PHASE I AND II ARCHAEOLOGICAL INVESTIGATIONS FOR THE TRUNK HIGHWAY 169 FLOODPLAIN MITIGATION PROJECT, ST. PETER TO MANKATO, NICOLLET COUNTY, MINNESOTA

MnDOT Contract No. 03059
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Prepared for:
Minnesota Department of Transportation
Office of Environmental Stewardship
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Minnesota Department of Transportation

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October 8, 2013

Ms. Kelly Gragg-Johnson
State Historic Preservation Office
Minnesota Historical Society
345 Kellogg Blvd. W.
St. Paul, MN 55101-1906

Regarding: S.P. 5211-59 (TH 169, Nicollet County)
Pavement preservation, vertical grade raising
T. 109 – 110 N., R. 26 – 27 W., Oshawa & Belgrade Twps.
EDA Control Number #0728
SHPO: 2013-1312

Dear Ms. Gragg-Johnson:

Thank you for your letter of 3/5/2013 responding to our delegation of authority from the Economic Development Administration. At this time, we believe the project will require a Section 404 permit from the U.S. Army Corps of Engineers, but that determination has apparently not been made. There are no permits required by the U.S. Fish and Wildlife Service. The National Park Service and FEMA may also be involved, but we are unclear at this time the nature of this participation.

We have completed the Phase I and Phase II archaeological and architectural reports for this project (enclosed, along with inventory forms). The report of the geomorphological investigations in support of the archaeology has not been completed. This work is summarized in the archaeology report. We will send this report to you once it is complete.

No eligible archaeological or architectural properties were identified in the project area of potential effect (APE). As a consequence, we have determined that there will be **no historic properties affected** by the project as currently proposed.

Feel free to contact me at 651-366-3614 if you have any questions.

Sincerely,

Craig Johnson
Cultural Resources Unit

enclosures

cc: Zachary Tess, MnDOT District 7
Rebecca Novak, MnDOT District 7
Kristen Zschomler, MnDOT CO
Robin Bush, EDA/CRO

MANAGEMENT SUMMARY

In the June of 2013, Two Pines Resource Group, LLC (Two Pines) completed a Phase I archaeological survey and Phase II archaeological evaluation in advance of the planned Trunk Highway (TH) 169 Floodplain Mitigation Project between St. Peter and Mankato in Nicollet County, Minnesota. This work was performed under contract with the Minnesota Department of Transportation (MnDOT) for the Cultural Resource Unit of the department. The project will likely require a permit from the U.S. Army Corps of Engineers and receive funding from the Federal Economic Development Administration thus requiring compliance with Section 106 of the National Historic Preservation Act, as amended. Geomorphological (Strata Morph Geoexploration) and architectural history (Stark Preservation) studies performed for this project were reported separately.

The purpose of the Phase I and II archaeological investigations was to determine if the project's area of potential effects (APE) contains any intact archaeological resources that may be eligible for listing in the National Register of Historic Places (NRHP). The APE is the construction limits within four discrete segments (St. Peter Security Hospital, 7 Mile Creek, River Bluff Road, and Hiniker Creek) totally approximately 3.15 miles along the TH 169 corridor. Within these segments the floodplain mitigation project will raise the grade of the highway above the 100-year flood elevation. The test areas are located in Sections 28-32 of T110N, R26W, Sections 12, 24, 25, and 36 of T109N, R27W, and Section 1 of T108N, R27W. The project area is located within the Prairie Lake - North archaeological sub-region. Dr. Michelle Terrell served as Principal Investigator.

During the archaeological investigations for the TH 169 Floodplain Mitigation Project, two new archaeological sites, 21NL0147 (Belgrade Terrace) and 21NL0148 (St. Peter Hospital Bluff) were identified. Site 21NL0147 (Belgrade Terrace) is a deeply-buried, but sparse precontact artifact scatter that produced 11 fragments of bone and a single projectile point from 10 square meters of the associated soil horizon. Radiocarbon dates and the typology of the projectile point indicate the site was occupied during the Woodland Period. Due to the low density of cultural material encountered, site 21NL0147 as currently defined, does not have the potential to yield significant information and is therefore recommended as not eligible for listing in the NRHP. No additional fieldwork is recommended in the River Bluff Road segment.

Site 21NL0148 (St. Peter Hospital Bluff) consists of twentieth-century surface artifact scatters and features associated with the occupation of the state hospital and the use of the bluff area by patients at liberty to move about the grounds during the day. The site boundary also encompasses the remains of the hospital's c. 1950 pump house and an 1871 railroad bridge abutment. During the Phase II, 1,402 artifacts were documented. While these artifacts generally speak to the way in which the hospital was appointed and provide some insight into patient care, the absence of labels on the majority of the cans and bottles together within an inability to confidently associate the recovered materials with a particular building or even their use by staff vs. patients limits the research potential of the deposits. Due to these constraints the site cannot answer important research questions and is recommended as not eligible for listing in the NRHP and no additional fieldwork is recommended in the St. Peter Security Hospital segment.

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INTRODUCTION

In the June of 2013, Two Pines Resource Group, LLC (Two Pines) completed a Phase I archaeological survey and Phase II archaeological evaluation in advance of the planned Trunk Highway (TH) 169 Floodplain Mitigation Project between St. Peter and Mankato in Nicollet County, Minnesota. This work was performed under contract with the Minnesota Department of Transportation (MnDOT) for the Cultural Resource Unit of the department. The project will likely require a permit from the U.S. Army Corps of Engineers and receive funding from the Federal Economic Development Administration thus requiring compliance with Section 106 of the National Historic Preservation Act, as amended. The purpose of the Phase I and II archaeological investigations was to determine if the project's area of potential effects (APE) contains any intact archaeological resources that may be eligible for listing on the National Register of Historic Places (NRHP).

PROJECT DESCRIPTION

The TH 169 Floodplain Mitigation Project will principally (1) raise the highway grade 1 to 4 feet within four segments along the corridor to bring those portions of the grade above the 100-year flood elevation; and (2) resurface the highway to re-establish roadway smoothness. Ancillary aspects of the project include culvert extensions and/or replacements; realignment of entrances, driveways, and township roads to accommodate the grade change; and regrading of west side ditches to channel water to new drainage structures. Other features include cable barrier, rumble strips, and adjustments. Most work will take place within the existing right of way.

AREA OF POTENTIAL EFFECTS (APE)

The APE for archaeology, as determined by the MnDOT CRU Project Manager, is the same as the construction limits within the four segments along TH 169 where the highway's grade will be raised (Figure 1). The four locations in which the grade will be raised are designated and described below. The UTM coordinates were determined electronically using Acme Mapper. Legal locations for the APE are provided in Table 1.

St. Peter Security Hospital

- 2.5' below 100 year flood
- Length - 1.48 miles (7800')
- Maximum distance of construction limits – 150' from highway centerline
- UTM (NAD 83, Zone 15): 422678E 4906692N (north)
  420920E 4905276N (south)

7 Mile Creek

- 3.5' below 100 year flood
- Length - 0.5 miles (2650')
- Maximum distance of construction limits – 120' from highway centerline
- UTM (NAD 83, Zone 15): 418241E 4901939N (north)
  418000E 4901191N (south)

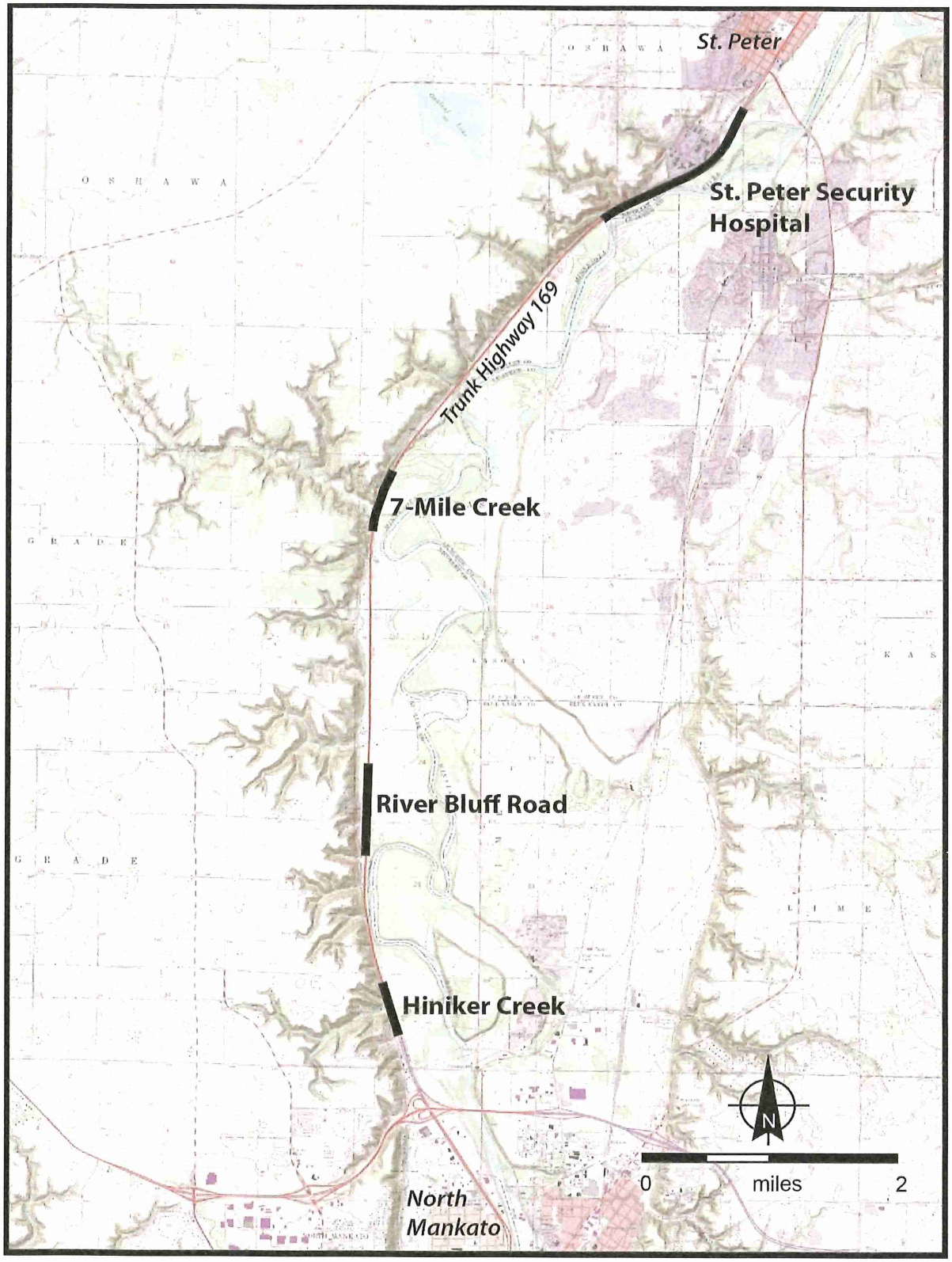

FIGURE 1. PROJECT LOCATION

River Bluff Road

- 4' below 100 year flood
- Length - 0.76 miles (4000')
- Maximum distance of construction limits – 100' from highway centerline
- UTM (NAD 83, Zone 15): 417959E 4898150N (north)
  417930E 4896929N (south)

Hiniker Creek

- 1' below 100 year flood
- Length - 0.41 miles (2180')
- Maximum distance of construction limits – 150' from highway centerline
- UTM (NAD 83, Zone 15): 418142E 4895291N (north)
  418350E 4894630N (south)

TABLE 1. LEGAL LOCATIONS FOR THE TH 169 FLOODPLAIN MITIGATION PROJECT APE

T	R	S	Quarter Sections
St. Peter Security Hospital			
110N	26W	29	SW-SW, SE-SW, NW-SE, NE-SE, SE-NE, NE-NE
110N	26W	30	SE-SE
110N	26W	31	NE-NE
7 Mile Creek			
109N	27W	12	NW-SW, SW-NW, NE-NW
River Bluff Road			
109N	27W	24	SW-SW, NW-SW
109N	27W	25	SW-NW, NW-NW
Hiniker Creek			
109N	27W	36	E-SW, SE-NW

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RESEARCH DESIGN

All work was conducted in accordance with the *MnDOT's Cultural Resources Unit Project and Report Requirements* (MnDOT 2011), *SHPO Manual for Archaeological Projects in Minnesota* (Anfinson 2005), the *State Archaeologist's Manual for Archaeological Projects in Minnesota* (Anfinson 2011), and the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (National Park Service 2002).

OBJECTIVES

The purpose of the Phase I and II archaeological investigations was to determine whether the project area contains any intact archaeological resources that may be potentially eligible for listing on the NRHP. The NRHP criteria, summarized below, were used to assess the significance of documented archaeological sites. While all four criteria are considered, archaeological sites are typically eligible for listing in the NRHP under Criterion A or D.

- Criterion A – association with events that have made a significant contribution in our past;
- Criterion B – association with the lives of persons significant in our past;
- Criterion C – embodiment of the distinctive characteristics of a type, period, or artistic values; or representation of the work of a master; possession of high artistic values; or representation of a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D – potential to yield information important to prehistory or history (National Park Service 2002).

LITERATURE SEARCH

In April of 2013, staff from Two Pines conducted background research in the holdings of the SHPO and MHS. Sources examined during this research included files of previously identified archaeological sites within a one-mile (1.6 km) radius of the project area, reports documenting previous surveys, and historical maps of the study area. Additional historical maps, as well as historical aerial photographs and current topographic maps were reviewed online. This research was conducted in order to identify those portions of the project area that have a higher potential for containing intact archaeological resources.

Additional research was conducted to develop relevant historic contexts for the project area and to assess whether any potential historical-archaeological resources in the APE might be historically significant. This research was carried out online and in the holdings of the MHS and Mankato State University. During this research, numerous sources were examined including county and local histories, historical topographic maps, plat maps,

photographs and images, General Land Office records, local histories, and other primary documents including records of the St. Peter State Hospital.

PHASE I ARCHAEOLOGICAL SURVEY

The Phase I archaeological survey commenced with a thorough visual inspection of the APE of each of the four project segments. The purpose of the inspection was to identify any surface features, such as extant foundations, to refine the assessment of archaeological potentials as determined by the literature review, and to identify existing levels of disturbance within the APE. Areas demonstrably disturbed through previous construction or other modern land uses were excluded from systematic survey unless the potential existed for intact cultural deposits to be present beneath the disturbance. Likewise, portions of the APE meeting the conditions for low archaeological potential were not subject to systematic survey.

Those portions of the project area that were assessed as having the potential to contain intact archaeological sites but which afforded less than 25 percent surface visibility underwent systematic shovel testing. Twelve shovel tests were excavated within portions of the project area that met these conditions. Shovel tests are 30 to 40 centimeter (cm) (12 to 15 inch) in diameter holes manually excavated at regular intervals along evenly spaced transects in order to identify subsurface archaeological resources. During this project, a 15-meter (m) shovel-testing interval was used. All soils removed from excavated shovel tests were screened through ¼-inch mesh. Shovel tests were excavated through all post-glacial soils and sediments to culturally sterile subsoil or to a maximum depth of 100 centimeters below the surface (cmbs) depending on which condition was first encountered.

Data gathered during the survey were recorded on shovel test forms and in the field notebook of the Principal Investigator. Items noted included: the location of survey areas; the location of individual shovel tests; the depth of each shovel test and its associated soil profile; the presence or absence of cultural materials within each test; and the excavated soil texture, inclusions, and Munsell® color designation.

PHASE II ARCHAEOLOGICAL INVESTIGATIONS

The subject of the Phase II archaeological investigations was a series of surface dumps (21NL0148) documented on the slope below the St. Peter State Hospital and within the highway ROW. The primary objective of the Phase II evaluation was to gather sufficient information to discern (1) whether the dump was one continuous feature or whether it was made up of distinct dumping areas; (2) during what period or periods the material was deposited; and (3) what types of artifacts are present. It was assumed, based on the types of artifacts present and their location that the material deposited in the dump originated at the State Hospital, but clarifying that association was also a goal of the Phase II. Field methods consisted of mapping the extent of the debris field(s), generally characterizing the types of materials present, and field-cataloging objects visible on the surface. In order to document the vertical density of the dumps, a 1-x-1-m grid was placed at the densest portion of the artifact scatter and the material within it documented

to the depth at which either intact artifacts were no longer visible, or fallen rock prevented further excavation. Diagnostic attributes (e.g. height, width, labels, etc.) of artifacts that retain sufficient integrity to allow for identification were recorded in the field. Representative or unique objects were digitally photographed. Only some representative samples or diagnostic materials warranting further research were collected. The remaining artifacts were left on site.

TESTING FOR DEEPLY-BURIED SITES

A separate geomorphological survey of the project area was conducted by Strata Morph, and this fieldwork was monitored for cultural deposits by Two Pines. This survey was carried out in accordance with the Minnesota Deep Test Protocol as permitted by the water table and Occupational Safety and Health Administration (OSHA) trench safety guidelines (Commonwealth Cultural Resources Group 2006:12-12).

Areas identified through topographic and soils data, or field observation, as having the potential to contain buried soils were cored using a truck-mounted Geoprobe® to extract 4.5-cm (1.750in.) diameter cores. Core samples were described in the field and discarded. Once buried soils were identified, backhoe trenching was used to obtain more detailed soil-stratigraphic data and to expose the buried soils for archaeological testing. All trenches were initially excavated to the maximum OSHA-safe entry depth and the trench walls subsequently inspected by the archaeological Principal Investigator for cultural material or features indicative of human occupation. This process included the visual inspection of the trench walls, trowel scraping of trench walls, and screening through ¼-inch mesh of a sample of each sediment that appeared to have archaeological potential as assessed by the archaeological and geomorphological Principal Investigators. Each screened sample consisted of 5-liter sub-samples collected from along the trench walls for a typical total sample of 20 liters from each sampled stratum. If trench depth, or the water table, prevented entrance into the trench, a segment of each stratum with archaeological potential was brought to the surface by the backhoe bucket, sampled, and screened, while the remainder of the stratum was observed and troweled through on the surface. If archaeological deposits were encountered within a deeply buried stratum, the horizontal extent of the deposits was defined through the excavation of additional trenches in each cardinal direction as allowed by the ROW following the same protocol.

Additionally, a bucket auger with a 10-cm diameter bit was used at one location within the 7 Mile Creek test area to retrieve soil samples from a buried soil. The auger testing took place in 20 cm lifts to a maximum depth of 245 cmbs (8 ft.). All removed soils were screened through ¼-inch mesh and the sediments and soils encountered were recorded on a standard form.

GEOGRAPHIC INFORMATION SYSTEM DATA

A geographic information system (GIS) data layer was created during the course of the archaeological investigations. The locations of all individual shovel tests, excavations trenches, and surface finds were recorded using a Trimble GeoXT ® GPS Unit. The data

were differentially corrected using a National Geodetic Survey (NGS) continuously operating reference station (CORS).

LABORATORY ANALYSIS AND CURATION

All artifacts recovered during the archaeological investigations were returned to the Two Pines laboratory for cleaning, processing, and cataloging. Artifacts were processed in accordance with the standards and guidelines of the Minnesota Historical Society (MHS) Collections Department.

All artifacts were cleaned and then sorted into categories used in standard professional practice, first by general material type, then by function and other attributes. Materials were cataloged using Microsoft Excel. Each provenience was assigned a distinctive bag number, and each artifact from a particular provenience received a distinctive artifact number, beginning with the number "1." The bag numbers and the artifact numbers were then combined to create the numbers contained in the artifact catalog.

Artifacts from 21NL0147 (Belgrade Terrace), which was located within the public right of way, were curated at the MHS. With MnDOT and MHS approval, artifact samples collected from 21NL0148 (St. Peter Hospital Bluff) will be transferred to the St. Peter State Hospital Museum.

LITERATURE SEARCH

EARLY ROADS

Prior to the creation of an overland road system, the Minnesota River provided the principal means of transportation in the project area. However trails were certainly present and served to connect Native American villages to one another as well as to resource locations and later to fur-trading posts. During the first half of the nineteenth century the Red River Trail system from Fort Snelling to Pembina, and beyond to Fort Garry in Winnipeg, expanded upon these earlier trails. One of the Red River Trail routes paralleled the east side of the Minnesota River before fording the river at the Traverse des Sioux crossing located just to the north of present-day St. Peter (Nute 1925:278). According to the original survey plats of the area completed in 1855 by the United States General Land Office, the principal road from St. Paul to Mankato during that era continued south from Traverse des Sioux/St. Peter on the west side of the river before crossing at Babcock's Ferry to Kasota, and heading south from there on the east side of the river. The original road that led down to the ferry on the west bank crossed the present-day TH 169 corridor in the E ½ of Section 29, T 110N, R 26W near the St. Peter State Hospital. By 1874, a separate road had been established that travelled the west side of the river between St. Peter and Mankato. This route, which principally followed the base of the bluff, would evolve into Nicollet County Highway 30.

TRUNK HIGHWAY 169

When U.S. TH 169 was constructed into Minnesota from Iowa circa 1931, its original route between St. Peter and Mankato was shared with Minnesota Highway 22, which was located to the east of the Minnesota River. In 1961, TH 169 between St. Peter and Mankato was converted to an expressway and rerouted to its current alignment west of the river. Part of this re-alignment absorbed portions of County Highway 30, a remaining portion of which exists in Sections 13, 24, and 25 of T109N, R27W, as Old River Bluff Road (Forde Printing Co. 1960; Thomas O. Nelson Co. 1962). Since that time, TH 169 has been subject to the repair of various portions, typically due to flood damage, but it has not been re-routed or reconstructed.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Background research conducted at the SHPO revealed that two previous archaeological surveys have occurred within portions of the TH 169 Floodplain Mitigation Project's APE. The first of these was conducted by the Minnesota Trunk Highway Archaeological Reconnaissance Survey (MTHARS) program. Carried out in 1979 in advance of an emergency repair due to a slide event, the survey encompassed an approximately one half-mile segment of highway in Section 31, T 110N, R 26W. Pedestrian reconnaissance at 2-m (7-ft.) intervals was carried out in cultivated areas within 150 feet east of the then-existing construction limits was negative for cultural materials (Peterson and Pfuzenreuter 1980:200).

In 1980, a survey was conducted by Christina Harrison in advance of proposed developments within Seven Mile Creek Park. Included in these developments were a hiking trail and softball diamonds to be located immediately adjacent to TH 169 ROW on the east side of the highway in the S ½ of the NW ¼ of Section 12, T 109N, R 27W. These proposed developments were surveyed through a combination of pedestrian reconnaissance and shovel testing, and were negative for cultural materials (Harrison 1980).

RECORDED ARCHAEOLOGICAL SITES

Although the APE consists of four discontiguous locations, a one-mile radius around the entire corridor was used to characterize the archaeological resources in the project's vicinity. No archaeological sites have been previously identified within the project's APE. Twenty-six confirmed precontact archaeological sites have been previously recorded within a one-mile (1.6 km) radius of the project area (Table 2). Four of these, 21BE0009, 21LE0001, 21NL0053, and 21NL0119, are mound sites on bluff tops overlooking the Minnesota River. Also located on bluff tops or high terraces overlooking the river are eleven additional precontact sites, comprising six lithic scatters (21LE0041, 21LE0068, 21LE0092, 21LE0093, 21NL0011, 21NL0118), two isolated lithic finds (21LE0078, 21LE0091), and three artifact scatters (21LE0090, 21NL0069, 21NL0120). One of the artifact scatters, 21LE0090, is additionally associated with a potential earthwork.

Another four previously recorded sites within a mile of the APE, 21NL0071, 21NL0126, 21NL0127, and 21NL0128, are lithic scatters that were identified on uplands set back from the bluff edges but overlooking the Minnesota River. Three additional previously recorded sites are clustered around the edge of a ravine located in Section 30, T110N, R26W. These include two artifact scatters containing lithic and ceramic artifacts (21NL0130 and 21NL0131) and a lithic scatter (21NL0129).

The remaining three precontact sites within one mile of the APE were found in disturbed contexts. Sites 21LE0076 and 21LE0077 both constitute artifacts found within a drainage way, 21LE0076 consisting of two flakes, and 21LE0077 consisting of four flakes and one pot sherd. Site 21NL0028 is a lithic scatter that was exposed in a borrow pit.

Site 21NL115 is a group of petroglyphs noted in *The Aborigines of Minnesota* (Winchell 1911). The site was reported as being located in a rock shelter five miles below St. Peter and near the center of Section 1, T109N, R27W. The site, however, has not been relocated in the modern era, and its original site description is too broad to determine whether or not it is within the APE.

In addition to the confirmed sites, eight unconfirmed precontact archaeological sites are located within one mile of the APE. Four of these (21LEb-21LEe) are possible lithic scatters that were identified around the circumference of a pond located in the E ½ of Section 6, T109N, R26W. The other four are unconfirmed mound sites. Three of these

TABLE 2. ARCHAEOLOGICAL SITES WITHIN ONE MILE OF THE PROJECT AREA

Site No.	T	R	S	¼ Section	Description
21BE0009	109N	27W	24	SE-SE	Mound site
21LE0001	109N	26W	18	SW-NW	Mound site
21LE0041	110N	26W	28	NW-SW-NE	Lithic scatter
21LE0068	109N	26W	6	NW-NW-SE, NE-NE-SW	Lithic scatter
21LE0076	110N	26W	28	NE-SE-SW-NE	Lithic scatter
21LE0077	110N	26W	28	SW-NE-NE	Artifact scatter
21LE0078	110N	26W	28	SE-SE-NE	Isolated lithic biface
21LE0090	109N	26W	6	NE-SE-SW	Artifact scatter, mound
21LE0091	109N	26W	6	NW-SE-SW	Lithic find spot
21LE0092	109N	26W	6	SW-SE-SW	Lithic scatter
21LE0093	109N	26W	7	SE-NW-SW	Lithic scatter
21NL0011	108N	27W	2	SE-SE	Lithic scatter
21NL0028	109N	27W	36	NW-SW	Lithic scatter
21NL0053	109N	27W	12	E-SW-NW	Mound group
21NL0069	110N	26W	21	S-SW-SW	Artifact scatter
21NL0071	110N	27W	36	SW-NE	Lithic scatter
21NL0115	109N	27W	1	Center (approximate)	Rock art
21NL0118	109N	27W	1	NE-SW	Lithic scatter
21NL0119	109N	27W	11	SE-NE-SE	Mound site
21NL0120	109N	27W	1	N-NW-SW-SE, SE-SW-NW-SE	Artifact scatter
21NL0126	110N	26W	30	S-NW-NE, N-SW-NE	Lithic scatter
21NL0127	110N	26W	30	SE-SW-NE, NE-NW-SE	Lithic scatter
21NL0128	110N	26W	30	SE-NW-NW-SE	Lithic scatter
21NL0129	110N	26W	30	NE-SW-NW-SE	Lithic scatter
21NL0130	110N	26W	30	SE-NW-SE	Artifact scatter
21NL0131	110N	26W	30	SW-SW-NE	Artifact scatter
21LEb	109N	26W	6	S-NW-NE-SE	Unconfirmed lithic scatter
21LEc	109N	26W	6	SE-NE-SE-NE	Unconfirmed lithic scatter
21LEd	109N	26W	6	SE-SE-NE, NE-NE-SE	Unconfirmed lithic scatter
21LEe	109N	26W	6	SE-NW-SE-NE	Unconfirmed lithic scatter
21NLai	109N	27W	12	SW-NW-SW	Unconfirmed mound site
21NLaj	109N	27W	11	SE-NE-NE, NE-SE-NE	Unconfirmed mound site
21NLak	109N	27W	11	E-NW-NE	Unconfirmed mound site
21NLaq	110N	26W	29 30 31 32	SW-SW SE-SE NE-NE N-NW-NW	Unconfirmed mound site

mound sites (21NLai-21NLak) are located on ravine edges in Sections 11 and 12 of T109N, R27W, while the fourth (21NLaq) is located at the bottom of a ravine near the common corner of Sections 29-32 of T110N, R26W, although it is likely that these are natural formations (Wilford 1948).

ARCHAEOLOGICAL SITE POTENTIAL

The assessment of an area's potential to contain archaeological resources consists of an analysis of terrain, water sources, and other environmental and landscape conditions in and adjacent to that area as they were historically. Areas that were occupied by water, permanently or frequently inundated (e.g., wetlands, floodplains), poorly drained, or exhibited slopes of greater than 20 percent would have been inhospitable to human occupation and are therefore considered to have low potential for containing archaeological resources.

Precontact Archaeological Site Potential

Generally, areas with greater potential for containing precontact archaeological resources are in proximity, typically less than 500 ft., to a water source or wetland, though the applicability of this condition varies depending on the nature of the water source (perennial versus intermittent), the size of the body of water, the extent of the floodplain, and the availability of other water sources in the vicinity, i.e., proximity to a small pond may be less indicative of archaeological potential if a large lake is nearby. Topographic prominence is also frequently indicative of high precontact archaeological potential, though relative topographic prominence as a gauge of archaeological potential often is tied to other conditions, such as proximity to water. Proximity to previously recorded precontact archaeological sites often suggests high potential for precontact resources, insomuch as previously recorded sites may not have been fully defined or as the areas around previously recorded sites are typically subject to similar environmental/landscape conditions. The absence, however, of precontact archaeological sites in an area does not necessarily point to low archaeological potential, given that that area may not have been subject to previous survey.

The previous identification of precontact archaeological sites within a one-mile (1.6 km) radius of the project area, together with the proximity of the Minnesota River, indicates a moderate to high potential for precontact archaeological sites to be present in the project APE. The majority of the precontact archaeological sites previously identified in the surrounding area were recorded on bluff tops, high terraces, and other landforms with relative topographic prominence that are proximate to, or have a view shed that includes, the Minnesota River. The project's APE, though, runs below the bluff edge along an intermediate terrace largely achieved by blasting the bluff back and/or through the creation of an artificial, elevated grade through the river's floodplain. Given these conditions, the potential for precontact archaeological resources within the project APE is limited to those areas where intact and inhabitable landforms were preserved from road construction activities.

Historical-Period Archaeological Site Potential

Areas proximate to former and/or existing historical-period buildings, structures, or other features are generally considered to have higher potential for containing historical-archaeological resources. These areas are not limited to the locations of buildings, as often the most important information comes from deposits within associated features, such as privies, cisterns, or middens, which were located away from primary buildings.

No historical-archaeological sites have been previously recorded in or within one mile of the TH 169 Floodplain Mitigation Project's APE. The review of historical maps and aerial photographs indicated the potential for four different historical-archaeological site types to be present within the project's APE: those associated with farmsteads or residential properties, resources related to the St. Peter State Hospital, elements of the Winona & St. Peter Railroad, and features associated with the "Seven Caves."

ENVIRONMENTAL HISTORY

The TH 169 Floodplain Mitigation Project is located in the Prairie Lake North archaeological sub-region. The following environmental history of this sub-region is based largely on information contained in Borchert and Gustafson's *Atlas of Minnesota Resources and Settlement* (1980) and an overview entitled "Minnesota's Environment and Native American Culture History" by Gibbon et al. (2002).

The Prairie Lake archaeological region covers most of southwest and south-central Minnesota, including all of Big Stone, Blue Earth, Brown, Carver, Chippewa, Cottonwood, Faribault, Freeborn, Jackson, Lac Qui Parle, Le Sueur, Lyon, McLeod, Martin, Nicollet, Redwood, Renville, Scott, Sibley, Stevens, Swift, Watonwan, and Yellow Medicine counties and portions of Douglas, Grant, Kandiyohi, Lincoln, Meeker, Nobles, Otter Tail, Pipestone, Pope, Rice, Steele, Traverse, and Waseca counties.

The topography of the region is dominated by the valley of the Minnesota River, which bisects the region, and the scarp of the Coteau des Prairie in the west. The northern sub-region comprises that portion of the Prairie Lake region that is located to the north of the Minnesota River and to the west of present-day Mankato. The lakes, from which this area derives its name, are shallow, none within the sub-region exceeding 10 m in depth. Many of these lakes were drained during the historical period in order to increase land area for cultivation.

The climate within this sub-region has an average annual precipitation range of 22 to 28 inches. January highs average 24 degrees Fahrenheit (F), while July highs average 85 degrees F. The frost-free season lasts between 140 to 160 days, from around early May to late September. In this region, soil types are generally medium- to fine-textured prairie soils. Exposures of bedrock are rare, although outcrops can be found in the eastern part of the region near the confluence of the Blue Earth and Minnesota Rivers and near New Ulm. Outcrops of Sioux Quartzite are present in Cottonwood County.

The soils of this region are medium- to fine-textured prairie soils that at the time of EuroAmerican settlement supported expanses of tallgrass prairie. Wood resources were concentrated in the Minnesota River valley and other river valleys of the region, although trees were also present in other fire-protected areas proximate to major lakes.

During the Late Holocene period, subsistence resources in this sub-region would have mainly consisted of bison with an occasional large herd of elk. Fish, waterfowl, and aquatic mammals would also have been plentiful due to the many lakes in the area. Wild edible water lilies and cattails were present throughout most of the sub-region. The distribution of wild rice within the region was limited to the Minnesota River valley and lakes in the eastern and northern portions of the region. Non-aquatic floral resources present in the region included prairie turnips and ground plums.

HISTORIC CONTEXTS

The Minnesota SHPO has developed a series of broad statewide historic contexts and themes for the interpretation and evaluation of cultural properties (Dobbs 1990a; Dobbs 1990b; SHPO 1993). These contexts cover three broad periods of Minnesota's history: precontact (before ca. 1650); contact (A.D. 1630-1837); and historical-period (1830s to the present). The following synopses relevant to this study are based on information provided in these contexts and additional sources including the recently completed Minnesota Statewide Multiple Property Documentation Form (MPDF) for the Woodland Tradition (Arzigian 2008).

PRECONTACT PERIOD

Precontact cultures within Minnesota are divided into four major traditions: Paleoindian; Archaic; Woodland; and Mississippian/Plains Village. These traditions are largely defined by technical innovations or behavioral adaptations that can be observed in the archaeological record, such as physical alterations in the forms and types of material culture (e.g., arrowhead styles or pottery decoration) used by a precontact culture, or the adaptation of their subsistence life-ways to a changing landscape (e.g., hunting, gathering, or cultivation). As the diagnostic precontact artifacts recovered during the TH 169 Floodplain Mitigation Project indicate most likely with the Woodland tradition, but also possibly with the Archaic period, both contexts are presented here.

Archaic Period (ca. 7500- ca. 500 BC)

Approximately 9,000 years ago, the region encompassing Minnesota experienced a rapidly changing postglacial environment associated with warmer temperatures and a decrease in precipitation (Gibbon et al. 2002:10). New landscapes emerged from beneath the ice, and the area of the state gradually transitioned from a forested region to an expanse of prairie interspersed with large lakes and swiftly-flowing rivers fed by glacial runoff. The Pleistocene megafauna, which met with extinction about 11,000 BC, were replaced with our current complexes of animals and plants including white-tailed deer, moose, bear, bobcat, red fox, beaver, otter and muskrat among others (Gibbon 2012:43-44). The bison population flourished as the prairie biome continued to expand eastward (Anfinson 1997:35).

The inhabitants of the region were forced to adjust to this transformed landscape, altering their means of subsistence and lifestyles. Referred to as the Archaic period, this era is marked by an increased diversity of tool types, raw materials, and local resources. In response to the increased abundance and variety of game, fish, shellfish, and plant resources, the large lanceolate projectile points of the Paleoindian tradition were replaced by smaller notched and stemmed chipped-stone points, while chipped-stone axes were replaced by groundstone adzes, axes, and other groundstone tools. Other implements introduced into the Archaic period tool kit include atlatl darts and tools made of bone and native copper. Copper implements, found primarily in the northern regions of the state, appeared about 3800 B.C. and were manufactured and used until approximately 1200

B.C. (Gibbon 2012:83-84). Because of an increased ability to depend on regional resources within an increasingly stable environment, Archaic people became less nomadic and established longer-term seasonal camps with temporary structures and associated storage pits.

Due to the use of resources within particular regions, Archaic-tradition artifact assemblages demonstrate more regional cultural variations than do Paleoindian sites. For this reason, four distinct Archaic contexts have been identified in Minnesota including the Shield Archaic, Lake-Forest Archaic, Prairie Archaic, and Eastern Archaic. Archaic peoples who occupied the prairie biome of southwestern and south-central Minnesota between 8,500 and 2,000 years ago are typically associated with the Prairie Archaic complex. This complex is defined as: "a hunting and gathering complex found in the tall-grass prairies . . . the preeminent characteristic of [which] is intense reliance on bison hunting" (Dobbs 1990a:92). Although much remains to be learned about this complex, the complement of artifacts found at Prairie Archaic sites has included projectile points, hafted knives, end and side scrapers, choppers, utilized lithic flakes, and, to a limited extent, groundstone tools (Dobbs 1990a:92).

Another climate shift that occurred around 3,000 B.C. brought about a distinct late Archaic phase. During this era, a cooler and wetter climate prevailed bringing about in southwest Minnesota the landscape that would exist into the contact period (Anfinson 1997:42). In this new environment, the herds of buffalo moved westward, but the shallow prairie lakes, which were prone to being seasonal, were nearly always present. While bison continued to be an important part of the subsistence cycle of the late Archaic, the people of the Prairie Lake Region developed a lake-oriented habitation pattern that took advantage of aquatic resources. Habitation sites of this period are typically located on islands and peninsulas of the regions lakes (Anfinson 1997:42). Anfinson (1997:42) has termed this terminal archaic era the Mountain Lake Phase

Woodland Tradition (ca. 1,000 B.C. – EuroAmerican contact)

As the climate of the state continued to stabilize, the region's inhabitants began to use the resources available to them in an increasing variety of ways. Hunting and gathering, which had been the primary means of subsistence, were supplemented by the introduction of domesticated plants such as squash, gourds, and beans – particularly in central and southern Minnesota, where expansive prairies to the west and an oak savanna spanning the state from the northwest to the southeast were present. Agriculture resulted in a more reliable food source, leading to the adoption of an increasingly sedentary lifestyle as evidenced in the long-term or reoccurring seasonal occupation of village sites. Tied to this increased environmental stability and regional settlement patterns were the advent of ceramic technology and the construction of earthen mounds. These changes occurred in Minnesota between approximately 3,000 and 900 years ago. It should be noted that these innovations were not adopted in all areas of the state at the same time or necessarily together. Even so, the period in which these innovations occurred has been designated as a single archaeological period, the Woodland Tradition.

Woodland sites are more frequently encountered in Minnesota because they are more widely distributed and not usually as deeply buried as sites dating to the Paleoindian and Archaic periods. The presence of ceramics and distinct tool types also allows Woodland sites to be more readily assigned to a particular tradition than non-diagnostic lithic scatters. Consequently, a relative abundance of Woodland-period artifacts has enabled archaeologists to develop a chronological framework consisting of an Early and Middle (Initial) (ca. 1000 B.C.–A.D. 500) and Late (Terminal) (ca. A.D. 500-1750) Woodland periods, and to assign Woodland sites to distinct traditions. Those traditions that are most evident in the region of TH 169 Floodplain Mitigation Project are the Fox Lake (200 B.C. – A.D. 700) and the Lake Benton (A.D. 700 – 1200) complexes (Arzigian 2008).

The Fox Lake Complex dates to the Middle Prehistoric period in southwestern Minnesota from about 200 B.C. to A.D. 700 (Arzigian 2008:63). This complex is associated with the "first appearance of ceramics in the Prairie Lake region of southwestern Minnesota" (Arzigian 2008:63). Most of the reported sites with Fox Lake components are concentrated within the Prairie Lake region and are typically located on lake shores, but are also present along rivers or streams (Arzigian 2008:63). This complex is thought to reflect a continuation of the preceding Prairie Archaic lifestyle with a heavy reliance upon bison and aquatic resources (Arzigian 2008:69). Projectile points vary across the Prairie Lake region with stemmed, side-notched, corner-notched and unnotched triangular points all being associated with the complex (Arzigian 2008:68). Scrapers, knives, drills, flake tools, and choppers are also present in the Fox Lake tool set (Arzigian 2008:68). Lithic tools are made primarily from local cherts found in the till.

The earliest type of Fox Lake ceramics are not common, but consist of vertically-cordmarked vessels decorated with a single row of fingernail impressions. They are similar to the LaMoille Thick wares of southeastern Minnesota (Anfinson 1997:53-54). Anfinson (1997) defines five types of Fox Lake ceramic types: Fox Lake Trailed, Fox Lake Vertical Cordmarked, Fox Lake Horizontal Cordmarked, Fox Lake Smooth, and Fox Lake Cordwrapped Stick. Anfinson states that Fox Lake ceramics represent a "relatively stable ceramic manufacturing tradition lasting perhaps a thousand years" (1997:65). However, Fox Lake ceramics have not been found at mound sites, suggesting that the construction of earthworks was delayed in southwest Minnesota until after this period.

The Lake Benton Complex dates to the Late Middle Prehistoric (A.D. 700 – 1200) in southwestern Minnesota (Arzigian 2008). This Late Woodland complex represents continuity from the earlier Fox Lake occupations also found in this region as exemplified by Fox Lake and later Lake Benton artifacts occurring at the same sites (Arzigian 2008:75). The type site for Lake Benton is the Pederson site (21LN0002), with ceramics being marked by the "widespread use of exterior cord-wrapped stick impressions and the disappearance of attributes like trailed lines and bosses" (Anfinson 1997:75). Lake Benton phase pottery is also associated with thinner vessel walls, crushed rock temper, and an increase in surface smoothing (Anfinson 1997:76). Similarities also exist between Lake Benton and St. Croix-Onamia ceramics, including a sub-conoidal vessel form, the use of crushed rock temper instead of sand, and the presence of cordwrapped stick or

dentate impressions (Anfinson 1997:88). Lithic artifacts continue to be produced from locally-available till sources. Small side-notched projectile pints with straight to slightly concave bases seem to be the most closely associated with the Lake Benton Complex, but some corner-notched and possibly side-notched points with deep concave bases may have been used also (Anfinson 1997:81).

Lifestyle changes broadly witnessed with the emergence of Late Woodland complexes in other areas of the Midwest are also associated with the Lake Benton sites including the introduction of maize, a shift in ceramic manufacturing techniques and styles, and a decrease in projectile point size reflecting the introduction of the bow and arrow. Mound construction also began in this part of the state during this period (Arzigian 2008, Anfinson 1997). Subsistence information is sparse, though it appears that there is a continuation from the Fox Lake period with the utilization of bison, along with aquatic resources, being the primary focus.

HISTORICAL PERIOD

Initial EuroAmerican settlement within Minnesota was concentrated along the state's rivers, which not only were a source of transportation, but also provided a source of power for mills. In 1851, treaties signed with the Dakota bands at Traverse des Sioux and at Mendota opened up southern Minnesota, including the TH 169 project area, to EuroAmerican settlement. Townsites were formed along the rivers by speculators, townsite companies, and groups with a common ethnic or social heritage. Many of these towns became centers for the processing of agricultural produces form the surrounding countryside, as well as offered markets for those products and a shipping point to other markets via the river. The town of St. Peter, initially known as Rock Bend, was founded in 1853 by Captain William Dodd. The city was renamed in 1855 when the St. Peter Land company was formed to promote the new settlement. The city became a successful milling center that attracted other industries as well. While the city failed in its bid to become the state capital, it did become home to the St. Peter State Hospital in 1866 and Gustavus Adolphus College in 1874.

St. Peter State Hospital

Minnesota's first state hospital, the St. Peter State Hospital, was approved by an act of the Minnesota State Legislature in March of 1866. Although previously the state had sent individuals suffering from mental illness, emotional disorders, or other conditions of non-conformity to institutions in other states, a combination of the lack of space for new patients and the expense of maintaining existing patients in non-local institutions led to the conclusion that an in-state facility must be established. While numerous communities vied for the facility, St. Peter presented the selection committee with an approximately 211-acre farm, which was appealing not only due to its size but also its access to water and lumber, and its proximity to a quarry. By June, the St. Peter site had been selected. Construction, however, on a permanent building would not begin for another two years because funding was transferred to the previously established temporary facility, a hotel that had been expediently converted for hospital use in 1866 and was continually pressed with the need for more space. The permanent hospital, a three- to four-story stone

building in the Kirkbride plan, was completed in 1875, although patients were admitted as early as 1870 (Erickson 1991:22-29, 32, 41-42, 45). By the time the permanent hospital was finished, a pump house, an engineer's house, and an ice house were also present, as were the first two barns and a root cellar for the hospital's farm, which operated to provide occupational therapy for patients (untitled typed manuscript, St. Peter State Hospital, Published Records and Reports, 1932-1999, held at the Minnesota Historical Society).

Despite the opening of the permanent facility, the St. Peter State Hospital was always filled well beyond capacity, even after a second state hospital was opened in Rochester in 1877. This problem was exacerbated beginning in late 1880, when the north wing of the St. Peter building was ravaged by fire, after which a frame building that had been added at the temporary hospital, still in operation, was also destroyed by fire in early 1882. Other temporary buildings were used to assist in both cases, and the north wing of the hospital was reopened in late 1882. The first half of a detached building to house male "chronic insane" patients was constructed on the north side of the main hospital from May 1883 through February 1884. The remainder of that building and a similarly purposed building for women on the south side were constructed shortly thereafter. Still, the crowding problem persisted; and yet the hotel-based facility was closed in early 1885, so that all hospital operations were centralized in the permanent location (Seaquist 1961:6-7; Erickson 1992:53-54).

The 1890s witnessed a significant attempt by the state to remedy the overpopulation of patients at the state hospitals, first at the beginning of the decade, with the opening of the third state hospital in Fergus Falls, and then at the end of the decade, with the establishment by the legislature of two asylums to care for those with chronic mental illness, one in Anoka and the other in Hastings. The latter measure was meant to convert the function of the three state hospitals to the treatment of curable mental illnesses, which presumably meant the rotation of patients in and out and therefore the freeing of space. In this change of function, however, the St. Peter State Hospital also became a facility for the care of elderly people who were losing their faculties, the population of which both was substantially higher than that of the chronically ill and could not be treated and released; thus the problem was not resolved (Seaquist 1961:8).

The hospital's capacity issues continued to affect its development after the State Board of Control became responsible for the management of Minnesota's state hospitals in 1901. During its first 10 years in this role, new detached buildings were spread over the campus to create dedicated spaces for individual patient populations. To the north was the Detention Hospital building, "to which persons could be provisionally committed until the superintendent of the institution certified that the person either was not insane or was, indeed, a 'fit subject' for the state hospital" (MHS 2002-2012). To the south was the Hospital for the Tuberculous Insane, and to the east was the Asylum for the Dangerously Insane, which in later years was renamed the Minnesota Security Hospital (Seaquist 1961:10). In addition, a chapel and amusement hall addition was built off the rear of the main building where the previous laundry had burned down; a new laundry, a blacksmith shop, and a machine shop were built; and a nurse's home was constructed, not to mention

several new farm outbuildings (untitled typed manuscript, St. Peter State Hospital, Published Records and Reports, 1932-1999, held at the Minnesota Historical Society). As the built environment, however, was added to and began to reflect specialization, staff positions were being eliminated and consolidated to save money. Reductions in staffing were compounded as personnel went to serve in the First World War, an event that also fostered relative scarcity in the material supplies and consumables at the hospital, including clothing, furnishings, and food (Seaquist 1961:13).

The scarcity in supplies resumed during the 1930s, when "greatly curtailed operating budgets following the 1929 crash caused the hospitals to suffer real hardships" (Seaquist 1961:13). Still, a great number of improvements were able to be made at the St. Peter State Hospital in that decade through funding by the Works Progress Administration, the repurposing of existing buildings in the complex, and overall program improvements. New construction included connecting sidewalks between buildings, a new root cellar and dairy barn for the hospital farm, and the Psychopathic Hospital building, which took over the function previously served by the Detention Hospital. The Detention Hospital, in turn, became quarters for women patients who were allowed more freedoms and was renamed Liberty Hall. Women patients with tuberculosis were also given their own building, previously occupied by women without the disease, known as Phelps Hall, and overall, women patients received a "department of personal hygiene [i.e., beauty parlor] . . . resulting in improved appearances and morale" (Seaquist 1961:14). The Board of Control's Director of Dietetics was brought in to consult on the improvement of food service at the hospital (Seaquist 1975:7). New housing was built for the families of medical personnel, and, using federal funding, staff was added. Additional focus on occupational therapy meant the expansion of the hospital's garden/farming and canning operations, which were increasingly productive.

Despite these steps forward, the St. Peter hospital found itself back in a staffing crisis and even lower on supplies after the U.S. entered World War II and into the late 1940s (Seaquist 1961:15). The 1940s were a time of substandard care, due not only to these deficiencies, but also to the lack of upkeep in the facility's equipment. The hospital set upon a course of correction beginning in late 1949 with the "establishment of a training course for psychiatric aides specifically designed to promote interest and efficiency in the care of the psychiatric patient" (Seaquist 1961:15). Changes effected and funding provided by the state legislature in that year also led to the hospital's recovery during the 1950s, when it was able to start bringing supplies, food, staffing, and equipment back toward an acceptable standard. In 1950, men's and women's Geriatric Buildings were completed in the southeastern-most part of the hospital campus, and the Services Building was built just southwest of the main hospital building, representing the last major physical developments on the campus during the historical period. The 1960s witnessed the onset of wide-ranging building replacement and programmatic changes, marking a new era in the appearance and operations of the St. Peter State Hospital.

A more subtle development also took place on the grounds of the hospital during the first half of the twentieth century. A small makeshift village of over 100 shacks appeared along the bluff and within the floodplain of the Minnesota River. These structures were

built by "liberty patients" -- those who had earned the ability to wander the grounds during the day unescorted by hospital staff. Built with material often scavenged from the hospital dump, many of the shacks were no more than lean-tos, but others were more elaborate affairs built by men with experience as carpenters and masons (Figure 2; Ratzloff 2008a). Many patients fenced the area around their shacks, planted gardens, and otherwise made them to resemble homes. From their shacks, some entrepreneurial patients sold produce, raised chickens or minks, provided bait minnows, or offered other services such as saw sharpening. Shack building was tolerated by hospital staff, who regarded the activity as therapeutic for liberty patients, many of whom were middle-aged or older individuals who had spent numerous years at the hospital. Construction, however, was limited to a patient's free-time and they were not allowed to spend the night in their shacks. By the 1970s, the shack-building phenomenon had come to an end. Major floods in 1951 and 1965 washed away significant portions of the community and several shacks, including a cottage constructed of stone, were destroyed in 1961 when TH 169 was constructed through the hospital grounds. However, one former patient, who had a complex of three structures along the river bottom, successfully petitioned to have his buildings relocated prior to the highway's construction. During the same decade that these losses destroyed much of the fabric of the river-bottom colony, the advent of deinstitutionalization and the development of psychotropic medications resulted in a significant decline in the number of patients in the state hospital system. The loss of so many shacks, coupled with the loss of long-term patients, translated into the end of the shack-building era. By 1975, only one shack of note remained tended by a patient who had resided at the St. Peter State Hospital for decades (Ratzloff 2008b).

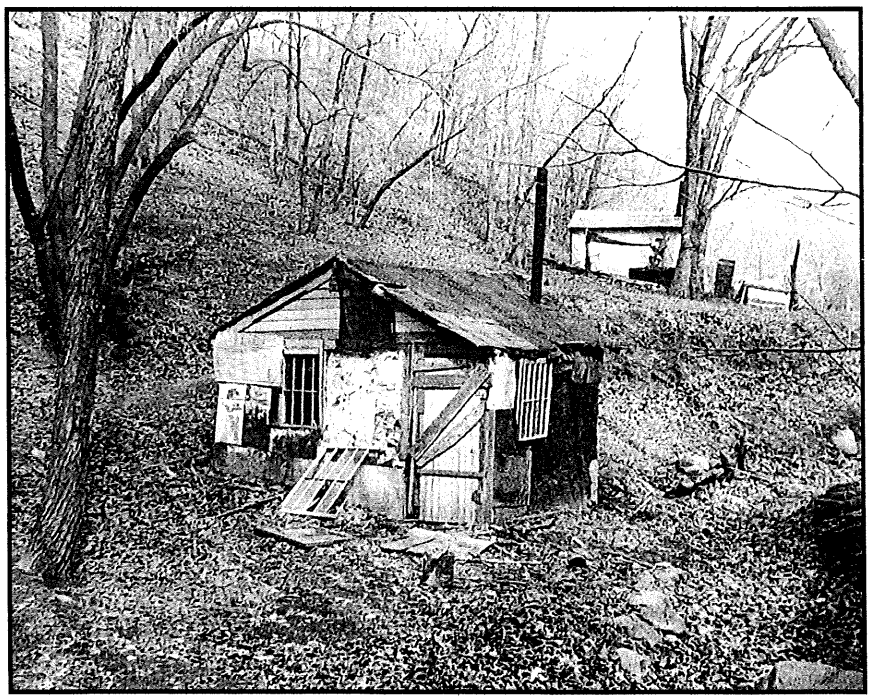

FIGURE 2. SHACKS OF LIBERTY PATIENTS ON THE GROUNDS OF THE ST. PETER HOSPITAL

Winona & St. Peter Railroad

In 1862, the Winona and St. Peter Railroad Company (W&StP) was chartered with the aim of providing a connection between the Mississippi and Minnesota rivers at the terminal points indicated by its name. Although construction began at the Winona end in 1862, the main line did not approach St. Peter until 1870. By that time, the W&StP had come under the ownership of the Chicago and North Western Railway Company (C&NW), and the end goal of the W&StP had expanded west to New Ulm and beyond, which meant crossing the Minnesota River. With St. Peter no longer a given for the railroad's final destination, the W&StP could weigh its river crossing options for cost efficiency, difficulty of construction, and reduced competition along the finished line, leading St. Peter and Mankato into a contest for the bridge and the benefits associated with being located on a main line (Luecke 1990:36; Prosser 1966:169).

St. Peter was determined the victor by the W&StP in October of 1870, as constructing bridges over the Minnesota at St. Peter and New Ulm to make the connection to the latter was considered preferable to the construction effort that would be required to build a bridge at Mankato, not to mention the subsequent competition that the presence of the Minnesota Valley Railroad there would present. The bridge, a Howe truss swing bridge 2,500 feet long, was completed on May 5, 1871, and saw its first traffic the following day, with trackage reaching the State Hospital (Figure 3). By May 8, the tracks had been extended to the location of St. Peter's future depot (Luecke 1990:36-37, 39-40).

The bridge between Kasota and St. Peter operated as part of the W&StP mainline until 1899, when the C&NW formed a subsidiary called the Mankato and New Ulm Railway Company. Under this subsidiary, the C&NW built a cutoff from Mankato to New Ulm, bringing the former city into the mainline status it had sought nearly 30 years prior, and relegating the line through St. Peter to branch line status (Grant 1996:88). As a result, the St. Peter route lost traffic and profitability at an increasing rate over the first half of the twentieth century, culminating in efforts by the C&NW to abandon it "and its costly, towering trestles and bridges across the Minnesota River" (Luecke 1990:140). The railroad received approval to do so from the Minnesota Railroad and Warehouse Commission in 1954, and the Kasota to St. Peter bridge was dismantled shortly thereafter, leaving just the stone piers and abutments to mark the former crossing.

The "Seven Caves"

The "Seven Caves," as they were informally known, were a cluster of seven among the many natural caves that formed through internal erosion caused by the seepage of groundwater in the sandstone bluffs near St. Peter. The caves were located at the intersection of Sections 29, 30, 31, and 32 of T110N, R26W (Wilford 1948). According to a 1967 report of the Minnesota Geological Survey, an unidentified number of these caves "were enlarged by man for rooms in which to age beer" (Hogberg and Bayer 1967:54). It is unclear which or how many of St. Peter's breweries made use of the caves. The Engesser brewery, which operated from 1856 until 1942, is a likely candidate given that the proprietor, Matthew Engesser, owned a substantial amount of property in the nearby NW ¼ of Section 29 (Haynes & Woodward 1885; Northwest Publishing Co.

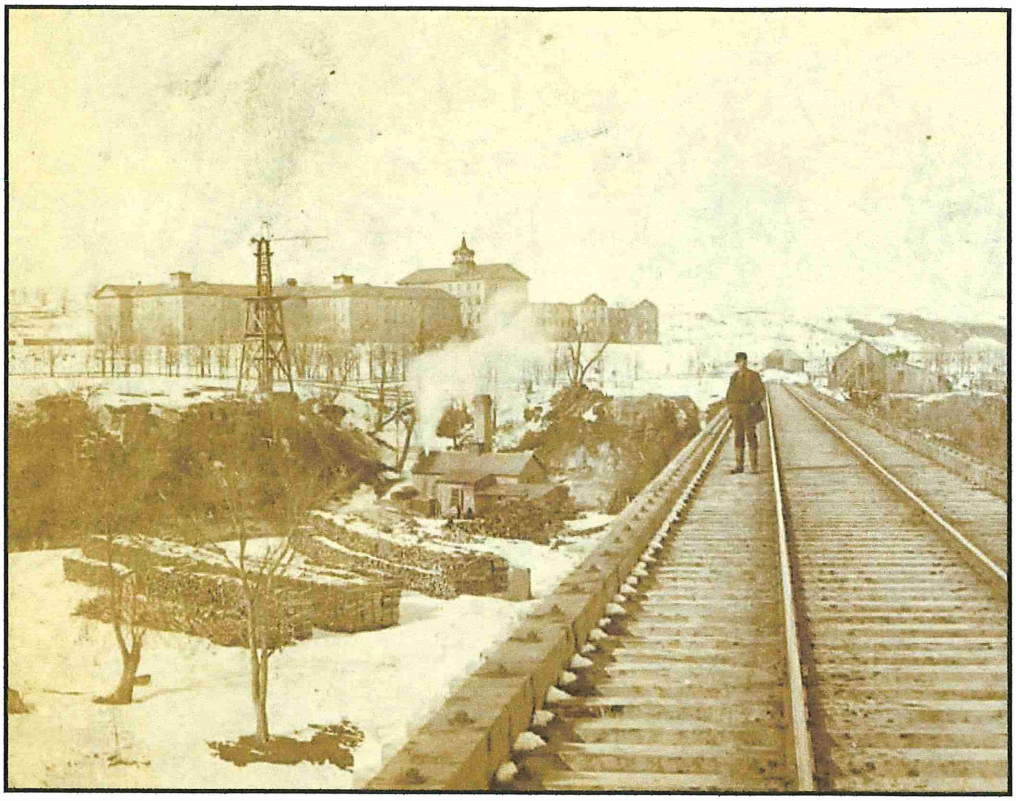

FIGURE 3. WINONA AND ST. PETER RAILROAD BRIDGE AT THE ST. PETER STATE HOSPITAL, C. 1881

(Minnesota Reflections e8273)

1899). Another possibility is a brewery that was owned by Fred Vieth sometime during the mid nineteenth century. As noted by Hoverson (2007:298), "Vieth probably aged his beer in caves in Oshawa Township, which may account for Vieth's address sometimes being given as Oshawa during this period."

Use of the caves for beer production ended when prohibition went into effect in 1920, after which some attempt was made to use them for mushroom cultivation (Hogberg and Bayer 1967:54). In 1929, the caves were established as a tourist attraction, which was operated during the 1940s, if not earlier, by Charles Meyers, who touted one in particular as "Jesse James' Cave" (Rysgaard 1941:588; Wilford 1948; Brick 2000) (Figure 4). Either in an attempt to bring publicity to the enterprise, or out of altruism, or both, Meyers (1941) wrote a letter to the *St. Paul Pioneer Press* offering the caves as a safe haven for air raids during World War II, noting, "I can take care of many thousand persons. The caves are from 75 to 150 feet below the hills where you would be safe. The caves in winter are cosy and warm and a good place in case of cyclone and air raid by bombs. You are all welcome." The year 1954 marked the end of the tourism era for the Seven Caves (Brick 2000), and the subsequent development of TH 169 in 1961 had a severe impact on them, destroying "the entryways and parts of the chambers" (Hogberg and Bayer 1967:54).

FIGURE 4. PHOTO OF AN UNIDENTIFIED WOMAN AT THE SEVEN CAVES, C. 1940

(Gustavus Adolphus College Archives 333-01-00-01)

PHASE I SURVEY RESULTS

The Phase I archaeological fieldwork for the TH 169 Floodplain Mitigation Project was conducted on May 28, June 10-12, and 26-28, 2013. Dr. Michelle Terrell served as Principal Investigator and conducted the fieldwork with Joseph Pnewski and Alexis Thorpe. The results for each of the project segments are provided below (Figure 2).

ST. PETER SECURITY HOSPITAL SEGMENT

The St. Peter Security Hospital segment of the TH 169 Floodplain Mitigation project consists of a length of raised highway roadbed that was created through filling a portion of the floodplain to the south/southeast of the highway and by cutting back the base of the limestone bluff to the north/northwest of the roadway (Figure 5). The St. Peter State Hospital complex, which is located atop the bluff, is the principal feature of this segment of the project. An unnamed creek empties into the Minnesota River near the west end of the segment. The most proximate previously recorded archaeological sites to this segment are a series of precontact lithic and artifact scatters (21NL0126 to 21NL0131) located on uplands adjacent to the ravine cut by this stream, but more than 0.25 miles from the project APE.

Within the St. Peter Security Hospital segment, the APE to the south/southeast of TH 169 consists entirely of a steep embankment of fill at the base of which is the river or its floodplain, which is subject to seasonal inundation. Due to the low potential for this portion of the APE to contain intact precontact archaeological resources, together with the lack of documented historical resources, no archaeological testing took place to the south/southeast of the highway within the St. Peter Security Hospital segment.

Within the westernmost quarter of the St. Peter Security Hospital segment, the APE to the north/northwest of TH 169 consists of a limestone bluff face that was blasted back when the highway was constructed. Due to this disturbance this portion of the APE has a low potential to contain intact precontact archaeological resources. Documented historical resources in this area, including a 1-story frame house and a shed in the "Seven Caves" area, as well as a 2-story frame house and associated garage just to its east, were entirely removed at the time of the highway construction (Figure 6). The MnDOT ROW maps indicate the presence of three caves at this location prior to the construction of the highway – two to the west of the "Seven Caves" entrance and one to the east (see Figure 6). As previously noted, the highway construction destroyed "the entryways and parts of the chambers" of these caves (Hogberg and Bayer 1967:54). The "Seven Caves" area was further impacted by the construction of a large culvert. One cave entrance is still visible at this location to the east of the highway access (Figure 7), as is a small rock shelter part way up the bluff. While the interior of the remaining cave could not be safely examined, it would not be regarded as historically significant for its use as a brewery aging cellar in the absence of other associated brewery features, nor does the cave retain sufficient integrity to be considered significant in the area of tourism for its association with the "Seven Caves."

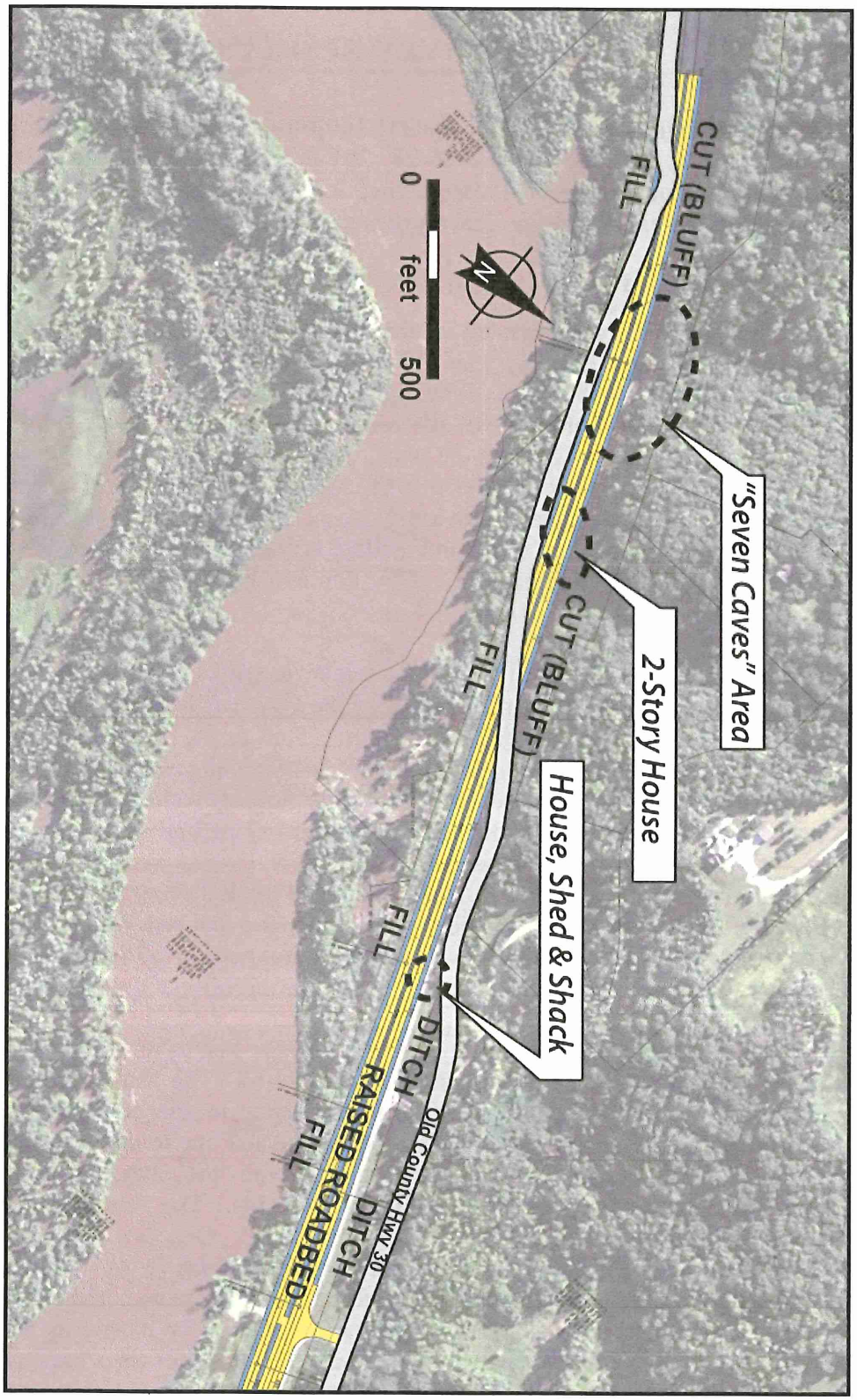

FIGURE 5A. ST. PETER SECURITY HOSPITAL SEGMENT – SURVEY RESULTS WEST HALF

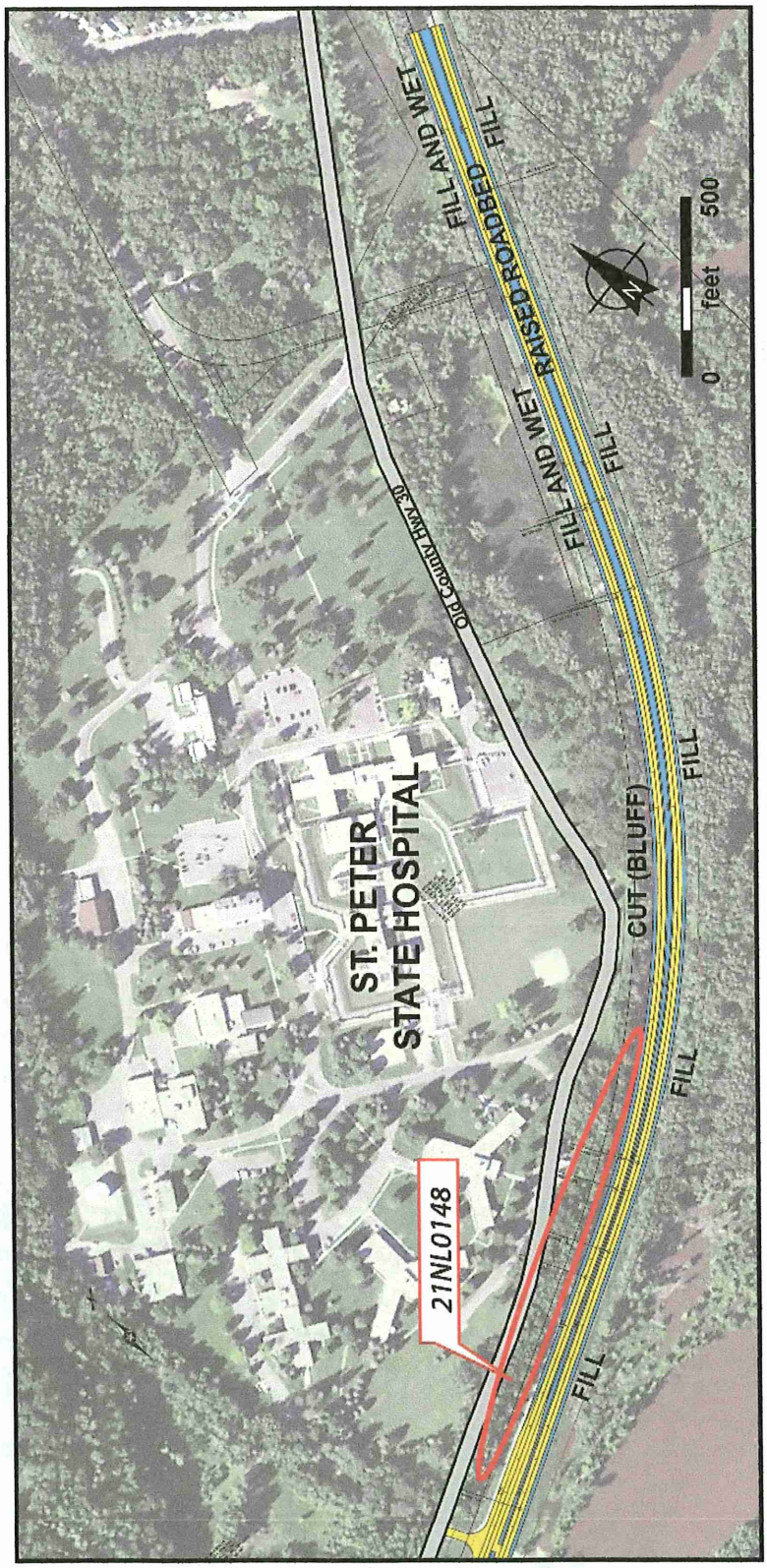

FIGURE 5B. ST. PETER SECURITY HOSPITAL SEGMENT – SURVEY RESULTS EAST HALF

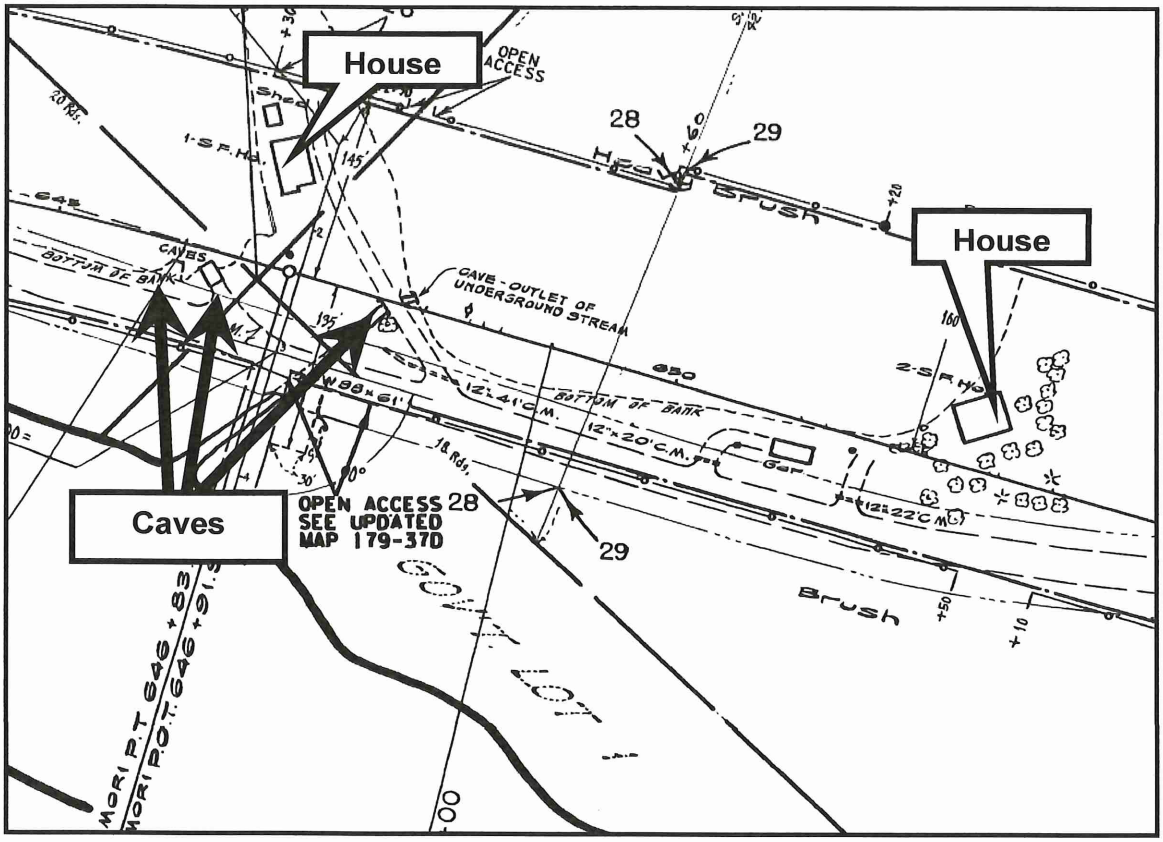

FIGURE 6. DETAIL FROM MNDOT ROW MAPS OF THE SEVEN CAVES AREA PRIOR TO THE CONSTRUCTION OF TH 169 (CALLOUTS ADDED)

FIGURE 7. VIEW INTO MOUTH OF VISIBLE CAVE ENTRANCE IN "SEVEN CAVES" AREA

Within the west-central portion of the St. Peter Security Hospital segment, the APE to the north of the highway consists of the former alignment of County Highway 30 and a wide ditched out area that is also wet in places. Due to this disturbance this portion of the APE has a low potential to contain intact precontact archaeological resources. The only documented historical-period resource within this segment is a house, shed, and shack within a fenced enclosure that appears on the MnDOT ROW map (Figure 8). This group of structures may be the three buildings that a former hospital patient successfully petitioned MnDOT to move prior to highway construction (Ratzloff 2008b). The location of these structures is within the current highway alignment and the area has been entirely disturbed.

Like the west end of the St. Peter Security Hospital segment, the APE to the north of the highway within the east-central portion of the segment consists mostly of bluff. However, unlike the bluff face at the west end of the segment, which was blasted back, highway construction only approached the base of the bluff's natural slope. As this portion of the APE is either ditched or steeply-sloped, it has a low potential to contain intact precontact archaeological resources. Several historical-period resources, though, have been previously documented along this bluff below the hospital. During the archaeological survey features identified within this segment included a limestone bridge abutment, the remains of the hospital's pump house, caves, dry-laid limestone features, and a series of surface dumps. For detailed information on these features, see the chapter concerning site 21NL0148.

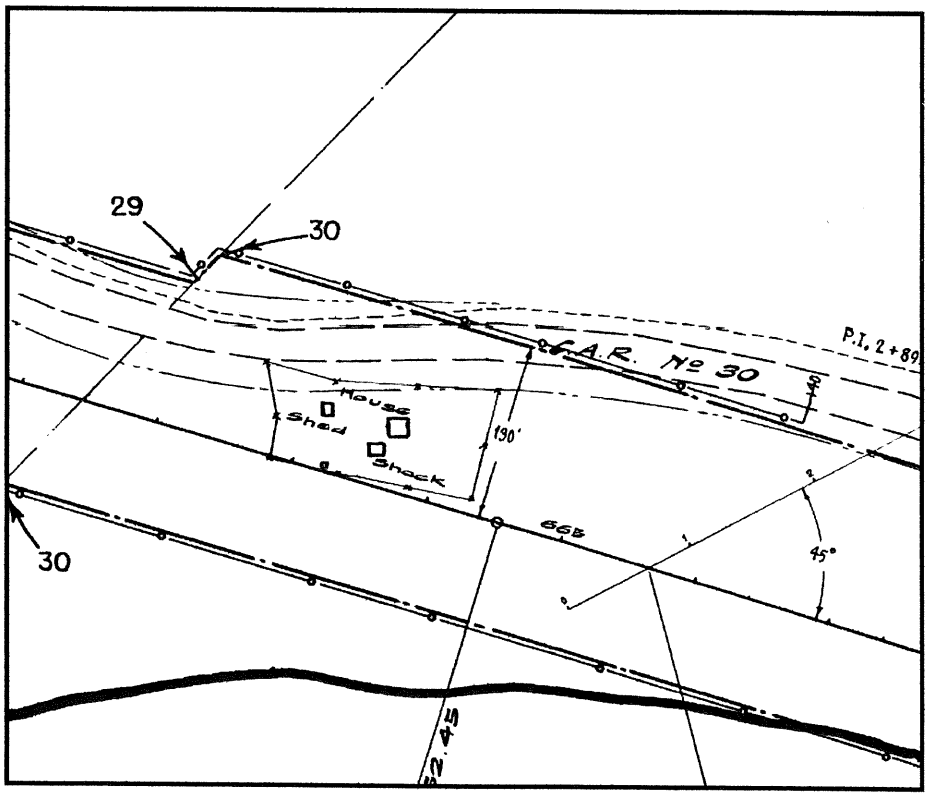

FIGURE 8. DETAIL OF MNDOT ROW MAP SHOWING A HOUSE, SHED AND SHACK WITHIN A FENCE

Within the easternmost quarter of the St. Peter Security Hospital segment, the APE to the north of the highway consists of roadbed fill, a large wetland, and an intersection. Due to the low potential for this portion of the APE to contain intact precontact archaeological resources, together with a lack of documented historical resources, no archaeological testing took place to the north of the highway within this portion of the St. Peter Security Hospital segment.

Recommendation

Much of the St. Peter Security Hospital segment was disturbed by the construction of TH 16, which resulted in areas of fill, bluff face, ditch, or wetland with low potential for containing intact archaeological resources. However, one portion of the project area contained archaeological resources, which underwent Phase I and II investigations. For the results of those investigations, see the chapter concerning site 21NL0147.

7 MILE CREEK SEGMENT

The 7 Mile Creek segment of the TH 169 Floodplain Mitigation project presently consists of a section of raised highway roadbed that was created primarily by filling a portion of the floodplain, but also through some cutting at the base of the bluff. Nicollet County's Seven Mile Park is located on both sides of the highway within this segment of the project. Seven Mile Creek flows from west to east within the southern third of the segment. The most proximate previously recorded precontact sites to this segment are mound groups (21NL53 and 21NL119) and nearby unverified mound locations (21NLai, 21NLaj, 21NLak), all of which are located on the bluff tops or ravine edges to the west of TH 169 and outside of the project APE. No documented historical resources were present in the ROW of this segment.

Due to the cut and fill activities and steep bluff slopes, the APE to the west of TH 169 was previously disturbed or not suited to standard archaeological survey methods (Figure 9). A single bucket auger test was carried out on the west side of the highway and to the southwest of the park entrance. A geomorphological boring (No. 6) at this location had indicated a poorly developed A horizon between approximately 180 and 240 cmbs. The bucket auger test did encounter a very dark grayish brown (10YR 3/2), clay loam between 210 and 240 cmbs. However, the clay content and the presence of redox within this horizon, as well as the fact that it was capped by wet sand, suggest it was inundated and has low archaeological potential. The horizon was screened and was negative for cultural material.

Within the 7 Mile Creek segment, the APE to the east of the TH 169 is generally low-lying and subject to seasonal inundation. Two geomorphological borings (Nos. 4-5) and three shovel tests at 15-m intervals were placed to the south of the park entrance on the east side of the highway (see Figure 9). The shovel tests revealed a shallow very dark grayish brown (10YR 3/2), modern topsoil overlying highway fill, which gave way at an average depth of 50 cm to banded silts and sands that were present to the bottom of the shovel tests at 100 cmbs. The geomorphological borings documented to the continuation of the laminated horizons to greater depths and no horizons with archaeological potential

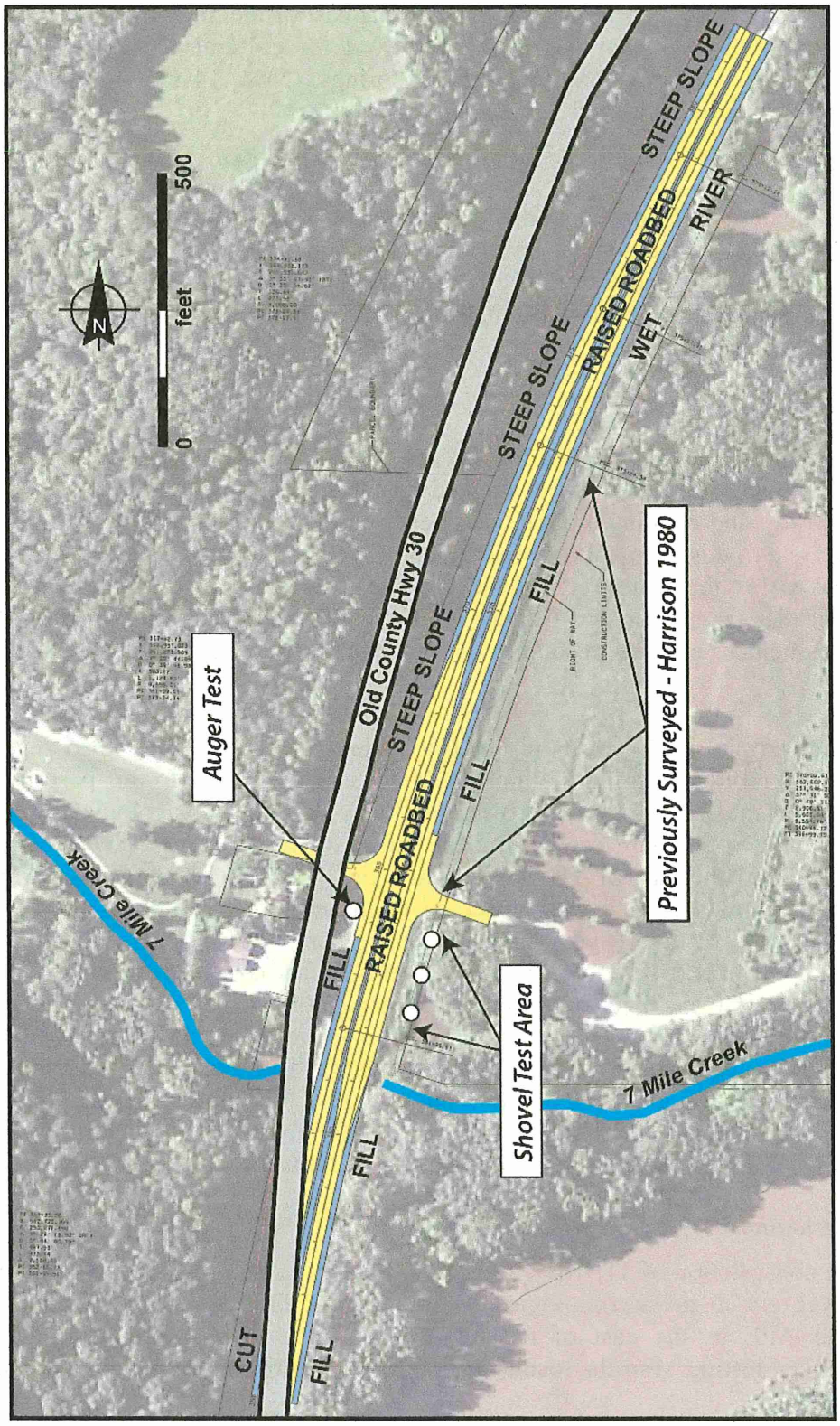

FIGURE 9. SEVEN MILE CREEK SEGMENT – SURVEY RESULTS

were encountered. The portion of the APE to the east of the highway and to the north of the park entrance had been previously surveyed for cultural resources in 1980 with negative results. Four geomorphological borings (Nos. 14-17) across this section encountered laminated silts and sands.

Recommendation

Based on the amount of past disturbance that has occurred in this segment, together with the results of the archaeological and geomorphological testing, which indicate that the area was frequently inundated, no further archaeological work is recommended in the 7 Mile Creek segment prior to or during construction the TH 169 Floodplain Mitigation Project.

RIVER BLUFF ROAD

The River Bluff Road segment of the TH 169 Floodplain Mitigation project is a section of raised highway roadbed that was created by cutting into the natural terrace to the west of the highway and creating a ditch to its east. The most proximate previously recorded precontact site to this segment is a lone mound (21BE9) reported on a bluff edge nearly a mile to the east of the project area. In this segment, TH 169 passes to the east/rear of two farmsteads that fronted on old County Highway 30; however, no related structures or other documented cultural resources were historically present in the ROW of this segment.

The natural terrace to the west of TH 169 within the River Bluff Road segment was truncated and removed during the highway's construction. Due to this past disturbance, the entirety of the APE to the west of the highway has low archaeological potential and was not suited to standard archaeological survey methods (Figure 10). Much of the project's APE to the east of TH 169 has likewise been ditched and is also inundated. However, a remnant terrace was preserved to the east of the highway and within the southern 900 ft. of the River Bluff Road segment. Five shovel tests and seven geomorphological borings (Nos. 7-13) were placed across this landform. The shovel tests, which were excavated to 100 cmbs, were negative for cultural material, however, several of the borings (Nos. 7-10) indicated the presence of deeply-buried soils, some of which were well-developed. Staff from Strata Morph and Two Pines oversaw trenching with a backhoe at the locations of these buried soils. The trenching was undertaken in order to better characterize the soils and expose them for archaeological testing. During the trenching a deeply buried archaeological site, 21NL0147, was identified.

Recommendation

While the construction of TH 169 within this segment largely disturbed what was once a natural river terrace, geomorphological testing identified remaining areas with intact soils within the APE to the east of the highway. These areas were recommended for archaeological testing. For the results of those investigations, see the chapter concerning site 21NL0147.

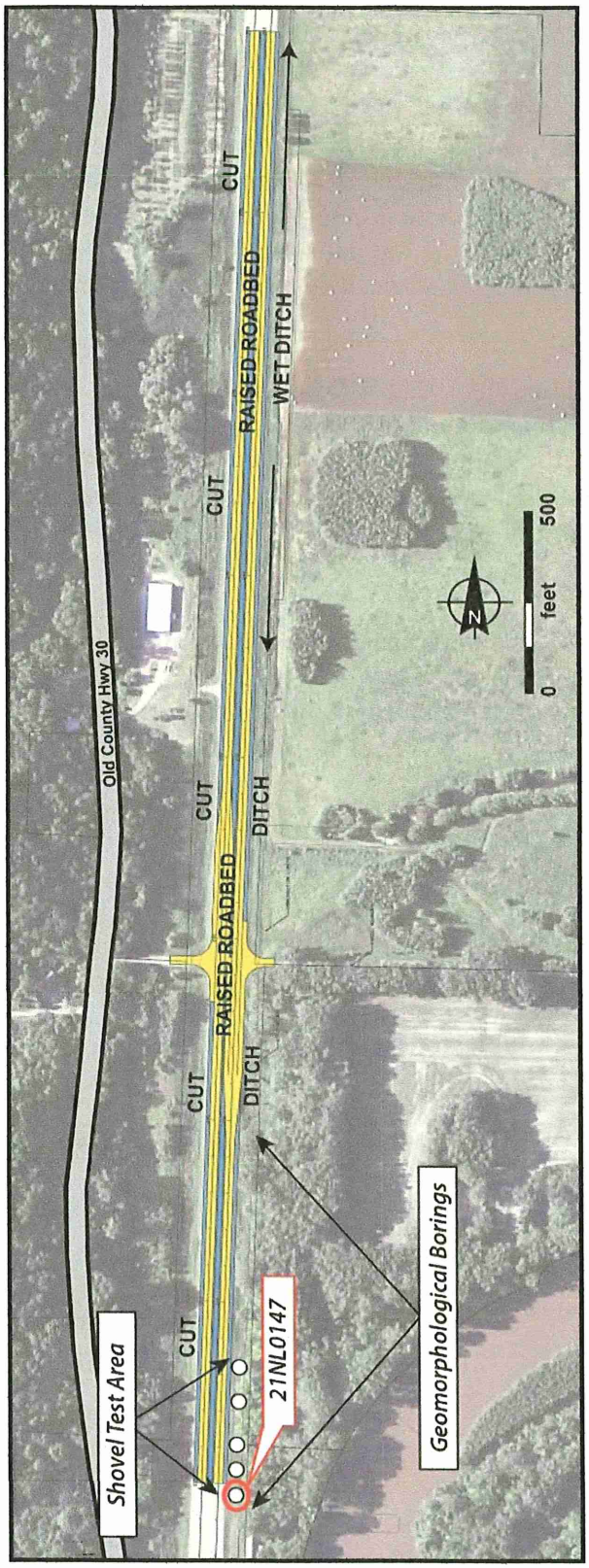

FIGURE 10. RIVER BLUFF ROAD SEGMENT – SURVEY RESULTS

HINIKER CREEK

The Hiniker Creek segment of the TH 169 Floodplain Mitigation project is a section of raised highway roadbed that was created by cutting into the natural terrace and filling a portion of the floodplain. A natural creek flowing from west to east bisects this segment of the project. The most proximate previously recorded precontact site is a lithic scatter (21NL28) discovered on the bluff top approximately 750 ft. to the west of the highway alignment. No documented historical resources were present in the ROW of this segment.

Due to the cut and fill activities that were used to construct TH 169, together with past disturbance from the construction of old County Highway 30, and the presence of a former river meander, the entirety of this segment of the project's APE was previously disturbed or not suited to standard archaeological survey methods (Figure 11). Four geomorphological borings (Nos. 18-21) in this segment did not encounter buried soils.

Recommendation

Based on the amount of past disturbance that has occurred in this segment together with the results of the geomorphological testing, no further archaeological work is recommended in the Hiniker Creek segment prior to or during construction the TH 169 Floodplain Mitigation Project.

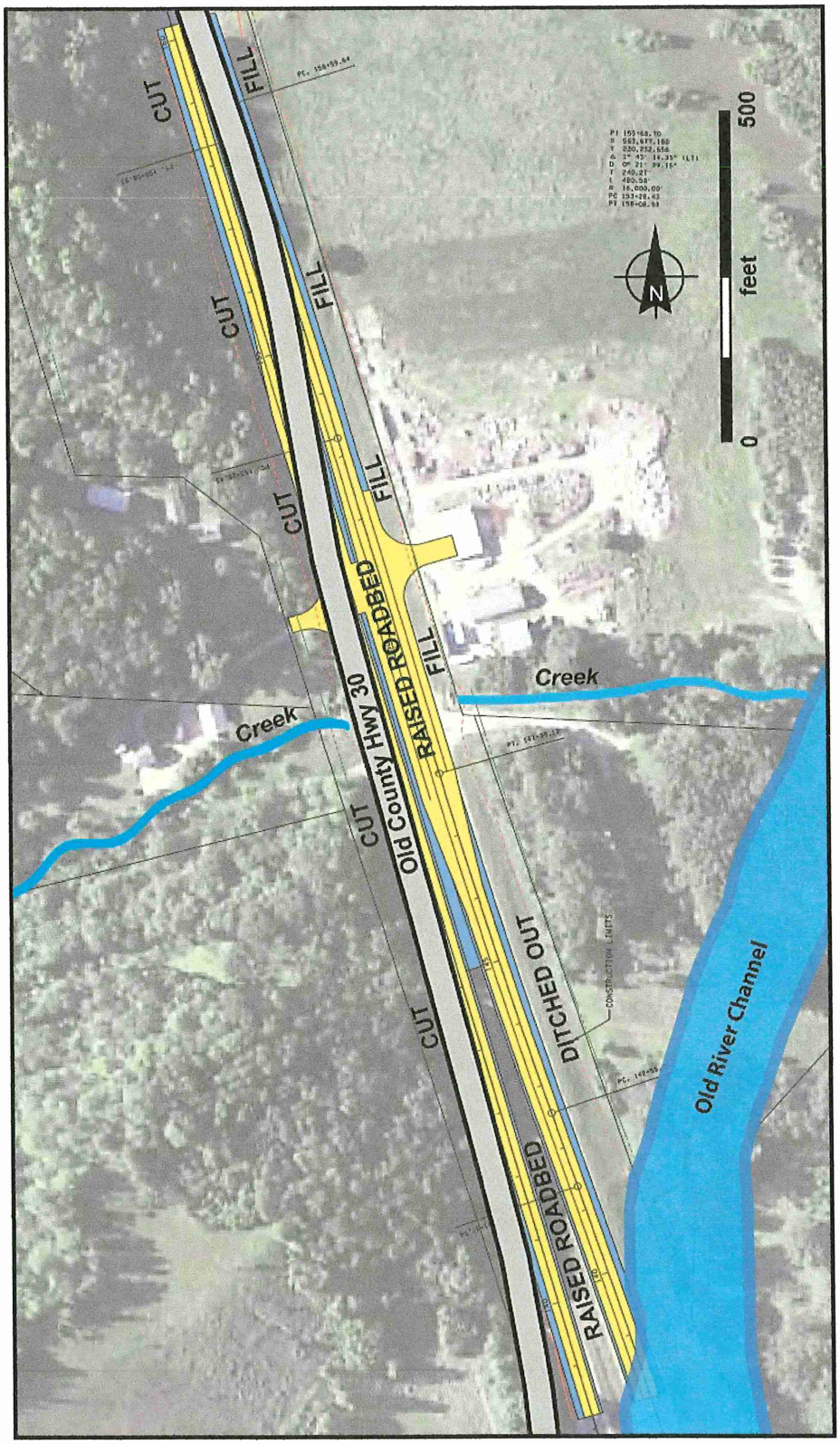

FIGURE 11. HINIKER CREEK SEGMENT – SURVEY RESULTS

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21NL0147 – BELGRADE TERRACE SITE

Site 21NL0147 (Belgrade Terrace Site) is located in the NW ¼ of the SW ¼ of the NW ¼ of Section 25, Township 109N, Range 27W and within the ROW to the east of TH 169 (Centerpoint: UTM [NAD 83, Zone 15] 417955E 4896921 N). The site is situated on a fan that formed at the base of a ravine on the west side of the Minnesota River. Soil borings conducted by Strata Morph Geoexploration identified buried soils on this landform. This chapter provides a description of the archaeological investigations that resulted in the site's identification, the results of the artifact analyses, and recommendations for the site.

FIELDWORK

On June 11, 2013, shovel tests and geomorphological borings were carried out across a level terrace located within the ROW to the east of TH 169 in the River Bluff Road segment of the proposed undertaking. Several of the cores (Nos. 7-10 and 13) indicated the presence of deeply-buried soils, some of which were well-developed. Cores 7-10 were associated with a level, dry area just to the north of a culvert and drainage that slopes down gradually to the north.

On June 26, 2013, staff from Strata Morph and Two Pines oversaw trenching with a backhoe at in the River Bluff Road segment. The trenching was undertaken in order to better characterize the buried soils and to expose them for archaeological testing. Eight backhoe trenches were excavated proximate to the borings that had produced evidence of buried soils. Within Trench 1, located adjacent to Core 7, three buried soils were documented and sampled at depths of 92-115 cmbs (3-3.7 ft.), 115-125 cmbs (3.7-4.1 ft.), and at 185-190 cmbs (6.0–6.2 ft.). The soil at 185-190 cmbs produced a single bison radius fragment, which was recovered on the backfill pile. A 37 liter (10 gallon) sample of this soil, which was screened through ¼ –inch mesh, was negative for cultural material. Trench 2, which was located proximate to Core 8 and approximately 20 m to the north of Trench 1, encountered buried soils at 85-110 cmbs (2.8-3.6 ft.) and 125-150 cmbs (4.1-4.9 ft.). These soils were each sampled and screened, but were negative for cultural material. Likewise, buried soils in Trench 3 (Core 9), Trench 4 (Core 10), and Trench 5 (Core 13) were examined, but found to lack evidence for past human occupation. Trench 6 was subsequently excavated to between Cores 8 and 9, and 15 m to the north of Trench 2. Trench 6 revealed buried soils at depths of 90-120 cmbs (2.9-3.9 ft.), 180 cmbs (5.9 ft.), 190 cmbs (6.2 ft.), and 280 cmbs (9.2 ft.), but samples were negative for cultural material.

As Trench 1 had produced a single large mammal bone, which may indicate the presence of an archaeological site, it was bracketed with additional trenches to its north and east. The presence of the highway's ditch to the west and a drainage ditch to the south, as well as the southern extent of the APE, precluded the excavation of trenches in those directions. Sample buried soils in Trench 7, which was excavated 7.5 m to the north of Trench 1, were negative for cultural material. Trench 8, which was excavated 3.5 m

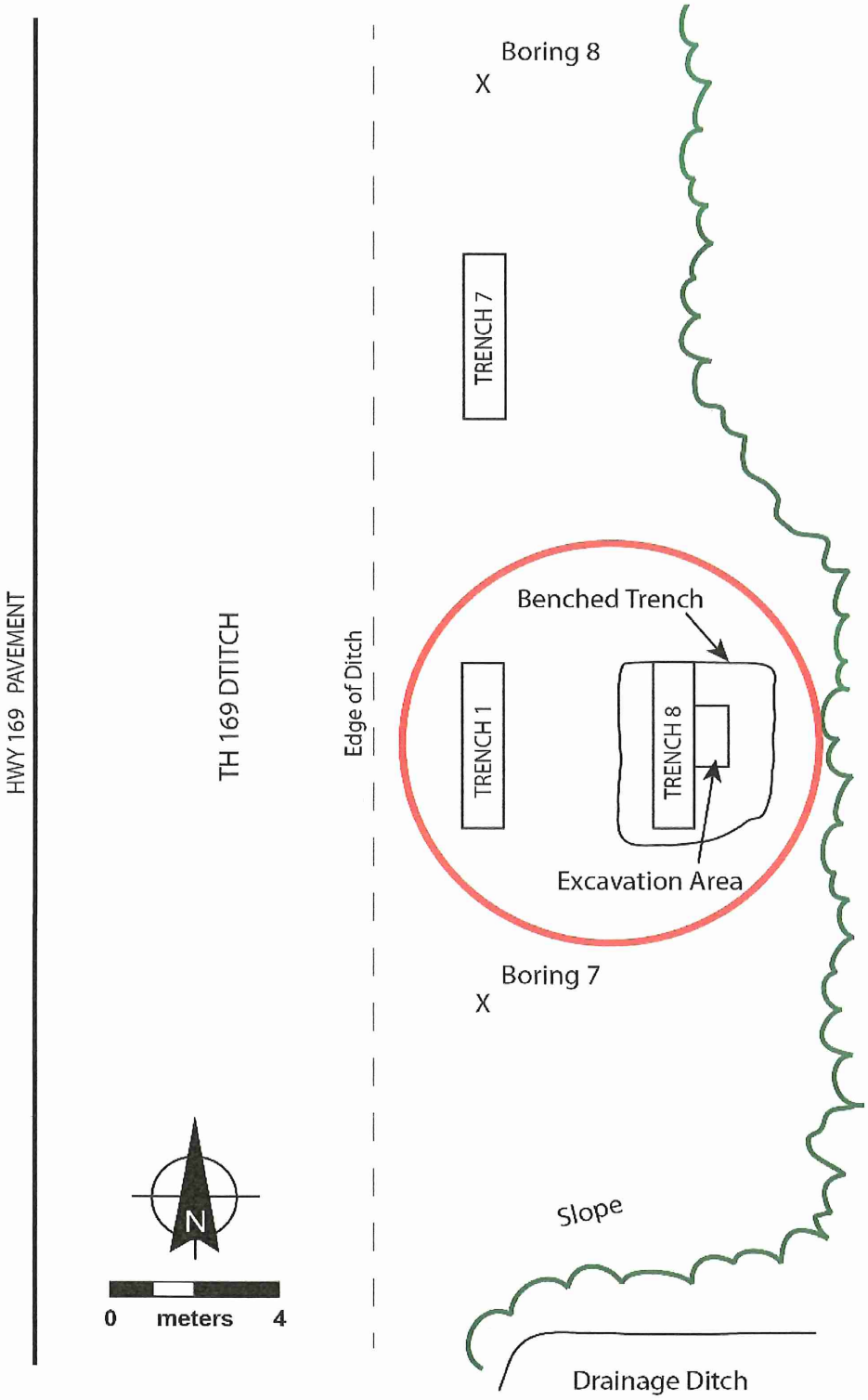

FIGURE 12. SKETCH MAP OF SITE 21NL0147 (SITE AREA CIRCLED)

to the east of Trench 1, likewise exhibited a buried soil at the same depth (185-195 cmbs), which produced fragments of turtle and mammal bone. As a result of these findings, Trench 8 was widened and the surrounding soils benched so that the surface of the soil at 185 cmbs (6.0 ft.) could be examined. Within the expanded trench, a 1.5-x-0.7-m portion of the buried soil was exposed and troweled down. The bone-bearing horizon consists of a very dark grayish brown (10YR 3/2), sandy clay loam containing charcoal flecks and snail shells. Rodent runs were evident and abundant. No additional bone was recovered, nor was any lithic debitage or FCR encountered. However, a single projectile point was collected at a depth of approximately 187 cmbs (6.1 ft.) from the east edge of the excavation area.

FAUNAL ANALYSIS

Faunal Remains

Of the 11 faunal specimens that were recovered at 21NL0147, seven were identified as mammal, three were identified as reptile, and one was identified as fish. The faunal comparative collection from the Archaeology Department of the Minnesota Historical Society and texts from Adams and Crabtree (2012), Longenecker (2010), and Olsen (1968) were utilized for the identification of faunal specimens.

Mammal

Further identification was possible for four of the seven mammal specimens, three of which made up one element. They were identified as the right radius of a bison (*Bison bison*). Also, based on the underdevelopment of the distal shaft and the granular appearance of the trabecular bone on the distal end, the missing distal epiphysis of the bison radius was unfused at the time of death. Therefore, the individual was younger than 6 years (Gilbert 1990:106). Although the species of the remaining specimen could not be determined, it was identified as a process of a cervical vertebra of a medium to large mammal. One end of the process appeared to be unfused. Neither a species nor element classification was able to be assigned to the remaining three mammal specimens.

Reptile

The three specimens identified as reptile were all turtle carapace fragments. Two of the specimens fit together as a marginal fragment, and the other specimen was an interior carapace fragment. Despite the specimens being too fragmentary for species identification, based on the thinness of the fragments and the rate of occurrence of this species in Minnesota, it is likely that the three specimens belong to the painted turtle (*Chrysemys picta*) (Minnesota Department of Natural Resources 2013).

Fish

Since the single specimen identified as fish was quite fragmentary, it was not possible to determine the species. However, it could be identified as a fragment of one the bones that forms the neurocranial area (Longenecker 2010).

Preservation Factors

There are many factors that influence the rate of preservation of faunal assemblages. Before a bone is buried, it can undergo certain taphonomic processes which include human processing, weathering, root etching, scavenger and/or carnivore damage, rodent gnawing, fluvial action, and trampling. Likewise, bones can be affected by processes once buried in the ground such as mineralization, deformation, fracturing, and bioturbation (Lyman 2001). Additionally, the bones of small animals have a lower structural density in comparison to larger animals; therefore, they are subjected to a higher level of destruction by carnivore and scavenger activities, as well as, a faster rate of fragmentation and weathering (Lyman 2001:397-398).

All of the faunal remains recovered exhibited heavy abrasion and most were highly fragmentary with flaking of the outermost cortical surface. The flaking of the cortical surface is likely an effect of the bones weathering on the surface and being subjected to temperature and moisture fluctuations before burial (Behrensmeyer 1978:155-156). Moreover, the specimens were recovered in an alluvial fan, which causes varying rates of sediment deposition and also often abrades and breaks specimens (Lyman 2001:408, 410). The fragmentary nature of many of the faunal specimens may also be a result of trampling during the period when the artifact horizon was the ground surface. Furthermore, rodent gnawing was present on some of the mammal bone, which in itself is not conducive to preservation, but also shows that faunalturbation likely altered the specimens' location.

Modifications

Some of the faunal remains recovered from 21NL0147 exhibited modifications that occurred as a result of human and natural biostratinomic or pre-burial and diagenetic or post-burial taphonomic factors. Although there were no cutmarks or percussion marks present, the shaft of the bison (*Bison bison*) radius was broken at an oblique angle (Villa and Mahieu 1991:34) with an apparent percussion notch, which indicates that the bone had been broken open with a hammerstone to exploit the marrow (Pickering 2006:462-463). Research indicates that the thickness of the radial periosteum often results in a lack of other contributing butchering marks (Pickering 2006:467). Also, the degree of weathering and rodent gnawing along the fractured shaft area could have obscured other previously evident butchering marks. It should also be noted that the radius was broken into three specimens during excavation. A small mammal specimen of indeterminate species and element also had extensive rodent gnawing along all edges. A third specimen was burned, demonstrated by black coloration along the medullary cavity or interior of the bone. The fact that the bone was not burned to calcination and the location of the thermal modification, suggests that the bone had been indirectly burned post-deposition as a result of human or natural activity. Thus, of the three specimens with modifications, one specimen exhibited human butchery marks and rodent gnawing, one specimen exhibited rodent gnawing, and one specimen was indirectly burned.

LITHIC ANALYSIS

The only lithic artifact recovered at 21NL0147 is a side-notched projectile point recovered from 185 and 195 cmbs during the excavation addition of Trench 8 (Figure 13). The projectile point, which most closely resembles Blanding chert, exhibited evidence of heat-treating. The blade is triangular with straight to slightly ovate beveled edges. The bifacial blade is biconvex in cross section. The basal edge is straight to slightly convex and has been thinned. The point has a single side notch that is beveled, with the other side being broken just below the notch. The maximum length of the point is 28.04 mm, the width at the shoulder is 20.00 mm, and the width at the neck is 16.60 mm, while the width at the base cannot be discerned. The maximum thickness of the point is 5.18 mm. Small side-notched points of this variety are typically associated with Woodland period occupations.

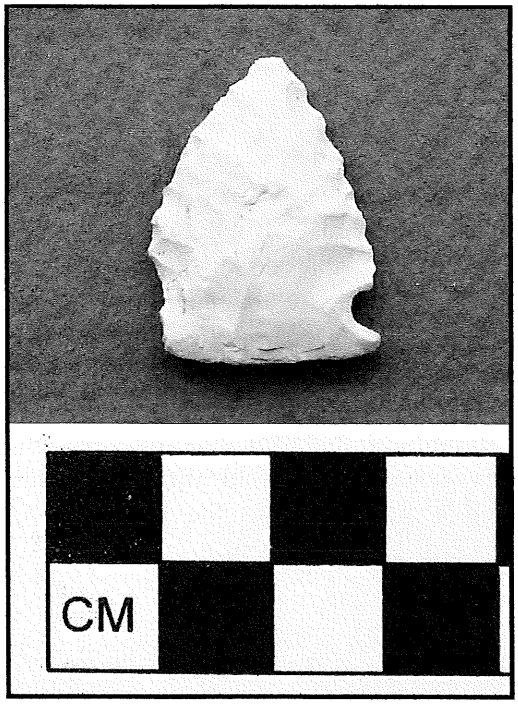

FIGURE 13. PROJECTILE POINT FROM SITE 21NL0147

RADIOCARBON DATES

Two charcoal samples 21NL0147 were submitted to Beta Analytic Inc. of Miami, Florida for radiocarbon dating (Table 3; Appendix B). These samples were associated with the same Ab2 horizon that contained the faunal remains and projectile point. The two samples returned very consistent results. The measured age and calibrated results are provided Table 4. Using the date range with the highest probability, the site dates to the period A.D. 450-580, which, like the recovered projectile point, is indicative of a Woodland period occupation.

TABLE 3. SUMMARY INFORMATION FOR RADIOCARBON SAMPLES

Lab Number	Provenience		Material Dated
Beta - 355534	Trench 7	(250-270 cmbd)	Charred Wood
Beta - 355535	Trench 1	(185-195 cmbd)	Charred Wood

TABLE 4. RADIOCARBON DATES

Lab Number	Measured Radiocarbon Age (RYCBP)	$^{13}C/^{12}C$ Ratio	Conventional Radiocarbon Age (RYCBP)	Calibrated Dates 1-Sigma (68 %)	Calibrated Dates 2-Sigma (95 %)
Beta - 355534	1540±30	-24.5	1550±30	440-490 calAD 510-520 calAD 530-550 calAD	**430-580 calAD**
Beta - 355535	1590±30	-27.2	1550±30	440-490 calAD 510-520 calAD 530-550 calAD	**430-580 calAD**

RECOMMENDATION

Site 21NL0147 (Belgrade Terrace) is a deeply-buried (185-195 cmbs), but sparse precontact artifact scatter that produced 11 fragments of bone and a single projectile point from 10 square meters of the associated soil horizon. Radiocarbon dates and the typology of the projectile point indicate the site was occupied during the Woodland Period. However, due to the absence of pottery sherds, association with a specific Woodland period complex is not possible. While these materials may be on the periphery of a larger site preserved elsewhere on the buried fan that this site occupies, due to the low density of cultural material encountered, site 21NL0147, as currently defined, does not have the potential to yield significant information and is therefore recommended as not eligible for listing in the NRHP. No additional fieldwork is recommended in the River Bluff Road segment.

21NL0148 – ST. PETER HOSPITAL BLUFF SITE

Site 21NL0148 (St. Peter Hospital Bluff Site) is located in the S ½ of the NW ¼ of the SE ¼ and the SE ¼ of the NE ¼ of the SW ¼ of Section 29, Township 110N, Range 26W and within the ROW to the north of TH 169 (Centerpoint: UTM [NAD 83, Zone 15] 421982 E 4905845 N). The site is situated along Minnesota River bluff below the St. Peter State Hospital. This chapter provides a description of the Phase I archaeological investigations that resulted in the site's identification and the features encountered, as well as the results of the Phase II evaluation of the surface dumps within the site, and the resulting artifact analyses and recommendations for the site.

PEDESTRIAN SURVEY

On June 10, 2013, during an initial reconnaissance of the St. Peter Security Hospital segment, two distinct surface dumps, the concrete foundations of a pump house, a limestone bridge abutment, and three caves were recorded along the bluff below the hospital complex (Figure 14). Subsequently, a systematic, close-interval pedestrian, or walkover, survey was conducted within this area on June 27-28, 2013. The purpose of this survey was to identify the locations of any additional structural remains and potential subsurface features, as well as to document the locations of surface finds. In addition to the previously noted surface features, a path/roadway leading up the bluff, a series of dry-laid limestone retaining walls, and two additional surface dumps were recorded.

SHOVEL TESTING

As much of the site area was sloped, ditched, and/or inundated, there were few areas within the site suitable to shovel testing. A series of three shovel tests, though, was excavated in front of a series of low, dry-laid limestone walls associated with the location of a shack constructed by a "liberty patient." These shovel tests revealed an accumulation of 25 cm of modern accumulation atop eroded slopewash containing plastic, amber bottle glass and other modern artifacts. At an average depth of 57 cmbs the tests encountered large limestone cobbles and gravels indicative of the disturbance resulting from the construction of TH 169. Given that the few artifacts recovered from these shovel tests were within a secondary context, they were not included in the site analysis.

STRUCTURAL REMAINS

In the course of the Phase I survey, several structural elements were recorded (see Figure 14). During the Phase II evaluation of this site, these features were further documented and described.

Winona and St. Peter Railroad Bridge Abutment

Located atop the bluff and just within the ROW of TH 169 is a limestone bridge abutment (see Figures 14 and 15). This abutment once supported the north end of the Winona and St. Peter Railroad's Howe truss swing bridge completed in 1871 and

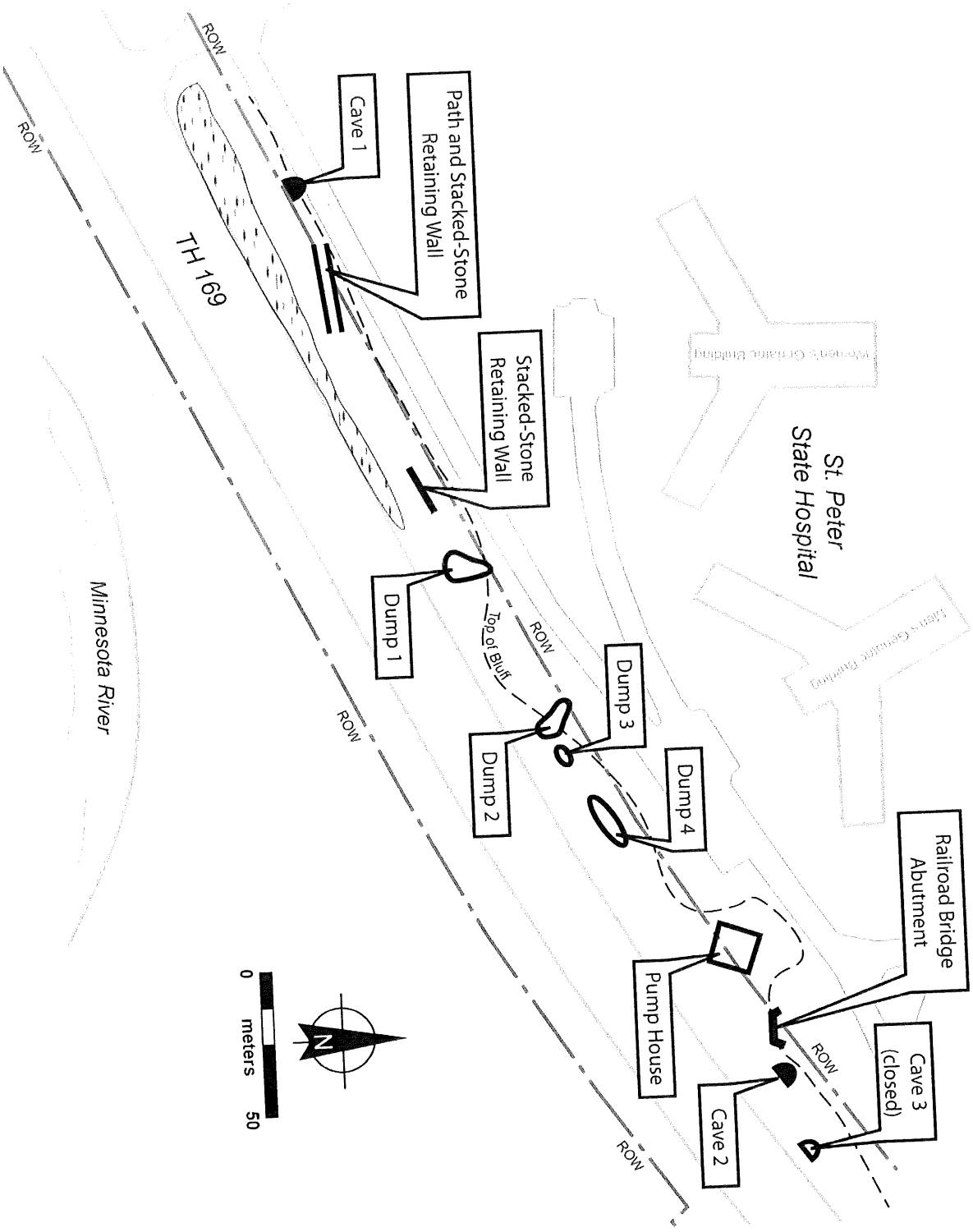

FIGURE 14. SKETCH MAP OF THE ST. PETER STATE HOSPITAL BLUFF SITE (21NL0148)

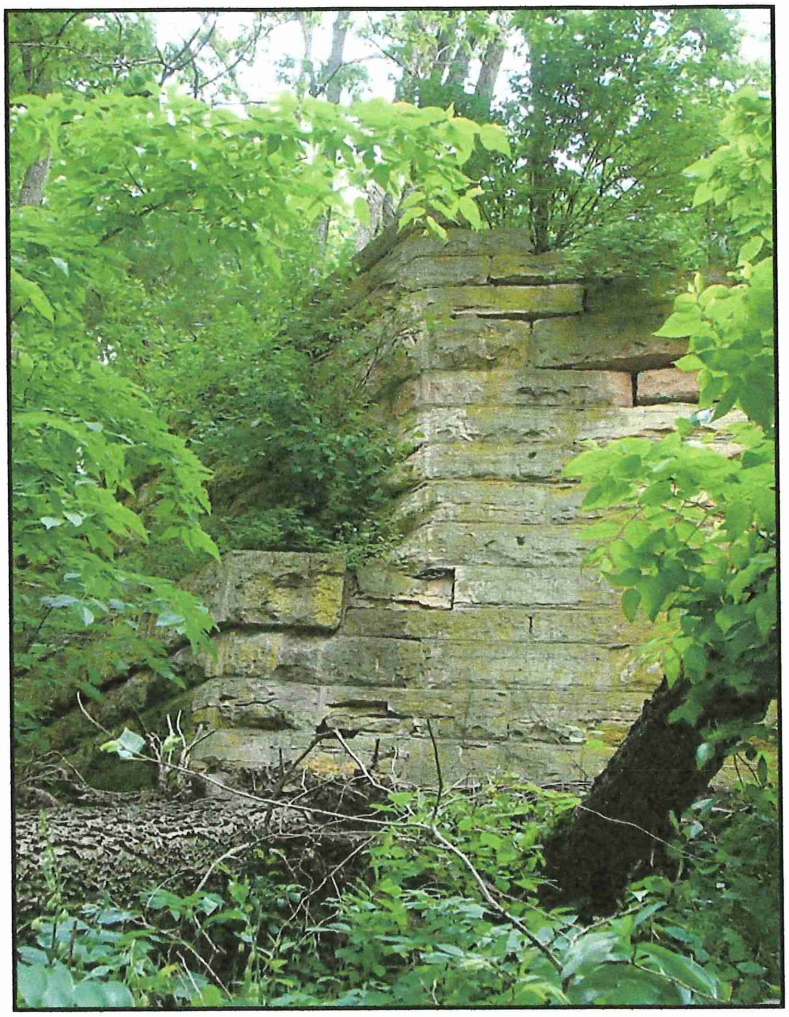

FIGURE 15. WINONA AND ST. PETER RAILROAD BRIDGE ABUTMENT, VIEW TO NORTHWEST

dismantled in 1954. The abutment, which is approximately 18 ft. in height and 20 ft. wide across its face, exhibits good integrity with only the upper stones of the east wing wall having been slightly displaced. However, as the abutment is no longer associated with an extant bridge, and as an abutment it is not associated with a historically significant event or person, nor does it embody a distinctive architectural style, or have the potential to yield significant information about the bridge or its construction, it is recommended as not eligible for listing in the NRHP.

St. Peter State Hospital Pump House

Located at the base of the bluff and just to the west of the railroad bridge abutment are the concrete ruins of a former structure (see Figures 14 and 16). Located only partially within the ROW, these rectangular ruins, which are built into the bluff, measure 12 ft. east-west and approximately 14 ft. north-south. A review of historical maps and images indicates that the hospital's pump house stood at this location. From the time of its establishment, the hospital had a pump house for its water supply. According to the

hospital's annual report of 1896 (p. 4), the initial pump house (which is visible to the left of the bridge in Figure 3) was replaced: "A new pumphouse has been built in a substantial manner, and new boilers added. The reservoir has been enlarged and the water supply made more abundant and permanent." That substantial limestone building (Figure 17) was eventually replaced in 1949 or 1954 when two new pump houses were built (St. Peter State Hospital, Published Records and Reports, 1932-1999, held at the Minnesota Historical Society). It is the remains of one of these later, mid-twentieth century pump houses that was documented during the archaeological investigations, and which is described on the MnDOT ROW maps as being abandoned at the time of the construction of TH 169 (Figure 18). As the remains of the c.1950 pump house are not associated with the initial establishment of the hospital, nor do they retain sufficient integrity to answer important research questions, the ruins of the pump house are recommended as not eligible for listing in the NRHP.

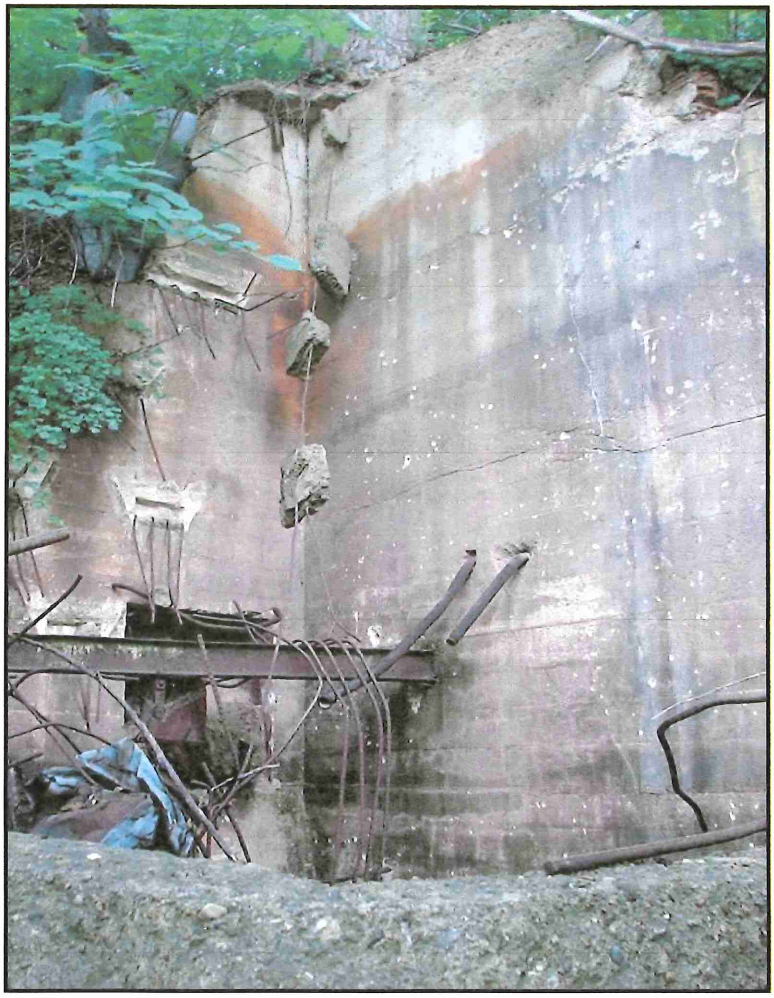

FIGURE 16. REMAINS OF ST. PETER STATE HOSPITAL PUMP HOUSE

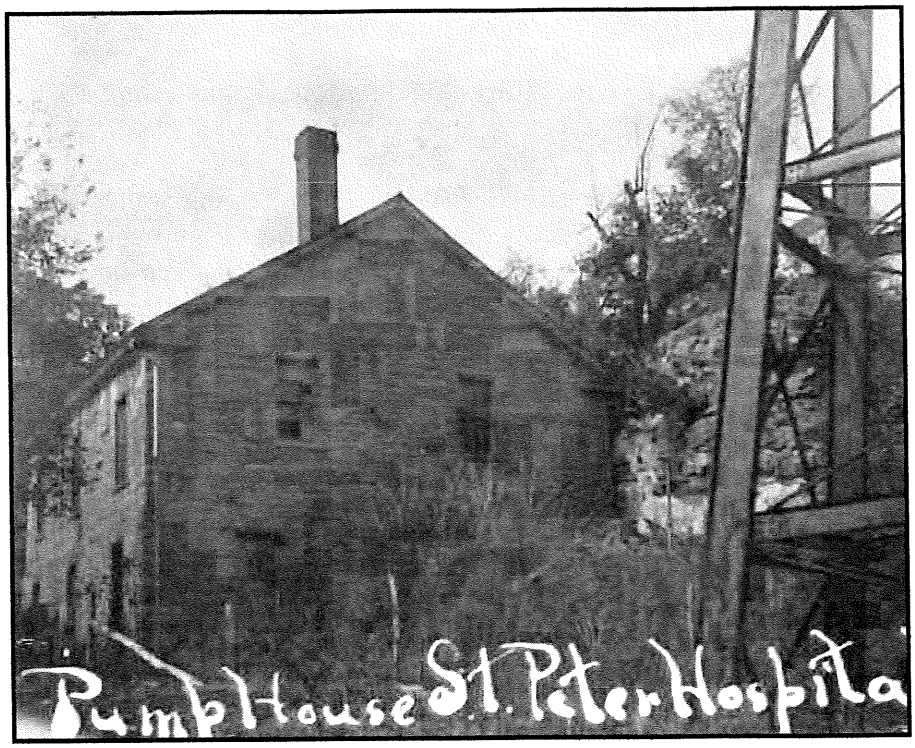

FIGURE 17. ST. PETER HOSPITAL LIMESTONE PUMP HOUSE, C. 1910

(Minnesota Reflections 66.214)

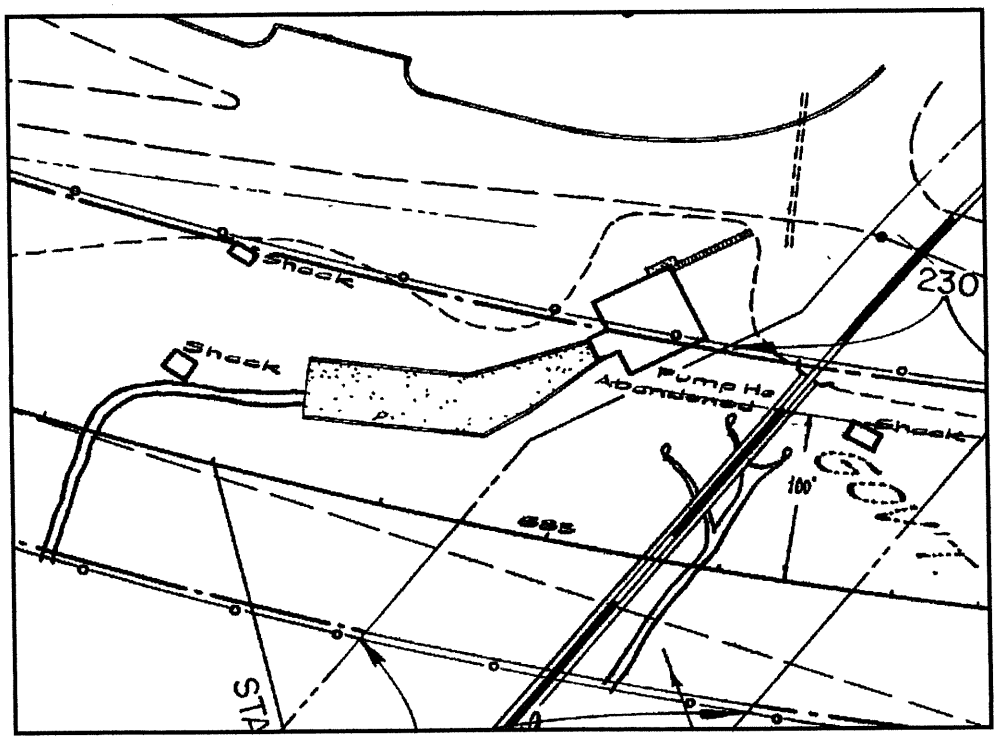

FIGURE 18. DETAIL OF PUMP HOUSE LOCATION ON MNDOT ROW MAP

Dry-Laid Limestone Features

During the walkover survey, a series of dry-laid limestone features were noted within the ROW.

Retaining Wall and Path. An overgrown stacked-stone retaining wall associated with a path leading up the bluff was recorded within the ROW (see Figure 14). This is almost certainly the path and associated limestone wall visible in the background of a photo of a liberty patient's shack (Ratzloff 2008a:Shack 3) (Figure 19). This road may have at one time been used as a means of hauling fuel to the pump house.

Stacked-Stone Retaining Walls/Liberty Patient Shack. A set of dry-laid, limestone and fieldstone retaining walls was also encountered at the foot of a bowl within the bluff (see Figure 14). Here a 20 in.-tall low stone wall of approximately 6 ft. in length formed a 4 ft. wide terrace to its rear at which point an approximately 56 ft. long dry-laid stone retaining wall was constructed across the mouth of the bowl (Figure 20). The average height of this wall was approximately 3 ft., but the greatest exposure was 5 ft. in height (Figure 21). The stone of the shorter, lower wall was discolored by exposure to heat. Drill marks and old mortar on the face of some of the stones indicated that they had been reused perhaps having come from the limestone pump house, which was demolished c. 1950. Several photographs of the shacks of liberty patients document the use of limestone retaining walls and one of the photographed shacks appears to match in its setting and use of stone the walls encountered (Ratzloff 2008a:Shack 6) (Figure 22).

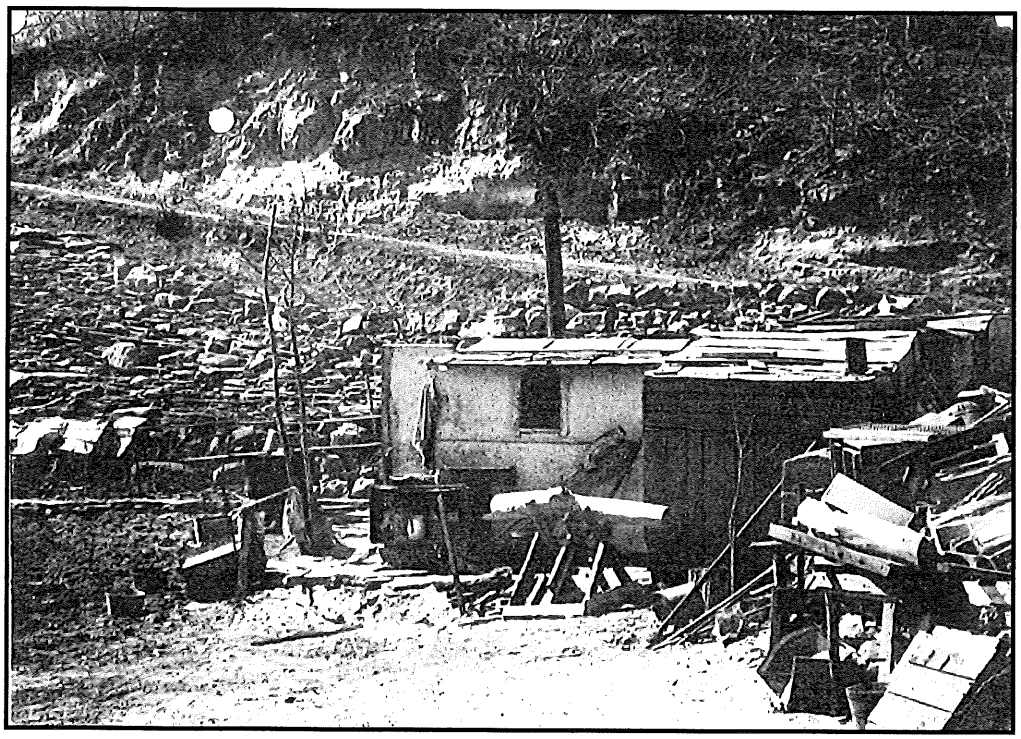

FIGURE 19. LIBERTY PATIENT'S SHACK WITH PATH AND LIMESTONE RETAINING WALL IN BACKGROUND

FIGURE 20. SHORT DRY-LAID RETAINING WALL IN FOREGROUND WITH A SECTION OF THE LONG RETAINING WALL IN THE BACKGROUND, VIEW TO NORTH

FIGURE 21. TALLEST SEGMENT OF RETAINING WALL, VIEW TO NORTHWEST

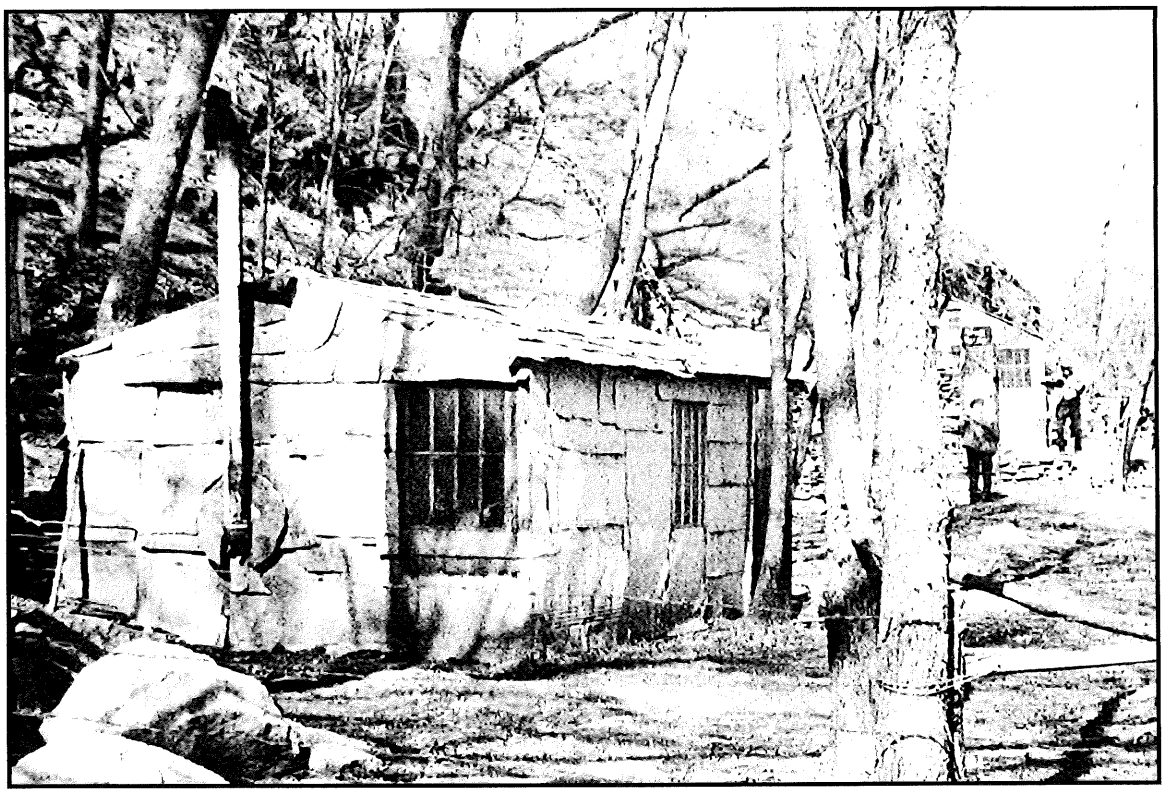

FIGURE 22. THE SETTING AND STONE WALLS ASSOCIATED WITH THE LIBERTY PATIENT'S SHACK IN THE BACKGROUND CONFORM TO THE DRY-LAID WALLS ENCOUNTERED DURING THE SURVEY

As these walls indicate the presence of a former liberty patient's shack, three shovel tests were excavated at a 5-m interval along a single transect in front of the walls. These shovel tests revealed an accumulation of 25 cm of modern accumulation atop eroded slope wash containing plastic, amber bottle glass and other modern artifacts. At an average depth of 57 cmbs the tests encountered large limestone cobbles and gravels indicative of the disturbance resulting from the construction of TH 169.

Artifacts were also noted on the surface in the vicinity of these walls; however, the orientation and location of many of the items suggested that they had come down the bluff from above and could not be definitively associated with the shack that was formerly at this location. Recorded artifacts included cobalt blue bottle glass, two coffee cans, two juice cans, sheet metal, flat glass, a metal grate, a "Super Softop" can, a Flo-Pack brush handle, a cone top can, a white ironstone handle, ironstone pottery sherds, a fragment of a redware flowerpot, a screwtop colorless glass flaks, a barrel band, glazed tile, red brick, cinder block, and fire brick (Evans & Howard – ACME).

Caves

Three caves were documented within the boundary of 21NL0148. Cave 3 consisted of a shallow stone arch near the east end of the bluff face that had been closed with concrete and was not documented beyond recording its location.

Cave 1 is located at the base of the bluff towards the western edge of the St. Peter's Hospital Bluff site and just to the east of a former hospital entrance (see Figure 14). The cave's opening, which is located outside of the ROW, faces south-east out of the bluff and is approximately 10 feet wide and 6 feet tall, with the cave's depth is roughly 9 feet to the back wall (Figure 23). The cave, which is wet, has been modified as evidenced by the right angles present in its interior. There are also two concrete additions oriented with the cave's opening extending approximately 11 feet to the south of the cave. The concrete addition on the west side of the cave mouth consists of three connected walls; one running parallel and connected to the cave face, one running north-south and one running east-west (Figure 24). The east concrete addition is disconnected from the cave face by a rock fall. It consists of a wall running east-west as well as a severely fragmented north-south segment towards the cave. Cave 1 has other added architectural components including galvanized pipes located to the west of the cave, as well as horizontal boards along the west exterior edge and interior wall of the cave. Though there were recent materials found in and near the cave, there were no historical artifacts documented in association with Cave 1. It is unclear when and for what purpose this cave was modified.

Cave 2 is located at the base of the bluff just to the northeast of the railroad bridge abutment. The mouth of the cave is partially filled and measures approximately 13 to 14 feet wide and 10 feet deep to the back wall (Figure 25). The cave, which is wet, has been modified as evidenced by the right angles present in its interior. A concrete facing is also present above the mouth of the cave and extending to the east (Figure 26). This facing

FIGURE 23. MOUTH OF CAVE 1, VIEW TO NORTHWEST

FIGURE 24. CONCRETE ADDITION TO WEST OF CAVE 1 MOUTH, VIEW TO WEST

FIGURE 25. MOUTH OF CAVE 2, VIEW TO NORTHWEST

FIGURE 26. CONCRETE FACING ABOVE CAVE 2, VIEW TO NORTH

indicates that the cave was incorporated into a structure. Not only is the shack of a liberty patient indicated at this location to the immediate east of the railroad bridge abutment (see Figure 18), but a photograph of a shack at the mouth of a cave is identical in its setting and surrounding rock formation to Cave 2 (Ratzloff 2008a:Shack 11) (Figure 27).

A general surface survey was conducted of the approximately 7 x 3.3 m mostly flat area outside the cave. Any artifacts encountered were recorded rather than collected. The artifacts documented included Christmas lights, a flat glass sherd, an ironstone sherd, a melamine plate with the Arrowhead maker's mark (ca. 1950-1960s+), aluminum foil (ca. 1947+), an iron alloy can fragment, barbed wire, extruded bricks, and hollow tile fragments. All of these artifacts appear to have eroded down the bluff or off of the highway. No evidence for the stone walls and other features formerly associated with the shack could be relocated. Given these findings and presence of the base of the highway embankment within 10 ft. of the cave entrance, the site of this former shack was disturbed during the construction of TH 169.

SURFACE DUMPS

Within 21NL0148 four concentrations of discarded materials (surface dumps) associated with the St. Peter State Hospital were documented. All four dumps appear to have resulted from the general practice of discarding trash down the bluff at the edge of the hospital complex.

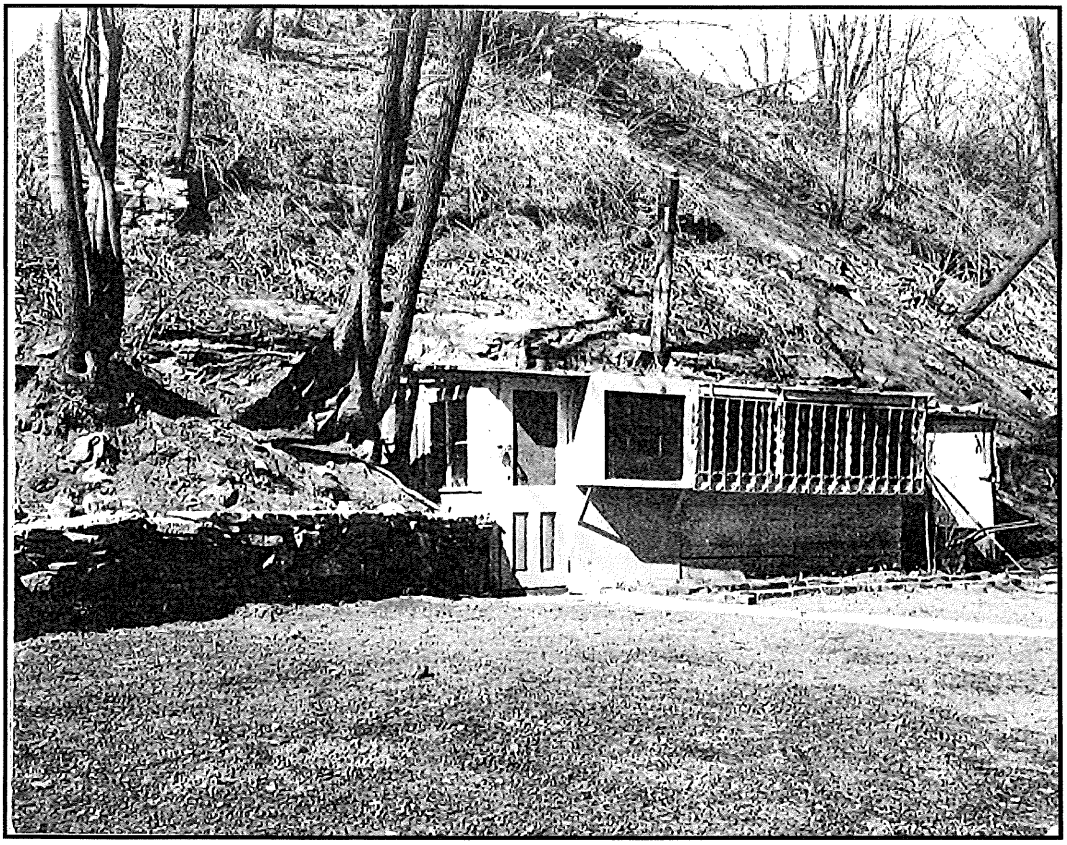

FIGURE 27. LIBERTY PATIENT'S SHACK AT THE MOUTH OF A CAVE

Dump 1

Dump 1, which measures 23 ft. north-south by 21.5 ft. east-west, was the westernmost of the documented surface dumps (see Figure 14). The dump is associated with a rock slide contained within a natural ravine (Figure 28). A total of 135 artifacts were documented at this dump site during a general surface survey. Materials recorded within this dump consisted of metal objects (53), including cans, barrel bands, and mower blades; glass objects (52), including bottles and jars; construction materials (18) such as hollow tile, brick and concrete; ceramic sherds (5), and other miscellaneous artifacts.

A 1-x-1-m unit placed in the densest portion of the dump produced a total of 146 additional artifacts. Materials recorded in this unit consisted of glass objects (95), such as bottles and jars; metal objects (25), including cans, nails, hinges; and construction materials (9) such as hollow tile and brick, as well as other miscellaneous artifacts.

Dateable material within Dump 1 ranged from a bottle bearing a 1938 Owens-Illinois Glass Company mark to a bottle fragment with a 1945 Owens-Illinois Glass Company mark.

FIGURE 28. DETAIL OF DUMP 1

Dump 2

Dump 2, which measures 12 ft. north-south by 26 ft. east-west, was located to the northeast of Dump 1 and to the southwest of Dump 3 (see Figure 14). It is also largely defined by a rock slide contained within a natural ravine. A total of 263 artifacts were documented within this dump site during a general surface survey. Materials recorded within this dump consisted of metal objects (111), including cans, bars and bands; construction materials (72), such as hollow tile, brick and concrete; glass objects (67), including bottles and jars; and ceramics (18), such as cups, bowls, and plates, as well as other miscellaneous artifacts.

A 1-x-1-m unit placed in the densest portion of the dump produced a total of 62 additional artifacts. Materials recorded within this unit consisted of metal objects (45), such as cans, a railroad spike, a bottle cap, and a spoon; glass objects (10), including bottles and jars, as well as miscellaneous construction materials and other artifacts.

Dateable material within Dump 2 ranged from a 1938 Owens-Illinois Glass Company mark on the base of an Ideal Hair Tonic bottle to a bottle bearing an Owens-Illinois Glass Company mark from 1951.

FIGURE 29. DETAIL OF DUMP 2

Dump 3

Dump 3, which measures 22 ft. north-south by 6 ft. east-west, was located to the northeast of Dump 2 and to the southwest of Dump 4 (see Figure 14). A total of 129 artifacts were recorded at this dump site during a general surface survey. Materials documented within this dump consisted of glass objects (72), including bottles and jars; ceramics (13), such as pitchers, and plates; metal objects (23), including cans, and other miscellaneous artifacts.

A 1-x-1-m unit placed within the central portion of the dump produced a total of 114 additional artifacts. Materials recorded within this unit consisted of glass objects (51), including bottles, and jars; metal objects (51), such as cans, and nails; ceramic sherds (8), and other miscellaneous artifacts.

Dateable material recorded in Dump 3 ranged from a (ca.1880-1896) John Maddock & Sons (Ltd) marked plate to a (ca. 1912-1920s) Shenango China cup to a Duraglas bottle base bearing the post-1956 mark of the Owens-Illinois Glass Company.

Dump 4

Dump 4, which is the largest and densest surface dump (53 ft. north-south by 6.5 ft. east-west), was also the easternmost of the documented dumps (see Figure 14). The dump site is bracketed by a rock slide to the northeast, and a rise to the southwest. Due to the density of the material present at Dump 4 artifact documentation focused primarily on artifacts with diagnostic elements and maker's marks, or whole objects (Figure 30). A

FIGURE 30. MATERIAL FROM DUMP 4

total of 272 artifacts were recorded at this dump site during a general surface survey. Materials noted within this dump consisted of glass objects (140), including bottles, and jars; ceramic objects (47), such as plates, bowls, and cups; metal objects (81), including cans, and enamelware, as well as other miscellaneous artifacts.

A 1-x-1-m unit placed 20.5 ft. southwest of the rock slide produced a total of 281 additional artifacts. Materials documented within the unit mirrored the results of the general surface record with glass objects (168), including bottles and jars; ceramic objects (55), such as plates, bowls, and a figurine; metal objects (40), including cans and enamelware, as well as other miscellaneous artifacts.

Dateable material recorded in Dump 4 ranged from a 1929 date code on an Onondaga Pottery Company bread plate to a flask bottle bearing a 1955 Owens-Illinois Glass Company mark.

ARTIFACT ANALYSIS

The materials encountered in the four identified surface dumps during the survey along the St. Peter Security Hospital segment were catalogued in the field. Particularly diagnostic and/or unique artifacts were photographed and in some cases collected. Information gathered on all artifacts included, but was not limited to: measurements such as height (h), width (w), length (l), diameter (d), and aperture (a); general artifact description;, manufacturer or distributor information (where available); labels; markings; or other writing or decoration on artifacts; closure style; and color.

The sections below contain descriptions of materials documented within the four evaluated surface dumps. To facilitate analysis, these materials are grouped by function. A total of 1,402 artifacts were recorded in the surface dumps of 21NL0148.

Food Containers

Coffee Cans

All except one of the 49 documented coffee cans in Dumps 1 (n=7), 2 (n=36), and 4 (n=6) were too poorly preserved to determine the manufacturer (Table 5). Dump 2 contained the most coffee cans including one manufactured by Maxwell House (Figure 31).

Sardine Cans

Three rectangular sardine cans were recorded within Dumps 1 through 3.

- Aluminum, rectangular can with a cut top and ribbed base; on base, "NORVEGE // 1P // NORWAY"; 3" (width) x 4" (length) (n=1, Dump 3).
- Iron alloy rectangular can; 3" (width) x 4 1/4" (length) x 1" (height) (n=1, Dump 1).
- Iron alloy, rectangular can with rounded corners and a missing top; 3 1/2" (width) x 4" (length) (n=1, Dump 2).

TABLE 5. COFFEE CANS AT 21NL0148

Description and Markings	HEIGHT	BASE DIAMETER	Date	Dump	COUNT
Iron alloy can, coffee, Maxwell House partial label, "MAXW[ELL] / HOU[SE] / COF[FEE]"	5 3/4"	5"	ca. 1892+	Dump 2	1
Iron alloy	5 1/2"	5"	indeterminate	Dump 1	1
Iron alloy	6 3/4"	6"	indeterminate	Dump 1	2
Iron alloy can, sanitary (open-top)	7"	6 1/8"	ca. 1878+	Dump 2	5
Iron alloy can, cut open	7"	6 1/8"	indeterminate	Dump 2	12
Iron alloy can, ribbed	7"	6"	indeterminate	Dumps 1and 2	2
Iron alloy can, sanitary (open-top)	7"	6"	ca. 1878+	Dump 2 and Dump 4	14
Iron alloy can. sanitary (open-top)	7"	5 7/8"	ca. 1878+	Dump 2	4
Iron alloy	7"	5"	indeterminate	Dump 1	1
Iron alloy	7"	5"	indeterminate		1
Iron alloy, ribbed	3"	5 1/4"	indeterminate	Dump 1	1
Iron alloy can, bottom	indeterminate	5 3/4"	indeterminate	Dump 2	3
Iron alloy, ribbed	indeterminate	indeterminate	indeterminate	Dumps 1and 4	2
				TOTAL	**49**

FIGURE 31. MAXWELL HOUSE COFFEE CAN (DUMP 2)

Cylindrical Cans

In Dumps 1 (n=7), 2 (n=12), and 4 (n=2), there were 21 documented cylindrical cans of varying sizes (Table 6). These cans had no remnant labels or visible printing. Cans that were opened with a church key or another small implement such as an ice pick most likely contained a liquid, for which a small opening would be needed. In the same way, if the can was cut open around the edges, then it most likely contained fruits or vegetables, which would require a larger opening.

Ovoid Cans

Three ovoid cans of varying sizes were recorded in Dump 3 (n=2) and Dump 4 (n=1). These cans also had no manufacturer or product information present on their exteriors.

- Iron alloy, base fragment; 2 ½" (length) x 1 (width)" (Dump 3, n=1).
- Iron alloy, base fragment, indeterminate measurements (Dump 3, n=1).
- Iron alloy, elongated base fragment; 2 1/8" (length) x 1" (width) x 2 3/8" (height) (Dump 4, n=4).

TABLE 6. CYLINDRICAL CANS AT 21NL0148

Description	Opening	Dimensions	Date	Dump	Count
Iron alloy	cut open	4" h x 3 1/4" d	indeterminate	Dump 1	1
Iron alloy	sanitary (open-top)	7" h x 5" d	ca. 1898+	Dump 1	1
Iron alloy	sanitary (open-top)	indeterminate h x 4 1/4" d	ca. 1898+	Dump 1	3
Iron alloy	indeterminate	4" h x indeterminate d	indeterminate	Dump 1	1
Iron alloy	sanitary (open-top)	indeterminate h x 6" d	ca. 1898+	Dump 1	1
Iron alloy can, ribbed	indeterminate	7" h x 6 1/8" d	indeterminate	Dump 2	4
Iron alloy can, missing top	sanitary (open-top)	7" h x 6 1/4" d	ca. 1898+	Dump 2	1
Iron alloy can, missing top	sanitary (open-top)	7" h x 6" d	ca. 1898+	Dump 2	1
Iron alloy can, missing top	sanitary (open-top)	4 5/8" h x 4" d	ca. 1898+	Dump 2	1
Iron alloy can	indeterminate	4 1/2" h x 3" d	indeterminate	Dump 2	1
Iron alloy can	church key	7" h x 4 1/4" d	ca. 1935+	Dump 2	1
Iron alloy can, overlapping zipper seam	church key	5 3/4" h x 2 3/4" d	ca. 1935+	Dump 2	1
Iron alloy can, overlapping zipper seam	ice pick	5 3/4" h x 2 3/4" d	indeterminate	Dump 2	1
Iron alloy can, opened with church key, overlapping zipper seam	church key	4 7/8" h x 2 7/8" d	ca. 1935+	Dump 2	1
Iron alloy, missing top	flange top	3" h x 5" d	indeterminate	Dump 4	2
				TOTAL	**21**

Crushed and Fragmentary Cans

A total of 133 crushed and fragmentary cans of differing measurements were documented at all four dumps (Table 7).

TABLE 7. CRUSHED AND FRAGMENTARY CANS AT 21NL0148

Description	Opening	Dimensions	Date	Dump	Count
Iron alloy, crushed	sanitary (open-top)	7" h x indeterminate d	ca. 1898+	Dumps 2 and 4	22
Iron alloy, crushed, ribbed	sanitary (open-top)	7" h x indeterminate d	ca. 1898+	Dump 4	1
Iron alloy, crushed	sanitary (open-top)	7" h x 6" d	ca. 1898+	Dump 2	1
Iron alloy, crushed can, ribbed; possible juice can	church key; sanitary (open-top)	7" h x 4 1/2" d	ca. 1935+	Dump 2	1
Iron alloy, crushed, missing top	sanitary (open-top)	7" h x 6 1/8" d	ca. 1898+	Dump 2	1
Iron alloy, crushed, flattened side with one puncture in center and one in a corner	sanitary (open-top)	7" h x indeterminate w	ca. 1898+	Dump 3	1
Iron alloy, ribbed	church key; sanitary (open-top)	7" h x 6 1/8" d	ca. 1935+	Dump 2	2
Iron alloy, crushed	sanitary (open-top)	indeterminate h x 6 1/8" d	ca. 1898+	Dump 4	1
Iron alloy, crushed	sanitary (open-top); mostly cut open	7" h x ~6" d	ca. 1898+	Dump 2	1
Iron alloy, crushed can	sanitary (open-top)	indeterminate h x 3 3/8" d	ca. 1898+	Dump 4	2
Iron alloy, crushed	sanitary (open-top)	indeterminate h x 2 5/8" d	ca. 1898+	Dump 4	1
Iron alloy	flange top	3" h x indeterminate d	indeterminate	Dump 4	1
Iron alloy, crushed	indeterminate	indeterminate h x 3" d	indeterminate	Dump 2	1
Iron alloy, crushed can, ribbed	indeterminate	indeterminate h x 6" d	indeterminate	Dump 2	1
Iron alloy, crushed	sanitary (open-top)	indeterminate h x 6" d	ca. 1898+	Dumps 2 and 4	4
Iron alloy, crushed	sanitary (open-top)	indeterminate	ca. 1898+	Dump 4	10
Iron alloy, fragment	sanitary (open-top)	6 1/8" d	ca. 1898+	Dump 2	1
Iron alloy, sanitary (open-top) can fragment , cut open	cut open; sanitary (open-top)	5 7/8" d	ca. 1898+	Dump 2	6
Iron alloy can fragment, opened with church key	church key	6" d	ca. 1935+	Dump 2	1
Iron alloy, fragment	sanitary (open-top)	indeterminate h x 6" d	ca. 1898+	Dump 2	5

Description	Opening	Dimensions	Date	Dump	Count
Iron alloy, base fragment	sanitary (open-top)	2 1/8" d	ca. 1898+	Dump 3	1
Iron alloy, can fragment, ribbed, makeshift wire handle attached at top	sanitary (open-top)	indeterminate	ca. 1898+	Dump 4	1
Iron alloy, fragment, ribbed	sanitary (open-top)	indeterminate	ca. 1898+	Dump 2	2
Iron alloy, fragment	sanitary (open-top)	indeterminate	ca. 1898+	Dump 2	23
Iron alloy, can fragment	indeterminate	indeterminate	indeterminate	Dumps 1, 2, 3, and 4	41
Iron alloy, base fragment	indeterminate	indeterminate h x 2" d	indeterminate	Dump 3	1
				TOTAL	133

Can Lids

A total of 27 can lids and lid fragments of various sizes were recorded amongst all four dumps (Table 8).

TABLE 8. CAN LIDS AT 21NL0148

Description	Opening	Dimensions	Dump	Count
Iron alloy, raised lettering ". . . ATISFIES N . . ." and mark on top-raised square with a possible stylized "M" inside	flange top	indeterminate	Dump 3	1
Iron alloy	indeterminate	6 1/4"d	Dump 4	1
Iron alloy	indeterminate	6 1/8"d	Dump 4	1
Iron alloy; fragment	indeterminate	6" d	Dump 4	1
Iron alloy	cut open	2 ¼" d	Dump 3	1
Iron alloy	indeterminate	6" d	Dump 2	5
Iron alloy	indeterminate	5 7/8" d	Dump 3	1
Iron alloy	indeterminate	3 1/4" d	Dump 3	2
Iron alloy	indeterminate	2" d	Dump 1	1
Iron alloy	pry top	2 5/8" d	Dump 3	1
Iron alloy	pry top	2 3/8" d	Dump 4	1
Iron alloy	flange top	~4" d	Dump 4	1
Iron alloy	threaded	2" d	Dump 3	1
Iron alloy, rectangular	indeterminate	4" w x 4" l	Dump 1	1
Iron alloy, fragment	indeterminate	indeterminate	Dumps 1, 2, and 4	8
			TOTAL	**27**

Canning Jars

Ball Canning Jars. Each of the dumps contained at least a partial canning jar made by the Ball Brothers Co. (1880-present) with the majority being found in Dump 4 (Table 9).

TABLE 9. BALL CANNING JARS AT 21NL0148

Object	Description and Markings	Dimensions	Date	Maker's Mark (embossing)	Dump	Count
Jar, canning	Colorless, external thread finish, stippled bottom, suction scar	4" h x 1 3/4" d; 2" a	ca. > 1940s	"Ball (script) / I / 165-6"	Dump 4	1
Sherd, base	Colorless, stippled bottom, embossed	2 1/4" d	ca. > 1940s	"Ball (script) / 6 / 165-8P"	Dump 4	1
Sherd, base	Colorless, stippled	indeterminate	ca. > 1940s	"B[ALL] (script)"	Dump 1	1
Sherd, base	Colorless, stippled	indeterminate	ca. > 1940s	"165-30 / Ball . . . (script)"	Dump 3	1
Sherd, base	Colorless, stippled	indeterminate	ca. > 1940s	"Ba[ll] (script)"	Dump 4	1
Sherd, body	Colorless	indeterminate	ca. > 1892	"B . . . (script)"	Dump 4	1
Sherd, body	"Ball blue"	indeterminate	ca. 1910-1933	"B[ALL] (script) / PE[RFECT] / M[ASON]"	Dump 4	1
Sherd, base	Aqua	indeterminate	ca. 1892-1937	"[B]all (script)"	Dump 2	1
					TOTAL	**8**

Anchor Hocking Canning Jars. There were two canning jars embossed with the Anchor Hocking Corporation maker's mark in Dump 2 and in Dump 4. Both can be dated to 1938-1943 when Anchor-Hocking Glass Corp. stopped production of round jars (Lockhart et al 2013:10).

Colorless pry top with embossing on base, "10-40B / 3 (Anchor Hocking logo) / 12"; measuring 4¾" (height) x 2 ¾" (diameter), 2 ¼" (aperture) (Dump 2, n=1).

Colorless external thread finish with stippled bottom, suction scar and embossing on base, "81 - 24A / 3 (Anchor Hocking Glass Company logo) "; measuring 4 3/8" (height) x 2 ¼" (diameter), 1 ¾" (aperture) (Dump 4, n=1).

Hazel-Atlas Canning Jar. A single, colorless canning jar base manufactured by the Hazel-Atlas Glass Company was recorded in Dump 4. Embossed on base, "(Hazel-Atlas Glass Company logo) / 5536 – 7"; 1 3/4" (diameter). It can be dated from 1923-1964.

Armstrong Cork Canning Jar. There was one Armstrong Cork Company (1938-1969) colorless glass canning jar documented in Dump 4. External thread finish and stippling, suction scar, and embossing on base, "(sideways Armstrong Cork Company logo) (sideways 8) / 10-20"; 4" (height) x 1 ¾" (diameter), 2" (aperture).

Canning Jars of Indeterminate Maker. There were 27 indeterminate canning jar fragments documented amongst all four dumps (Table 10).

TABLE 10. INDETERMINATE CANNING JARS AT 21NL0148

Object	Description and Markings	Dimensions	Date	Dump	Count
Jar, canning	Colorless, external continuous thread finish, stippled and embossed base, "4LG W6 / - / J 75 R," sherds refit	5 1/8" h, 2 1/8" d, 2"int. a, 2 3/8" ext. a	ca. 1940+	Dump 4	2
Jar, canning	Colorless, rectangular, external thread finish, embossing on base, "B" with two concentric circles around it--Boston style	2 1/5" l x 1 1/4" w and 1 1/2" a, 1 7/8" h to shoulder, 2 3/8" h to aperture	ca. 1858+	Dump 4	1
Sherd, finish	Colorless, external continuous thread finish	indeterminate	ca. 1858+	Dump 1, 3	4
Sherd, finish	Colorless, external thread finish	3" a	ca. 1858+	Dump 1	1
Sherd, finish	Colorless, external thread finish	2 3/4" a	ca. 1858+	Dump 1	1
Sherd, finish	Colorless, external thread finish	2 3/8"a	ca. 1858+	Dump 4	1
Sherd, finish	Colorless, external thread finish	2 ¼" a	ca. 1858+	Dump 2	1
Sherd, finish	Colorless, external thread finish	2 1/8"a	ca. 1858+	Dump 4	2
Sherd, finish	Colorless, external thread finish	indeterminate	ca. 1858+	Dumps 1, 2, and 4	3
Sherd, finish	Colorless, non-threaded finish, parallel raised bands along rim, first band is 3/16" from top of rim and the second band is 3/16" below it, mold seam	¾" h x ind a	ca. 1905+	Dump 1	1

Object	Description and Markings	Dimensions	Date	Dump	Count
Sherd, finish	Colorless, non-threaded finish, partial shoulder, 2-part finish, slightly raised band around rim edge 3/16," depressed 3/16" band below, a raised 1/8"band below, another slightly raised 1/8" band below, possibly pry off or gasket canning jar	indeterminate	ca. 1905+	Dump 4	1
Sherd, finish	Colorless, spring clip closure style finish	indeterminate	ca. 1901-1957	Dump 3	1
Sherd, finish	Colorless, pry off style finish	2 1/4" a	indeterminate	Dump 4	3
Sherd, finish	Colorless, pry off style finish	2" a	indeterminate	Dump 4	1
Sherd, finish	Colorless, lug type external thread finish	2" a	indeterminate	Dump 4	1
Sherd, finish	Colorless, non-threaded finish	indeterminate	indeterminate	Dump 4	1
Sherd, finish	Aqua, external continuous thread finish	2 1/8" int. a, 2 5/8" ext. a	ca. 1858+	Dump 4	1
Sherd, base	Colorless, stippled	indeterminate	ca. 1940+	Dump 4	1
				TOTAL	**27**

Canning Jar Lids, Liners, and Seal. Canning jar lids (n=2), liners (n=2), and a seal (n=1) were also recorded at each of the dumps (Table 11).

The Presto glass pry off lid, which was documented in Dump 3, was manufactured by Owens-Illinois Glass Company (1929-present) from 1925-1946.

Beverage Containers

Soda Pop Bottles

There were five soda bottles sherds recorded in Dump 2 (n=1), Dump 3 (n=2), and Dump 4 (n=2). Among these were Goody soda, which was bottled in Minneapolis, Minnesota from the 1940s-1960s and Coca-Cola bottles were first manufactured in a contour shaped bottle in 1915 and were embossed on the base with the location of the city in which the beverage was bottled until 1960.

TABLE 11. CANNING JAR LIDS, LINERS, AND SEAL AT 21NL0148

Object	Description and Markings	Dimensions	Date	Maker's Mark	Dump	Count
Liner	Milk glass, embossed mark	2 1/2" d	ca. 1923-1964	"GENUINE BOYD'S CAP FOR MASON JAR 17" with Hazel-Atlas logo in center	Dump 4	1
Sherd, liner	Milk glass, embossed mark on top	indeterminate	indeterminate	"For . . . / GEN . . ."	Dump 1	1
Lid	Zinc, threaded, milk glass liner present	indeterminate	ca. > 1858	none	Dump 2	1
Seal	Lead	2 ¾" d (base) and 2 1/8" d (top)	indeterminate	none	Dump 1	1
Lid, pry off	Colorless, embossing around exterior edge, made for a Presto Supreme Mason, manufactured by Owens-Illinois Glass Co.	2 5/8" d	ca. 1925-1946	"TO OPEN [INSERT] KNIFE AT NOTCH (fletched, right-pointing arrow) / PRESTO; embossed "33" (in center with slightly offset numerals)	Dump 3	1
					TOTAL	**5**

- Green 7-Up bottle base sherd with an applied color label on front, "FL.025" and a stippled and embossed bottom, "G-94 / Duraglas / 6 (Owens Illinois Glass Company logo) 48 / 42." (offset mark); 2 1/8" (diameter), 1948 date code (Dump 2, n=1).
- Colorless Goody Brand Root Beer bottle base sherd with partial body, applied color label on body, "[W]h[olesome] / [and] / Ref[reshing] / CON[TAINS] / CARBONATED [WATER SUGAR] / FLAVOR DERIVED [FROM NATURAL] / ROOTS, HERBS [BARK] / COLORED WITH CA[RAMEL COLOR] / BOTTLED UNDER [AUTHORITY] / GOODY CO., MINNE[APOLIS, MINN.]," orange peel texture on body without label, molded and faceted 7/16" wide band along bottom edge and partial indeterminate embossing on base, ca. 1940s-1960s (Dump 3, n=1).
- Indeterminate colorless soda bottle base sherd with small, white, applied color label, "CRYI . . ."; 2 3/8" (diameter), ca. > 1933 (Dump 3, n=1).
- Aqua Coca-Cola bottle base sherd with partial ribbed, contour body, embossing on base, "MANKATO / MINN. / S"; 2 ¼" (diameter), ca. > 1915 (Dump 4, n=1) (Figure 32).

FIGURE 32. COCA-COLA BOTTLE BASE (DUMP 4)

- Aqua Coca-Cola bottle body sherd of contour bottle, embossing, "Co[ca-Co]la / . . . RED // . . . OZS"; ca. > 1915 (Dump 4, n=1).

Cone Top Cans

A total of five cone top cans and can fragments were recorded in Dumps 1 and 2.

Cone top cans were first manufactured in 1935 to allow bottlers to transition from bottles to cans while continuing to use the same bottling equipment, which was not possible with flat top cans. The cone top can was mainly used for beer and soda pop. Bottlers stopped using cone tops in 1960.

- Iron alloy; 5 ½" (height) x 3" (diameter), ca. 1935-1960 (Dump 1, n=2).
- Iron alloy, upper portion only, ca. 1935-1960 (Dump 1, n=2).
- Iron alloy fragment with beveled top; 5 1/4" (height) x ~2 ¾" (diameter), ¾" (interior aperture) and 1" (exterior aperture), 4 ½" shoulder to base, ca. 1935-1960 (Dump 2, n=1).

Juice Cans

All of the documented juice cans (n=5) and fragments (n=3) were found in Dump 2. They were all ribbed, measured 7" (height) x 4 1/4" (diameter), and three had church key openings at the top. Tall juice cans such as these were generally used for juice or "Hi-C"

drinks. The cans with church key openings can be dated to post 1935 and those without them to post 1921.

Milk Bottle

A single colorless milk bottle finish sherd with a 2" aperture was documented in Dump 4.

Liquor Bottles

There were nine documented liquor bottles and bottle sherds in Dump 1 (n=4), Dump 2 (n=1), and Dump 4 (n=4) (Table 12).

Most of these artifacts were flask bottles and were embossed with the statement, "FEDERAL LAW FORBIDS SALE OR REUSE OF THIS BOTTLE," which was a requirement in the U.S. on all liquor bottles, excluding wine and beer, from 1935 until 1964 (Lindsey 2013).

TABLE 12. LIQUOR BOTTLES AT 21NL0148

Object	Description	Dimensions	Date	Embossing/ Maker's Mark	Dump	Count
Bottle, flask	Colorless, external thread finish sherd with partial body, embossing on top back, lettering on cap, "Turn (arrow symbol pointing to the right)" (repeats four times around perimeter), two sherds refit; missing base	indeterminate	ca. 1935-1964	"FEDERAL LAW FORBIDS SALE / OR RE-USE OF THIS BOTTLE"	Dump 1	2
Bottle, flask	Amber, body sherd	indeterminate	ca. 1935-1964	"[FEDERAL] LAW FORBID[S SALE OR RE-USE OF THIS BOTTLE]"	Dump 1	1
Bottle	Amber, shoulder sherd, mold seam; embossing on both sides	indeterminate	ca. 1935-1964	"FEDER[AL LAW FORBIDS SALE // OR REUSE OF THIS BOT]TLE"	Dump 1	1

Object	Description	Dimensions	Date	Embossing/ Maker's Mark	Dump	Count
Bottle, flask	Colorless, missing some of body, external continuous thread finish embossing along shoulders, near base, and on base, stippled base	2 7/8" l x1 1/4" w; 7/8" int. a, 1" ext. a	ca. 1938-1964	"FEDERAL LAW FORBIDS SALE // OR RE-USE OF THIS BOTTLE" (on shoulders), "HALF PINT // HALF PINT" (near base); "12D3 70 (Armstrong Cork Company Logo, Dunkirk Indiana) / 4" (on base)	Dump 2	1
Bottle, flask	Colorless, finish sherd with partial shoulder, external continuous thread finish, embossing on body	indeterminate	ca. 1935-1964	"[FEDERAL L]AW FORBIDS SALE [OR RE-USE OF THIS BOTTLE]"	Dump 4	1
Bottle, flask	Colorless, flask bottle, finish sherd with partial shoulder, external thread finish, iron alloy screw cap present, paneled sides, embossing on shoulder	1" a	ca. 1935-1964	"[FEDERAL LAW] FORBIDS / [SALE OR RE-]USE OF / THIS [BO]TTLE"	Dump 4	1
Bottle, flask	Colorless, base sherd--kidney shaped, embossing on side and base	3 3/4" l x 1 3/4" w	ca. 1955	"ONE PINT" (on side), "D-42 / 55 (Owens-Illinois Co. logo) 9" (on base)	Dump 4	1
Bottle	Colorless, shoulder sherd; embossing, likely a flask style liquor bottle	indeterminate	ca. 1935-1964	"[FEDERAL LAW FORBIDS SALE] OR RE-USE // O[F THIS BOTTLE"	Dump 4	1
					TOTAL	**9**

Meal Preparation and Cooking

Baking Pan

A single baking pan, with an exterior rolled lip and two holes on the sides, likely for handle attachments, was documented in Dump 4; measuring 8¾" (width) x 12 ½" (length) x 4" (height) (Figure 33).

FIGURE 33. BAKING PAN (DUMP 4)

Seasoning Shakers

There were three seasoning shaker fragments recorded at Dumps 1 (n=1), 2 (n=1), and 4 (n=1), with two being for salt or pepper and the other for an indeterminate seasoning.

- Seasoning shaker for an indeterminate seasoning, iron alloy cap with glass shoulder fragment, molded on top with four tear drop shaped depressions that would have opened when twisted; 2 7/8" (diameter) (Dump 1, n=1).
- Salt or pepper shaker, colorless body, eight faceted sides, embossing on base, "B"; 3 ¾" (height with top) x 1 13/16" (width) (Dump 2, n=1).
- Salt or pepper shaker, aluminum cap with 13 holes in a star shape with a design along edge (Dump 4, n=1) (Figure 34).

FIGURE 34. ALUMINUM SALT OR PEPPER SHAKER TOP (DUMP 4)

Condiment Bottles

A total of four documented condiment bottles were in Dump 2 (n=1) and Dump 4 (n=3).

- Colorless condiment bottle, near neck/shoulder sherd with wide faceted ribbing (Dump 2, n=1).
- Colorless pry top finish, paneled sides, stippled bottom, and embossing on base, "7 (Armstrong Cork Company logo) 47 / 53-39"; 8¼" (height) x 2¼" (diameter), 1"(aperture), 1947 date code (Dump 4, n=1).
- Colorless 2-part finish with partial shoulders and raised facets on side; 1/8" (interior aperture) and 7/8" (exterior aperture) (Dump 4) (n=1).
- Colorless rectangular partial base and body with chamfered corners and embossing on base, "[H]EINZ"; 1¾" (width) (Dump 4, n=1).

Enamelware

There were two enamelware kettles, one white and one blue and white marbled, recorded in Dump 4; measuring 8" (height) x 6" (diameter), 3 ¼" (opening diameter) and 8" (height) x ~7" (diameter), 4 ½" (opening diameter) (Figure 35)

FIGURE 35. ENAMELWARE KETTLES (DUMP 4)

Animal Remains

A total of 10 animal bone fragments and one clam shell fragment were documented in Dumps 3 (n=4) and 4 (n=7).

- White-tailed deer cranium that only has the cut off back portion remaining (mainly occipital bone) cut marks and rodent gnawing along cut edge (Dump 4, n=1).
- Cow right tibia that has been sawn through transversely along the proximal shaft, as well as broken near the proximal epiphysis and tibial tuberosity area with extensive rodent gnawing; measuring 1 ¾" (diameter) (Dump 3, n=1).
- Large mammal carpal or tarsal, calcined (Dump 4, n=1).
- Non-native clam shell that is too fragmentary to identify to species (Dump 4, n=1).
- Mammal bone fragment that is heavily weathered (Dump 3, n=1).
- Possible rib fragment, sawn through on both ends (Dump 3, n=1).
- Mammal bone fragments, burned and sawn through on two edges (Dump 4, n=2).
- Mammal bone fragment, burned with gnaw marks (Dump 4, n=1).
- Mammal bone fragment, burned with some calcination (Dump 4, n=1).

WearEver Ware

A WearEver ware aluminum cup was recorded in Dump 1 and Dump 4 (Figure 36). Manufactured by Aluminum Cooking Utensil Co. (TACU Co) in Kensington, PA (1903-present), a subdivision of ALCOA, these were the first widely used aluminum wares. Moreover, in 1912 the U.S. Marine Corps started to use WearEver ware as its standard issue utensils. One cup is marked "No 334" is augmented with a makeshift handle while the other has four holes punched in the bottom. Both of the documented objects appear to be modified camping cups with an etched maker's mark on the base; measuring 2 5/8" (height) x 2 ¼" (diameter), 4" (opening diameter).

FIGURE 36. WEAREVER WARE MODIFIED CUPS (DUMP 1 AND DUMP 4)

Tableware

Ironstone

Much of the ironstone ceramics have maker's marks of well-known manufacturers of commercial china that was produced for public institutions such as restaurants, hotels, and governmental organizations.

Pitchers. Five ironstone pitcher sherds were recorded in Dump 1 (n=1), Dump 3 (n=2), and Dump 4 (n=2).

- Rim sherd, decorated with thin double line bands parallel to rim, burned and vitrified (Dump 1, n=1).
- Rim sherds (Dump 3, n=2)
- Short stout pitcher body sherds with partial handle (Dump 4, n=2).

Cups and Mugs. There were 17 documented ironstone cups and mugs including sherds throughout each of the four dumps (Table 12)

Bowls. There were a total of 17 documented bowls including sherds in Dump 2 (n=2) and Dump 4 (n=15) (Table 13).

Plates. There were 19 various plates and plate sherds recorded in Dump 2 (n=6) and Dump 4 (n=13) (Table 14).

Serving Dishes. There were three ironstone serving dishes and sherds recorded in Dump 2 (n=2) and Dump 4 (n=1).

Oblong-shaped, burned sherds with a foot ring, beveled rim, and an indiscernible, black maker's mark on base; 5" (length) x 3 1/2-4" (width) x 1 ¼" (height), sherds refit (Dump 2, n=2).

Ovoid serving dish with foot ring and black decal maker's mark, "WALKER CHINA / VITRIFIED / BEDFORD, OHIO / 44; 7"(width), 6¼" (foot ring length), 3 ½" (foot ring width), Walker (Bailey Walker) China, 1944 date code (Dump 4, n=1).

Butter Dish. A single ironstone butter dish with a 3" diameter was recorded in Dump 4.

Saucer. There was one documented ironstone partial rim of a saucer with an exterior rolled lip in Dump 4. Included the base with a foot ring and green decal maker's mark, "O. P. CO. / SYRACUSE / CHINA / 8-Q"; 6" (diameter) x 1" (height).

TABLE 12. IRONSTONE CUPS AND MUGS AT 21NL0148

Object	Description	Dimensions	Date	Maker's Mark	Dump	Count
Cup	Ironstone	1 7/8" d	indeterminate	none	Dump 1	1
Cup	Partial base and rim, partial black decal maker's mark, foot ring, Walker (Bailey-Walker) China	2 1/4" d, 3 1/2" a	ca. April 1948	". . . D / OHIO/D-48"	Dump 2	1
Cup	Rim sherd, decal maker's mark, sherds refit, Shenango China	3 3/4" d	ca. 1912-1920s	"SHENANGO CHINA / NEW CASTLE, PA."	Dump 3	3
Cup	Rim sherd, burned	indeterminate	indeterminate	none	Dump 3	1
Cup	Body sherd with handle	indeterminate	indeterminate	none	Dump 4	2
Cup	Sherd	indeterminate	indeterminate	none	Dump 4	1
Mug	Base sherd with partial body, handled, foot ring, black decal maker's mark on base, Shenango China	3"d	ca. 1920s-1940s	"SHENANGO / CHINA / NEW CASTLER"	Dump 4	1
Mug	Base sherd with partial body, handled, decal maker's mark on base, O. P. CO.	3.5" h x 3 1/8" d	ca. March 1938	"O.P.C.O> / SYRACUSE / CHINA / 3-S"	Dump 4	1
Mug	Partial rim and base sherd with a handle, partial green, decal maker's mark	3 1/4" d	indeterminate	indeterminate	Dump 4	1
Mug	Rim sherd, thick walls	4"d	indeterminate	none	Dump 4	2
Mug	Rolled rim	3 1/4" d	indeterminate	none	Dump 4	1
Mug	Sherd	indeterminate	indeterminate	none	Dump 4	2
					TOTAL	**17**

TABLE 13. IRONSTONE BOWLS AT 21NL0148

Object	Description	Dimensions	Date	Maker's Mark	Dump	Count
Bowl	Base sherd, foot ring	3" d	indeterminate	none	Dump 2	1
Bowl	Base sherd; foot ring; maker's mark, Walker (Bailey-Walker) China	indeterminate	ca. October 1946	"WALKER CHINA / VITRIFIED/ BEDFORD, OHIO / J-46"	Dump 2	1
Bowl	Rim sherd	9" d	indeterminate	none	Dump 4	1
Bowl	Rim sherd, burned	6" d	indeterminate	none	Dump 4	1
Bowl	Rim sherd, stepped out base footing; decal maker's mark , O. P. CO.	5 1/4"d. 9"a	ca. October 1933	"O.P.CO. / SYRACUSE / -CHINA- / N-10"	Dump 4	1
Bowl	Base sherd, green, decal maker's mark on base,; Walker (Bailey Walker) China	indeterminate	ca. 1923-1942	"THE / BAILE . . . / WALK . . . (within a book) / Boo . . ."	Dump 4	1
Bowl	Bowl; sherd; floral design; partial green maker's mark	indeterminate	indeterminate	indeterminate	Dump 4	1
Bowl	Bowl; sherd	indeterminate	indeterminate	none	Dump 4	3
Bowl, small	Green, decal maker's mark on base, O. P. CO.	indeterminate	ca. 1897-1946	". . .O. P. Co. / [S]YRACUS E / . . . NA"	Dump 4	1
Bowl, small	Partial rim and base sherd, black, decal maker's mark on base, Walker (Bailey Walker) China	5" d	ca. 1942-1981	". . . KER / . . . A (within the right side of an open book)"	Dump 4	1
Bowl, small	Partial base and rim present; partial, black, decal maker's mark on base, below the open book , Walker (Bailey Walker) China	1" h x 4 3/4" d	ca. 1944	"WA[LKER] / CH[INA] (inside an open book) / VITRIFIE[D] / BEDFORD, O[HIO] / 44"	Dump 4	1
Bowl, small	Partial base and rim present, partial, decal, transfer-printed maker's mark on base, Walker (Bailey Walker) China	1" h x 4 3/4" d	ca. 1942-1981	"WALKER / CHINA (inside an open book) / VITRIF[IED] / BEDFOR[D, OHIO]"	Dump 4	1
Bowl, small	Sherd	indeterminate	indeterminate	none	Dump 4	3
					TOTAL	**17**

TABLE 14. PLATES AT 21NL0148

Object	Description	Dimensions	Date	Maker's Mark	Dump	Count
Plate	Rim sherd	9" d	indeterminate	none	Dump 2	1
Plate	Rim sherd, molded	8" d	indeterminate	none	Dump 2	1
Plate	Rim sherd, burned	10" d	indeterminate	none	Dump 2	1
Plate	Foot ring; green decal maker's mark, O. P. CO.	~9" d	ca. April 1938	"O.P. CO. / SYRACUSE / CHINA / 4-S"	Dump 4	1
Plate	Rim sherd, black decal maker's mark on base, bread plate?, O. P. CO.	6" d	ca. June 1934	"SY[RACUSE] / CH[INA] 6-O..."	Dump 4	1
Plate	Rim sherd, black decal maker's mark on base, bread plate?, O. P. CO.	6" d	ca. September 1933	"O.P. CO. / SYRACUSE / CHINA / 9-N"	Dump 4	1
Plate	Rim sherd	9" d	indeterminate	none	Dump 4	1
Plate	Sherd	indeterminate	indeterminate	none	Dump 4	4
Plate, small	Rim sherd, foot ring	2 3/8" d, 5" a	indeterminate	none	Dump 2	1
Plate, small	Sherds refit	6" d	indeterminate	none	Dump 2	2
Plate, small	Rim sherd	6" d	indeterminate	none	Dump 4	3
Plate, bread	Green decal maker's mark on base, O. P. CO.	5 1/2" d	ca. February 1929	"O.P.C.O. / SYRACUSE / CHNA / 2-J"	Dump 4	1
Plate, bread	Green decal maker's mark on base, O. P. CO.	5 1/2" d	ca. January 1935	"O.P.C.O. / SYRACUSE / CHNA / P-1"	Dump 4	1
					TOTAL	**19**

Indeterminate Ironstone Sherds. There were 53 ironstone sherds among Dumps 2 (n=5), Dump 3 (n=8), and Dump 4 (n=40) (Table 15), in which the object type could not be determined. However, some of them did have maker's marks, so a manufacture date could be determined.

TABLE 15. INDETERMINATE IRONSTONE SHERDS AT 21NL0148

Object	Description	Dimensions	Date	Maker's Mark	Dump	Count
Handle	Ironstone, some molded raised bumps, 1 near base of handle, 2 at top, one on interior of base, possible pitcher	3 5/8" h, 1/2" w (at top), 3 /8" w (at bottom)	indeterminate	none	Dump 4	1
Sherd, rim	Ironstone, raised rim	6"d	indeterminate	none	Dump 2	1
Sherd, rim	Ironstone	5" d	indeterminate	none	Dump 2	1
Sherd, rim	Ironstone	indeterminate	indeterminate	none	Dump 2	1
Sherd, rim	Ironstone, slightly beveled lip, likely a bowl	6" d	indeterminate	none	Dump 3	1
Sherd, rim	Ironstone, high sides, foot ring, green decal maker's mark on base, possible saucer, O.P.CO.	indeterminate	ca. 1897-1946	"...CO. / ...USE/ ...A"	Dump 4	1
Sherd, rim	Ironstone, partial maker's mark on base	6" d	ca. December 1945	"WALK[ER] / CHINA / VITRIFIED / BEDFORD, OHI[O] / L-45"	Dump 4	1
Sherd, rim	Ironstone	9" d	indeterminate	none	Dump 4	3
Sherd, rim	Ironstone	4" d	indeterminate	none	Dump 4	2
Sherd, rim	Ironstone, painted blue line along edge	indeterminate	indeterminate	none	Dump 4	1
Sherd, rim	Ironstone, possible dish	indeterminate	indeterminate	none	Dump 4	1
Sherd, rim	Ironstone, rolled rim; two thin green lines run along rim	indeterminate	indeterminate	none	Dump 4	1
Sherd, base	Ironstone, base sherd, foot ring	7" d	indeterminate	none	Dump 3	1
Sherd, base	Ironstone, foot ring	indeterminate	indeterminate	none	Dump 2	1

Object	Description	Dimensions	Date	Maker's Mark	Dump	Count
Sherd, base	Ironstone, base sherd, foot ring, burned	indeterminate	indeterminate	none	Dump 2	1
Sherd, base	Ironstone, decal mark on base, O. P. CO.	indeterminate	ca. December 1933	"O.P. CO. / SYRACUSE / CHINA / N-12"	Dump 4	1
Sherd, base	Ironstone, foot ring, ovoid base	4" w	indeterminate	none	Dump 4	1
Sherd, base	Ironstone, burned, partial makers mark, possibly Walker China	indeterminate	indeterminate	indeterminate	Dump 4	1
Sherd, base	Ironstone, burned	indeterminate	indeterminate	none	Dump 4	3
Sherd, base	Ironstone	indeterminate	indeterminate	none	Dump 4	2
Sherd, base	Ironstone, partial green, decal maker's mark, Shenango China	indeterminate	ca. 1920s-1960s	". . . HINA / . . . STLE, PA"	Dump 4	1
Sherd, base	Ironstone, foot ring, maker's mark on base	indeterminate	ca. 1941	"F / "THE / BAILEY / WALKER (within the left-hand side of an open book) / "VITRIFIED / CHINA (within right-hand side of the same open book) / Bedford, Ohio / 1941"	Dump 4	1
Sherd, base	Ironstone, ovoid, foot ring	indeterminate	indeterminate	none	Dump 4	1
Sherd	Ironstone	indeterminate	indeterminate	none	Dump 3 and 4	13
Sherd	Ironstone, sherd, exfoliated on both sides	indeterminate	indeterminate	none	Dump 3 and 4	5
Sherd	Ironstone, sherd, exfoliated on one side	indeterminate	indeterminate	none	Dump 3	2
Sherd	Ironstone, decal floral design on exterior	indeterminate	indeterminate	none	Dump 4	1
Sherd	Ironstone, ovoid, possible serving dish	indeterminate	indeterminate	none	Dump 4	1
Sherd	Ironstone, sherd, burned	indeterminate	indeterminate	none	Dump 4	2
					TOTAL	**53**

Earthenware

A total of 11 earthenware ceramics were recorded in Dump 3 (n=3) and Dump 4 (n=7).

Cups. There were two cups recorded in Dumps 3 and 4. The Dump 3 earthenware was a molded rim sherd with decal decoration. The earthenware in Dump 4 was a rim sherd, cream with a polychrome floral decal of red-orange, pink, and yellow flowers with green stems and leaves and a band of silver gilding along rim.

Saucer. The single earthenware saucer sherd, documented in Dump 4, was decorated with 2 gold gilded bands on the rim and a maker's mark on the base, "THE EDWIN M. KNOWLES CHINA" in a half circle around a ship and "M . . ." below the ship. It was manufactured by Edwin M. Knowles China Co. (ca.1900-1962) and dates from 1910-1948.

Pitcher. An individual green glazed earthenware pitcher spout was recorded in Dump 4.

Indeterminate. There were seven earthenware sherds for which object type could not be determined including one decorated rim sherd (Dump 4), two burned sherds (Dump 4), one green glazed sherd (Dump 3), two spalls (Dump 3), and one base sherd with a maker's mark (Dump 4). The base sherd recorded in Dump 4 was manufactured by Taylor Smith & Taylor Co. (ca.1900-1981).

Porcelain

A total of three pieces of porcelain ceramics were recorded in Dumps 3 (n=1) and 4 (n=2).

- Porcelain mug with a flair base and a maker's mark impressed on bottom "HALL," measuring 3 ¼" (diameter). Manufactured by the Hall China Co. (ca.1903-present) (Dump 4, n=1).
- Green porcelain saucer rim sherd with overglaze decoration of parallel, elongated "S"s (Dump 4, n=1).
- Indeterminate porcelain sherd (Dump 3, n=1).

Enamelware

An enamelware cup fragment with both sides rolled was recorded in Dump 1.

Glassware

There were 27 individual glassware sherds recorded within Dumps 1 through 4. These included drinking glasses (n=2), mugs (n=2), a cup, a vase, and a decanter that were largely concentrated in Dumps 3 and 4.

Drinking Glasses. There was one colorless drinking glass recorded in Dump 3 with a slightly raised band along the rim and a 2 ½" diameter and one colorless drinking glass in

Dump 4 with ribbing along the bottom edge and embossed, "(Jeannette Glass Company mark)"; measuring 3 7/8" (height) x 2 ½" (diameter), 2 ¾" (opening diameter). The glass in Dump 4 was manufactured by Jeannette Glass Company, for which the "backwards J" mark on the glass was only used from 1901-1922.

Cup. There was one colorless glass cup or possible jelly dish manufactured by Capstan Glass Company (ca. 1918-1938) (n=2) recorded in Dump 4. Broken into 2 colorless sherds with molded notches under the rim and embossing on the base, "(Capstan logo) / 337"; measuring ½" (height) x 2 ¾" (diameter), 3 ¼" (opening diameter).

Mugs. There were two colorless, glassware mug sherds documented in Dump 4.

- The base sherd was manufactured by Crystal Glass Company (ca.1921-1928) (n=1).
- Colorless mug body sherd with a faceted middle (n=1).

Decanter stopper. There was one documented decanter stopper in Dump 3. It had a colorless dome with a molded horizontal ridge along middle and faceted along bottom half, measuring 1" (diameter).

Vase. There was one vase rim sherd documented in Dump 4. The Colorless carafe vase rim had horizontal raised bands on the exterior--two tightly spaced below the rim and groups of 3 tightly spaced with the groupings 1/8" apart.

Indeterminate. A total of 20 glassware sherds for which the object type could not be determined were recorded in Dumps 2 (n=1), 3 (n=7), and 4 (n=12). This glassware largely consisted of faceted and painted base sherds (n=9), rim sherds (3) and body sherds (8).

Utensils

Spoons. Three spoons were recorded in Dumps 2 (n=1), 3 (n=1), and 4 (n=1).

- Nickel silver spoon with "NATIONAL NICKEL SILVER" molded on back of handle and "DWS" (Department of Welfare Services) stamped post-manufacture on handle as well; measuring 6" (length), (Dump 2, n=1).
- Nickel silver spoon, molded on back, "W NICKEL SILVER 10" and stamped post-manufacture, "DWS"; measuring 5 7/8" (length) (Dump 3, n=1) (Figure 37).
- Unmarked spoon; measuring 6" (length) (Dump 4, n=1).

Fork. A single, three-tined fork fragment was documented in Dump 3.

Utensil Handle. There was one utensil handle recorded in Dump 4.

FIGURE 37. SPOON FROM DUMP 3 STAMPED "DWS" - DEPARTMENT OF WELFARE SERVICES

Health and Medicine

Horlick's Malted Milk Lunch Tablets Bottles

Two Horlick's Malted Milk Lunch Tablets bottles were found in Dump 3 (n=1) and Dump 4 (n=1) (Figure 38). The partial bottle in Dump 3 was a colorless body sherd with embossing, "H . . . / MALTE . . . / LI . . ." The one in Dump 4 was a colorless, elongated oval shaped bottle with a continuous external thread finish and embossing on the face, "HORLICK'S / MALTED MIK / LUNCH TABLETS"; embossing on base, "(Hazel Atlas mark) / A / (horizontal line) / K / . / 6"; measuring 3½" (height) x 2" (length) x 1" (width) x 1" (aperture), ca.1923-1964. These bottles would have contained malted milk supplement tablets to "maintain strength and vigour and also prevent fatigue and relieve thirst," made by Horlick's Malted Milk Company (ca.1873-present), (1915 Horlick's WWI Print Advertisement).

Mentholatum

One Mentholatum milk glass jar was recorded in Dump 1. Embossed jar base, "MENTHOLATUM / 13 / REG. / TRADE / 1 / MARK"; measuring 2" (height) x 5/8" (diameter). Manufactured by the Mentholatum Company (1889-present), containing Mentholatum, an ointment that "offers relief from cold symptoms such as stuffy noses, chest congestion, sinus congestion, and muscular aches…helps to soothe chapped skin and lips, provides temporary relief to sunburn, windburn and other minor skin irritations."(Ointment, mentholatum.com). Mentholatum was packaged in milk glass jars from 1900-1952 (Adkinson 2002).

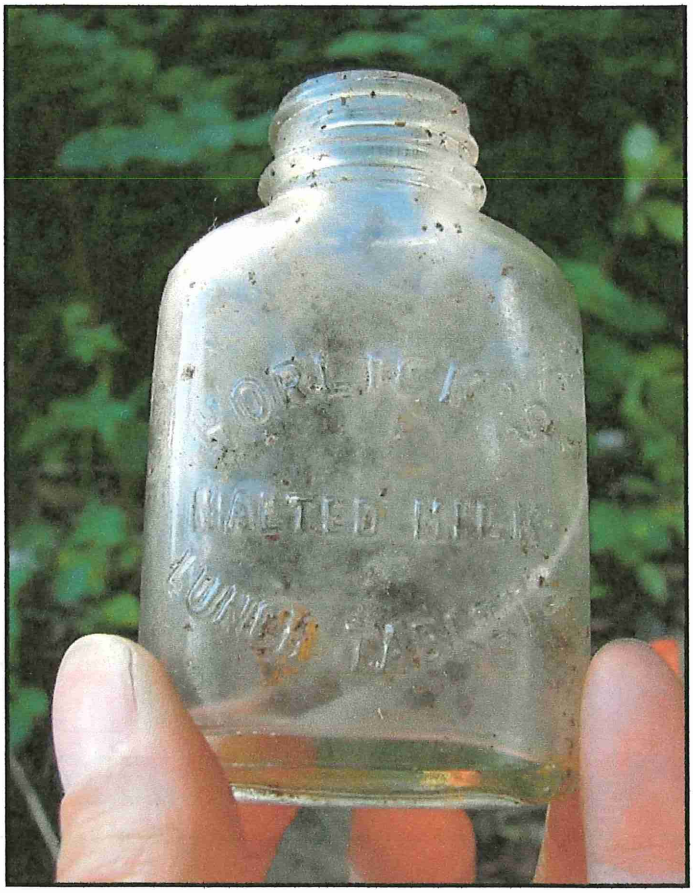

FIGURE 38. HORLICK'S MALTED MILK LUNCH TABLETS BOTTLE, DUMP 4

Chesebrough Vaseline Jar

One Chesebrough Vaseline Jar was recorded in Dump 3. Colorless jar with an external interrupted thread finish and embossing on base, "CHESEBOURGH / 15 / MFG / COCD / 7 / NEW YORK."; measuring 2 ½" (height) x 1 ¾" (diameter), 1 1/8" (interior aperture), and 1 3/8" (exterior aperture). The maker's mark indicates the jar was manufactured at the Chesebrough Manufacturing Company (ca.1870-1955).

Small Pyrex Bottles

A total of 7 small Pyrex embossed bottles were found in Dump 1 (n=1) and Dump 4 (n=6). They were manufactured by Corning Glass Company/Corning Glass Works, Corning, New York (1875-present), though the "Pyrex" trademark was first used to refer to borosilicate heat-resistant glassware formula in 1915.

- Small colorless bottles with a one-part, prescription finish; individual number embossing on the bases: "PYREX / 54" (Dump 1, n=1); "PYREX / 29" and "PYREX / 127" (Dump 4, n=2); all measure 2 ¼" (height) x 1" (base diameter), 3/16" (interior aperture), and ½" (exterior aperture).

FIGURE 39. SAMPLE OF SMALL PYREX BOTTLES FROM 21NL0148

- Small colorless bottles with a one-part, prescription finish and a partial reddish pink rubber stopper inside, individual number embossing on the bases, "PYREX / 54" and "PYREX / 6"; both measure 2 ¼" (height) x 1" (base diameter), 3/16" (interior aperture), and ½" (exterior aperture), (Dump 4, n=2).
- Small colorless bottle base, embossing on bases, "PYREX / 42 and "PYREX / 18"; both measure 1" (diameter) (Dump 4, n=2).

Test Tubes, Eyedropper, and Measuring Cup

A total of 15 medicine test tubes, tubes, eyedroppers and cups were recorded in Dumps 3 (n=4) and 4 (n=11).

- Colorless hollow tubes with two finished edges; measuring 3" (length) x 1/4" (diameter) (Dump 4, n=3).
- Colorless hollow tube sherds; measuring ¼" (diameter) (Dump 4, n=2).
- Colorless narrow tube sherds (Dump 3, n=4).
- Colorless test tube base sherd; measuring ¾" (diameter) (Dump 4, n=2).
- Colorless test tube body sherd, measuring ¾" (diameter) (Dump 4, n=2).
- Colorless eyedropper tube that tapers to conical point; measuring 3 1/8"(length) x 3/16" (diameter of pointed end) (Dump 4, n=1).

- Colorless measuring cup, total base and partial body and rim. The interior is embossed on the sides with graduated lines and numbers next to them for measuring teaspoons, tablespoons, ounces, and ccs. Also embossed with "[TA]BLE near the top and DESSERT" near base on one side and with large horizontal stippled letters ". . . ASCO" on the other side; measuring 2" (diameter) (Dump 4, n=1).

Indeterminate Medicine Bottles and Vials

There were 10 indeterminate medicine bottles, jars, and vials recorded in Dumps 1, 3, and 4 (Table 16).

TABLE 16. INDETERMINATE MEDICINE BOTTLES AND VIALS AT 21NL0148

Object	Description	Dimensions	Date	Factory	Dump	Count
Bottle	Colorless square bottle sherd with an external continuous thread finish	½"a	ca. late 1920s+	indeterminate	1	1
Bottle	Colorless melted bottle sherd with an external continuous thread finish	½"a	indeterminate	indeterminate	1	1
Bottle	Amber rectangular bottle with an external continuous thread finish and embossing on base, "6200 1/4 / 6SB10"	5/8" w x 15/16" l x 7/8" h	ca. late 1920s+	indeterminate	1	1
Bottle	Amber rectangular bottle with an external thread finish and embossing on base, "1/401 (on its side) (Armstrong Cork Company logo) 44 / .4"	2: h x 1" l x 3/4" w; 1/2" a	1944	indeterminate	4	1
Bottle	Colorless faceted body sherd with embossing on sides, "LOZENGES"	indeterminate	indeterminate	indeterminate	4	1
Bottle	Amber prescription finish with embossing on shoulder, "A PRODUCT OF / ALLIED / LABORATORIES INC	¾"a	indeterminate	indeterminate	4	1

Object	Description	Dimensions	Date	Factory	Dump	Count
Bottle	Amber one-part, prescription finish with embossing on partial shoulder, "[PROD]UCT OF / [ALLI]ED / [LABORATORI]E S [INC]"	1/16"a	indeterminate	indeterminate	4	1
Vial	Colorless vial with continuous external thread finish and a black, plastic screw-on top with embossing on base	1/2" l x 7/16" w x 2" h; 3/8" ext. a and 3/16" int. a	ca. 1927+	indeterminate	3	1
Vial	Colorless vial sherd with broken screw-on top	½"a	indeterminate	indeterminate	3	1
Vial	Colorless vial sherd	indeterminate	indeterminate	indeterminate	4	1
					TOTAL	**10**

Personal Care

Hair Tonic

Ideal Hair Tonic Bottles. There were 10 recorded sherds making up at least three separate F.W. Fitch Company Ideal Hair Tonic bottles in Dumps 2 (n=2) and 4 (n=8) (Figure 40).

These bottles contained hair tonic made by the F.W. Fitch Company, Des Moines, Iowa (ca.1917-1949) (NPS Fitch, F.W. Company Historic District). The 2 bottles with Owens-Illinois Glass Company maker's marks can be dated to 1938/1948, based on the date code.

- Colorless, external continuous thread finish with shaker opening, floral molded pattern on shoulder, horizontal ribbing on neck; 3/16" (aperture diameter) (Dump 2, n=1).
- Colorless, stippled base, narrow ribbing along edge, raised frame for label and raised parallel vertical lines on body of bottle, base is embossed, "FITCH / 2 (Owens-Illinois Inc. Logo) 8 /11" no noticeable period present (Dump 2, n=1).
- Colorless bottle with external continuous thread finish with shaker opening, long neck with horizontal ribbing, floral embossing on body, front has smooth area for label, top back embossed "[The F.] W. Fitch Co.," embossing near base, "21 1/3 FL. OUNCES," embossing offset on base with stippling, "25 (Owens-Illinois Glass Company logo) 8 (no apparent period) / Fitch's / 5,_"; 10 1/8" (height) x 3" (base diameter), and 3/16" (aperture diameter), (Dump 4, n=6).
- Colorless, external continuous thread finish with shaker opening, horizontal ribbing on neck, 3/16" (opening diameter) (Dump 4, n=1).
- Colorless, shoulder sherd, embossed with a floral pattern (Dump 4, n=1).

FIGURE 40. FITCH'S BOTTLE BASE FROM DUMP 2

Wildroot Hair Tonic Bottle. A Wildroot Hair Tonic bottle, made for the Wildroot Company, Buffalo, New York (ca.1911-1959), was recorded in Dump 4. It was a colorless, rectangular base sherd with a partial body, which was molded with a raised band and embossed near the base, "WILDROOT." Stippled bottom with suction scar and embossed, "12 (Owens Illinois Glass Company logo) 7"; measuring 2 1/8" (length). The maker's mark on this bottle indicates a 1937 manufacture date.

Valios Perfume Bottle

A single Valios perfume bottle was recorded in the Dump 4. The bottle was colorless, with a one-part, bead finish and a short neck, embossed band of raised dots along top, wider ribbed body that slightly tapers to the base, with embossing on base, "VALIOS"; measuring 3 ¼" (height) x 1" (diameter), 5/8" (aperture).

Cosmetics

There were three cosmetic container components recorded in Dumps 2 (n=1) and 4 (n=2).

The jar and lid were made for the Pond's Extract Company, New York, New York (1846-present). They both date to post 1905 when Pond's started producing their cold cream and vanishing cream. The bottle was made for Revlon, New York, New York (1932-present) and dates to 1932 and later when Revlon started making its first product--nail enamel.

FIGURE 41. BASE OF OVOID MILK GLASS POND'S VANISHING CREAM JAR, DUMP 2

- Ovoid shaped milk glass Pond's Vanishing Cream jar with external thread finish, embossing on base, "POND'S / 8"; measuring 2 ¼" (height) x 1 3/4"(length) x 2 3/8" (width) (Dump 2, n=1) (Figure 41).
- Bent tin lid marked with raised lettering, "POND'S"; measuring 4" (diameter) (Dump 4, n=1).
- Colorless faceted Revlon, nail enamel bottle, missing finish, embossing on base, "D. PAT. / Revlon / 0 10 / 99415"; measuring 1 ¼" (base diameter) x 2" (height base to shoulder), (Dump 4, n=1).

Listerine Mouthwash

An individual Listerine bottle was recorded in the Dump 4. The bottle was colorless with an external continuous thread finish and partial body, embossing on top of body, ". . . [T]ERINE"; measuring 5/8" (interior aperture), 13/16" (exterior aperture).

Indeterminate Personal Care Items

A total of three indeterminate glass artifacts related to personal care were recorded in Dump 1(n=1) and Dump 4 (n=2).

The Tussy bottle was produced under the Tussy Cosmetics name for the Lehn and Fink Corporation (1874-1995). It can be dated to post 1928 when Lehn and Fink acquired the Tussy brand (Groom 1997:334-335).

- Milk glass, square-cornered bottle with bowing walls and an external continuous thread finish (Dump 1, n=1).

- Colorless bottle with narrow ribbing, continuous thread 2-part finish with 3 ½" by 2" smooth area for label; embossed "TUSSY /TUSSY // TUSSY / TUSSY" on top and bottom faces without label and base embossed with "TUSSY / 5 / TE6 / 906", possibly a perfume bottle; measuring 5 3/4" (height) x 2 1/8" (diameter), 5/8" (interior aperture), 1" (exterior aperture), (Dump 4, n=1).
- Milk glass, partial base sherd with top of opening, shallow bowl-shaped interior, thick sides and flat bottom with embossing, "7", possibly an ointment or makeup container; measuring 1 ¾" (base diameter) (Dump 4, n=1).

Enamelware

There was one recorded enamelware basin and two chamber pots in Dump 4.

- White enamelware basin with rusted out bottom; measuring 5" (height) x 8" (base diameter), ~12" (opening diameter) (n=1).
- Gray marbled enamelware chamber pot with handle; measuring 1" (width extended lip), 9 1/2"(rim to rim diameter), 5" (height) x 7" (base diameter), 7 3/4" (opening diameter) (n=1) (Figure 42).
- Gray enamelware chamber pot with missing handle and base partially rusted off; measuring 1/2" (width of extended lip), 9 1/2" (rim to rim diameter), 4 1/2" (height) x 7 "(diameter), 8" (opening diameter) (n=1).

FIGURE 42. ENAMELWARE CHAMBER POT FROM DUMP 4

Clothing

Shoe Leather and Rubber Heels

A total of 10 rubber and leather shoe fragments were recorded in Dump 1 (n=2), Dump 2 (n=3), and Dump 4 (n=5). A single rubber shoe heel with embossed lettering on surface, ""2-10 // 28 // 3 ½-8 // ISCO (surrounded by hexagon with longer top and bottom compared to other sides)"; on the bottom: "ISCO (surrounded by hexagon with longer top and bottom compared to other sides)"; measuring 2 3/4" (width) x 3" (length), was made by the International Shoe Company (ISCO), St. Louis Missouri (1911-1966), dates from 1911-1966 when ISCO was in operation under the same name.

Buttons

There were three buttons documented in Dumps 1 (n=1) and 4 (n=2).

- Iron alloy tack button for trousers with 2 1/8" (depression diameter); measuring 3/8" (length) x 5/8" (diameter) (Dump 1, n=1).
- Bone shank style button with a polished front and unpolished back, depression on back for missing shank; measuring 9/16" (diameter) (Dump 4, n=1).
- Four-hole, sew through shell button with eroded face; measuring ½" (diameter) (Dump 4, n=1).

Personal Items

Small Plastic Plate

A single small plastic plate was recorded in Dump 2. The white plate fragment had a lotus design molded inside and "...CRAC. . . / JA. . ." embossed on bottom; measuring 1 5/8" (diameter). It can be dated to the 1940s and later when plastic dollhouse furnishings began to be mass produced.

Porcelain Figurine

There was one porcelain figurine sherd recorded in Dump 4 (Figure 43). The porcelain figurine base sherd consisted of the figure standing on a molded pedestal wearing pink ballet shoes and a dress with hand painted pink and yellow flowers, with impressed mark on base, "JAPAN". The impressed mark can be dated to post 1921 when imports from Japan could no longer be marked "Nippon."

Dentures

A single burned denture fragment was documented in Dump 4. The maxillary denture fragment was likely made of vulcanite with porcelain teeth, with upper front incisors present and gold alloy protrusions likely for securing the dentures in the mouth. Vulcanite dentures were in use around 1850-1930s.

FIGURE 43. PORCELAIN FIGURINE FROM DUMP 4

Safety Pin

Two safety pins measuring 2" (length) were recorded in Dump 4.

Tobacco Related Items

Cigarette Holder

A single Bakelite cigarette holder stem fragment with red and black geometric designs was documented in Dump 1; measuring ¼" (width) x 3/16" (height) (Figure 44). It can be dated from the 1920s-1940s when decorative Bakelite items were being produced.

Tobacco Tin

An ovoid iron alloy tobacco can base fragment with a band of raised, tightly spaced vertical lines on base (1/4" w x 1 1/2" l) was recorded in Dump 3; measuring 3" (length) x 1" (width).

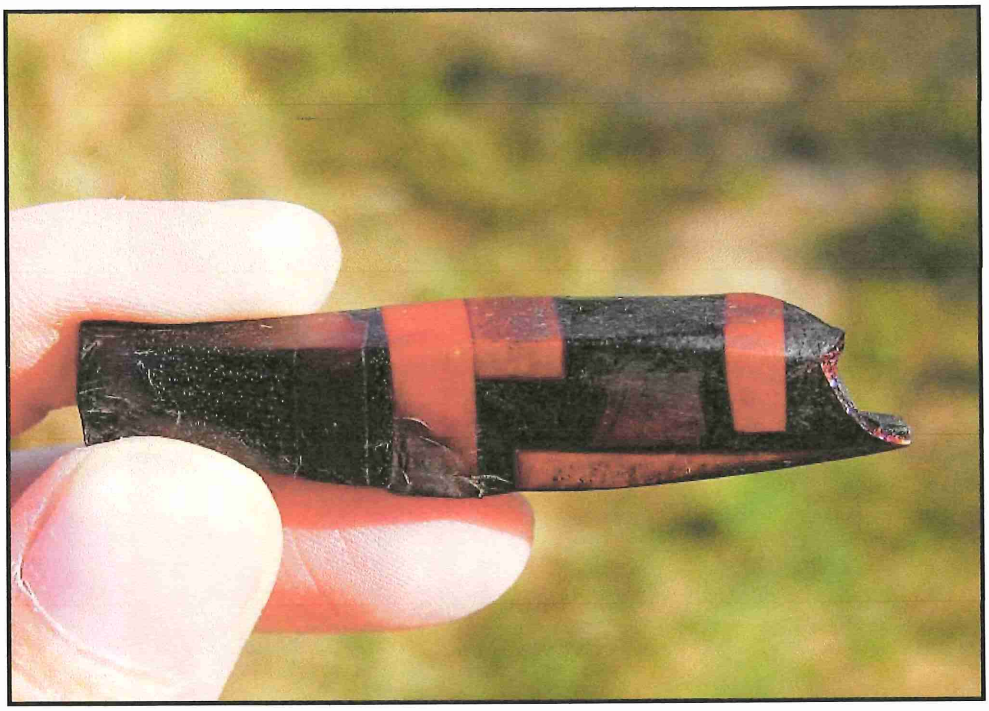

FIGURE 44. FRAGMENT OF A CIGARETTE HOLDER FROM DUMP 1

Architectural Items

Fasteners

Architectural fasteners such as nails, bolts, and brads were recorded in Dumps 1 through 4 (Table 17). In total, 21 wire nails, one cut nail, two bolts, five brads, and one wingnut were documented.

TABLE 17. FASTENERS AT 21NL0148

Object	Length	Dump	Count
Wire nail	5d	3	3
Wire nail	6d	1	1
Wire nail	6d	3	5
Wire nail	7d	3	3
Wire nail	8d	1	1
Wire nail	10d	3	1
Wire nail	16d	3	3
Wire nail	20d	3	1
Wire nail	40d	3	1
Machine cut nail	6d	3	1
Bolt	1" l	1	1
Bolt	1 ¾"l	3	1
Brad	2 ½"l	3	4
Brad	3"l	3	1
Wingnut	1 ¾"l	4	1

Hollow Tile

A total of 75 fragments of hollow tile were recorded in Dumps 1 (n=5), Dump 2 (n=68), and Dump3 (n=2). There were red hollow tile fragments (n=68), yellow fragments (n=4), and orange fragments (n=3). Of the red fragments, two had the impressions, "[C]O. PARTITION NAT. CO. PARTITION NA[T]" indicating hollow tile manufactured by National Fire Proofing Company ca.1889-1964. Hollow tile was a building material commonly used in the late 19th and early 20th century for the construction of fire resistant structures.

Brick

There were 21 brick fragments recorded in Dumps 1 (n=17), Dump 2 (n=3), and Dump 3 (n=1). Both yellow brick fragments (n=3) and red brick fragments (n=18) were present in the dumps.

Concrete Fragments

A total of 10 concrete fragments were recorded in Dump 1 (n=1), Dump 2 (n=5), and Dump 3 (n=4). One of the fragments from Dump 2 was scored with a decorative pattern resembling fish in reeds or water (Figure 45).

Shingle

There were three asphalt single fragments recorded in Dumps 1 (n=1) and 2 (n=2).

FIGURE 45. DECORATIVELY SCORED PIECE OF CONCRETE FROM DUMP 2

Hinges

Two hinges were recorded in Dump 1 (n=1) and Dump 3 (n=1). The strap hinge in Dump 1 had four ¼" (diameter) holes; measuring 1 5/8" (width at pivot) x 6 ¼" (length). The one in Dump 3 was half of an iron alloy ball-bearing door hinge with four screw holes with a 5/16" (diameter); measuring 3 7/8" (length) x 1 3/4" (width).

Porcelain Light Sockets

There were two porcelain light sockets recorded in Dump 1.

The Arrow light socket was manufactured by The Arrow Electric Company, Hartford, Connecticut (1900s-1927) and would have been manufactured around the 1900s-1927. Monowatt, which appears to have been in operation during the mid-20th century and became a subsidiary of General Electric Company, manufactured the other light socket.

- Porcelain light socket with maker's mark, "MONOWATT // 1622"; measuring 3 ¾" (diameter) (Dump 1, n=1).
- Porcelain light socket exterior with copper fitting and wires, embossing around exterior, "ARROW / A017 / AAA77" and an impressed number on top: "3091", measuring 1 7/8" (diameter) (Dump 1, n=1).

Porcelain Toilet Sherds

A total of two porcelain toilet sherds were documented in Dump 1 (Figure 46).

FIGURE 46. TOILET BOWL FRAGMENT FROM DUMP 1.

Miscellaneous Architectural Items

- Galvanized pipe with iron alloy square bar inside; measuring 1" (diameter) (Dump 1, n=1).
- Iron alloy pipe with threads on one end; measuring 1" (diameter), (Dump 1, n=1)
- Square angle iron post with two reinforcing plates attached by three bolts to front, side extending out 1 ½" on corner, and a large metal wire looped around post with another loop on other end; 15 ¾" (length exposed) x 2 ¾" (front and back width) x 2 ½" (side width) (Dump 1, n=1).
- Aluminum, window screen, measuring 1/16" (gauge) (n=2, Dump 4).
- Iron alloy braided wire curtain fragments (n=3).
- Iron alloy barbed wire fragment split into two loops on either end with a staple present on one loop (Dump 1, n=1).
- Corrugated iron alloy sheet (Dump 1, n=1).
- Marble cobble fragments (Dump 1, n=10).
- Cut stone tile fragment; 7/8" (height) (Dump 1, n=1).
- Wood fragments (possibly cultural) (Dump 2, n=2).

Work and Maintenance Activities

Light Bulbs

MAZDA Frosted Light Bulbs (ca. 1925-1945). A total of three frosted MAZDA light bulbs were documented in Dump 4. Frosted light bulbs came into use in 1925, and the MAZDA label was discontinued on light bulbs in 1945.

- Frosted light bulb with zinc alloy base and mark printed on top of bulb, "MAZDA / (Westinghouse logo) / 115V 40WATT"; measuring 4 ¼" (length) x 1" (base diameter), manufactured by Westinghouse Electric (1886-1999) (Dump 4, n=1).
- Frosted light bulb with, "MAZDA / (General Electric logo) / 40W 115V" printed on bulb and a faint stamp on bulb over mark, "PROPERTY OF STATE HOSPITAL"; measuring 4" (length) x 1" (base diameter), manufactured by General Electric (1892-present) (Dump 4, n=1).
- Frosted light bulb with zinc alloy base and, "MAZDA / (General Electric logo) / 40W 115V" printed on bulb; measuring 4 ¼" (length) x 1" (base diameter) manufactured by General Electric (1892-present) (Dump 4, n=1).

Light Bulb Base with Glass Mount. There were 5 light bulb bases with glass filament mounts recorded in Dumps 3 (n=1) and 4 (n=4).

- Light bulb glass mount and zinc alloy base; measuring 1" (base height) x 1 1/8" (base diameter) (Dump 3, n=1).

- Light bulb zinc alloy bases with glass mounts and a number embossed on the mount, "81"; "12"; "20"; "36"; 1" (base diameter) (Dump 4, n=4).

Miscellaneous Light Bulbs.

- Light bulb base with maker's mark, "BEAVER MFG. Co. 125 NEWARK, N[J]," manufactured by Beaver Machine & Tool Company, Newark, New Jersey (Dump 4, n=1).
- Zinc alloy light bulb bases, measuring 1" (diameter) (Dump 4, n=6).
- Light bulb glass sherds (Dump 4, n=3).

Hi-Lex Bleach

There were seven possible Hi-Lex Bleach bottle sherds documented in Dumps 3 and 4. Hi-Lex Bleach Corporation began manufacturing Hi-Lex bleach in 1927.

- Amber jug handle with two-part continuous external thread finish and embossing, "DES PAT // 184991", measuring 1" (opening diameter). Patent date indicates a manufacture date post-1957 (Dump 3, n=1).
- Amber jug handle with two-part, external thread finish, measuring 1 ¾" (opening diameter) (Dump 4, n=1).
- Amber curved glass with embossing, ". . .X. . ."; ". . . N // . . . I - . . ."; ". . . ONE // G . . ." (Dump 4, n=3).
- Amber curved glass with pebbling (Dump 3, n=1).
- Amber base sherd with stippling and embossing, "9 I (circled "I") 1 / 7 / Duraglas", measuring 6" (base diameter). Owen's-Illinois mark style indicates post-1956 (Dump 3, n=1).

Hardware

- "H-shaped" plates with ¼" wide raised center with two holes on either side of center and inset part of "H" is ¾" (wide) and 1 ¾" (long); measuring 3 ½" (length) x 2 ¾" (width) (Dump 3, n=5).
- ¼" thick iron alloy rod with bent ends on either side with one end measuring 1" (length) and one end ¾" (length). These are likely related to the "H"-shaped plates because they fit inside raised area; 3 ¼" (length) (Dump 3, n=3).
- Wheel caster that likely would have been attached to wood--possibly for a chair or small table; measuring ¾" (width) x 1 ½" (wheel diameter) (Dump 3, n=1)
- Marine hose clamp fragment; measuring 5/8" (width) (Dump 3, n=1).
- Plate curved at edges with three holes on face, one hole still has a bent wire nail protruding; measuring 1 ¼" (wide), with a ¼" (length) nail. (Dump 3, n=1).
- L-shaped fragment with two holes on opposite sides of one end (Dump 4, n=1).

- Springs, one measuring 1 ½" (base diameter) and 1 1/8" (top diameter) (Dump 1, n=1), and the other indeterminate (Dump 1, n=1).

Paint Cans

There were two paint cans documented in Dump 1. One paint can with a handle, and the other missing a handle.

Galvanized Pails

A total of three galvanized pails were recorded in Dump 4.

- Galvanized pails, one with bail handle and the other missing a handle, measuring 9 1/2" (height) x 8 1/2" (base diameter), 12" (opening diameter) (n=2).
- Crushed galvanized pail (n=1).

Motor Oil Can

A single oil can was documented in Dump 4. The oil can was opened with church key, illegible embossed lettering on top around exterior edge and embossing in center, "SAE / [?]"; illegible red, white, and orange label with "motor oil" in red; measuring 5 ½" (height) x 4" (diameter).

Push Mower Blades

There were two push mower blade fragments recorded in Dump 1 (n=1) and Dump 2 (n=1) (Figure 47). The mower blade in Dump 1 was complete with 5 spiraling blades; measuring 21 ¼" (length) x 6" (diameter). The blade in Dump 2 was a single fragment; measuring 3/8" (thick on one side), (1/8" thick on other side), 5 ¼" (length) x 2" (width).

FIGURE 47. PUSH-MOWER BLADE FROM DUMP 1

Shovel

One shovel blade measuring 7 ½" (width) x 8 ½" (length) was recorded in Dump 1.

Railroad Spike

There was one small, heavily corroded railroad spike with a tapering shank, measuring 5 3/8" (length) x ½" (width) documented in Dump 2.

Lantern Base

A single circular lantern base with five dimples, two raised openings (1" diameter) with serrated edges (3/8" width) and smaller holes (1/8" diameter) and a ¼" lip, 4 ½" (diameter) lantern base recorded in Dump 1.

Miscellaneous Maintenance Items

- Iron alloy wire spool (Dump 1, n=1)
- Rubber machine belt with iron alloy staples fastening sections together; measuring 2" (width) (Dump 1, n=1)
- Rubber gasket with eight evenly spaced holes with a 3/8" (diameter); measuring 1 1/8" (width) x 5 5/8" (diameter) (Dump 1, n=1)
- Rubber plunger, basal portion with threading inside top for handle attachment with a 1 ½" (exterior diameter) and 7/8" (interior diameter); measuring 4 1/2" (diameter) (Dump 1, n=1)
- Iron alloy y-shaped object with two screw holes on each arm; measuring 5" (length) x 2 ½" (width) (Dump 3, n=1)
- Purple, dome-shaped sherd; possible insulator (Dump 4, n=1).

Miscellaneous Metal

Barrel Bands/Straps

- Barrel band fragments(Dump 1, n=5; Dump 2, n=1; Dump 3; n=1; Dump 4, n=10)
- Galvanized strap; measuring 1¼" (width) x 15¾" (length)
- Strap; measuring 1" (width) x 4" (diameter) (Dump 1, n=1)
- Strap; tightly rolled with a connector at one end (Dump 1, n=1)
- Strap with dimpled surface (Dump 3, n=1)
- Strap fragments (Dump 4, n=2)

Lids

Barrel Lids. A total of seven barrel lids were documented in Dump 1. These included five measuring 12" in diameter, one 18.5" in diameter, and one indeterminate in diameter.

Other Lids. Two other lids were recorded in Dump 1. One galvanized rectangular lid with three punctures on top, one hole drilled on edge with a ½" fold on three sides and a

¼" fold on one side; measuring 11" (width) x 14.5" (length). One tin lid; measuring 2 ¼" (diameter) x ½" (height).

Enamelware Handle

A single blue and white enamelware handle was documented in Dump 4.

Wire Mesh

A total of 15 wire mesh fragments were documented in Dump1 (n=8), Dump 3 (n=1), and Dump 4 (n=6). These included nine iron alloy fragments, two aluminum fragments; one copper fragment, and one galvanized fragment.

Indeterminate Wire Fragments

There were a total of six iron alloy wire fragments documented in Dump 1 (n=1) and Dump 3 (n=5).

Metal Objects and Fragments of Indeterminate Use

- Iron alloy possible concave tool handle with a U-shape on one end, and each end of the "U" is attached by a bolted-on bar and a hole at the bottom of the "U"; measuring 1 1/8" (width base of handle) x 5 ¾" (length) (Dump 1, n=1).
- Ring with four holes (3/8" diameter) spaced evenly around perimeter; measuring 1 ¼" (width) x 2" (diameter) (Dump 1, n=1).
- Bar with a hook on one end and a square bolt on the other; measuring 32 ½" (length) (Dump 2, n=1).
- Cylinder with raised band along outer edge, measuring 1" (height) (Dump 4, n=1).
- Aluminum foil fragments, ca. > 1947 (Dump 2, n=1; Dump 3, n=1; Dump 4, n=3)
- Galvanized fragments (Dump 1, n=2)
- Aluminum fragment (Dump 3, n=1)
- Iron alloy fragments (Dump 1, n=1; Dump 3, n=2; Dump 4, n=1)

Miscellaneous Glass with Maker's Marks

A total of 65 sherds from bottles with maker's marks, but of indeterminate use, were recorded in Dumps 1 through 4. These included 21 bottles that had an Owens-Illinois Glass Company mark (1929-present) (Table 18); seven had an Anchor-Hocking Glass Corporation mark (1938-present) (Table 19); five had a Hazel-Atlas Glass Company mark (1902-1964) (Table 20); and 2 had Fairmount Glass Company marks (1906-1968) (Table 21). Also, the following maker's marks were documented once on individual bottles: Pennsylvania Bottle Company (1940-1952), Obear-Nestor Glass Company (1894-1978), Armstrong Cork Company (1938-1969), Thatcher Glass Manufacturing Company (1905-1985), and T.C. Wheaton Glass Company (1888-present) (Table 21). There were also 25 bottles and sherds for which a maker's mark was discernible but were still unknown (Table 22).

TABLE 18. OWENS-ILLINOIS GLASS COMPANY MARKS (1929-PRESENT) AT 21NL0148

Object	Description	Dimensions	Date	Factory	Dump	Count
Bottle	Green, base sherd; embossing on base, "7 (Owen-Illinois Glass Company logo) 6 / 11"	2" d	ca. 1936-1966	Charleston, West Virginia (1930-present)	1	1
Bottle	Colorless, external thread finish, embossing on base, "12 (diamond OI mark) 7 / 1"	4 1/4" h x 1 5/16" d x 3/4" a	1937	Gas City Indiana (1930-1983)	1	1
Bottle	Colorless, base sherd; partially melted, embossing on base, ". . . (diamond OI mark) [4] / 5"	indeterminate	ca. 1930-mid 1950s	indeterminate	1	1
Bottle	Colorless, base sherd; stippling, embossing on base, "25 (diamond OI mark) 5. / 1"	2 1/4" d	1945	Terre Haute, Indiana (1934-1950)	1	1
Bottle	Colorless, base sherd, stippling, embossing on base, "25 (diamond OI mark) 7 / 3"	5"d	1937	Terre Haute, Indiana (1934-1950)	2	1
Bottle	Amber, base sherd, "...UART 16" around base, stippling, embossing on base,"D 23 / 65-48 / (diamond OI mark)"	3 1/4" d	ca. > 1940s-present	Charleston, West Virginia (1930-1963)	2	1
Bottle	Amber; crown top, embossing on shoulder, "NO DEPOSIT (Star) NO RETURN / NOT TO BE REFILLED", stippling, embossing on base, "9 (diamond OI mark) 51 / 6 / Duraglas / 1-WAY"	8" h x 2 1/2" d	1951	Streator, Illinois (1930-present)	2	1
Sherd, curved	Colorless, embossing, "DURAGL[AS]"	indeterminate	ca. 1940 - mid 1950s	indeterminate	3	1
Bottle	Colorless, base sherd, suction scar, embossing on base, "(diamond OI mark)"	indeterminate	ca. 1929-1966	indeterminate	3	1
Bottle	Colorless, flask, base sherd, partial body, embossing on both faces of lower body near base, "[O]NE PINT // ONE PIN[T]," embossing on base "R 808 / 6546 (diamond OI mark) oriented sideways and to the right of the code	3 1/2" l x 2" w	ca. 1929-1966	indeterminate	4	1
Bottle	Colorless, base sherd, slightly raised band along body near base, embossing below band, "Duragla[s]. . .," stippling, embossing on base, "7 (partial diamond OI mark)	indeterminate	ca. 1940-mid 1950s	Alton, Illinois (1930- 1978)	4	1
Bottle	Colorless, base sherd, partial body, embossing along edge ". . . aglas // . . . as C2934" present on two faces, stippling, embossing on base, "7 (diamond OI mark) 6 / 6" (no apparent period)	indeterminate	1936	Alton, Illinois (1930- 1978)	4	1
Bottle	Colorless, base sherd, stippling, suction scar, embossing on base, "7 (diamond OI mark) 3"	indeterminate	1933	Alton, Illinois (1930- 1978)	4	1

Object	Description	Dimensions	Date	Factory	Dump	Count
Bottle	Colorless, ovoid with two flat sides, external thread finish, stippling, suction scar, embossing on base, "4 (diamond OI mark) [?] / 6"	1 1/2" l x 7/8" w x 2 3/4" h	ca. 1929 - 1942	Clarksburg, West Virginia (1930-1942)	4	1
Bottle	Colorless, base sherd, stippling, embossing on base, "17 (diamond OI mark) 3 / 14"	4" d	1933	Clarion, Pennsylvania (1932-2010)	4	1
Bottle	Colorless, base sherd, oblong, embossing on base, "12 (diamond OI mark) 1 (surrounded by a circle)"	1 4/8" l x 3/4" w	ca. 1929-1966	Gas City, Indiana (1930-1983)	4	1
Bottle	Colorless, base sherd, embossing, "OWENS / 10 (diamond OI mark)," possibly prescription bottle base due to "OWENS" embossing	indeterminate	ca. 1930-1939/1960 -1966	Newark, Ohio (1930-1939) or Atlanta, Georgia (1960-present)	4	1
Bottle	Colorless, body sherd, embossing--partial Duraglas mark	indeterminate	ca. 1940-1950s	Gas City, Indiana (1930- 1983)	4	1
Bottle	Amber, base sherd, stippling and embossing on base, "4 (diamond OI mark) 5. / 4 / 2 - 1596"	3 3/8" d	ca.1945	indeterminate	4	1
Bottle	Amber, base sherd, ovoid, half pint, stippling, suction scar, embossing on base, "D1 / 56 - 42 (diamond OI mark on its side)	1.5" w	ca. 1929-1966	indeterminate	4	1
Bottle	Green, base sherd, embossing on base, "3 (diamond OI mark) 4 / 1."	indeterminate	1934	Fairmont West Virginia (1930-1982)	4	1

TABLE 19. ANCHOR-HOCKING GLASS CORPORATION MARKS (1938-PRESENT) AT 21NL0148

Object	Description	Dimensions	Date	Factory	Dump	Count
Bottle	Colorless, base sherd, ribbed vertical design, embossing on base, "(Anchor Hocking logo)"	indeterminate	ca.1938-1980	indeterminate	1	1
Sherd, base	Colorless; "10-75 / (Anchor Hocking Glass logo)	~3.5" d	ca. 1938-1980	indeterminate	2	1
Sherd, base	Colorless; "6 2 / Anchor Hocking Glass logo)"	2 1/4" d	ca. 1938-1980	Salem, New Jersey plant (1938-2011)	2	1
Bottle	Colorless, base sherd, raised band along edge, stippling, embossing on base, ". . . [H] -305 / 3 (Anchor-Hocking Glass Company logo) E"	indeterminate	ca. 1938-1980	Salem, New Jersey plant (1938-2011)	4	1
Bottle	Colorless, base sherd, embossing on base, "10-40 B / (Anchor Hocking logo)"	2 1/2" d	ca. 1938-1980	indeterminate	4	1
Bottle	Amber, base sherd, embossing on base, "7349 / 6 (Anchor-Hocking Glass Company logo) / 9"	6" d	ca. 1938-1980	Salem, New Jersey plant (1938-2011)	4	1
Jar	Colorless, rounded diamond shape, non-continuous thread finish, sides of body have 4 evenly spaced groupings of 5 raised bands, embossing on base, "361 [2] / (Anchor Hocking Glass Company logo) / 2," sherds refit, possible honey jar?	3" l (base), 2 1/4" w (base)	ca.1938-1980	Anchor-Hocking Corporation (1938-present)	4	2

TABLE 20. HAZEL-ATLAS GLASS COMPANY MARKS (1923-1964) AT 21NL0148

Object	Description	Dimensions	Date	Factory	Dump	Count
Bottle	Colorless, base sherd, embossing on base, "A (Hazel-Atlas Glass Co. logo). . . / 520"	3 1/2" d	ca. 1923-1964	indeterminate	1	1
Sherd, base	Colorless, stippled, "Hazel-Atlas Glass Company logo) / 5779"	6" d	ca. 1923-1964	indeterminate	2	1
Sherd, base	Colorless, embossing, "(Hazel Atlas logo) / 4863119"	2 1/2" d	ca. 1923-1964	indeterminate	3	1
Bottle	Colorless, rectangular base, tapers from base to finish, base and partial body present, orange peel on sides, embossed rope design along front and back base, orange peel along all edges of bottom, embossing on base "3 / (Hazel-Atlas Glass Company logo) / K4264"	2 1/2" l (base), 1 1/2" w (base)	ca. 1923-1964	indeterminate	4	1
Jar	Colorless, pry top finish, narrow diameter,; embossing on base, "(Hazel-Atlas Glass Company logo) / 5523 / 4"	5 7/8" h x 1 3/4" d, 1 1/2" a	ca. 1923-1964	indeterminate	4	1

TABLE 21. OTHER TEMPORALLY DIAGNOSTIC MAKER'S MARKS AT 21NL0148

Object	Description	Dimensions	Date	Manufacturer	Dump	Count
Bottle	Colorless, base sherd, embossing on base, "DESIGN PATENTED / (Pennsylvania Bottle Co. logo) / 158 / Aug 5 1919"	2" d	ca. 1940-1952	Pennsylvania Bottle Company (1940-1952)	1	1
Bottle	Colorless, base sherd, embossing on body, "4/5 Quart," embossing on base, "M-75 / (Obear-Nestor Glass Co. logo)"	3" d	ca. 1915-1978	Obear-Nestor Glass Company (1894-1978)	1	1
Sherd, base	Colorless, stippling, embossing on base, "2 (Armstrong Cork Company logo) 4 / 53 - 39"	2 1/4" d	ca. 1938-1969	Armstrong Cork Company (Glass Division)	4	1
Bottle	Amber, base sherd, embossing on base, "S (Thatcher Glass Manufacturing Company logo) / 8 D-126 46 / 8"	N/A	ca. 1944-1985 (possibly 1946?)	Thatcher Glass Manufacturing Company (1905-1985)	4	1
Bottle	Amber, small bottle base, ovoid, embossing on base, "9-4-55 / 4 (Fairmont Glass Works logo)"	1 1/2" l x 3/4" w	ca. 1933-1968	Fairmount Glass Company (ca. 1906-1968)	4	1
Bottle	Amber, base sherd, embossing on base, "F (within a hexagon) 6 / 127 / 4"	2 3/8" d	ca. 1933-1968	Fairmount Glass Company (ca. 1906-1968)	4	1
Bottle	Amber, base sherd, embossing on base, "TCW CO / S / USA"	1" d	ca. 1888-1946	T.C. Wheaton Glass Company, Millville, New Jersey (1888-present)	4	1

TABLE 22. UNKNOWN MAKER'S MARKS ON GLASS AT 21NL0148

Object	Description	Dimensions	Date	Dump	Count
Bottle	Amber, base sherd, embossing on base, "X 6 A"	2 1/2" d	indeterminate	1	1
Bottle	Colorless, base sherd, partial embossing on base, ". . . P / . . . D	indeterminate	ca. 1905+	1	1
Bottle	Colorless, base sherd, embossing on base, "16"	indeterminate	indeterminate	1	1
Bottle	Colorless, base sherd, stippled exterior, embossing on base, "5994 / B 18"	3 1/4" d	ca. 1940+	1	1
Bottle, flask	Colorless, base sherd, embossing on body, "HALF PINT," embossing on base, "D-1 / P6 144-59 (unknown logo with U superimposed over G)"	1 1/2" w x 3" l	indeterminate	1	1

Object	Description	Dimensions	Date	Dump	Count
Sherd, base	Colorless, possibly modern trash, embossing on base, "LG 88 R30 / 88888 8 88"	2 1/4" d x 7" h	indeterminate	2	1
Bottle	Colorless, external thread finish, stippling, embossing on base, "4 / 9-921"	3 1/2" h x 1 1/4" d, 1/2"a	ca. 1940- mid 1950s	2	1
Jar	Milk glass, ovoid shape, external thread finish, Greek key raised design, embossing on base, "WOOD[L] / No. 9 (arrow towards g) g"	2 5/8" h x 2 1/2" w	indeterminate	2	1
Sherd, base	Colorless, partial, paneled body present, embossing on base, "PATENT APPLIED FOR // 4 (within a circle) // 45"	3 1/4" d	indeterminate	3	1
Sherd, base	Colorless, embossing on base, "8"	2 3/4" d	indeterminate	3	1
Bottle	Colorless; base sherd, rectangular, suction scar, embossing on base, "586 / DP 82 92 / 1"	indeterminate	1904+	4	1
Sherd, base	Colorless, suction scar, embossing on base, "41 / S (large M logo over entire base) ..."	2 3/4" d	indeterminate	4	1
Sherd, base	Colorless, stippling, embossing on base, "E1595"	indeterminate	ca. 1940- mid 1950s	4	1
Sherd, base	Colorless, embossing on base, "ILF 777 / A 41"	2 1/2" d	indeterminate	4	1
Sherd, base	Colorless, suction scar, embossing on base, "(9)"	indeterminate	1904+	4	1
Bottle	Amber, base sherd, embossing on side, "HALF PIN[T]," suction scar, stippling, embossing on base, "E6..."	indeterminate	ca. 1940- mid 1950s	4	1
Container	Milk glass, tapers from opening to base, scallop pattern below rim, ribbed along bottom edge, embossing on base, "MADE IN USA"	1 5/8" h x 1 1/8" d, 1 1/2" a	indeterminate	4	1
Bottle	Colorless, partial body, embossed suns with an icon in the center (possibly 2 "S" interlocked), sometimes rays are overlaid	~2 1/2" d	indeterminate	4	1
Bottle, flask	Colorless, pry top finish, paneled sides, ribbed at bottom, embossing on base, "8F PROD COR"	4 1/2" h x 2" l (base) x 1" w (base), 1"a	indeterminate	4	1
Cap	Milk glass, tightly spaced vertical ribbing along edge, embossing on top, "28" , flange-inset below edge	indeterminate	indeterminate	4	1
Bottle	Colorless, rectangular with ribbed chamfers, continuous external thread finish, embossing on base, "DES. / REG. / 5 (turned on its side next to other words)	1" l x 11/16" w x 2 1/4" h	indeterminate	4	1

Object	Description	Dimensions	Date	Dump	Count
Bottle	Colorless, wide flat face, embossing near base, "[G] 4"	indeterminate	indeterminate	4	1
Bottle	Colorless, base sherd, oblong, two bands on either side of the side panels that gradually widen towards the top, embossing on base, "A. P. H."	1 1/4" l x 5/8" w	indeterminate	4	1
Bottle	Colorless, base sherd, rectangular, vertical ribbing on 3 sides, embossing on base, "Y (upside down and above 2 lines) / 10."	1 3/8" l x 7/8" w	indeterminate	4	1
Bottle	Colorless, body sherd, embossing, ". . . [N]ER'S / [E] MILK / [TONAW]ANDA, N.Y."	indeterminate	indeterminate	4	1

Miscellaneous Bottle Caps

A total of 25 container caps were recorded in Dump 1 (n=1), Dump 2 (n=1), Dump 3 (n=2), and Dump 4 (n=21). In all, there were two aluminum threaded screw caps; three threaded plastic screw caps, and 20 iron alloy crown bottle caps.

Miscellaneous Glass

Bottle Finishes

A total of 26 bottle finishes were recorded in Dumps 1 through 4: 14 (10 colorless, 4 amber) external threaded; 4 (2 colorless, 2 amber) pry top; 2 colorless double ring; 1 colorless shaker top; 1 colorless prescription top; and 4 (2 colorless, 2 amber) indeterminate bottle finishes.

Base and Rim Sherds

A total of eight indeterminate base and rim sherds were recorded in Dumps 1 through 4, including six (4 colorless, 2 milk glass) base sherds, and two colorless rim sherds.

Tube

One colorless ovoid tube; measuring ¼" (weight) x 3/8" (height), was documented in Dump 1.

Indeterminate Curved Glass

A total of 281 indeterminate curved glass sherds were recorded in Dumps 1 through 4. In all there were 229 colorless sherds; 31 amber sherds; 6 aqua sherds; 4 milk glass sherds; 8 green sherds; 1 olive green sherd; 1 bright blue sherd and 1 sun-colored amethyst sherd.

Indeterminate Flat Glass

A total of 80 sherds of flat glass were documented in Dumps 1 through 4.

Indeterminate Melted Glass

A total of 23 melted glass sherds were documented in the Dumps 1 through 4.

Miscellaneous Ceramics

A total of eight non-tableware ceramic sherds were recorded at Dumps 2 and 4. These included two earthenware, and five redware sherds and one stoneware sherd. One of the redware sherds from Dump 4 was associated with a flower pot, while the stoneware sherd from Dump 2 was a fragment of a jug.

Miscellaneous Objects and Fragments

- Leather fragment (Dump 1, n=1)
- Rubber tubing fragments (Dump 3, n=3)
- Rubber fragments (Dump 3, n=6)
- Cinder fragments (Dump 3, n=2)
- Pink plastic fragment (Dump 4, n=1)
- Slate fragments (Dump 1, n=2; Dump 4, n=1)
- Slag fragments (Dump 1, n=2; Dump 3, n=2)

SYNTHESIS

Site 21NL0148 encompasses a stretch of bluff below the St. Peter State Hospital and to the north/northwest of TH 169. Prior to the construction of the highway in 1960, the area at the base of the bluff was the site of a colony of shacks constructed by "liberty patients" -- those who had earned the ability to wander the grounds during the day unescorted by hospital staff. Built with material often scavenged from the hospital dump, many of the shacks were no more than lean-tos, but others were more elaborate affairs. The MnDOT ROW map set documents the presence of 11 shacks along the base of the bluff and within the planned ROW of TH 169 (Figure 48). These shacks were removed at the time of the highway's construction as much of the area where they once stood was occupied by the highway's roadbed and ditch, which in many places meets the base of the bluff. However, during the Phase I archaeological survey, it was noted that in places along the bluff concentrations of artifacts were present, as were indications of the presence of the former shacks of the liberty patients in the form of dry-laid retaining walls and modified cave entrances.

During the Phase II evaluation, the artifacts present within four separate surface dumps were cataloged in the field. During this process, 1,402 artifacts were documented. The positioning of the material within these dumps and the classes of artifacts present, indicated that the dumps were comprised of debris from the hospital that had been discarded down the bluff. Material present represented the categories of food and beverage containers, meal preparation and cooking, tableware, health and medicine, personal care, clothing, household and architectural items, and work and maintenance items, as well as many of indeterminate use. Those artifacts that were labeled with specific dates of manufacture spanned the years from 1929-1951 (omitting modern

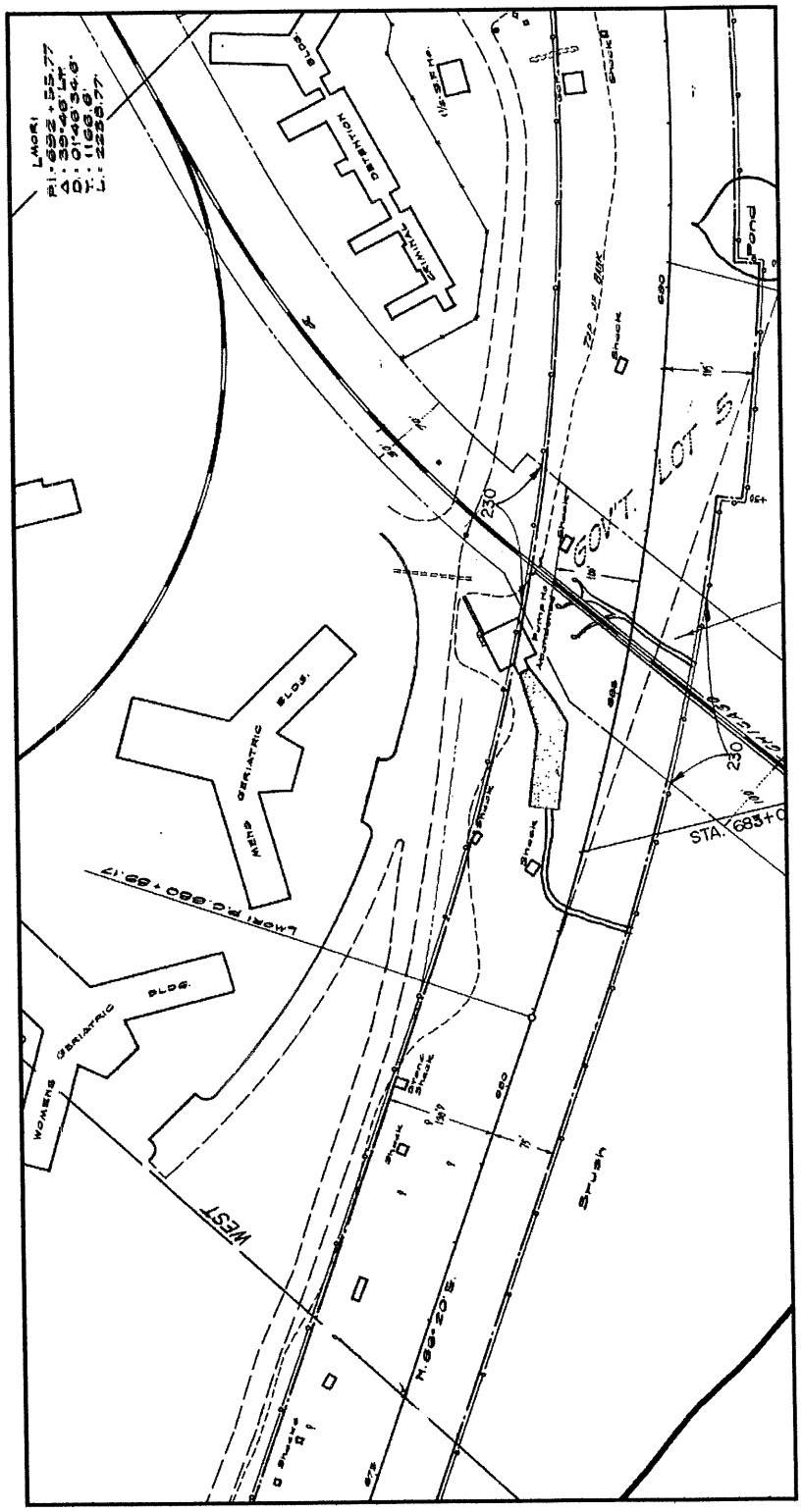

FIGURE 48. MNDOT ROW MAP SHOWING ELEVEN LIBERTY PATIENT SHACKS WITHIN TH 169 ROW AT THE TIME OF ITS CONSTRUCTION

introductions from the highway), and an apparently curated plate bearing a ca. 1880-1895 maker's mark. The average date of manufacture is 1939, while the median date is 1938. The most common dates to appear on artifacts are 1933 (n=5) and 1938 (n=5). The era represented by the material in the surface dumps was a difficult one for the hospital and its patients due to the austerity of the Depression-era and the rationing of World War II. It is probable that the activity of discarding trash down the bluff face in part reflects the lack of staff and a general upkeep of the facility during this period (Seaquist 1961:15). In turn, the most recent, datable artifact from 1951 suggests the dumps went out of use about the time that the men's and women's Geriatric Buildings were built atop the bluff (1950) and as the hospital as a whole underwent a change for the better when in the 1950s supplies, food, staffing, and equipment were brought back toward an acceptable standard.

Many of the artifacts documented in the dumps were typical of institutional deposits, including an abundance of plain ironstone dishes, and the presence of medicinal items, objects used in or resulting from the preparation of food for a large population, and items related to the maintenance of the buildings and grounds. Other artifacts were more unique, such as the containers that once held cosmetics, hair products, and similar items that speak to the creation in the 1930s of a "department of personal hygiene [i.e., beauty parlor] . . . resulting in improved appearances and morale" (Seaquist 1961:14). Personal artifacts were rare, but present. It is tempting to link the modified WearEver camp cups, liquor bottles, and tobacco to the activities of the liberty patients, but given that all of the artifacts were deposited on the surface it is not possible to definitively associate them with either patients or staff. Linking artifacts to the activities of liberty patients is further complicated by the fact that their principal source of material was repurposed and salvaged items from the hospital.

EVALUATION AND RECOMMENDATION

To be eligible for listing in the National Register, archaeological sites must meet one of the four National Register criteria and possess sufficient integrity to convey their significance.

Significance

In order for an archaeological site to be eligible to the National Register under Criterion A, it must have intact archaeological deposits or features that are associated with a significant event, pattern, or trend. The St. Peter Bluff Site consists of artifacts and features dating from 1929 through the construction of the highway in 1960. Most material is from the 1930s and 1940s, which was a difficult period in the history of the St. Peter State Hospital due to the austerity of the Depression-era and the rationing of World War II. While these artifacts generally speak to the way in which the hospital was appointed and provide some insight into patient care during this era, the site lacks the variety of material, intact stratified features, and other aspects of contextual integrity that would allow it to illustrate a pattern or trend in the historical development of the hospital. Likewise, while the site could illustrate the era during which shack-building activity took place on the grounds of the hospital, no artifacts could be definitively linked to the

activities of the liberty patients. Site 21NL0148 therefore does not meet National Register Criterion A.

To be eligible under Criterion B, an archaeological site must be associated with a significant person and must contain intact archaeological deposits that can be directly linked to the significant person's period of occupation. The St. Peter Hospital Bluff Site is not directly associated with any significant individuals. For this reason, 21NL0148 does not satisfy National Register Criterion B.

Due to a lack of extant buildings, archaeological evidence for distinctive construction methods or the presence of a designed landscape, 21NL0148 is not eligible for listing on the National Register under Criterion C.

To be eligible under Criterion D, a site must retain information potential. While the site retains some above-ground features associated with the location of former shacks, including dry-laid retaining walls and modified cave entrances, comparison with historical photographs indicates that the majority of the related features were removed at the time of the construction of TH 169. While indications of former shack locations could be discerned, there was not one example within the APE that had not been impacted in some fashion by road construction. The remainder of the Phase II evaluation focused on the surface dumps which are the primary source of artifacts related to the hospital and the activities of the liberty patients. During the Phase II, 1,402 artifacts from the site's four surface dumps were field-cataloged. With the exception of a fragment of a late-nineteenth-century plate, these materials span the period from 1929 through at least 1951, with the average date of manufacture being 1939. Due to their tight temporal context and clear association with the hospital, these materials have the potential to address important research questions.

However, while these artifacts generally speak to the way in which the hospital was appointed and provide some insight into patient care, due to exposure to the elements for an extended period of time, the majority of the artifacts no longer retain labels or other features that would allow their contents to be identified. Also, the presence of these materials within the context of a surface dump hinders the ability to confidently associate the recovered materials with a particular building or even their use by staff vs. patients. Furthermore, the site does not retain intact, undisturbed strata or features that preserve the contextual, functional, and temporal relationships of artifacts to each other. Lastly, the visible materials present within the dumps were field-cataloged and therefore the site is unlikely to yield any additional information beyond that obtained during the Phase II investigation. The site therefore does not satisfy National Register Criterion D.

Based on these findings, 21NL0148 is recommended as not eligible for listing in the NRHP. No additional fieldwork is recommended in the St. Peter Security Hospital segment.

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RECOMMENDATIONS

In the June of 2013, Two Pines completed a Phase I archaeological survey and Phase II archaeological evaluation in advance of the planned TH 169 Floodplain Mitigation Project between St. Peter and Mankato in Nicollet County, Minnesota. The purpose of the Phase I and II archaeological investigations was to determine if the project's APE contains any intact archaeological resources that may be eligible for listing in the NRHP. During the archaeological investigations for the TH 169 Floodplain Mitigation Project, two new archaeological sites, 21NL0147 (Belgrade Terrace) and 21NL0148 (St. Peter Hospital Bluff) were identified.

Site 21NL0147 (Belgrade Terrace) is a deeply-buried (185-195 cmbs), but sparse precontact artifact scatter that produced 11 fragments of bone and a single projectile point from 10 square meters of the associated soil horizon. Radiocarbon dates and the typology of the projectile point indicate the site was occupied during the Woodland Period. However, due to the absence of pottery sherds, association with a specific Woodland period complex is not possible. While these materials may be on the periphery of a larger site preserved elsewhere on the buried fan that this site occupies, due to the low density of cultural material encountered, site 21NL0147, as currently defined, does not have the potential to yield significant information and is therefore recommended as not eligible for listing in the NRHP. No additional fieldwork is recommended in the River Bluff Road segment.

Site 21NL0148 (St. Peter Hospital Bluff) consists of twentieth-century surface artifact scatters and features associated with the occupation of the state hospital and the use of the bluff area by patients at liberty to move about the grounds during the day. The site boundary also encompasses the remains of the hospital's ca. 1950 pump house and an 1871 railroad bridge abutment (both of which are recommended as not eligible for listin in the NRHP). During the Phase II, 1,402 artifacts were documented. While these artifacts generally speak to the way in which the hospital was appointed and provide some insight into patient care, the absence of labels on the majority of the cans and bottles together within an inability to confidently associate the recovered materials with a particular building or even their use by staff vs. patients limits the research potential of the deposits. Due to these constraints the site cannot answer important research questions and is recommended as not eligible for listing in the NRHP and no additional fieldwork is recommended in the St. Peter Security Hospital segment.

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APPENDIX A

MINNESOTA ARCHAEOLOGICAL LICENSES

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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 **2013** . 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: Michelle M. Terrell, Ph.D.

Institution/Agency/Company Affiliation: Two Pines Resource Group, LLC

Title/Position: Principal Archaeologist and Historian

Address: 17711 260th Street, Shafer, MN 55074

Work Phone: 651-257-4766 E-Mail: mterrell@twopinesresource.com

Name of Advanced Degree Institution: Boston University Year: 2000

Name of Department: Archaeology Department Degree: __MA __MS _X_PhD

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

Type of Land: (check all that may apply)
State Owned _X_ County Owned _X_ Township/City Owned _X_
Other ___ List: _____

MHS Repository Agreement # 594 Other Approved Curation Facility: _____

Previous License: Year 2012 Type Annual Number 12-020

Signed (applicant): Michelle M. Terrell Date: 2-1-13

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: 2-20-13
State Archaeologist Approval: _____ Date: 2/19/13

License Number: 13-033

Form Date: 2/15/11

APPLICATION FOR MINNESOTA
EVALUATION/PHASE II SURVEY ARCHAEOLOGICAL LICENSE

This license only applies to evaluation investigations/Phase II surveys conducted under the provisions of Minnesota Statutes 138.31 - .42 at the specific site or locality listed on the application during calendar year 2013. Separate licenses must be obtained for reconnaissance (Phase I) surveys, for major investigation (Phase III) work, for burial site work under Minnesota statutes 307.08, for fieldwork that will continue into another calendar year, for fieldwork conducted at locations other than those listed below, and for fieldwork that significantly exceeds the Phase II specifications of the *SHPO Manual for Archaeological Projects in Minnesota*. Only the listed individual is licensed as a Principal Investigator, not the institution/agency/company or others who work for that entity. The licensed individual and the sponsoring entity are required to comply with all the conditions attached to the license.

Name: MICHELLE TERRELL

Institution/Agency/Company Affiliation: TWO PINES RESOURCE GROUP

Title/Position: PRINCIPAL ARCHAEOLOGIST AND HISTORIAN

Address: 17711 260TH ST., SHAFER, MN 55074

Work Phone: 651-257-4766 E-Mail: MTerrell@twopinesresource.com

Name of Advanced Degree Institution: BOSTON UNIVERSITY Year: 2000

Name of Department: ARCHAEOLOGY Degree: __MA __MS X PhD

Site Number: 21NL- - - Project: TH 169-ST. PETER TO MANKATO
ST. PETER HOSPITAL DUMP

Type of Land: (check all that may apply)
State Owned X County Owned __ Township/City Owned __ Manager: DOT
Other non-federal public__ List: _____

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

Expected Period Components/Contexts: Precontact___ Contact___ Post-Contact X

MHS Repository Agreement # 594 Other Approved Curation Facility: _____

Signed (applicant): Michelle M. Terrell Date: 6-20-13
ON FILE

Required Attachments: 1) *Curriculum Vita* X 2) Documentation of Appropriate Experience X
3) Research Design X

Previous License: Year 2013 Type PHASE I Number 13-033

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: Patricia Emerson Date: 6-24-13
State Archaeologist Approval: _____ Date: 6/24/13
License Number: 13-061

Form Date: 2/15/11

APPENDIX B

REPORT OF RADIOCARBON DATING ANALYSES

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BETA

Consistent Accuracy . . .
. . . Delivered On-time

Beta Analytic Inc.
4985 SW 74 Court
Miami, Florida 33155 USA
Tel: 305 667 5167
Fax: 305 663 0964
Beta@radiocarbon.com
www.radiocarbon.com

Darden Hood
President

Ronald Hatfield
Christopher Patrick
Deputy Directors

August 15, 2013

Dr. Michael F. Kolb
Strata Morph Geoexploration, Incorporated
1648 Calico Court
Sun Prairie, WI 53590
USA

RE: Radiocarbon Dating Results For Samples SMG-MN169-8, SMG-MN169-9

Dear Dr. Kolb:

Enclosed are the radiocarbon dating results for two samples recently sent to us. They each provided plenty of carbon for accurate measurements and all the analyses proceeded normally. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable.

The web directory containing the table of results and PDF download also contains pictures including, most importantly the portion actually analyzed. These can be saved by opening them and right clicking. Also a cvs spreadsheet download option is available and a quality assurance report is posted for each set of results. This report contains expected versus measured values for 3-5 working standards analyzed simultaneously with your samples.

All results reported are accredited to ISO-17025 standards and all analyses were performed entirely here in our laboratories. Since Beta is not a teaching laboratory, only graduates trained in accordance with the strict protocols of the ISO-17025 program participated in the analyses. When interpreting the results, please consider any communications you may have had with us regarding the samples.

If you have specific questions about the analyses, please contact us. Your inquiries are always welcome.

The cost of the analysis was charged to the VISA card provided. Thank you. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Darden Hood

Digital signature on file

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Dr. Michael F. Kolb

Report Date: 8/15/2013

Strata Morph Geoexploration, Incorporated

Material Received: 7/31/2013

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 355534 SAMPLE : SMG-MN169-8 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 430 to 580 (Cal BP 1520 to 1370)	1540 +/- 30 BP	-24.5 o/oo	1550 +/- 30 BP
Beta - 355535 SAMPLE : SMG-MN169-9 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 430 to 580 (Cal BP 1520 to 1370)	1590 +/- 30 BP	-27.2 o/oo	1550 +/- 30 BP

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.5:lab. mult=1)

Laboratory number: **Beta-355534**

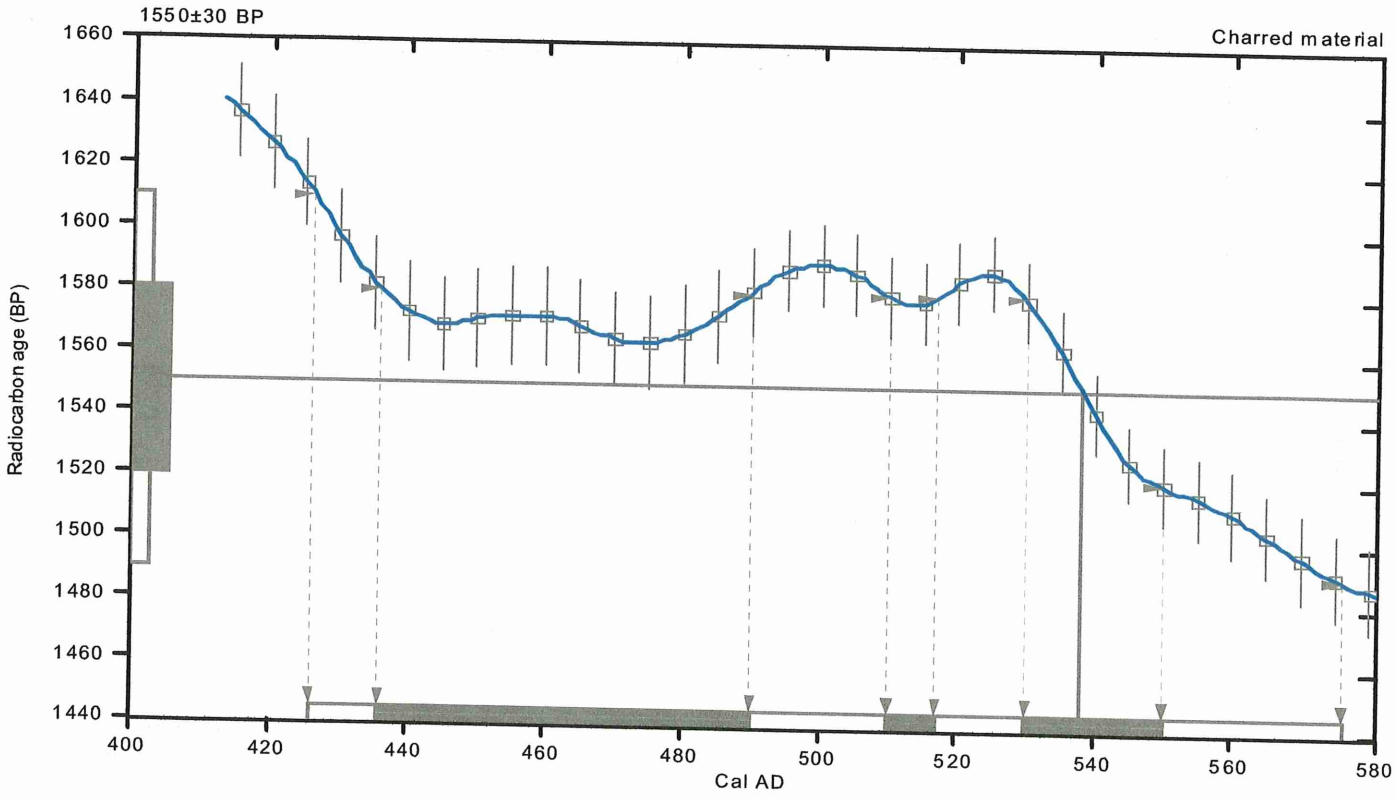
Conventional radiocarbon age: **1550±30 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 430 to 580 (Cal BP 1520 to 1370)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 540 (Cal BP 1410)

1 Sigma calibrated results: (68% probability) Cal AD 440 to 490 (Cal BP 1510 to 1460) and
Cal AD 510 to 520 (Cal BP 1440 to 1430) and
Cal AD 530 to 550 (Cal BP 1420 to 1400)



References:

Database used

INTCAL09

References to INTCAL09 database

Heaton,et.al.,2009, Radiocarbon 51(4):1151-1164, Reimer,et.al, 2009, Radiocarbon 51(4):1111-1150, Stuiver,et.al,1993, Radiocarbon 35(1):137-189, Oeschger,et.al.,1975,Tellus 27:168-192

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-27.2:lab. mult=1)

Laboratory number: **Beta-355535**

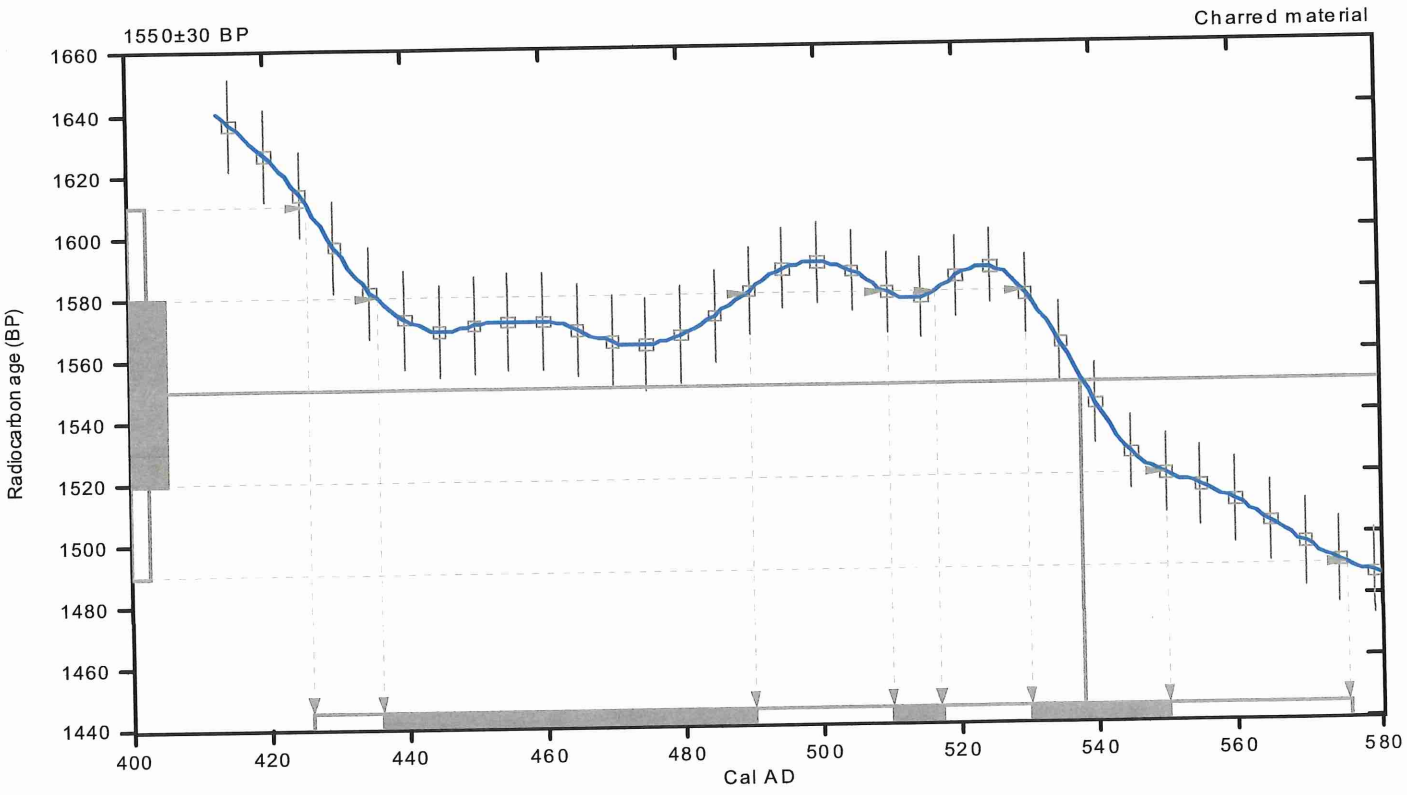
Conventional radiocarbon age: **1550±30 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 430 to 580 (Cal BP 1520 to 1370)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 540 (Cal BP 1410)

1 Sigma calibrated results: (68% probability) Cal AD 440 to 490 (Cal BP 1510 to 1460) and Cal AD 510 to 520 (Cal BP 1440 to 1430) and Cal AD 530 to 550 (Cal BP 1420 to 1400)



References:

Database used

INTCAL09

References to INTCAL09 database

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Mathematics used for calibration scenario

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Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

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APPENDIX C

21NL0147 ARTIFACT CATALOG

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Catalog #	Qty.	Materials 1	Object Name	Descriptor 2	Descriptor 3	Descriptor 4	Descriptor 5	Description	Measurement 1	Measurement Unit 1	Coll. Method	Horizontal Unit #	VPU Start Depth	VPU End Depth	Vert. Meas. Unit	Vert. Ref. Pt.
1.1-3	3	radius	remains	Bison bison	distal fragment	right	gnawed	Distal shaft that is missing the epiphysis; appears to have not been a fully fused epiphysis based on the appearance of the trabecular bone; *Bos* fuses at distal radius between 3 1/2-4 years; possible percussion marks on broken shaft surface and a notch; two radiating fracture lines are coming out of the surface of the break; extensive rodent gnawing; weathering stage3-much of exterior layer of cortical bone has flaked off and some erosion of trabecular bone on distal end; fragments refit	89.1	grams	Trench	1	185	190	cm	ground surface
2.1	1	bone	remains	Mammalia	fragment	weathered		Weathering stage 3-much of exterior layer of cortical bone has flaked off; too fragmentary for species identification	1.7	grams	Trench	8	185	216	cm	ground surface
2.2	1	bone	remains	Mammalia	fragment	gnawed	weathered	Extensively rodent gnawed along all edges; where it has not been gnawed it has a weathering stage 3-much of exterior layer of cortical bone has flaked off; too fragmentary for species identification	1.0	grams	Trench	8	185	216	cm	ground surface
2.3	1	bone	remains	Mammalia	fragment	burned	weathered	Burned along interior surface of bone; the location and discoloration of bone (black to light brown) due to burning are indicative of post-depositional burning of already dry bone; weathering stage 3-exterior layer of cortical bone has flaked off	1.3	grams	Trench	8	185	216	cm	ground surface
2.4	1	cervical vertebra	remains	Mammalia	fragment	weathered		Transverse process; likely medium to large mammal--too fragmentary for species identification; unfused based on appearance of trabecular bone on one end	0.1	grams	Trench	8	185	216	cm	ground surface
2.5-6	2	carapace	remains	Testudines	fragment	weathered		Marginal portion of carapace; too fragmentary for species identification; however, likely painted turtle (Chrysemys picta) based on thinness of carapace and commonality of species; fragments refit	0.2	grams	Trench	8	185	216	cm	ground surface
2.7	1	carapace	remains	Testudines	fragment	weathered		Fragment of non-marginal portion of carapace; too fragmentary for species identification; however, likely painted turtle (Chrysemys picta) based on thinness carapace and commonality of species	0.2	grams	Trench	8	185	216	cm	ground surface
2.8	1	neurocranium	remains	Osteichthyes	fragment	weathered		Too fragmentary for species identification	0.3	grams	Trench	8	185	216	cm	ground surface
2.9	1	chert	projectile point	side-notched (point)	utilized	heat-treated		Likely Blanding chert; convex base; excurvate blade; bifacially worked; finely flaked; broken below the notch on one side; small amount of utilization; discoloration at base is indicative of heat-treating; 28.04 length; 1.09 mm length, 0.66 mm wide notch, and 0.12 minimum width at tip	2.9	grams	Trench	8	185	195	cm	ground surface