

Appendix F: *Cultural Resources Studies*

July 15, 2026

Eric Johnson
Community Development Director
5105 Maple Grove Road
Hermantown, MN 55811

RE: City of Hermantown Draft AUAR for the Updated Hermantown Industrial Project
T50 R15 S31, Hermantown St. Louis County
SHPO Number: 2025-1098

Dear Eric Johnson:

Thank you for providing this office with a copy of the Draft Alternative Urban Areawide Review (AUAR) for the Updated Hermantown Industrial Project.

Based on a review of the report *Phase I Archaeological Survey for Project Loon—Hermantown, St. Louis County, Minnesota* (January 15, 2026) as prepared by In Situ Archaeological Consulting, we agree that archaeological site 21SL1302 is not eligible for listing in the National Register of Historic Places and that the proposed project will not affect significant archaeological sites.

Based on the information provided, we have determined that there are no properties listed in the National or State Registers of Historic Places, or within the Historic Sites Network, that will be affected by the proposed project.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

Please contact Kelly Gragg-Johnson, Environmental Review Specialist, at kelly.graggjohnson@state.mn.us if you have any questions regarding our review of this project.

Sincerely,



Amy Spong
Deputy State Historic Preservation Officer



7630 Executive Drive
Eden Prairie, MN 55344
Ph: 952-658-8891
Web: www.insitucrm.com

March 10, 2025

Brian M. Wurdeman, P.E.
Kimley-Horn
11995 Singletree Lane, Suite 225
Eden Prairie, MN 55344
Brian.Wurdeman@kimley-horn.com

Subject: Phase IA Cultural Resource Literature Review and Preliminary Reconnaissance for Project Loon – Hermantown, St. Louis County, Minnesota [Public Version]

Dear Mr. Wurdeman,

On behalf of Kimley-Horn, this report presents the results of a Phase Ia cultural resource literature review and preliminary reconnaissance conducted by In Situ Archaeological Consulting, LLC (In Situ) for Project Loon - Hermantown, St. Louis County, Minnesota (Figures 1-2). The proposed development project area is located within the legal locations listed in Table 1.

Table 1: Legal Locations of the Proposed Project Area		
Township (T)	Range (R)	Section(s)
50 North	15 West	31

The proposed project is for a desktop literature review of the approximately 243-acre project area near Hermantown as well as a preliminary reconnaissance site visit of the Umpierre and Paitrick Parcels within the project area. The literature review was conducted by In Situ staff on November 1, 2024, using files maintained by the Minnesota State Historic Preservation Office (SHPO) and Minnesota Office of the State Archaeologist (OSA). On November 4, 2024, In Situ conducted a preliminary reconnaissance of the project area. The literature review will assist in identifying the locations of previous cultural resources, locations on the National Register of Historic Places (NRHP), previous cultural resource inventories, and the potential for cultural resources within and around the project area.

At the present time, the project is not subject to review under Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (54 U.S.C. § 306108 [36 CFR 800]), as the Project will not require nor will seek any federal assistance, permitting, or authorization. However, this cultural resource assessment is being completed as part of an Alternative Urban Areawide Review (AUAR) for future development.

Attached to this letter are the cultural resource literature review maps (Figures 3-7) and photographs from the preliminary reconnaissance of the project area (Figures 8-15).

Detailed site location information, including legal descriptions, coordinates, and contextual information from archaeological resources, has been redacted from this public version of the report

in accordance with applicable cultural resource protection laws in order to protect archaeological resources. Full Project documentation, including professional qualifications, field staff, and authorship, is on file with the appropriate reviewing agencies.

BACKGROUND RESEARCH

A literature review consisted of identifying any previously recorded archaeological sites and architectural properties within a 2-mile study area surrounding the proposed project area (1 mile from each side of the project area). The task was completed using site data files and previous inventory files maintained by the Minnesota SHPO and OSA. In addition, background research was completed by reviewing NRHP data, historic maps, atlases, current aerial photographs, soil maps, topographic and geomorphic data, and other sources that might provide information for the locations of historic-era sites, areas of prior disturbance, etc. (Figures 3-6). The literature/records search revealed no previous cultural resource inventories/surveys, one previously recorded archaeological site, and three previously recorded architectural resources within the study area.

The data gathered revealed one previously recorded archaeological site within the study area (Table 2). The previously recorded archaeological site is *unevaluated* for the NRHP and is not located within the proposed project area.

Table 2: Previously Recorded Archaeological Sites within the Study Area.

Site	Legal Description	Cultural Affiliation	Site Type	NRHP Eligibility	Within Project Area
21SL1274	[Legal description and the mapped location of archaeological sites are redacted from the text and report figures to protect archaeological resources.]	Post-Contact (Euro-American)	Artifact Scatter/ Structural Ruin	Unevaluated	No

The literature review revealed three previously recorded architectural resources within the study area (Table 3). All three resources are *unevaluated* for the NRHP, and none of the previously recorded architectural resources are located within the proposed project area.

Table 3: Previously Recorded Architectural Resources within the Study Area.

Site Number	Site Name/Type	Address/Location	NRHP Eligibility	Within Project Area
SL-HER-00013	Bridge 88790	Lindahl Road over Midway River	Unevaluated	No
SL-MID-00007	Bridge 88789	Stark Junction Road over Midway River	Unevaluated	No
XX-ROD-00176	Trunk Highway 2	From the WI state line in Duluth to the ND state line in E. Grand Forks	Unevaluated	No

BASIC ENVIRONMENT OF THE PROJECT AREA

The project area is located within the Northern Lakes and Forests (50) Level III ecoregion, and more specifically, the Toimi Drumlins (50p) Level IV ecoregion. The Toimi Drumlins are described as “drumlins covered with forest, interspersed with wetland depressions” (Omernik et al. 2000). The physiography of the project area is located within the Brainerd-Automba Drumlin Area. This area is characterized by marked drumlin fields including the Pierz, the Brainerd, and the Mille Lacs Lake areas. The entire region is interrupted by outwash plains in some places, the largest being the Mississippi River valley train, which enlarges into a complex of pitted plains north of Brainerd (Wright 1972). The elevation within the project area is approximately 1,260-1,350 ft above mean sea level. This area is located within the Miami stony loam soil association (U.S. Department of Agriculture 1906). The two most prevalent soil series (61.4%) within the project area include the Hermantown-Canosia-Giese, depressional, complex (F135A) and the Normanna-Canosia-Hermantown complex (F137B) which contain very poorly to somewhat poorly drained soils (Natural Resources Conservation Service 2025).

PRELIMINARY ARCHAEOLOGICAL RECONNAISSANCE FIELD METHODS

The reconnaissance survey consisted of a site visit by an archaeologist in order to assess the potential for cultural resources and to observe any indications of cultural resources or the potential for cultural resources. The site visit was completed using visual inspection methods. The preliminary reconnaissance survey was limited to areas where field crew could safely access strictly within public rights-of-way, as well as parcels with approved access (Umpierre and Paitrick parcels). The general terrain, geomorphological setting, and topographic factors were observed and assessed in order to assess the absence or likelihood of any cultural resources within the project area. Areas identified as disturbed areas, areas with a slope greater than 20 degrees, areas of poorly drained soils, and low lying-wet areas are considered to have a low potential for containing archaeological sites. However, for an area to be considered to have a potential for an archaeological site, the following factors are considered:

- Located within undisturbed land (excluding plowed agricultural fields);
- Located on a topographically significant landscape feature;
- Proximity of a suitable former or existing water source (named waterbody and perennial streams; within 150 m for high potential and within 200 m for moderate potential);
- Proximity of a previously recorded archaeological site or historic structure (within 100 m).

Using these parameters, In Situ identified any areas of cultural resource potential within the project area. This cultural resource potential generated by In Situ revealed areas of archaeological resource potential within the Project area (Figure 7).

Photographs of the project area as well as observational notes on the general terrain, features within the project area, and other pertinent information regarding the landscape of the project area were collected. All field notes, maps, and photos will be maintained at the In Situ's Eden Prairie, MN office.

PRELIMINARY RECONNAISSANCE RESULTS

On November 4, 2024, In Situ conducted a site visit review of the project area. The project area consists of established roadways, rights-of-way, transmission line corridors, wooded/grassy areas, and wetland areas (Figures 8-15). Vegetation consisted of mixed grasses, wooded vegetation, and wetland vegetation. The topography consisted of fairly flat to undulating terrain. The area has been impacted by natural erosion, rural development (roads, utilities, driveways), and agricultural activities.

During this visit, it was noted indications that the project parcel area has a low to high potential for significant cultural resources, as portions of the project area are not developed, not within wetlands, and the project area is located between two suitable water sources (Midway River to the southeast and an unnamed perennial stream to the west). There are several areas of interest noted within the project area that occur on landforms of higher elevation located between the two nearby water sources that have a high potential for intact cultural resources. Portions of the project area have been subject to previous disturbances and development, as two transmission line corridors cross through the southern project area and residential parcels are present along the northern and eastern edges of the project area and other portions were within low lying marshlands. Due to these factors, it was noted that approximately 22.8 acres of the project area identified as areas of interest may have a high potential for significant cultural resources.

CULTURAL RESOURCE POTENTIAL

The project is located in an area of roadways, rights-of-way, transmission line corridors, wooded/grassy areas, and wetland areas. The project area consists of fairly flat to undulating terrain and is on a landform with topographically significant landscape features, as the area contains points of higher elevation with flood plains from suitable water sources on either side. The project area lies between the Midway River to the southeast and an unnamed perennial stream to the west, both of which are natural suitable water sources. Sources of fresh water and landforms such as river terraces have high potential for archaeological sites (Hobbs 2019; Hudak et al. 2002). Long-term occupation sites are more likely to occur along permanent water sources, as more resources are readily available (Anderson and Smith 2003; Hobbs 2019; Hudak et al. 2002). Historic maps did not indicate any prior cultural sites within the project area, nor are there any previously recorded sites located within the proposed project area. In addition, there is a lack in the number of previously recorded significant sites within the study area. There are existing transmission line corridors that cut through the parcel horizontally in the south, as well as residential parcels along the northern and eastern edges of the Project area; it is likely that these portions of the project area may likely have been heavily impacted by rural and sub-urban construction as well as road and utility construction. It is probable that those activities would have significantly, if not totally impacted any archaeological resources that may or may not have been present in relation to these portions of the project area, leaving a nominal potential for the intact presence of significant archaeological remains within these areas. Also, portions of the project area are located within low-lying areas with marshlands present, as indicated on historic maps. Low lying/marsh areas are not typically suitable for long term occupation, as the area may be subject to frequent flooding. However, there are portions of the project area identified as areas of interest that are not developed, not within wetlands, and located landforms of higher elevation between two suitable water sources

(Midway River to the southeast and an unnamed perennial stream to the west). Due to these factors, it was noted that approximately 22.8 acres of the project area identified as areas of interest may have a high potential for significant cultural resources, with the remaining areas having a low potential for significant cultural resources.

CONCLUSIONS AND RECOMMENDATIONS

In Situ completed a Phase Ia cultural resource literature review and preliminary reconnaissance for Project Loon - Hermantown, St. Louis County, Minnesota. The literature/records search revealed no previous cultural resource inventories/surveys, one previously recorded archaeological site, and three previously recorded architectural resources within the study area. None of these resources are located within the proposed project area.

While portions of the project area have been subject to previous disturbances and development and/or are within marshlands, a preliminary assessment of archaeological resource potential within the proposed project area by In Situ found that due to the location of the project between two suitable water sources (Midway River to the southeast and an unnamed perennial stream to the west) and the presence topographically significant landforms, approximately 22.8 acres of the project area identified as areas of interest may have a high potential for significant cultural resources, and the remaining areas have a low potential for significant cultural resources. Therefore, In Situ recommends that a Phase I archaeological survey is warranted for at least the areas of high potential for this project (approximately 22.8 acres), and the survey area may require expansion if the initial survey of high potential areas yields positive results. However, if these areas of high cultural resource potential are avoided and no development takes place within these areas, then In Situ recommends that a Phase I archaeological survey is not warranted for this project.

Please contact me should you have any further questions or concerns regarding the information assembled.

Sincerely,

A handwritten signature in black ink, appearing to read 'Abraham Ledezma', with a stylized, flowing script.

Abraham Ledezma, M.S., RPA
Principal Investigator

Enclosures: Figures 1-15: Project Maps, Literature Review Maps, and Recon Photos

REFERENCES CITED

Anderson, David G. and Steven D. Smith

- 2003 *Archaeology, History, and Predictive Modeling: Research at Fort Polk, 1972-2002*. University of Alabama Press, Tuscaloosa, Alabama.

Hobbs, Elizabeth

- 2019 *MnModel Phase 4: Project Summary and Statewide Results*. Electronic document. <https://www.dot.state.mn.us/mnmodel/>, Accessed January 25, 2025.

Hudak, Joseph G., Elizabeth Hobbs, Allyson Brooks, Carol Ann Sersland, and Crystal Phillips (Editors)

- 2002 *MnModel Final Report Phases 1-3, 2002: A Predictive Model of Precontact Archaeological Site Location for the State of Minnesota*. Available at: https://www.dot.state.mn.us/mnmodel/P3FinalReport/final_report.html. Minnesota Department of Transportation. Accessed September 6, 2022.

Natural Resources Conservation Service

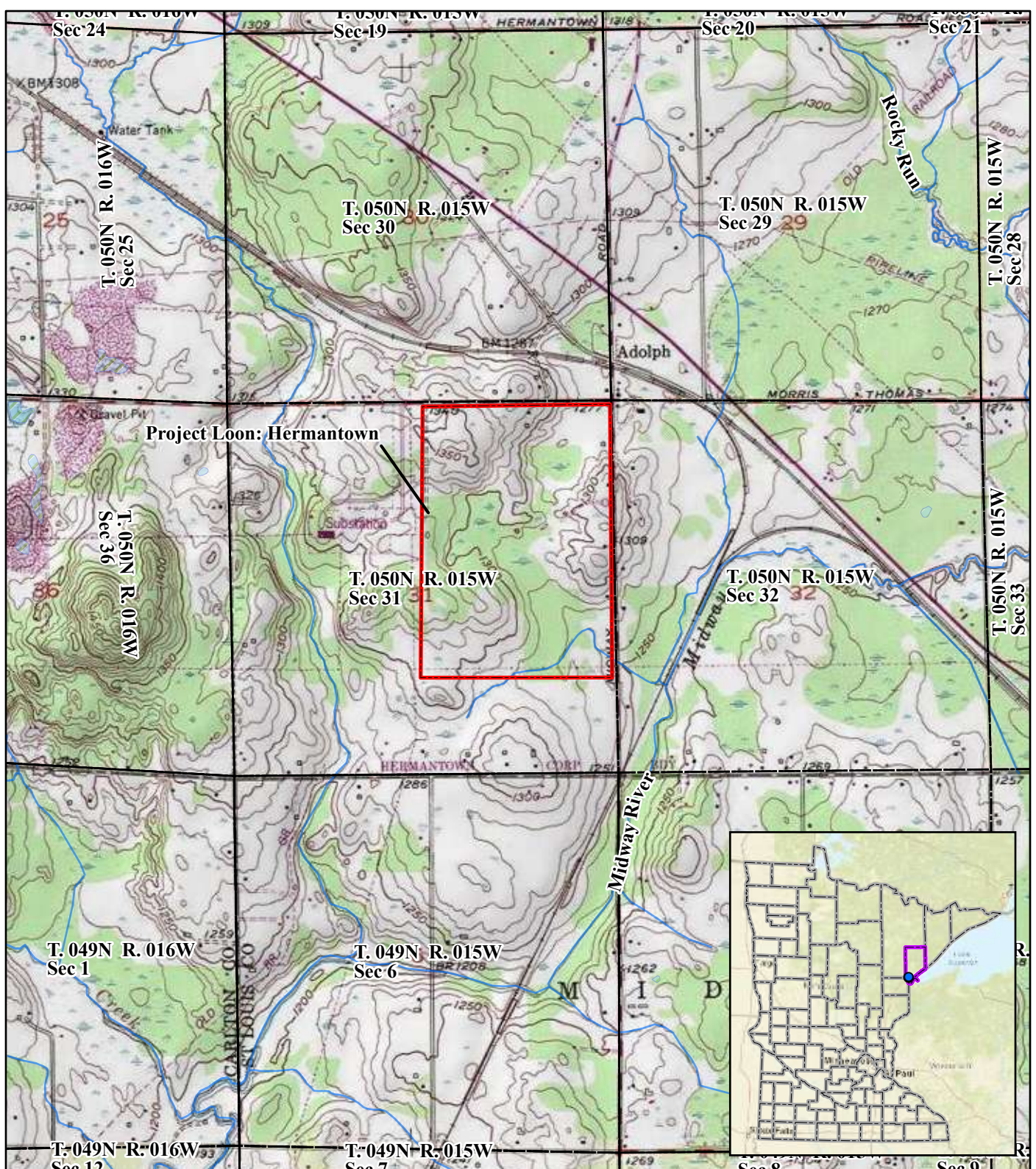
- 2025 Web Soil Survey. Available at: <http://websoilsurvey.nrcs.usda.gov>. Accessed March 3, 2025.

U.S. Department of Agriculture

- 1906 *Soil Survey of the Carlton Area, Minnesota-Wisconsin*. U.S. Government Printing Office. Washington.

Wright, H. E. Jr.

- 1972 Physiology of Minnesota. In *Geology of Minnesota: A Centennial Volume*. pp. 561-578. Minnesota Geological Society.



Legend

- ▭ Project Area
- ▭ Waterbody
- Township/Range/Section
- Project Location
- Stream/River
- St. Louis County



1:24,000
Approximate Scale in Feet
1 inch equals 2,000 feet
2,000 0 2,000 4,000

TOPOGRAPHIC MAP

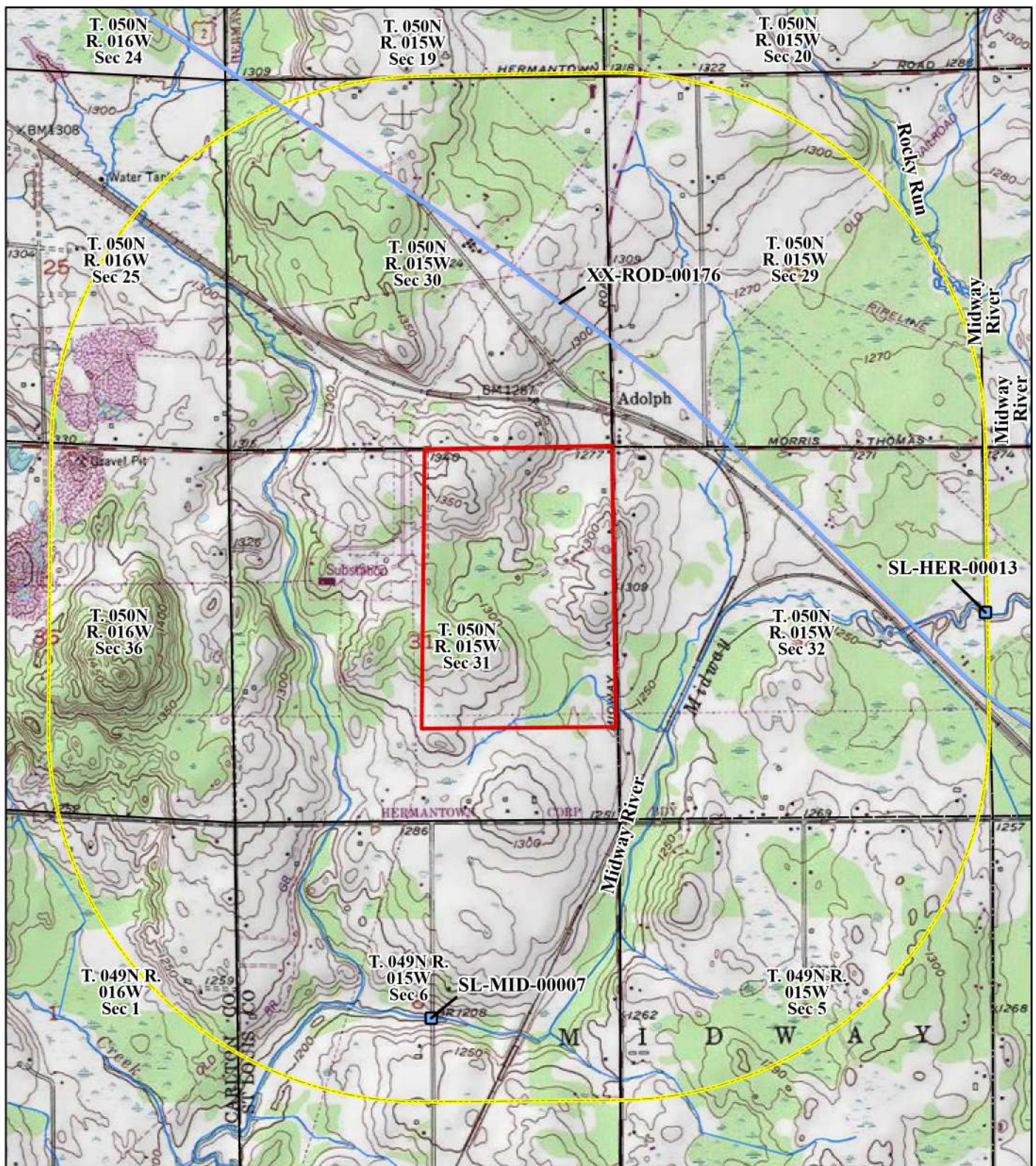
Project Loon: Hermantown
St. Louis County, Minnesota

Note: Imagery courtesy of ESRI

Figure 1. Project location on the USGS 1993 Adolph, MN 7.5 minute series topographic map.







Legend

- | | |
|--|---|
| Unevaluated Architecture Resource | Township/Range/Section |
| Unevaluated Linear Architecture Resource | Stream/River |
| Project Area | Waterbody |
| 1-Mile Study Area | |



1:24,000
Approximate Scale in Feet
1 inch equals 2,000 feet
2,000 0 2,000 4,000

LITERATURE REVIEW TOPOGRAPHIC MAP

Project Loon - Hermantown
St. Louis County, Minnesota

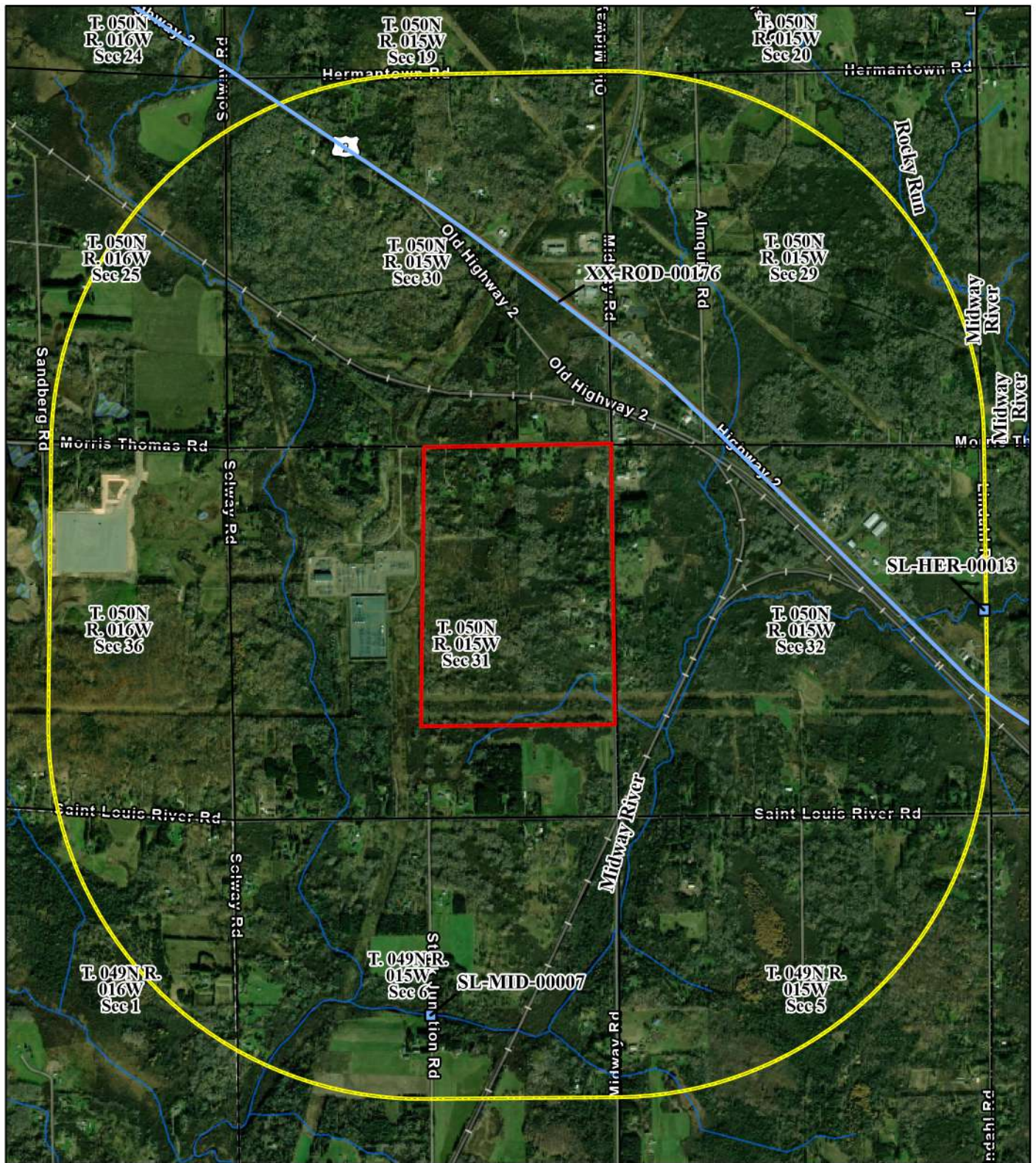
REDACTED FOR PUBLIC DISCLOSURE

Archaeological Data Redacted to Protect Resources

Note: Imagery courtesy of ESRI

Figure 3. Topographic map with previous cultural resources surveys and previously recorded sites.





Legend

- | | |
|--|------------------------|
| Unevaluated Architecture Resource | Township/Range/Section |
| Unevaluated Linear Architecture Resource | Stream/River |
| Project Area | Waterbody |
| 1-Mile Study Area | |



1:24,000

Approximate Scale in Feet

1 inch equals 2,000 feet

2,000 0 2,000 4,000

LITERATURE REVIEW AERIAL MAP

Project Loon - Hermantown

St. Louis County, Minnesota

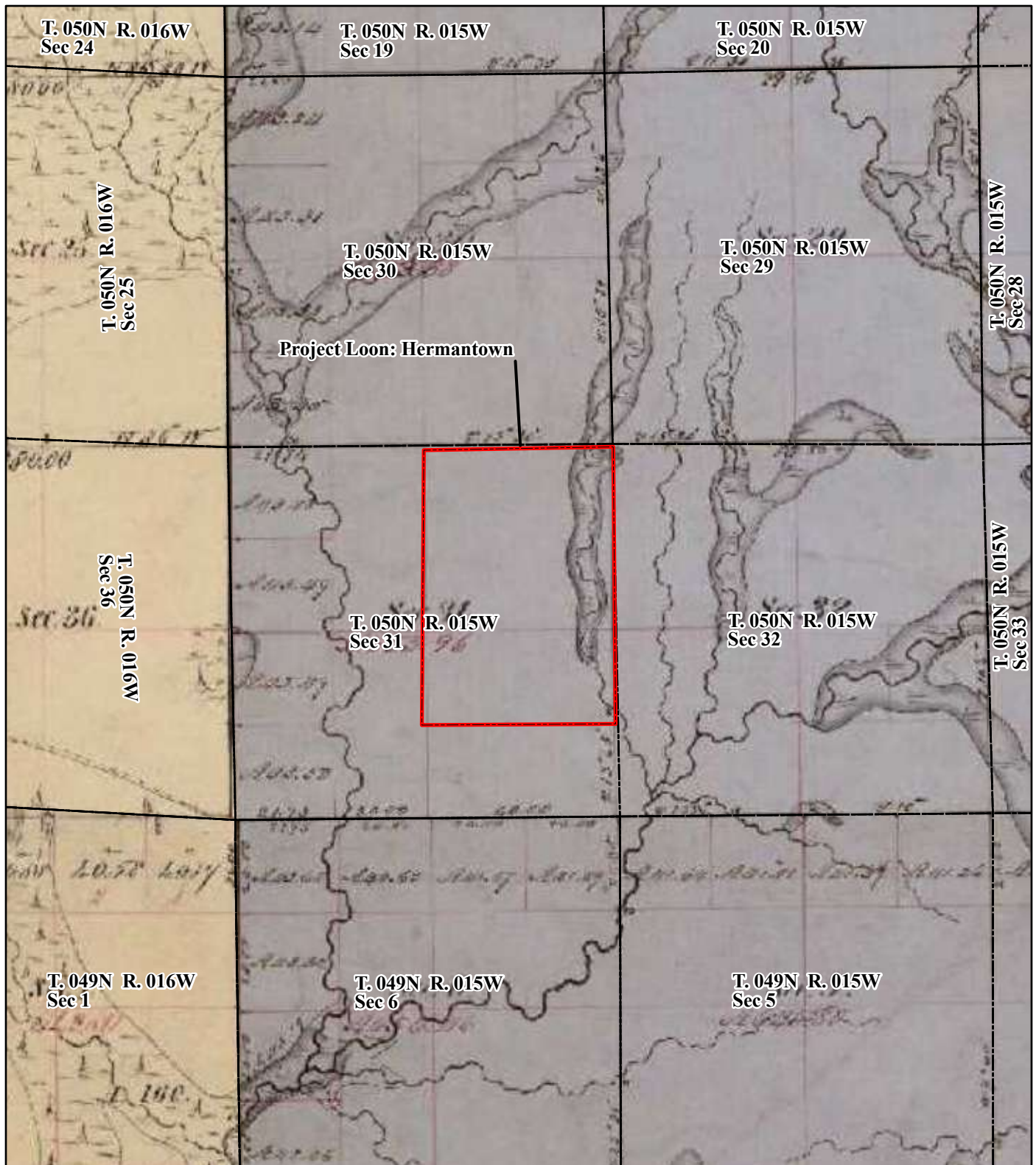
REDACTED FOR PUBLIC DISCLOSURE

Archaeological Data Redacted to Protect Resources

Note: Imagery courtesy of ESRI

Figure 4. Aerial map with previous cultural resources surveys and previously recorded sites.





Legend

- Project Area
- Township/Range/Section



1:24,000
Approximate Scale in Feet
1 inch equals 2,000 feet
2,000 0 2,000 4,000

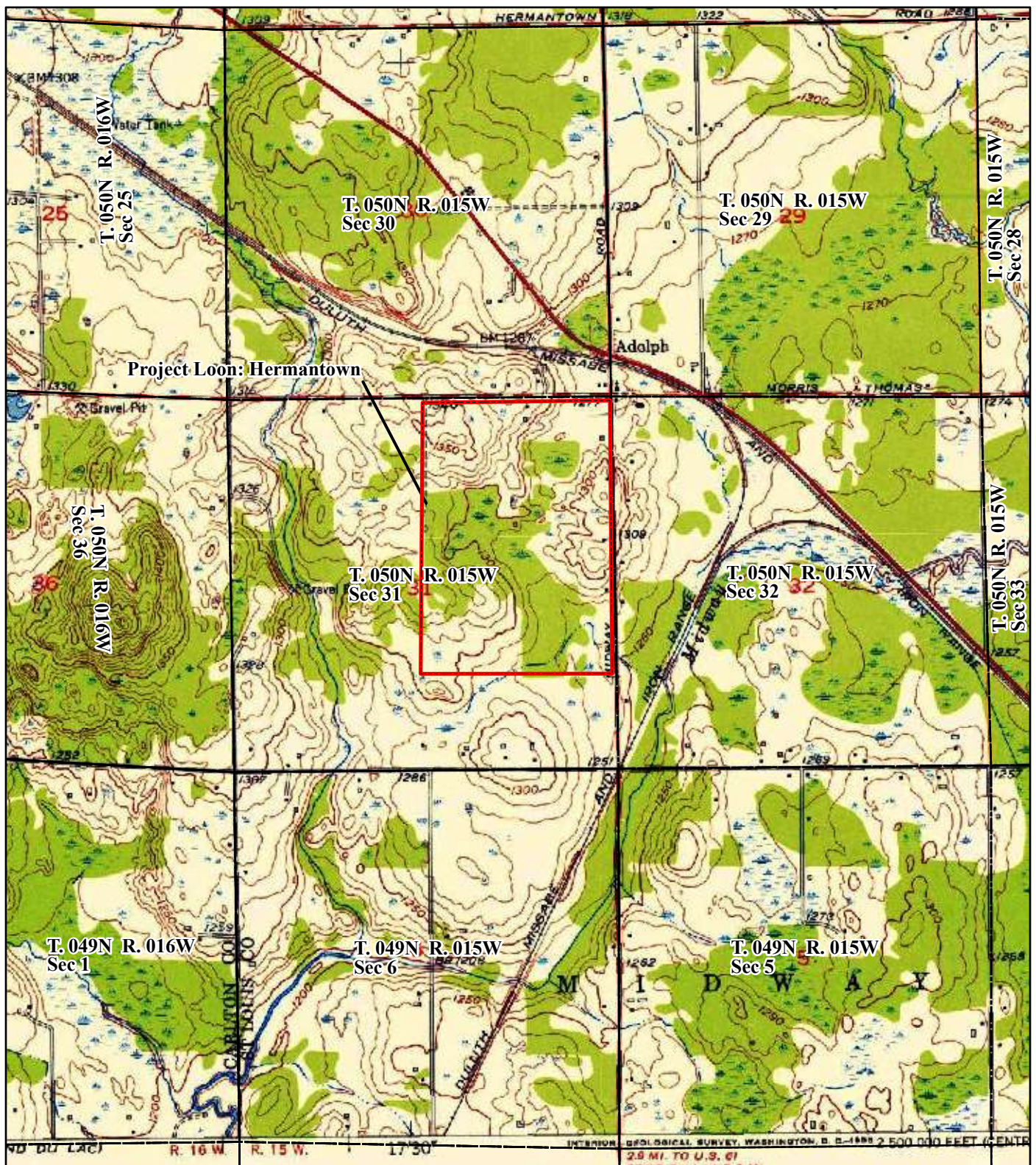
HISTORICAL BLM GLO PLAT MAP

Project Loon: Hermantown
St. Louis County, Minnesota

Note: Imagery courtesy of the U.S. Department of the Interior Bureau of Land Management.

Figure 5. Project location on the 1857-71 BLM GLO Plat map.





Legend

- Project Area
- Township/Range/Section



1:24,000
Approximate Scale in Feet
1 inch equals 2,000 feet
2,000 0 2,000 4,000

HISTORICAL TOPOGRAPHIC MAP

Project Loon: Hermantown
St. Louis County, Minnesota

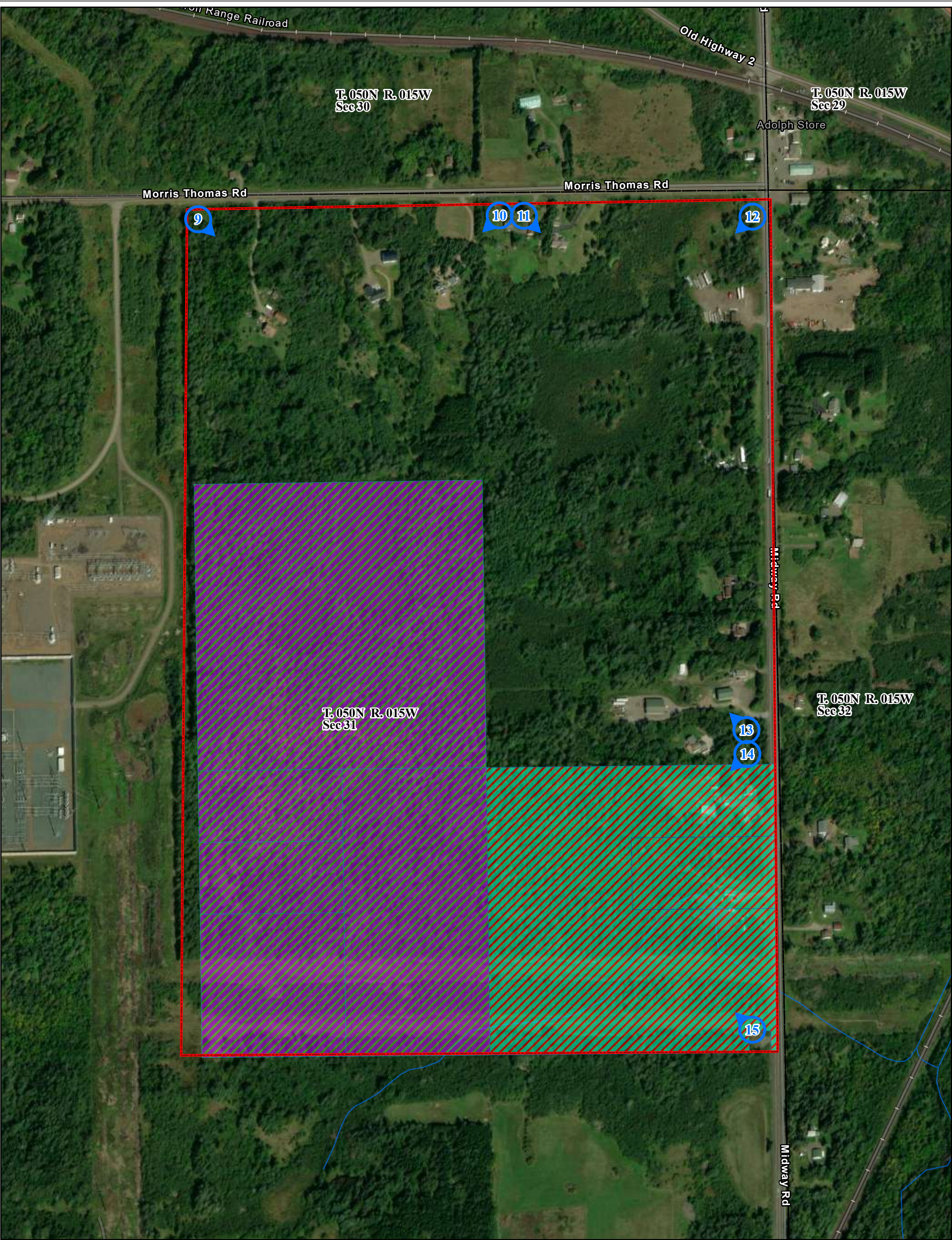
Note: Imagery courtesy of the USGS.

Figure 6. Project location on the 1953
Adolph, MN 24,000 series
topographic map.



Figure 7: Project location on an aerial map showing areas of resource potential.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]



Paitrick Parcels

Umpierre Parcels

Project Area

Township/Range/Section

Stream/River

Waterbody

Photographic Orientation

N
W
E
S

4170417

Feet

1:5,0001 inch equals 417 feet

FIELDWORK MAP

Project Loon: Hermantown

St. Louis County, Minnesota

Note: Aerial Imagery courtesy of ESRI

Figure 8. Project location on an aerial map showing photograph locations and orientation.



Figure 9: Overview facing southeast within the project area (DSCN6287).



Figure 10: Overview facing southwest within the project area (DSCN6290).



Figure 11: Overview facing southeast within the project area (DSCN6293).



Figure 12: Overview facing southwest within the project area (DSCN6297).



Figure 13: Overview facing northwest within the project area (DSCN6301).



Figure 14: Overview facing southwest within the project area (DSCN6303).



Figure 15: Overview facing northwest within the project area (DSCN6306).

***Phase I Archaeological Survey for
Project Loon—Hermantown,
St. Louis County, Minnesota
[Public Version]***



Phase I Archaeological Survey for Project Loon—Hermantown, St. Louis County, Minnesota [Public Version]

Prepared by:
In Situ Archaeological Consulting, LLC



In Situ Project: 2024-275

Prepared for:
Kimley-Horn and Associates
Mortenson Development, Inc.

THIS REPORT HAS BEEN REDACTED FOR PUBLIC DISSEMINATION: Information relating to the nature and location of archaeological sites has been withheld from this public version of the report, as such information is considered private and confidential and not for public disclosure in accordance with Section 304 of the National Historic Preservation Act (54 U.S.C. § 307103); 36 CFR Part 800.6 (a)(5) of the Advisory Council on Historic Preservation's rules implementing Sections 106 and 110 of the Act; Section 9(a) of the Archaeological Resource Protection Act (54 U.S.C. § 100707); 43 CFR Part 10 of the Native American Graves Protection and Repatriation Act (25 U.S.C. §§ 3001-3013); Minnesota Field Archaeology Act (MS 138.31-138.42); Minnesota Historic Sites Act (MS 138.661-138.669); and Minnesota Private Cemeteries Act (MS 307.08), where applicable.

January 15, 2026

ABSTRACT

Kimley-Horn commissioned In Situ Archaeological Consulting, LLC (In Situ) to provide archaeological services in support of Project Loon—Hermantown (Project). This report presents the results of the intensive Phase I archaeological investigation conducted by In Situ for the Project.

The Project consists of the development of an approximate 283.2-acre area. Within the 283.2-acre Project area that may be subject to development, approximately 75.3 acres were subject to targeted Phase I archaeological survey for the Project. Currently, the Project is not subject to federal cultural resources review, as no federal funding, permits, or approvals are anticipated and therefore no federal nexus exists. However, this Phase I archaeological report is being prepared in support of an Alternative Urban Areawide Review (AUAR), which is a state-level environmental review conducted under Minnesota rules to evaluate potential impacts of future development scenarios.

The Project is located in Section 31 of Township (T) 50 North (N), Range (R) 15 West (W) in St. Louis County, Minnesota. The Project area is located on privately owned land within 26 parcels in the southwest corner of the city limits of Hermantown, Minnesota. The Project is located west of Midway Road and south of Morris Thomas Road West, within an area consisting of short, manicured grasses, mixed grasses, wooded areas, wetland areas, and rural infrastructure (roads, utilities, etc.). The Phase I archaeological survey included a background literature review within and surrounding the Project area along with a preliminary archaeological reconnaissance of the Project area, and a targeted Phase I archaeological survey for the proposed Project.

During the field survey, a total of 75.3 acres of the 283.2-acre Project area were subject to targeted Phase I archaeological survey for the Project. Due to the environmental conditions (e.g. not near permanent water sources or known cultural resources), the remaining 207.9 acres of the Project area have a low archaeological potential. Therefore, no Phase I archaeological survey took place within these areas, as there is a low potential for the undertaking to impact cultural resources in these areas. It is the professional recommendation of In Situ that the undertaking is not expected to affect historic properties within these areas of low archaeological potential.

Five newly recorded post-contact archaeological sites were observed and recorded during the archaeological survey of the Project (21SL1302, IS-LOON-002, IS-LOON-003, IS-LOON-004, and IS-LOON-005). All five of the newly recorded archaeological sites are recommended as *not eligible* for the NRHP. In addition, no previously identified resources are within or adjacent to the proposed Project area. Therefore, In Situ recommends a finding of *No Historic Properties Affected* within the surveyed Project area.

Although no historic properties were identified, In Situ recommends the development and implementation of an Inadvertent Discovery Plan to be in effect during all ground-disturbing construction activities associated with the Project. In addition, In Situ recommends that the Project developer continue consultation with Tribes that have expressed interest in, or have cultural affiliation with, the Project area throughout the remainder of the Project. Continued consultation is recommended to ensure that Tribal concerns are addressed during project implementation and that Tribes are notified in a timely manner of any unanticipated discoveries, particularly those of potential cultural or religious significance.

If the agencies concur with these findings and recommendations, and provided that the Inadvertent Discovery Plan is implemented and Tribal consultation continues as appropriate, In Situ recommends a determination of *No Further Archaeological Work* for the Project.

TABLE OF CONTENTS

ABSTRACT.....	I
INTRODUCTION.....	1
ENVIRONMENTAL AND GEOMORPHOLOGICAL CONTEXT	3
ECOLOGICAL SETTING.....	3
CLIMATE.....	3
PHYSIOGRAPHY AND HYDROLOGY	3
GEOLOGY.....	4
SOILS	4
CULTURAL CONTEXT	7
MINNESOTA ARCHAEOLOGICAL REGION.....	7
PRE-CONTACT (PRE-AD 1630).....	7
<i>Paleoindian Period (11,500–7,500 BC)</i>	7
<i>Archaic Period (10,500–500 BC)</i>	8
<i>Woodland Period (1,000 BC–AD 1750)</i>	11
<i>Historically Documented Native American Tribes</i>	13
POST-CONTACT (POST-AD 1630).....	15
<i>Contact Period (AD 1630–1837)</i>	15
<i>Post-Contact Period (Post-AD 1837)</i>	16
<i>St. Louis County</i>	17
RESEARCH DESIGN AND METHODOLOGY	18
LITERATURE REVIEW	18
PRELIMINARY ARCHAEOLOGICAL RECONNAISSANCE FIELD METHODS	18
PHASE I ARCHAEOLOGICAL INVESTIGATION	19
<i>Visual Inspection</i>	20
<i>Pedestrian Survey</i>	20
<i>Shovel Testing</i>	20
SITE EVALUATION CRITERIA.....	21
ARTIFACT ANALYSIS AND CURATION	21
RESULTS	22
BACKGROUND RESEARCH	22
<i>Previous Cultural Resource Inventories/Surveys</i>	24
<i>Previously Recorded Archaeological Sites</i>	24
<i>Previously Recorded Architectural Resources</i>	25
<i>Additional Records Review</i>	25
<i>Archaeological Potential</i>	26
PHASE I ARCHAEOLOGICAL SURVEY RESULTS.....	27
<i>Preliminary Archaeological Reconnaissance</i>	27
<i>Phase I Archaeological Survey</i>	27
<i>Shovel Testing</i>	28
CULTURAL RESOURCES.....	29
<i>Newly Recorded Archaeological Resources</i>	29
<i>Notable Items</i>	35
<i>Summary of Cultural Resources</i>	35

MANAGEMENT RECOMMENDATIONS	37
REFERENCES CITED	38
FIGURES	44

LIST OF TABLES

<u>Table</u>	<u>Page</u>
Table 1: Summary of Soil Series within the Project Area.	4
Table 2: Resources Consulted During the Literature and Records Review.	22
Table 3: Previous Cultural Resource Inventories/Surveys within the Study Area.	24
Table 4: Previously Recorded Archaeological Sites within the Study Area.	25
Table 5: Previously Recorded Architectural Resources within the Study Area.	25

LIST OF FIGURES

<u>Figure</u>	
1:	Project location on the USGS 1993 <i>Adolph, MN</i> 7.5 minute series topographic map.
2:	Project location on an aerial map.
3:	Topographic map with previous cultural resources surveys and previously recorded sites.
4:	Aerial map with previous cultural resources surveys and previously recorded sites.
5A:	Project location on the 1857 BLM GLO map.
5B:	Project location on the historical Trygg map published in 1966.
5C:	Project location on a 1915 plat map of the south part of St. Louis County.
5D:	Project location on a 1916 plat map.
5E:	Project location on the 1953 <i>Adolph, MN</i> 24,000 series topographic map.
5F:	Project location on 1939 aerial imagery.
5G:	Project location on 1961 aerial imagery.
5H:	Project location on 1981 aerial imagery.
6:	Political map showing mapbook layout for the fieldwork maps of the Project indicating the results of testing and photo orientations.
7:	Aerial mapbook showing the Project indicating the results of testing and photo orientations.
8-109:	Overview photographs of the Project area.
110A-G:	Typical conditions within the Project area.
111A:	A typical shovel test unit excavated within the Project area.
111B:	View of glacial till from shovel testing units.
112:	A typical hydric shovel test unit excavated within the Project area.
113:	A typical disturbed shovel test unit excavated within the Project area.
114-127:	21SL1302 maps and photographs.
128-135:	IS-LOON-002 maps and photographs.
136-143:	IS-LOON-003 maps and photographs.
144-150:	IS-LOON-004 maps and photographs.
151-156:	IS-LOON-005 maps and photographs.
157:	Rock pile maps and photographs.

INTRODUCTION

Kimley-Horn commissioned In Situ Archaeological Consulting, LLC (In Situ) to provide archaeological services in support of Project Loon—Hermantown (Project). This report presents the results of the intensive Phase I archaeological investigation conducted by In Situ for the Project.

The Project consists of the development of an approximate 283.2-acre area. Within the 283.2-acre Project area that may be subject to development, approximately 75.3 acres were subject to targeted Phase I archaeological survey for the Project. Currently, the Project is not subject to federal cultural resources review, as no federal funding, permits, or approvals are anticipated and therefore no federal nexus exists. However, this Phase I archaeological report is being prepared in support of an Alternative Urban Areawide Review (AUAR), which is a state-level environmental review conducted under Minnesota rules to evaluate potential impacts of future development scenarios.

The Project is located in Section 31 of Township (T) 50 North (N), Range (R) 15 West (W) in St. Louis County, Minnesota (Figure 1). The Project area is located on privately owned land within 26 parcels in the southwest corner of the city limits of Hermantown, Minnesota. The Project is located west of Midway Road and south of Morris Thomas Road West, within an area consisting of short, manicured grasses, mixed grasses, wooded areas, wetland areas, and rural infrastructure (roads, utilities, etc.) (Figure 2).

The Phase I archaeological survey included a background literature review within and surrounding the Project area along with a preliminary archaeological reconnaissance of the Project area, and a targeted Phase I archaeological survey for the proposed Project. The literature review was conducted on November 1, 2024, June 19, 2025, September 17, 2025, and September 30, 2025, and a preliminary archaeological reconnaissance was conducted on November 4, 2024 (In Situ 2025). The Phase I archaeological survey was conducted on the following dates:

- | | | | |
|-----------------|-------------------|----------------------|----------------------|
| • July 24, 2025 | • August 1, 2025 | • August 12, 2025 | • September 24, 2025 |
| • July 25, 2025 | • August 5, 2025 | • August 13, 2025 | • September 25, 2025 |
| • July 28, 2025 | • August 6, 2025 | • August 14, 2025 | |
| • July 29, 2025 | • August 7, 2025 | • August 15, 2025 | |
| • July 30, 2025 | • August 8, 2025 | • September 22, 2025 | |
| • July 31, 2025 | • August 11, 2025 | • September 23, 2025 | |

During the field survey, a total of 75.3 acres of the 283.2-acre Project area were subject to targeted Phase I archaeological survey for the Project. The archaeological survey was conducted under the direction of an In Situ Principal Investigator who meets the Secretary of the Interior's Professional Qualification Standards for Archaeology. Fieldwork was completed by the field crew consisting of archaeologists from In Situ. The targeted survey of the Project area was coordinated with the Cultural Resources Project Manager and the Tribal Historic Preservation Officer from the Fond du Lac Band of Lake Superior Chippewa. Additionally, when available, Cultural Monitors from the Fond du Lac Band of Lake Superior Chippewa were present during the targeted field survey of the Project area. Following the completion of the targeted survey, the results were shared and discussed with the Cultural Resources Project Manager and the Tribal Historic Preservation Officer from the Fond du Lac Band of Lake Superior Chippewa. Literature review data and report figures were compiled and completed by In Situ staff. All field notes and photographs are maintained on file at In Situ's office located in Eden Prairie, Minnesota.

Detailed site location information, including legal descriptions, coordinates, and contextual information from archaeological resources, has been redacted from this public version of the report in accordance with applicable cultural resource protection laws in order to protect archaeological resources. General site descriptions and environmental context are retained. In addition, the names and other identifying information of individuals involved in the Project have been redacted from the public version of the report to protect personal privacy and to reduce the risk of unauthorized access to sensitive cultural resource information. Full Project documentation, including professional qualifications, field staff, and authorship, is on file with the appropriate reviewing agencies.

ENVIRONMENTAL AND GEOMORPHOLOGICAL CONTEXT

At the time of survey, the topography of the Project area consisted of fairly flat to sloping terrain. Vegetation consisted of mixed grasses, forest vegetation, and wetland vegetation. Impacts include natural erosion and residential development (house, outbuildings, driveways and trails, buried utilities, etc.).

ECOLOGICAL SETTING

The Project area is located within the Northern Lakes and Forests (50) Level III ecoregion, and more specifically, the Toimi Drumlins (50p) Level IV ecoregion. The Toimi Drumlins region is defined as an “drumlins covered with forest, interspersed with wetland depressions” (U.S. Environmental Protection Agency 2007).

Prehistoric and historic vegetation within the region known as the Boreal Hardwood-Conifer Forest within the North Shore Highlands subsection consisted of aspen-birch forest, white pine-red pine forest, mixed hardwood-pine forest, and conifer bogs and swamps. Currently forest management and recreation are the primary land uses within the region (Minnesota Department of Natural Resources 1988; 2025)

Hundreds of wildlife species are resident or seasonal visitors to the region along with hundreds of native fish species which live in the surrounding rivers and tributaries. Some of the fauna that would have been common and available for historic and prehistoric human use in the Minnesota region include white-tail deer, black bear, elk, opossum, raccoon, cottontail rabbit, squirrel, gray fox, bobcat, mountain lion, wolf, mink, otter, beaver, muskrat, and woodchuck (Gibbon 2012).

CLIMATE

The climate of Minnesota is a continental-type climate that is marked by seasonal variations. The average annual temperatures in Minnesota range from 36 degrees Fahrenheit (°F) in the extreme north to 49°F in the southeastern corner. The average winter temperature is 17 °F and the average summer temperature is 70°F (National Climatic Data Center 2017). St. Louis County has a continental climate with warm summers and cold winters (Minnesota Department of Natural Resources 2025).

PHYSIOGRAPHY AND HYDROLOGY

The physiography of the Project area is located within the Brainerd-Automba Drumlin Area. This area is characterized by marked drumlin fields including the Pierz, the Brainerd, and the Mille Lacs Lake areas. The entire region is interrupted by outwash plains in some places, the largest being the Mississippi River valley train, which enlarges into a complex of pitted plains north of Brainerd (Wright 1972). The highest elevation in the area is about 2,301 ft. above sea level (Minnesota Department of Natural Resources 2025).

The major drainages in the surrounding region are the Mississippi River to the west, Lake Superior to the east, and water draining to the north eventually goes into Hudson Bay. There are several lakes and unnamed draws and creeks throughout the area (Minnesota Department of Natural Resources 2025). The proposed Project area has several wetlands within it. The nearest named

waterbody is the Midway River which is located approximately 0.14 miles east of the Project area, there is also an unnamed perennial stream located approximately 0.1 miles west of the Project area.

GEOLOGY

The geology of the Project area is characterized by the Duluth Complex; Troctolitic and gabbroic cumulate rocks, dating to the Middle Proterozoic. The Duluth Complex; Troctolitic and gabbroic cumulate rocks is made up of troctolitic and gabbroic cumulate rocks and “Constitute at least nine named and several unnamed intrusions” (Morey and Meints 2000).

SOILS

Ten specific soil series are present in the Project area, with the most prevalent soil series consisting of Normanna-Canosia-Hermantown complex (F137B) (Natural Resources Conservation Service 2025; UC Davis 2025). Much of the Project is located in an upland setting with minimal to no potential soil depositional processes present, while other portions are located within low-lying areas with marshland present, which may be subject to frequent flooding. Within upland areas, and/or areas with minimal to no deposition, archaeological material, ranging from as early as the Paleoindian Period to present, are typically located at the ground surface or are shallowly buried (Hudak et al. 2002; Johnson 1993; Michlovic 2025; Running 1995). The soil profiles for the soil series within the Project area revealed that there are no buried soils (UC Davis 2025). Table 1 summarizes the soils within the Project area.

Table 1: Summary of Soil Series within the Project Area.

Soil Series	Parent Material	Drainage	Slope	Landform	Extent of Area	Buried Soils
F33A: Cathro muck, depression, dense substratum	Organic material over dense loamy till	Very poorly drained	0-1%	Swamps on interdrumlins, swamps on moraines	3.5%	N
F111B: Augustana-Hegberg complex	Loamy and/or silty material over friable loamy till over dense loamy till	Augustana: Moderately well drained Hedberg: Somewhat poorly drained	Augustana: 3-8% Hedberg: 1-3%	Moraines	0.1%	N

Table 1: Summary of Soil Series within the Project Area.

Soil Series	Parent Material	Drainage	Slope	Landform	Extent of Area	Buried Soils
F135A: Hermantown- Canosia- Giese, depressional, complex	Loamy material over dense loamy till	Hermantown: Somewhat poorly drained Canosia: Poorly drained Giese, depressional: Very poorly drained	Hermantown: 1-3% Canosia: 0- 2% Giese, depressional: 0-1%	Hermantown: Flats on moraines, rises on moraines Canosia: Depressions on moraines, flats on moraines Giese, depressional: Depressions on moraines	19.6%	N
F136A: Hermantown silt loam	Loamy material over dense loamy till	Somewhat poorly drained	1-3%	Flats on moraines, rises on moraines	1.8%	N
F137B: Normanna- Canosia- Hermantown complex	Loamy material over dense loamy till	Normanna: Moderately well drained Canosia: Poorly drained Hermantown: Somewhat poorly drained	Normanna: 3-8% Canosia: 0- 2% Hermantown: 1-3%	Normanna: Moraines Canosia: Depressions on moraines, flats on moraines Hermantown: Flats on moraines, rises on moraines	46.0%	N
F138D: Ahmeek- Normanna- Canosia complex	Coarse-loamy ablation till over dense coarse-loamy lodgment till	Ahmeek: Well drained Normanna: Moderately well drained Canosia: Poorly drained	Ahmeek: 8- 18% Normanna: 3-8% Canosia: 0- 2%	Moraines	9.2%	N
F142A: Canosia loam	Loamy till over dense loamy till	Poorly drained	0-2%	Flats on moraines	1.1%	N
F143B: Normanna- Aldenlake- Canosia complex	Normanna and Canosia: Loamy material over dense loamy till Aldenlake: Loamy material over gravelly outwash	Normanna: Moderately well drained Aldenlake: Well drained Canosia: Poorly drained	Normanna: 3-8% Aldenlake: 0- 8% Canosia: 0- 2%	Moraines	3.1%	N

Table 1: Summary of Soil Series within the Project Area.

Soil Series	Parent Material	Drainage	Slope	Landform	Extent of Area	Buried Soils
F144D: Aldenlake-Ahmeek complex	Aldenlake: Loamy material over gravelly outwash Ahmeek: Loamy material over dense loamy till	Well drained	8-18%	Moraines	10.5%	N
F151A: Tacoosh mucky peat, dense substratum	Organic material over loamy material over dense loamy till	Very poorly drained	0-1%	Swamps on interdrumlins, swamps on moraines	5.1%	N

CULTURAL CONTEXT

The purpose of a Phase I survey is to identify and locate cultural resources within and near the proposed undertaking and assess if the undertaking will have any potential impact on significant cultural resources. A component of this is to complete a cultural context in relation to the Project area and surrounding region. For the purposes of a Phase I survey, the following narrative presents a regionalized, condensed, and generalized pre-contact, contact, and post-contact cultural overviews based on multiple resources specific to Minnesota and the region to provide a context of potential archaeological and cultural resources that may be encountered within the Project area.

MINNESOTA ARCHAEOLOGICAL REGION

The Project location is situated in St. Louis County, Minnesota and within Archaeological Region 5 – Central Lakes Coniferous (Anfinson 1990; Gibbon 2012; Gibbon et al. 2002; Hobbs 2019). The Central Lakes Coniferous region contains portions of Aitkin, Beltrami, Carlton, Cass, Clearwater, Crow Wing, Hubbard, Itasca, Kanabec, Koochiching, Lake, and St. Louis counties. The topography of the Central Lakes Coniferous region consists of hilly terminal moraines through the center of the region with a variety of less rugged terrain of glacial origin covering the remaining areas of the region (i.e., ground moraines, outwash plains, and lake plains). The Mississippi River traverses much of the region, flowing through or near several large lakes as it comes closer to its source in Clearwater County. The route of the Mississippi River has changed significantly over the last 12,000 years. By the Woodland Period (1,000 BC-AD 1750), it followed what is essentially its modern-day path. The western area of the region drains into the Red River of the North, the northeast area of the region drains into Lake Superior, and the rivers in the southeast area of the region drain into the St. Croix River. The lakes within the Central Lakes Coniferous region are quite deep and are densely distributed throughout the region, however one area, the Glacial Lakes Upham-Aitkin plain, lacks this dense distribution of lakes (Anfinson 1990; Gibbon 2012; Gibbon et al. 2002; Hobbs 2019).

During the contact period (1630-1837), the Central Lakes Coniferous region was dominated by pine forests consisting of white pine, jack pine, and red pine with significant inclusions of elm, maple, basswood, ash, oak, aspen, and birch. In the southeast area of the region, peat bog vegetation is the dominant vegetation. Wild rice was a very important floral resource in the region. The major faunal resources within this region were deer, beaver, moose, and black bear. Waterfowl was seasonally available within the lakes and rivers (Anfinson 1990; Gibbon 2012; Gibbon et al. 2002; Hobbs 2019).

PRE-CONTACT (PRE-AD 1630)

Paleoindian Period (11,500–7,500 BC)

The Paleoindian Period in North America dates between approximately 11,500–7,500 BC. This is the period in which the first human populations came to North America and the last retreat of the Wisconsin glacial period. The defining characteristics of the Paleoindians were:

- the extensive use of exotic cherts,
- specialized lithic technologies,
- small and extremely mobile societies, and

- the primary subsistence on large game mammals (J. Morrow 1996; Schermer et al. 1995).

During this period, the environment in Minnesota continually changed from an “open boreal coniferous forest dominated by grasses and scattered conifer trees” (Gibbon 2012:38) to open prairie in the southwest, deciduous forest in center-southeast, and coniferous forest in the north.

Early Paleoindian Period (11,500 – 10,500 BC)

The main characteristics that distinguish the Early Paleoindian Period from the Late Paleoindian Period are the use of fluted lanceolate points and subsistence on large-extinct animals including mammoths, mastodons, and giant bison varieties (Gibbon 2012; J. Morrow 1996; Schermer et al. 1995). As of 2012, only about seventy-three points, and possibly a scraper and drill have been identified within Minnesota (Gibbon 2012).

The lithic technology of the Early Paleoindian Period is characterized by fluted lanceolate points. The fluted styles found in Minnesota include Clovis, Gainey, Folsom, and Holcombe Points (T. Morrow 2016). Fluting is the removal of a flake from the base of the projectile. The earliest known point type in North America is the Clovis, which dates in Minnesota from circa 9,350 to 8,650 BC (T. Morrow 2016). Clovis points are broad, thin, well-made lanceolate points with concave bases and basal flutes that extend one-half to one-fifth the length of the point. Folsom is the second oldest recorded lithic technology and overlaps with Clovis, dating in Minnesota from circa 8,800 to 8,200 BC (J. Morrow 1996; T. Morrow 2016; Schermer et al. 1995). Folsom are “thin, finely made, medium sized lanceolate points with a flattened to bi-concave cross section, parallel to convex sides, and broad flutes that cover at least 60 percent of each face” (T. Morrow 2016:128). Gainey points are fluted points that have a “lanceolate outline, deep and rounded basal concavities, and well-defined primary flutes” (T. Morrow 2016:124). Holcombe points are “small, thin lanceolate points with shallow concavities with broadly convex sides and high midpoint above the center” (T. Morrow 2016:132).

Late Paleoindian Period (10,500–7,500 BC)

The Late Paleoindian Period is characterized by the disappearance of fluted lanceolate styles and replaced with non-fluted lanceolate point types. Stemmed points, some heavy stone tools, and the use of Hixton quartzite from western Wisconsin are also characteristics of the Late Paleoindian period in Minnesota (Gibbon 2012). The majority of Late Paleoindian artifacts have been found as surface finds in plowed fields, which have been removed from their original context. This makes any inferences between the associations between the artifacts of this period difficult. The point types found in Minnesota from this period are Agate Basin, Alberta, Angostura, Browns Valley, Eden, Frederick, Hell Gap, Midland, Plainview, and Scottsbluff. These artifacts tend to be well made with high-quality craftsmanship (Gibbon 2012; T. Morrow 2016).

Archaic Period (10,500–500 BC)

The Archaic Period within Minnesota dates between 10,500–500 BC. Within Minnesota, the Early Archaic Period coexisted with the Late Paleoindian Period with little definable timeframe. The Archaic Period in Minnesota is characterized by the:

- expansion of a subsistence strategy that relied on a variety of modern game fauna (deer, moose, bison, rabbits, beavers, birds, and fish) and wild flora resources,
- absence of pottery manufacturing,

- appearance of a variety of notched and stemmed projectile points,
- emergence of pecked and groundstone tools, and
- appearance of native copper artifacts, and some exotic materials such as marine shell (Florin et al. 2016; Gibbon 2012; Stoltman 1997).

During this period, the climate was continuously changing toward a warm and dry climate, a change known as the Altithermal. The dry and hot weather continued for approximately 1,000 years before changing to a cooler, wetter climate that led to a more modern ecology by 3,000 BC (Florin et al. 2016). Deciduous forests dominated the southern area of Minnesota while pine forests replaced the boreal spruce forests in the north. By 8,000 BC, the tallgrass prairie had spread from west to east across the state, pushing the forests east and then receding back to its present position (Gibbon 2012).

Early Archaic Period (10,500–5,500 BC)

Within Minnesota, the Early Archaic Period is separated between the Early Plains Archaic and Early Eastern Archaic, which were contemporaneous with the Late Paleoindian Period. The Eastern Archaic describes the Archaic complexes that derived from the eastern forests and the Plains Archaic describes the Archaic Complexes that derived from the western plains. The main differences between the Early Eastern Archaic and the Early Plains Archaic are that the Eastern Archaic started earlier than the Plains Archaic and differed in foraging and hunting practices. The Early Archaic was a transitional period for cultures, less reliance upon large game mammals to more reliance upon foraging subsistence (T. Morrow 1996; Schermer et al. 1995).

The Early Eastern Archaic points are notched or stemmed styles such as Dalton, Hi-Lo, Quad, Thebes, St. Charles, Graham Cave Side Notched, and Kirk Corners Notched points. The most common diagnostic point from the Early Plains Archaic is Simonsen points (Florin et al. 2016; Gibbon 2012). These points are often associated with sparse scatters of non-diagnostic artifacts like scrapers, blades, and point blanks. As with the Paleoindian Period, it is likely that organic artifacts like wooden artifacts, cords/textiles, and bone tools have not lasted to modern times (Florin et al. 2016; Gibbon 2012).

Middle Archaic Period (7,500–3,000 BC)

The Middle Archaic Period dates approximately between 7,500–3,000 BC. The driest and warmest post-glacial period, the Altithermal, occurred during this period. Due to large climatic changes during this period, many sites may have either been buried or eroded away. The lithic technology of the Middle Archaic is characterized by a wide range of medium sized stemmed and notched projectile point types. The projectile points of the Middle Archaic tend to be smaller and poorly made compared to Early Archaic Period and Late Paleoindian Period points. This may have been due to an emphasis on using and possibly heat-treating poor quality local lithic resource material rather than using higher quality, exotic lithic materials (Florin et al. 2016; Gibbon et al. 2002; Picka 2012).

Middle Archaic points are smaller than Paleoindian points, with side notches and beveled, re-sharpened edges. These edges seem to be used for both penetration and cutting. Also, the points were used as projectile points for atlatl darts, which first appeared during the Archaic Period. The

site types from this period in Minnesota include base camps, short-term camps, kill sites, lithic scatters, burials, quarries, and workshops (Gibbon 2012).

The points of the Middle Archaic are divided into two broad categories, the Plains and the Eastern Woodlands. Projectile point types found in the Eastern Woodlands include LeCroy Bifurcated Stemmed, Fox Valley Truncated Barb, Osceola, Raddatz Side Notched, Eva I, Morrow Mountain I and II, Matanzas Side Notched, Etley, Benton Stemmed, and Elk River Stemmed. The point types found in the Plains are Simonsen, Graham Cave Side Notched, Oxbow, McKean, and Table Rock Stemmed. During this period, ground stone tool technology appears such as grooved stone axes, boatstones, bannerstones, and gorgets (Florin et al. 2016, Gibbon 2012; T. Morrow 1996; Schermer et al. 1995).

Late Archaic Period (3,000–500 BC)

The Late Archaic Period in Minnesota, dating between 3,000–500 BC, is characterized by the appearance of different sets of diagnostic points styles; presence of exotic, raw materials (e.g., native copper and marine shell); appearance of “unusual” artifacts including birdstones, gorgets, and Turkey Tail bifaces; presence of communal burial sites; lack of ceramics; and an increasingly modern Late Holocene environment (Gibbon 2012:78).

During the Late Archaic, intergroup interactions increased due to an increase in population growth. This increase in population and group interactions created similar subsistence strategies over large areas, which in turn increased each group’s territory size, and increased the number of local, distinctive artifact styles. Trade networks were also developed and established between different communities. The Altithermal ended during this period, causing increased resource stability in areas that were previously uninhabitable by humans. A more sedentary lifeway was practiced, as evident with the construction of large communal cemeteries, increases in wild rice harvesting, and the use of gardens that included sunflower, amaranth, and squash (Gibbon 2012; Schermer et al. 1995).

The point types from the Late Archaic are divided into five regional areas: Upper Mississippi River Valley, Northeast, Central Mississippi River Valley, Northern Plains, and Southeast. The Upper Mississippi River Valley consists of the Large Side Notched Cluster (Godar, Madison Side Notched, Osceola, and Raddatz Side Notched), Durst Cluster (Durst Stemmed) Late Archaic Stemmed Cluster (Karnak Stemmed), Turkey Tail Cluster (Turkey Tail), Terminal Archaic Barbed Cluster (Delhi and Buck Creek Barbed), Early Woodland Straight Stemmed Cluster (Fox Valley Stemmed, Kramer, Robbins), and Motley Expanding Stem Cluster (Motley, Atalissa, and Tipton). The Northeast consists of the Matanza Cluster (Matanzas Side Notched and Brewerton Eared Notched). The Central Mississippi River Valley consists of the Table Rock Cluster (Table Rock Stemmed) Etley Cluster (Etley), Nebo Hill Cluster (Nebo Hill Lanceolate, and Sedalia Lanceolate), and Wadlow Cluster (Wadlow). The Northern Plains consists of the McKean Cluster (McKean, Duncan, and Hanna), and the Oxbow Cluster (Oxbow). The Southeast consists of the Eva Cluster (Eva II), Benton Cluster (Benton Stemmed and Elk River Stemmed), Ledbetter Cluster (Ledbetter stemmed), and Dickson Contracting Stemmed Cluster (Gary and Little Bear Creek) (Gibbon 2012; T. Morrow 2016).

Woodland Period (1,000 BC–AD 1750)

The timeframe for the Woodland Period in Minnesota varies. In southeastern Minnesota, this period dates to between 500 BC–AD 1650. In central and northern Minnesota, the Woodland Period dates to between 1,000 BC–AD 1750. During this period, the environment stabilized and allowed for the development of greater regional variations (Gibbon 2012).

The two main characteristics of the Woodland Period in Minnesota are the appearances of pottery and earthen burial mounds (Johnson 1988). The appearance of these two cultural developments may suggest an increase in social complexity. Hunting and gathering continues within the Woodland Period with the “intensification of food resource activities initiated in the Late Archaic period” (Gibbon 2012:93). However, there is an increasing reliance on domesticated plants and wild rice, which indicates an increase in population growth and sedentism (Johnson 1988; Radford et al. 2015).

Initial Woodland Period in Central and Northern Minnesota (1,000 BC–AD 500)

The Initial Woodland Period in central and northern Minnesota dates between 1,000 BC–AD 500. This period is defined by the appearance of the first ceramic vessels. The earliest ceramics and burial mounds found in central and northern Minnesota are usually connected with either the Brainerd or the Laurel complexes. These complexes are described below.

Brainerd Complex

The Brainerd Complex is identified by Brainerd ceramics, which have net impressions or horizontal cord marking as exterior surface treatment. Brainerd ceramics have been found from north-central Minnesota, up to Lake Winnipeg and west into Montana. This complex could have indicated the earliest ceramics in central and northern Minnesota. Brainerd ceramics have open orifices, vertical rims, with conical or subconical bases, flat lips, and tempered with sand or grit. The dating for Brainerd ceramics has been a complicated matter, with the radiocarbon dating between 1,430 BC to AD 535. However, these radiocarbon dates could have been contaminated with “old carbon” from the regional water and even the clay used to make the ceramics. The lithics typically associated with the Brainerd Complex are Oxbow, Besant, Duncan/Hanna, McKean, and Pelican Lake points. Bone or antler tools have not been found in association with the Brainerd Complex. Also, hammerstone, utilized flakes, cores, small pieces of copper, and scrapers have been found with Brainerd ceramics (Arzigian 2008; Gibbon 2012).

Laurel Complex

The Laurel Complex is one of the most geographically extensive archaeological complexes in the Initial Woodland Period. It extends from western Quebec, northwestern Michigan, northwestern Wisconsin, and northern Ontario across northern Minnesota into southeastern and west-central Manitoba and east-central Saskatchewan. Laurel Complex roughly dates between 50 BC to AD 650/1000. Laurel ceramics are characterized by “the presence of relatively thick (average 6 mm, with a range of 3 to 8 mm), grit-tempered jars with conical bases, straight rims, slight to no neck constriction, smooth surfaces and stamped-tool decoration on the exterior rim, neck, and occasionally upper shoulder” (Gibbon 2012:123). Laurel ceramics are decorated with a variety of decorations including dentate stamping, incising, push-pull bands, pseudo-scallop shell stamps, bosses, and punctates. The complex is an adaptation to the northern forests and a hunting-gathering

lifeway that is focused on fish, moose, and beaver. There is also evidence of the diverse use of small and large game in the lake/forest region with bison on the prairie margin (Arzigian 2008).

The lithics typically associated with the Laurel Complex include end scrapers, large side-notched points, large corner-notched points, small side-notched points, and small-eared points and a wide range of knives, scrapers, and other chipped stone tools. There is a noticeable absence of ground stone tools in this region and period. Tools made from bone, antler, and teeth include conical bone projectile points, antler harpoons, cut beaver incisors, awls, bird-bone, tools, and ornaments from animal teeth and bone. Copper tools also appear with the Laurel Complex (Arzigian 2008; Gibbon 2012).

Terminal Woodland Period in Central and Northern Minnesota (AD 500–1750)

The Terminal Woodland Period in central and northern Minnesota dates from AD 500–1750. This period is characterized by major changes in ceramic and lithic technologies along with a major increase in the human population that had a gradually greater dependence on domesticated plants and a more sedentary lifeway. During this period, the harvesting of wild rice becomes widespread and intensive as a seasonal plant food in central and northern Minnesota (Gibbon 2012; Johnson 1988).

Early Terminal Woodland Period (AD 500–800)

The Early Terminal Woodland Period of northern and central Minnesota dates between AD 500–800. The Laurel Complex continued unchanged in northern Minnesota throughout the period. However, in central Minnesota, the St. Croix Complex appeared “from the northwestern corner of Wisconsin across eastern and central Minnesota into the Red River valley and on into adjacent areas of the Dakotas” (Gibbon 2012:181). This complex indicated a transition between Initial Woodland/Terminal Woodland. Currently, the St. Croix Complex’s most diagnostic traits are Onamia series ceramics and linear mounds (Arzigian 2008; Gibbon 2012).

Interestingly, mortuary traits found during this period consisted of linear and circular mounds, deep subsoil burial pits, flexed and disarticulated primary burials, bundled secondary burials frequent use of yellow and red ocher, associated utilitarian and ornamental grave goods dominated by bone and antler artifacts, Prairie Side Notched, and Broad side-notched projectile points, blade side scrapers made from Knife River Flint, and small mortuary vessels of St. Croix Stamped and Blackduck ceramic vessels (Arzigian 2008; Gibbon 2012).

Similar to the Early Terminal Woodland Period in southeastern Minnesota, the Early Terminal Woodland Period in central Minnesota is characterized by an increase of Native American populations, increase in the size and number of habitation sites, a trend to more sedentary lifeway, burial mounds become more abundant and widespread, small unnotched triangular arrow points replaced notched, stemmed dart points styles, ceramic vessels become thinner and more globular, and a dependence on a single plant food, which is wild rice in this region (Gibbon 2012).

Middle Terminal Woodland Period (AD 800–1300)

The Middle Terminal Woodland Period of northern and central Minnesota dates between AD 800–1300. The cultural complexes during this period have similar material culture and a subsistence-base that may have been heavily dependent on harvesting wild rice. The main cultural sequential

complex that occurs during this period is called by Gibbon (2012) the Blackduck-Kathio-Clam River Continuum. This describes the three spatially adjacent complexes that share many stylistic attributes. These complexes are the Blackduck complex, Kathio Complex, and the Clam River Complex. The Blackduck complex is found in the northern forests and prairie fringes of Minnesota near Headwaters and Rainy River region. The Kathio Complex is found along the southern boundary of the northwoods in east-central and central Minnesota. The Clam River Complex is found in the north woods of northwestern Wisconsin and the adjacent area of Minnesota (Arzigian 2008; Gibbon 2012).

The main differences between these ceramic complexes are the decorative motifs of the ceramics, where they are found, and perhaps a difference in subsistence emphasis. These ceramics are grit-tempered, cordmarked globular ceramic vessels with constricted necks, short outward flaring rims, and flat lips. The decoration on these ceramics tends to be confined to the upper area of the vessels including the interior rim, lip, and the exterior surface of the upper rim and neck. The techniques used to decorate these vessels include cordwrapped-stick stamping, comb stamping, various kinds of punctuations, and vertical brushing. The lithics that are typically associated with this period are Prairie Side-Notched, Plains Side-Notched, and unnotched and notched triangular points (Arzigian 2008; Gibbon 2012).

Late Terminal Woodland Period (AD 1300–1750)

The Late Terminal Woodland Period of northern and central Minnesota dates to between AD 1300–1750. The period extends into the historic period of Minnesota. The most important event in this period may be the abrupt appearance and gradual spread of the Psinomani Complex. Other important events include the reduction of Blackduck ceramics diffusing to the north, the spread of Oneota and Plains Village ceramic traits through central Minnesota, and the adoption of a truly Terminal Woodland lifeway (Gibbon 2012).

Psinomani Complex

The Psinomani Complex is characterized by the presence of Sandy Lake ceramics. Sandy Lake ceramics have a shell or mixed shell and grit temper. The surface treatment of the vessel exterior includes cordmarked, smooth, or stamped with grooved paddles. The decoration on Sandy Lake ceramics is rarely found. Ogechie ceramics, which are a northern Oneota ware, are present in small amounts in many Psinomani components. This complex may indicate interactions between neighboring peoples including Oneota farming communities to the south and east, and Plains Village peoples to the west. Site types found for this complex include semisedentary villages, wild rice harvesting, fish stations, and hunting and gathering sites. The mortuary practices of the Psinomani peoples include burying their dead in non-mound and mound contexts including intrusive burials, and both primary flexed and primary disarticulated burials. Currently, it is difficult to describe the lithic assemblage of the Psinomani Complex since few sites have been found. What has been found are small triangular points similar to other Terminal Woodland and Oneota occupations (Arzigian 2008; Gibbon 2012).

Historically Documented Native American Tribes

Disclaimer: The following discussion is written from a Euro-American perspective and may reflect inherent cultural and historical biases. Please note that the list of Native American tribes presented in this archaeological report is likely incomplete and may not represent the full diversity of peoples

who inhabited what is now southern Minnesota prior to the Contact Period (Post-AD 1630). The individual tribes mentioned in this section are those for whom the most substantial documentation exists following initial contact with Europeans or individuals of European descent.

Dakota

“Dakota” is a self-designated name meaning “ally.” The Dakota consists of 13 subdivisions of Siouan-speaking people (Dakota-Lakota-Nakota) that were all part of the *Oceti Sakowin*, or Seven Council Fires. This council of political divisions included the Mdewakanton, Wahpekute, Sisseton, Wahpeton, Yankton, Yanktonai, and Teton tribes. The Dakota originally lived in Wisconsin and north-central Minnesota before the Contact Period, however, they migrated to reside in the prairies and eastern plains of Minnesota, Iowa, Nebraska, and eastern South Dakota by the nineteenth century. The Dakota’s first contact with Europeans was with French traders and Jesuit missionaries in the 1650s. The Dakota were originally a migrational people relying on a hunting and gathering subsistence strategy. They hunted bison, deer, and waterfowl and fished using spears and nets. They also foraged for wild flora resources including fruit, acorns, nuts, wild rice, and maple sap. During the 19th century, the Dakota practiced horticulture but planted at irregular intervals. They planted corn, squash, beans, and tobacco. Their crop yields were small and would only last a few weeks (DeMallie 20001; Malinowski et al. 1998; Pritzker 2000). When the Dakota occupied the Wisconsin-Minnesota area, they formed small (occasionally palisaded) villages near lakes and rice swamps, living in large heavily timbered bark houses with pitched roofs. During winter, some groups would live in conical houses covered in skins, and the Sisseton group sometimes used tipis after moving to the prairies (Pritzker 2000).

The descendants of the Dakota people have continued to maintain tribal identity throughout the northern Great Plains. Modern Dakota-Lakota-Nakota communities include: the Fort Peck Reservation in Roosevelt, Sheridan, Valley Counties, Montana; the Devils Lake (formerly Fort Totten) Reservation in Benson, Eddy, Nelson, and Ramsey Counties, North Dakota; the Lake Traverse Reservation in Richland and Sargent counties, North Dakota and Cadington, Day, Grant, Marshall, and Roberts Counties, South Dakota; the Santee Sioux Reservation in Knox County, Nebraska; the Flandreau Santee Sioux Reservation in Mood County, South Dakota; the Lower Sioux Community, Redwood County, Minnesota; the Prairie Island Community, Goodhue County, Minnesota; the Upper Sioux Community in Yellow Medicine County, Minnesota; the Shakopee Mdewakanton Sioux Community in Scott County, Minnesota; and several communities in Saskatchewan, Canada (Pritzker 2000).

Ojibwe (Chippewa/Anishinaabe)

The Ojibwe, also known as the Chippewa, are an Algonquian-speaking people that inhabited areas north of Lake Huron and northeast Lake Superior in the early seventeenth century and moved to the Great Lakes and Hudson Bay area in the eighteenth century, with some groups stretching westward to the Missouri River. By the early nineteenth century, the Ojibwe had split into four general subareas. There were small groups of Ojibwe north and west of the Great Lakes who lived a hunter-fisher-gatherer lifestyle, a group of Plains Ojibwe (sometimes known as Bungi) who lived around southern Saskatchewan/Manitoba and North Dakota/Montana that lived a Great Plains lifestyle, a group of southeastern Ojibwe (sometimes known as the Mississauga) who lived in Michigan and Ontario who hunted, fished, gathered, and gardened, and finally a southwestern Ojibwe group that lived in northern Wisconsin and Minnesota, who heavily relied on wild rice as

well as hunting, fishing, gathering, and gardening (Pritzker 2000). The tribe's native and self-designated name is Anishinaabe, which means "first people" (Waldman 2006). The Ojibwe first had contact with Europeans when Frenchman Etienne Brul  explored the area in 1622. In the 17th century, the Ojibwe became heavily involved with the French fur trade, becoming allies with the French (Pritzker 2000).

The Ojibwe were primarily sedentary people, living villages of domed, conical, or elliptical wigwams made of a pole frame covered in cattail mats or birch bark with a smoke hole in the center. The larger, elliptical wigwams housed several families whereas the smaller, domed or conical wigwams were typically for one family (Pritzker 2000). Wigwams are often built on a slope with ditches dug away from them to drain rainwater. The Ojibwe have also been known to live in tipis at times (Malinowski et al. 1998). In the south, Ojibwe women planted gardens consisting of corn, squash, beans, and pumpkins, and also gathered berries, nuts, fruits and maple sap for sugar. Mainly in the winter, men hunted and trapped both large and small game as well as birds and fowl. Fishing took place year-round, and shellfish was eaten where available. Wild rice was a staple for the southern Ojibwe groups and would be gathered by knocking the grass stems with a stick, however, the northern Ojibwe groups did not have access to wild rice or maple sap (Pritzker 2000). The typical game animals the Ojibwe hunted were deer, moose, bear, beaver, lynx, mink, marten, otter, rabbit, and caribou (Malinowski et al. 1998).

There are numerous Ojibwe-owned reservations in Michigan, Minnesota, Wisconsin, Montana, and North Dakota. Federally recognized tribal entities in Michigan include: The Bay Mills Indian community, Grand Traverse Band of Ottawa and Chippewa, Keweenaw Bay Indian Community of L'Anse of Chippewa Indians, Keweenaw Bay Indian Community of Lac Vieux Desert of Chippewa Indians, Keweenaw Bay Indian Community of Ontonagon Bands of Chippewa, Sault Ste. Marie Band of Chippewa Indians, and Saginaw Chippewa Indian Tribe. In Minnesota, federally recognized tribal entities include: the Minnesota Chippewa Tribe (which includes the Bois Forte [Nett Lake] Band, Fond du Lac Band, Grand Portage Band, Leech Lake Band, Mille Lacs Band, and White Earth Band) and the Red Lake Band of Chippewa. Federally recognized tribal entities in Wisconsin include: the Lake Superior Tribe of Chippewa (which includes the Bad River Band, Lac Courte Oreilles Band, Lac du Flambeau Band, and Red Cliff Band), the St. Croix Chippewa Indians, and the Sokaogon Band of Chippewa Community of the Mole Lake Band of Chippewa Indians. The federally recognized tribal entity in Montana is the Chippewa-Cree Indians of Rocky Boy Reservation, and the Turtle Mountain Band of Chippewa Indians is federally recognized in North Dakota (Pritzker 2000).

POST-CONTACT (POST-AD 1630)

Contact Period (AD 1630–1837)

Disclaimer: The following discussion is written with a lens of Euro-American bias. Before the native population made contact with early French Explorers, European trade goods started to appear within Minnesota. Glass beads, iron knives, brass kettles, finger rings, and gun parts appear within the archaeological record, which were from early French traders. The local native tribes were also indirectly affected by Europeans by the spread of foreign disease, which decimated their populations. At one point or another, parts of Minnesota were claimed by the French, Spanish, British, and United States. Minnesota was first claimed by the French as part of New France (Blegen 1963; Folwell 1956).

The first recorded exploration in Minnesota was by French explorers Daniel Graysolon, Sieur du Lhut, Father Louis Hennepin, and Pierre Charles le Sueur. Sieur du Lhut was sent out from Quebec and Montreal to open trade with the Dakota in AD 1679, and for the next 11 years explored the triangle between the Mississippi and St. Croix rivers. Father Louis Hennepin along with Michel Accault, and Antonie Aguell were also sent out to explore in the Upper Mississippi River Valley circa AD 1679, where they discovered and named St. Anthony Falls. In 1731, Canadian-born French explorer Pierre Gaultier de Varennes, Sieur de La Verendrye set out to explore lands west of Lake Superior. In August of 1731, he sailed into Grand Portage and passed over the Canada-United States Border Lakes to establish a trading post at Lake of the Woods. At this post, trade could be conducted with the local tribes. At the conclusion of the Seven Years' War (French and Indian War), the 1763 Treaty of Paris gave all the land east of the Mississippi, which had been held by the Kingdom of France, to the Kingdom of Great Britain; this land would then be ceded to the United States of America in the 1783 Treaty of Paris after the conclusion of the Revolutionary War. In 1797, Pembina in North Dakota was established by Charles Baptiste Chaboillez of the Northwest Fur Company. Also, the Hudson Bay and American Fur Companies were positioned at Pembina as the fur trade increased and expanded. There were a few native tribes within the northwestern area of Minnesota including the Dakota and Ojibwe (Blegen 1963; Folwell 1956; Radford et al. 2015).

Post-Contact Period (Post–AD 1837)

Disclaimer: The following discussion is written with a lens of Euro-American bias. The area that currently includes all of Minnesota and western Wisconsin was considered “Indian Territory” and settlements were not allowed. Although the French, British, and Americans established trading posts in Minnesota, the first official white settlements were established after AD 1837. This was due to the signing of two treaties, one with the Ojibwe and one with the Dakota. The 1837 treaties had the Ojibwe and Dakota ceding all their lands east of the Mississippi, which included the Golden Triangle, the land between Mississippi and St. Croix Rivers. The treaties were ratified by Congress in AD 1838 and the land was open to American settlement. In 1849, Minnesota officially became a territory and on May 11, 1858, was admitted as a state into the United States. In 1862, Congress passed the Homestead Act which allowed up to 160 acres of land to be claimed provided that the person was head-of-household or person over 21 years of age, was a United States citizen or filed a declaration to become a citizen, and stayed on the land and worked the land for five years and pay any administration fees (Blegen 1963; Folwell 1956).

Railroad Development

In the mid-1800s, construction of railroads was started throughout the United States beginning with the first railroad built near Baltimore, Maryland in 1831 (Schwieder 2000). The railroad system in Minnesota began in 1862, with the construction of the St. Paul and Pacific, connecting St. Paul and St. Anthony. This resulted in the construction and expansions of major railway lines to the southwest and west, including the Chicago; St. Paul, Minneapolis and Omaha Railway; Chicago, Milwaukee & St. Paul Railway; and the Chicago & Northwestern Railway. The railroad helped to create the current settlement pattern and economic developments in Minnesota. They are an efficient, inexpensive way to transport goods and people. Also, for the first time, people could travel at any time of the year (Quivik and Martin 1988; Schwieder 2000).

St. Louis County

St. Louis County was organized in 1856, and Duluth is the county seat. The county was named after the St. Louis River which flows through the county. Before Europeans came to the area, the Ojibwa inhabited what is now St. Louis County. As early as the year 1640, French traders reached the area, and the French, English, and Euro-Americans explored this area from 1640 to 1820. The very first settlers were missionaries, including Reverend Edmund Ely, and Reverend Spencer who taught the local native people Euro-American agriculture, education, and religion in 1820. Europeans, for the most part, did not settle in the area until the La Point treaty was signed in 1854. The treaty ceded lands, which included the county, to the United States from the local Native Americans. The first post-treaty settlers came to St. Louis County to work in the lumber and mining industries and to farm the land. The city of Duluth was—and continues to be— an important hub for exports and imports. The first railroad in the county was the St. Paul and Duluth Railroad, which was completed in 1870. It stretched from St. Paul to Duluth and was essential for early industrial growth in St. Louis County. Lumbering has been one of the main industries in St. Louis County, as the land within the county contains hundreds of acres of forests. Lumber production peaked in 1905, and agriculture also became an important industry within St. Louis County. Farmland in St. Louis County is ideal for small grains, root vegetables, and grasses (Bryant 1881; Lake Vermilion 2017; St. Louis County 2017; Upham 1920; Woodbridge and Pardef 1910).

Iron mining was a very important industry in St. Louis County's history. In 1865, George Stuntz discovered iron ore near Lake Vermilion in St. Louis County. The Vermilion Iron Range opened its first mines in 1884. The Mesabi Range was then discovered in the 1880s by several members of the Lewis H. Merritt family. The Mesabi Range started production in 1892 with the opening of Mountain Iron Mine. By the 1900s these ranges helped Minnesota become the lead iron producer in the nation. However, these ranges start to run dry. In 1964, the last iron ore from the Vermilion Range was shipped out and the mines within the range were closed. Currently, the Mesabi Range is the last iron range in Minnesota to still be in producing, but not to the same degree that it once did (Bryant 1881; Lake Vermilion 2017; St. Louis County 2017; Upham 1920; Woodbridge and Pardef 1910).

RESEARCH DESIGN AND METHODOLOGY

The Phase I archaeological investigation was conducted in accordance with the SHPO Manual for Archaeological Projects in Minnesota (Anfinson 2005) and the State Archaeologist's Manual for Archaeological Projects in Minnesota (Office of the State Archaeologist 2011). For this Project, the fieldwork and reporting were completed to these standards and guidelines and the work completed was done in a reasonable and good faith effort to identify historic properties within the Project area.

LITERATURE REVIEW

The purpose of a Phase I archaeological survey is to identify and locate cultural resources within and near the proposed undertaking and assess if the undertaking will have any potential impact on significant resources. A component of this is to complete a literature review of the Project area and surrounding area to identify known cultural resources and the research helps to provide information on archaeological potential and cultural resources that may be encountered within a project area.

A literature search was conducted within a 1-mile radius around the Project area (Study Area). The task was completed using site data files and previous inventory files maintained at the Minnesota Office of the State Archaeologist (OSA) and Minnesota SHPO. Additional background research was completed by reviewing National Register of Historic Places (NRHP) data, historic maps, cemetery/burial records, atlases, current and historic aerial photographs, LiDAR imagery, soil maps, topographic and geomorphic data, and other sources that might provide information for the locations of historic-era sites, areas of prior disturbance, etc.

PRELIMINARY ARCHAEOLOGICAL RECONNAISSANCE FIELD METHODS

A preliminary reconnaissance survey consisted of a site visit by an archaeologist in order to assess the potential for cultural resources. The site visit was completed using visual inspection survey methodology. The preliminary reconnaissance survey was limited to areas where field crew could safely access strictly within public rights-of-way. The general terrain, geomorphological setting, and topographic factors were observed and considered in order to assess the absence or likelihood of any cultural resources within the Project area. Areas considered to have a low potential for containing archaeological sites consisted of previously disturbed areas, areas with a slope greater than 20 degrees, areas of poorly drained soils, and low lying-wet areas which were not considered for a Phase I archaeological survey. If areas were considered to have potential for an archaeological site, the following factors were considered: located within undisturbed land, located on a topographically significant landscape feature, proximity to a suitable former or existing water source, and/or proximity to a previously recorded archaeological site or historic structure. In addition, the gathered background research data were used with current field conditions to assess the potential within the Project area for intact archaeological sites.

Photographs of the Project area as well as observational notes on the general terrain, features within the Project area, and other pertinent information regarding the landscape of the Project area were collected. The results of the preliminary reconnaissance helped to develop a targeted survey strategy for areas not within previous disturbances.

PHASE I ARCHAEOLOGICAL INVESTIGATION

The Phase I archaeological survey for this Project was completed to guidelines of the SHPO Manual for Archaeological Projects in Minnesota (Anfinson 2005) and the State Archaeologist's Manual for Archaeological Projects in Minnesota (Anfinson 2011). Prior to the Phase I field survey for the Project, In Situ completed an archaeological potential assessment of the Project area. For the archaeological potential assessment, there are two areas within the Project area that were identified as having archaeological potential and were flagged to complete a targeted archaeological survey: 1) portions of the Project area that are within areas of higher cultural resource potential; and, 2) locations along wetlands and intermittent streams.

For the assessment of archaeological resource potential within the proposed Project area, factors consisting of the general terrain, water resources, geomorphological setting, and topographic factors are considered in order to assess the absence or likelihood of any cultural resources within the Project area. Areas identified as areas with apparent/significant disturbance, areas with excessive slope, areas of poorly drained soils, and low lying-wet areas are considered to have a low potential for containing archaeological sites. However, for an area to be considered to have potential for an archaeological site, the following factors are considered:

- Located within undisturbed land (excluding plowed agricultural fields);
- Located on a topographically significant landscape feature with well-drained soils;
- Proximity of a suitable former or existing water source (within 200 m of named waterbody and perennial streams);
- Proximity of a previously recorded archaeological site (within 100 m).

Using these parameters, In Situ identified if there are any areas of archaeological potential within the Project area. This archaeological potential generated by In Situ revealed approximately 29.5 acres of archaeological potential within the Project area. In addition to the areas of potential identified by In Situ, the Tribal Historic Preservation Office for the Fond du Lac Band of Lake Superior Chippewa requested that areas around the wetlands within the Project area be subject to survey. Therefore, a 100 ft survey buffer around wetlands was added to the survey area for the Project. This added an additional 45.8 acres of survey area to the 29.5 acres of archaeological potential, bringing the total survey area for the Project to 75.3 acres.

No Phase I archaeological survey took place within the remaining 207.9 acres of the Project area, as there is a low potential for the undertaking to impact cultural resources in these areas. It is the professional recommendation of In Situ that the undertaking is not expected to affect historic properties within these areas of low archaeological potential.

The crew was supervised by a qualified archaeologist who meets the requirements of the Secretary of the Interior's Guidelines for Professional Qualifications in Archaeology (48 FR 44739; National Park Service 1983). A sub-meter GPS unit utilizing Geographic Information System (GIS) data as well as field maps were used to collect spatial data and to ensure field personnel maintain an accurate survey grid. This ensured that the crew did not extend the survey outside the Project survey area. All field notes, maps, and photos will be maintained at the In Situ office. The survey conducted within the Project area used three methods of sampling and testing to identify and evaluate cultural resources: visual inspection, pedestrian survey, and shovel testing.

Visual Inspection

Locations where cultural resources were not expected, such as disturbed areas, areas with a slope greater than 20 degrees, and low/wet areas were walked over and visually inspected. This method was used to verify the absence or likelihood of any cultural resources within these areas. This method was also utilized to document the general terrain and the surrounding area. In addition, visual inspection took place in areas where there was poor (25 percent) ground surface visibility where shovel testing could not take place. A visual inspection walkover survey took place in areas where a systematic survey, such as pedestrian survey or shovel testing, could not be completed. Areas that were subject to visual inspection walkover used a transect interval of 15 meters (m). Visual inspection is not considered a systematic sample survey strategy and is not as thorough and/or accurate, as it is used when systematic and acceptable survey strategies cannot be completed due to project restrictions, poor field conditions, and/or when there are areas of low cultural resource potential such as sloped, wetland, and disturbed areas are present.

Pedestrian Survey

This method was used to survey landforms with slopes that are greater than 20 degrees, or landforms with slopes that are less than 20 degrees and have a surface visibility greater than 25% (e.g., plowed field). The pedestrian survey transect interval was 15 m. Transect interval spacing would be reduced to 5 m in order to delineate the area when any artifacts were discovered. The systematic pedestrian survey was limited only to areas with ample ground surface visibility. Pedestrian survey differs from visual inspection as it is a systematic sample survey method that is only used when ground surface visibility is ample enough for a more accurate and acceptable archaeological survey and assessment.

Shovel Testing

This method was used to sample subsurface contexts in areas with ground visibility of less than 25% that are not within areas of excessive slope, wetland, and significant and apparent disturbed areas. Shovel tests were 30-40 cm in circular diameter and were excavated on a grid at 15 m intervals, with additional radial shovel tests conducted at 5 m intervals if any artifacts were discovered. Shovel tests were excavated in 20 cm levels and the excavated soil was screened through a 0.25-inch mesh/hardware cloth. Where possible, shovel tests extended at least 10 cm into pre-Holocene soils/deposits or until 1 m in depth. All shovel tests were documented, and data gathered from the shovel tests included sub-meter geospatial location, shovel testing depths, soil stratigraphy, soil texture, soil structure, Munsell color, and the presence or absence of cultural materials. Shovel tests were photographed to document the typical soil profiles that were encountered during shovel testing. If possible (unless limited by impassable gravel/pavement conditions, facility/land access, and/or safety concerns/buried utilities), shovel tests were placed in areas of potential disturbance to verify and ascertain the extant level of disturbance.

The shovel test units are classified as negative, positive, sloped, wet, and disturbed. “Negative” shovel tests contained no cultural material. “Positive” shovel tests have intact soils that contained cultural material. “Sloped” shovel tests were located on excessive slopes. “Wet” shovel tests have undisturbed soils and contain a shallow water table and/or hydric soils. “Disturbed” shovel tests have evidence of previous ground disturbance due to land development.

SITE EVALUATION CRITERIA

The purpose of the archaeological investigation was to identify and record previously undocumented cultural resources located within the Project area. Sites were evaluated for their significance as defined by criteria established in Title 36 Code of Federal Regulations 60.4 (National Park Service 1997 [1990]), which states:

The quality of significance in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. That are associated with the lives of persons significant in our past; or
- C. That embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That has yielded, or may be likely to yield, information important in prehistory or history.

A site may meet one or more of the eligibility criteria listed above, but if the site is considered to not retain sufficient integrity, then it may be recommended not eligible for inclusion in the NRHP. In addition, In Situ followed the U.S. National Park Service's National Register Bulletin on Guidelines for Evaluating and Registering Archaeological Properties for the eligibility assessment of archaeological sites (National Park Service 2000).

ARTIFACT ANALYSIS AND CURATION

If any artifacts 50 years or older were recovered, they were processed in accordance with the SHPO Manual for Archaeological Projects in Minnesota (Anfinson 2005) and the State Archaeologist's Manual for Archaeological Projects in Minnesota (Anfinson 2011). If artifacts were collected, they are to be returned to the landowner. Should the landowner decline the possession of the artifacts, they will be stored at a repository that meets the Secretary of the Interior's Standards for Curation (55 FR 37630; National Park Service 1990), which for this Project will be the Minnesota Historical Society (MHS).

RESULTS

BACKGROUND RESEARCH

A literature and records search was conducted within the Study Area on November 1, 2024, June 19, 2025, September 17, 2025, and September 30, 2025 (Figures 3-5H). In conducting the literature review, the following resources detailed in Table 3 were consulted. These are resources that may provide information on the locations of potential cultural resources and other contextual information regarding the proposed Project area. Detailed site location information, including legal descriptions, coordinates, and contextual information from archaeological resources, has been redacted from this section of this public version of the report in accordance with applicable cultural resource protection laws in order to protect archaeological resources. General site descriptions and environmental context are retained.

Table 2: Resources Consulted During the Literature and Records Review.

Resource	Notable Observations within the Study Area	Within Project Area	Table/Figure	Date Reviewed
SHPO Files	Three previous cultural resource inventories/surveys; one previously recorded archaeological site; six previously recorded architectural resources	None	Tables 4, 5, and 6; Figures 3 and 4	MnSHIP: November 1, 2024, and June 19, 2025; In Person: September 17, 2025, and September 30, 2025
OSA Files				OSA Portal: November 1, 2024, and June 19, 2025; In Person: September 17, 2025, and September 30, 2025
NRHP Files	None	None	N/A	August 18, 2024, and June 19, 2025
1874 Andreas Atlas (Andreas 1874)	Forest	Forest	N/A	August 18, 2024, and June 19, 2025
1857 BLM GLO Historic Plat Map (BLM 1857)	Streams/rivers and wetlands	Streams/rivers and wetlands	Figure 5A	August 18, 2024, and June 19, 2025
1915 Map of South Part of St. Louis County, Minnesota (Coe and Harrison 1915)	Minnesota and Northern Wisconsin railroad, railroads, roads, streams/rivers, Lincoln School, School No. 4-7, School No. 1-7	Minnesota and Northern Wisconsin railroad	Figure 5C	September 30, 2025

Table 2: Resources Consulted During the Literature and Records Review.

Resource	Notable Observations within the Study Area	Within Project Area	Table/ Figure	Date Reviewed
1916 State of Minnesota Plat Book (W.W. Hixson & Co. 1916)	Duluth, Missabe and Northern railroads, parcels, roads	Peter Halverson parcel (NW NE Section 31, T50N, R15W); C.G. Johnson parcel (SW NE Section 31, T50N, R15W); A. Gulbrandson parcel (SE NE Section 31, T50N, R15W); Peter Kelly parcel (NE SE Section 31, T50N, R15W); A. Johnson parcel (E NE SE Section 31, T50N, R15W); C. Johnson parcel (W NE SE Section 31, T50N, R15W);	Figure 5D	August 18, 2024, and June 19, 2025
1939 Aerial Imagery (MHAPO 2015)	Railroads, agricultural fields, Midway River, streams/rivers, roads, residences, gravel road, railroad grade scar, forests, wetlands	Agricultural fields, roads, residences, railroad grade scar, gravel road, forests, wetlands	Figure 5F	August 18, 2024, and June 19, 2025
1953 Adolph, MN 24,000 USGS Topographic Map (USGS 1953)	Duluth, Missabe and Northern railroads, Midway River, streams/rivers, roads, gravel roads, gravel pits	Gravel road	Figure 5E	August 18, 2024, and June 19, 2025
1966 Trygg Historical Map (Trygg 1966)	Pine forests and streams/rivers	Pine forests and streams/rivers	Figure 5B	August 18, 2024, and June 19, 2025
1961 Aerial Imagery (MHAPO 2015)	Railroads, agricultural fields, Midway River, streams/rivers, roads, residences, gravel road, railroad grade scar, forests, wetlands	Agricultural fields, roads, residences, railroad grade scar, gravel road, forests, wetlands	Figure 5G	August 18, 2024, and June 19, 2025
1981 Aerial Imagery (MHAPO 2015)	Railroads, substation, agricultural fields, Midway River, streams/rivers, roads, residences, gravel road, railroad grade scar, transmission line easements, forests, wetlands	Agricultural fields, roads, residences, transmission line easements, forests, wetlands	Figure 5H	August 18, 2024, and June 19, 2025

Table 2: Resources Consulted During the Literature and Records Review.

Resource	Notable Observations within the Study Area	Within Project Area	Table/Figure	Date Reviewed
1993 Adolph, MN 24,000 USGS Topographic Map (USGS 1993)	Railroads, substation, Midway River, streams/rivers, roads, gravel roads, gravel pits	Gravel roads	Figures 1 and 3	August 18, 2024, and June 19, 2025
Current (2025) Aerial Imagery (Esri 2025)	Railroads, substation, Midway River, streams/rivers, roads, gravel roads, gravel pits, residences, forests, wetlands	Gravel roads, residences, transmission line easements, forests, wetlands	Figures 2, 4, and 7	June 19, 2025

The records search at SHPO and OSA revealed three previous cultural resource inventories/surveys, one previously recorded archaeological site, and six previously recorded architectural resources within the Study Area.

Previous Cultural Resource Inventories/Surveys

The records search revealed three previous cultural resource inventories/surveys completed within the Study Area between 1979 and 2023 (Table 3). The surveys were completed in support of utility projects. One of these previous inventories/surveys did result in the recordation of an archaeological site; however, these surveys and the site are not located within the Project area.

Table 3: Previous Cultural Resource Inventories/Surveys within the Study Area.

Report Number	Title	Authors	Year
SL-1979-03	An Archaeological Reconnaissance Survey of the Proposed Transmission Line #131 from Arrowhead to Gary, Duluth, St. Louis County, Minnesota	Hudak, G. Joseph and L.L. Emery	1979
SL-2022-02	Phase I Reconnaissance Survey for the HVDC Modernization Project St. Louis County, Minnesota	Larsen, Stephen and Michael Madson	2022
SL-2023-12	Addendum: Phase I Reconnaissance Survey for the HVDC Modernization Project St. Louis County, Minnesota	Larsen Stephen and Damien Reinhart	2023

Previously Recorded Archaeological Sites

The data gathered revealed one previously recorded archaeological site within the Study Area (Table 4). The previously recorded site is *unevaluated* for the NRHP and is not located within the Project area. Based on the location of the Project area, possible archaeological site types that may be encountered within the Project area include precontact artifact scatters, precontact habitation sites, post-contact artifact scatters, and post-contact farmsteads.

Table 4: Previously Recorded Archaeological Sites within the Study Area.

Site Number	Legal Location	Cultural Affiliation	Site Type	NRHP Eligibility
21SL1274	[Legal description and the mapped location of archaeological sites are redacted from the text and report figures to protect archaeological resources.]	Early Agriculture & River Settlement (1840-1870)/Northern MN Lumbering (1870-1930s)	Artifact Scatter/Foundation/Ruin	Unevaluated

Previously Recorded Architectural Resources

The data gathered revealed six previously recorded architectural resources within the Study Area (Table 5). One resource is *eligible* for the NRHP, three resources are *unevaluated* for the NRHP, and one resource is *not eligible* for the NRHP. None of these resources are located within the Project area.

Table 5: Previously Recorded Architectural Resources within the Study Area.

Site Number (NRHP #)	Site Name/Type	Address	NRHP Eligibility
SL-HER-00013	Bridge 88790	Unknown	Unevaluated
SL-HER-00041	Parrott's Auto Shop	5513 Highway 2	Not Eligible
SL-MID-00007	Bridge 88789	Unknown	Unevaluated
XX-ROD-00176	Trunk Highway 2	From the Wisconsin state line in Duluth to the North Dakota state line in East Grand Forks	Unevaluated
XX-RRD-DMR008	Duluth Missabe and Northern Railway Company/Duluth Missabe and Iron Range Railway Company: Main Line	Railroad right of way from S 27th Avenue W in Duluth to Mountain Iron	Eligible
XX-RRD-DMR015	Spirit Lake Transfer Railway Company/Duluth Missabe and Iron Range Railway Company	Railroad right of way between the DM&N Main Line at Adolph and the Oliver Bridge over the St. Louis River in Duluth	Not Eligible

Additional Records Review

After reviewing all referenced sources and records, it was found that land within the Study Area has largely been forested in the past and some areas have been cleared of natural forests to create agricultural fields. The Project area itself has been subject to moderate disturbance as the northern and eastern edges of the area have been subject to rural development (buildings, roads, utilities, etc.). The historic aerial, plat, and topographic map resources also show that the Project area had been used as agricultural fields following the clearing of forests. However, by the 1970s the Project area was no longer being used for agricultural practices, and the area was becoming forested again. The Minnesota and Northern Wisconsin railroad also intersected with the northwestern corner of the Project area until the railroad was abandoned in 1912 (Coe and Harrison 1915). The corridor can be seen in the historic aerials, but a residence was developed in the area (MHAPO 2015). It is

unlikely that any archaeological evidence remains of the railroad due to the development, and subsequent demolition, of the residence.

Archaeological Potential

The Project area is located in an area of roadways, rights-of-way, transmission line corridors, wooded/grassy areas, and wetland areas. The Project area consists of fairly flat to sloping terrain and is on a landform with topographically significant landscape features, as the area contains points of higher elevation with flood plains from suitable water sources on either side. The Project area lies between the Midway River to the southeast and an unnamed perennial stream to the west, both of which are natural suitable water sources. Sources of fresh water and landforms such as river terraces have high potential for archaeological sites (Hobbs 2019; Hudak et al. 2002). Long-term occupation sites are more likely to occur along permanent water sources, as more resources are readily available (Anderson and Smith 2003; Hobbs 2019; Hudak et al. 2002). Historic maps did not indicate any prior cultural sites within the Project area, nor are there any previously recorded sites located within the proposed Project area. In addition, there is a lack in the number of previously recorded sites within the Study Area. There are existing transmission line corridors that cut through the parcel horizontally in the south, as well as residential parcels along the northern and eastern edges of the Project area; it is likely that these portions of the Project area may have been heavily impacted by rural and sub-urban construction as well as road and utility construction. It is probable that those activities would have significantly, if not totally impacted any archaeological resources that may or may not have been present in relation to these portions of the Project area, leaving a nominal potential for the intact presence of significant archaeological remains within these areas. Also, portions of the Project area are located within low-lying areas with marshlands present, as indicated on historic maps. Low lying/marsh areas are not typically suitable for long term occupation, as the area may be subject to frequent flooding. However, there are portions of the Project area identified as areas of interest that are not developed, not within wetlands, and are located on landforms of higher elevation between two suitable water sources (Midway River to the southeast and an unnamed perennial stream to the west) (In Situ 2025).

Due to these factors, it was noted that approximately 29.5 acres of the Project area identified as areas of interest that may have a potential for cultural resources, with the remaining areas having a low potential for cultural resources. In addition to the areas of potential identified by In Situ, the Tribal Historic Preservation Office for the Fond du Lac Band of Lake Superior Chippewa requested that areas around the wetlands within the Project area be subject to survey. Therefore, a 100 ft survey buffer around wetlands was added to the survey area for the Project. This added an additional 45.8 acres of survey area to the 29.5 acres of archaeological potential, bringing the total survey area for the Project to 75.3 acres.

When referencing MnModel, which is a tool developed by the Minnesota Department of Transportation that can help identify areas of cultural resource potential that may require cultural resource surveys and assessments, the entire Project area is located within an area of unknown site potential/poorly surveyed, meaning that there is not enough data to determine a resource potential. In addition, MnModel also does not provide any data to assess the landscape suitability for site preservation for the Project area, meaning that there is not enough data to determine the landscape suitability for site preservation (Hobbs 2019; Hudak et al. 2002).

PHASE I ARCHAEOLOGICAL SURVEY RESULTS

Preliminary Archaeological Reconnaissance

On November 4, 2024, In Situ staff conducted a preliminary reconnaissance of the Project area. The Project area consists of short, manicured grasses, mixed grasses, wooded areas, wetland areas, and rural infrastructure (roads, utilities, etc.). The topography consisted of fairly flat to sloping terrain. During this visit, In Situ staff noted indications that the Project area ranged from a low to a high potential for cultural resources. The areas of higher potential are within portions of the Project area that are not developed, not within wetlands, and are located on landforms of higher elevation. The areas of lower potential have been subject to previous disturbances and development, as two transmission line corridors cross through the southern Project area and residential parcels are present along the northern and eastern edges of the Project area and other portions were within low lying areas and marshlands. Due to these factors, the portions of the Project area identified as having a higher archaeological potential were subject to a targeted Phase I archaeological survey.

Phase I Archaeological Survey

The Phase I archaeological survey for the Project consisted of a targeted survey of the proposed Project area, totaling approximately 75.3 acres (Figures 6-7). The survey was conducted on the following dates:

- | | | | |
|-----------------|-------------------|----------------------|----------------------|
| • July 24, 2025 | • August 1, 2025 | • August 12, 2025 | • September 24, 2025 |
| • July 25, 2025 | • August 5, 2025 | • August 13, 2025 | • September 25, 2025 |
| • July 28, 2025 | • August 6, 2025 | • August 14, 2025 | • November 13, 2023 |
| • July 29, 2025 | • August 7, 2025 | • August 15, 2025 | |
| • July 30, 2025 | • August 8, 2025 | • September 22, 2025 | |
| • July 31, 2025 | • August 11, 2025 | • September 23, 2025 | |

The survey area of the Project is located within an area consisting of short, manicured grasses, mixed grasses, wooded areas, wetland areas, and rural infrastructure (roads, utilities, etc.) (Figures 8-109). Ground surface visibility (GSV) within the Project area was poor to good (0-90%) throughout the survey area, with some areas of higher GSV (greater than 25%) within recently cleared areas. Pedestrian survey methodologies were used within areas of higher GSV (greater than 25%). Shovel testing was conducted in areas that had poor (less than 25%) ground surface visibility and that were not in areas that were subject to visual inspection. Visual inspection was conducted within areas of slope, wetlands, rural development, and previous disturbances that prohibited shovel testing. Existing disturbance within the Project area includes agricultural practices, construction activity, and rural development (buildings, roads, buried utilities, etc.).

Approximately 75.3 acres were subject to survey during the archaeological field survey for the Project. Of the 75.3 acres that were surveyed:

- Approximately 0.5 acres were within areas with adequate to good (greater than 25%) GSV and were subject to pedestrian survey (Figure 110A);
- Approximately 1.3 acres were determined to be within low-lying areas of low cultural resource potential and were visually inspected (Figure 110B);

- Approximately 9.2 acres were within areas of disturbance (rural development, buildings, utilities, roads, recent construction, etc.) and were visually inspected (Figures 110C-110E);
- Approximately 2.5 acres were within sloped context and were visually inspected (Figure 110F);
- Approximately 9.9 acres were within a wetland context and were visually inspected (Figure 110G);
- Approximately 51.9 acres were within areas with poor (less than 25%) GSV and were subject to shovel testing.

Shovel Testing

For this Project, a total of 951 shovel test units were conducted during this survey. Of the 951 shovel tests, 23 shovel tests were positive for cultural resources, which are associated with 21SL1302. Of the shovel tests conducted, there were 33 shovel tests that had a high-water table at the time of survey.

Soil profiles observed during shovel testing within the Project area revealed a topsoil depth that ranged between 7 to 58 cm below ground surface, with pre-Holocene glacial till at a depth ranging between 11 to 63 cm.

A typical shovel test profile within the Normanna-Canosia-Hermantown complex (F137B) soil series in upland settings within the Project area consisted of a dark brown (10YR3/3) loam soil over a dark yellowish brown (10YR3/6) sandy clay loam soil, as shown in Figure 111A. The typical glacial till encountered during shovel testing is shown in Figure 111B.

A typical hydric shovel test profile within the Normanna-Canosia-Hermantown complex (F137B) soil series in wetland-adjacent settings within the Project area consisted of a very dark grayish brown (10YR3/2) silt loam soil over a dark gray (10YR4/1) silt soil mottled with a dark yellowish (10YR4/6) silt loam soil over a dark yellowish brown (10YR3/6) sandy loam soil mottled with a grayish brown (10YR5/2) sandy loam soil, before reaching the high-water table, as shown in Figure 112.

A typical disturbed shovel test profile within the Aldenlake-Ahmeek complex (F144D) soil series within the Project area consisted of a dark reddish brown (5YR3/3) coarse gravelly fill dirt over a dark brown (7.5YR3/4) loamy sand soil, as shown in Figure 113.

Further depths for testing were deemed unnecessary due to the low potential for deep archaeological deposits, as the Project is located in a setting with glacial till and the soil profiles for the soil series within the Project area revealed that there are no buried soils (UC Davis 2025). Over the course of the survey, glacial till was encountered throughout the Project area during shovel testing. Glacial till is a sediment deposited by glaciers and is made up of a mixture of material ranging from tiny soil particles to boulders (National Park Service 2018). Northeastern Minnesota was covered by the Superior ice lobe during the Wisconsin Episode of glaciation, which began approximately 75,000 years ago and lasted until approximately 11,000 years ago. The Superior lobe contained till from the Lake Superior basin, including red sandstone and agates, giving the till its characteristic red color (Minnesota Geological Survey 2025). Glacial till represents a pre-Holocene glacial deposit, therefore, shovel tests were terminated at least 10 cm into the pre-Holocene soils/deposits (glacial till) or until 1 meter in depth, where possible.

CULTURAL RESOURCES

During the field survey, a total of 75.4 acres of the 283-acre Project area were subject to targeted Phase I archaeological survey for the Project. Five newly recorded archaeological sites were observed and recorded during the archaeological survey of the Project (21SL1302, IS-LOON-002, IS-LOON-003, IS-LOON-004, and IS-LOON-005). These sites are discussed in detail below. Detailed site location information, including legal descriptions, coordinates, and contextual information from archaeological resources, has been redacted from this section of this public version of the report in accordance with applicable cultural resource protection laws in order to protect archaeological resources. General site descriptions and environmental context are retained.

Newly Recorded Archaeological Resources

21SL1302

Site Type:	Artifact Scatter
Association:	Post-Contact; Euro-American
Site NRHP Recommendation:	Not Eligible
Management Recommendation:	No Further Work

Site 21SL1302 is a post-contact artifact scatter site within a wooded and grassy area on relatively flat terrain. Site 21SL1302 was recorded by In Situ on August 11, 2025 (Figures 114-120). The site area measures approximately 0.72 acres and was recorded using shovel testing and visual inspection methodologies. The site is located within an area with short, manicured grasses, mixed grasses, and wooded vegetation, providing poor (0%) ground surface visibility, so shovel testing and visual inspection methods were used to delineate the extent of cultural materials.

The site is comprised of 23 positive shovel tests out of 33 plotted, five of which contained bone along with other historic materials (FS 1-1, FS 1-2, FS 1-3, FS 1-4, and FS 2-1). Radial shovel tests were conducted only off the positive primary shovel tests that contained animal bone. For this site, additional radial shovel tests were not completed off primary shovel tests that resulted only in sparse assemblages (1-3 pieces of historic glass or nails) in order to minimize unnecessary impacts to the site from close interval subsurface testing and the completed shovel tests were ample enough to delineate the horizontal extents of the site.

Of the primary tests, three were positive shovel tests that contained animal bone (FS 1-1, FS 1-2, and FS 2-1), and six were positive shovel tests with sparse assemblages. Of the radial tests, two were positive shovel tests that contained animal bone (FS 1-3 and FS 1-4), twelve were positive with sparse assemblages, four were negative for cultural material, and the remaining six were located within conditions unsuitable for shovel testing (disturbed gravel, wetland conditions, and road ROW with utilities present). No features (foundations, pits, etc.) associated with the artifact scatter were identified. The site is in poor condition due to natural erosion and demolition.

A total of 87 artifacts were collected from within the site to serve as a sample of artifact variety (Figures 121-127). Artifacts were only collected from the positive shovel tests that contained animal bone. Some artifacts were documented in the field and not collected due to sparse assemblages and/or redundancy. All the collected artifacts are described below. A total of 87 artifacts were recovered from five positive shovel tests that were conducted within or near site

21SL1302 during the Phase I archaeological survey. Artifacts recovered from the shovel tests that contained animal bone are as follows:

- FS1-1 (all recovered from the A horizon, 0-24 cmbs)
 - 1-1.1: Nine shards of colorless glass
 - 1-1.2: One shard of amber glass
 - 1-1.3: One shard of melted colorless glass
 - 1-1.4: Six sherds of white glazed whiteware
 - 1-1.5: One sherd of pink glazed whiteware
 - 1-1.6: Two fragments of butchered mammal bone
- FS 1-2 (all recovered from the A horizon, 0-40 cmbs)
 - 1-2.1: Five shards of colorless glass
 - 1-2.2: Three pieces of green plastic, with one displaying the stamped letter “M”
 - 1-2.3: Two rusted round ferrous metal nails
 - 1-2.4: One black rubber washer
 - 1-2.5: Two pieces of charcoal
 - 1-2.6: One piece of unmodified animal bone
- FS 1-3 (All recovered from the A horizon, 0-36 cmbs)
 - 1-3.1: Four sherds of white glazed whiteware
 - 1-3.2: Four rusted ferrous metal nails (one appears to be a screw)
 - 1-3.3: One shard of white milk glass
 - 1-3.4: One shard of melted amber glass
 - 1-3.5: One shard of solarized (amethyst-tinted) glass, displaying the stamped letter “M”
 - 1-3.6: Two shards of colorless glass, with one displaying a double ridged lip
 - 1-3.7: Two shards of melted colorless glass
 - 1-3.8: Six small mammal bone fragments, some butchered
- FS 1-4 (All recovered from the A horizon, 0-26 cmbs)
 - 1-4.1: One shard of colorless glass
 - 1-4.2: One fragment of an orange and black striped glass marble
 - 1-4.3: Two pieces of a tarnished brass funnel-shaped ring,—possible candlestick holder
 - 1-4.4: One rusted ferrous metal wire
 - 1-4.5: Two fragments of unmodified mammal bone
- FS 2-1 (All recovered from the transition between the A and B horizon, 0-38 cmbs)
 - 2-1.1: One tarnished bronze WWI Royal Canadian Engineers Officer’s cap badge (dating to circa 1914-1918)
 - 2-1.2: One unidentified tarnished/rusted metal implement—possibly the backing to the WWI Royal Canadian Engineers Officer’s cap badge (2-1.1).
 - 2-1.3: Four fragments of unmodified mammal bone
 - 2-1.4: Three rusted ferrous metal nails, with one bent in a “U” shape
 - 2-1.5: Fourteen shards of colorless glass, with one shard showing a machine seam
 - 2-1.6: Two sherds of white glazed whiteware

Artifacts recovered from positive shovel tests were encountered from 0-40 centimeters below surface (cmbs). Radial shovel tests were conducted from each positive primary shovel test that contained animal bone in 5-meter increments in each of the cardinal directions if possible.

Site 21SL1302 is a post-contact historic scatter site that is in poor condition, with impacts from natural erosion and previous demolition. The site is not associated with any significant historical patterns, persons, or events (Criteria A and B). The site does not have any unique or outstanding characteristics or design (Criterion C) and due to the poor condition of the site and the fact that post-contact artifact scatter sites like this are common and prevalent in the region, the site is unlikely to yield information important to our understanding of the history of the region (Criterion D). Site 21SL1302 is recommended *not eligible* for inclusion on the NRHP and no further work is recommended.

IS-LOON-002

Site Type:	Isolated Find
Association:	Post-Contact; Euro-American
Site NRHP Recommendation:	Not Eligible
Management Recommendation:	No Further Work

Site IS-LOON-002 is a post-contact isolated find site within a wooded and grassy area on relatively flat terrain. Site IS-LOON-002 was recorded by In Situ on July 28, 2025 (Figures 128-131). The site area measures approximately 94.7 sq ft (8.8 sq m) and was recorded using visual inspection methodology. The site is located within an area with mixed grasses and wooded vegetation, providing poor (0%) ground surface visibility, so shovel testing and visual inspection methods were used to delineate the extent of cultural materials.

H1 is a Chevrolet truck that is fifteen feet north to south and six feet east to west.

The truck may have been manufactured in the early 1950s based on the body style. The truck appears to have been used as a dump truck. A metal plate on the bed indicates that the truck bed was manufactured by the St. Paul Hydraulic Hoist Company. The mirrors on the truck were manufactured by the Re-Trac Manufacturing Corporation (Figures 132-135).

Shovel tests were conducted in the area around the truck and were negative for cultural material, which aided in more precise delineation of the site boundaries. No features (foundations, pits, etc.) associated with the truck were identified. The site is in moderate condition due to dilapidation.

For this site, a Minnesota Archaeological Site Form was completed and submitted to the OSA. In review of the site form, the OSA found the site lacks contextual integrity and does not meet the requirements for an official site number due to the site being in secondary context and being at this site location for less than 50 years. Therefore, this site did not receive an official site number through the OSA.

Site IS-LOON-002 is a post-contact isolated find site that is in moderate condition, with impacts from natural erosion and dilapidation. The site is not associated with any significant historical patterns, persons, or events (Criteria A and B). The site does not have any unique or outstanding characteristics or design (Criterion C) and due to the fact that post-contact sites like this are

common, the site is unlikely to yield information important to our understanding of the history of the region (Criterion D). Site IS-LOON-002 is recommended not eligible for inclusion on the NRHP and no further work is recommended.

IS-LOON-003

Site Type:	Artifact Scatter
Association:	Post-Contact; Euro-American
Site NRHP Recommendation:	Not Eligible
Management Recommendation:	No Further Work

Site IS-LOON-003 is a post-contact artifact scatter site within a wooded and grassy area on relatively flat to undulating terrain. Site IS-LOON-003 was recorded by In Situ on July 28, 2025 (Figures 136-139). The site area measures approximately 0.08 acres and was recorded using shovel testing and visual inspection methodologies. The site is located within an area with mixed grasses, brush, and wooded vegetation, providing poor (0%) ground surface visibility, so shovel testing and visual inspection methods were used to delineate the extent of cultural materials. The site is located directly adjacent to an existing residence.

The site is comprised of multiple vehicles, scattered farm equipment, and debris (H1-H6) (Figures 140-143).

H1 is possibly a 1920-1930 Dodge Brothers car that may have been converted into a homemade tractor, also known as a doodlebug, during the 1930s or 1940s as a result of a shortage of tractors (The Henry Ford Museum 2025; Lambton County Museums 2020). However, the Dodge Brothers vehicle is in poor condition with significant dilapidation which makes determining if there have been any modifications difficult.

H2 is a car that may date to between 1935 and 1950, based on the body style. The car is in poor condition.

H3 is a car that may date to between 1935 and 1950, based on the body style. The car is in poor condition as it is missing its front end.

H4 is a possible 1917-1928 Fordson Model F tractor. The Fordson tractor is in poor condition but appears to have replacement parts that are significantly newer than the rest of the vehicle which appears dilapidated.

H5 is a possible 1953-1957 Allis Chalmers WD45 tractor. The possible Allis Chalmers tractor appears to be in good condition and is located in a recently cleared area, suggesting that it may be used regularly by the parcel owner.

H6 is part of a post-1920 Adams Leaning Wheel Grader No. 12, which would have been pulled behind a tractor to grade ditches, banks, and roads (J.D. Adams Company 1930).

There are also barrels and pieces of metal scattered across the area. The shovel tests surrounding the site were negative for cultural material, which aided in more precise delineation of the site

boundaries. No artifacts were collected. No features (foundations, pits, etc.) associated with the artifact scatter were identified. Overall, the site is in poor condition due to dilapidation.

For this site, a Minnesota Archaeological Site Form was completed and submitted to the OSA. In review of the site form, the OSA found the site lacks contextual integrity and does not meet the requirements for an official site number due to the site being in secondary context and being at this site location for less than 50 years. Therefore, this site did not receive an official site number through the OSA.

Site IS-LOON-003 is a post-contact historic scatter site that is in poor condition, with impacts from natural erosion and previous dilapidation. The site is not associated with any significant historical patterns, persons, or events (Criteria A and B). The site does not have any unique or outstanding characteristics or design (Criterion C) and due to the poor nature of the site and that post-contact sites like this are common, the site is unlikely to yield information important to our understanding of the history of the region (Criterion D). Site IS-LOON-003 is recommended not eligible for inclusion on the NRHP and no further work is recommended.

IS-LOON-004

Site Type:	Artifact Scatter
Association:	Post-Contact; Euro-American
Site NRHP Recommendation:	Not Eligible
Management Recommendation:	No Further Work

Site IS-LOON-004 is a post-contact artifact scatter site within a wooded and grassy area on relatively flat terrain. Site IS-LOON-004 was recorded by In Situ on July 29, 2025 (Figures 144-147). The site area measures approximately 0.01 acres and was recorded using shovel testing and visual inspection methodologies. The site is located within an area with mixed grasses and wooded vegetation, providing poor (0%) ground surface visibility, so shovel testing and visual inspection methods were used to delineate the extent of cultural materials. No features (foundations, pits, etc.) associated with the artifact scatter were identified. The site is in poor condition due to natural erosion and dilapidation. The site is located directly adjacent to an existing residence.

The site is comprised of a scatter of farm equipment and debris (Figures 148-150).

H1 is a metal and wood frame with a belt and pulley system, possibly part of a threshing machine. A belt, made of synthetic materials, is wrapped around the pulley. The frame is approximately three feet tall and six feet long.

Additionally, the scatter contains a small, potentially modern, two stroke engine with no visible maker's mark, possible parts for another belt and pulley machine, including metal frames, a potential flat belt and pulley wheel, and a large metal gear, a possible metal trailer, an orange metal cart containing possible linked metal stakes, partially destroyed wooden barrel with metal hoops.

For this site, a Minnesota Archaeological Site Form was completed and submitted to the OSA. In review of the site form, the OSA found the site lacks contextual integrity and does not meet the requirements for an official site number due to the site being in secondary context and being at this

site location for less than 50 years. Therefore, this site did not receive an official site number through the OSA.

Site IS-LOON-004 is a post-contact historic scatter site that is in poor condition, with impacts from natural erosion and dilapidation. The site is not associated with any significant historical patterns, persons, or events (Criteria A and B). The site does not have any unique or outstanding characteristics or design (Criterion C) and due to the poor condition of the site and the fact that post-contact artifact scatter sites like this are common and prevalent in the region, the site is unlikely to yield information important to our understanding of the history of the region (Criterion D). Site IS-LOON-004 is recommended not eligible for inclusion on the NRHP and no further work is recommended.

IS-LOON-005

Site Type:	Isolated Find
Association:	Post-Contact
Site NRHP Recommendation:	Not Eligible
Management Recommendation:	No Further Work

Site IS-LOON-005 is a post-contact isolated find site within a wooded and grassy area on relatively flat terrain. Site IS-LOON-005 was recorded by In Situ on July 29, 2025 (Figures 151-154). The site area measures approximately 58.5 sq ft (5.4 sq m) and was recorded using visual inspection methodology. The site is located within an area with forest vegetation, providing poor (0%) ground surface visibility, so shovel testing and visual inspection methods were used to delineate the extent of cultural materials.

H1 is a Chrysler car that is eleven feet north to south and five feet east to west.

The car may have been manufactured between 1930 and 1950 based on the body style. The front end of the car is missing, making identification of the exact model difficult (Figures 155-156). A metal plate on the front indicates that the vehicle was manufactured by Chrysler.

For this site, a Minnesota Archaeological Site Form was completed and submitted to the OSA. In review of the site form, the OSA found the site lacks contextual integrity and does not meet the requirements for an official site number due to the site being in secondary context and being at this site location for less than 50 years. Therefore, this site did not receive an official site number through the OSA.

Site IS-LOON-005 is a post-contact isolated find site that is in poor condition, with impacts from natural erosion and dilapidation. The site is not associated with any significant historical patterns, persons, or events (Criteria A and B). The site does not have any unique or outstanding characteristics or design (Criterion C) and due to the fact that post-contact sites like this are common, the site is unlikely to yield information important to our understanding of the history of the region (Criterion D). Site IS-LOON-005 is recommended *not eligible* for inclusion on the NRHP and no further work is recommended.

Notable Items

During the targeted field survey, a total of 13 rock piles were observed and recorded. Of these rock piles, each one lines up with either a field line or building feature visible on aerial imagery from 1939, 1961, and/or 1981 (Figure 157). The rock piles are also not uniform and are irregularly shaped (Figures 158-161). No shovel tests were conducted within the rock piles, but shovel tests in the area surrounding each of the rock piles were negative for cultural resources. It is presumed from in-field observations, discussions with Cultural Monitors from the Fond du Lac Band of Lake Superior Chippewa, and cross-referencing with historic literature review data that the rock piles are related to historic and modern land-clearing activities associated with previous and current homesteads and farmsteads. During meetings regarding the progress of the Project, Fond du Lac staff concurred with the findings of In Situ regarding the historical context of the rock piles. Based on these considerations, In Situ recommends that these rock piles do not meet the criteria of the NRHP, and no further archaeological work is recommended for the rock piles.

Summary of Cultural Resources

During the field survey, a total of 75.3 acres of the 283.2-acre Project area were subject to targeted Phase I archaeological survey for the Project. Due to the environmental conditions (e.g. not near permanent water sources or known cultural resources), the remaining 207.9 acres of the Project area have a low archaeological potential. Therefore, no Phase I archaeological survey took place within these areas, as there is a low potential for the undertaking to impact cultural resources in these areas. It is the professional recommendation of In Situ that the undertaking is not expected to affect historic properties within these areas of low archaeological potential.

Five newly recorded post-contact archaeological sites were observed and recorded during the archaeological survey of the Project (21SL1302, IS-LOON-002, IS-LOON-003, IS-LOON-004, and IS-LOON-005). All five of the newly recorded archaeological sites are recommended as *not eligible* for the NRHP. In addition, no previously identified resources are within or adjacent to the proposed Project area. Therefore, In Situ recommends a finding of *No Historic Properties Affected* within the surveyed Project area.

Although no historic properties were identified, In Situ recommends the development and implementation of an Inadvertent Discovery Plan to be in effect during all ground-disturbing construction activities associated with the Project. An Inadvertent Discovery Plan establishes procedures to be followed in the event that previously unidentified archaeological materials, cultural resources, or human remains are encountered during construction. The purpose of the IDP is to ensure that any unanticipated discoveries are appropriately protected, evaluated, and treated in accordance with applicable federal, state, and local regulations, and in coordination with the appropriate agencies, Tribal representatives, and qualified cultural resources professionals.

In addition, In Situ recommends that the Project developer continue consultation with Tribes that have expressed interest in, or have cultural affiliation with, the Project area throughout the remainder of the Project. Continued consultation is recommended to ensure that Tribal concerns are addressed during project implementation and that Tribes are notified in a timely manner of any unanticipated discoveries, particularly those of potential cultural or religious significance.

If the agencies concur with these findings and recommendations, and provided that the Inadvertent Discovery Plan is implemented and Tribal consultation continues as appropriate, In Situ recommends a determination of *No Further Archaeological Work* for the Project.

MANAGEMENT RECOMMENDATIONS

An intensive Phase I archaeological investigation was conducted between July and September 2025. The Phase I archaeological survey included a background literature review within and surrounding the Project area along with a preliminary archaeological reconnaissance of the Project area, and a targeted Phase I archaeological survey for the proposed Project.

During the field survey, a total of 75.3 acres of the 283.2-acre Project area were subject to targeted Phase I archaeological survey for the Project. Due to the environmental conditions (e.g. not near permanent water sources or known cultural resources), the remaining 207.9 acres of the Project area have a low archaeological potential. Therefore, no Phase I archaeological survey took place within these areas, as there is a low potential for the undertaking to impact cultural resources in these areas. It is the professional recommendation of In Situ that the undertaking is not expected to affect historic properties within these areas of low archaeological potential.

Five newly recorded post-contact archaeological sites were observed and recorded during the archaeological survey of the Project (21SL1302, IS-LOON-002, IS-LOON-003, IS-LOON-004, and IS-LOON-005). All five of the newly recorded archaeological sites are recommended as *not eligible* for the NRHP. In addition, no previously identified resources are within or adjacent to the proposed Project area. Therefore, In Situ recommends a finding of *No Historic Properties Affected* within the surveyed Project area.

Although no historic properties were identified, In Situ recommends the development and implementation of an Inadvertent Discovery Plan to be in effect during all ground-disturbing construction activities associated with the Project. In addition, In Situ recommends that the Project developer continue consultation with Tribes that have expressed interest in, or have cultural affiliation with, the Project area throughout the remainder of the Project. Continued consultation is recommended to ensure that Tribal concerns are addressed during project implementation and that Tribes are notified in a timely manner of any unanticipated discoveries, particularly those of potential cultural or religious significance.

If the agencies concur with these findings and recommendations, and provided that the Inadvertent Discovery Plan is implemented and Tribal consultation continues as appropriate, In Situ recommends a determination of *No Further Archaeological Work* for the Project.

REFERENCES CITED

- Anderson, David G. and Steven D. Smith
2003 *Archaeology, History, and Predictive Modeling: Research at Fort Polk, 1972-2002*. University of Alabama Press, Tuscaloosa, Alabama.
- Andreas, Alfred Theodore
1874 *An Illustrated Atlas of the State of Minnesota* [map]. Minnesota Historical Society. Electronic resource, <https://collection.mndigital.org/catalog/mhs:1192>, accessed June 19, 2025.
- Anfinson, Scott
1990 Archaeological Regions in Minnesota and the Woodland Period. In *The Woodland Tradition in the Western Great Lakes: Papers Presented to Elden Johnson*, edited by Guy E. Gibbon, pp. 135-166 University of Minnesota Publications in Anthropology 4, Minneapolis.
2005 *SHPO Manual for Archaeological Projects in Minnesota*. Minnesota State Historic Preservation Office. St. Paul, Minnesota.
2011 *State Archaeologist's Manual for Archaeological Projects in Minnesota*. Minnesota Office of the State Archaeologist. St. Paul, Minnesota.
- Arzigian, Constance
2008 *Minnesota Statewide Multiple Property Documentation Form of the Woodland Tradition*. Electronic Document. <http://www.dot.state.mn.us/culturalresources/docs/crunit/woodlandfulldoc.pdf>, Accessed April 29, 2017
- Blegen, Theodore C.
1963 *Minnesota: A History of the State*. University of Minnesota Press. Minneapolis.
- Bryant, Charles
1881 *History of the Upper Mississippi Valley*. Minnesota Historical Company, Minneapolis.
- Coe, E.K., and John Harrison.
1915 *Map of South Part of St. Louis County Minnesota*. Iron Range Research Center. Electronic document, <https://collection.mndigital.org/catalog/irrc:2255#?xywh=9416%2C9627%2C1914%2C1164>, accessed October 16, 2025.
- DeMallie, Raymond J.
2001 Sioux until 1850. In *Handbook of North American Indians: Plains*, Vol. 13, Part 2, edited by Raymond J. DeMallie, pp. 718–760. William C. Sturtevant, general editor. Smithsonian Institution. Washington, D.C.
- Esri
2025 *World Imagery Basemap*. [map]. ArcGIS Online. Electronic resource, <https://www.arcgis.com/home/item.html?id=10df2279f9684e4a9f6a7f08febac2a9>, accessed June 19, 2025.
- Florin, Frank, James Linbeck, and Kent Bakken
2016 *Phase I Archaeological Survey and Phase II Evaluation of Site 21CR161 and 21CR162 for TH 101 Up the Bluff CSAH 61 to TH 14, Carver County, MN*. Manuscript of file, The Office of the State Archaeologist, St. Paul, Minnesota.

Folwell, William

1956 *A History of Minnesota*, Vol. I. The Minnesota Historical Society. St. Paul.

Gibbon, Guy

2012 *Archaeology of Minnesota: The Prehistory of the Upper Mississippi River Region*. University of Minnesota Press. Minneapolis.

Gibbon, Guy E., Craig M. Johnson, and Elizabeth Hobbs

2002 *Chapter 3: Minnesota's Environmental and Native American Culture History. Mn/Model*. Electronic document. <http://www.dot.state.mn.us/mnmodel/P3FinalReport/chapter3.html#ch33>, Accessed April 29, 2017.

The Henry Ford Museum

2025 Ford Model T Runabout Converted to a Tractor, Reaping Grain, circa 1919. Electronic document, <https://www.thehenryford.org/collections-and-research/digital-collections/artifact/100212#slide=gs-189087>, accessed October 17, 2025.

Hobbs, Elizabeth

2019 *MnModel Phase 4: Project Summary and Statewide Results*. Electronic document. <https://www.dot.state.mn.us/mnmodel/>, accessed January 25, 2025.

Hudak, Joseph G., Elizabeth Hobbs, Allyson Brooks, Carol Ann Sersland, and Crystal Phillips (Editors)

2002 *MnModel Final Report Phases 1-3, 2002: A Predictive Model of Precontact Archaeological Site Location for the State of Minnesota*. Available at: https://www.dot.state.mn.us/mnmodel/P3FinalReport/final_report.html. Minnesota Department of Transportation, accessed September 6, 2022.

In Situ Archaeological Consulting, LLC (In Situ)

2025 *Phase IA Cultural Resource Literature Review and Preliminary Reconnaissance for Project Loon—Hermantown, St. Louis County, Minnesota*. In Situ Archaeological Consulting. Eden Prairie, Minnesota.

J.D. Adams Company

1930 *Adams Adjustable Leaning Wheel Graders and Other Road Equipment*. J.D. Adams Company, Indianapolis, Indiana.

Johnson, Donald L.

1993 Biomechanical Processes and the Gaia Paradigm in a Unified Pedo-Geomorphic and Pedo-Archaeologic Framework. In *Proceedings of the First International Conference on Pedo-Archaeology*, edited by J.E. Foss, M.E. Timpson, and M.W. Morris, pp.41–67. University of Tennessee Agricultural Experimental Station, Special Publication 93–03, Knoxville.

Johnson, Elden

1988 *The Prehistoric People of Minnesota*. Minnesota Historical Society Press. St. Paul.

Lake Vermilion

2017 *A Brief History of the Lake Vermilion Area*. Electronic document. <http://www.lakevermillionresorts.com/about/history>, accessed October 25, 2017.

Lambton County Museums

- 2020 *The Doodlebug*. Electronic document, <https://www.lambtonmuseums.ca/en/lambton-heritage-museum/the-doodlebug.aspx>, accessed October 17, 2025.

Malinowski, Sharon, Anna Sheets, Jeffery Lehman, and Melissa Walsh Doig

- 1998 *Gale Encyclopedia of Native American Tribes*. Vol. III. Gale Research, Inc. Detroit, Michigan.

Michlovic, Michael G.

- 2025 *An Archaeology of the Red River of the North*. The Digital Press at the University of North Dakota, Grand Forks, North Dakota.

Minnesota Department of Natural Resources

- 1988 *Natural Vegetation of Minnesota: At the Time of the Public Land Survey, 1847-1907*. Biological Report No. 1. Natural Heritage Program, Minnesota Department of Natural Resources, St. Paul, MN.
- 2025 *Ecological Classification System*. Minnesota Department of Natural Resources, St. Paul, MN. Available at: <http://www.dnr.state.mn.us/ecs/index.html>, accessed October 15, 2025.

Minnesota Geological Survey

- 2025 *Glacial Geology*. Electronic document, <https://cse.umn.edu/mgs/glacial-geology>, accessed November 4, 2025.

Morey, G.B. and Joyce Meints

- 2000 *Geologic Map of Minnesota - Bedrock Geology*. Electronic document. <http://www.geo.umn.edu/mgs/currentpubs.htm>, Accessed May 9, 2017. Minnesota Geological Survey, State Map Series, S-20, 3rd edition, scale 1:1,000,000.

Morrow, Julie

- 1996 *Early Paleoindian Period*. Electronic document. <http://archaeology.uiowa.edu/early-paleoindian-period-0>, Accessed April 29, 2017. The Office of the State Archaeologist.

Morrow, Toby.

- 1996 *Late Paleoindian/Early Archaic Period*. Electronic document. <http://archaeology.uiowa.edu/middle-archaic-period-0>, accessed July 8, 2016. The Office of the State Archaeologist.
- 2016 *Stone Tools of Minnesota*. Manuscript on file, The Office of the State Archeologist, St. Paul, Minnesota.

National Climatic Data Center

- 2017 *Climate of Minnesota*. Electronic document. http://www.ncdc.noaa.gov/climate/normals/clim60/states/Clim_MN_01.pdf, Accessed on May 9, 2017. Asheville, North Carolina.

National Park Service

- 1983 *Archaeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines*. Federal Register Volume 48, Issue 190. U.S. Department of the Interior, Washington, D.C.
- 1990 *Curation of Federally-Owned and Administered Archeological Collections*. Federal Register Volume 55, Issue 177. U.S. Department of the Interior, Washington, D.C.

- 1997 [1990] *How to Apply the National Register Criteria for Evaluation*. National Register Bulletin 15. U.S. Department of the Interior, Washington, D.C.
- 2000 *Guidelines for Evaluating and Registering Archaeological Properties*. National Register Bulletin 36. U.S. Department of the Interior, Washington, D.C.
- 2002 “Brooks-Scanlon Corporation No. 1.” In *Steamtown Special History Study: American Steam Locomotives*. U.S. Department of the Interior, Washington, D.C. Electronic document, https://www.nps.gov/parkhistory/online_books/steamtown/shs2d.htm, accessed October 16, 2025.
- 2018 *Glacial Till and Glacial Flour*. Electronic document, <https://www.nps.gov/articles/glacialtillandglacialflour.htm>, accessed November 3, 2025.
- Natural Resources Conservation Service
- 2025 Web Soil Survey. Available at: <http://websoilsurvey.nrcs.usda.gov>, accessed October 15, 2025.
- Picka, Craig
- 2012 *Heat Treatment of Ozark Cherts: An Archaeological Experiment in the Effects of Heat Treatment on Toolstone Flaking Properties*. Master’s thesis, Department of Sociology and Anthropology, Missouri State University.
- Pritzker, Barry M.
- 2000 *A Native American Encyclopedia: History, Culture, and People*. Oxford University Press.
- Quivik, Fredric and Dale L. Martin
- 1988 *Historical Context: Historic Iron and Bridges in Minnesota, 1873-1945*. Electronic document, <http://www.dot.state.mn.us/historicbridges/bridge/misc/iron-steel-context.pdf>, accessed on April 29, 2017.
- Radford, David, LeRoy Gonsior, Jacob E. Foss, and Miranda Van Vleet
- 2015 *Minnesota State Parks and Trail Culture Resource Program Annual Report – 2014*. Manuscript on file, The Office of the State Archeologist, St. Paul, Minnesota.
- Running, Garry L.
- 1995 Archaeological Geology of the Rustad Quarry Site (32RI775): An Early Archaic Site in Southeastern North Dakota. *Geoarchaeology* 10(3): 183–205.
- Schermer, Shirley J., William Green, and James Collins
- 1995 *A Brief Cultural History of Iowa*. Electronic document. <http://archaeology.uiowa.edu/brief-cultural-history-iowa-0>, Accessed April 29, 2017. The Office of the State Archaeologist.
- Schwieder, Dorothy
- 2000 *History of Iowa*. Electronic document. <http://publications.iowa.gov/135/1/history/7-1.html>, accessed on April 29, 2017.
- St. Louis County,
- 2017 *About St. Louis Minnesota*. Electronic document, <http://www.stlouiscountymn.gov/GOVERNMENT/About-History>, accessed October 25, 2017.

Stoltman, James

- 1997 Chapter 6: The Archaic Tradition. *The Wisconsin Archaeologists*, 78(1/2): 112-139. University of Wisconsin. Madison, Wisconsin.

Trygg, J. William

- 1966 *Composite Map of United States Land Surveyors' Original Plats and Field Notes*. [map]. Sheet MN 14, Minnesota Series. Trygg Land Office, Ely, Minnesota.

Upham, Warren

- 1920 *Minnesota Geographic Names: Their origin and Historic Significance*. Minnesota Historical Company, Minneapolis.

U.S. Bureau of Land Management (BLM)

- 1857 *Historic GLO Plat Map: Township 50N, Range 15W, St. Louis County, Minnesota* [map]. General Land Office Records, U.S. Department of the Interior. Electronic resource, <https://glorerecords.blm.gov>, accessed June 19, 2025.

U.S. Environmental Protection Agency

- 2007 *Ecoregions of Minnesota, Level IV Ecoregions of Minnesota Text Descriptions, Provisional*, May 11, 2007. Available at: <ftp://ftp.epa.gov/wed/ecoregions/mn/>, accessed March 30, 2017.

U.S. Geological Survey

- 1953 *Adolph, Minn., 1:24,000-scale quadrangle*. [map] U.S. Geological Survey Historical Topographic Map Collection, TopoView interface. Electronic document, <https://ngmdb.usgs.gov/topoview>, accessed June 19, 2025.
- 1993 *Adolph, Minn., 7.5-Minute Topographic Quadrangle, 1:24,000 scale*. [map] U.S. Geological Survey Historical Topographic Map Collection, TopoView interface. Electronic document, <https://ngmdb.usgs.gov/topoview>, accessed June 19, 2025.

University of California, Davis (UC Davis)

- 2025 SoilWeb. Available at: <https://casoilresource.lawr.ucdavis.edu/gmap/>. Department of Land, Air, and Water Resources, University of California, Davis, accessed October 15, 2025.

University of Minnesota (MHAPO)

- 2015 Minnesota Historical Aerial Photographs Online. University of Minnesota, Minneapolis, MN. Available at: <https://apps.lib.umn.edu/mhapo/>, accessed June 19, 2025.

W.W. Hixson & Co.

- 1916 *Plat Book of the State of Minnesota*. W.W. Hixson & Co. Rockford, Illinois. Electronic resource, <https://www.lib.umn.edu/collections/borchert/digitized-plat-maps-and-atlases#s-44771>, accessed June 19, 2025.

Waldman, Carl

- 2006 *Encyclopedia of Native American Tribes*. Checkmark Books, an imprint of Infobase Publishing. New York.

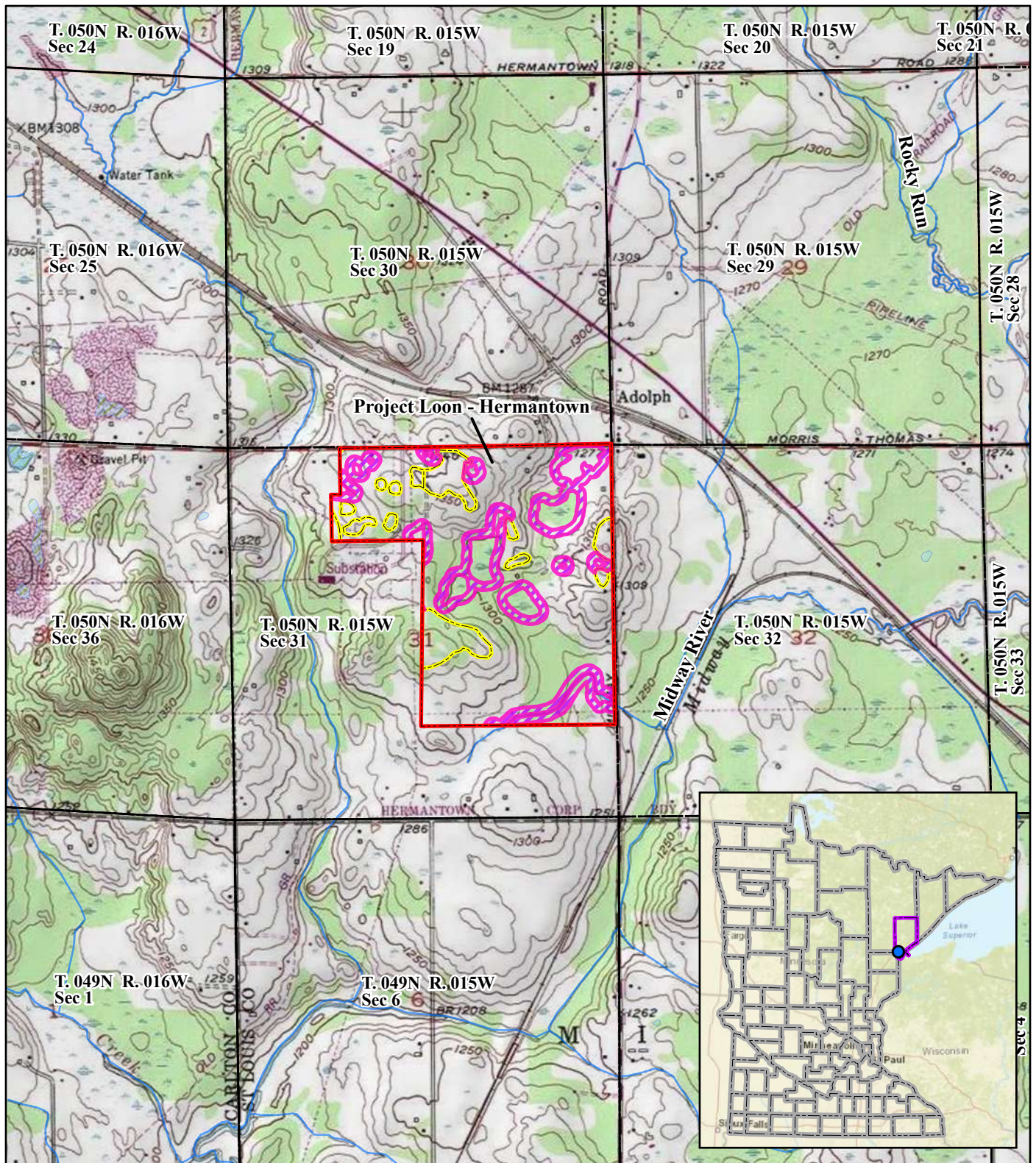
Woodbridge, Dwight and John Pardef (editors)

- 1910 *History of Duluth and St. Louis County: Past and Present*. C.F Cooper & Company, Chicago.

Wright, H. E. Jr.

1972 Physiology of Minnesota. In *Geology of Minnesota: A Centennial Volume*. pp. 561-578. Minnesota Geological Society.

FIGURES



Legend

- | | |
|---|---|
| Project Area | Waterbody |
| Wetland AOI Survey Area | ● Project Location |
| Resource Potential Survey Area | St. Louis County |
| Township/Range/Section | County Boundary |
| — Stream/River | |



1:24,000
 Approximate Scale in Feet
 1 inch equals 2,000 feet
 2,000 0 2,000 4,000

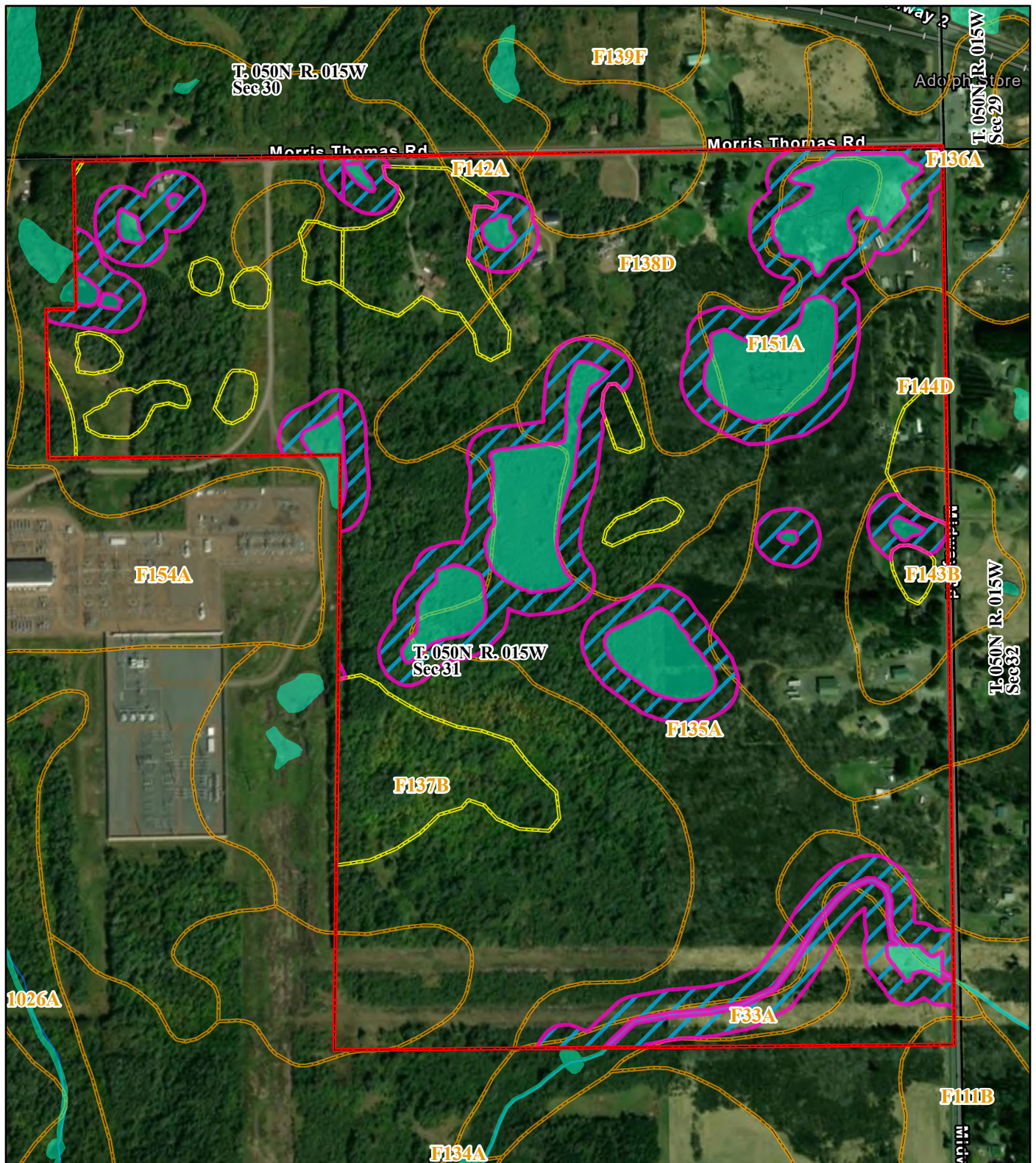
TOPOGRAPHIC MAP

Project Loon - Hermantown
 St. Louis County, Minnesota

Note: Imagery courtesy of ESRI

Figure 1. Project location on the USGS 1993 Adolph, MN 7.5 minute series topographic map.





Legend

- | | |
|---|---|
| Project Area | Resource Potential Survey Area |
| Soils | Township/Range/Section |
| Wetland | — Stream/River |
| Wetland AOI Survey Area | Waterbody |



1:7,500
 Approximate Scale in Feet
 625 0 625 1,250
 1 inch equals 625 feet

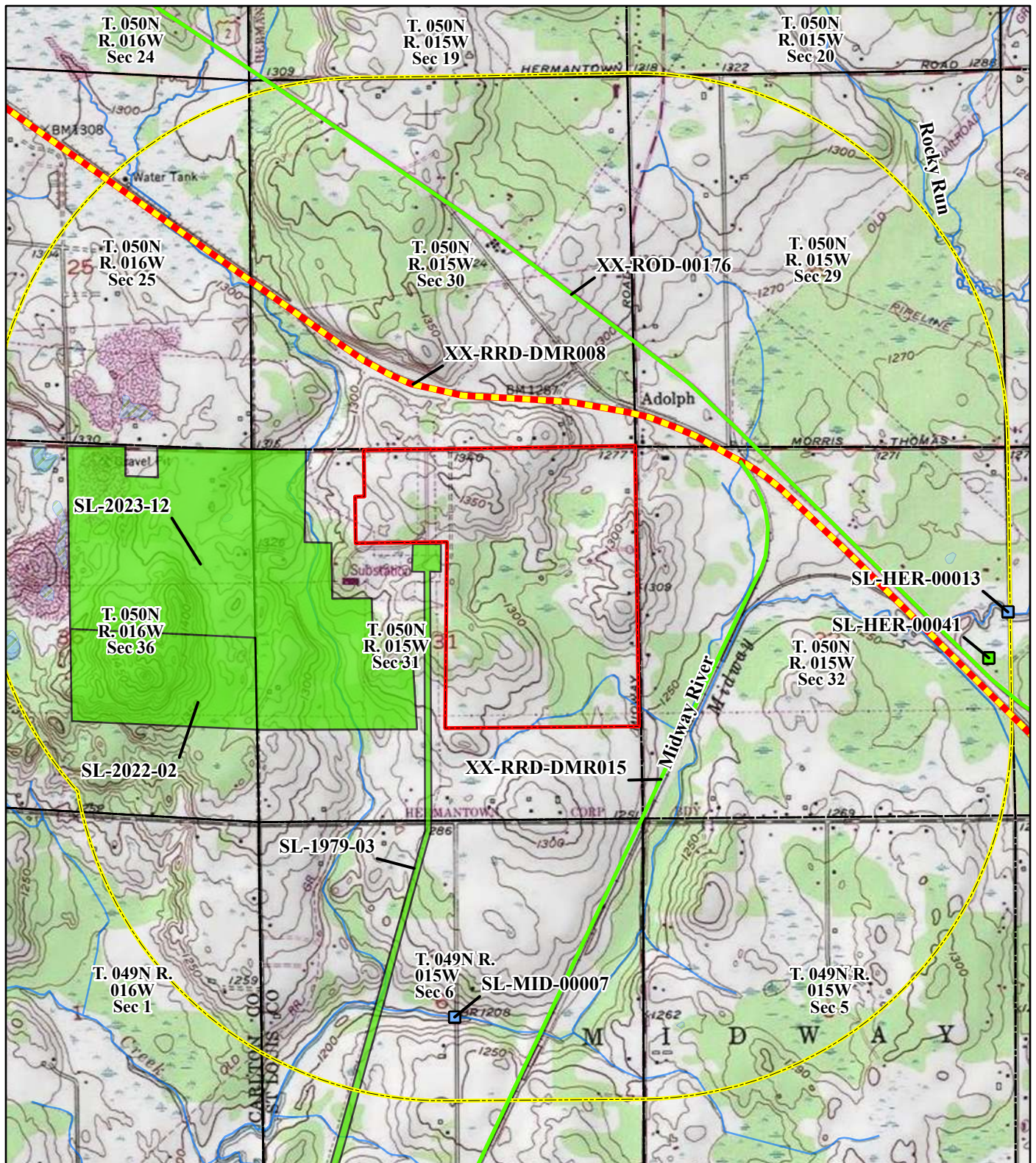
AERIAL MAP

Project Loon - Hermantown
 St. Louis County, Minnesota

Note: Imagery courtesy of ESRI

Figure 2. Project location on an aerial map.





Legend

- | | |
|--|---|
| ■ Not Eligible Architecture Resource | □ Project Area |
| ■ Unevaluated Architecture Resource | □ 1-Mile Study Area |
| — Eligible Linear Architecture Resource | □ Township/Range/Section |
| — Not Eligible Linear Architecture Resource | — Stream/River |
| ■ Previous Inventory/Survey | — Waterbody |



1:24,000
Approximate Scale in Feet
1 inch equals 2,000 feet
2,000 0 2,000 4,000

LITERATURE REVIEW TOPOGRAPHIC MAP

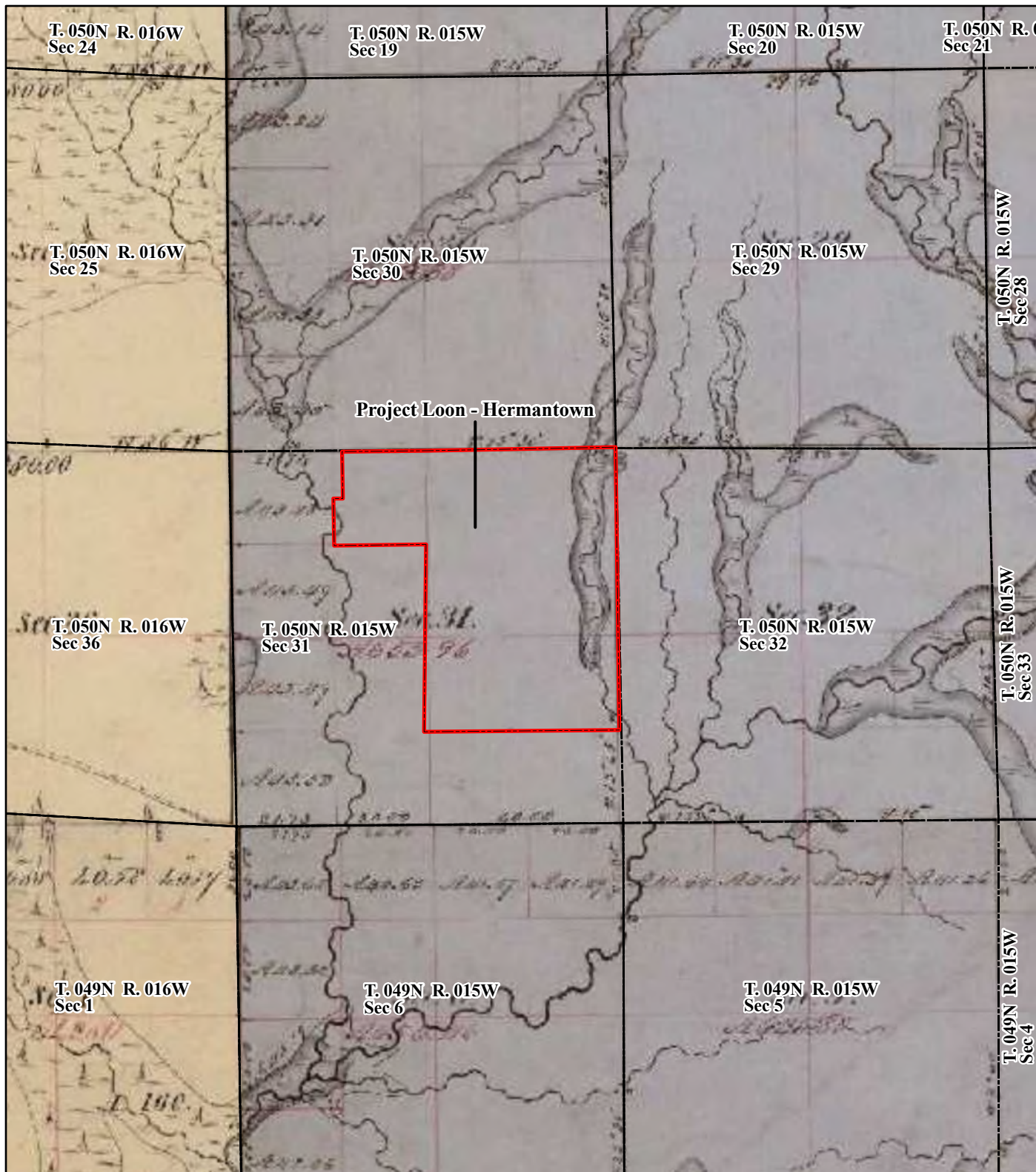
Project Loon - Hermantown
St. Louis County, Minnesota

REDACTED FOR PUBLIC DISCLOSURE
Archaeological Data Redacted to Protect Resources

Note: Imagery courtesy of ESRI

Figure 3. Topographic map with previous cultural resources surveys and previously recorded sites.





Legend

- Project Area
- Township/Range/Section



1:24,000
Approximate Scale in Feet
1 inch equals 2,000 feet
2,000 0 2,000 4,000

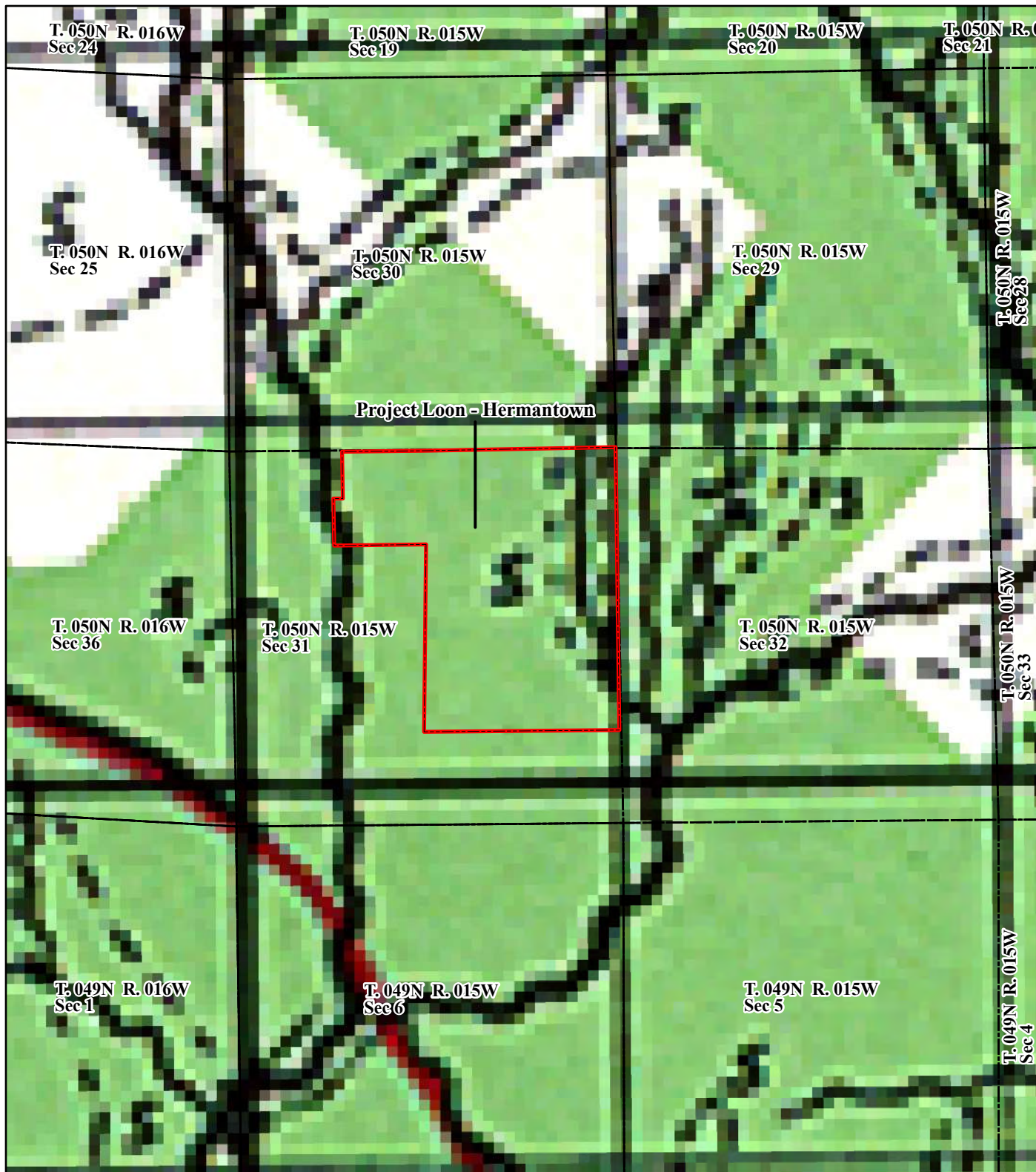
HISTORICAL BLM GLO PLAT MAP

Project Loon - Hermantown
St. Louis County, Minnesota

Note: Imagery courtesy of the U.S. Department of the Interior Bureau of Land Management.

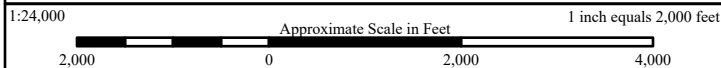
Figure 5A. Project location on the 1857 BLM GLO Plat map.





Legend

- Project Area
- Township/Range/Section



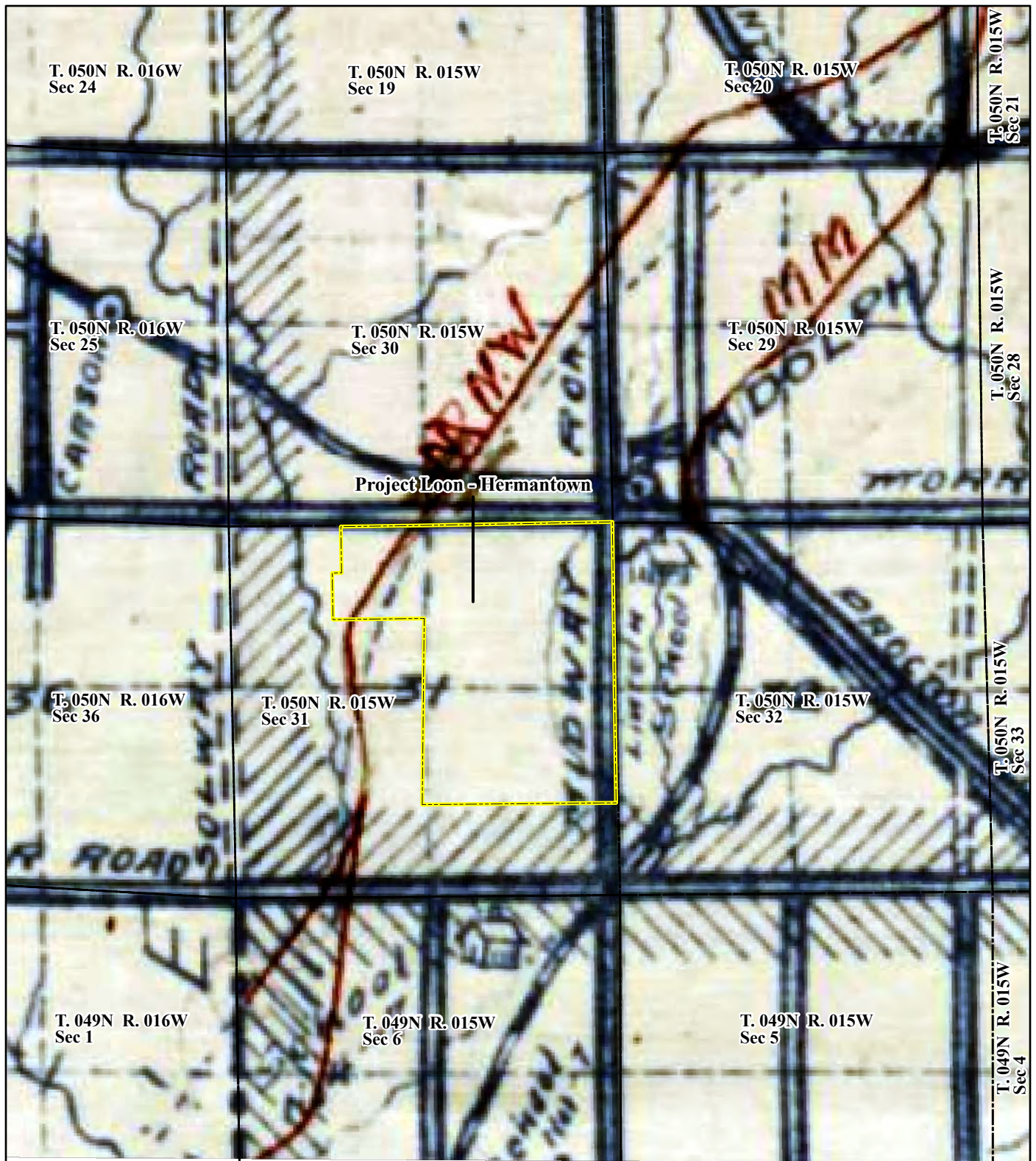
TRYGG MAP

Project Loon - Hermantown
St. Louis County, Minnesota

Note: Imagery courtesy of Trygg Historical Maps.

Figure 5B. Project location on the Historical Trygg Map published in 1966.





Legend

- Project Area
- Township/Range/Section



1:24,000

Approximate Scale in Feet

1 inch equals 2,000 feet

2,000 0 2,000 4,000

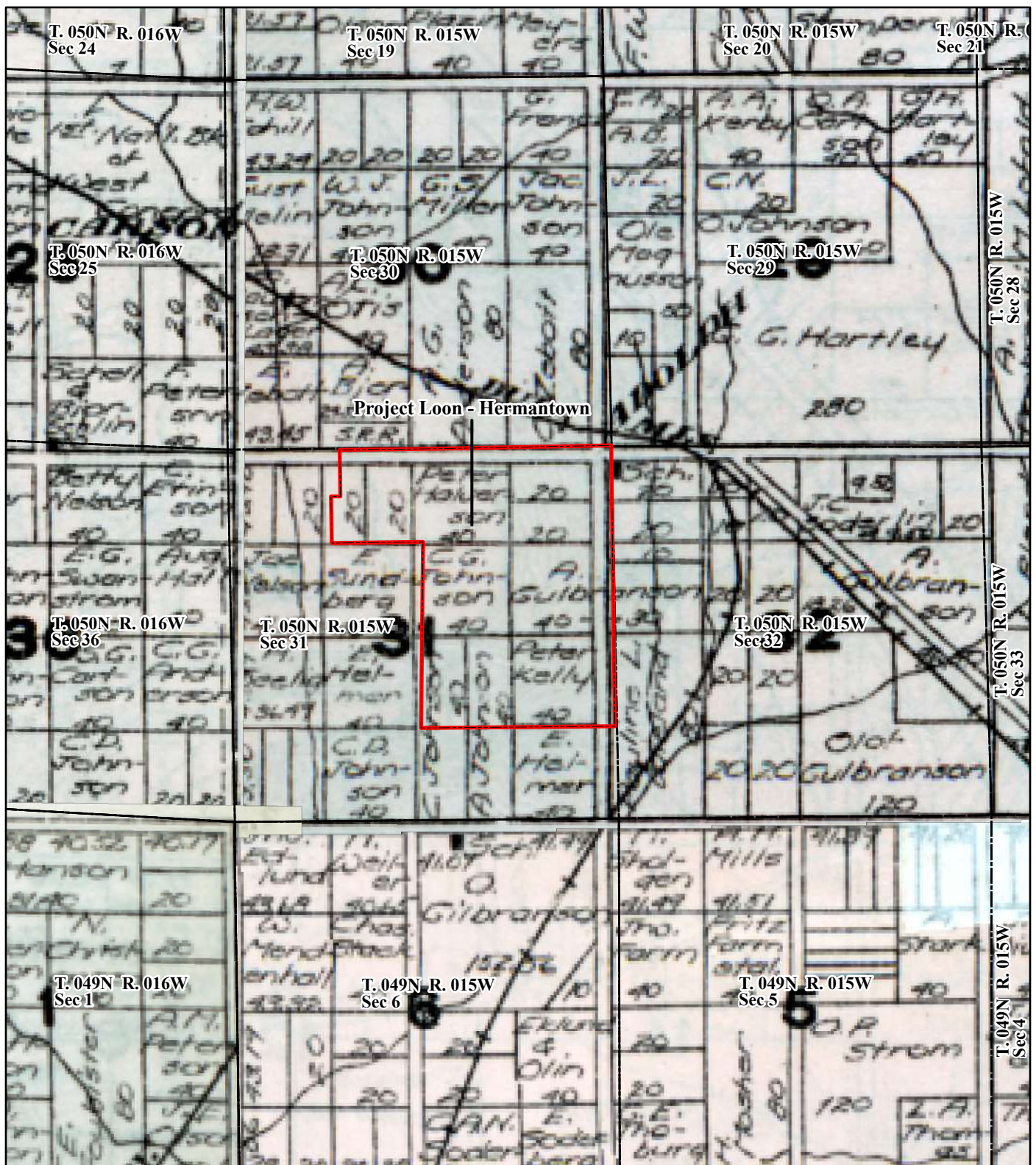
HISTORICAL TOPOGRAPHIC MAP

Project Loon - Hermantown
St. Louis County, Minnesota

Note: Imagery courtesy of the Minnesota Digital Library.

Figure 5C. Project location on a 1915 map of the south part of St. Louis county.





Legend

- ▭ Project Area
- Township/Range/Section



1:24,000
 Approximate Scale in Feet
 1 inch equals 2,000 feet
 2,000 0 2,000 4,000

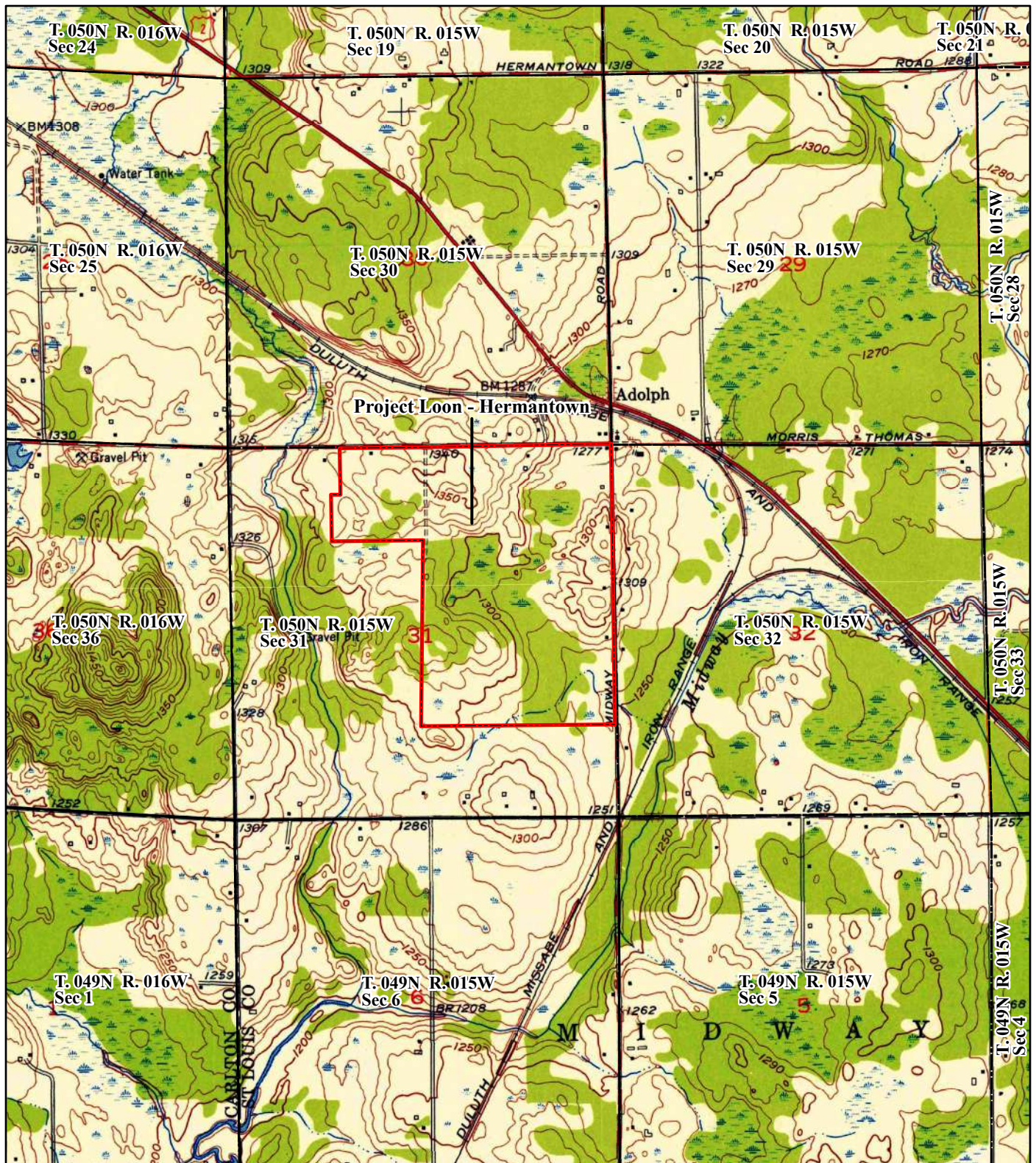
1916 PLAT MAP

Project Loon - Hermantown
 St. Louis County, Minnesota

Note: Imagery courtesy of the Minnesota Digital Library.

Figure 5D. Project location on a 1916 plat map.





Legend

- Project Area
- Township/Range/Section



1:24,000
Approximate Scale in Feet
1 inch equals 2,000 feet
2,000 0 2,000 4,000

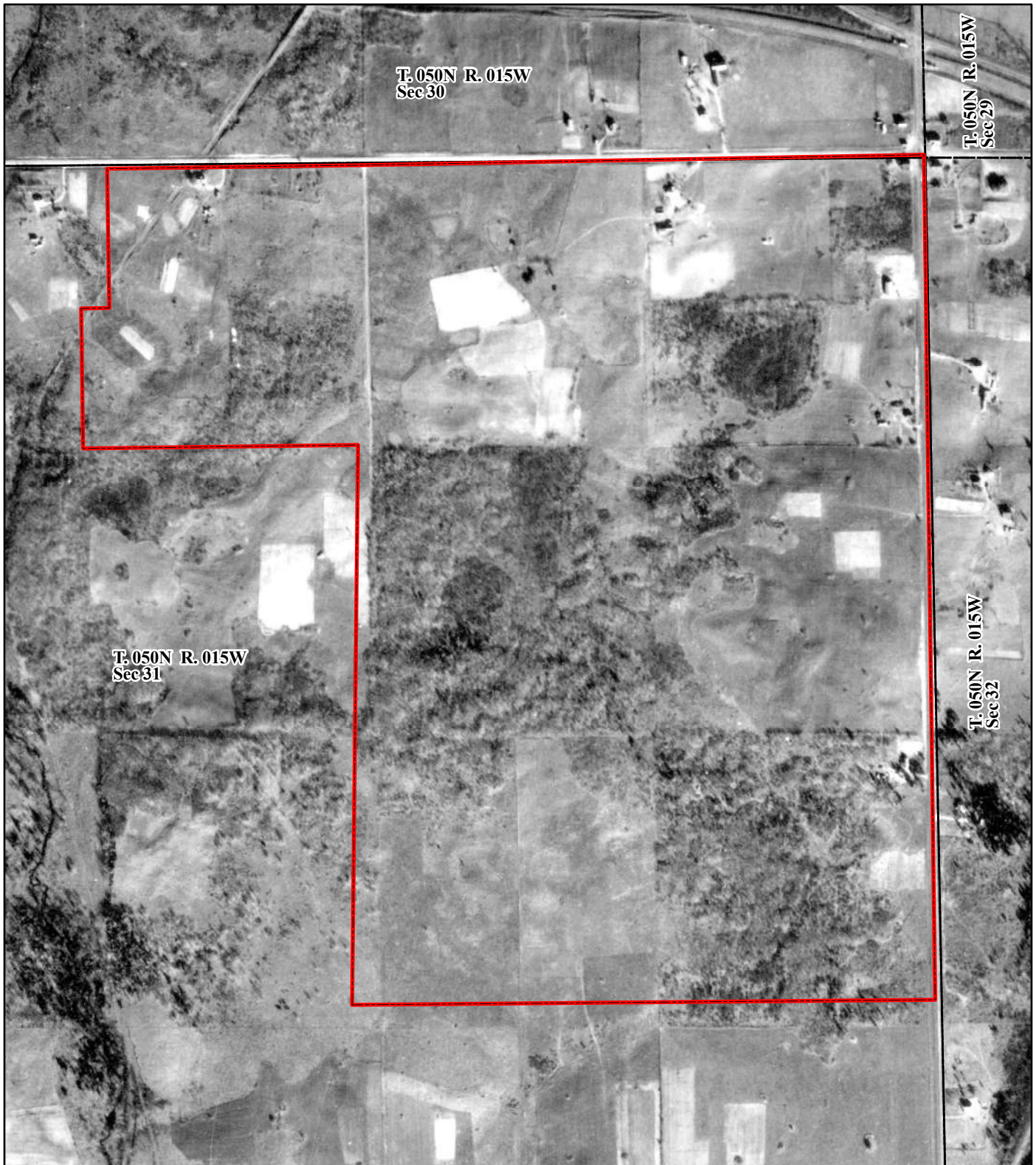
HISTORICAL TOPOGRAPHIC MAP

Project Loon - Hermantown
St. Louis County, Minnesota

Note: Imagery courtesy of the USGS.

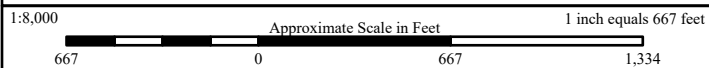
Figure 5E. Project location on the 1953
Adolph, MN 24,000 series topographic map.





Legend

-  Project Area
-  Township/Range/Section

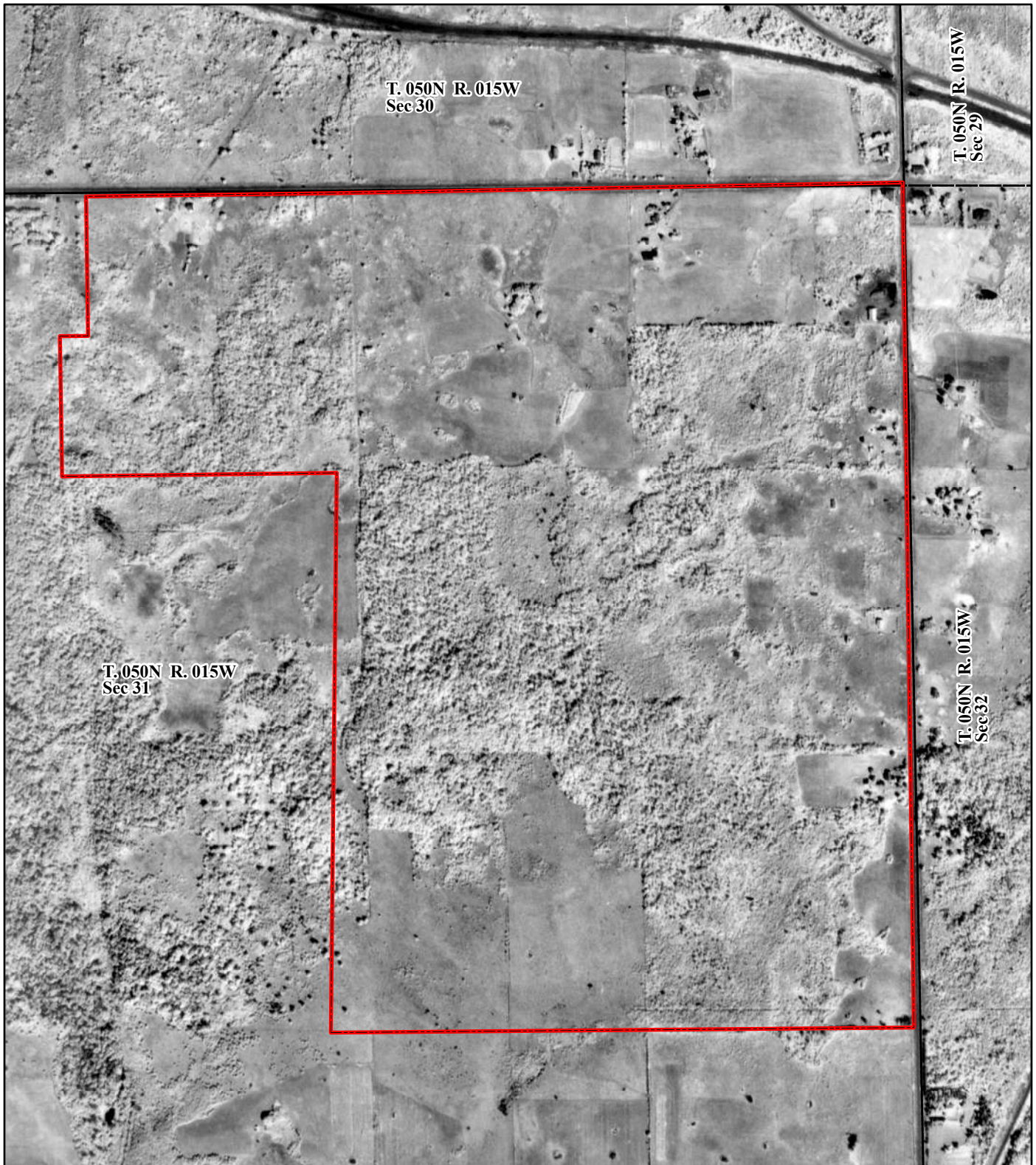


1939 AERIAL MAP
Project Loon - Hermantown
St. Louis County, Minnesota

Note: Imagery courtesy of MHAPO.

Figure 5F. Project location on 1939 aerial imagery.





Legend

-  Project Area
-  Township/Range/Section



1:8,000
Approximate Scale in Feet
1 inch equals 667 feet
667 0 667 1,334

1961 AERIAL MAP
Project Loon - Hermantown
St. Louis County, Minnesota

Note: Imagery courtesy of MHAPO.

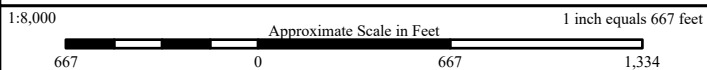
Figure 5G. Project location on 1961 aerial imagery.





Legend

- Project Area
- Township/Range/Section



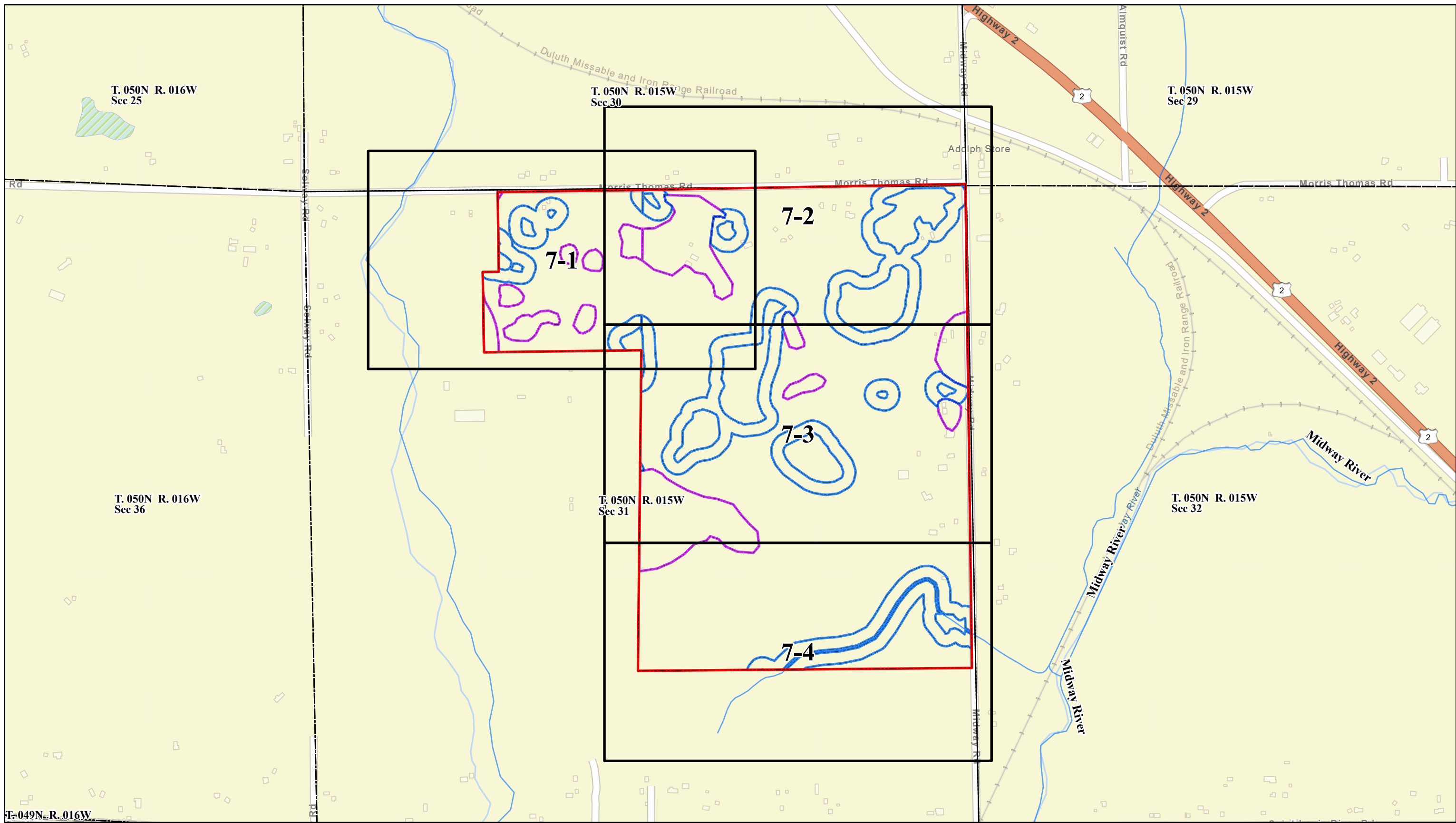
1981 AERIAL MAP

Project Loon - Hermantown
St. Louis County, Minnesota

Note: Imagery courtesy of MHAPO.

Figure 5H. Project location on 1981 aerial imagery.





Mapbook Page

Project Area

Wetland AOI Survey Area

Survey Area

Township/Range/Section

Stream/River

Waterbody

N

W

E

S

750

375

0

750

Approximate Scale in Feet

1:9,000

1 inch equals 750 feet

Note: Imagery courtesy of ESRI

Figure 6. Political map showing the mapbook layout for the fieldwork map of the project indicating the results of testing and photo orientations.

N

W

E

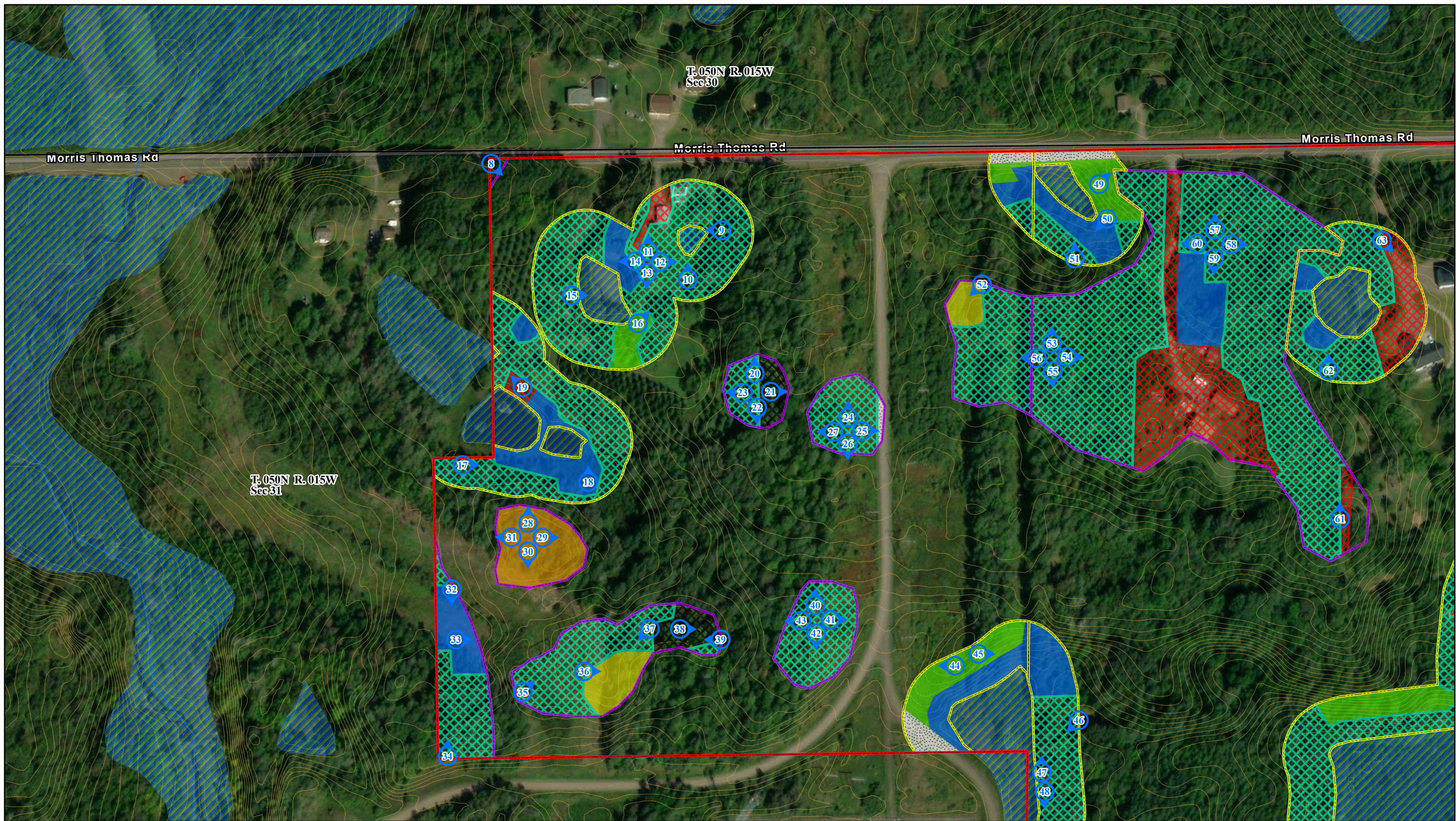
S

FIELDWORK MAP

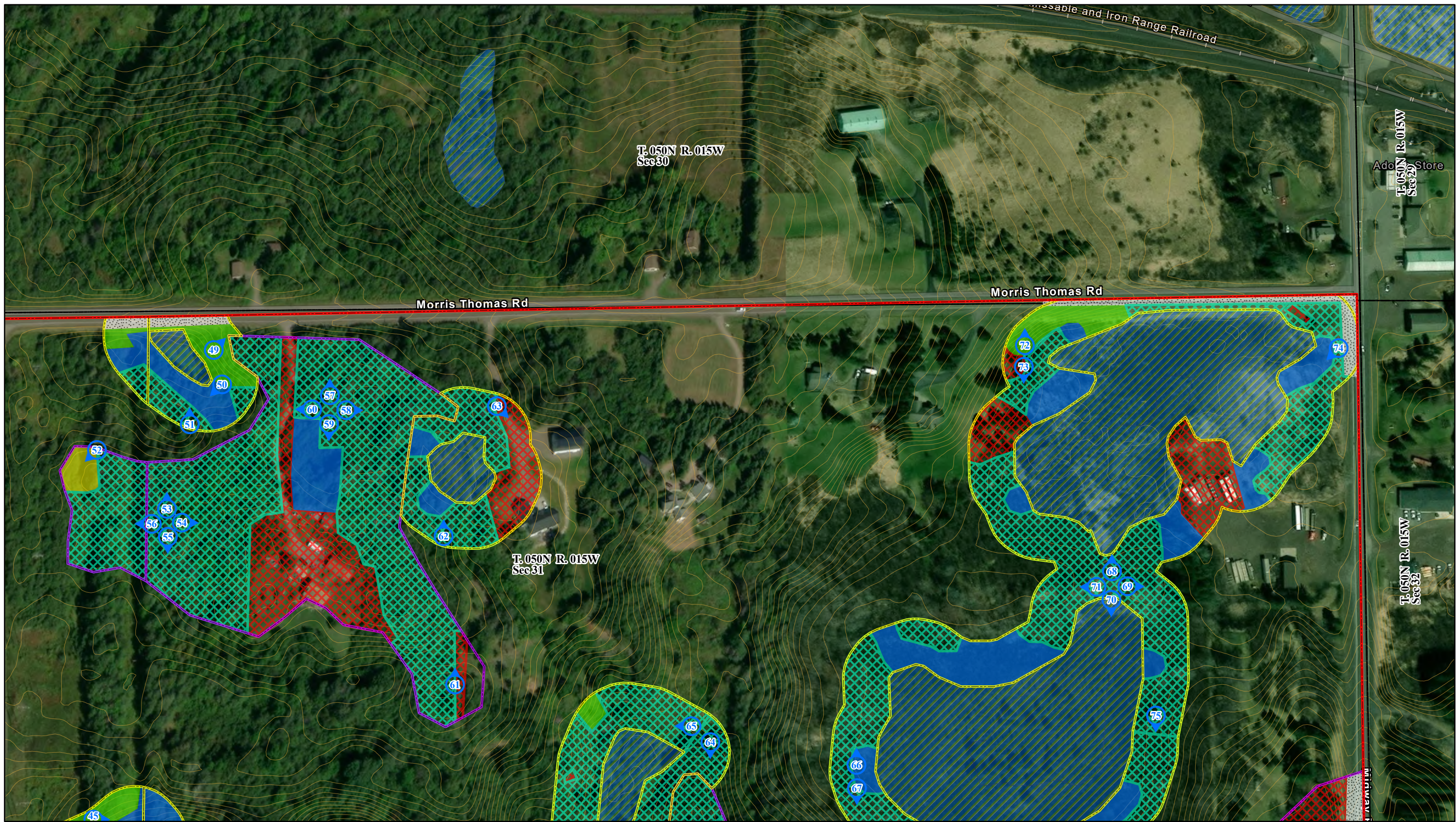
(OVERVIEW)

Project Loon - Hermantown

St. Louis County, Minnesota



Legend Photo Orientation Disturbed-Construction Low Potential-Low Lying Area Rural Development/Private Property Pedestrian Survey Road/Path Sloped Conditions Wetland Conditions Shovel Testing Area Project Area Wetland AOI Survey Area Resource Potential Survey Area Wetland Township/Range/Section Stream/River 2-ft Contour	 N W E S		FIELDWORK MAP (DETAILED) Project Loon - Hermantown St. Louis County, Minnesota REDACTED FOR PUBLIC DISCLOSURE Archaeological Data Redacted to Protect Resources	200 100 0 200 Approximate Scale in Feet 1:2,400 1 inch equals 200 feet Note: Imagery courtesy of ESRI Figure 7-1. Fieldwork map of the project indicating the results of testing and photo orientations.
--	-------------------	--	--	---



Legend

Photo Orientation	Road/Path	Wetland AOI Survey Area
Disturbed-Construction	Sloped Conditions	Resource Potential Survey Area
Low Potential-Low Lying Area	Wetland Conditions	Wetland
Rural Development/Private Property	Shovel Testing Area	Township/Range/Section
Pedestrian Survey	Project Area	2-ft Contour

**FIELDWORK MAP
(DETAILED)**

Project Loon - Hermantown
St. Louis County, Minnesota

REDACTED FOR PUBLIC DISCLOSURE
Archaeological Data Redacted to
Protect Resources

200 100 0 200
Approximate Scale in Feet

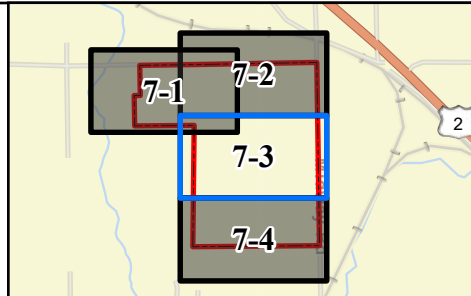
1:2,400 1 inch equals 200 feet

Note: Imagery courtesy of ESRI

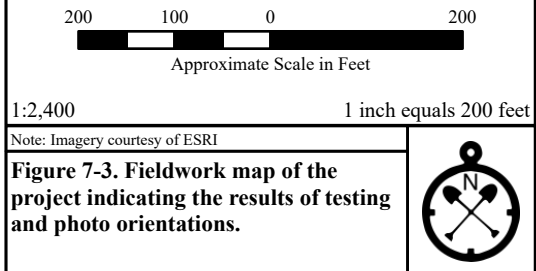
Figure 7-2. Fieldwork map of the project indicating the results of testing and photo orientations.

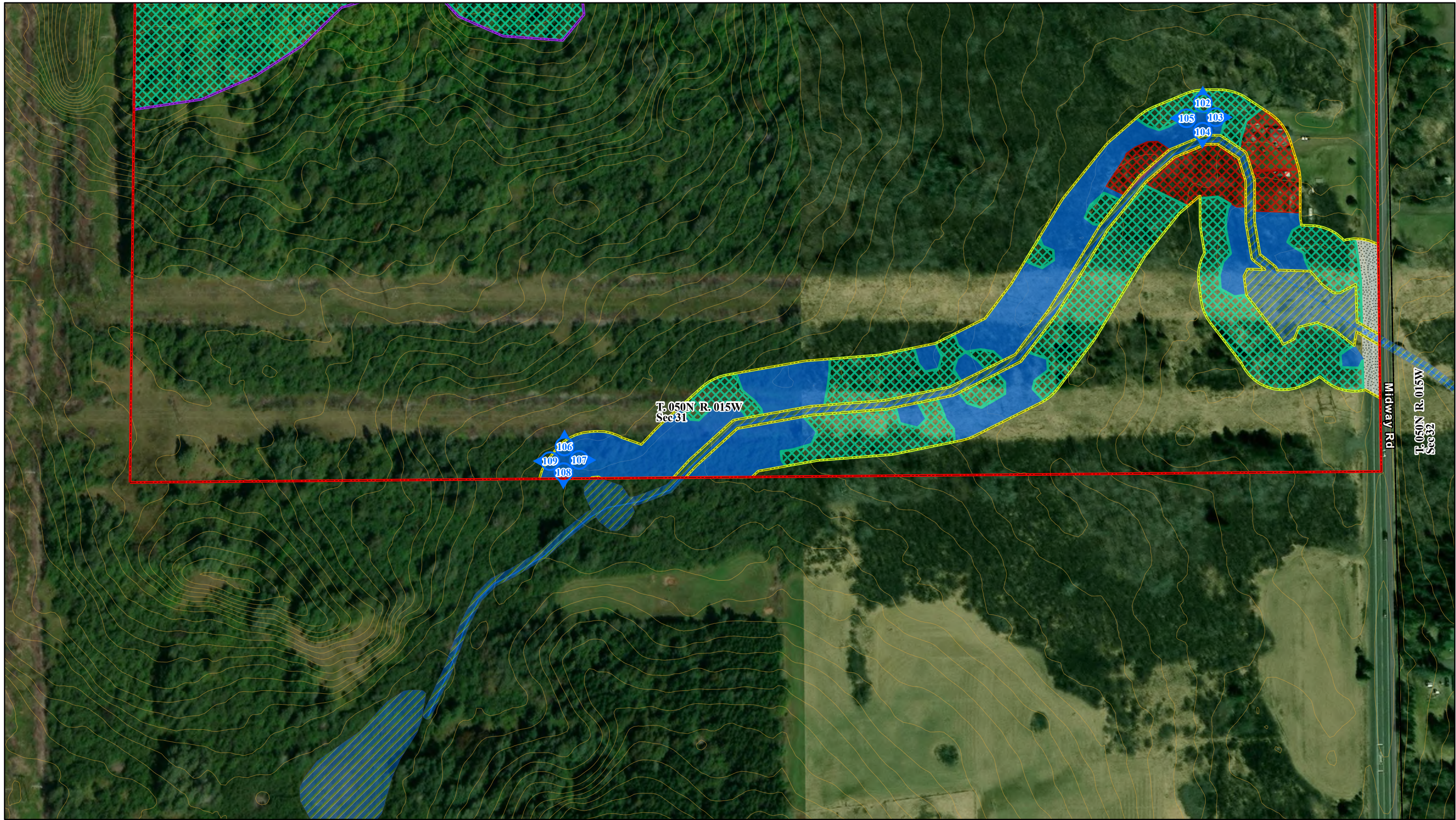


- Legend**
- | | | |
|------------------------------------|---------------------|--------------------------------|
| Photo Orientation | Road/Path | Wetland AOI Survey Area |
| Disturbed-Construction | Sloped Conditions | Resource Potential Survey Area |
| Low Potential-Low Lying Area | Wetland Conditions | Wetland |
| Rural Development/Private Property | Shovel Testing Area | Township/Range/Section |
| Pedestrian Survey | Project Area | 2-ft Contour |



**FIELDWORK MAP
(DETAILED)**
Project Loon - Hermantown
St. Louis County, Minnesota
REDACTED FOR PUBLIC DISCLOSURE
Archaeological Data Redacted to
Protect Resources





Legend		
Photo Orientation	Road/Path	Resource Potential Survey Area
Disturbed-Construction	Sloped Conditions	Wetland
Low Potential-Low Lying Area	Wetland Conditions	Township/Range/Section
Rural Development/Private Property	Shovel Testing Area	Stream/River
Pedestrian Survey	Project Area	2-ft Contour
	Wetland AOI Survey Area	

**FIELDWORK MAP
(DETAILED)**

Project Loon - Hermantown
St. Louis County, Minnesota

REDACTED FOR PUBLIC DISCLOSURE
Archaeological Data Redacted to
Protect Resources

200 100 0 200

Approximate Scale in Feet

1:2,400 1 inch equals 200 feet

Note: Imagery courtesy of ESRI

Figure 7-4. Fieldwork map of the project indicating the results of testing and photo orientations.



Figure 8: View facing southeast within the survey area (shovel test area) (R0016489).



Figure 9: View facing west within the survey area (shovel test area) (R0017052).



Figure 10: View facing north within the survey area (shovel test area) (R0017044).



Figure 11: View facing north within the survey area (shovel test area/existing private farmland) (R0017014).



Figure 12: View facing east within the survey area (shovel test area) (R0017016).



Figure 13: View facing south within the survey area (shovel test area) (R0017018).



Figure 14: View facing west within the survey area (shovel test area/wetland) (R0017020).



Figure 15: View facing east within the survey area (wetland conditions) (R0017029).



Figure 16: View facing northeast within the survey area (sloped conditions/shovel test area) (IMG_0084).



Figure 17: View facing east within the survey area (shovel test area) (IMG_0074).



Figure 18: View facing north within the survey area (wetland conditions) (IMG_0069).



Figure 19: View facing northwest within the survey area (manicured lawn/private property) (R0016492).



Figure 20: View facing north within the survey area (shovel test area) (R0016538).



Figure 21: View facing east within the survey area (disturbed/construction) (R0016526).



Figure 22: View facing south within the survey area (shovel test area) (R0016542).



Figure 23: View facing west within the survey area (shovel test area) (R0016544).



Figure 24: View facing north within the survey area (shovel test area) (R0016530).



Figure 25: View facing east within the survey area (shovel test area) (R0016532).



Figure 26: View facing south within the survey area (shovel test area) (R0016534).



Figure 27: View facing west within the survey area (shovel test area) (R0016536).



Figure 28: View facing north within the survey area (low potential-low lying area) (R0016554).



Figure 29: View facing east within the survey area (low potential-low lying area) (R0016556).



Figure 30: View facing south within the survey area (low potential-low lying area) (R0016558).



Figure 31: View facing west within the survey area (low potential-low lying area) (R0016560).



Figure 32: View facing south within the survey area (wetland conditions) (R0016614).



Figure 33: View facing east within the survey area (wetland conditions) (R0016602).



Figure 34: View facing north within the survey area (shovel test area) (R0016609).



Figure 35: View facing northeast within the survey area (shovel test area) (R0016596).



Figure 36: View facing east within the survey area (pedestrian survey-construction 90% GSV) (R0016562).



Figure 37: View facing southwest within the survey area (shovel test area/pedestrian survey) (R0016579).



Figure 38: View facing east within the survey area (disturbed-construction) (R0016575).



Figure 39: View facing west within the survey area (disturbed-construction) (R0016616).



Figure 40: View facing north within the survey area (shovel test area) (R0016546).



Figure 41: View facing east within the survey area (shovel test area) (R0016548).



Figure 42: View facing south within the survey area (shovel test area) (R0016550).



Figure 43: View facing west within the survey area (shovel test area) (R0016552).



Figure 44: View facing west within the survey area (sloped conditions) (R0016857).



Figure 45: View facing east within the survey area (sloped conditions) (R0016856).



Figure 46: View facing southwest within the survey area (shovel test area) (R0016829).



Figure 47: View facing north within the survey area (shovel test area) (R0016832).



Figure 48: View facing south within the survey area (shovel test area) (R0016834).



Figure 49: View facing northeast within the survey area (sloped conditions) (R0016896).



Figure 50: View facing southwest within the survey area (wetland conditions) (R0016897).



Figure 51: View facing north within the survey area (shovel test area) (R0016898).



Figure 52: View facing southwest within the survey area (pedestrian survey-construction 90% GSV) (R0016676).



Figure 53: View facing north within the survey area (shovel test area) (R0016662).



Figure 54: View facing east within the survey area (shovel test area) (R0016664).



Figure 55: View facing south within the survey area (shovel test area) (R0016666).



Figure 56: View facing west within the survey area (shovel test area) (R0016668).



Figure 57: View facing north within the survey area (shovel test area) (R0016720).



Figure 58: View facing east within the survey area (shovel test area) (R0016722).



Figure 59: View facing south within the survey area (shovel test area) (R0016724).



Figure 60: View facing west within the survey area (shovel test area) (R0016727).



Figure 61: View facing north within the survey area (manicured lawn/private property) (R0016807).



Figure 62: View facing north within the survey area (shovel test area) (R0017100).



Figure 63: View facing east within the survey area (existing private farmland) (R0017007).



Figure 64: View facing south within the survey area (shovel test area) (R0017139).



Figure 65: View facing west within the survey area (shovel test area) (R0017140).



Figure 66: View facing north within the survey area (shovel test area/wetland) (R0016925).



Figure 67: View facing south within the survey area (shovel test area) (R0016927).



Figure 68: View facing north within the survey area (shovel test area) (R0016935).



Figure 69: View facing east within the survey area (shovel test area) (R0016936).



Figure 70: View facing south within the survey area (shovel test area) (R0016937).



Figure 71: View facing west within the survey area (shovel test area) (R0016938).



Figure 72: View facing north within the survey area (sloped conditions) (R0016973).

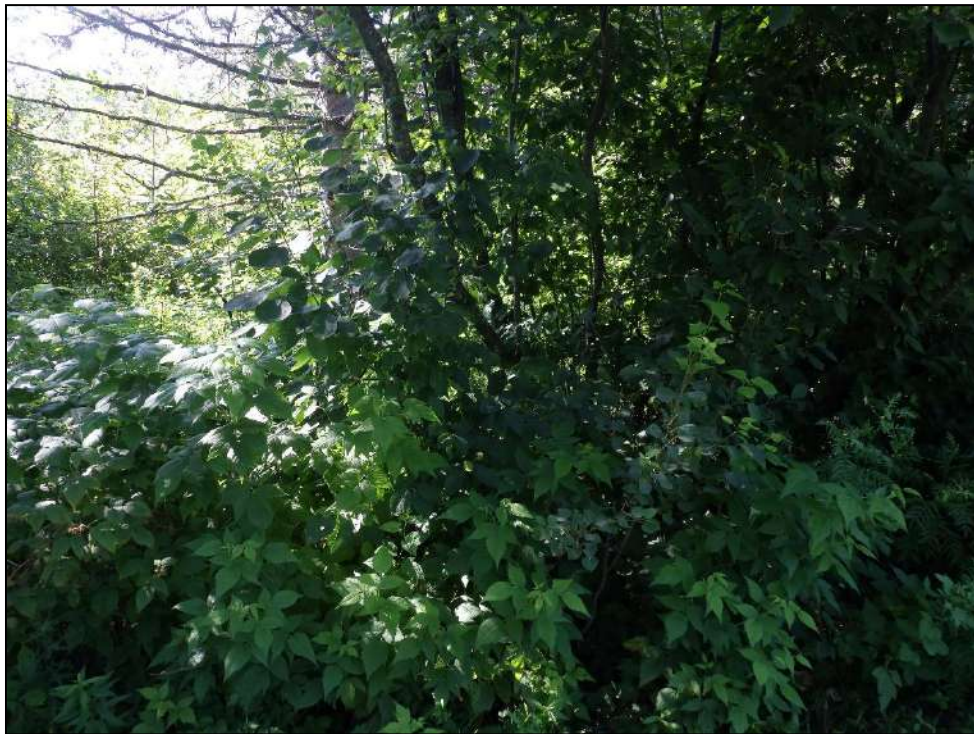


Figure 73: View facing south within the survey area (shovel test area) (R0016975).



Figure 74: View facing southwest within the survey area (wetland conditions) (R0016982).



Figure 75: View facing south within the survey area (shovel test area) (R0016912).



Figure 76: View facing north within the survey area (shovel test area) (R0016874).

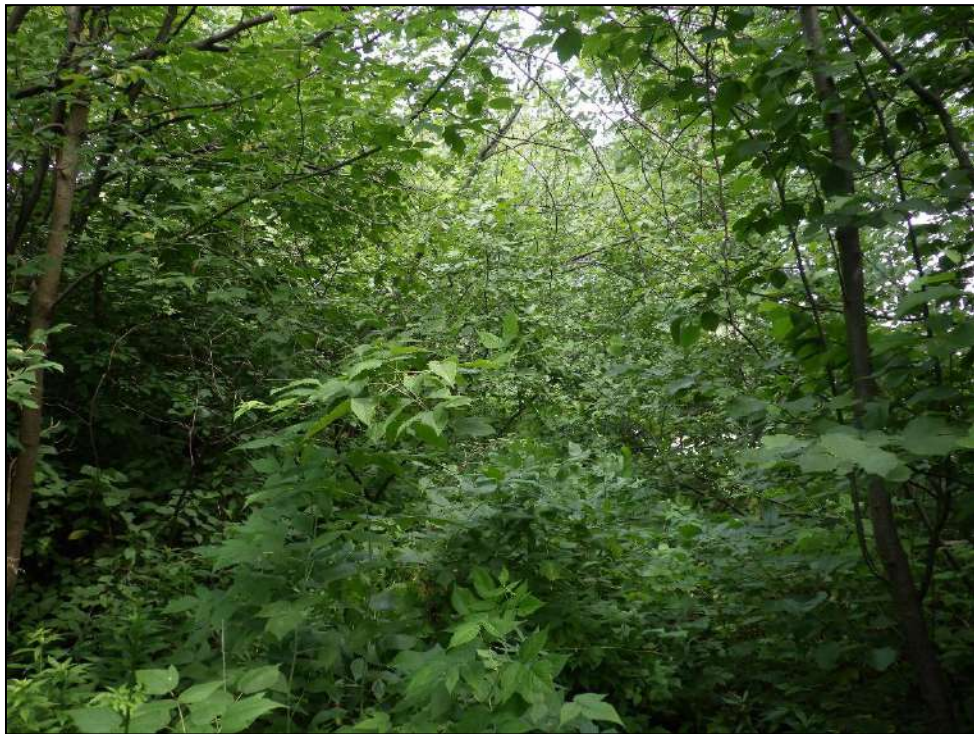


Figure 77: View facing east within the survey area (shovel test area) (R0016875).



Figure 78: View facing south within the survey area (shovel test area) (R0016876).



Figure 79: View facing west within the survey area (shovel test area) (R0016877).



Figure 80: View facing northwest within the survey area (shovel test area) (R0018401).



Figure 81: View facing southeast within the survey area (shovel test area/private property) (R0018397).



Figure 82: View facing north within the survey area (private property) (R0018402).



Figure 83: View facing south within the survey area (private property) (R0018404).



Figure 84: View facing east within the survey area (shovel test area) (R0018386).



Figure 85: View facing west within the survey area (shovel test area) (R0018388).



Figure 86: View facing north within the survey area (shovel test area) (R0017168).



Figure 87: View facing east within the survey area (shovel test area) (R0017169).



Figure 88: View facing south within the survey area (shovel test area) (R0017170).



Figure 89: View facing west within the survey area (shovel test area) (R0017171).



Figure 90: View facing north within the survey area (shovel test area) (R0017084).



Figure 91: View facing east within the survey area (shovel test area) (R0017086).



Figure 92: View facing south within the survey area (shovel test area) (R0017088).



Figure 93: View facing west within the survey area (shovel test area) (R0017090).



Figure 94: View facing north within the survey area (low potential-low lying area) (R0016765).



Figure 95: View facing east within the survey area (low potential-low lying area) (R0016766).



Figure 96: View facing south within the survey area (shovel test area) (R0016767).



Figure 97: View facing west within the survey area (shovel test area) (R0016768).



Figure 98: View facing north within the survey area (shovel test area) (R0017208).



Figure 99: View facing east within the survey area (shovel test area) (R0017209).



Figure 100: View facing south within the survey area (shovel test area) (R0017210).



Figure 101: View facing west within the survey area (shovel test area) (R0017211).



Figure 102: View facing north within the survey area (shovel test area) (R0018314).



Figure 103: View facing east within the survey area (shovel test area/wetland) (R0018315).



Figure 104: View facing south within the survey area (wetland conditions) (R0018316).



Figure 105: View facing west within the survey area (shovel test area/wetland) (R0018317).



Figure 106: View facing north within the survey area (wetland conditions) (R0018189).



Figure 107: View facing east within the survey area (wetland conditions) (R0018190).



Figure 108: View facing south within the survey area (wetland conditions) (R0018191).



Figure 109: View facing west within the survey area (wetland conditions) (R0018192).



Figure 110A. View of typical ground surface visibility (90%) for pedestrian project within the project area (R0016570/R0016678).



Figure 110B: View of typical low-lying area with low cultural resource potential within the project area (R0016554/R0016773).



Figure 110C: View of typical rural development/private property within the project area (R0016940/R0016716).



Figure 110D: View of typical disturbed conditions (roads) within the project area (R0016813/R0016821).



Figure 110E: View of typical disturbed conditions (construction activity) within the project area (R0016567/R0016562).



Figure 110F: View of typical sloped conditions within the project area (R0016857/R0016856).



Figure 110G: View of typical wetland conditions within the project area (R0016779/R0016961).



Representative shovel test photo.



Representative soil profile photo.

Representative Shovel Test Soil Profile

Scale

0 cm

20 cm

40 cm

60 cm

80 cm

100 cm

120 cm

Soil Series: Normanna-Canosia-Hermantown-complex (F137B)

Depth to Subsoil: 37 cm

Depth to Terminus: 102 cm

Date: 07/30/2025



A: 10YR3/3 Dark brown silt loam (0-24 cm)



B: 10YR3/6 Dark yellowish brown sand loam (24-37 cm); glacial till at 36cm



C: 10YR4/4 Dark yellowish brown sand loam (37-102 cm)



Figure 111B: View of glacial till from shovel testing units (R0016757/R0016652).



Representative shovel test photo.



Representative soil profile photo.

Representative Hydric Shovel Test Soil Profile

Scale

0 cm

20 cm

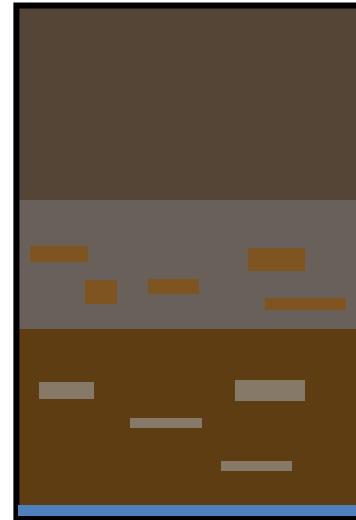
40 cm

60 cm

80 cm

100 cm

120 cm



Soil Series: Normanna-Canosia-Hermantown complex (F137B)

Depth to Subsoil: 22 cm

Depth to Terminus: 59 cm

Date: 08/05/2025



A: 10YR3/2 Very dark grayish brown silt loam (0-22 cm)



B: 60% 10YR4/1 Dark gray silt mottled with 40% 10YR4/6 Dark yellowish brown silt loam (22-37 cm)



Bw: 70% 10YR3/6 Dark yellowish brown sandy loam mottled with 30% 10YR5/2 grayish brown sandy loam; water table reached (37-59 cm)



Representative shovel test photo.



Representative soil profile photo.

Representative Disturbed Shovel Test Soil Profile

Scale

0 cm

20 cm

40 cm

60 cm

80 cm

100 cm

120 cm



Soil Series: Aldenlake-Ahmeek complex (F144D)

Depth to Subsoil: 68 cm

Depth to Terminus: 85 cm

Date: 09/25/2025



A: 5YR3/3 Dark reddish brown coarse gravely fill dirt (0-68 cm)



B: 7.5YR3/4 Dark brown loamy sand (68-85 cm)

Figure 114: Site 21SL1302 location on a topographic map.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]

Figure 115: Site 21SL1302 location on aerial imagery.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]

Figures 116-120: Site 21SL1302 overview photographs.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]



Figure 121: Artifacts collected from positive shovel test FS 1-1 within site 21SL1302 (DSCN9697).



Figure 122: Artifacts collected from positive shovel test FS 1-2 within site 21SL1302 (DSCN9698).



Figure 123: Artifacts collected from positive shovel test FS 1-3 within site 21SL1302 (DSCN9701).



Figure 124: Artifacts collected from positive shovel test FS 1-4 within site 21SL1302 (DSCN9704).



Figure 125: Artifacts collected from positive shovel test FS 2-1 within site 21SL1302 (DSCN9707).



Figure 126: WWI Era Royal Canadian Engineers Officer's cap badge recovered from FS 2-1 within site 21SL1302 - front (DSCN9708).



Figure 127: WWI Era Royal Canadian Engineers Officer's cap badge recovered from FS 2-1 within site 21SL1302 - back (DSCN9709).

Figure 128: Site IS-LOON-02 location on a topographic map.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]

Figure 129: Site IS-LOON-02 location on aerial imagery.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]

Figures 130-131: Site IS-LOON-02 overview photographs.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]



Figure 132: View of Chevrolet truck (H1) (R0016654).



Figure 133: View of mirror trademark (R0016658).



Figure 134: View of Chevrolet logo (R0016659).



Figure 135: View of manufacturing plate (R0016661).

Figure 136: Site IS-LOON-03 location on a topographic map.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]

Figure 137: Site IS-LOON-03 location on aerial imagery.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]

Figures 138-139: Site IS-LOON-03 overview photographs.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]



Figure 140: View of Dodge Brothers vehicle (H1) (R0016689).



Figure 141: View of Dodge Brothers vehicle (H1) logo (R0016700).



Figure 142: View of Adams Leaning Wheel Grader No. 12 (H6) (R0016694).



Figure 143: View of Fordson tractor (H4) (R0016698).

Figure 144: Site IS-LOON-04 location on a topographic map.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]

Figure 145: Site IS-LOON-04 location on aerial imagery.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]

Figures 146-147: Site IS-LOON-04 overview photographs.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]



Figure 148: View of farm equipment (R0016711).



Figure 149: View of metal and wood frame with a belt and pulley system (H1) (R0016712).



Figure 150: View of farm equipment (R0016713).

Figure 151: Site IS-LOON-05 location on a topographic map.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]

Figure 152: Site IS-LOON-05 location on aerial imagery.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]

Figures 153-154: Site IS-LOON-05 overview photographs.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]



Figure 155: View of Chrysler car (H1) (R0016706).



Figure 156: View of car manufacturer plate (R0016709).

Figure 157: Historical 1939 aerial map showing rock pile locations.

[This figure has been redacted from the public version of this report in accordance with applicable cultural resource protection laws in order to protect archaeological resources.]



Figure 157: Overview facing south of a rock pile within the survey area (IMG_0098).



Figure 158: Overview facing west of a rock pile within the survey area (R0016810).



Figure 159: Overview facing north of a rock pile within the survey area (R0017127).



Figure 160: Overview facing northeast of a rock pile within the survey area (R0016903).