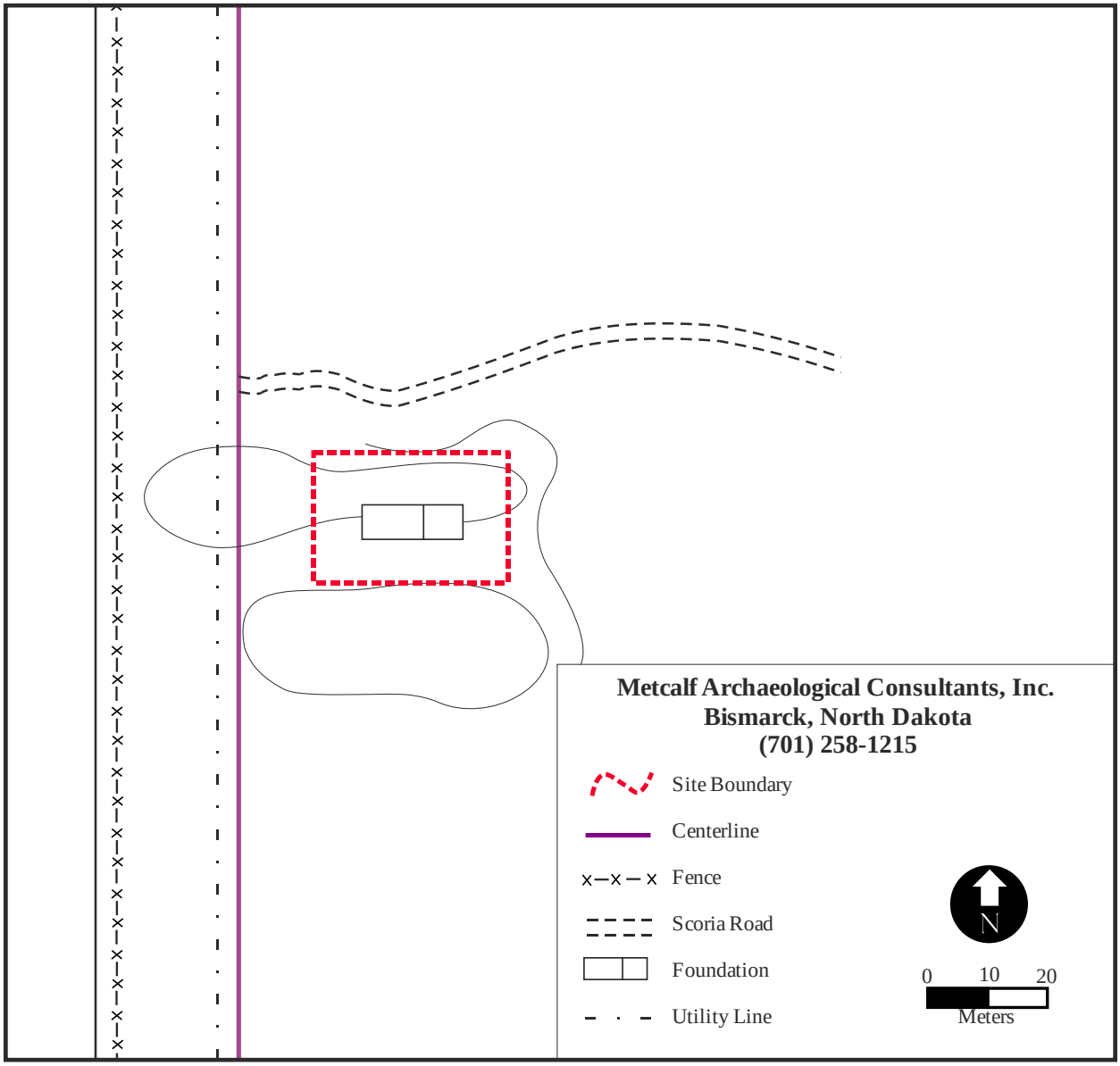


**Figure 38:** Sketch of 32MZ2310.

**Figure 39: 32MZ2310, view to the north (image 7-23-11-8938).**

*32MZ2311*

This sparse lithic scatter is located in a plowed field approximately one mile south of the Little Missouri Badlands (Map 24, Figures 40-41). Debitage includes four KRF secondary flakes, eight KRF tertiary flakes, one KRF shatter, and two moss agate secondary flakes. Tools include one KRF biface fragment, one KRF core, and one badly broken KRF biface fragment/flake tool. The site may extend to the east into the adjacent field. That field is CRP and is outside the APE; it was not investigated. Integrity of the site is at best fair. It has been impacted by plowing, which has probably completely penetrated Holocene soils. The site's NRHP eligibility is undetermined; while artifacts are sparse, there are a high percentage of tools and the site may have the potential to add to our understanding of prehistory. Subsurface testing is necessary to adequately assess both integrity and NRHP eligibility. Avoidance is recommended. The site lies in the eastern portion of the survey ROW. Impact to the site can be avoided by necking down and fencing the site during construction. Additionally, monitoring during construction is recommended.

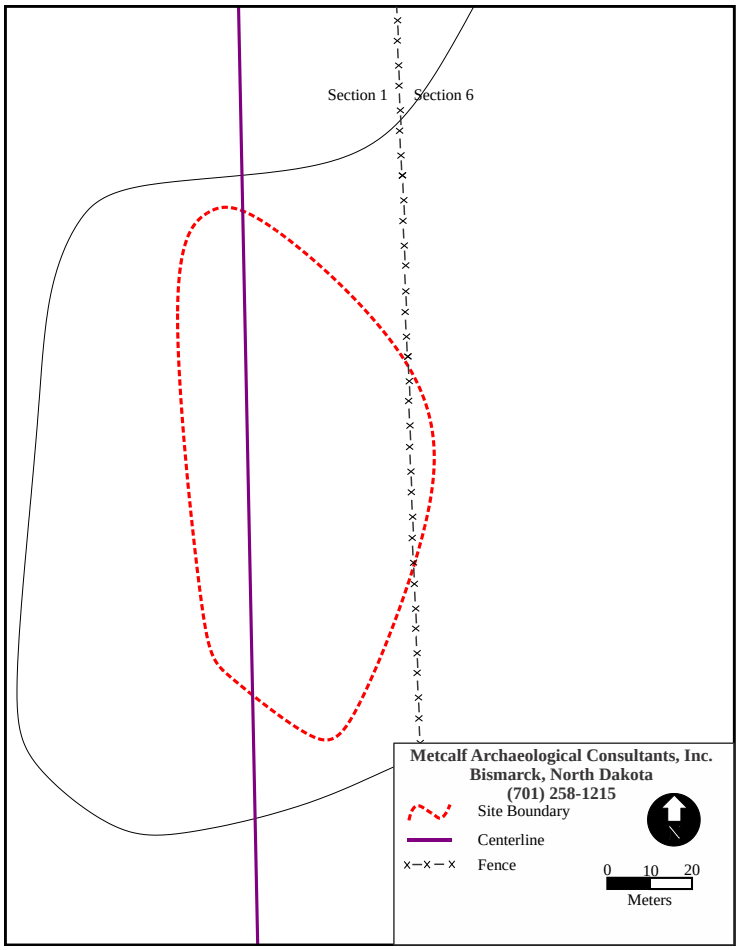


**Figure 40: Sketch of 32MZ2311.**

**Figure 41:** 32MZ2311, view to the south (image 9-14-11-8984).

*32MZ2312*

The site is a large, generally sparse lithic scatter with moderately dense concentrations. It is located on the top and sides of a large, low ridge near the edge of the badlands (Map 20, Figures 42-43). The badlands are visible to the southwest and the Killdeer Mountains are visible to the southeast in the far distance. The site is primarily in an agricultural field of harvested wheat with generally excellent ground surface visibility, except in the grasses and weeds at the edge of the landform to the east and north. Artifacts are primarily KRF with some chalcedony, Tongue River silicified sediment (TRSS), porcellanite, Swan River chert (SRC) and miscellaneous other cherts. The KRF is generally lightly to moderately patinated. Flakes are predominantly secondary and tertiary. Observed tools include one flake tool, one SRC core/FCR, and one projectile point. The point is corner notched and may be Late Archaic (Figure 44).

Integrity of the site is fair. It has been impacted by plowing, which has probably completely penetrated Holocene soils. The site's NRHP eligibility is undetermined. Subsurface testing is necessary to adequately assess both integrity and NRHP eligibility. Avoidance is recommended. A reroute has been surveyed and the site is now approximately 80 meters (262 feet) from the centerline at its closest. This undertaking will not impact the site.

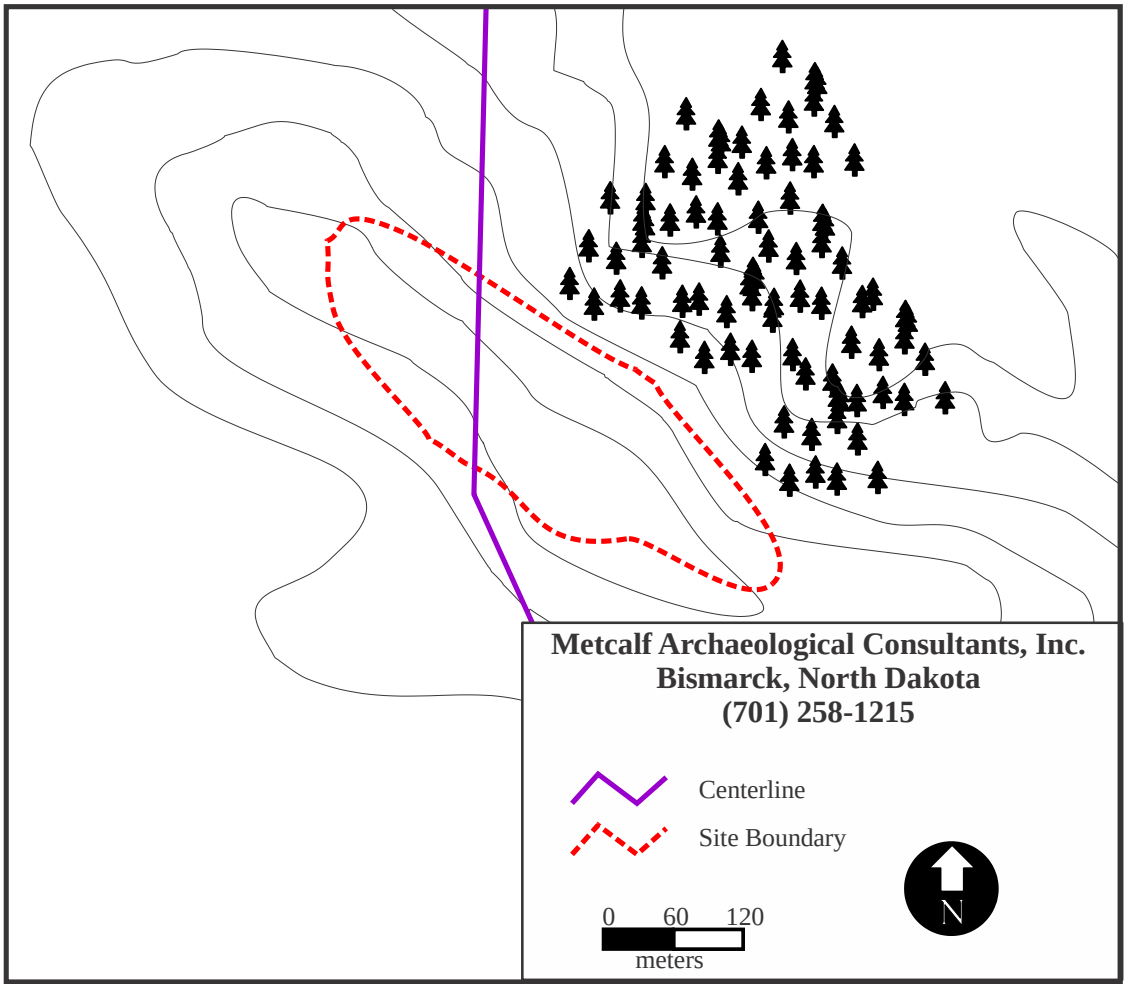


**Figure 42:** Sketch of 32MZ2312.

**Figure 43:** 32MZ2312, view to the north (image 9-14-11-8995).

**Figure 44:** The projectile point at 32MZ2312 (image 9-14-11-8991).

*32MZ2313*

This site is a sparse lithic scatter located on top of a relatively prominent ridge/knoll near the upper edge of the Badlands (Map 20, Figures 45-46). The site is located in a plowed field, which at the time of the survey consisted of harvested wheat. Ground surface visibility was 30%. The site has been disturbed by previous pipeline construction; a Bear Paw natural gas pipeline scar is evident along the eastern edge of the site. This pipeline is of relatively recent construction, given the presence of survey stakes and that the scar is visible in a plowed field. The site has excellent overview characteristics: the Kildeer Mountains are visible to the southeast, the Little Missouri River Valley is evident to the southwest and Lone Butte can be seen to the south. Observed artifacts includes eight KRF primary flakes, 11 KRF secondary flakes, 11 KRF tertiary flakes, three chalcedony secondary flakes, one quartzite core and one piece of FCR.

Integrity has been negatively impacted by plowing and the aforementioned natural gas pipeline. The site's NRHP eligibility is undetermined. Subsurface testing is necessary to adequately assess both integrity and NRHP eligibility. Avoidance is recommended. By keeping construction to the eastern portion of the surveyed ROW and fencing the site, impact to the site can be avoided. This undertaking will not impact the site.

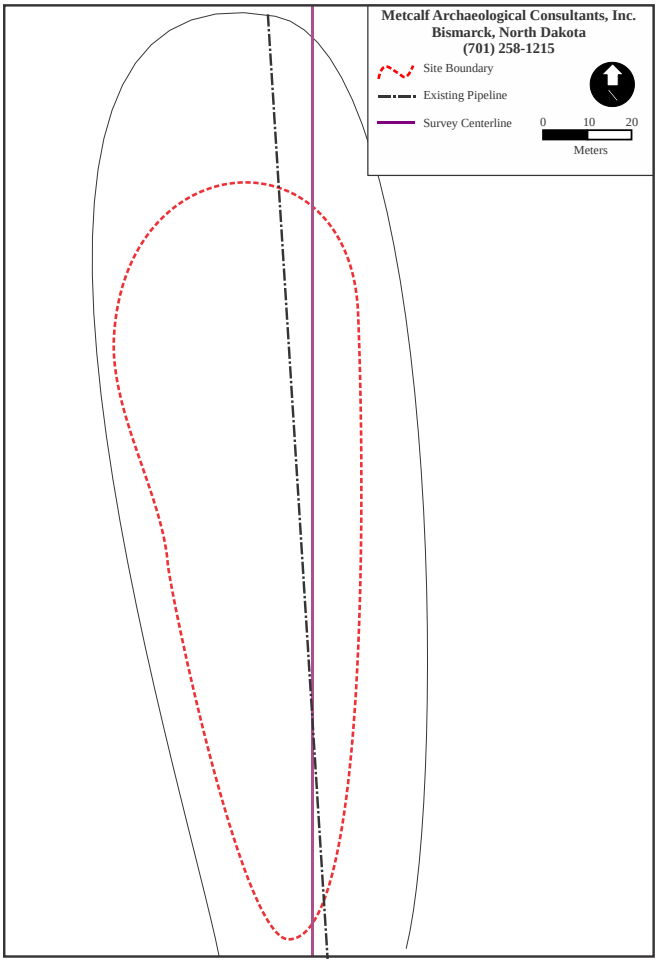


**Figure 45:** Sketch of 32MZ2313.

**Figure 46:** 32MZ2313, view from the center of the site to the east (image 10-25-11-9004).

*32MZ2314*

This site consists of two stone features and a sparse lithic scatter located along the western edge of a small ridge. The ridge is surrounded by drainages, with one drainage approximately 200 meters to the west and another drainage approximately 500 meters to the east (Map 15, Figures 47-48). Feature 1 is a cairn consisting of seven granite rocks (Figure 49). The stones are very well sodded and mostly heavily lichen-covered. The feature measures 1 x .5 meters. There is a good chance of additional buried stones associated with the feature. Feature 2 is also a cairn. It comprises 10 stones, some of them quite large. The feature is well sodded and the stones are heavily lichened. It is possibly a natural outcrop. Two flakes were observed: both are SRC, one is a secondary flake and one is tertiary. They were observed within centimeters of each other in a blowout.

Integrity is good. There are no modern impacts to the site other than those caused by erosion. The sites NRHP status is undetermined. Subsurface investigations are necessary to determine whether significant cultural deposits exist. Avoidance is recommended. The pipeline has been routed around the site to the south. Because of the proximity of the centerline to the site, MAC recommends necking down and fencing during construction to avoid impact to the site. Additionally monitoring during construction is recommended.

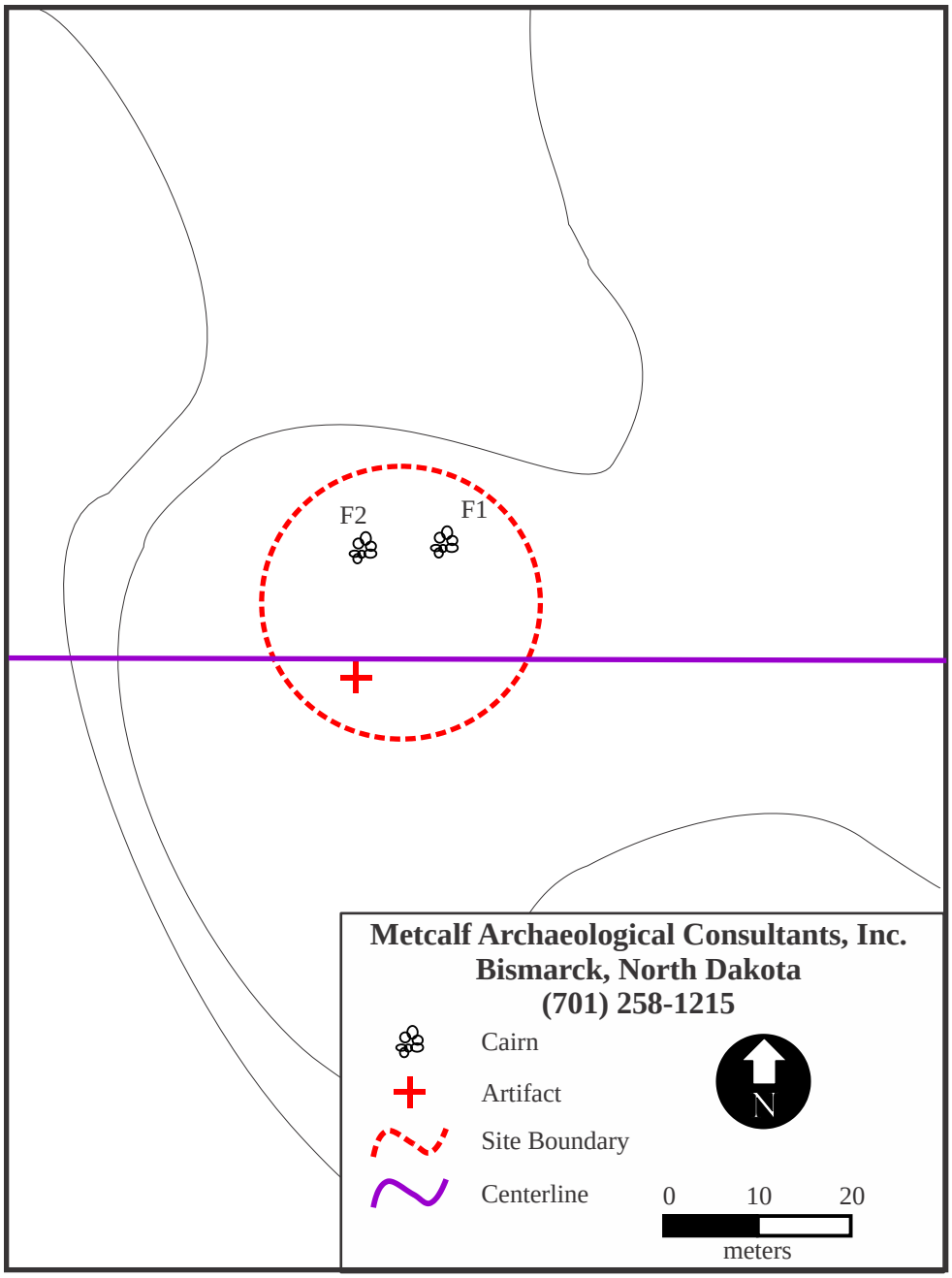


**Figure 47:** Sketch of 32MZ2314.

**Figure 48:** 32MZ2314, view to the north (image 10-25-11-9011).

**Figure 49:** 32MZ2314, Feature 1 (image 10-25-11-9010).

*32MZ2315*

MAC-BL-AK-31 is a very sparse lithic scatter located on the top and sides of a knoll at the edge of the North Fork Creek valley (Map 14, Figures 50-51). It is within a plowed field currently planted in alfalfa. Artifacts consist of 11 KRF tertiary flakes, 6 KRF secondary flakes, 2 KRF primary flake, 1 chalcedony secondary flake, 1 chalcedony tertiary flake, and 1 KRF flake tool. Site integrity has been compromised by plowing. The site does not appear to be eligible for the NRHP but evaluative testing is required to confirm this. The pipeline has been routed to the north of the site. Because of the new centerline's proximity to the site, the site should be fenced during construction and the construction ROW should be necked down. Additionally monitoring during construction is recommended.

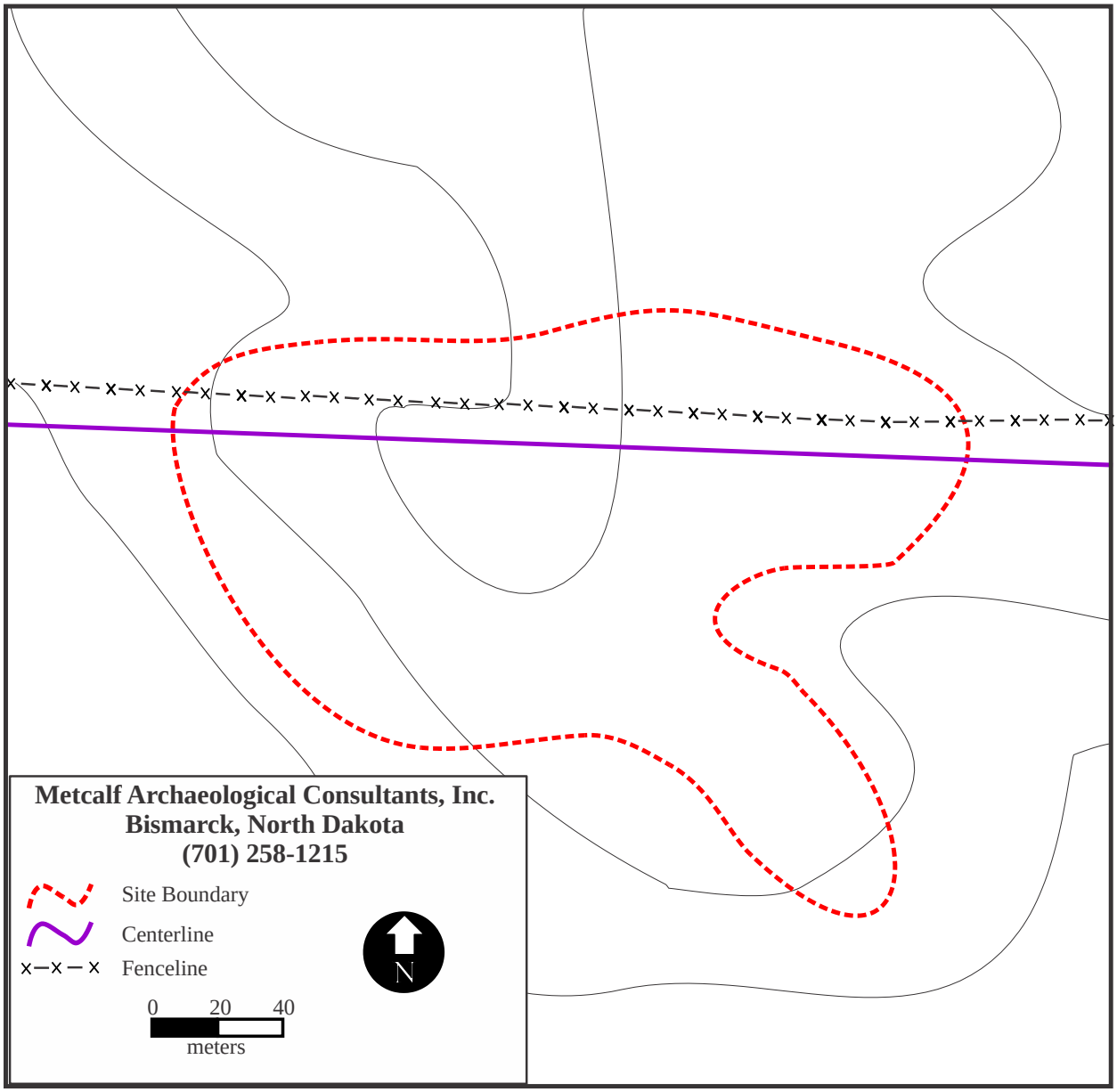


**Figure 50:** Sketch map of 32MZ2315.

**Figure 51:** View to the east over 32MZ2315 (image 10-25-11-9017).

*32MZ2316*

32MZ2316 is a single rock cairn on the edge of a hill in rolling uplands (Map 13, Figures 52-54). It is approximately 2 meters in diameter and consists of 10 well sodded rocks and is slightly mounded. The site retains excellent integrity. The only modern impacts to the site are those from erosion. The site has not been evaluated for the NRHP. Avoidance is recommended. The centerline has been rerouted to the north of the site and is now approximately 50 meters (164 feet) from the edge of the site. To ensure the site is avoided, we recommend the site be fenced prior to construction. This undertaking will not impact the site. Additionally monitoring during construction is recommended.

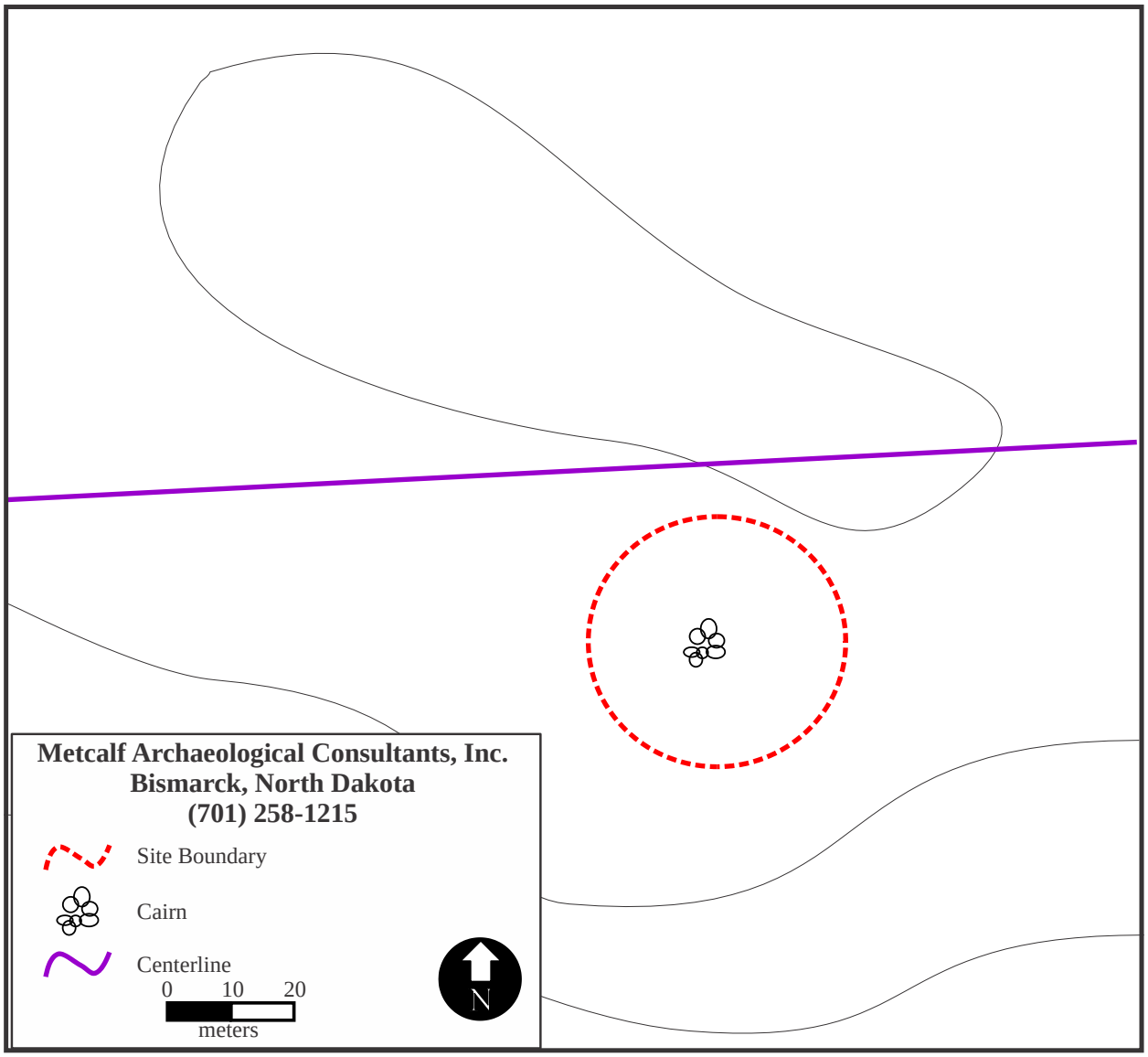


**Figure 52:** Sketch map of 32MZ2316.

**Figure 53:** View to the east over 32MZ2316 (image 10-25-11-9019).

**Figure 54:** View to the northeast over the cairn at 32MZ2316 (image 10-25-11-9021).

*32MZ2317*

The site is a sparse lithic scatter on a gentle slope northeast of the Little Knife River (Map 27, Figures 55-56). The site is located in an alfalfa/hay field. Numerous blowouts are present and most cultural material was found in these eroded areas. The site is located approximately 400 feet west of 32MZ1461. Lithic materials found at the site are mostly tertiary KRF flakes (10). Also identified were KRF secondary flakes (3), a porcellanite secondary flake (1), and a KRF middle stage biface fragment. All the KRF is moderately to heavily patinated. The site has been impacted by plowing, cattle trampling and erosion. It is unlikely that there are intact cultural deposits below the plow zone. Reduced integrity and the paucity of cultural material make it unlikely to be eligible for inclusion on the NRHP. However, subsurface testing is necessary to confirm this. Impact to the site can be avoided by shifting the centerline 50 feet to the south, necking down the construction corridor, and fencing the site during construction. Additionally monitoring during construction is recommended.

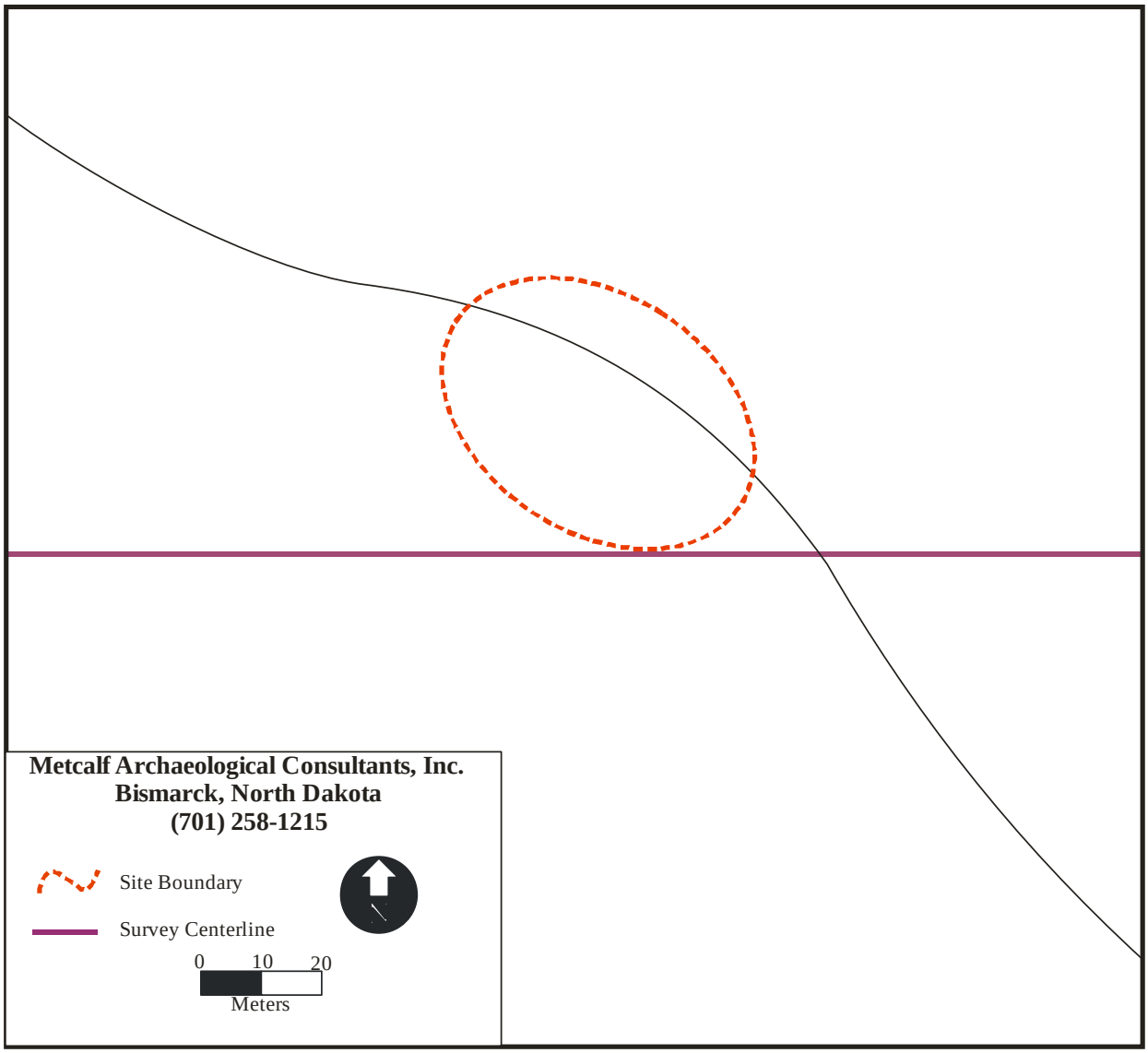


**Figure 55:** Sketch of 32MZ2317.

**Figure 56:** 32MZ2317, view to the south (image 7-20-11-1336).

*32WI132*

32WI132 is a stone circle site located near the edge of the uplands overlooking the Missouri River Valley (Map 4). It was previously recorded in 1985 and in 1992. The features described in the earlier recordings remain intact and are essentially unchanged. However, two additional stone circles were noted. The first stone circle (Feature 4 in Figure 57) measures five meters in diameter and is made up of 22 embedded stones and lies in the central portion of the eastern grouping of features. The stone circle is indistinct and irregular in shape. The other newly documented stone circle (Feature 9) lies on the northern margin of the site. It measures three meters in diameter and is made up of 21 embedded stones. The second stone circle also has a cairn in the center measuring approximately one meter in diameter and is made up of 18 stones. Features 7 and 8 are the only features within the current APE. Integrity is fair; aside from a road cut having disturbed one of the circles, the bulk of the site is intact. The site has been recommended as potentially eligible for inclusion on the National Register under Criteria D. Impact to the site can be avoided by fencing the site during construction. Additionally monitoring during construction is recommended.

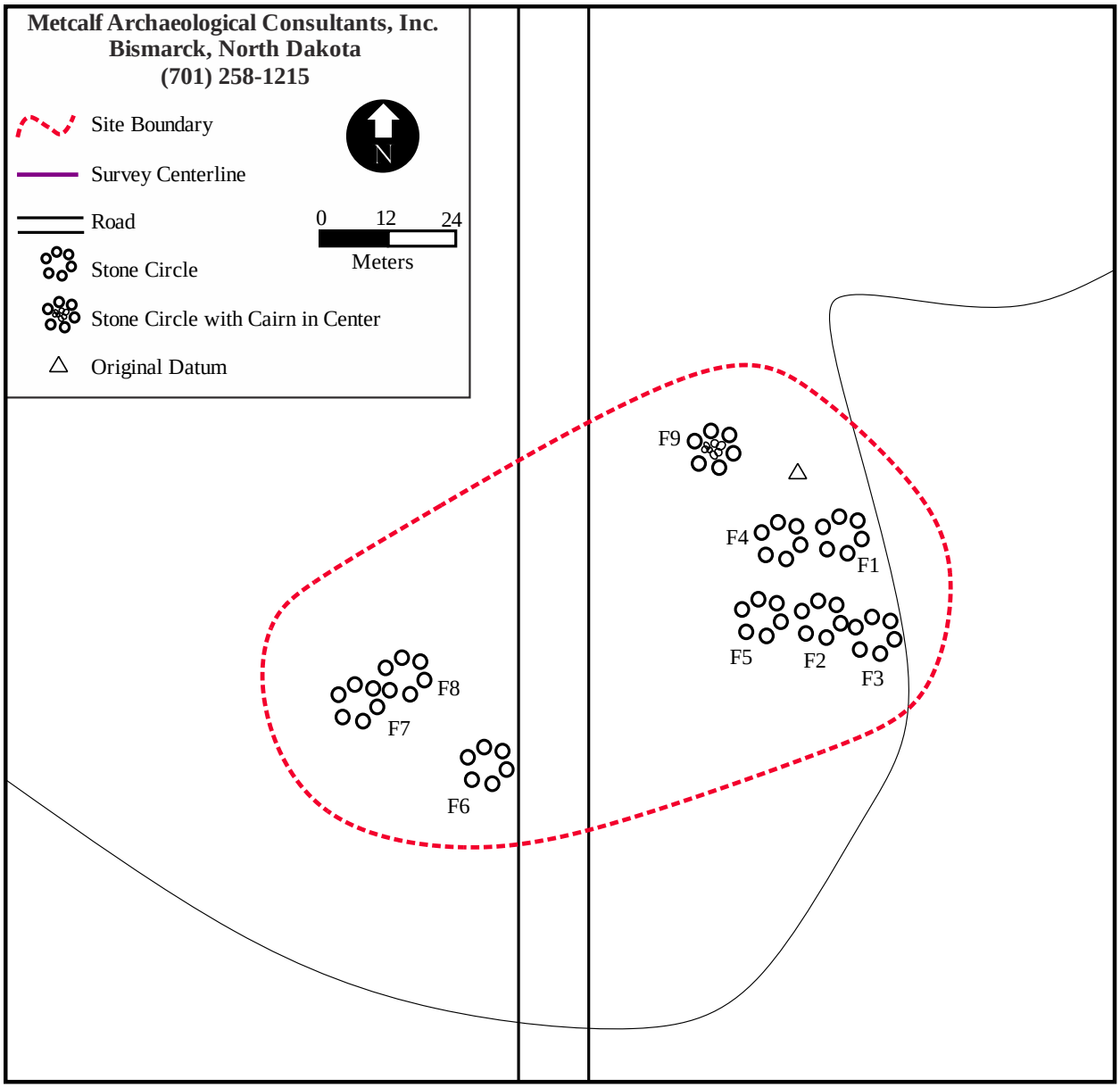


**Figure 57:** Sketch of 32WI132.

*32WI338*

32WI338 consists of a single stone circle located near the edge of the uplands overlooking the Missouri River Valley (Map 4, Figure 58). It was initially recorded in 1992 and easily re-identified during this inventory. The stone circle is well defined and well sodded, though a portion of it has been destroyed by road construction. Integrity has been impacted by road construction, which has destroyed a portion of the feature. The National Register eligibility of the site is undetermined. Subsurface testing is necessary to clarify integrity and determine eligibility. As the site is located at the edge of the survey corridor, impact to the site can be avoided by necking down and fencing the site. Additionally monitoring during construction is recommended.

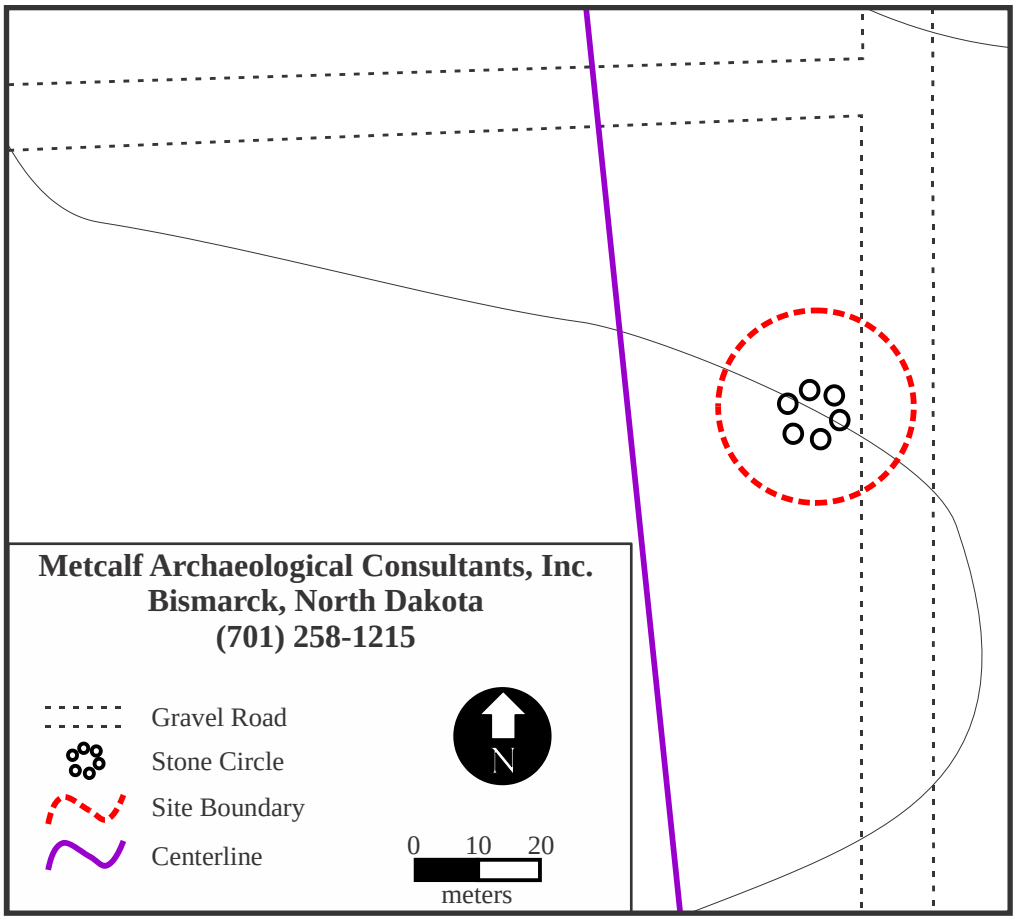


**Figure 58:** Sketch of 32WI338.

*32WI1215*

The site consists of a foundation/depression and a sparse cultural material scatter located on a gentle south-facing slope in the rolling uplands north of the Missouri River (Map 2, Figure 59). The foundation measures 4 by 4 meters and is slightly bermed on all four sides. There are four metal posts surrounding the depression (Figure 60). An old road bed/driveway west of the feature appears to have been crowned and ditched. A natural gas pipeline runs to the east of the feature. There is a sparse cultural material scatter to the east of the feature. The crest of the rise to the north of the site has been disturbed and has been lightly graveled. Cultural material primarily comprises bottle and window glass, including one complete bottle (3.5 centimeters tall, clear registered glass, molded, screw top, probably aftershave) (Figure 61). Other debris includes a concrete post and miscellaneous segments of pipe probably from previous pipeline construction.

A deeds search was conducted and the names found in that search were searched in the Biography Index at the NDSU Institute for Regional Studies (http://www.lib.ndsu.nodak.edu/ndirs/databased/bio.php). No data indicating those individuals are important to history was returned from that search.

MAC recommends the site as not eligible for inclusion on the NRHP. It does not appear to be especially associated with events that have made a significant contribution to the broad patterns of history (Criterion A). The deeds search does not indicate the site is associated with persons important to history (Criterion B). Given the lack of standing structures, it cannot be considered eligible under Criterion C (properties that embody the distinctive characteristics of a type, period or construction method, that represent the work of a master, or that have high artistic value). The site does not appear likely to be able to yield information important to history (Criterion D).

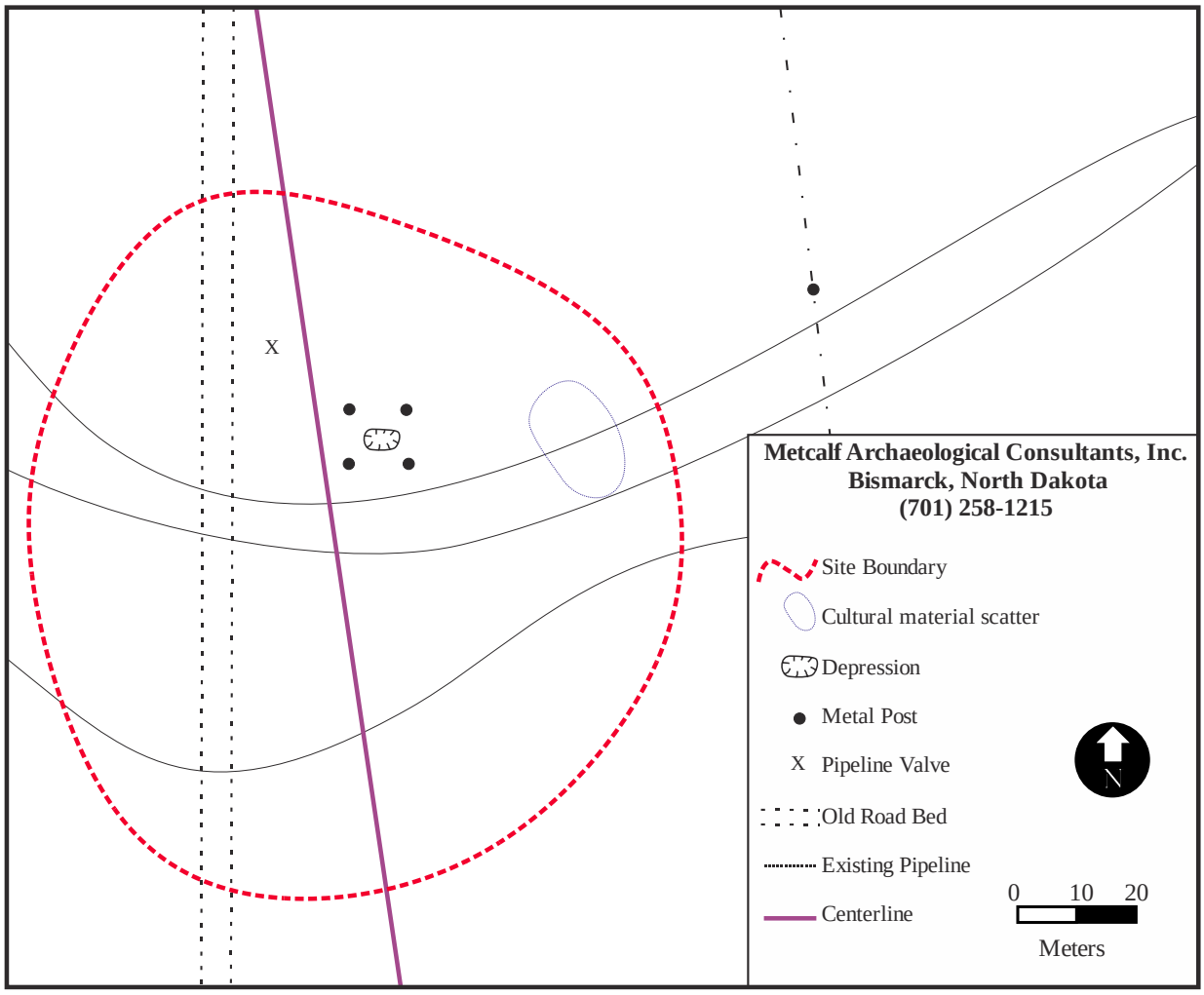


**Figure 59:** Sketch of 32WI1215.

**Figure 60:** 32WI1215, Feature 1, view to the southwest (image 7-23-11-8917).

**Figure 61:** The complete bottle at 32WI1215 (image 7-23-11-8919).

*32WI1237*

This stone feature site lies in the rolling uplands north of the Missouri River along a long, northwest-southeast trending ridge (Map 2). A pipeline scar runs along the long axis of the landform and its construction appears to have impacted several of the identified features and may have destroyed more. There are seven features (Figure 62). Feature 1 is a stone circle, measuring 6 m in diameter and with 47 rocks (Figure 63). Half the circle is missing and it opens to the east. The feature has possibly been disturbed by the existing pipeline that runs just northeast of the feature. Feature 2 is a collapsed cairn, measuring approximately 2 m x 1 m and consisting of 31 rocks. Feature 3 is a cairn measuring approximately 1 m x 0.5 m and consisting of 13 rocks. Feature 4 is a possible stone circle, 7 m in diameter, with 31 rocks. The feature is not complete, gapping on the east and has probably been disturbed by the pipeline. Feature 5 is a cairn, measuring approximately 1 m in diameter and comprising 12 rocks (Figure 64). Feature 6 is a stone circle with 27 stones, a 4-meter diameter, and a gap on the southeast side. Feature 7 is stone circle with 63 rocks and 5 meters in diameter. Features 2 and 3 may be connected by an arc; if so, this may actually be a stone circle with the "cairns" either part of the original features or the result of construction disturbance. No cultural material was observed.

Integrity is fair. The site has been impacted by pipeline construction. Soils are thin and eroded. The NRHP eligibility of 32WI1237 is undetermined. Avoidance is recommended. A reroute east of the site has been inventoried and the site now lies approximately 60 meters (197 feet) from the centerline. This undertaking will not impact the site.

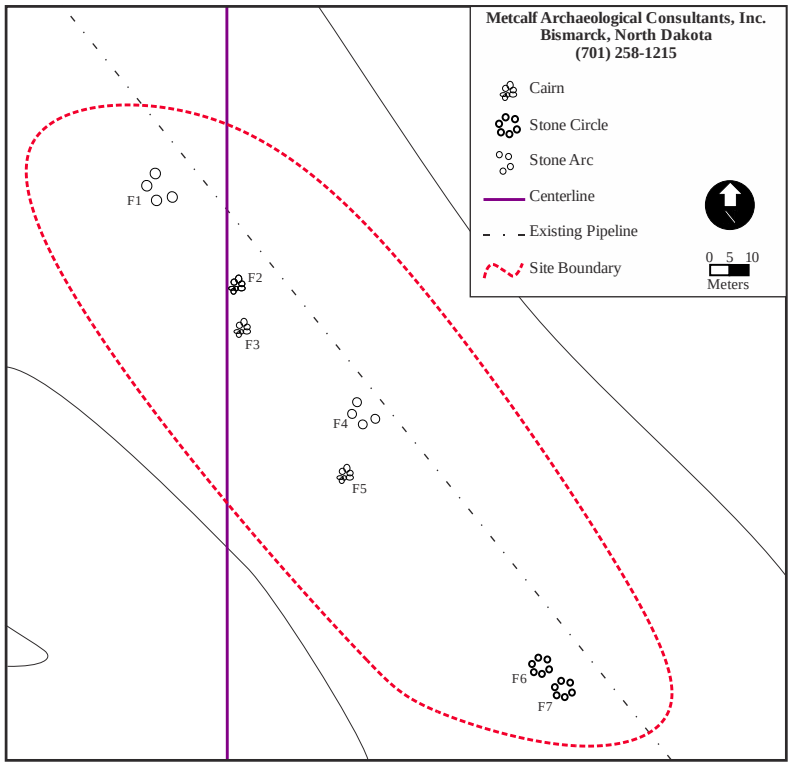


**Figure 62:** Sketch of 32WI1237.

**Figure 63:** Overview of 32WI1237, looking east (image 7-23-11-8900).

**Figure 64:** Feature 5 at 32WI1237, view to the south (image 7-23-11-8914).

*32WI1238*

MAC-BL-AK-38 is a stone circle site consisting of two features (Map 4, Figure 64). It is located on uplands overlooking the Missouri River breaks to the south in an area with six other stone feature sites within ¼ mile. Feature 1 is a double coursed stone circle nine meters in diameter and composed of 144 stones (Figure 65). There is a cluster of approximately 20 rocks in its north wall. Feature 2 is an eight meter diameter stone arc open to the southwest (Figure 66). It is composed of 27 rocks. The rocks comprising both features are well sodded. Feature 1 is adjacent to the proposed centerline and Feature 2 is approximately 20 meters west of Feature 1.

The site retains good to excellent integrity. An existing pipeline passes within meters of Feature 1, but the site is otherwise undisturbed. The site has not been evaluated for NRHP eligibility avoidance is recommended.

Two possible avoidance methods are suggested. The preferred method would be to utilize a reroute to the west of the site that has been surveyed and found to be clear of features or cultural material. This route passes to the west of the nearest feature by about 35 meters (115 feet). To ensure no impact to the site, the site should be fenced prior to construction. MAC also recommends an archaeological monitor during construction. However, it is MAC's understands that the landowner (the State of North Dakota/State School Lands) is reluctant to allow the centerline to be moved any further west than the current centerline. In the case that the centerline cannot be moved, if the construction ROW is limited to 25 feet, it can conceivably pass between the two features in the approximately 23 meters (75 feet) separating them, without impacting them. If this option is chosen, MAC recommends the following measures be taken:

- shovel probes be excavated between the two features; and if no evidence of significant cultural deposits are encountered during the probing, then
- the features will be fenced during to construction and
- a qualified archaeologist be present to monitor all construction activities in the area.

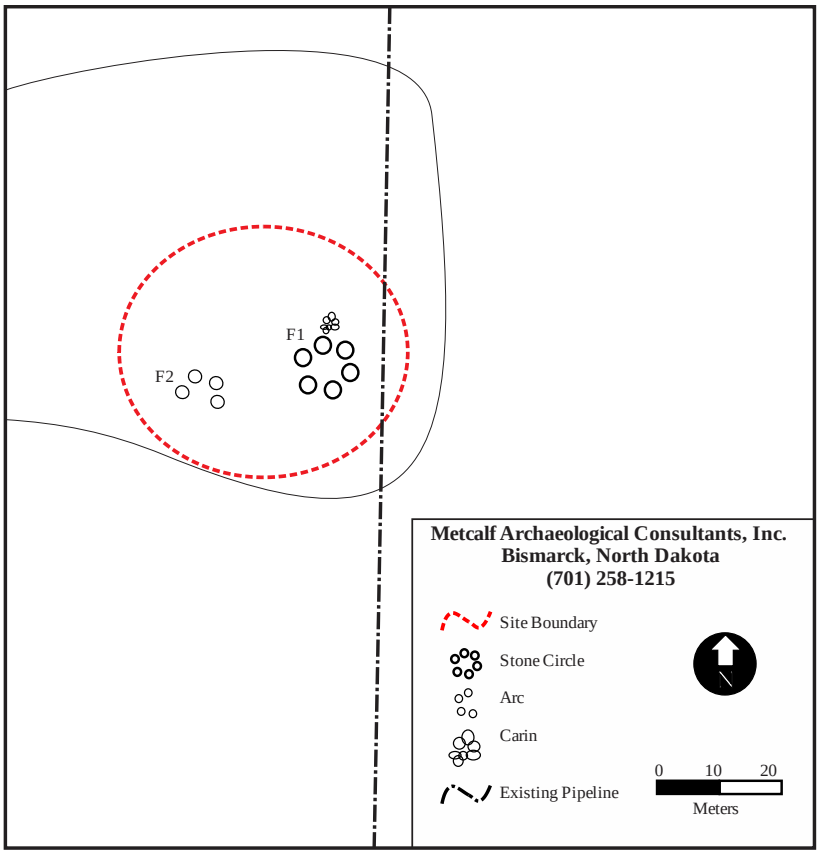


**Figure 65:** Sketch map of site 32WI1238.

**Figure 66:**32WI1238, view to the south over Feature 2 (image 10-25-11-9090).

*32WI1239*

Site 32WI1239 is a single cairn, located in the uplands, approximately three miles north of Lake Sakakawea (Map 3). The cairn is located on the top of small knoll and consists of 27 stones (Figures 67-68). It measures approximately 2 m north/south by 1.5 meters east/west and is surrounded by a possible circle. While the cairn is clearly cultural, it may be historic rather than prehistoric. The site retains good integrity; modern impacts are limited to erosion. The site's NRHP eligibility is undetermined. Subsurface testing is necessary to properly assess site eligibility. Avoidance is recommended. The pipeline has been moved for an unrelated reroute and the centerline now lies approximately 100 meters (328 feet) east of the site. This undertaking will not impact the site.

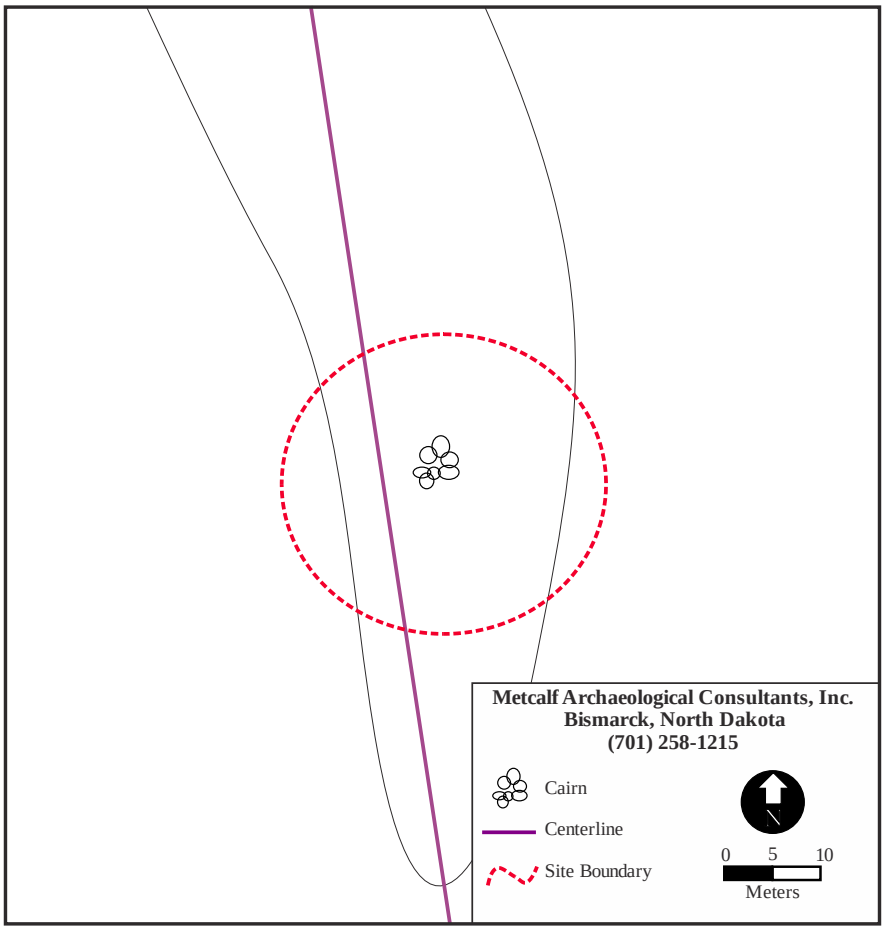


**Figure 67:** Sketch of 32WI1239.

**Figure 68:** The cairn at 32WI1239, view to the south (image 7-23-11-8920).

*32WI1240*

32WI1240 is a historic depression situated in on the top of a small hill in rolling uplands (Figures 69-70). It is circular and approximately 5 meters in diameter and 1.5 meters deep. The feature has been subject to some erosion and in-filling and there is no evidence of a foundation or superstructure remaining but otherwise appears to be undisturbed.

A deeds search was conducted and the names found in that search were searched in the Biography Index at the NDSU Institute for Regional Studies (http://www.lib.ndsu.nodak.edu/ndirs/databased/bio.php). No data indicating those individuals are important to history was returned from that search.

MAC recommends the site as not eligible for inclusion on the NRHP. This is a not uncommon feature type across North Dakota. There are no visible characteristics that can be associated with a particular historical event or significant person. While depressions are known to have been used as foundations for historic sod houses or dugouts, it is unlikely to yield information important in history. It does not appear to be especially associated with events that have made a significant contribution to the broad patterns of history (Criterion A). The deeds search does not indicate the site is associated with persons important to history (Criterion B). Given the lack of standing structures, it cannot be considered eligible under Criterion C (properties that embody the distinctive characteristics of a type, period or construction method, that represent the work of a master, or that have high artistic value). The site does not appear likely to be able to yield information important to history (Criterion D). No avoidance is recommended for this site.

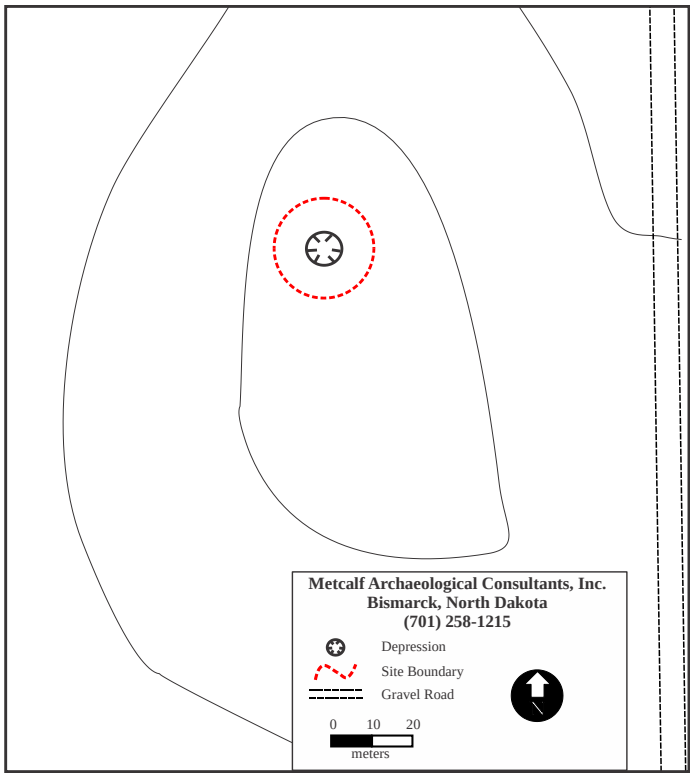


**Figure 69:** Sketch map of 32WI1240.

**Figure 70:** View to the south over 32WI1240 (image 10-25-11-9024).

*32WI1241*

32WI1241 is a stone circle site consisting of a single feature (Map 1, Figures 71-72). It is located in rolling uplands on a bench overlooking a seasonal drainage approximately seven miles west of the White Earth River. The circle is 6 meters in diameter and consists of 64 well sodded rocks forming a partially double coursed ring. Integrity is excellent. There are no modern impacts to the site other than erosion. The site has not been evaluated for the NRHP. Avoidance is recommended. The route has been moved and the centerline is now approximately 110 meters (360 feet) from the site. This undertaking will not impact the site.

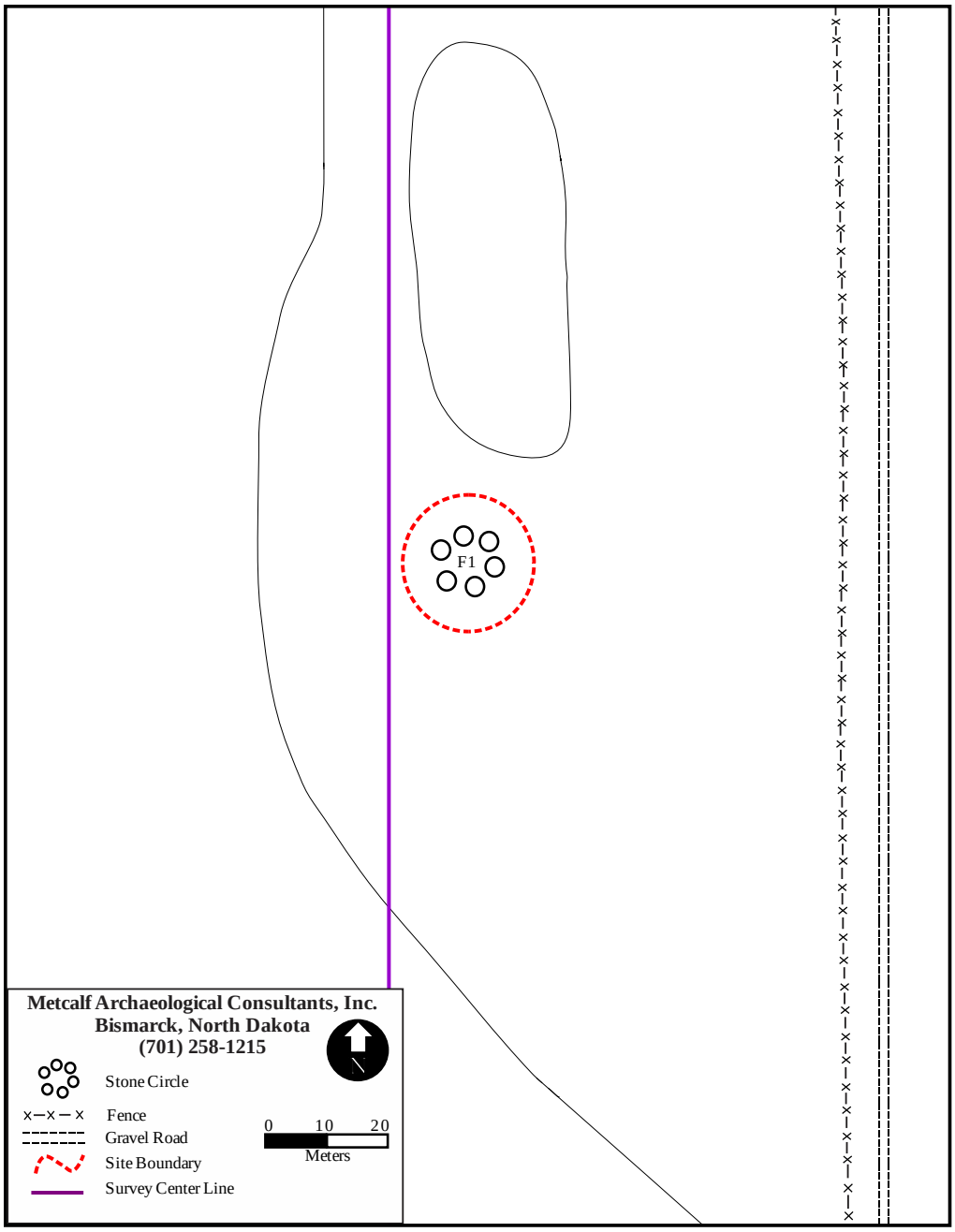


**Figure 71:** Sketch map of 32WI1241.

**Figure 72:** View to the south over 32WI1241 (image 10-25-11-9026).

*32WI1242*

This site is a stone feature site consisting of nine stone circles and five rock cairns. It is situated on a crest of a hill in rolling uplands approximately seven miles west of the White Earth River and ten miles north of Lake Sakakawea (Map 1, Figures 73-75). Feature 1 is a 3 meter diameter stone circle consisting of 41 rocks in a single course. Feature 2 is a 3.5 meter diameter stone circle consisting of 46 stones forming a double coursed ring. Feature 3 is a 5.5 meter diameter stone circle consisting of 42 rocks forming a partially double coursed ring. Feature 4 is a 3.5 meter diameter stone circle consisting of 32 rocks forming a single ring. Feature 5 is a 2.5 meter diameter stone circle consisting of 38 rocks forming a single coursed ring. Feature 6 is a 0.75 meter diameter cairn consisting of 5 slightly mounded rocks. Feature 7 is a 3.5 meter diameter stone circle consisting of 34 rocks forming a single coursed ring. Feature 8 is a 0.5 meter diameter cairn consisting of 5 slightly mounded rocks. Feature 9 is a 1 meter diameter cairn consisting of 26 slightly mounded rocks. Feature 10 is a 4.5 meter diameter stone circle consisting of 64 rocks forming a double coursed ring with areas of a triple course. Feature 11 is 3.5 meter diameter stone circle consisting of 61 rocks forming a double coursed ring. Feature 12 is a 2.5 meter diameter stone circle consisting of 32 rocks forming a single coursed ring with a one meter gap in the north wall. Feature 13 is a 2 meter north-south by 0.5 meter east-west cairn consisting of 12 rocks. Feature 14 is a 0.5 meter diameter cairn consisting of 4 slightly mounded rocks. All circle diameters are interior measurements.

The site retains excellent integrity. The only modern impacts to the site are those from erosion. The site has not been evaluated for the NRHP and avoidance is recommended. A reroute has

been surveyed, moving the centerline to the side slope of the knoll on which the site is located. The centerline is now approximately 50 meters (164 feet) from the nearest features. This undertaking will not impact the site.

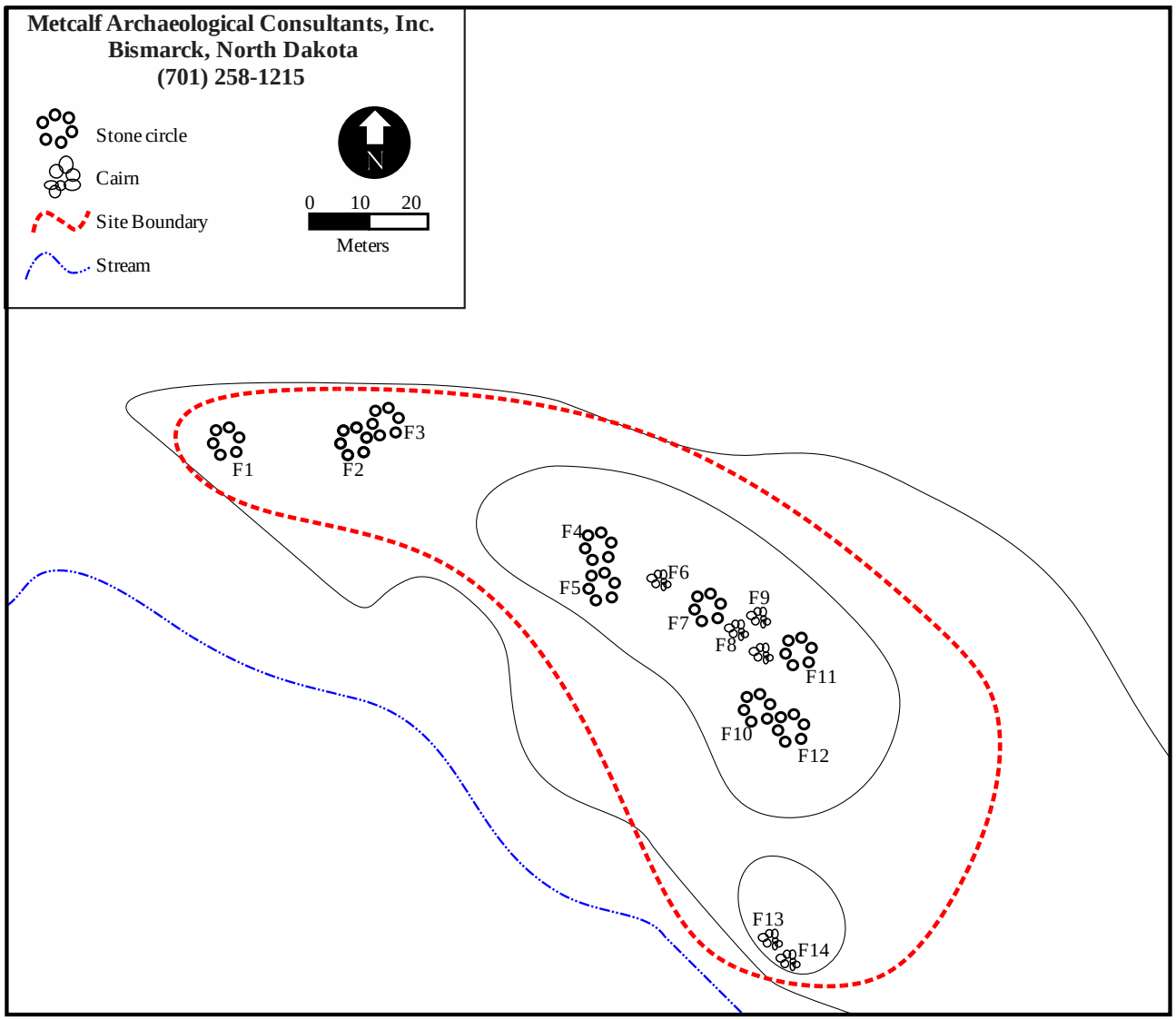


**Figure 73:** Sketch map of 32WI1242.

**Figure 74:** View to the south over 32WI1242 (image 10-18-11-13-177).

**Figure 75:** View of typical stone circle at 32WI1242 (image 10-18-11-23-452).

*32WI1243*

This site is a stone feature site with six features, all of which are stone circles (Map 2, Figures 76-78). It is situated near the southeast end of a long northwest-southeast trending ridge approximately ten miles north of Lake Sakakawea. Seasonal drainage cuts are present both to the north and south. Feature 1 is 4.5 meters in diameter and composed of 93 stones in a double course. Feature 2 is 4.5 meters in diameter and composed of 66 rocks with approximately 1/3 of the ring being double coursed. Feature 3 is 3.5 meters in diameter and is composed of 92 rocks forming multiple courses. The courses are somewhat clustered and cairn like. Feature 4 is 8 meters in diameter is composed of 154 rocks forming multiple courses. Feature 5 is 3.5 meters in diameter and is composed of 41 rocks forming a single course. Feature 6 is 5.5 meters in diameter and is composed of 71 rocks with approximately half of the circle double coursed. All given diameters are interior diameters.

The site retains excellent integrity. Erosion is the only modern impact. The site has not been evaluated for the NRHP and avoidance is recommended. The site is located at the edge of the survey ROW, and impact to it can be avoided by fencing the site and necking down. This undertaking will not impact the site. Additionally monitoring during construction is recommended.

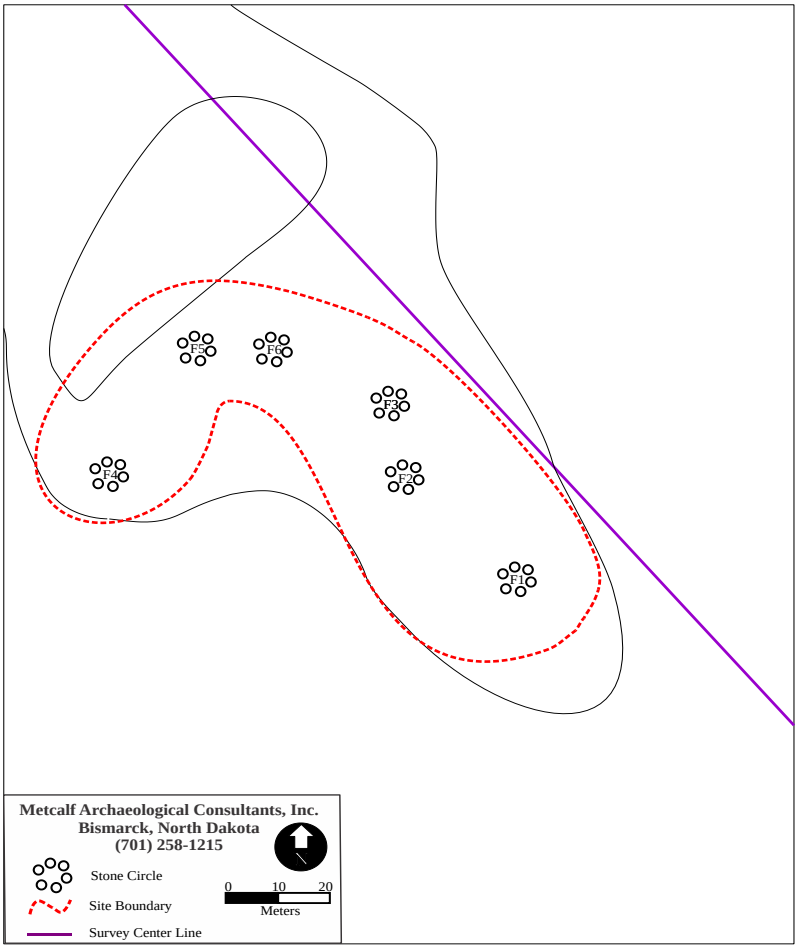


**Figure 76:** Sketch map of 32WI1243.

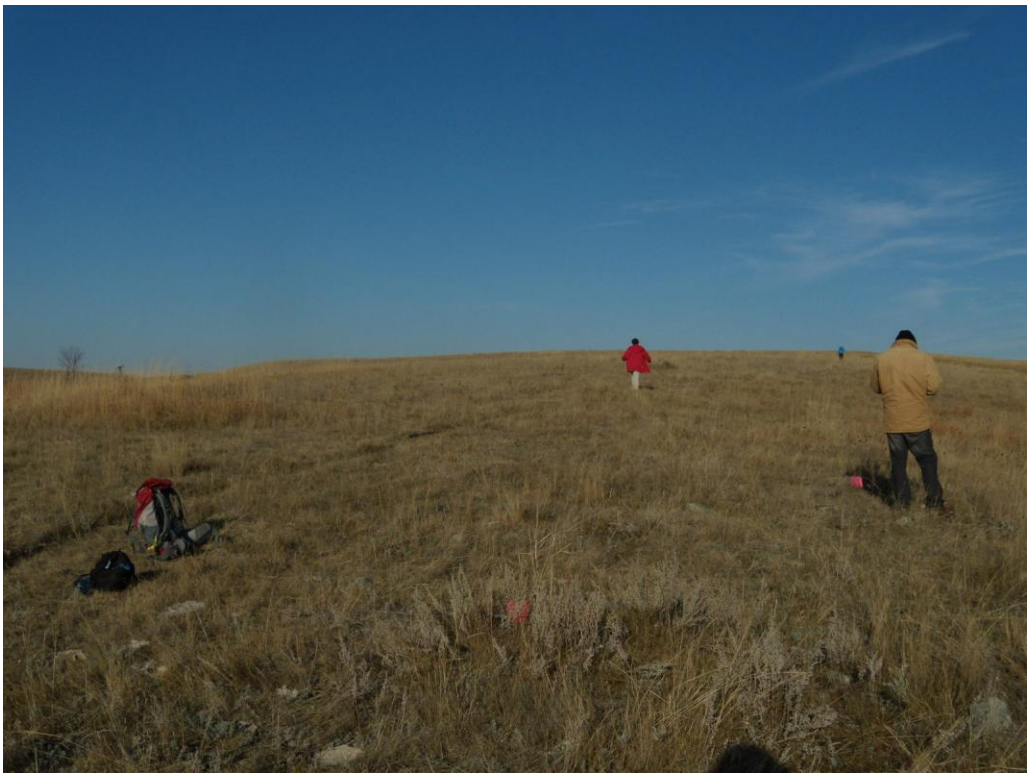

**Figure 77:** 32WI1243, view to the northwest over Feature 1 (image 10-25-11-9029).

**Figure 78:** 32WI1243, view to the north over (image 10-25-11-9031).

*32WI1244*

This site is a historic archaeological and architectural site consisting of two standing structures and three foundations/depressions (Map 2, Figure 79). It is located immediately west of a tributary to Dry Fork Creek approximately six miles south of the community of Tioga. Feature 1 is a 4 x 6 m outbuilding with corrugated aluminum/galvanized steel siding, a wood frame, and asphalt shingles sitting on concrete joists. Strips of lumber have been bolted to the sheeting, presumably for reinforcement. The building has square openings at both ends near the roof line, probably for ventilation. There is a single door clad in the same sheeting in the center of east side. The structure appears to have been used as a granary. Feature 2 is a second outbuilding although it may have once served as a dwelling as it has the remains of a brick chimney. It is a wood framed structure with horizontal wood siding on both the interior and exterior (Figure 80). It has wood shingles and sits on concrete joists. There are windows on the south and west sides and a door on the east side. The glass from the windows and the door are absent, as are some of the shingles, leaving the structure exposed to the elements. Debris has been placed in the structure and the building's function is unknown. Feature 3 is a 1 x 1 m foundation with a depression in the center. It probably served as either a well or privy. Feature 4 is a concrete foundation filled with relatively recent debris including a console television and is surrounded on two sides by an asphalt sidewalk (Figure 81). Given its size, it was probably the primary dwelling. Feature 5 is another concrete foundation with debris that appears to include the roof of its structure (Figure 82).

A deeds search was conducted and the names found in that search were searched in the Biography Index at the NDSU Institute for Regional Studies (http://www.lib.ndsu.nodak.edu/ndirs/databased/bio.php). No data indicating those individuals are important to history was returned from that search.

MAC recommends the site as not eligible for inclusion on the NRHP. It does not appear to be especially associated with events that have made a significant contribution to the broad patterns of history (Criterion A). The deeds search does not indicate the site is associated with persons important to history (Criterion B). Given the lack of standing structures, it cannot be considered eligible under Criterion C (properties that embody the distinctive characteristics of a type, period or construction method, that represent the work of a master, or that have high artistic value). The site does not appear likely to be able to yield information important to history (Criterion D).

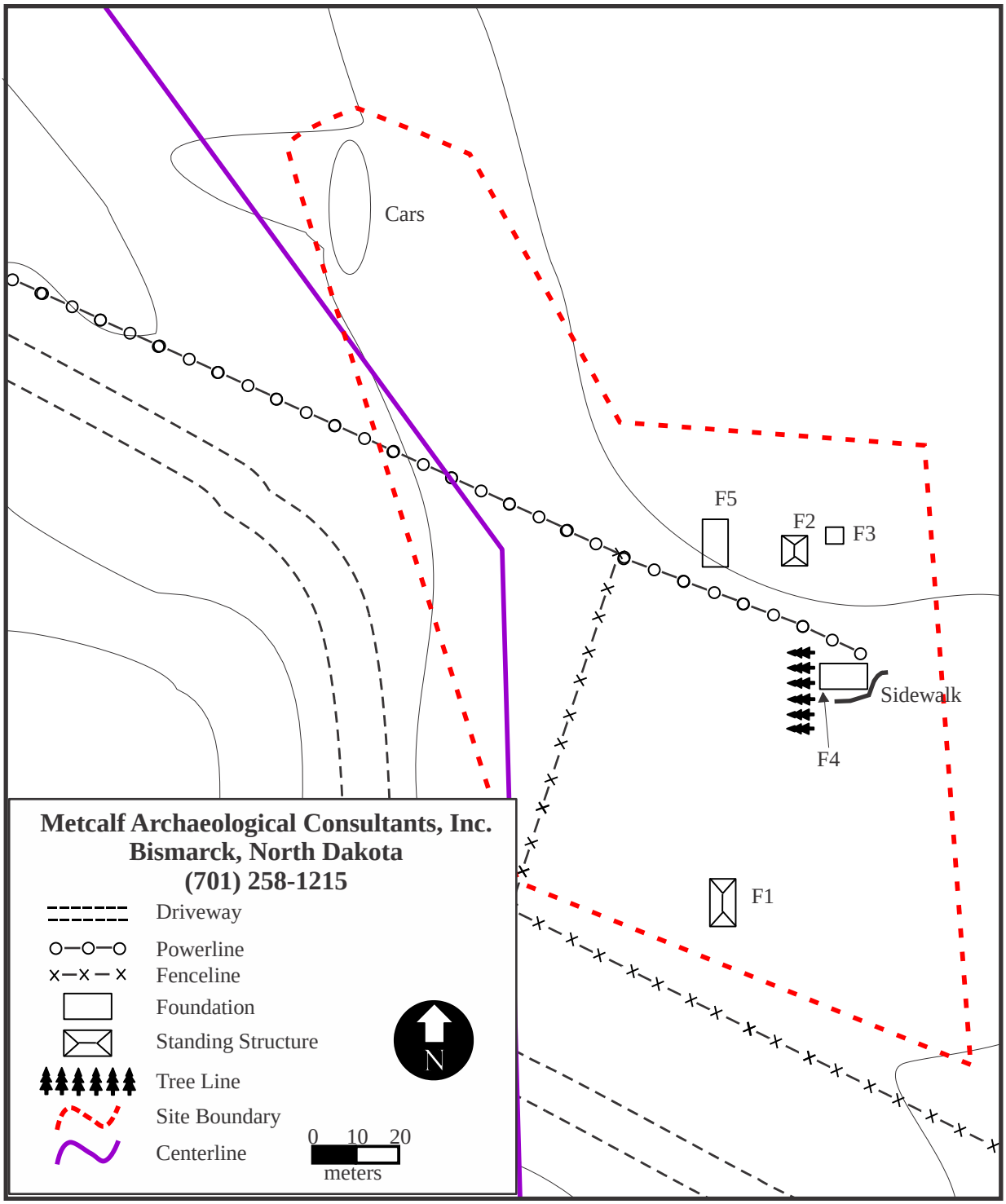


**Figure 79:** Sketch map of 32WI1244.

**Figure 80:** 32WI1244, view to the east over Feature 2 (image 10-25-11-9047).

**Figure 81:** 32WI1244, view to the north over Feature 4 with Feature 2 in the background (image 10-25-11-9072).

**Figure 82:** 32WI1244, view to the south over Feature 5 with Feature 1 in the background (image 10-25-11-9074).

*32WI1245*

This is a stone circle site consisting of twelve features. It is located in rolling uplands on a ridge overlooking seasonal drainages to the west, north, and east (Map 2, Figures 82-83). The stone circles range from 3.5 to 6 meters in diameter, and consist of between 23 and 100 well-sodded rocks forming single coursed rings. Most rocks are granite, with a few exceptions. Feature 1 is the northernmost feature, and consists of 42 stones and has a four meter diameter. It has a 1.5 meter gap in its northern extent. Feature 2 has two circles abutting one another along an east-west axis. Feature 2a, in the east, consists of 45 stones and has a four-and-a-half meter diameter. Feature 2b, in the west, consists of 51 stones and also has a four-and-a-half meter diameter. Feature 3 consists of 23 stones and has a three-and-a-half meter diameter. It contains one limestone rock in the east. Feature 4 consists of 49 stones and has a four-and-a-half meter diameter. It contains two limestone rocks. Feature 5 consists of 34 stones and has a four meter diameter. It is sparsely distributed in its northern extent, possibly disturbed by cattle activity. Feature 6 has three circles abutting one another. Feature 6a, in the southeast, consists of 50 stones and has a four-and-a-half meter diameter. Feature 6b, in the center, consists of 47 stones and has a three-and-a-half meter diameter. Feature 6c, in the southwest, consists of 43 stones and has a four meter diameter. It contains one quartzite rock. Feature 7 consists of 41 stones and has a five meter diameter. Feature 8 consists of 85 stones and has a six meter diameter. It contains a scatter of six rocks in its center. Feature 9 consists of 100 stones and has a six meter diameter. There is a granite boulder with a 0.75 meter diameter located approximately one meter to the west-southwest of it. There is another granite boulder with a 0.50 meter diameter located approximately one meter to the southwest of it. This boulder is approximately 1.5 meters east of

the first one. Feature 10 consists of 34 stones and has a four meter diameter. It is poorly defined, and has a small, yet deep west-east drainage immediately to its south. Feature 11 consists of 30 stones and has a five-and-a-half meter diameter. It has a three quarters configuration, and is open to the northwest. Feature 12 consists of 38 stones and has a six meter diameter. It has a sparse layout and is only moderately well-defined. It is the southernmost feature, and is the highest in elevation, being only 30 meters north of a northwest-southeast trending ridgeline that contains previously documented stone features (32WI1237).

The site retains good integrity. The only modern impact to the site is from erosion. The National Register eligibility of MAC-BL-MK-1 is undetermined. It should be avoided. The pipeline has been rerouted in this vicinity and the ROW is now off the landform on which the site is located, approximately 30 meters east of the site at its closest. To ensure the site is not inadvertently impacted during construction, the nearest features should be fenced. This undertaking will not impact the site.

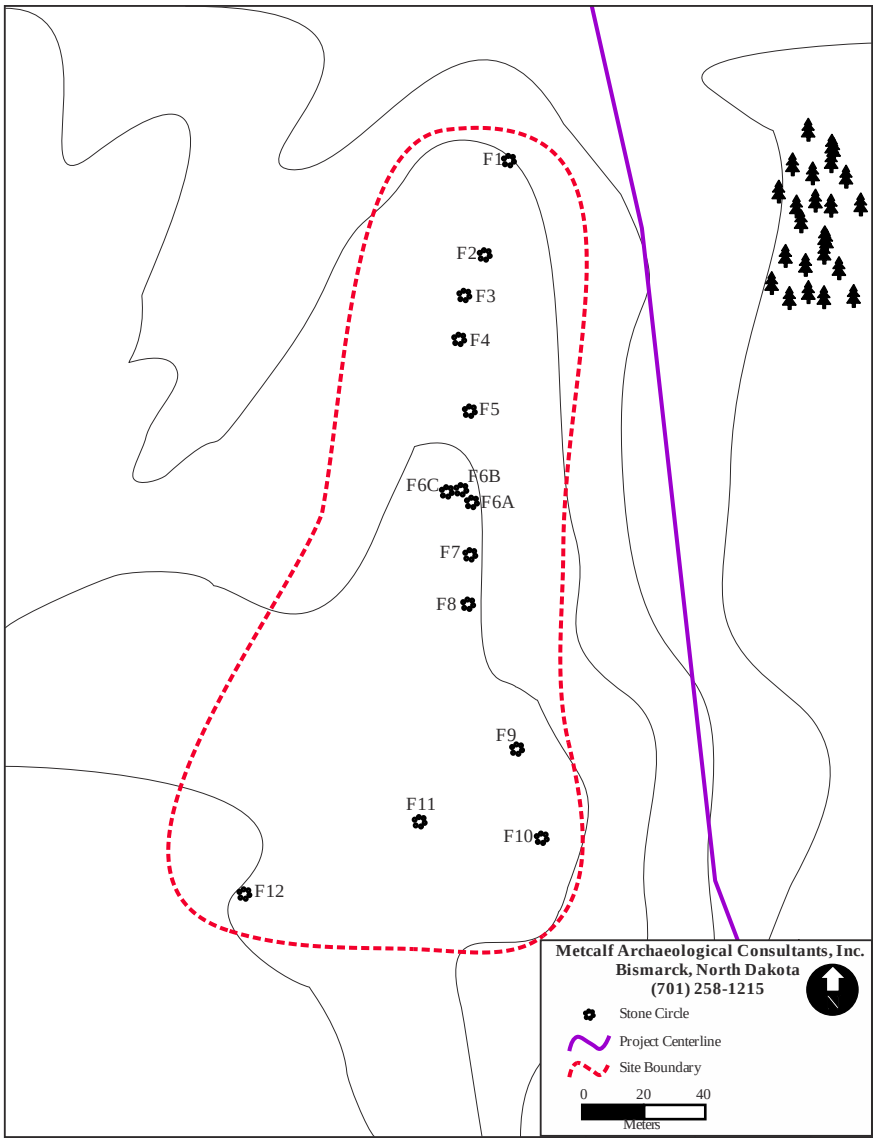


**Figure 83:** Sketch of 32WI1245.

**Figure 84:** 32WI1245, view to the northwest (image 2-14-12AK-29).

*32WI1246*

The site is a stone circle site consisting of a single feature. It is located on the toe slope at the base of the Missouri River Valley and overlooks a deep seasonal drainage to the south (Map 4, Figures 84-85). The circle is approximately 4 meters in diameter and consists of 32 well sodded rocks forming a single coursed ring.

The site retains excellent integrity. The only modern impact to the site is from erosion. Significance is undetermined. Subsurface testing is necessary to determine site significance. The site is located at the extreme edge of the survey ROW and is therefore outside the construction ROW and should not impacted by this undertaking. To insure this, MAC recommends the site be fenced during construction.

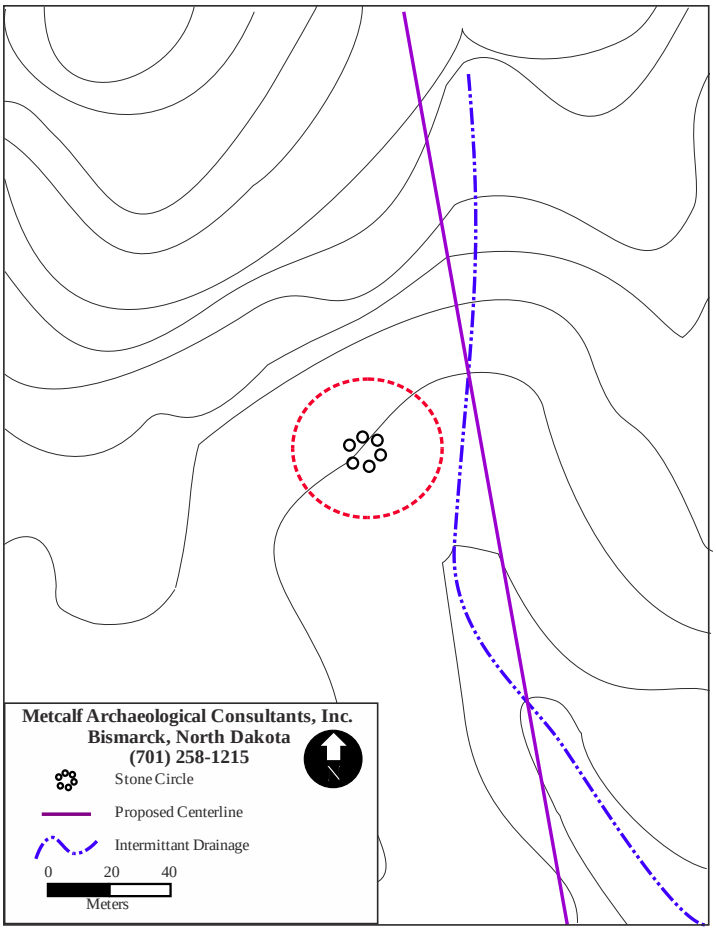


**Figure 85:** Sketch of 32WI246.

**Figure 86:** 32WI1246, view to the west (image 2-9-12-201).

## Chapter 5: Summary and Conclusions

In all, 62 cultural resources were documented during the survey. These include 24 precontact isolated finds, 29 precontact sites, and nine historic-era sites (archaeological and architectural). Additionally, two sites that had been recorded within or immediately adjacent to the APE were not relocated during this inventory. The isolated finds are all recommended not eligible for inclusion on the NRHP (Table 5). The NRHP statuses of the precontact sites are undetermined. The postcontact sites are recommended to be not eligible for inclusion on the National Register, with two exceptions. One is an abandoned segment of US Highway 85, 32MZ1560, which has previously been recommended eligible for the NRHP. The other is 32MZ1314, a wagon trail, which has been recommended as potentially eligible. The BLPL intends to avoid impact to National Register eligible sites as well as those whose eligibility has not been determined.

At three sites, it has not been practical to find avoidance routes. The BLPL proposes to test those three sites and if necessary mitigate effects to those sites. These sites are all located in close proximity to each other along the Little Knife River. Both the results of this inventory and previous work in the vicinity indicate a high site density in this area and the high likelihood that additional sites are present, making it unlikely that practical reroutes can be found. Complete testing plans have been developed and submitted under separate cover (Kulevsky 2012), but are summarized here.

### 32MZ303

The site spans the width of the 60-meter-wide APE and extends along approximately 260 meters of its length so construction cannot avoid impacting the site. Because of the size of the site, testing will be largely restricted to the APE corridor. Investigations will be weighted towards the 30 meter-wide construction right-of-way, though depending on the results of the probes some probes will be, and excavation units may be, placed within the 60 meter-wide APE. MAC proposes to excavate 45 to 50 shovel probes and 2 to 3 excavation units. Generally, probes will be placed at 10 meter intervals across the APE. The placement of excavation units will be based on the results of the probes.

### 32MZ304

The APE crosses approximately 30 meters of the southern end of the site. MAC proposes to place 15 to 20 shovel probes and 1 to 2 1-x-1-meter units within the portion of the site crossed by the APE. Placement of the probes and units will be weighted towards the 30 meter-wide construction corridor, though some probes will be and excavation units may be placed within the 60 meter APE corridor. Generally, probes will be placed at 10 meter intervals; location of the test units will be based on the results of the shovel probes.

**Table 4:** Recommendations for Cultural Resources Along the BakkenLink Pipeline

| SITS # | Temp # | Location | Site Type | NRHP Recommendation | Management Recommendation | Comments |
|---|---|---|---|---|---|---|
| 32BI453 | | 141/99-27 | Prehistoric | Undetermined | No further work | Shovel probed; all negative; no evidence of site in ROW |
| 32BI1098 | MAC-BL-AK-3 | 143/99-34 | Historic | Not eligible | No further work | |
| 32BI1099 | MAC-BL-AK-4 | 143/99-27 | Prehistoric | Undetermined | Avoid | Rerouted-the centerline is now approximately 80 meters from the site |
| 32BI1100 | MAC-BL-ES-8 | 144/99-25, 26 | Prehistoric | Undetermined | Avoid | Restrict construction to the east side of the section line fence |
| 32BIx896 | MAC-BL-AK-2 | 141/99-22 | IF | Not eligible | No further work | |
| 32BIx897 | MAC-BL-AK-5 | 144/99-11 | IF | Not eligible | No further work | |
| 32BIx898 | MAC-BL-AK-16 | 139/100-2 | IF | Not eligible | No further work | |
| 32BIx899 | MAC-BL-AK-17 | 139/100-2 | IF | Not eligible | No further work | |
| 32BIx900 | MAC-BL-ES-1 | 139/100-10 | IF | Not eligible | No further work | |
| 32BIx901 | MAC-BL-ES-4 | 142/99-15 | IF | Not eligible | No further work | |
| 32BIx902 | MAC-BL-ES-5 | 143/99-22 | IF | Not eligible | No further work | |
| 32BIx903 | MAC-BL-ES-6 | 143/99-22 | IF | Not eligible | No further work | |
| 32BIx904 | MAC-BL-ES-7 | 143/99-22 | IF | Not eligible | No further work | |
| 32DU1703 | MAC-BL-AK-40 | 145/96-28 | Prehistoric | Undetermined | Avoid | The site can be avoided within 200-foot ROW; neck down and fence site |
| 32DUx925 | MAC-BL-AK-26 | 145/97-31 | IF | Not eligible | No further work | |
| 32MZ303 | MAC-BL-AK-8 | 145/98-33, 34 | Prehistoric | Undetermined | Test | |
| 32MZ304 | MAC-BL-ES-11 | 145/99-34 | Prehistoric | Undetermined | Test | |
| 32MZ859 | | 149/98-6 | Prehistoric | Undetermined | Avoid | The site is approximately 30 meters east of the centerline, outside the construction ROW. Fence |
| 32MZ1311 | | 147/98-18 | Prehistoric | Undetermined | Avoid | Rerouted-the centerline is now approximately 30 meters from the site |
| 32MZ1312 | | 147/98-18 | Prehistoric | Undetermined | Avoid | Rerouted-the centerline is now approximately 50 meters from the site at its |
| 32MZ1313 | | 147/98-18 | Prehistoric | Undetermined | Avoid | Rerouted-the centerline is now approximately 100 meters from the site |
| 32MZ1314 | | 147/98-18 | Historic | Eligible | Avoid | Rerouted-the centerline is now approximately 40 meters from the site |
| 32MZ1461 | | 145/98-33, 34 | Prehistoric | Undetermined | Test | |
| 32MZ1560 | MAC-BL-AK-28 | 148/97-11 | Historic | Eligible | Restore grade/re-contour post-construction | |

**Table 4:** Recommendations for Cultural Resources Along the BakkenLink Pipeline

| SITS # | Temp # | Location | Site Type | NRHP Recommendation | Management Recommendation | Comments |
|---|---|---|---|---|---|---|
| 32MZ2307 | MAC-BL-AK-6 | 145/98-33 | Prehistoric | Undetermined | Avoid | The site is approximately 30 meters from the centerline; restrict construction to the east side of the ½ section line fence |
| 32MZ2308 | MAC-BL-AK-15 | 153/95-4 | Historic | Not eligible | No further work | |
| 32MZ2309 | MAC-BL-AK-20 | 150/95-6 | Historic | Not eligible | No further work | |
| 32MZ2310 | MAC-BL-AK-21 | 150/95-6 | Historic | Not eligible | No further work | |
| 32MZ2311 | MAC-BL-AK-23 | 146/99-1 | Prehistoric | Undetermined | Avoid | Neck down/fence/monitor |
| 32MZ2312 | MAC-BL-AK-25 | 148/99-3 | Prehistoric | Undetermined | Avoid | Rerouted-the centerline is now approximately 80 meters from the site |
| 32MZ2313 | MAC-BL-AK-27 | 148/99-10 | Prehistoric | Undetermined | Avoid | Neck down/fence |
| 32MZ2314 | MAC-BL-AK-30 | 150/97-18 | Prehistoric | Undetermined | Avoid | The centerline has been routed to the south; neck down and fence, monitor |
| 32MZ2315 | MAC-BL-AK-31 | 150/97-17 | Prehistoric | Undetermined | Avoid | The centerline has been routed to the north; neck down and fence, monitor |
| 32MZ2316 | MAC-BL-AK-32 | 150/97-13 | Prehistoric | Undetermined | Avoid | The centerline has been routed approximately 50 meters to the north; fence, monitor |
| 32MZ2317 | MAC-BL-ES-10 | 145/98-34 | Prehistoric | Undetermined | Avoid | Keep to the south of the 200 foot ROW; neck down and fence, monitor |
| 32MZx1181 | MAC-BL-AK-7 | 145/98-35 | IF | Not eligible | No further work | |
| 32MZx1182 | MAC-BL-AK-9 | 145/98-33 | IF | Not eligible | No further work | |
| 32MZx1183 | MAC-BL-AK-10 | 145/98-33 | IF | Not eligible | No further work | |
| 32MZx1184 | MAC-BL-AK-11 | 145/98-34 | IF | Not eligible | No further work | |
| 32MZx1185 | MAC-BL-AK-18 | 151/95-30 | IF | Not eligible | No further work | |
| 32MZx1186 | MAC-BL-AK-19 | 150/95-6 | IF | Not eligible | No further work | |
| 32MZx1187 | MAC-BL-AK-22 | 149/98-19 | IF | Not eligible | No further work | |
| 32MZx1188 | MAC-BL-AK-24 | 150/95-6 | IF | Not eligible | No further work | |
| 32MZx1189 | MAC-BL-AK-29 | 148/97-11 | IF | Not eligible | No further work | |
| 32MZx1190 | MAC-BL-AK-39 | 150/96-24 | IF | Not eligible | No further work | |
| 32MZx1191 | MAC-BL-AK-41 | 150/95-7 | IF | Not eligible | No further work | |
| 32MZx1192 | MAC-BL-AK-42 | 148/99-10 | IF | Not eligible | No further work | |
| 32SKx340 | MAC-BL-AK-1 | 140/99-30 | IF | Not eligible | No further work | |
| 32SKx341 | MAC-BL-ES-2 | 140/99-19 | IF | Not eligible | No further work | |
| 32WI132 | | 154/95-16 | Prehistoric | Undetermined | Avoid | Fence features, monitor |
| 32WI338 | | 154/95-16 | Prehistoric | Undetermined | Avoid | Neck down/fence feature, monitor |

**Table 4:** Recommendations for Cultural Resources Along the BakkenLink Pipeline

| SITS # | Temp # | Location | Site Type | NRHP Recommendation | Management Recommendation | Comments |
|---|---|---|---|---|---|---|
| 32WI1215 | MAC-BL-AK-13 | 155/95-29 | Historic | Not eligible | No further work | |
| 32WI1237 | MAC-BL-AK-12 | 155/95-12 | Prehistoric | Undetermined | Avoid | Rerouted-the centerline is now approximately 60 meters from the site |
| 32WI1238 | MAC-BL-AK-38 | 154/95-16 | Prehistoric | Undetermined | Avoid | 2 possible avoidance routes-see text; monitor |
| 32WI1239 | MAC-BL-AK-14 | 155/95-32 | Prehistoric | Undetermined | Avoid | Rerouted-the centerline is now approximately 100 meters from the site |
| 32WI1240 | MAC-BL-AK-33 | 155/97-7 | Historic | Not eligible | No further work | |
| 32WI1241 | MAC-BL-AK-34 | 155/97-7 | Prehistoric | Undetermined | Avoid | Rerouted-the centerline is now approximately 110 meters from the site |
| 32WI1242 | MAC-BL-AK-35 | 155/97-7 | Prehistoric | Undetermined | Avoid | Rerouted-the centerline is now approximately 50 meters from the site |
| 32WI1243 | MAC-BL-AK-36 | 155/95-17 | Prehistoric | Undetermined | Avoid | The site is at the edge of the survey ROW-neck down and fence; monitor |
| 32WI1244 | MAC-BL-AK-37 | 155/95-17 | Historic | Not eligible | No further work | |
| 32WI1245 | MAC-BL-AK-43 | 155/95-20 | Prehistoric | Undetermined | Avoid | Rerouted-the centerline is now approximately 30 meters from the site; fence the nearest features |
| 32WI1246 | MAC-BL-MK-1 | 154/95-16 | Prehistoric | Undetermined | Avoid | The site is at the edge of the survey ROW-fence |

**32MZ1461**

The undertaking crosses approximately 85 meters at the southern end of the site, adjacent to the Little Knife River. When revisited, MAC personnel investigated only a small portion of the site as the undertaking crosses only the extreme southern end of the site. MAC personnel observed approximately two dozen flakes within the undertaking area of potential effects (APE), including a concentration of approximately one dozen flakes along the centerline adjacent to the Little Knife River. No artifacts were observed in the banks of the river, but the banks were overgrown and lacked good visibility. MAC proposes to place 25 to 35 shovel probes and 2 to 3 1-x-1-meter units within the undertaking corridor which is 85 meters long and 60 meters wide within the site. The placement of the probes and units will emphasize evaluation of the resource within the 30 meter wide construction corridor. Generally, probes will be placed at 10 meter intervals across the APE. Location of the test units will be based on the results of the shovel probes.

**Monitoring**

A portion of the ROW covered by the reconnaissance survey crosses the floodplain of the Little Missouri River. Because of the possibility of deeply buried cultural deposits in this alluvial environment, we are recommending archaeological monitoring during construction of the pipeline in this stretch. Additionally we recommend monitoring during construction at the following sites: 32MZ2311, 32MZ2314, 32MZ2315, 32MZ2316, 32MZ2317, 32WI132, 32WI338, 32WI1238 and 32WI1243.

**Conclusion**

Provided the above areas are surveyed and the recommendations above are followed, we recommend a finding of *No Historic Properties Affected* for this undertaking as herein surveyed, mapped, and described.

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# Appendix A
# Project Maps