PHASE I ARCHAEOLOGICAL INVESTIGATION OF THE PROPOSED PEDESTRIAN BRIDGE CROSSING OVER THE MISSISSIPPI RIVER, GRAND RAPIDS, ITASCA COUNTY, MINNESOTA

S.P. 129-090-007
MnDOT Contract No. 1001610
OSA License No. 15-029

Authorized and Sponsored by:
Minnesota Department of Transportation
and the Federal Highway Administration

Final Report Prepared by:
Stephen L. Mulholland, Principal Investigator,
Susan C. Mulholland, co-PI,
and Kevin Schneider

Duluth Archaeology Center
5910 Fremont Street, Suite 1, Duluth, MN 55807
Duluth Archaeology Center Report No. 16-15

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MANAGEMENT SUMMARY

A Phase I archaeological survey was conducted for S.P. 129-090-007, the proposed Pedestrian Bridge crossing the Mississippi River in the City of Grand Rapids in Itasca County, Minnesota. The project area is owned by the City of Grand Rapids. The project Area of Potential Effects (APE) is located within the City of Grand Rapids and consists of the footing for the pedestrian bridge and associated connections to an existing trail system along the north and south banks of the Mississippi River.

No previously reported archaeological sites were recorded within or immediately adjacent to the project area. However, a number of pre-Contact sites have been recorded in the general area. Walkover and shovel testing of the project APE did not identify any archaeological sites.

Based on the results of the Phase I archaeological survey it is recommended that a determination of No Historic Properties Affected be made for the project and that no additional archaeological work is needed.

PERSONNEL

Stephen L. Mulholland - Principal Investigator and Project Director
Susan C. Mulholland - co-Principal Investigator
Jennifer Hamilton - GIS Specialist
Kevin Schneider - Crew, Computer Graphics Technician

ACKNOWLEDGMENTS

Many people assisted with this project. Craig Johnson (MnDOT Project Manager) provided direct assistance and direction in the implementation of the project, including providing maps and the definition of the project Area of Potential Effects (APE). Julie Kennedy, Grand Rapids City Engineer, provided an on-site tour and explanation of the project area. Scott Anfinson (State Archaeologist) provided the Minnesota archaeology license. In addition, Tom Cinadr of the SHPO conducted a search of the site file databases.

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BACKGROUND INFORMATION

INTRODUCTION

A Phase I archaeological survey was conducted for the proposed construction of a Pedestrian Bridge over the Mississippi River and associated trail connections in the City of Grand Rapids, Itasca County, Minnesota (Figures 1, 2). The project (S.P. 129-090-007) consists of two small parcels on the north and south banks of the Mississippi River for the pedestrian bridge abutments with an approximately 700 foot long by 50 to 60 foot wide associated trail connection on the north side of the river. A Phase I archaeological survey was conducted for this project under MnDOT Contract No. 1001610. The legal description for the survey area is T55N, R25W, Section 21. The project is located within the City of Grand Rapids, Minnesota. The Area of Potential Effects (APE) of the project was defined on maps provided by Craig Johnson (MnDOT Project Manager) with an on-site tour by the Grand Rapids City Engineer, Julie Kennedy.

The presence of pre-contact sites associated with the upland terrain in the area, especially those overlooking waterways and wetlands, suggests the possibility that additional sites may exist within the proposed APE. In Minnesota, sites are frequently located near water resources (Hudak et al. 2002). Therefore, the proximity of water resources to the project area, primarily the Mississippi River, suggests a potential for pre-contact sites.

The Phase I archaeological survey was conducted on November 3 and 9, 2015 under Minnesota State License 15-029 (Appendix I). The Phase I survey was conducted to satisfy the Federal Highway Administration (FHWA) responsibilities under Section 106 of the National Historic Preservation Act of 1966, as amended. The FHWA delegated their review authority to the Cultural Resources Unit (CRU) of MnDOT. Other pertinent Federal Statutes include Executive Order 11593, the Archaeological and Historic Preservation Act of 1974 (PL 93-291), the Code of Federal Regulations (CFR) Parts 60-66 and 800 as appropriate, the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation, and the Native American Graves Protection and Repatriation Act of 1990 (PL 101-601). Pertinent State of Minnesota regulations include the Field Archaeology Act (MnST 138) and the Private Cemeteries Act (MnST 307.08). The Guidelines for Archaeological Projects in Minnesota (Anfinson 2011) set by the State Historic Preservation Office (SHPO) were followed. In addition, the CRU Guidelines for archaeological survey were followed (MnDOT 2004).

LOCATION AND SETTING

The general project area consists of two small parcels that will be used for abutments for the pedestrian bridge and an approximate 700 foot long trail corridor within the City of Grand Rapids along the north and south sides of the Mississippi River (Figures 1, 2). The majority of the APE for the connecting trail on the north side of the river follows an existing gravel road/trail. The bridge abutment location on the south side of the river is adjacent to a boat launch and on the north side is located on a manmade point of land. The project area consists of grass covered lawn on the south side and an open woodlot (primarily oak, maple, aspen, and basswood) along the north side of the river. The legal description of the project parcel and the UTM coordinates for the parcel corners are listed in Table 1.

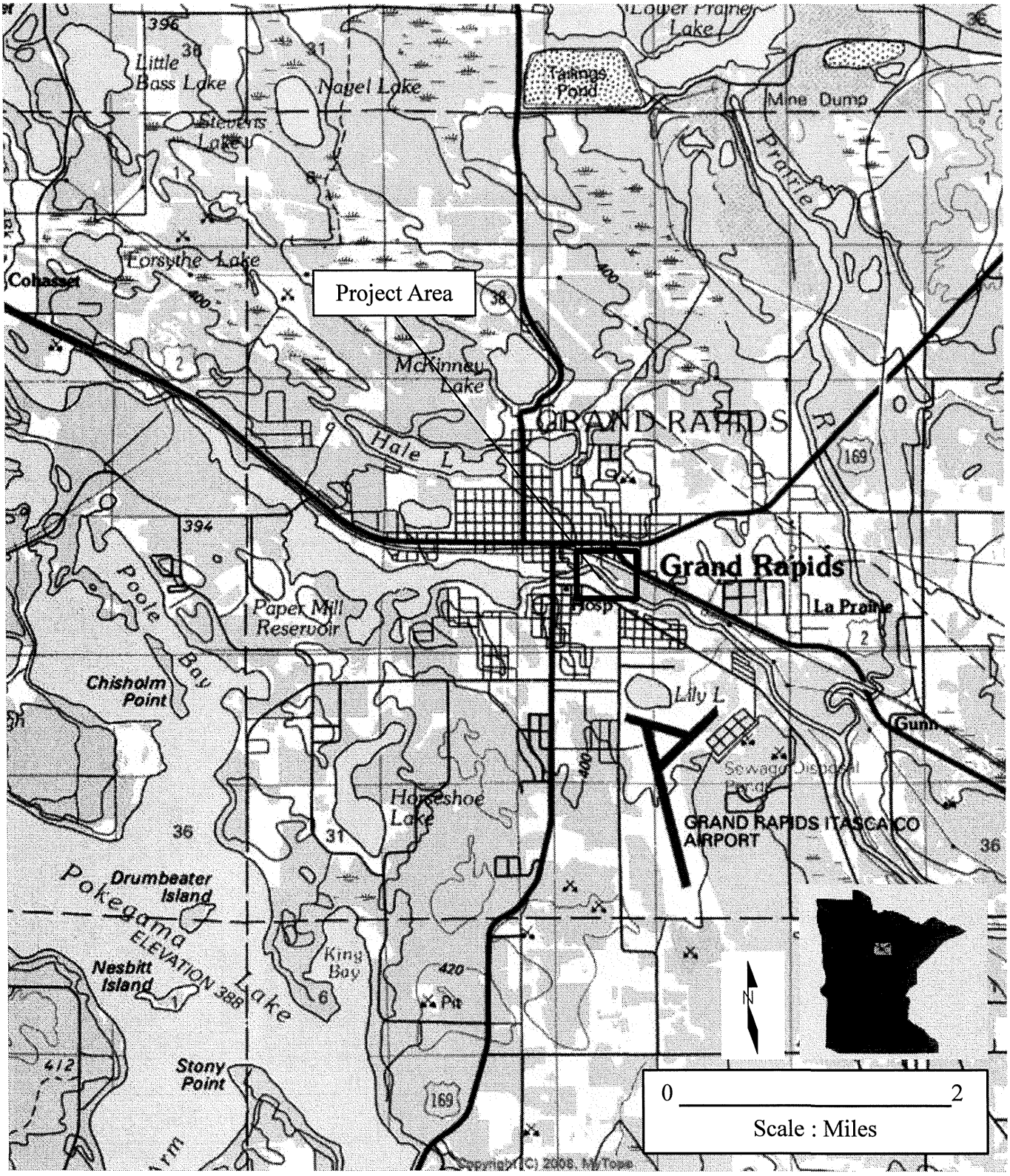

Figure 1. Location of the project area. Pokegama Lake, Minnesota. 1992. 1:100,000 USGS topographic map.

Figure 2. Location of the Area of Potential Effects (APE). Grand Rapids, Minn. 1953 (1969). 1:24,000 USGS topographic map.

Table 1. Project Location Data

T55N, R25W, Section 21
South End Abutment: UTM*: 460414E/5231149N
North End Abutment: UTM*: 460391E/5231234N
West End of Trail: UTM*: 460364E/5231209N
East End of Trail: UTM*: 460562E/5231208N

*Universal Transverse Mercator coordinates, Zone 15, 1983 North American Datum (NAD)

The project area is located in the Aitkin Lacustrine Plain geomorphic area (University of Minnesota 1971:29) and the Sugar Hills-Mille Lacs Moraine physiographic province (Wright 1972:568). This physiographic region is dominated by nearly flat terrain with widely interspersed rolling areas and occasional steep slopes along waterways. The terrain was formed by glacial ice and meltwater from the Rainy and Red River Lobes of the Late Wisconsin glaciation and sediments from Glacial Lake Aitkin (Wright 1972:568).

The vegetation of the area has likely changed several times during the time of possible human occupation. Much of the project area has not been ice covered since approximately 14,000 years BP at which time Glacial Lake Aitkin formed (Ojakangas and Matsch 1982:200-201). Waters from Glacial Lake Aitkin covered large parts of the general area, at varying pool depths, until approximately 10,000 years BP. The pre-settlement vegetation in the project area from the General Land Office Survey records indicate that the APE is located in an area of white and Norway pines on the mineral soils with nearby large conifer bogs and swamps. The vegetation in wetter terrain is primarily spruce, tamarack, cedar, and balsam. Just to the west and south are areas of aspen-birch (conifer) association that includes white and Norway pine, balsam, fir, birch, and spruce within the Mississippi River valley (Marschner 1974).

The project area is located along the Mississippi River in the City of Grand Rapids. This part of the river system is part of the Upper-North Woods Section of the Mississippi River Drainage (Waters 1977:195 -215-75). This waterway formed a major transportation route during the Contact and post-Contact periods. It is likely to have served a similar function during the pre-contact period.

Vegetation and Water

Vegetation within the APE is commonly associated with that of an open woodland that was at one time maintained as a park or picnic/camping activity area. The area consists of an upland bench just above the Mississippi River floodplain which has a mix of sand, gravel, and clay deposits that likely formed as a combination of river deposits and man-made sediments. Generally the uplands along the Mississippi River within the City of Grand Rapids have been extensively modified by recent human construction and landscaping activities. The unmodified terrain within the general area consists of relatively flat slopes, except along the Mississippi River, with variable sediment deposits of silts, clays, and sands (University of Minnesota 1971:29). The vegetation in areas outside of Grand Rapids is a mixed deciduous forest with pine stands and scattered grasslands that are often the result of past agricultural activities and past road construction activities. Upland species include aspen, birch, white pine, spruce, fir, white and red pine, hazel and various herbaceous plants. Lowland species include willow, alder, cedar, grasses, and reeds. The primary water resource within and near the project APE is the Mississippi River.

Soils and Geomorphology

The project area is located in the Aitkin Lacustrine Plain geomorphic area (University of Minnesota 1971:29) and the Sugar Hills-Mille Lacs Moraine physiographic province (Wright 1972:568). The project area consists a of bench above the floodplain along the Mississippi River. The soils are mixtures of sands, silts, gravels, and clays with variable concentrations of the constituent parts. Some of these constituent parts are likely derived from recent manmade modifications to the terrain.

ARCHAEOLOGICAL BACKGROUND

The project area is located within the middle part of the Central Coniferous Lakes archaeological region of Minnesota as defined by Anfinson (1990). Anfinson bases the archaeological regions on lake/water types and vegetation differences. The central part of the Central Coniferous Lakes archaeological region is designated as Region 5c in the SHPO system This region includes the northern part of the Mississippi River drainage area. The Minnesota pre-contact (prehistoric) contexts are based on a somewhat different system of districts (Dobbs 1988a:19-24). This system uses geomorphic data with some county borders to define boundaries. In this system the project area is in the Mississippi Headwaters region (3). In general, the two classifications fit reasonably well in terms of archaeological districts.

Literature Review

Just prior to and during the Phase I field survey, an examination was conducted of the literature and other documents pertaining to the project area. Prior to the field work the SHPO (Cinadr, personal communication 2015) and the Office of the State Archaeologist (OSA) site databases were consulted for the presence of known sites in the area.

Historic Contexts

The major stages in which the pre-contact historic contexts are grouped are most commonly considered to be Paleoindian, Archaic, and Woodland although later, more complex contexts are recognized as well (Minnesota Historical Society 1999:24). Dobbs (1988a) splits the Paleoindian into Fluted (Early) and Lanceolate (Late) segments, as well as dividing the Woodland into Ceramic/Mound and Late Prehistoric. Individual historic contexts are considered in relation to the regional differences in the archaeological record. District 3 contains evidence of the three major stages but not all historic contexts within those stages.

No projectile points indicative of Early Paleoindian (Fluted) occupation have been reported in Itasca County (Higgenbottom 1996, Buhta et al. 2011:36). The Late Paleoindian (or Lanceolate) historic context is slightly better documented in Itasca County with 13 reported projectile points (Florin 1996:191). Late Paleoindian point counts from surrounding counties include at least 32 from Koochiching, 28 from St. Louis, 9 from Aitkin, 3 from Cass, and 1 from Beltrami.

The Archaic Tradition is represented by Lake-Forest and Prairie Archaic to the south (Dobbs 1988a:91, 96). The Woodland Tradition (Ceramic/Mound) is well represented in the general area, especially in the Mississippi River trench. This includes both Laurel and Brainerd ware ceramics (Anfinson 1979; Arzigian 2008). The Late Prehistoric includes Blackduck, Selkirk, and Sandy Lake wares.

Most or all of the Contact period contexts are likely represented in the project area (Dobbs 1988b). Both Dakota and Ojibwe were in Northern Minnesota during Contact times. Euro-

American contexts could include French, British, and Initial United States since the major water route in the area, the Mississippi River, was a heavily used travel route. Explorers and traders commonly passed along the Mississippi River in travels recorded in journals, diaries and other documents.

Post-Contact contexts include both period and thematic contexts (Minnesota Historical Society 1999). Northern Minnesota Logging (1870-1930s) is directly applicable to this area. Other historic contexts include Tourism, Civilian Conservation Corps, 19th and 20th Century Railroads, Commercial Fishing, Iron Mining, and Early 20th Century Agriculture.

Area Archaeology

Review of the SHPO and OSA databases identified no previously recorded pre-contact or Contact period sites within one mile of the project APE (Cinadr, personal communication 2015).

ARCHAEOLOGICAL PHASE I SURVEY

METHODOLOGY

Prior to the start of the archaeological field survey, pertinent data from topographic and historic maps, geologic, and soil information sources were reviewed to better acquaint the field supervisor with the area under investigation. From the APE information provided by the MnDOT Project Manager and a walkover review with Julie Kennedy and the buried utility locators, a pre-field determination of survey strategies and methodologies was formulated. These pre-field determinations were then either confirmed or modified as warranted by actual conditions observed during the initial field visit.

The pre-field analysis of the project data provided by the MnDOT Project Manager indicated that a standard Phase I survey methodology would be appropriate for this archaeological investigation based on its proximity to the Mississippi River (Figures 1, 2). The standard survey methodology examines the entire area using either walkover or shovel testing methodologies. Any variations to the standard survey methodology would be made in the field by the project PI in consultation with the MnDOT Project Manager.

Phase I Field Survey

The initial field visit and walkover by personnel from the Duluth Archaeology Center (DAC) took place on November 3, 2015 with the Phase I archaeological survey conducted on November 9, 2015. Observations during the initial walkover visit determined that the project APE had been extensively disturbed by past construction activities and the placement of buried utilities. The walkover also identified two potential areas for shovel testing, confirming the initial observations that both shovel testing and walkover methodologies were appropriate for the entire project APE. Walkover survey methodology for the project area consisted of two to three transects with widths between transects dependent on the terrain and surface conditions. At a maximum, the interval between walkover transects was 8 meters.

The shovel testing methodology employed for this project consisted of placing approximately 30 to 40 cm (12 to 16 inch) wide test holes at 7.5 to 15 meter intervals where feasible. Sediment matrix removed from each hole was screened through one-quarter inch hardware cloth with the retained items examined for cultural materials. Testing in each hole continued until glacial deposits or an approximate one meter depth was attained. Once these depth parameters were attained, the testing ceased and measurements and observations on sediments and deposits within the test hole were recorded. These recorded data would also include information on the approximate depth(s) from which any cultural materials were recovered. At the base of selected shovel test holes additional subsurface testing was conducted using a 4 inch bucket auger that could be extended up to three meters. These tests were conducted to look for deeply buried 'A' horizons and potentially pre-contact artifacts. All sediments from the bucket augers were collected and inspected for possible dark and or organic stains, potentially indicative of a buried land surface, in 10 to 12 cm increments and then screened though one quarter inch hardware cloth. Upon completion of the recorded data, the test was back-filled.

While the methodology outlined above works well to locate both pre- and post-Contact archaeological cultural materials, the determination that the items recovered represent a distinctive cultural entity or site is vital. Localities with any pre-contact materials are for the most part assigned site status. However, post-contact materials in some cases may represent isolated or random pieces

of roadside or other scattered trash, traditionally not assigned site status, and need to be separated from those deposited during an occupation or from activities associated with special use areas. Though this may appear on the surface a simple task, in reality it may be more difficult than it first appears. In some instances the field survey is examining areas occupied or used historically for well over 150 years, including old farmsteads and roads that have had little alteration in their location or route over that time span. A broken glass fragment from a bottle discarded 100 years ago looks the same whether it is directly associated with a farmstead, is roadside trash or some other type of random garbage scatter. Therefore, the context and association in which the artifact(s) are recovered becomes vital.

The determination of whether or not post-contact artifacts are part of a site or represent trash disposal is based on the presence of definable site boundaries, or by the association with either structural remains or a definable activity use area. Site determination based on artifacts (from the surface or shovel tests) requires that an association be made either with a visible structural remnant or with a definable artifact concentration. The logic to these stringent site determination criteria is based on the known fact that most areas have had extensive and continuous occupation during the recent post-contact period, and that culturally derived materials from this general temporal period often litter a project area. These limitations were established to eliminate site designations based on post-contact trash dispersal patterns, especially those from the more recent periods.

After determination that the post-contact cultural materials represent a definable entity with boundaries outlined, a plan map of all pertinent features associated with the site is made. Items mapped include any structural remnants, physical features, debris determined to be associated with the function of the site (excluding recent roadside trash), and natural surface expressions, all plotted using compass readings with either paced or taped measurements. All site locations are placed on a USGS map using both physical landmarks and UTM readings obtained from a handheld GPS unit. The mapping of pre-contact sites is similar but concentrates on site boundaries, artifact concentrations, associated shovel tests (both positive and negative), and the relationship of these items with the existing terrain.

No indications of human internment were observed or encountered outside the known cemetery area during the survey. This included the absence of surface topographic expressions and lack of subsurface indications such as soil staining.

Laboratory Analysis

Since no archaeological sites were identified during the Phase I survey no laboratory methods were used.

RESULTS

The focus of the Phase I survey was the examination of the APE for the proposed construction of the pedestrian bridge over the Mississippi River and associated trail connections in the City of Grand Rapids, Itasca County, Minnesota (Figures 1, 2). The general project area consists of two bridge abutments placed on the north and south banks of the Mississippi River and construction of connector trails joining the foot bridge to the Grand Rapids trail system. The entire project APE received both walkover and shovel test examination where feasible. A total of two shovel tests were attempted with the completion of one test hole (Figure 3). Transect intervals during the walkover ranged in width up to 8 meters depending on surface conditions.

Figure 3. Location of completed shovel tests within the APE. Grand Rapids, Minn. 1953 (1969). 1:24,000 USGS topographic map.

The reason for the paucity of shovel tests was based on the extensive disturbances observed throughout the project APE (Appendix II). Numerous buried utility lines were located throughout the entire length of the APE. These included high and lower pressure natural gas lines, electrical power, water, cable television, and telephone (Appendix II, Figures 4, 5). One primary nexus for the buried utilities was at the abutment localities on both banks of the river (Appendix II, Figures 6, 7). It appears that the utility had to cross the river and the area where the abutments were to be placed was the crossing focal point. In addition, many of the buried lines followed the proposed trail connections, especially the route to the east of the north abutment. The abutment location on the south side of the Mississippi River recently had undergone extensive modifications for construction of a boat launch, a parking area paved with concrete, and landscaping of the surrounding area (Appendix II, Figure 8). The area also included the excavation of a large water retention pond just south and uphill of the boat launch and a large apartment complex south of the pond. The numerous buried utilities also passed through this area.

On the north side of the river, the area where the abutment is planned is located on a small manmade point of land. This point of land connects to an older road and trail system on which the new trail is planned to be located (Appendix II, Figures 9, 10, 11). The old road is on an elevated platform that runs west to east alongside the river. Between the old road and the river shoreline are the remnants of an abandoned asphalt trail. This trail leads to and from what appears to be an abandoned river-side picnic area. The picnic area was created by pushing the sediment to form a leveled area and also appears to have had gravel and sand added to the sediment matrix. Various buried utilities are throughout this entire area, except the small picnic location. In addition, a suspended high voltage set of power lines cross the Mississippi River at the small point of land and span the river to the south bank just west of the boat launch.

Because of the extensive buried utilities it was difficult to ascertain a safe location to shovel test. The only area without buried utility lines was the small picnic location just west of the point of land where the northern abutment is planned to be placed. Two shovel tests were attempted at this location (Figure 3). One was excavated to a depth of 55 cm into a matrix of gravel, sand, and silty clay with chunks of asphalt throughout. The test hole was terminated by a hardpan zone of compacted sand, gravel, and asphalt. The second hole was terminated because the surface was an impenetrable dense root mat mixed with compacted sediments, gravels, and small rocks. Both shovel tests and walkover survey produced negative results for archaeological materials.

The walkover survey on the north side of the Mississippi River identified various disturbances resulting from past construction activities (road, borrow sources, trails, picnic area, the formation of the point into the river) and the entrenchment of the buried utilities. Included within the APE was the bench above the floodplain on which the road was situated. This area is located below a steep, flat topped rise or embankment at least 40 feet in height. This embankment slope has in the past been used as a dump over which segments of sidewalk, curbing, road bed, culvert, concrete piping, and assorted other trash remnants were cast (Appendix II, Figure 12). During both trips to the area, the area was being actively mined by local residents for whatever they could retrieve of perceived value.

CONCLUSIONS AND RECOMMENDATIONS

A standard Phase I archaeological walkover survey and attempted shovel test examination was conducted within the project APE on November 3 and 9, 2015. Two shovel tests were attempted in what initially appeared to be the only undisturbed area within the APE but were found

to be extensively modified. All examination methods proved to be negative and no evidence of any archaeological sites were identified.

Based on the extensive disturbance to the area within the recent past and the negative results of archaeological survey it is recommended that the proposed project receive No Historic Properties Affected determination.

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APPENDIX I. MN State Phase I Survey Archaeology License 15-029

APPLICATION FOR MINNESOTA
ANNUAL ARCHAEOLOGICAL RECONNAISSANCE SURVEY LICENSE

This license only applies to reconnaissance (Phase I) surveys conducted under Minnesota Statutes 138.31-.42 during calendar year __2015___. Separate licenses must be obtained for site evaluation (Phase II) surveys, for major site investigations (Phase III), for burial site authentications under Minnesota statutes 307.08, and for survey work that will continue into another calendar year. Only the below listed individual is licensed as a Principal Investigator, not the institution/agency/company or others who work for that entity. The licensed individual is required to comply with all the conditions attached to this license form. Permission to enter land for the purposes of archaeological investigation must be obtained from the landowner or land manager.

Name: ___Susan Mulholland _____

Institution/Agency/Company Affiliation: __Duluth Archaeology Center _____

Title/Position: __President/Principal Investigator _____

Address: __5910 Fremont St., Suite 1, Duluth MN 55807 _____

Work Phone: _218-624-5489 _____ E-Mail:__archcenter@aol.com _____

Name of Advanced Degree Institution:__University of Minnesota _____ Year:_1987 __

Name of Department: _Interdisciplinary Archaeology ___ Degree: __MA __MS __PhD X

Purpose: (check all that may apply)
CRM _X_ Academic Research _X_ Institutional Field School _X_

Type of Land: (check all that may apply)
State Owned _X_ County Owned _X_ Township/City Owned _X_
Other non-federal public _X__ List: __School District _____

MHS Repository Agreement # _675 _____ Other Approved Curation Facility:_____

Previous License: Year _2014 Type _annual _____ Number _2014-017 _____

Signed (applicant): __Susan Mulholland _____ Date: _3-26-2015 ____

Required Attachments: *Curriculum Vita* ___ and Documentation of Appropriate Experience ___
for previously unlicensed individuals.

Submit one copy of this form and attachments to:
Office of the State Archaeologist, Ft. Snelling History Center, St. Paul, MN 55111
612-725-2411 612-725-2729 FAX 612-725-2427 email: mnosa@state.mn.us

Minnesota Historical Society Approval: _____ Date: 3-30-15
State Archaeologist Approval: _____ Date: 3/30/15
License Number: 15-029
Form Date: 2/15/11

APPENDIX II. Photographs from the Phase I Field Survey

Figure 4. Location of the high pressure gas main located on the north side of the project area. Viewing north.

Figure 5. Location of the high pressure gas main located on the north side of the project area. Viewing northeast.

Figure 6. Location of the utilities on north side of the project area. Viewing north from the south side of the project area.

Figure 7. Location of the paved boat launch and utilities located on the south side of the project area. Viewing south from the north side of the project area.

Figure 8. Location of the paved boat launch and utilities located on the south side of the project area. Viewing north.

Figure 9. Location of the paved trail on the north side of the project area. Viewing east.

Figure 10. Location of the gravel road oriented east-west on the north side of the project area. Viewing east.

Figure 11. Location of the gravel road oriented east-west on the north side of the project area. Viewing west.

Figure 12. Location of the dumping area on the slope north of the project area. Viewing northeast.

Figure 4. Location of the high pressure gas main located on the north side of the project area. Viewing north.

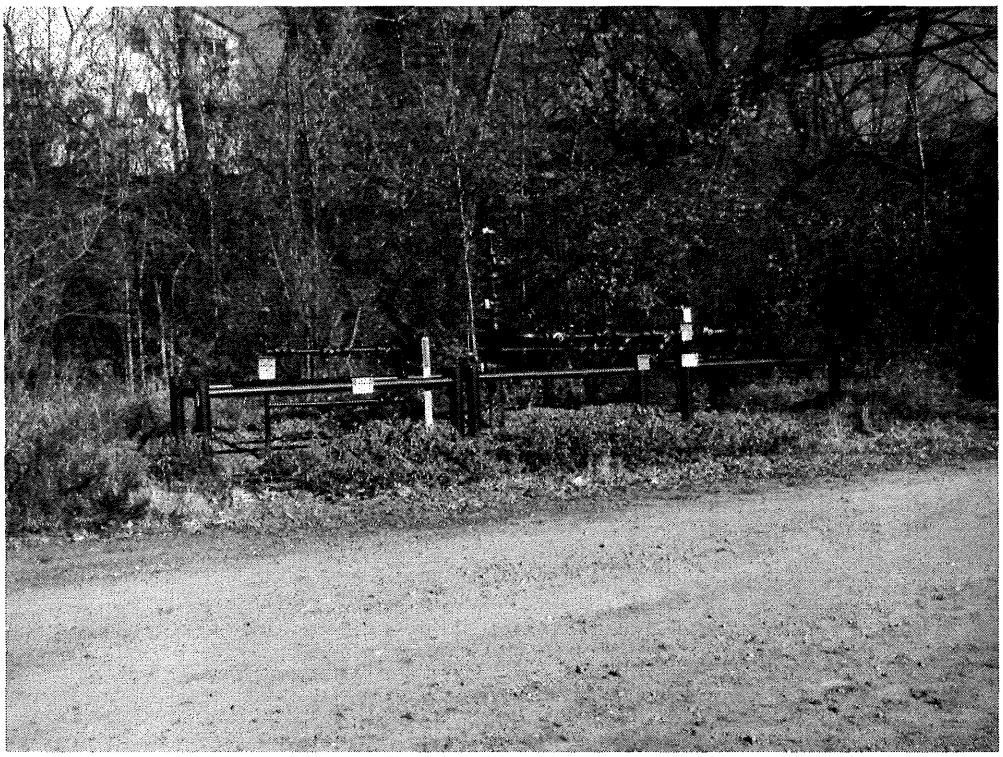

Figure 5. Location of the high pressure gas main located on the north side of the project area. Viewing northeast.

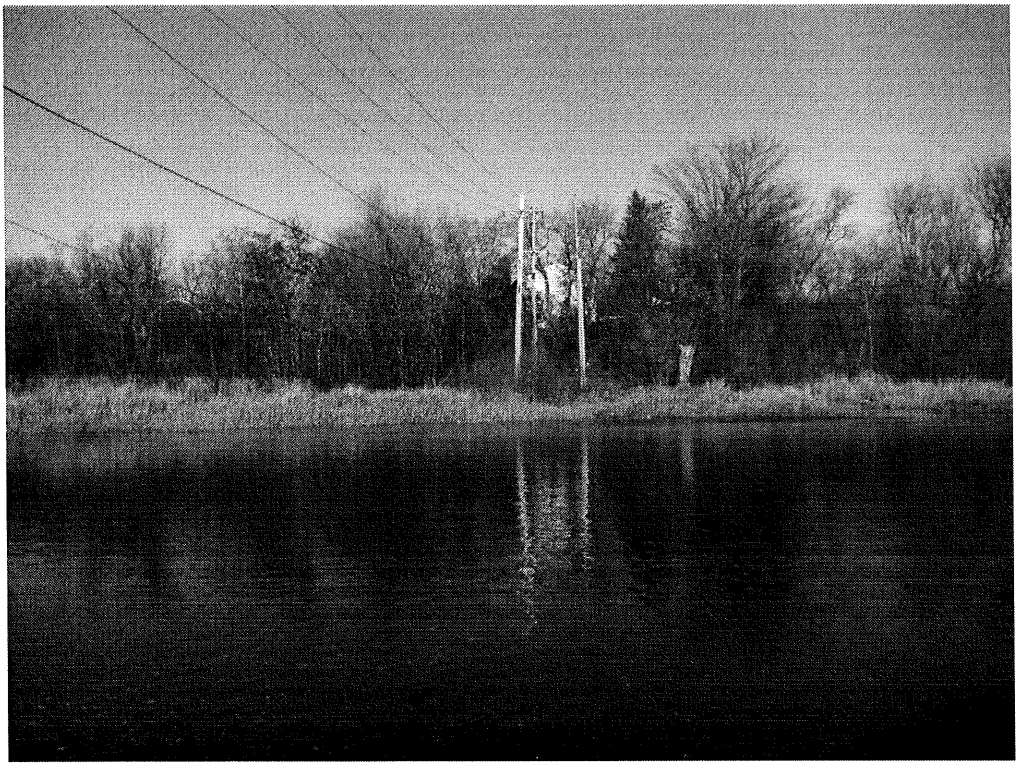

Figure 6. Location of the utilities on north side of the project area. Viewing north from the south side of the project area.

Figure 7. Location of the paved boat launch and utilities located on the south side of the project area. Viewing south from the north side of the project area.

Figure 8. Location of the paved boat launch and utilities located on the south side of the project area. Viewing north.

Figure 9. Location of the paved trail on the north side of the project area. Viewing east.

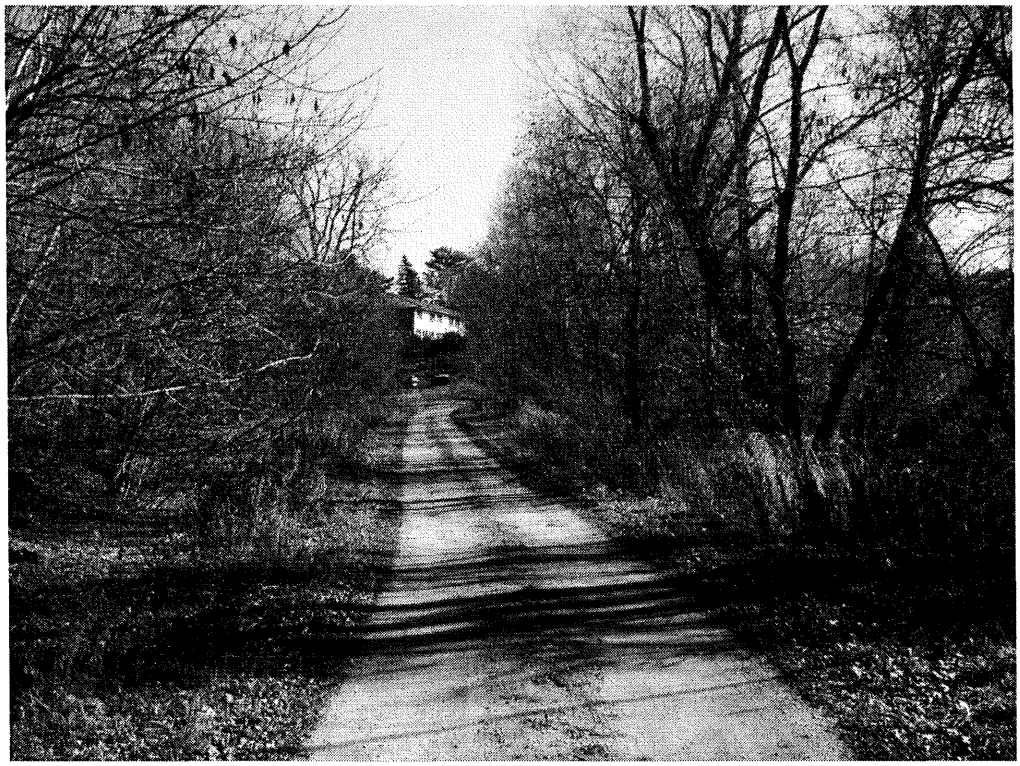

Figure 10. Location of the gravel road oriented east-west on the north side of the project area. Viewing east.

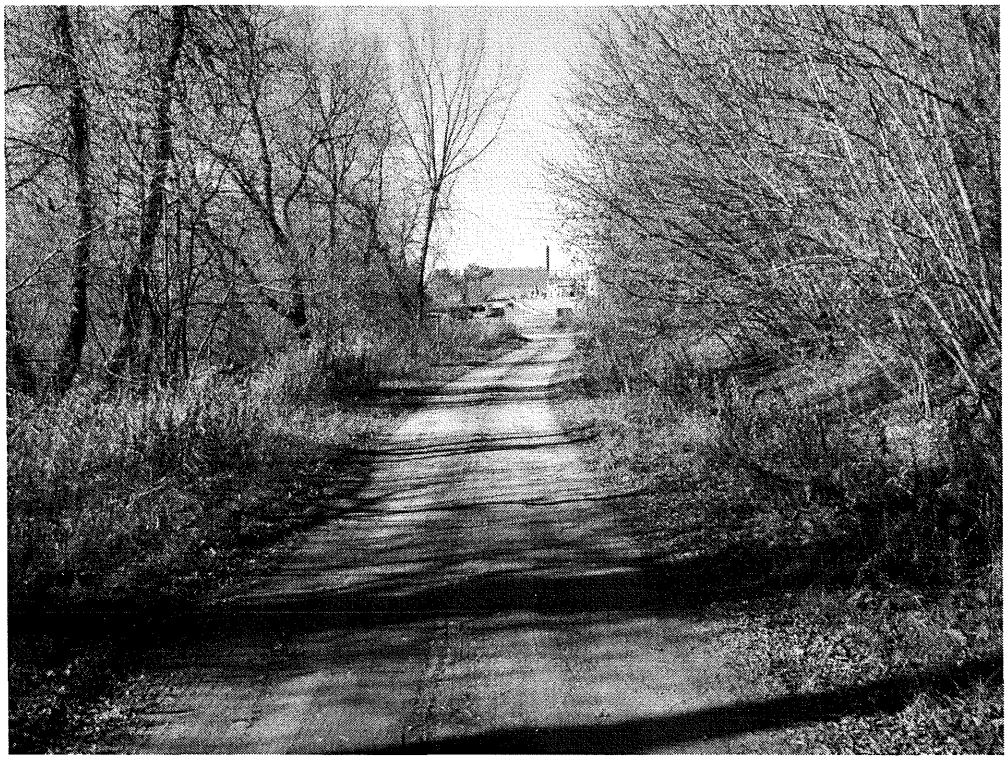

Figure 11. Location of the gravel road oriented east-west on the north side of the project area. Viewing west.

Figure 12. Location of the dumping area on the slope north of the project area. Viewing northeast.