Exhibit BL-4

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC
BEAVER LODGE LOOP PROJECT
NORTH DAKOTA PSC CASE NO. PU-10-613

Class 3 Survey by KLJ re-routes

ADDENDUM TO THE BEAVER LODGE TO BERTHOLD PIPELINE: ADDITIONAL CLASS III CULTURAL RESOURCE INVENTORY AND LIMITED SITE TESTING IN MOUNTRAIL COUNTY, NORTH DAKOTA

Kadrmas, Lee and Jackson

January 2011

Cultural Resources

Kadrmas Lee & Jackson
Engineers Surveyors Planners

ADDENDUM TO THE BEAVER LODGE TO BERTHOLD PIPELINE: ADDITIONAL CLASS III CULTURAL RESOURCE INVENTORY AND LIMITED SITE TESTING IN MOUNTRAIL COUNTY, NORTH DAKOTA

NOTE: Per discussion with NDPSC and NDSHPO staff, specific locational data on cultural resource sites has been redacted from this filed report.

Prepared For:
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Report of Investigation: 1255 **January 2011**

MANUSCRIPT DATA RECORD FORM

1. Manuscript Number:
2. SHPO Reference #:
3. Author(s): Michael Shropshire, Duane Klinner, and Jennifer L. Harty
4. Title: Addendum to the Beaver Lodge to Berthold Pipeline: Additional Class III Cultural Resource Inventory and Limited Site Testing in Mountrail, County, North Dakota
5. Report Date: December 2010
6. Number of Pages: 62
7. Type I, T, E, O: I, T
8. Acres: 116 acres
9. Legal Location(s) with Historic Context Study Unit(s):

LEGAL DESCRIPTIONS INTENTIONALLY REMOVED

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ABSTRACT

Enbridge Pipelines (North Dakota) LLC, is evaluating a project to install a new pipeline system in Mountrail, Ward, and Williams Counties, North Dakota. Approximately 55 miles of new installation from Beaver Lodge to directly north of the town of Berthold, North Dakota, with two alternate routes, totaling approximately 2.7 miles, were inventoried in mid-2010. Upon completion of the fieldwork and submission of a report, it was determined that additional areas required inventory, and that four sites should undergo limited testing to aid in avoiding significant cultural deposits and features.

Between mid-September and early November, 2010, Kadrmas, Lee & Jackson conducted an intensive inventory on ten areas of additional pipeline route and tested sites 32MN460, 32MN843, 32MN845, and 32MN846. The inventoried areas include a 775' by 200' corridor, a 2,275' by 200' corridor, a 7,750' long corridor with a width of 300' to 1,025', a corridor measuring 1,040' by 1,500', and six small block areas totaling less than 1 acre each. A total of 115.6 acres was inventoried for the proposed undertaking.

No new cultural resources were encountered during the inventory. Previously recorded precontact site 32MN772, a location with four stone circles, has been documented within one of the inventoried areas. The site's features were not relocated during the fieldwork. It is recommended that a 50' wide buffer zone be established around the previously mapped site boundaries to aid in site avoidance in this area.

Sites 32MN460, 32MN843, and 32MN845 are precontact sites with stone features. Site 32MN846 is an historic site with a depression and rock alignment. A testing plan for the four sites was designed by Kadrmas, Lee, and Jackson and approved by the North Dakota State Historic Preservation Officer. The testing was undertaken to aid in avoidance of the surface visible features and any potentially significant buried cultural resources. No shovel test probes were excavated within any features. At sites 32MN460 and 32MN846, no cultural materials were recorded during site testing. At site 32MN843, two flakes were recovered. At site 32MN845, five flakes were recovered. No diagnostic artifacts or subsurface features were encountered during testing.

Kadrmas, Lee & Jackson recommends that no additional work is necessary at the inventoried areas, except that a buffer zone should be observed around the area of previously recorded site 32MN772. For the tested sites, Kadrmas, Lee, & Jackson recommends that the pipeline be allowed to proceed provided that no surface-visible features are impacted by construction or that previously inventoried reroute corridors are used. Provided these recommendations are followed, Kadrmas, Lee & Jackson recommends a finding of *No Historic Properties Affected* for the proposed undertaking.

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INTRODUCTION

In early- and mid-2010, Enbridge Pipelines (North Dakota), LLC contracted Kadrmas, Lee, & Jackson (KL&J) to conduct a cultural resource inventory for a proposed pipeline in Mountrail, Ward, and Williams Counties, North Dakota. Upon completion of the inventory and submission of a formal report to the North Dakota State Historic Preservation Officer (NDSHPO) and the lead agency, the Public Service Commission (PSC), it was determined that further inventory was necessary at ten locations, and that some impact within the recorded boundaries of four sites might be necessary during pipeline construction. These investigations included the inventory of ten areas along the previously inventoried pipeline, and the limited testing of one historic site and three precontact sites. Data corrected maps for the earlier inventory report (Klinner, et al. 2010) are included in Appendix C of this report.

All stages of fieldwork were conducted under the supervision of Jennifer L. Harty, Principal Investigator. Field personnel for the inventory included Michael Shropshire, Brian Houle, and Ray Pysarsky, with the inventory being conducted on November 1, 2, and 3, 2010. The surveyed areas varied from 60' to 7,750' in length and from 50' to 1,400' in width, with a total of 115.6 acres being inventoried (Table 1 and Figures 1, 3, and 4).

Field personnel for the site testing included Michael Shropshire, Brian Houle, and Ian Randall. The testing program was conducted between September 20 and October 1, and October 11 and October 14, 2010. The sites included one historic site and three precontact sites (Table 2 and Figures 2, 3, 4, and 5).

No new cultural resources were encountered during the inventory. One previously recorded precontact site, 32MN772, has been recorded within newly inventoried Area 3. The site was not encountered during fieldwork.

The testing program resulted in the recovery of seven non-diagnostic artifacts from two of the sites, with no subsurface features being encountered. A detailed discussion of the results of the inventory and site testing are included in the *Class III Cultural Resource Inventory* and *Limited Testing of Four Sites* sections of this document.

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ENVIRONMENTAL SETTING

The entirety of the project area is located within the Garrison Study Unit (#6) and Souris River Study Unit (#11). The general and localized descriptions of the environmental setting of the project were fully discussed in Klinner, et al. (2010).

RESEARCH GOALS/EVALUATION OF RESEARCH

Following the mandated policies implementing the National Historic Preservation Act (NHPA [Public Law 89-665]), as amended, this proposed project was investigated to identify any historic properties within the area of potential effect (APE). An additional goal was to allow Enbridge to plan the proposed undertaking to avoid any historic properties and, if not possible, to test, evaluate, and if necessary, mitigate any adverse effects to historic properties within the proposed project area prior to construction.

The goal of the cultural resource investigations has been achieved. No previously undocumented cultural resources were identified within the APE. One previously documented precontact site, 32MN772, has been recorded within inventoried Area 3. The site was not encountered during fieldwork. As the previously documented site boundary is known, the previously defined site area can be avoided by use of a 50' buffer zone around the site area.

Testing of the areas outside of recorded features at the four sites did not result in the recovery of any significant data. Further, the methods used during the inventory to identify previously undocumented cultural resources, greatly reduces the possibility of an inadvertent discovery.

CLASS III CULTURAL RESOURCE INVENTORY

A Class III Intensive Cultural Resources Inventory is an intensive, systematic, detailed field inspection done by, or under the direction/supervision of professional architectural historians, historians, archaeologists, and/or other appropriate specialists. The goal of this inventory effort is to make systematic efforts to identify all historic properties within the Area APE that might qualify for the NRHP and/or the North Dakota State Historic Sites Registry and to record information sufficient to enable their evaluation or to indicate what further work is necessary to accomplish their evaluation (SHSND 2006:15).

Inventory Field Methods/Conditions

The APE for the proposed undertaking is limited to the footprint of the project. Because the pipeline will be buried with only minor above ground appurtenances (posted notices of buried pipe at road crossings, etc.), the visual impacts of the project are greatly limited following installation and reclamation of the landscape. While the standard installation corridor for similar pipelines is approximately 150-feet, KL&J inventoried four corridors ranging from 200' to 1,040' in order to allow for avoidance of cultural resources identified within the corridors by rerouting the centerline within the inventoried corridors. The four areas included a 775' by

200' corridor, a 2,275' by 200' corridor, a 7,750' long corridor with a width of 300' to 1,025', and a corridor measuring 1,040' by 1,500'. Additionally, six smaller areas totaling less than 1 acre each were inventoried.

KL&J conducted a Class III Intensive Cultural Resource Inventory for the proposed undertaking. Transects were spaced no more than 20 m apart to cover the width of the each project corridor. Visibility along the corridor was highly variable, as the corridor consists of some areas of tilled farmland and others of native prairie (Figures 24 through 29 in Appendix A). Overall, visibility was good, averaging 35%. In areas with good deposition, rodent burrows, blowouts, and other areas with exposed subsurface deposits were closely scrutinized for cultural materials.

Results of the Inventory

No newly documented cultural resources were encountered during inventory. One previously documented site has been mapped within inventoried Area 3. The site is *unevaluated* for inclusion in the NRHP. The following discussion addresses the site in detail.

Previously Documented Site 32MN772

Site 32MN772 consists of four stone circles originally recorded during a pipeline inventory in 2008 (Stine 2008). The site is located on a terrace overlooking the Little Knife River to the east (Figure 6). All of the stone circles were well-sodded, with the stones being of locally available granitic rocks. The features vary from 3.5 m to 4.5 m in diameter. No cultural materials beyond the stone circles were encountered during the original recording.

Stine (2008) recorded that the site was relatively undisturbed, with a high degree of integrity. The site is *unevaluated* for the NRHP and should be avoided

The site was not relocated during the current project. The site boundary, however, is known from the maps provided in the original site form. The GPS readings from the original site form were used to locate the reported center point of the site area. After arriving at this GPS location, the surveyors walked parallel transects with a spacing of 10 m over a 100 m by 100 m area in an attempt to relocate the site's stone features. No features were encountered.

The site should be avoided by the proposed undertaking. To aid in avoidance, it is recommended that a 50' buffer zone be established around the previously mapped site boundary, with no construction activities to occur within this zone (Figure 6). In the event that the site cannot be avoided, it should be tested for NRHP eligibility.

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LIMITED TESTING OF FOUR SITES

Limited testing was conducted at sites 32MN460, 32MN843, 32MN845, and 32MN846 in Mountrail County, North Dakota in September and October, 2010. The testing followed the Testing Plan designed by KL&J, and approved by the NDSHPO (Harty 2010). The testing was undertaken to establish a usable corridor through which the proposed pipeline may pass without adversely affecting the existing cultural properties.

The testing program was designed as a phased approach which would allow for seamless integration of information from previous phases into the decision making process in subsequent phases.

General Field Procedures for Testing

Excavation and recovery methods utilized standards set-forth in the North Dakota Department of Transportation Standards for Test Excavation of Archaeological Sites, and the North Dakota State Historic Preservation Office Guidelines.

Fieldwork consisted of relocating each site, conducting a surface examination of each site area, setting up and excavating shovel tests, and mapping each site's boundaries and features using a Trimble GPS unit with sub-meter accuracy.

The surface examination at each site was conducted in an attempt to identify all surface-visible cultural materials and features. For any artifacts noted on the site surface, only stone tools and specimens manufactured from exotic materials were to be collected. Surface examinations of site areas generally aid in identifying the horizontal extents of artifact deposits, locating artifact concentrations, and identifying cultural features or remnants of such features. The identification of surface-visible artifacts and/or features can also assist in determining locations for shovel test probes and/or formal 1 m by 1 m test excavation units.

A grid system, aligned east-west and set at 10 m intervals, was placed at each tested site. The metric coordinate system was used in order to facilitate site mapping, delineate site boundaries, identify locations of physical features, and to precisely record the locations of shovel test units and, if needed, test excavation units.

Systematic shovel test probing was accomplished by hand. The average diameter of each probe was 30 cm. Each shovel test probe (STP) was excavated down to pre-Holocene-aged soils or dense concentrations of large rocks. Probing was used as it supplies a means of acquiring information on horizontal artifact distributions, site limits, soil depth and composition, and the potential for undisturbed cultural deposits. The probing also aids in evaluating whether formal 1 m by 1 m test excavation units would be required to collect more information at a site or within specific areas of a site.

Upon completion of each STP, a profile was drawn of the walls. The profile included information on the encountered stratigraphic levels, depth of the levels, and total depth of the STP. The matrix from each STP was dry screened on-site through ¼" mesh.

A field catalog was used to assign separate field catalog numbers to each individual provenience unit defined in the field. These units consisted of each individual STP. The numbers served to label and track materials while in the field, and formed the basis of the laboratory cataloging system.

Upon completion of subsurface testing at each site, the sites were photographed, materials recovered were bagged. The final fieldwork task at each site consisted of backfilling all STP locations and reexamining the site area to ensure that all surface-visible features had been identified during the initial surface examination.

Laboratory Procedures for Testing

Materials recovered from the sites were processed at the KL&J laboratory in Bismarck, North Dakota. All materials recovered during testing were size graded, sorted for cultural materials, and quantified.

Size grading was accomplished using hand-shaken wire mesh screens. Size grading results in a set of standard sized lots of material from each excavated provenience and provides a convenient cutoff point for sorting recovered materials. Three different size grades (SG1, SG2, and SG3) were used for the ¼" dry screened STP samples. SG1 included any material over 25 mm in size. SG2 included any materials less than 25 mm in size, but greater than 12.5 mm. SG3 included any materials less than 12.5 mm in size, but greater than 5.6 mm in size. Materials under 5.6 mm in size were listed as residue and were not used as analytic samples or retained in the site collections.

After size grading, the materials were sorted by natural and cultural classes. All nature materials were discarded. The recovered cultural materials were separated by artifact and material type, quantified, and rebagged.

Quantification involved the recording of counts and weights for all items in all artifact types by material type and size grade. Standard forms were used to record this information. Recovered cultural materials consisted exclusively of chipped stone flaking debris. The paucity of recovered flaking debris precluded conducting mass analysis. All artifacts were retained for inclusion in the permanent site collections.

Site 32MN460

Background and Description

Site 32MN460 was originally recorded as a location with four stone circles (Oliver 1990), and updated in 2008 (Stine 2008). The site was also revisited in 2010 (Klinner, et al. 2010). No features were encountered during the latter revisit.

The site is located on the edge of a ridge overlooking the Little Knife River valley. The ridge is covered with glacial cobbles, and an oil development facility is located to the northwest. No cultural materials were encountered during the previous recordings of the site.

Testing Procedures and Results of Fieldwork

The previously recorded features were not relocated during the current project. The site boundary, however, is known from the maps provided in the original site form. The GPS readings from the original site form were used to locate the reported center point of the site area. After arriving at this GPS location, the surveyors walked parallel transects with a spacing of 10 m over a 100 m by 100 m area in an attempt to relocate the site's stone features. None were encountered. It is possible that the site was previously plotted incorrectly or that the stone circles have been eradicated since the original recording. The area selected for probing was based upon the site boundaries as mapped in the original site form (Figure 7). This location has a slight rise near its center.

A total of 11 STPs were excavated at or very near the previously recorded site location (Figures 8, 9, 10, and 11, and Table 5 in Appendix B). The probes were placed along east-to-west grid lines, and set 10 m apart in each line.

The probes varied from 15 to 40 cmbs (cm below ground surface). Gravels and/or large rocks were generally found throughout each probe location. Excavation of each STP ended once dense gravels or, in most cases, large rocks were encountered.

Soils in the upper 8 cm to 15 cm of all of the probes consisted of very dark brown silty loam. Below the silty loam, a layer of dark brown silty loam was encountered in all probes except STP 5 and STP 6. These two locations contained a dense distribution of large rock which prohibited further excavation below 10 cmbs for STP 5 and 15 cmbs for STP 6.

Overall, the soil deposition remains stable across the site. No major changes in depth to pre-Holocene deposits occurs in the south and north line of STPs. The depth to pre-Holocene deposits is generally lower in the southwest and west-central portion of the site area. In these areas, rocks were encountered at 10 to 18 cmbs. The other areas of the probed location averaged 26 cmbs to rock.

No cultural materials were encountered during the surface examine of the site area or from the testing program. Based upon the lack of cultural materials, and the poor and thin soil development at the site, it is recommended that there is little potential for intact cultural resources in or adjacent to the investigated and tested area. It is also recommended that the proposed pipeline be allowed to cross through the tested area, provided that the area where the four features were originally recorded is avoided. To aid in avoidance it is recommended that the original site boundary, with a 50' buffer zone, be fenced, with no construction activities occurring within the fenced area.

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Site 32MN843

Background and Description

Site MN843 is comprised of 13 stone circles and four cairns on the tops and slopes and valley of several small ridges. A slough is located to the east, and several sloughs are located to the south. The vegetation in the area includes native and introduced grasses. The site was originally recorded in 2010 (Klinner, et al. 2010).

The stone circles range from 2 m to 5.5 m in diameter and are comprised of from 10 to 49 stones with moderate depth. The features are all circular in shape, with five being full circles, five being ¾ circles, two being 1/2 circles, and one having poor definition.

The cairns are all .5 m in diameter and comprised of four to eight cobble stones. All are collapsed, with three having moderate definition, and the fourth having poor definition. The cairns are spaced between 2 m and 3.3 m apart.

This site retains good integrity, but has been impacted by vehicle traffic. Some of the features may have stones displaced; however, most features remain well defined.

Testing Procedures and Results of Fieldwork

The site is basically unchanged from the previous recording. Most features were easily identifiable.

A total of 64 STPs were excavated at the site (Figures 12, 13, 14, and 15, and Table 6 in Appendix B). The probes were placed along grid lines and set 10 m apart in each line. The probes varied from 35 to 65 cmbs. Gravels and/or large rocks were generally found throughout each probe location. Excavation of each probe ended once dense gravels or, in most cases, large rocks were encountered.

Soils in the upper horizon varied from dark brown to black sandy and silty loam over the tested area, with the black soils mostly located in the eastern portion of the site area overlooking a small slough. Below the upper horizon, soils generally changed to a higher concentration of sand mixed with loam. Also mixed in with this horizon were gravels and larger rocks. The lower portions of the probes generally contained clay, gravels, or large rock.

Two flakes were recovered from 20 to 30 cmbs in STP F1 (Table 3). Both flakes are of locally obtainable Knife River flint. Neither flake displays evidence of use wear. The SG2 flake is a primary reduction flake. The SG3 flake is a secondary thinning flake.

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Approximately 2.26 cubic meters of soil were excavated and screened on-site at site 32MN843. The recovery of two artifacts from the 64 STPs suggests a general distribution of one artifact per 1.13 cubic meters in the tested area. The distribution and density of artifacts, and lack of faunal remains, charcoal, burned or fire-cracked rock, and stone tools at the site indicates that the overall precontact use of the tested area of the site may have been restricted to a short duration for limited activities.

Based upon the paucity of cultural materials recovered from the STPs, and the poor and thin soil development at the site, it is recommended that there is little potential for intact cultural resources in and along the tested area. It is also recommended that the proposed pipeline be allowed to cross through the defined site area provided that all features are avoided. To aid in avoidance it is recommended that a fence be placed around the stone features at the site, with no construction activities occurring within the fenced area. Avoidance of the site area can also be accomplished by use of the previously inventoried reroute corridor (Figures 13 and 14) (Klinner, et al. 2010).

Table 3. Recovered Cultural Material for Site 32MN843.

Provenience	Depth	Artifact Type	Size Grade	Material Type	Count	Weight (g)
STP F1	20 – 30 cmbs	Flake	SG2	Knife River flint	1	3.0
STP F1	20 – 30 cmbs	Flake	SG3	Knife River flint	1	0.7
Totals					**2**	**3.7**

Site 32MN845

Background and Description

Site 32MN845 is comprised of 19 stone circles and eight cairns extending over several small ridges situated on top of a steep bluff overlooking a small lake to the south. The site was originally recorded in 2010 (Klinner, et al. 2010). It is bisected by a deep drainage. Vegetation in the area consists of native and introduced grasses and the ground surface visibility at the time of inventory was 5 to 15%. Deposition in the area is thin as observed in eroded areas. No artifacts were encountered at the site during the original recording.

The stone circles range in size from 2 m to 6 m in diameter. All are circular with good definition, and all except one are full circles. Most of these features have 10 to 19 exposed stones and several have 20 to 29 stones. Most were deeply sodded, and two of the stone circles have depressions in the center and one has a concentric inner ring parallel to the outer ring.

The cairns vary in size from .5 m to 1.5 m in diameter, with some having four stones visible, and the largest having 12 stones. All of the cairns are circular in shape with good definition. The cairns are primarily located in the center area of the site boundaries, with several being within 3 m of stone circles, and one being located approximately 27 m to the northeast of the nearest stone circle.

Testing Procedures and Results of Fieldwork

The site is basically unchanged from the previous recording. Most features were easily identifiable. A drainage separates the eastern one-third of the site from the western portion, and several smaller seasonal drainages also bisect the site area. A large gravel extraction area is located directly to the east of the site area. The extraction area was examined, with no knappable gravels or lithic artifacts encountered.

A total of 183 STPs were excavated at the site (Figures 16, 17, 18, and 19, and Table 7 in Appendix B). The probes were placed along grid lines closely aligned with the centerline of the project corridor and spaced 10 m apart.

The probes varied from 2 to 72 cmbs, with soils in the northeast and northwest portions of the site generally being the most thin. The upper horizon varied from silty loam to sand mixed with loam. Adjacent probes often had highly different soil coloration, primarily due to the level of sand and silt mixed into the loam. In a few locations, such as STP M6, STP M7, and STP M8, silty loam was found throughout the probes. In other locations, specifically STP E7, STP H11, STP H13, STP I13, and STP K9, dense gravels and/or large rocks were encountered at less than 10 cmbs.

Five flakes were recovered from five of the 183 STPs (Table 4). The flakes include two fine grained quartzite flakes and three Knife River flint flakes. The material types are both locally available. One of the quartzite and one of the Knife River flint flakes are primary reduction specimens. The other three artifacts are secondary reduction flakes. None of the flake displays evidence of use wear.

Table 4. Recovered Cultural Material for Site 32MN845.

Provenience	Depth	Artifact Type	Size Grade	Material Type	Count	Weight (g)
STP C9	0 – 40 cmbs	Flake	SG1	Fine grained quartzite	1	8.1
STP C9:S1	0 – 20 cmbs	Flake	SG3	Knife River flint	1	0.2
STP C9:W1	0 – 20 cmbs	Flake	SG3	Knife River flint	1	0.2
STP D17	0 – 20 cmbs	Flake	SG3	Fine grained quartzite	1	0.8
STP E17	0 – 20 cmbs	Flake	SG2	Knife River flint	1	2.8
Totals					**5**	**12.1**

Approximately 4.78 cubic meters of soil were excavated and screened on-site at site 32MN845. The recovery of five artifacts from the 183 STPs suggests a general distribution of one artifact per 0.96 cubic meters in the tested area. The distribution and density of artifacts, and lack of faunal remains, charcoal, burned or fire-cracked rock, and stone tools at the site indicates that the overall precontact use of the tested area of the site may have been restricted to a short duration for limited activities.

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Based upon the paucity of cultural materials recovered from the probes (one flake from each of five STP locations), and generally poor soil development at the site, it is recommended that there is little potential for intact cultural resources in and along the tested area. It is also recommended that the proposed pipeline be allowed to cross through the tested area of the site, provided that the recorded features are avoided. Avoidance can be aided by placing fencing along the stone features of the site and restricting construction activities to the area outside the fencing. Avoidance of the site area can also be accomplished by use of the previously inventoried reroute corridor (Figures 18 and 19) (Klinner, et al. 2010).

Site 32MN846

Background and Description

Site 32MN846 is an historic depression and rock alignment that sits on the top and north slope of a small hill in a grassy field. The site was originally recorded in 2010 (Klinner, et al. 2010). No historic or precontact artifacts were encountered at the site during the original recording. Although it is possible that this feature is prehistoric in origin, the overall appearance of the feature suggests that it is of historic origin.

The rock alignment measures approximately 3.5 m on each side, with curved corners and a shallow depression in its center. The feature may have been used as a small foundation or to form a boundary around a now filled-in well. The rocks have little sodding, with most lying on the ground surface. Although it is possible that this feature is prehistoric in origin, the overall appearance of the feature suggests that it is of historic origin.

The depression is located to the southeast of the rock alignment. The feature measures approximately 3.5 m in diameter and is shallow.

The site is surrounded by rolling grassland in all directions with agricultural fields further to the north and south. The vegetation includes mostly native grasses and the ground surface visibility at the time of inventory was 5% due to the depth of the grass. No artifacts were encountered at the site.

Testing Procedures and Results of Fieldwork

The site is basically unchanged from the previous recording. Most features were easily identifiable.

A total of 11 probes were excavated at the site (Figures 20, 21, 22, and 23, and Table 8 in Appendix B). The probes were placed along grid lines and set 10 m apart in each line. The probes varied from 30 to 62 cmbs, with an average of 45.8 cmbs. Clay or large rock was encountered at the bottom of each STP. No cultural materials were recovered during the limited site testing program.

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Soils in the upper 12 cm to 17 cm of the probes was very dark brown silty loam in 10 of the STPs. The upper soils in STP 1 was of a dark brown coloration. Below the silty loam, the soils changed to a clayish loam with some gravels. Under this layer, clay or large rocks were encountered.

No cultural materials were encountered during the surface examine of the site area or from the testing program. Based upon the lack of cultural materials, and the poor and thin soil development at the site, it is recommended that there is little potential for intact cultural resources in or adjacent to the investigated and tested area. It is also recommended that the proposed pipeline be allowed to cross through the tested area, provided that the recorded features are avoided. Avoidance can be aided by the use of fencing around the recorded features at the site, with construction activities restricted to the area outside the fencing. Avoidance of the site area can also be accomplished by use of the previously inventoried reroute corridor (Figures 22 and 23) (Klinner, et al. 2010).

SUMMARY AND MANAGEMENT RECOMMENDATIONS

KL&J have completed a Class III Cultural Resource Inventory and limited site testing for a proposed pipeline installation. The main pipeline route was previously inventoried in 2010 (Klinner, et al. 2010). The investigations were completed at the behest of Merjent, on behalf of Enbridge. Four corridors measuring from 775' to 7,750' in length and 200' to 1,040' in width and six smaller areas of less than 1 acre each were inventoried to Class III standards.

During the course of the inventory, no previously undocumented cultural resources were encountered. One previously documented site has, however, been recorded in the project area. The site, 32MN772, is a precontact site with four recorded stone circles. The site was not encountered during the inventory.

Tested sites consisted of 32MN460, 32MN843, 32MN845, and 32MN846. Site 32MN846 is a historic site, and the other three are precontact stone feature sites. Testing followed the Testing Plan as designed by KL&J and Enbridge, and approved by the NDSHPO. The testing was undertaken to aid in avoidance of the surface visible features and any potentially significant buried cultural resources.

No probes were excavated within any features in the sites. No cultural materials or subsurface features were encountered during testing at sites 32MN460 and 32MN846. At sites 32MN843 and 32MN845, several pieces of flaking debris were recovered.

KL&J recommends that no additional work is necessary at the inventoried areas, except that a 50' wide buffer zone should be observed around the area of previously recorded site 32MN772. For the tested sites, KL&J recommends that the pipeline be allowed to proceed provided that no surface-visible features are impacted by construction. To aid in avoidance, KL&J recommends the following measures:

1. The reroute corridors previously inventoried near sites 32MN843, 32MN845, and 32MN846 be utilized if feasible for the project (Klinner, et al. 2010).

2. Narrowing of the construction corridor at the sites so that stone features are avoided by a minimum of 50′ during construction.

3. Micro-aligning the pipeline route so that stone features are avoided by a minimum of 50′.

4. That prior to construction, a professional archaeologist place protective fencing that provides a 50′ buffer zone around stone features.

5. Depending on field conditions, proximity of construction to stone features, and SHPO consultations, monitoring by a professional archaeologist occur during construction, if indicated.

Provided these recommendations are followed, KL&J recommends a finding of *No Historic Properties Affected* for the proposed undertaking.

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APPENDIX A: PROJECT AREA PHOTOGRAPHS

Figure 27: Overview of the landscape of inventoried Area 1, view to the west.

Figure 28: Overview of the landscape of inventoried Area 2, view to the east.

Figure 29: Overview of the landscape of inventoried Areas 3 and 4, view to the west.

Figure 30: Overview of the landscape of inventoried Areas 3 and 4, view to the east.

Figure 31: Overview of the landscape of inventoried Areas 3 and 4, view to the east.

Figure 32: Overview of the landscape of inventoried Areas 3 and 4, view to the north.

APPENDIX B: SHOVEL TEST PROBE SPECIFICATIONS

Table 5. Shovel Test Probe Specifications for Site 32MN460.			
Provenience	**Total Depth**	**Notes**	**Cultural Material**
STP 1	40 cmbs	Large rocks throughout STP	None
STP 2	21 cmbs	Dense gravels throughout STP	None
STP 3	40 cmbs	Dense gravels throughout STP	None
STP 4	32 cmbs	Moderate amount of gravels throughout STP	None
STP 5	10 cmbs	Large rocks at bottom of STP	None
STP 6	15 cmbs	Large rocks at bottom of STP	None
STP 7	24 cmbs	Large rocks in lower level	None
STP 8	28 cmbs	Large rocks in lower level	None
STP 9	40 cmbs	Dense gravels throughout STP	None
STP 10	25 cmbs	Large rocks in lower level	None
STP 11	30 cmbs	Large gravels through STP	None

Table 6. Shovel Test Probe Specifications for Site 32MN843.			
Provenience	**Total Depth**	**Notes**	**Cultural Material**
STP A1	56 cmbs	Large rocks at 51 cmbs	None
STP A2	33 cmbs	Large rocks at 33 cmbs	None
STP A3	28 cmbs	Large rocks at 28 cmbs	None
STP A4	45 cmbs	Large rocks at 45 cmbs	None
STP A5	56 cmbs	Dense gravels at 56 cmbs	None
STP A6	42 cmbs	Large rocks at 42 cmbs	None
STP A7	60 cmbs	Dense gravels at 60 cmbs	None
STP A8	61 cmbs	Large rocks at 61 cmbs	None
STP A9	46 cmbs	Large rocks at 46 cmbs	None
STP A10	45 cmbs	Larger rocks at 45 cmbs	None
STP TS 12	38 cmbs	Dense gravels at 38 cmbs	None
STP B1	50 cmbs	Clay and gravels at 50 cmbs	None
STP B2	40 cmbs	Clay and gravels at 40 cmbs	None
STP B3	45 cmbs	Clay and gravels at 45 cmbs	None
STP B4	43 cmbs	Clay and gravels at 43 cmbs	None
STP B5	50 cmbs	Clay and gravels at 50 cmbs	None
STP B6	45 cmbs	Clay and gravels at 45 cmbs	None
STP B7	42 cmbs	Clay at 42 cmbs	None
STP B8	50 cmbs	Clay at 50 cmbs	None
STP B9	50 cmbs	Sandy loam at 50 cmbs	None
STP B10	44 cmbs	Sandy loam at 44 cmbs	None
STP B11	50 cmbs	Clay at 50 cmbs	None
STP C1	53 cmbs	Clay at 53 cmbs	None
STP C2	44 cmbs	Clay at 44 cmbs	None
STP C3	66 cmbs	Clay and gravel mix at 66 cmbs	None
STP C4	31 cmbs	Dense gravels at 31 cmbs	None
STP C5	71 cmbs		None
STP C6	56 cmbs	Dense gravels at 56 cmbs	None
STP D1	25 cmbs	Clay at 25 cmbs	None
STP D2	60 cmbs	Silty loam with gravels at 60 cmbs	None
STP D3	40 cmbs	Silty loam with gravels at 40 cmbs	None
STP D4	42 cmbs	Clay at 42 cmbs	None
STP D5	40 cmbs	Clay at 40 cmbs	None
STP D6	50 cmbs	Clay at 50 cmbs	None
STP E1	55 cmbs	Clay at 55 cmbs	None
STP E2	57 cmbs	Dense gravels at 57 cmbs	None
STP E4	66 cmbs	Clay at 66 cmbs	None
STP E6	39 cmbs	Clay at 39 cmbs	None
STP F1	55 cmbs	Clay at 55 cmbs	Two flakes recovered between 20 and 30 cmbs
STP F1:E1	51 cmbs	Clay at 51 cmbs	None
STP F1:E2	46 cmbs	Clay at 46 cmbs	None
STP F1:N1	48 cmbs	Clay at 48 cmbs	None
STP F1:S1	62 cmbs	Clay at 62 cmbs	None
STP F1:S2	58 cmbs	Clay at 58 cmbs	None
STP F1:W1	59 cmbs	Clay at 59 cmbs	None
STP F1:W2	45 cmbs	Clay at 45 cmbs	None
STP F1:W3	47 cmbs	Clay at 47 cmbs	None
STP F1:W4	51 cmbs	Gravels at 51 cmbs	None

Table 6. Shovel Test Probe Specifications for Site 32MN843.			
Provenience	**Total Depth**	**Notes**	**Cultural Material**
STP F3	48 cmbs	Clay at 48 cmbs	None
STP F4	55 Cmbs	Sand at 55 cmbs	None
STP F5	51 cmbs	Sand at 51 cmbs	None
STP F6	48 cmbs	Sand at 48 cmbs	None
STP H1	49 cmbs	Clay at 49 cmbs	None
STP H2	54 cmbs	Clay and dense gravels at 54 cmbs	None
STP H3	58 cmbs	Sand at 58 cmbs	None
STP H4	63 cmbs	Clay at 63 cmbs	None
STP H5	45 cmbs	Clay at 45 cmbs	None
STP H6	55 cmbs	Clay at 55 cmbs	None
STP H7	52 cmbs	Clay and gravels at 52 cmbs	None
STP J1	63 cmbs	Dense gravels at 63 cmbs	None
STP J2	56 cmbs	Dense gravels at 56 cmbs	None
STP J3	55 cmbs	Dense gravels at 55 cmbs	None
STP J4	63 cmbs	Dense gravels at 63 cmbs	None
STP J5	62 cmbs	Gravels at 62 cmbs	None

Table 7. Shovel Test Probe Specifications for Site 32MN845.			
Provenience	**Total Depth**	**Notes**	**Cultural Material**
STP A1	55 cmbs	Dense gravels at bottom of STP	None
STP A2	22 cmbs	Dense gravels at bottom of STP	None
STP A3	18 cmbs	Dense gravels at bottom of STP	None
STP A4	25 cmbs	Dense gravels at bottom of STP	None
STP B1	10 cmbs	Dense gravels at bottom of STP	None
STP B2	20 cmbs	Dense gravels at bottom of STP	None
STP B3	10 cmbs	Dense gravels at bottom of STP	None
STP B4	46 cmbs	Dense gravels at bottom of STP	None
STP C1	50 cmbs	Sand in lower 12 cm of STP	None
STP C2	22 cmbs	Dense gravels at bottom of STP	None
STP C3	28 cmbs	Dense gravels at bottom of STP	None
STP C4	24 cmbs	Dense gravels at bottom of STP	None
STP C5	61 cmbs	Dense gravels at bottom of STP	None
STP C6	32 cmbs	Dense gravels at bottom of STP	None
STP C7	65 cmbs	Dense gravels at bottom of STP	None
STP C8	41 cmbs	Dense gravels at bottom of STP	None
STP C9	72 cmbs	Placed in drainage, sand in lower 12 cm of STP	One flake recovered between 0 and 40 cmbs
STP C9:E1	53 cmbs	Dense gravels at bottom of STP	None
STP C9:S1	28 cmbs	Dense gravels at bottom of STP	One flake recovered between 0 and 20 cmbs
STP C9:S2	48 cmbs	Dense gravels at bottom of STP	None
STP C9:S3	45 cmbs	Dense gravels at bottom of STP	None
STP C9:N1	64 cmbs	Dense gravels at bottom of STP	None
STP C9:W1	53 cmbs	Dense gravels at bottom of STP	One flake recovered between 0 and 20 cmbs
STP C9:W4	18 cmbs	Dense gravels at bottom of STP	None
STP C10	48 cmbs	Dense gravels at bottom of STP	None
STP C11	45 cmbs	Dense gravels at bottom of STP	None
STP C12	28 cmbs	Large rocks at bottom of STP	None
STP C13	51 cmbs	Dense gravels at bottom of STP	None
STP C14	36 cmbs	Large rocks at bottom of STP	None
STP C15	33 cmbs	Large rocks at bottom of STP	None
STP C16	41 cmbs	Large rocks at bottom of STP	None
STP C17	49 cmbs	Dense gravels at bottom of STP	None
STP D1	10 cmbs	Dense gravels at bottom of STP	None
STP D2	20 cmbs	Dense gravels at bottom of STP	None
STP D3	46 cmbs	Clay at bottom of STP	None
STP D4	42 cmbs	Clay at bottom of STP	None
STP D5	34 cmbs	Large rocks at bottom of STP	None
STP D6	34 cmbs	Sand throughout STP	None
STP D7	42 cmbs	Sand in lower 6 cm of STP	None
STP D8	38 cmbs	Sand in lower 12 cm of STP	None
STP D9	45 cmbs	Sand in lower 24 cm of STP	None
STP D10	39 cmbs	Sand in lower 16 cm of STP	None
STP D11	43 cmbs	Sand in lower portion of STP	None
STP D12	41 cmbs	Sand in lower 10 cm of STP	None
STP D13	39 cmbs	Sand in lower 9 cm of STP	None
STP D14	40 cmbs	Sand in lower portion of STP	None
STP D15	39 cmbs	Clay in lower 8 cm of STP	None

Table 7. Shovel Test Probe Specifications for Site 32MN845.			
Provenience	**Total Depth**	**Notes**	**Cultural Material**
STP D16	40 cmbs	Clay in lower portion of STP	None
STP D17	39 cmbs	Placed in drainage, sand in lower portion of STP,	One flake recovered between 0 and 20 cmbs
STP D18	39 cmbs	Gravels in lower portion of STP	None
STP D17:E1	38 cmbs	Clay at bottom of STP	None
STP D17:S1	40 cmbs	Clay at bottom of STP	None
STP D17:W1	38 cmbs	Dense gravels at bottom of STP	None
STP D18	39 cmbs	Gravels at bottom of STP	None
STP E2	31 cmbs	Dense gravels at bottom of STP	None
STP E3	27 cmbs	Large rocks at bottom of STP	None
STP E4	13 cmbs	Dense gravels at bottom of STP	None
STP E5	39 cmbs	Dense gravels at bottom of STP	None
STP E6	32 cmbs	Dense gravels at bottom of STP	None
STP E7	7 cmbs	Dense gravels at bottom of STP	None
STP E8	17 cmbs	Dense gravels at bottom of STP	None
STP E9	45 cmbs	Dense gravels at bottom of STP	None
STP E10	45 cmbs	Dense gravels at bottom of STP	None
STP E11	50 cmbs	Dense gravels at bottom of STP	None
STP E12	50 cmbs	Dense gravels at bottom of STP	None
STP E13	50 cmbs	Sparse gravels throughout STP	None
STP E14	40 cmbs	Clay at bottom of STP	None
STP E15	53 cmbs	Clay at bottom of STP	None
STP E16	50 cmbs	Clay at bottom of STP	None
STP E17	50 cmbs	Clay in lower portion of STP	One flake recovered between 0 and 20 cmbs
STP E17:E1	40 cmbs	Clay at bottom of STP	None
STP E17:E2	40 cmbs	Clay at bottom of STP	None
STP E17:N3	44 cmbs	Dense gravels at bottom of STP	None
STP E17:N4	42 cmbs	Dense gravels at bottom of STP	None
STP E17:S1	40 cmbs	Clay at bottom of STP	None
STP E17:W1	45 cmbs	Clay at bottom of STP	None
STP F3	52 cmbs	Sand at bottom of STP	None
STP F4	54 cmbs	Sand at bottom of STP	None
STP F5	58 cmbs	Sand in lower 6 to 15 cm of STP	None
STP F6	40 cmbs	Dense gravels at bottom of STP	None
STP F7	38 cmbs	Dense gravels at bottom of STP	None
STP F8	19 cmbs	Dense gravels at bottom of STP	None
STP F9	62 cmbs	Dense gravels at bottom of STP	None
STP F10	51 cmbs	Dense gravels at bottom of STP	None
STP F11	46 cmbs	Dense gravels at bottom of STP	None
STP F12	54 cmbs	Dense gravels at bottom of STP	None
STP F13	48 cmbs	Dense gravels at bottom of STP	None
STP F14	25 cmbs	Dense gravels at bottom of STP	None
STP F15	41 cmbs	Dense gravels at bottom of STP	None
STP F16	50 cmbs	Dense gravels at bottom of STP	None
STP F17	47 cmbs	Dense gravels at bottom of STP	None
STP G4	33 cmbs	Dense gravels at bottom of STP	None
STP G5	30 cmbs	Dense gravels at bottom of STP	None
STP G6	38 cmbs	Dense gravels at bottom of STP	None

Table 7. Shovel Test Probe Specifications for Site 32MN845.			
Provenience	**Total Depth**	**Notes**	**Cultural Material**
STP G7	38 cmbs	Dense gravels at bottom of STP	None
STP G8	40 cmbs	Dense gravels at bottom of STP	None
STP G9	43 cmbs	Dense gravels at bottom of STP	None
STP G10	13 cmbs	Dense gravels at bottom of STP	None
STP G11	30 cmbs	Dense gravels at bottom of STP	None
STP G12	33 cmbs	Dense gravels at bottom of STP	None
STP G13	40 cmbs	Dense gravels at bottom of STP	None
STP H5	35 cmbs	Dense gravels at bottom of STP	None
STP H6	40 cmbs	Dense gravels at bottom of STP	None
STP H7	30 cmbs	Dense gravels at bottom of STP	None
STP H8	15 cmbs	Dense gravels at bottom of STP	None
STP H9	10 cmbs	Dense gravels at bottom of STP	None
STP H10	20 cmbs	Dense gravels at bottom of STP	None
STP H11	5 cmbs	Dense gravels at bottom of STP	None
STP H12	15 cmbs	Dense gravels at bottom of STP	None
STP H13	5 cmbs	Dense gravels at bottom of STP	None
STP I6	45 cmbs	Dense gravels at bottom of STP	None
STP I7	38 cmbs	Dense gravels at bottom of STP	None
STP I8	46 cmbs	Sand in lower 67 cm of STP	None
STP I9	35 cmbs	Dense gravels at bottom of STP	None
STP I10	18 cmbs	Large rocks at bottom of STP	None
STP I11	30 cmbs	Large rocks at bottom of STP	None
STP I12	10 cmbs	Large rocks at bottom of STP	None
STP I13	2 cmbs	Large rocks just below surface	None
STP J1	38 cmbs	Dense gravels at bottom of STP	None
STP J2	56 cmbs	Clay at bottom of STP	None
STP J3	44 cmbs	Clay at bottom of STP	None
STP J4	43 cmbs	Clay at bottom of STP	None
STP K1	36 cmbs	Dense gravels at bottom of STP	None
STP K2	46 cmbs	Dense gravels at bottom of STP	None
STP K3	40 cmbs	Clay at bottom of STP	None
STP K4	40 cmbs	Clay at bottom of STP	None
STP K5	40 cmbs	Gravels at bottom of STP	None
STP K6	40 cmbs	Large rocks at bottom of STP	None
STP K7	40 cmbs	Gravels at bottom of STP	None
STP K8	36 cmbs	Large rocks at bottom of STP	None
STP K9	2 cmbs	Large rocks on surface	None
STP K10	60 cmbs	Gravels at bottom of STP	None
STP L1	28 cmbs	Dense gravels at bottom of STP	None
STP L2	48 cmbs	Large rocks at bottom of STP	None
STP L3	50 cmbs	Clay at bottom of STP	None
STP L4	50 cmbs	Gravels at bottom of STP	None
STP L5	50 cmbs	Clay at bottom of STP	None
STP L6	50 cmbs	Clay at bloom of STP	None
STP L7	55 cmbs	Clay at bottom of STP	None
STP L8	25 cmbs	Dense gravels at bottom of STP	None
STP L9	61 cmbs	Compacted silt at bottom of STP	None
STP L10	65 cmbs	Gravels at bottom of STP	None

Table 7. Shovel Test Probe Specifications for Site 32MN845.			
Provenience	**Total Depth**	**Notes**	**Cultural Material**
STP M1	50 cmbs	Dense gravels at bottom of STP	None
STP M2	55 cmbs	Dense gravels at bottom of STP	None
STP M3	41 cmbs	Sand at bottom of STP	None
STP M4	38 cmbs	Sand at bottom of STP	None
STP M5	36 cmbs	Large rocks at bottom of STP	None
STP M6	54 cmbs	Gravels at bottom of STP	None
STP M7	50 cmbs	Gravels at bottom of STP	None
STP M8	50 cmbs	Gravels at bottom of STP	None
STP M9	52 cmbs	Gravels at bottom of STP	None
STP M10	50 cmbs	Gravels at bottom of STP	None
STP N1	41 cmbs	Compacted sand at bottom of STP	None
STP N2	36 cmbs	Gravels at bottom of STP	None
STP N3	30 cmbs	Gravels at bottom of STP	None
STP N4	31 cmbs	Large rocks at bottom of STP	None
STP N5	72 cmbs	Gravels and silt in lower 49 cm of STP	None
STP N6	28 cmbs	Dense gravels at bottom of STP	None
STP N7	71 cmbs	Silt in lower 45 cm of STP	None
STP N8	32cmbs	Large rocks at bottom of STP	None
STP N9	45 cmbs	Large rocks at bottom of STP	None
STP N10	38 cmbs	Large rocks at bottom of STP	None
STP O1	49 cmbs	Gravels at bottom of STP	None
STP O2	50 cmbs	Sand at bottom of STP	None
STP O3	44 cmbs	Sand at bottom of STP	None
STP O4	44 cmbs	Gravel at bottom of STP	None
STP O5	45 cmbs	Gravel at bottom of STP	None
STP 06	44 cmbs	Sand at bottom of STP	None
STP 07	52 cmbs	Silt in lower 20 cm of STP	None
STP P1	43 cmbs	Sand at bottom of STP	None
STP P2	45 cmbs	Sand at bottom of STP	None
STP P3	47 cmbs	Large rocks at bottom of STP	None
STP P4	42 cmbs	Sand in lower levels of STP	None
STP P5	45 cmbs	Gravels at bottom of STP	None
STP P6	42 cmbs	Sand in lower levels of STP	None
STP P7	43 cmbs	Sand in lower levels of STP	None
STP R1	40 cmbs	Gravels at bottom of STP	None
STP R2	40 cmbs	Clay at bottom of STP	None
STP R3	50 cmbs	Clay at bottom of STP	None
STP R4	50 cmbs	Gravels at bottom of STP	None
STP R5	50 cmbs	Sand at bottom of STP	None
STP R6	35 cmbs	Decomposing bedrock at bottom of STP	None
STP R7	50 cmbs	Large rocks at bottom of STP	None

Table 8. Shovel Test Probe Specifications for Site 32MN846.			
Provenience	**Total Depth**	**Notes**	**Cultural Material**
STP 1	42 cmbs	Large rocks at bottom of STP	None
STP 2	32 cmbs	Clay at bottom of STP	None
STP 3	53 cmbs	Large rocks at bottom of STP	None
STP 4	34 cmbs	Clay at bottom of STP	None
STP 5	47 cmbs	Large rock at bottom of STP	None
STP 6	30 cmbs	Large rocks at bottom of STP	None
STP 7	62 cmbs	Large rocks at bottom of STP	None
STP 8	40 cmbs	Clay at bottom of STP	None
STP 9	66 cmbs	Large rocks at bottom of STP	None
STP 10	40 cmbs	Clay at bottom of STP	None
STP 11	58 cmbs	Large rocks at bottom of STP	None

APPENDIX C: DATA CORRECTED MAPS FOR THE EARLIER INVENTORY REPORT (Klinner, et al. 2010)

MAP/PHOTO/FIGURE REMOVED TO PROTECT

SENSITIVE GEOGRAPHIC INFORMATION

TESTING OF SITE 32MN844
ADDENDUM TO THE BEAVER LODGE TO BERTHOLD PIPELINE: ADDITIONAL CLASS III CULTURAL RESOURCE INVENTORY AND LIMITED SITE TESTING IN MOUNTRAIL COUNTY, NORTH DAKOTA

Kadrmas, Lee and Jackson

January 2011

Cultural Resources

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TESTING OF SITE 32MN844
ADDENDUM TO THE BEAVER LODGE TO BERTHOLD PIPELINE:
ADDITIONAL CLASS III CULTURAL RESOURCE INVENTORY AND LIMITED SITE TESTING IN MOUNTRAIL COUNTY, NORTH DAKOTA

NOTE: Per discussion with NDPSC and NDSHPO staff, specific locational data on cultural resource sites has been redacted from this filed report.

Prepared For:
Enbridge Pipeline (North Dakota), LLC
Houston, Texas

Principal Investigator:
Jennifer L. Harty

Prepared By:
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Bismarck, North Dakota

Report of Investigation: 1268 **January 2011**

MANUSCRIPT DATA RECORD FORM

1. Manuscript Number:
2. SHPO Reference #:
3. Author(s): Michael Shropshire, Duane Klinner, and Jennifer L. Harty
4. Title: Testing of Site 32MN844, Addendum to the Beaver Lodge to Berthold Pipeline: Additional Class III Cultural Resource Inventory and Limited Site Testing in Mountrail, County, North Dakota
5. Report Date: December 2010
6. Number of Pages: 15
7. Type I, T, E, O: I, T
8. Acres: 2.5 acres
9. Legal Location(s) with Historic Context Study Unit(s):

LEGAL DESCRIPTIONS INTENTIONALLY REMOVED

TESTING OF SITE 32MN844, ADDENDUM TO THE BEAVER LODGE TO BERTHOLD PIPELINE:
ADDITIONAL CLASS III CULTURAL RESOURCE INVENTORY AND LIMITED SITE TESTING IN MOUNTRAIL COUNTY, NORTH DAKOTA

Prepared For:
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Report of Investigation: 1268

January 2011

ABSTRACT

Enbridge Pipelines (North Dakota) LLC, is evaluating a project to install a new pipeline system in Mountrail, Ward, and Williams Counties, North Dakota. Approximately 55 miles of new installation from Beaver Lodge to directly north of the town of Berthold, North Dakota, with two alternate routes, totaling approximately 2.7 miles, were inventoried in mid-2010. Upon completion of the fieldwork and submission of a report, it was determined that additional areas required inventory, and that five sites should undergo limited testing to aid in avoiding significant cultural deposits and features.

Between mid-September and early November, 2010, Kadrmas, Lee & Jackson conducted an intensive inventory on ten areas of additional pipeline route and tested sites 32MN460, 32MN843, 32MN845, and 32MN846. The inventoried areas include a 775' by 200' corridor, a 2,275' by 200' corridor, a 7,750' long corridor with a width of 300' to 1,025', a corridor measuring 1,040' by 1,500', and six small block areas totaling less than 1 acre each. A total of 115.6 acres was inventoried for the proposed undertaking. Details of the results of the survey can be found in the previous report on file with the State Historical society of North Dakota (SHSND).

On September 21 and 22 of 2010 Kadrmas, Lee & Jackson tested site 32MN844, a precontact sites with stone features. A testing plan for this site was designed by Kadrmas, Lee, and Jackson and approved by the North Dakota State Historic Preservation Officer. The testing was undertaken to aid in avoidance of the surface visible features and any potentially significant buried cultural resources. No shovel test probes were excavated within any features. At site 32MN844, no cultural materials were recorded during site testing. At site 32MN843, two flakes were recovered. No diagnostic artifacts or subsurface features were encountered during testing.

Kadrmas, Lee & Jackson recommends that no additional work is necessary at the inventoried area. For the tested site 32MN844, Kadrmas, Lee, & Jackson recommends that the pipeline be allowed to proceed provided that no surface-visible features are impacted by construction or that previously inventoried reroute corridors are used. Provided these recommendations are followed, Kadrmas, Lee & Jackson recommends a finding of *No Historic Properties Affected* for the proposed undertaking.

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INTRODUCTION

In early- and mid-2010, Enbridge Pipelines (North Dakota), LLC contracted Kadrmas, Lee, & Jackson (KL&J) to conduct a cultural resource inventory for a proposed pipeline in Mountrail, Ward, and Williams Counties, North Dakota. Upon completion of the inventory and submission of a formal report to the North Dakota State Historic Preservation Officer (NDSHPO) and the lead agency, the Public Service Commission (PSC), it was determined that further inventory was necessary at ten locations, and that some impact within the recorded boundaries of five sites might be necessary during pipeline construction. These investigations included the inventory of ten areas along the previously inventoried pipeline, and the limited testing of one historic site and three precontact sites. Data corrected maps for the earlier inventory report (Klinner, et al. 2010) are included in Appendix C of this report.

Field personnel for the site testing of site 32MN844 included Michael Shropshire and Brian Houle. The testing program was conducted between September 21 and 22 2010. The site was a precontact site with stone features (Table 1 and Figures 1, 2, 3, 4, and 5). No new cultural resources were encountered during the inventory.

The testing of site 32MN844 resulted in the recovery of no artifacts and with no subsurface features being encountered. A detailed discussion of the results of the inventory and site testing are included in the *Class III Cultural Resource Inventory* and *Limited Testing of Site 32MN844* sections of this document.

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SENSITIVE GEOGRAPHIC INFORMATION

ENVIRONMENTAL SETTING

The entirety of the project area is located within the Garrison Study Unit. The general and localized descriptions of the environmental setting of the project were fully discussed in Klinner, et al. (2010).

RESEARCH GOALS/EVALUATION OF RESEARCH

Following the mandated policies implementing the National Historic Preservation Act (NHPA [Public Law 89-665]), as amended, this proposed project was investigated to identify any historic properties within the area of potential effect (APE). An additional goal was to allow Enbridge to plan the proposed undertaking to avoid any historic properties and, if not possible, to test, evaluate, and if necessary, mitigate any adverse effects to historic properties within the proposed project area prior to construction.

The goal of the cultural resource investigations has been achieved. No previously undocumented cultural resources were identified within the APE.

Testing of the areas outside of recorded features at the Site 32MN844 did not result in the recovery of any significant data. Further, the methods used during the inventory to identify previously undocumented cultural resources, greatly reduces the possibility of an inadvertent discovery.

CLASS III CULTURAL RESOURCE INVENTORY

A Class III Intensive Cultural Resources Inventory is an intensive, systematic, detailed field inspection done by, or under the direction/supervision of professional architectural historians, historians, archaeologists, and/or other appropriate specialists. The goal of this inventory effort is to make systematic efforts to identify all historic properties within the Area APE that might qualify for the NRHP and/or the North Dakota State Historic Sites Registry and to record information sufficient to enable their evaluation or to indicate what further work is necessary to accomplish their evaluation (SHSND 2006:15).

Inventory Field Methods/Conditions

The APE for the proposed undertaking is limited to the footprint of the project. Because the pipeline will be buried with only minor above ground appurtenances (posted notices of buried pipe at road crossings, etc.), the visual impacts of the project are greatly limited following installation and reclamation of the landscape. While the standard installation corridor for similar pipelines is approximately 150-feet, KL&J inventoried four corridors ranging from 200' to 1,040' in order to allow for avoidance of cultural resources identified within the corridors by rerouting the centerline within the inventoried corridors. The four areas included a 775' by 200' corridor, a 2,275' by 200' corridor, a 7,750' long corridor with a width of 300' to 1,025', and a corridor measuring 1,040' by 1,500'. Additionally, six smaller areas totaling less than 1 acre each were inventoried.

KL&J conducted a Class III Intensive Cultural Resource Inventory for the proposed undertaking. Transects were spaced no more than 20 m apart to cover the width of the each project corridor. Visibility along the corridor was highly variable, as the corridor consists of some areas of tilled farmland and others of native prairie. Overall, visibility was good, averaging 35%. In areas with good deposition, rodent burrows, blowouts, and other areas with exposed subsurface deposits were closely scrutinized for cultural materials.

Results of the Inventory

No newly documented cultural resources were encountered during inventory. The specific descriptions of the survey results of the project were fully discussed in Klinner, et al. (2010).

LIMITED TESTING OF SITE 32MN844

Limited testing was conducted at site 32MN844 in Mountrail County, North Dakota on September 21 and 22, 2010. The testing followed the Testing Plan designed by KL&J, and approved by the NDSHPO (Harty 2010). The testing was undertaken to establish a usable corridor through which the proposed pipeline may pass without adversely affecting the existing cultural properties.

The testing program was designed as a phased approach which would allow for seamless integration of information from previous phases into the decision making process in subsequent phases.

General Field Procedures for Testing

Excavation and recovery methods utilized standards set-forth in the North Dakota Department of Transportation Standards for Test Excavation of Archaeological Sites, and the North Dakota State Historic Preservation Office Guidelines.

Fieldwork consisted of relocating the site, conducting a surface examination of the site area, setting up and excavating shovel tests, and mapping the site's boundaries and features using a Trimble GPS unit with sub-meter accuracy.

The surface examination at the site was conducted in an attempt to identify all surface-visible cultural materials and features. For any artifacts noted on the site surface, only stone tools and specimens manufactured from exotic materials were to be collected. Surface examinations of site areas generally aid in identifying the horizontal extents of artifact deposits, locating artifact concentrations, and identifying cultural features or remnants of such features. The identification of surface-visible artifacts and/or features can also assist in determining locations for shovel test probes and/or formal 1 m by 1 m test excavation units.

A grid system, aligned east-west and set at 10 m intervals, was placed at the tested site. The metric coordinate system was used in order to facilitate site mapping, delineate site boundaries, identify locations of physical features, and to precisely record the locations of shovel test units and, if needed, test excavation units.

Systematic shovel test probing was accomplished by hand. The average diameter of each probe was 30 cm. Each shovel test probe (STP) was excavated down to pre-Holocene-aged soils or dense concentrations of large rocks. Probing was used as it supplies a means of acquiring information on horizontal artifact distributions, site limits, soil depth and composition, and the potential for undisturbed cultural deposits. The probing also aids in evaluating whether formal 1 m by 1 m test excavation units would be required to collect more information at a site or within specific areas of a site.

Upon completion of each STP, a profile was drawn of the walls. The profile included information on the encountered stratigraphic levels, depth of the levels, and total depth of the STP. The matrix from each STP was dry screened on-site through ¼" mesh.

A field catalog was used to assign separate field catalog numbers to each individual provenience unit defined in the field. These units consisted of each individual STP. The numbers served to label and track materials while in the field, and formed the basis of the laboratory cataloging system.

Upon completion of subsurface testing the site was photographed. The final fieldwork task consisted of backfilling all STP locations and reexamining the site area to ensure that all surface-visible features had been identified during the initial surface examination.

Laboratory Procedures for Testing

No materials were recovered from this site.

Site 32MN844

Background and Description

Site MN844 is comprised of eight stone circles, three cairns and a short rock alignment on a small ridge. Agricultural fields and a slough are located to the north, and there are other sloughs to the southeast. The surround landscape is comprised of rolling grassland with intermixed areas of agricultural fields and pastures. Vegetation in the area is comprised of native and introduced grasses and the ground surface visibility at the time of inventory was 5%. The site was originally recorded in 2010 (Klinner, et al. 2010).

The stone circles range from 4.5 m to 6.5 m in diameter and have good definition, with all but one being complete. The features each consist of 30 to 60 stones ranging from moderate to deep in sodding.

The cairns range from .5 m to 1 m in diameter. All are circular with good definition, collapsed with heavy sodding, and contain from five to twelve heavily sodded cobble stones. The rock alignment is 2 m long by .5 m wide, running north to south and consists of more than 10 large stones with moderate to heavy sodding.

This site retains spacial integrity. It sits on a ridge between plowed fields but appears never to have been plowed, perhaps because of the marsh to the north and the sloughs to the south.

Testing Procedures and Results of Fieldwork

The site is basically unchanged from the previous recording. Most features were easily identifiable.

A total of 33 STPs were excavated at the site (Figures 4 and 5, and Table 2 in Appendix B). The probes were placed along grid lines and set 10 m apart in each line. The probes varied from 19 to 90 cmbs. Gravels and/or large rocks were generally found throughout each probe location. Excavation of each probe ended once dense gravels or, in most cases, large rocks were encountered.

Soils in the upper horizon varied from dark brown to black sandy and silty loam over the tested area. Below the upper horizon, soils generally changed to a higher concentration of sand mixed with loam. Also mixed in with this horizon were gravels and larger rocks. The lower portions of the probes generally contained clay, gravels, or large rock.

PHOTOGARPH REMOVED TO PROTECT SENSITIVE INFORMATION

Figure 2: Overview of the tested area of site 32MN844, view to the east.

PHOTOGARPH REMOVED TO PROTECT SENSITIVE INFORMATION

Figure 3: Overview of the tested area of site 32MN844, view to the west.

MAP/PHOTO/FIGURE REMOVED TO PROTECT

SENSITIVE GEOGRAPHIC INFORMATION

Approximately 1.9 cubic meters of soil were excavated and screened on-site at site 32MN844. The lack of artifacts and lack of faunal remains, charcoal, burned or fire-cracked rock, and stone tools at the site indicates that the overall precontact use of the tested area of the site may have been restricted to a short duration for limited activities.

No cultural materials were encountered during the surface examine of the site area or from the testing program. Based upon the lack of cultural materials recovered from the STPs, and the poor and thin soil development at the site, it is recommended that there is little potential for intact cultural resources in and along the tested area. It is also recommended that the proposed pipeline be allowed to cross through the defined site area provided that all features are avoided. To aid in avoidance it is recommended that a fence be placed around the stone features at the site, with no construction activities occurring within the fenced area. Avoidance of the site area can also be accomplished by use of the previously inventoried reroute corridor (Figure 4) (Klinner, et al. 2010).

SUMMARY AND MANAGEMENT RECOMMENDATIONS

KL&J have completed a Class III Cultural Resource Inventory and limited site testing for a proposed pipeline installation. The main pipeline route was previously inventoried in 2010 (Klinner, et al. 2010). The investigations were completed at the behest of Merjent, on behalf of Enbridge. Four corridors measuring from 775' to 7,750' in length and 200' to 1,040' in width and six smaller areas of less than 1 acre each were inventoried to Class III standards.

The tested site is 32MN844, a precontact stone feature site. Testing followed the Testing Plan as designed by KL&J and Enbridge, and approved by the NDSHPO. The testing was undertaken to aid in avoidance of the surface visible features and any potentially significant buried cultural resources.

No probes were excavated within any features in the sites. No cultural materials or subsurface features were encountered during testing at site 32MN844.

KL&J recommends that no additional work is necessary at the inventoried area. For the tested site, KL&J recommends that the pipeline be allowed to proceed provided that no surface-visible features are impacted by construction. To aid in avoidance, KL&J recommends the following measures:

1. The reroute corridors previously inventoried near site 32MN844 be utilized if feasible for the project.

2. Narrowing of the construction corridor at the sites so that stone features are avoided by a minimum of 50′ during construction.

3. Micro-aligning the pipeline route so that stone features are avoided by a minimum of 50′.

4. That prior to construction, a professional archaeologist place protective fencing that provides a 50′ buffer zone around stone features.

5. Depending on field conditions, proximity of construction to stone features, and SHPO consultations, monitoring by a professional archaeologist occur during construction, if indicated.

Provided these recommendations are followed, KL&J recommends a finding of *No Historic Properties Affected* for the proposed undertaking.

REFERENCE CITED

Harty, J. L.

2010 *10-1957 PSC: Limited Testing for the Enbridge Beaver Lodge to Berthold Pipeline Corridor.* Document on file at the State Historical Society of North Dakota, Bismarck.

Klinner, D., J. L. Harty, and M. Shropshire,

2010 *Beaver Lodge to Berthold Pipeline: A Class III Cultural Resource Inventory, Mountrail, Ward, and Williams Counties, North Dakota*. Document on file at the State Historical Society of North Dakota, Bismarck.

Oliver, T.

1990 *32MN460*. NDCRS Site Form, Archaeological Sites. Document on file at the State Historical Society of North Dakota, Bismarck.

State Historical Society of North Dakota (SHSND)

2006 *NDSHPO Manual for Cultural Resource Investigations Revised Edition.* Produced by and available from the State Historical Society of North Dakota, Bismarck.

2008 *The North Dakota Comprehensive Plan for Historic Preservation: Archaeological Component.* Produced by and available from the State Historical Society of North Dakota, Bismarck.

n.d. http://history.nd.gov/hp/PDFinfo/Railroads%20in%20North%20Dakota,% 201872-1956.pdf. Document accessed 7/13/2010.

Stine, E.

2008 *32MN460*. NDCRS Site Form, Archaeological Sites. Document on file at the State Historical Society of North Dakota, Bismarck.

APPENDIX A: SHOVEL TEST PROBE SPECIFICATIONS

Table 2. Shovel Test Probe Specifications for Site 32MN844.			
Provenience	**Total Depth**	**Notes**	**Cultural Material**
STP 1	90 cmbs	Dense gravel at bottom of STP	None
STP 2	67 cmbs	Dense gravel at bottom of STP	None
STP 3	50 cmbs	Large rocks at bottom of STP	None
STP 4	65 cmbs	Large rocks at bottom of STP	None
STP 5	55 cmbs	Silt sand at bottom of STP	None
STP 6	60 cmbs	Clay loam at bottom of STP	None
STP 7	70 cmbs	Dense gravel at bottom of STP	None
STP 8	80 cmbs	Silt loam at bottom of STP	None
STP 9	36 cmbs	Large rocks at bottom of STP	None
STP 10	50 cmbs	Large rocks at bottom of STP	None
STP 11	50 cmbs	Silt loam at bottom of STP	None
STP 12	47 cmbs	Rocks at bottom of STP	None
STP 13	19 cmbs	Dense gravel at bottom of STP	None
STP 14	25 cmbs	Dense gravel at bottom of STP	None
STP 15	36 cmbs	Dense gravel at bottom of STP	None
STP 16	23 cmbs	Large cobbles at bottom of STP	None
STP 17	37 cmbs	Cobbles at bottom of STP	None
STP 18	50 cmbs	Silt loam at bottom of STP	None
STP 19	61 cmbs	Gravel at bottom of STP	None
STP 20	35 cmbs	Gravel at bottom of STP	None
STP 21	67 cmbs	Gravel at bottom of STP	None
STP 22	28 cmbs	Cobbles at bottom of STP	None
STP 23	33 cmbs	Rocks at bottom of STP	None
STP 24	51 cmbs	Cobbles at bottom of STP	None
STP 25	29 cmbs	Large cobbles at bottom of STP	None
STP 26	50 cmbs	Clay loam at bottom of STP	None
STP 27	34 cmbs	Silt sand at bottom of STP	None
STP 28	42 cmbs	Silt sand at bottom of STP	None
STP 29	Not Excavated	Disturbed by two track road	None
STP 30	Not Excavated	Two track disturbance	None
STP31	42 cmbs	Cobbles at bottom of STP	None
STP 32	61 cmbs	Silt loam at bottom of STP	None
STP 33	65 cmbs	Silt loam at bottom of STP	None

Exhibit BL-5

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC
BEAVER LODGE LOOP PROJECT
NORTH DAKOTA PSC CASE NO. PU-10-613

SHPO concurrence correspondence

January 20, 2011
February 17, 2011

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January 20, 2011

Jennifer L. Harty
Senior Staff Archaeologist
Kadrmas, Lee, and Jackson, Inc.
128 Soo Line Drive
Bismarck, North Dakota 58501

ND SHPO REF: 10-1957b-c PSC Beaver Lodge to Berthold Pipeline
Addendum Class III CRI and Limited Testing Reports

Dear Jennifer:

We have reviewed: **10-1957b-c PSC Beaver Lodge to Berthold Pipeline** Addendum Class III CRI Reports: (1) "Addendum to the Beaver Lodge to Berthold Pipeline: Class III Cultural Resource Inventory and Limited Testing in Mountrail County, North Dakota," by Michael Shropshire, Duane Klinner, and Jennifer L. Harty, and (KLJ, ROI 1255, December 2010) and (2) "Testing of Site 32MN844, Addendum to the Beaver Lodge to Berthold Pipeline: Class III Cultural Resource Inventory and Limited Testing in Mountrail County, North Dakota," by Michael Shropshire, Duane Klinner, and Jennifer L. Harty, and (KLJ, ROI 1268, January 2011, and find them acceptable.

We concur with ***"No Historic Properties Affected"*** and ***"No Significant Sites Affected"*** determinations for the proposed and reviewed project provided that it is of the nature stated and it takes place in the locations plotted in the correspondence and reports, and that report recommendations (pp. 33-34 and p. 12) are followed. First, we strongly encourage and recommend use of the previously surveyed reroutes (p. 34, number 1; Appendix C: Figures 35, 36, 38, and 39) to avoid impacts to sites 32MN843, 32MN845, and 32MN846. Further, we encourage and recommend the measures identified (p. 34, numbers 2-3) (i.e., sites 32MN772, 32MN460 and 32MN844) and that archaeological monitoring (p. 34, numbers 4-5; p. 12, numbers 1-5) be implemented as stated in the two reports.

Thank you for the opportunity to review the project. If you have any questions please contact either Susan Quinnell at (701) 328-3576 or squinnell@nd.gov or Paul Picha at (701) 328-3574.

Sincerely,

Merlan E. Paaverud, Jr.
State Historic Preservation Officer (North Dakota)
and
Director, State Historical Society of North Dakota
c: Patrick Fahn, North Dakota Public Service Commission

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

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February 17, 2011

Jennifer L. Harty
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Bismarck, North Dakota 58501

ND SHPO REF: 10-1957d PSC Beaver Lodge to Berthold Pipeline
February 2011 meeting minutes on Treatment Options/Strategies for Sites 32MN844, 32MN460, and 32MN846

Dear Jennifer:

We have reviewed: **10-1957d PSC Beaver Lodge to Berthold Pipeline** February 2011 meeting on Treatment Options/Strategies for Sites 32MN844, 32MN460, and 32MN846 and they accurately reflect SHSND/NDSHPO concurrence on these matters (and as attached) for the three aforementioned sites:

32MN844 – Maintaining a 50' buffer is the preferred method of avoidance, but provided archaeological monitors are onsite during construction, the buffer may be smaller to allow for construction provided the surface expression of the features is not impacted.

32MN460 – Construction may occur along the proposed corridor provided an archaeological monitor is onsite during construction of the area crossing the site.

32MN846 – KL&J will recommend the site *not eligible* following additional historical research.

We concur with ***"No Historic Properties Affected"*** and ***"No Significant Sites Affected"*** determinations for the proposed and reviewed project provided that it is of the nature stated and it takes place in the locations plotted in the correspondence and prior reviewed reports. Thank you for the opportunity to review the project. If you have any questions please contact either Susan Quinnell at (701) 328-3576 or squinnell@nd.gov or Paul Picha at (701) 328-3574.

Sincerely,

Merlan E. Paaverud, Jr.
State Historic Preservation Officer (North Dakota)
and
Director, State Historical Society of North Dakota
enc. as stated
c: Patrick Fahn, North Dakota Public Service Commission