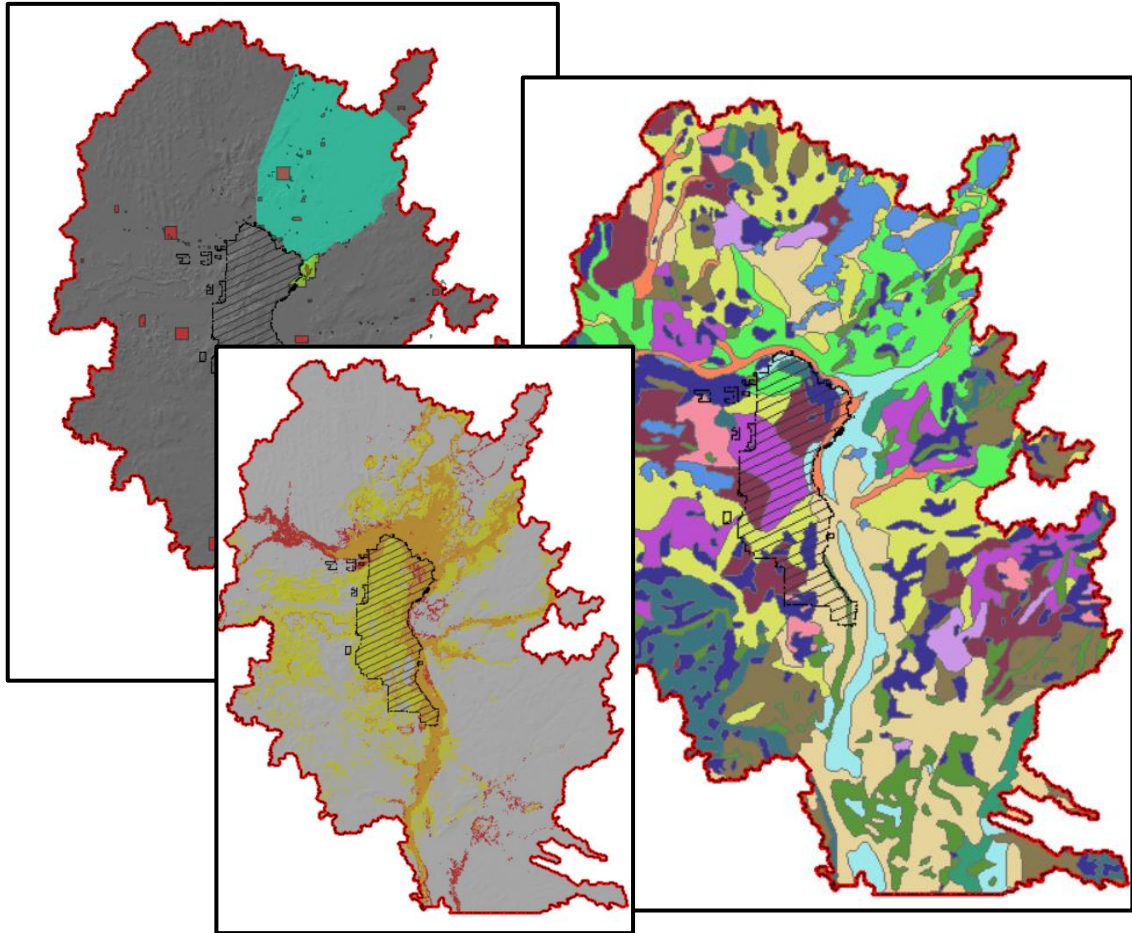


**Many Layers to the Land:
A Cultural and Environmental Geodatabase Build
for the Camp Ripley Sentinel Landscape (CRSL)**



Completed For:
Sylvan Township
12956 24th Ave. SW,
Pillager, MN 56473

Completed By:
Nienow Cultural Consultants, LLC
200 Plato Blvd East
St. Paul, MN 55107



Final Report
April 18, 2022



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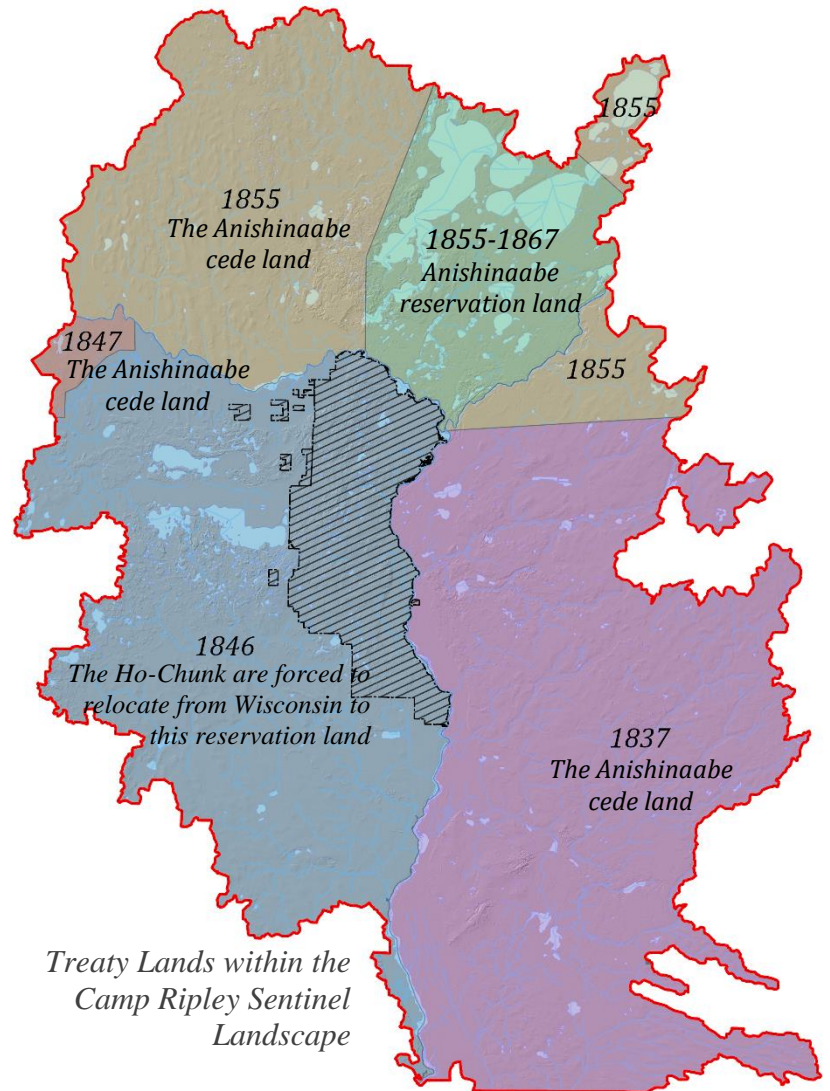
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This publication was made possible in part by the people of Minnesota through a grant funded by an appropriation to the Minnesota Historical Society from the Minnesota Arts and Cultural Heritage Fund. Any views, findings, opinions, conclusions or recommendations expressed in this publication are those of the authors and do not necessarily represent those of the State of Minnesota, the Minnesota Historical Society, or the Minnesota Historic Resources Advisory Committee.

Acknowledgement of Ancestral Lands

The landscape of this project involves traditional, ancestral, and contemporary lands of the Očhéthi Šakówiŋ (Dakota Sioux) and Anishinaabe (Ojibwe/Chippewa). We acknowledge these peoples are the original caretakers of the land comprising the Camp Ripley Sentinel Landscape. With this acknowledgement we hope to highlight the legacy of Euro-American's ongoing effects on modern indigenous communities and end the erasure of Native American peoples from the public discourse. Land relationships between these groups had long been contentious. Euro-Americans eventually began offering Land Treaties and reservation lands; heavily favoring themselves. In the project area, this began in 1837 and continued through 1867 (see map to the right). We also acknowledge the Dakota peoples never ceded their lands within the project area, and it was instead signed away for them. This land acknowledgement is intended to help educate the community about this history.



We would like to give a special acknowledgement to the Shakopee Mdewakanton, Upper Sioux Community, Red Lake Nation of Chippewa, Mille Lacs Band of Ojibwe, and Leech Lake Band of Ojibwe for their interest in this project.

MANAGEMENT SUMMARY

On December 1, 2020, Sylvan Township was awarded the \$129,980 Camp Ripley Sentinel Landscape Comprehensive Literature Assessment grant from the Minnesota Historical and Cultural Heritage Grants program (grant number 2005-24728). The purpose of this grant was to fund a comprehensive literature review of cultural and environmental resources within the Camp Ripley Sentinel Landscape, with an ultimate product of storing all of this information in a Geographic Information Systems (GIS) geodatabase for management use by the Camp Ripley Sentinel Landscape Program. Nienow Cultural Consultants (NCC) was contracted to complete this work in February of 2021.

The Camp Ripley Sentinel Landscape project area encompasses large portions of Cass, Crow Wing, Morrison, and Todd Counties. The entire project area falls within Anfinson's Archaeological Region 4: Central Deciduous Lakes (Anfinson 1990). The overall contract and project was managed by Jeremy L. Nienow, Ph.D., RPA of Nienow Cultural Consultants, LLC. Additional team members included researcher Fred Sutherland (Sutherland Relics and Rust LLC), researcher Jeremy Jackson (Jeremy S Jackson, LLC), GIS specialist Laura Koski (Zooarchaeo Consulting, LLC), tribal communicator Anastasia Walhovd (Makoons Consulting, LLC), architectural historians Tamara Halvorsen and Laurel Fritz (Pigeon Consulting, LLC), and videographer Barry Madore (Fire on the Bluff).

The literature review began on April 1, 2021. This began with archaeological and historical architectural data collection using data maintained by the Minnesota Office of the State Archaeologist (OSA) and Minnesota State Historic Preservation Office (SHPO) followed by archival research completed both online and in-person at various county and township historical societies. All collected cultural data was synthesized into a singular geodatabase along with environmental geospatial data. In total, the geodatabase includes five locational reference layers, 18 cultural data layers, 16 environmental data layers, and six raster basemap and imagery layers. Cultural data collection focused primarily around previously recorded and potential archaeological sites and previously recorded and newly identified historic architecture and rail lines/roadways/trails. This data includes 372 previously recorded archaeological sites, 210 locations with subsurface cultural resource potential, 1067 SHPO-inventoried historical architectural structures (including rail lines, roads and trails), 98 newly recorded historical architectural structures, five historic districts, three Traditional Cultural Properties, and one Tribally-Informed Potential Traditional Cultural Property. The intention of this document is to act as a publicly accessible comprehensive technical report describing project methodology and results as well as to provide recommendations for future research directions.

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1.0 INTRODUCTION

On December 1, 2020, Sylvan Township was awarded a \$129,980 Camp Ripley Sentinel Landscape Comprehensive Literature Assessment grant from the Minnesota Historical and Cultural Heritage Grants program (grant number 2005-24728). The purpose of this grant was to fund a comprehensive literature review of cultural and environmental resources within the Camp Ripley Sentinel Landscape (CRSL), with an ultimate product of storing all this information into a Geographic Information Systems (GIS) geodatabase for management use by the Camp Ripley Sentinel Landscape Program. After a competitive bid process, Nienow Cultural Consultants LLC (NCC) was contracted to complete this work in February of 2021.

This geodatabase is designed to be used as a management tool by mapping all identified cultural resources and relevant environmental and historical information to encourage protection and preservation of the lands within the CRSL boundary. The project scope as defined by Sylvan Township included the following:

- 1) Research documented archaeological sites and surveys within the CRSL geographic boundary, an area of approximately 805,000 acres;
- 2) Conduct research and interviews with staff and/or knowledgeable volunteers at local historical societies with information about the CRSL area in Cass, Crow Wing, Morrison and Todd Counties;
- 3) Conduct research at the Douglas A. Birk Papers housed at the Anthropology Department at St. Cloud State University;
- 4) Research Historic Standing Structures recorded at the State Historic Preservation Office (SHPO);
- 5) Consult with applicable American Indian Tribes regarding archaeological and historic sites in the CRSL area;
- 6) Create GIS layers on known archaeological and historical sites in the CRSL area and data found through this research compatible with the GIS system already in use by the CRSL program, in a shapefile or file geodatabase.

Besides creating GIS layers reflecting the known archaeological and historical sites, GIS goals specified at the beginning of the project included researching General Land Office plat maps, Aerial data, and Trygg maps for the project area; using the Minnesota Statewide Archaeological Predictive Model (Mn/Model) to predict presence/absence of archaeological resources; and creating additional GIS data to map the results of this research. NCC met all the above outlined goals during the course of the project with an additional focus on identifying areas of possible subsurface cultural resource potential and standing historic structures not already inventoried by the Minnesota Office of the State Archaeologist (OSA) and State Historic Preservation Office (SHPO).

This report includes a discussion of project methodology, an inventory of the final geodatabase products, and recommendations for future management and research directions.

2.0 THE CAMP RIPLEY SENTINEL LANDSCAPE

The CRSL is an 805,000-acre area covering an approximately 10-mile radius surrounding the Camp Ripley Military Reservation (Figure 1). Camp Ripley was federally designated as a Sentinel Landscape in 2016. The CRSL is a federal partnership between the Department of Defense, the Department of Interior, and the Department of Agriculture. The CRSL partnership also includes state and local governments, a county joint powers board, and not-for-profit organizations. The area includes 34 minor watersheds subdivided into seven sub-watersheds. These watersheds incorporate 50 miles of the Mississippi River (running approximately through the middle of the landscape), the Crane Meadows National Wildlife Refuge, and thousands of acres of public and private conservation lands. These protected watersheds also allow the CRSL to be one of the most important protected water sources for the State of Minnesota. The CRSL partnership is actively seeking broader support to continually protect and improve the landscape's soil and water resources while promoting compatible land uses with the training mission of Camp Ripley. The desired outcomes of the above are to sustain area agriculture, protect the Mississippi River headwaters, and preserve the Camp Ripley training landscape relied on by the National Guard. The goal of this geodatabase is to help the CRSL partnership use this report as a decision support tool to help prioritize protection, restoration, enhancement, and best management practices implementation that also are compatible with the Camp Ripley training mission and many other multiple benefits that preserve the landscape with both environmental and cultural resources in mind.

3.0 ENVIRONMENTAL SETTING

3.1 Geological Background and Soils

In his 1990 publication *Archaeological Regions in Minnesota and the Woodland Period*, former State Archaeologist Scott Anfinson divides the state of Minnesota into nine environmental-archaeological regions, based on natural resources available within each region. This classification allows archaeologists to research and analyze prehistoric environments in the state, as well as predict where archaeological sites may be located.

The project area falls entirely within the southeastern portion of Anfinson's Region 4: Central Lakes Deciduous. The region sits within east-central to central Minnesota, spanning Dakota to Becker Counties. Topographically, the region consists of a mixture of moraines, till plains, and outwash plains, and is heavily spotted with lakes, some over 30 meters (m) deep. Major rivers include the Mississippi and Minnesota Rivers flowing through the eastern and central parts of the region, and the St. Croix River along the region's eastern boundary. Streams draining the western part of the region flow in a western direction to the Red River (Anfinson 1990). River formation was the result of a complex glacial history including several episodes of advancing and retreating glacial lobes.

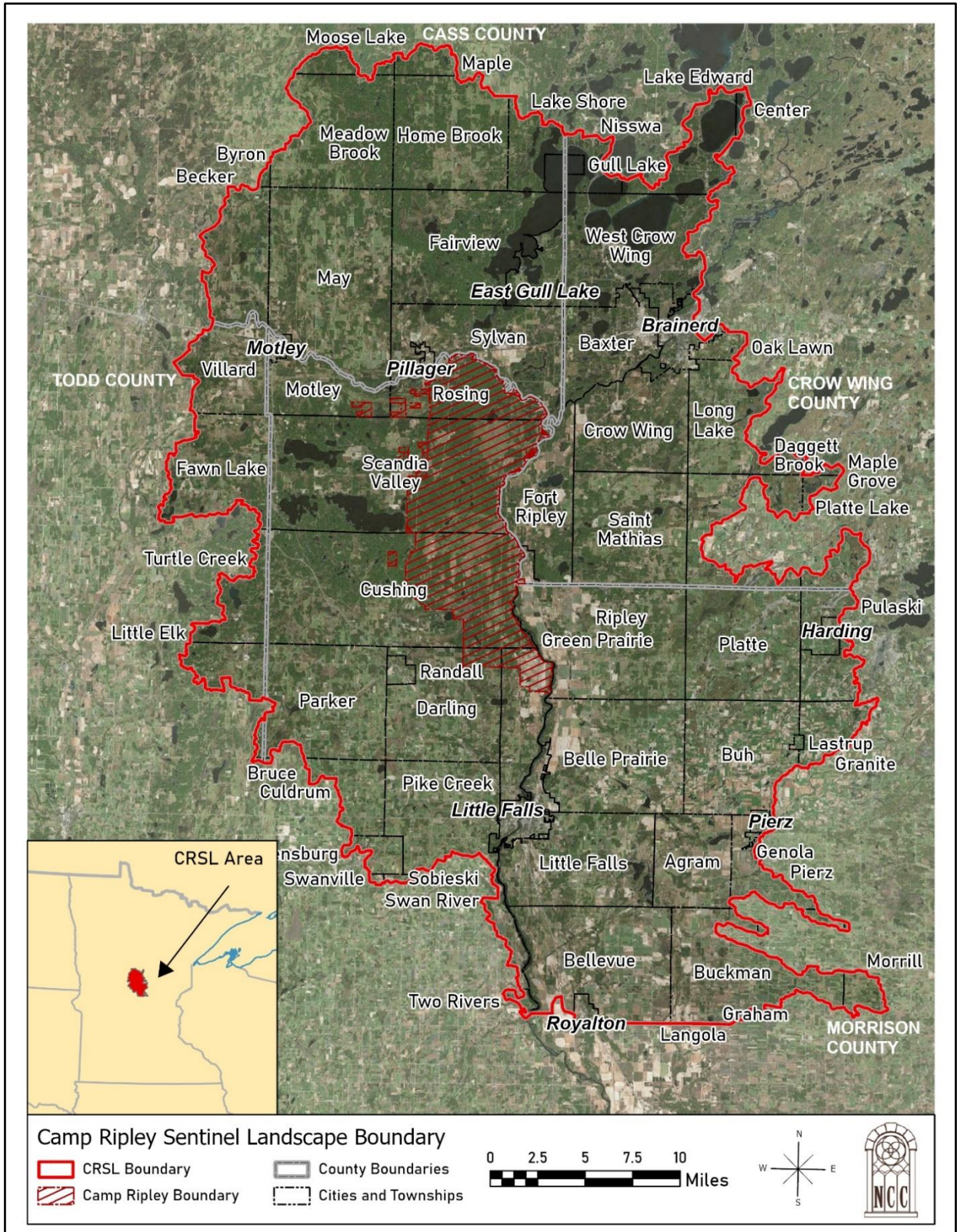


Figure 1. CRSL Project Area.

The Central Lakes Deciduous East Sub-Region is located directly west of the Mississippi River, but could arguably incorporate portions of western Wisconsin. The regional topography consists of moraines, glacial till, and outwash plains, as well as a large variety of lakes, streams, and wetlands (Gibbon, et al 2002). Average precipitation ranges from 21 to 32 inches. Average high winter temperatures range from 12 to 24 degrees Fahrenheit (F), while average high summer temperatures range from 78 to 82 degrees F. The frost-free season ranges from 140 to 160 days (Gibbon, et al 2002).

Soils in this region reflect a diverse history of glacial and vegetation activity. Soil texture ranges from medium to coarse, with prairie soils more commonly found in the southern and western portions of the region and forest soils found mostly in the north and east portions (Anfinson 1990). Bedrock outcrops are mainly located along the regions central and eastern edge, and are comprised of mainly granite outcroppings along the river banks (Gibbon, et al 2002).

All soil source material was deposited during the Wisconsin stage of the Pleistocene epoch. Two main types of glacial drift were deposited over the county when the Superior Lobe retreated from the area around 13,500 years ago. The Superior Lobe, which flowed into the area from the north, deposited coarse textured material, reddish brown in color, with pebbles of basalt, gabbro, and red sandstone. Later, the Grantsburg Sub-lobe, an extension of the Des Moines Lobe, advanced into Sherburne County. This lobe brought in what is commonly called “gray till” or “buff till.” During the retreat of the Grantsburg Lobe around 12,500 years ago, the ice stagnated in the northern and eastern parts of the county and melt water left intermixed outwash gravel and sand from both previous lobes. Additionally, when the Grantsburg Lobe retreated westward, it uncovered the Mississippi Valley and melt water from the waning Des Moines Lobe filled the valley throughout the county with coarse alluvium, which underlies two broad terraces parallel to the Mississippi River. The sands in these areas are coarse in texture near the river and become increasingly finer in texture the further the distance from the river. In various places, it is underlain by strata of calcareous gravel.

3.2 Regional Flora and Fauna

Vegetation in the area at the time of Euro-American settlement consisted of Big Wood species in both the south and west portions of the region. More specifically, the trees were deciduous hardwood species, primarily oak, mixed with deciduous-coniferous forest in the northern part of the region (Anfinson 1990) which also contained maple, basswood, and hickory. As Euro-American settlers moved through the area and cleared portions of forest, prairie land became more abundant. White-tailed deer, bison, elk, beaver, bear, prairie chickens, and a variety of fish, and waterfowl would have been commonly available resources (Anfinson 1990; Mather 2018).

4.0 CULTURAL HISTORY

The Minnesota State Historic Preservation Office (SHPO) has developed statewide contexts examining Minnesota’s Prehistoric through recent past. These contexts are laid out on the

Minnesota Archaeological Site Form. Generally, they describe the history of the state and assist in predicting where specific types of sites may occur.

Native American contexts are commonly divided into three major traditions: Paleoindian, Archaic, and Woodland. Late Woodland is further subdivided into Plains Village, Mississippian, and Oneota Traditions. These divisions are based on significant changes in how these communities lived, with a special focus on subsistence strategies. Historic contexts are generally divided into Contact and Post-Contact periods. The Contact period begins with early European exploration and continues through the post-Contact period including Euro-American settlement and Minnesota statehood. The following is a general summary of these traditions using the Author's general knowledge and various disseminated sources for information including the OSA's website, Elden Johnson's 1988 *The Prehistoric Peoples of Minnesota*, Gibbon and Anfinson's 2008 *Minnesota Archaeology: The First 13,000 Years*, and Gibbon's 2012 *Archaeology of Minnesota: The Prehistory of the Upper Mississippi River Region*.

4.1 Pre-Contact Period

4.1.1 Paleoindian Tradition (11,500 to 7,500 B.C.)

The Paleoindian Tradition in Minnesota is divided into two periods: Early Paleoindian and Late Paleoindian/Early Archaic (Gibbon and Anfinson 2008). Throughout the Paleoindian, Native American communities were small, mobile, and focused on hunting. However, between the early and late periods, the environment and available food resources changed dramatically. The beginning of the Early Paleoindian Tradition is characterized by retreat of glacial ice and the growth of spruce forests. During this time, now extinct megafauna like mastodon, mammoth, and large bison were available for hunting. The Early Paleoindian period is poorly understood in Minnesota because most evidence for Paleoindian lifeways comes from isolated finds of large fluted projectile points (Gibbon and Anfinson 2008). Based on more plentiful sites in the southeastern and southwestern portions of the United States, it is generally assumed Native American populations were small, consisting of highly mobile hunters and foragers who followed large game throughout the landscape (Gibbon and Anfinson 2008).

By the Late Paleoindian period, modern vegetation zones had established themselves in Minnesota. Modern animal species like white tail deer, grouse, and fish were available for Native American communities to hunt and fish. Lithic tool evidence from Late Paleoindian sites in Minnesota take the form of stemmed rather than fluted points and a wider range of tool types including groundstone tools (Gibbon and Anfinson 2008). Again, lifeways during this time are poorly understood, but based on four well-documented sites found in Minnesota; a camp site on an ancient beach ridge (Cedar Creek-21AK58); a quarry site in early Mille Lacs County (Bradbury Brook-21ML42), a burial (Browns Valley-21TR5), and a larger site (the East Terrace Site (21BN6)) communities were thought to be small, highly-mobile and focused on hunting larger animals and foraging for wild plants (Jenks 1937; BRW 1994; Malik and Bakken 1999). However,

stone toolkits did diversify, and communities began exploiting smaller territories. It is also likely populations started to increase (Gibbon and Anfinson 2008).

4.1.2 Archaic Tradition (7,500 to 800 B.C.)

Unlike some other areas of the southern continental U.S., there was a long period of overlap in Minnesota between the Late Paleoindian period and the Archaic Tradition (Gibbon 2012:37). The Archaic Tradition continues the trend of resource diversification started in the Late Paleoindian period and is thought to largely reflect continued adaptations to changing environment between late glacial and early Holocene landscapes (Gibbon 2012:49). Native American communities developed broader toolkits, used a wider array of foods, and became less mobile over the course of the Archaic. Additionally, by the end of the Archaic, communities were using communal burial sites. Stemmed and notched points, groundstone tools, particularly those for woodworking, and cold-hammered copper tools are hallmarks of the Archaic Tradition in the archaeological record (Anfinson 1997; Gibbon and Anfinson 2008). By the end of this period the climate shifted to a cooler, wetter pattern up until the strong, human-driven, warmer climates of the modern era. Resource gathering technologies during the Archaic included the hunting, as well as trapping, fishing, foraging, woodworking and plant processing.

By 1200 B.C. the large vegetation zones first seen by early Euro-American settlers in the 1850s, except for the Big Woods of south-central Minnesota, were largely in place (Gibbon 2012:73) Many of the larger, documented sites in the central portion of the state likely began during the end of this period. The Archaic Tradition in the immediate vicinity is poorly understood, however some inroads have been made around the Mille Lacs Locality (Bleed 1969), and some studies have suggested Archaic materials may be located within the Pillager Gap (Hohman-Caine 1986; Birk 1995). For additional information on the Archaic in north central Minnesota, begin with the work of Dr. Christy Hohman-Caine and Grant Goltz, *Assessing the Archaic: A Preliminary view from the Headwaters of the Mississippi River* (1995) and then move on to the broader work of Buhta, Anfinson, Grimm, and Hannus *Minnesota's Archaic Tradition: An Archaeological and Paleoenvironmental Overview and Assessment* (2017).

4.1.3 Woodland Tradition (800 B.C. to European Contact)

In the Midwest region, archaeologists tend to divide the Woodland Tradition into three periods: Early, Middle, and Late. However, Anfinson (1987) and Gibbon (2012) suggest in Minnesota it is more appropriate to divide the era into Initial and Terminal Woodland periods. This view is not as widespread as research would at first suggest, with work including Arzigian's Statewide Multiple Property Documentation Form for the Woodland Tradition (2008), and Buhta et. al. "On the Periphery?: Archaeological Investigations of the Woodland Tradition in West-Central Minnesota" (2014), retaining the more traditional use of Early, Middle, and Late designations. Beginning approximately 2,800 years ago, peoples in the region experienced increases in population with the advent of first horticultural and then agricultural subsistence strategies to augment already extant systems of hunting, gathering, etc. As populations increased, settlements near favorable

transportation and resource corridors shifted from seasonal to year-round occupations as they made forays to collect necessary resources (Johnson 1988; Anfinson 1987:222).

The period also witnessed the technical transition from spear/atlatl to bow and arrow weaponry useful for both hunting and warfare. This change in technology led to the use of smaller projectile points or arrow heads. Similarly, the period also saw the invention of ceramic vessels and it is these vessels and their change over time, from thick walled, grit tempered, conoidal vessels, to thinner walled, shell tempered, globular vessels, which has greatly assisted the archaeological community in further refining their understanding of group identity, cohesion, and integration throughout the region. Indeed, there are more than ten major recognized ceramic complexes for the state with many temporal overlaps, often based more on location than visual representation. A final example representing not only identity and permanence on the landscape, but also religious practices, was the use of earthen burial mounds. Although community size was likely similar between the Early Woodland and Late Archaic periods, by the Late Woodland period, populations were certainly on the rise.

For central Minnesota, stretching from Mille Lacs westward across the Gull Lake area and into Ottertail County, the initial Woodland is dominated by a type of pottery called Malmo. Vessels of this type are thick-walled, conoidal-bottomed, and use crushed rock, or grit, tempering. Vessels are usually smoothed with decorated rims including bosses, punctates, and incised lines. (Anfinson 1979:137; Gibbon 2012:115). The earliest excavations for this period in central Minnesota were excavations at the Brower Site (21ML01) along the northwestern shores of Lake Onamia, which included a habitation and conical mounds area (Gibbon 2012:116). As this region moves forward in time, earlier dominant ceramic forms are replaced by newer ones, populations substantially increase, palisaded and more permanent villages appear, and subsistence strategies such as wild rice, become widespread. Malmo wares are replaced by St. Croix vessels which are thinner walled, semi-subconoidal with pronounced, high, vertical rims. Decorations are still common around neck and rim of the vessel but now include dentate stamps and cord-wrapped stick (Anfinson 1979:169; Gibbon 2012:182).

4.2 Contact/Post-Contact Period (1630 A.D. to Present)

This period generally refers to the span of time extending from the first European explorations until intensive Euro-American settlement of the region. Minnesota's historic period began in 1673 when French explorers Marquette and Joliet discovered the upper portion of the Mississippi River. Ten years later, Catholic Missionary Father Louis Hennepin told his story of exploring Minnesota and being held captive by Dakota Indians in the first book written about Minnesota, *Description de la Louisiane* (Hennepin 1683).

In central Minnesota, the early French presence is well represented at the Little Elk Heritage Preserve (21MO20), which has a documented 1752-53 wintering camp (Birk and Johnson 1992). Although land sovereignty issues abounded during this period, early Euro-American activities were primarily trade associated, with the establishment of first temporary and then permanent

trading posts, military posts, and finally settlements. After the placement of Fort Snelling at the confluence of the Mississippi and Minnesota Rivers, Native American lifeways were radically altered as intense interaction with permanent settlers began. In central Minnesota a key example of this is the Treaty of 1847. One provision of this treaty was the erection of a fort, Fort Gaines, on the west bank of the Mississippi River opposite the mouth of the Nokasippi River. Fort Gaines, built in 1848, was named Fort Ripley in 1850 and replaced Fort Snelling as the northernmost U.S. fortification on the Mississippi River (Fay 1985:20). Intensive settlement and agriculture dramatically transformed the landscape, displacing large numbers of Native Americans and their communities.

This displacement is evident in the CRSL through various U.S. Government Land Treaties and short-lived reservation lands easily forgotten in the modern landscape (Figure 2). In the project area, this began in 1837 with the Ojibwe ceding 12 million acres of their land between the St. Croix and Mississippi Rivers north of the decided boundary between the Dakota and Ojibwe in 1825, and south of the Crow Wing River (Minnesota Treaty Interactive n.d.; Treaty Timeline n.d.).

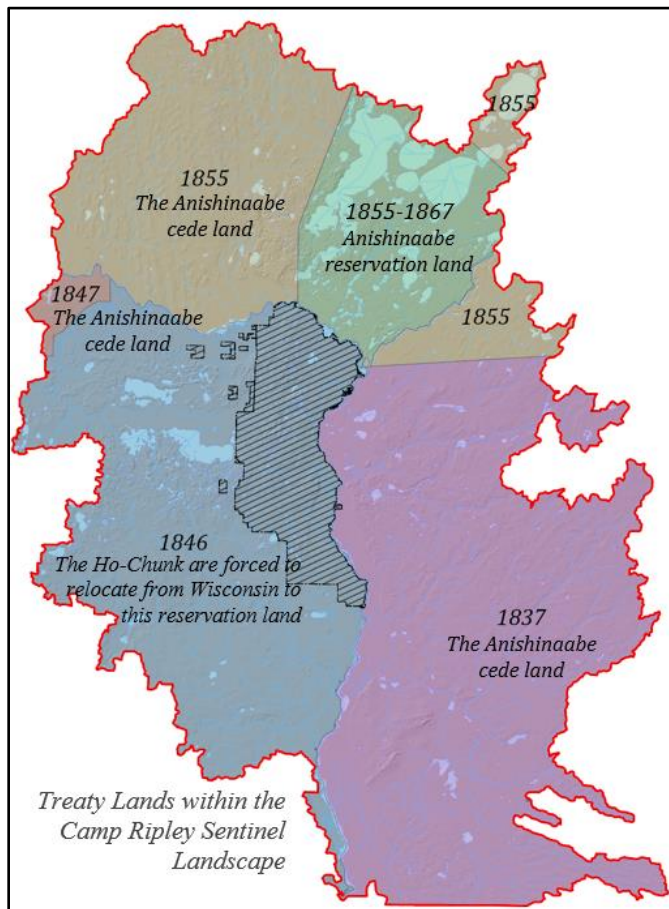


Figure 2. Illustration of ceded lands within the CRSL project area.

Today, this land makes up 296,333 acres of the project area, or approximately 37% of the landscape. In 1846, a treaty with the Ho-Chunk people relocated them from their homeland in Wisconsin to the area known as Long Prairie west of the Mississippi. By 1859, the Ho-Chunk had lost half of this reservation and were forced to leave the state by 1863. This short-lived reservation land makes up the southwestern and central-western portions of the project area, or 255,869 acres (approximately 32%). In 1847, the Pillager, Mississippi, and Lake Superior bands of the Ojibwe ceded their land in central Minnesota to be used as more reservation land for the Menominee and Ho-Chunk peoples being relocated from Wisconsin. The reservations promised in the 1847 treaty were never created. Only a small portion of this land comprises the project area at 7,094 acres, or just under 1%. In 1855, the U.S. Government gained all lands claimed by the Mississippi, Pillager, and Winnibigoshish bands of Ojibwe, comprising millions of acres of northern

Minnesota (Minnesota Treaty Interactive n.d., Treaty Timeline n.d.). Approximately, 225,890 acres of this land comprise the northern portion of the project landscape, or 28%. A handful of reservation lands within this ceded territory were set aside for the Ojibwe. One of these, the Gull

Lake Reservation, also lands within the project landscape, though this reservation land was taken back by the U.S. Government by 1867. The extinguished Gull Lake Reservation makes up 80,904 acres, or 10% of the project area (1855 Land Cession Treaty with the Ojibwe n.d.).

In 1862, tensions between white settlers and Native Americans culminated in the Dakota War. Ultimately, this war left 462 whites and “an unknown but substantial number” of Native Americans dead (Anderson and Woolworth 1988). The conflict concluded with the largest mass execution in United States history with the hanging of 38 Dakota on December 26, 1862 at Mankato and the deportation of remaining tribal members to Santee, Nebraska.

The conflict was not limited to the southern Minnesota and the Dakota people. Hole-in-the-Day the Younger threatened retribution for corruption and non-payment of annuities at the Crow Wing Agency. But this Ojibwe conflict was far less violent. The losses were limited to personal property and livestock. Hole-in-the-Day’s home just north of Crow Wing Village and all his belongings were burned. Following a series of negotiations, the conflict was settled without bloodshed. The next few years passed more peacefully.

The final treaty negotiated by Chief Hole-in-the-Day established in the White Earth Reservation in northwest Minnesota in 1867, dissolving the Gull Lake Indian Reservation. The first removal of the Gull Lake Ojibwe occurred in mid-1868, and shortly after, Hole-in-the-Day the Younger was assassinated by a group of men from the Leech Lake Band of Ojibwe on June 27th, 1868, near the mouth of the Gull River in Sylvan Township.

This early period of heightened instability did not stop the continued settlement of central Minnesota. The Northern Pacific Railway Company completed its expansion into the region in 1871, crossing the Mississippi at Brainerd and the Crow Wing River at Motley that same year. This facilitated a boom in farm and timber operations during the 1880s and 1890s.

The CRSL covers portions of Cass, Crow Wing, Morrison, and Todd Counties. Cass County was the first to be established in 1851, though its government was not organized until 1897. Todd and Morrison Counties were both established in 1856, followed a year later by Crow Wing County in 1857. Minnesota gained statehood on the 11th of May, 1858. The largest municipalities within the project area are Brainerd (Crow Wing County) and Little Falls (Morrison County). Other locations of note include Sylvan Township (organized in 1912) just north of Camp Ripley, Motley to the west (organized in 1879), and Royalton along the southern border of the project landscape (incorporated 1887).

The town of Little Falls began with dam and sawmill construction in 1848 by James Green. By 1856, Little Falls had been named the Morrison County seat and by 1877 a permanent ferry crossing and train service had begun. In the decades ahead, several industries were established, primarily associated with timber including the work of Charles Weyerhaeuser who constructed lumber and paper mills. Little Falls continues to be the economic, civic, and cultural center of Morrison County.

The Little Falls area is associated with the Native American tribal leader, *Bagone-giizhig*, known in English as Hole-in-the-Day the Elder. This Ojibwe elder and chief was born in the early 1800s. In the 1830's, Hole-in-the-Day set up a village on the east bank of the Mississippi River at the mouth of the Little Elk within Dakota territory. He also persuaded the Methodist-Episcopal Church to open a mission-school near the village. The leader also participated in several treaties with Euro-American leaders (Birk 2001). In 1837, the Treaty of Prairie du Chien opened the St. Croix Triangle for white settlement, including the majority of Morrison County. Hole-in-the-Day the Elder died accidentally in 1847 and was interred within the CRSL. His grave is located on the bluff overlooking Highway 371 northeast of Little Falls.

His son, Hole-in-the Day the Younger, succeeded his father as statesman in negotiating treaties, even traveling to Washington D.C. to meet with the President of the United States on multiple occasions. Beginning in 1850, several Ojibwe reservations were established throughout northern Minnesota, including the Gull Lake Ojibwe Indian reservation.

Gull Lake is commonly associated as Hole-in-the-Day the Younger's home. However, in 1857, he had established a house and farm on a substantial section of land acquired by him at the Treaty of 1855, just north of the Village of Crow Wing (Birk 2001, Figure 3)). He had another home and farm about two miles north of the Chippewa Agency in Sylvan Township.

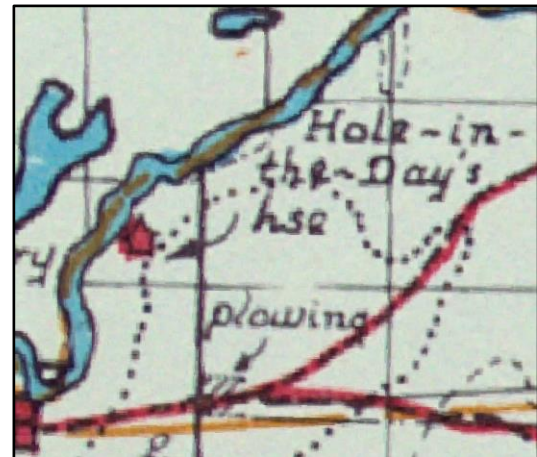


Figure 3. Trygg map of one of Hole-in-the-Day the Younger's homes, along the Mississippi River.

Crow Wing, now a prominent part of the Crow Wing State Park and ghost town and former county seat of Crow Wing County, was initially established as a trading post but quickly expanded and evolved as an epicenter of transportation. Located at the junction of the Mississippi and Crow Wing Rivers, it first served canoe traffic for Indians bartering their furs, then steamboats, and later a supply depot for lumberjacks and log drivers as the timber lands were opened. The route of the Woods Oxcart Trail also passed through Crow Wing. A promise of an unrealized railroad for Crow Wing was included in 1858 Minnesota legislation.

Prior to Euro-American settlement, the Brainerd area was a dense pine forest that served as Ojibwe hunting grounds. Following early fur traders and voyageurs, the first Euro-Americans to visit what would become Brainerd were led by U.S. Army Lieutenant Zebulon Pike in 1805. Brainerd was founded in mid-1870 with the selection of the river crossing site by the Northern Pacific Railway Company. During the initial construction phase in 1870-71, the mainline was built and nearly crossed the entire State of Minnesota from The Junction (today's Carleton) to Moorhead. The construction train reached Brainerd in March 1871, then crossing over the newly constructed Mississippi River bridge. Tracklayers continued through southern Cass County and Sylvan Township, passing through the Pillager Gap and over the Crow Wing River at Motley during the

next few months. The area between the Mississippi River and the Pillager Gap was part of the Gull Lake Ojibwe Indian Reservation only four years earlier.

Brainerd grew, but also evolved. It was known as a railroad town, thanks to the initial construction of the railroad through the city in 1871. The completion of the Northern Pacific Railway main line across Minnesota facilitated a boom in farm and timber operations during the 1880s and 1890s. First known as a railroad town, the timber industry became a prominent industry. Several sawmills were established in Brainerd, while timber barons, including a syndicate that included the Pillsbury family of Minneapolis, secured 1,000's of acres of stumpage west of Gull Lake. Two logging railroads were established during the 19th century in today's Camp Ripley Sentinel Landscape. One was established in 1889 and headquartered in Lower Cass County. This rail line unloaded logs at a landing on Lake Margaret that were flushed down the Gull Lake watershed, which were sawed at the sawmill town of Gull River Village. The other logging railroad was headquartered in Northeast Brainerd and was constructed in 1892. The latter's primary purpose was to transport felled logs to the large mill on Rice Lake in Brainerd. Logs landed on the Mississippi were driven to mills in Minneapolis.

The 1880s and 1890s also saw the largest boom in settlements and organization in Cass County, which was formally organized in 1897. The first post office in Pillager was opened on July 31, 1886 (Patera and Gallagher 1978). Farming practices in this area between 1900-1920 are described by Michelle Terrell as "Industrialization and Prosperity" and consist of more intense use of agricultural land using new technology to meet increasing demand for agricultural products due to rising population and the effects of World War I (Terrell 2006:45). Within thirty years of the county's organization, however, economic, and ecological hardships combined with poor soils, brought depression and farm closure to the region. During this time, the State began to condemn and then purchase lands immediately south in Morrison County for use as a National Guard training facility. Accompanied by federal work relief programs, this allowed for the large-scale development of the modern Camp Ripley known today. Finally, with the last land acquisitions in the 1960s, the Camp was expanded to its current size (Fay 1985; Gnabasik 1994).

Ghost towns dot the Camp Ripley Sentinel Landscape, each established to exploit the resources of the region. Gull River Village was a prominent 19th century sawmill town in Sylvan Township. Today, Brainerd's location near the Gull Lake chain of lakes has brought it to be known as a popular resort and vacation destination.

5.0 METHODOLOGY

5.1 Communication with Sylvan Township and Other Stakeholders

From the beginning of NCC's involvement in April 2021, the project manager placed strong importance on keeping Sylvan Township informed of the project's progress and deliverables. This has allowed for a nimbler approach to dealing with workflow issues when they appeared and to circulate improved methods and ideas for completing the overall project. At the beginning of the

project, NCC produced an expectations document for each of the 50%, 75% and 100% deliverable portions of the project, tying these to the overall goals of the project and important MNHS grant conditions. As part of this approach, the project manager produced monthly progress reports and shared these via electronic (zoom) calls with the Sylvan Township Grant Team Oversight Committee, comprised of the following members:

- Yvette Adelman-Dullinger, Sylvan Township Board
- Faith Broberg, Sylvan Township Clerk
- Greg Booth, Sylvan Township Board
- Todd Holman, Camp Ripley Sentinel Landscape Coordinator
- Holly Larson, National Park Service Representative
- Mike North, Local Historian
- Patrick Neumann, Camp Ripley Cultural Resource Manager
- Jenna Ruggles, Sylvan Township Clerk

These monthly reports were then shared from the committee to the township board. At major milestones, such as the 50% complete condition, the project manager also presented directly to the Sylvan Township Board. Larger update reports were also provided at the 50% and 75% complete thresholds, and this report represents one of the last deliverables of the 100% complete condition.

Once the 75% complete deliverables were met, NCC identified a series of broader regional, state, and local stakeholders who they felt would be interested in seeing the overall project, likely come up with viable future applications and add-ons, and generally disseminate the information to the widest audience of potential users. General public presentations were not given, as the information within the geodatabase typically involved sensitive site locational data which one must typically request access for from a state agency. The following is the list of groups ultimately presented to:

- Camp Ripley/Camp Ripley Sentinel Landscape Board
- Sylvan Township
- City of Brainerd
- City of Little Falls Historic Preservation Commission
- Cass County Historical Society
- Crow Wing County Historical Society
- Friends of Old Crow Wing
- Morrison County Historical Society
- Mille Lacs Band of Ojibwe Tribal Historic Preservation Office
- Red Lake Band of Ojibwe Tribal Historic Preservation Office
- Upper Sioux Tribal Historic Preservation Office
- Minnesota Department of Natural Resources
- Minnesota Department of Transportation
- Minnesota Historical Society
- Minnesota Office of the State Archaeologist

- Minnesota State Historic Preservation Office
- Mississippi Headwaters Board
- Niswaga Historical Society
- National Park Service
- United States Army Corp of Engineers

The team reached out to Todd County to provide a presentation, but did not receive a response. The first presentation was held on November 30, 2021, for the Minnesota Historical Society (MNHS) grants board with a follow-up presentation December 7, 2021, for the Sylvan Township Board. After this, presentations were then given on a rotating basis as they could be set up with stakeholders. At a presentation meeting for MNHS, OSA, and SHPO, the OSA and SHPO both agreed to become stewards of the completed geodatabase, with the understanding the geodatabase would also be given to Camp Ripley and that Camp Ripley would be responsible for updating and maintaining the geodatabase for use by the Camp Ripley Sentinel Landscape. Finally, electronic copies of this final report were given to all of the above stakeholders to disseminate as they felt appropriate. NCC has also recorded a presentation of the geodatabase, which can be requested for viewing.

5.2 Data Collection

5.2.1 Literature Review

A structured methodology for the literature review was outlined at the outset of the project. This included first defining which resource types the researchers should gather, and second the creation of custom data collection tables designed for each research type. Data entry for each column of each table was restricted to only allow standardized entries for each data type where applicable. For instance, several columns would only allow data entry using drop-down menus of pre-set options. This prevented typing errors and ensured all individuals entering data used the same sets of terms and categories across the board. Ultimately, this system was created to help organize the vast amount of potential data for the project, help researchers stay focused on collecting comparable data between resources, ensure smooth integration of the data into the final geodatabase product, and allow the end-user to reliably query the data in multiple ways. Table 1. outlines the target resources collected during the project and the general types of data collected for each resource.



Figure 4. Example of literature review resources.

Table 1. Data Collection Categories and Definitions

Cultural Resource	Description	Collected Data
<i>Recorded Archaeological Sites</i>	All archaeological sites recorded with the MN OSA. This includes formal sites (i.e. those designated in the 21CW1111 format) and alpha sites (i.e. 21CWa). Alpha sites are recorded based on textual references and sometimes landowner reporting but have not been field-verified.	Site Number Name Location Information Cultural Period Cultural Context Inferred Site Function Site Evidence Short Description National Register Status/ Weblink if applicable Associated Survey Report (s) Bibliographic References Recent Survey Data Threats/Risks to Site
<i>Historic Structures</i>	These include all historic structures recorded in the MN SHPO database as well as standing historic structures identified during the research stage of this project not already inventoried in the SHPO database. It must be noted not all structures in the SHPO database are still standing.	Name(s) Location Information Cultural Function SHPO Inventoried or No SHPO Inventory # (if applicable) SHPO Report # (if applicable) Status (standing, demolished) Designation (NRHP or other) Designation Weblink (if applicable)
<i>Historic Districts</i>	These were intended to include any and all historic districts recorded both with SHPO and other entities (i.e. Local Designation), however only SHPO-inventoried historic districts were identified.	Name(s) Location Information Cultural Function Designation (NRHP, Local, Historic Landmark) Listing Weblinks
<i>Cultural Resource Potential</i>	This category included locations which at one point held a structure or where an historic activity took place in which there may be intact subsurface deposits relating to that structure or activity. These resources are not already recorded with OSA in any way, and are not formally recognized archaeological sites.	Name(s) Location Information Potential Type (subsurface, structural) Cultural Period Cultural Context Cultural Function Short Description Risks/Threats to Resource References
<i>Tribally-Informed Potential Traditional Cultural Property</i>	Traditional Cultural Properties (or TCPs) are typically either Pre-Contact, Contact, or Post-Contact period sites of significant importance to one or several groups of indigenous peoples. The Tribally-Informed Potential Traditional Cultural Properties recorded during this project include cultural resources that have not yet been fully designated at TCPs, but have been reported by tribes to the CRSL team as resources they want to ensure are protected.	Name(s) General Location Info Cultural Period THPO* Contact
<i>Unrecorded Burial Sites</i>	These include locations of possible human burials as noted in the historic record either by textual or mapping resources. They are included in this category only if they are not already part of a recorded archaeological site or TCP and are not included on commonly utilized reference mapping (i.e. a cemetery on a topographic map). These potential burials are not field-verified.	Name(s) Location Information Cultural Period Cultural Affiliation Reference Short Description

*THPO: Tribal Historic Preservation Officer

The categories listed in Table 1 were grouped into the research denominations of ‘Known’ and ‘Unknown’ with each research group given a different approach. Known categories included *Recorded Archaeological Sites*, SHPO-Inventoried *Historic Structures*, and *Historic Districts*. Resources in Known categories were collected by requesting and recording data from the agencies charged with maintaining this data. Unfortunately, due to COVID-19 protocols during the year of 2021, none of the agencies managing the needed data allowed in-office visits. Information was gathered using online sources or by data requests.

Collection of Known Data

For *Recorded Archaeological Sites* and *Traditional Cultural Properties* this required referencing the OSA Portal (<https://osa.gisdata.mn.gov/OSAportal>), an online application run through ArcGIS Online which displays all recorded archaeological sites and site leads (alpha sites). Archaeological site forms were also downloaded using the portal. Any forms not found online were requested from and provided by Bruce Koenen, Assistant to the State Archaeologist. SHPO also keeps a database of archaeological sites. A database request for all archaeological sites in the project area was sent to SHPO at the outset of the project. The results of the SHPO database search were compared to data found on the OSA portal to check accuracy and ensure no sites were missed.

While OSA access was not granted for collecting archaeological site data, one researcher was able to gain access for a few hours to review a physical file folder about Minnesota ghost towns. The files consisted of reported ghost town names, general locations, and sometimes the approximate years they were occupied. Scans of the most relevant ghost towns were collected and served as the basis for further investigation at local historical societies for more documents and records related to the former communities.

For *Historic Structures*, a database search request for the project area was sent to SHPO for all historic structures on file within the project area’s Township/Range/Section. This was a great first step, but being unable to access the SHPO office meant none of the forms and auxiliary data for the identified structures could be collected and digitized for the project. Fortunately, after further communication with SHPO, they revealed they had been working on scanning in all of these forms for a while and were willing to share the necessary scans with the CRSL team. The team was then able to search the appropriate county folders online and collect the necessary forms.

Historic Districts data were collected in the same manner – through data requests with SHPO. Historic Districts can be inventoried with other entities, such as local Historic Preservation Commissions, but no other historic districts outside of the SHPO inventory were identified within the project area.

Archaeological site forms from OSA and historic inventory forms from SHPO were referenced throughout the process, but also collected as geodatabase attachments for all Known resource types. If resources are listed on the National Register of Historic Places, links to these listings were included as well.

Collection of Unknown Data

The Unknown categories included non-SHPO inventoried *Historic Structures*, *Cultural Resource Potential* sites, *Tribally-Informed Potential Traditional Cultural Properties*, and *Unrecorded Burial Sites*. All of the above (except the TCPs) required deeper searches using traditional historic research methods. This included referencing numerous historic maps, photographs, and textual resources housed at various institutions. Researchers visited nearly 20 local and regional museums, archives, historical societies, libraries, and municipal buildings. Visited institutions included the Doug Birk Papers at St. Cloud State University (Figure 5), Beltrami County Historical Society, Crow Wing Historical Society, Nisswa Area Historical Society, Weyerhaeuser Museum & Morrison County Historical Society, Crow Wing State Park, Lindberg State Park, Brainerd History Group, Pierz Great River Regional Library, Royalton Great River Library, Royalton History Museum, Brainerd Public Library, Pierz Town Hall, Linden Hill Estate House Museum, Cass County Historical Society, Todd County Historical Society, Charles Lindbergh House and Museum, Brainerd Lakes Welcome Center, and the Sylvan Township Town Hall. While COVID-19 protocols limited some historical society and museum hours, the researchers were generally able to visit every location required to do the work and managed to assess the quantity and quality of the cultural resource data at each location. Research related to logging railroad locations was also pulled from Collin Swift and Bryan Johnson, colleagues of team member Jeremy Jackson and the late Doug Birk.



Figure 5. Researchers Fred Sutherland (left) and Jeremy Jackson (right) at the Doug Birk Papers housed at St. Cloud State University.

Part of the research collection for *Historic Structures* (both SHPO-inventoried and not) included determining their current status via desktop review. In cases where structure status could not be confirmed using available technology (i.e. satellite imagery, Google Street View), an architectural historian was sent to investigate the site in-person. In total, 86 sites were field-checked to confirm

location information or whether the structure was still standing. This step proved valuable in checking the quality of the historic structure data both received from SHPO and elsewhere. When applicable, researchers also collected maps, photographs, and textual resources which would be attached to the individual features within the geodatabase. Attachment documents were restricted to three per feature (a feature being an individual resource within a greater category). Additional references would also be noted in the feature data along with any applicable weblinks.

5.2.2 Tribal Communication

Data for *Tribally-Informed Traditional Cultural Properties* was collected by reaching out to Tribal Historic Preservation Officers (THPO) with ties to the project area. This was headed by a tribal communications consultant via letters, emails, phone calls, and Zoom Meetings. Contacted offices included Bois Fort, Fond du Lac, Lower Sioux, Grand Portage, Leech Lake, Mille Lacs, Prairie Island, Red Lake, Shakopee, White Earth, and Upper Sioux. Officers who engaged for further communication included Amy Burnette (Leech Lake), Leonard Wabasha (Shakopee Mdewakanton), Samantha Odegard (Upper Sioux Community), and Terry Kemper (Mille Lacs). The THPO for Red Lake, Kade Ferris, was also contacted regarding his experience with incorporating Traditional Cultural Properties into GIS. Meetings were had with Samantha Odegard, Drew Brockman (Upper Sioux Community Representative), Terry Kemper, and Kade Ferris via Zoom to present the geodatabase and receive feedback. Finally, an extensive interview was conducted with historian Don Wedll of the Mille Lacs Band. He also shared some written history he had collaborated in producing on the 1862 U.S. Dakota War in Yellow Medicine County.

Tribal communication also included reaching out to THPOs regarding at least one site an historian brought to the attention of the CRSL team. The appropriate THPOs were contacted about the site, ensuring both that they were aware of its existence and that the CRSL team could have permission to include it in the project. Permission was granted after detailed consultation regarding which information and how much to include in the geodatabase.

5.2.3 Public Outreach

Besides historical archives and tribal authorities, local landowners and individuals with roots within the CRSL project area were also a key aspect of the data collection. Two CRSL team members, Jeremy Nienow and Fred Sutherland, attended the Camp Ripley open house on Sunday, September 19th to engage the public about the project. This opened up communications with groups like the Native American Honor Guard, Great River Greening, and Mississippi Headwaters Board. Besides making potential



Figure 6. Fred Sutherland (left) and Barry Madore (right) at Camp Ripley Open House Day.

informative connections, the public outreach day also allowed the CRSL team to connect with individuals living within the CRSL project area about the history in and around their communities.

This component also included reaching out to local historians to learn about the data they have gathered in their own research. As part of a larger public archaeology weekend, interested historians were interviewed. These people included Morrison County author and historian Horst Hanneken, City of Brainerd Mayor and Save the History Brainerd Water Tower committee member Dave Badeaux, Brainerd Historian Carl Faust, Crow Wing Village historian and descendent David MacArthur, former President of Friends of Crow Wing and regional American Indian and fur trade historian Ray Nelson, MNDNR and Native American historian Mike North, avocational archaeologist and close friend of Douglas A. Birk Collin Swift, grant committee and Sylvan Township Board Supervisor Chair Greg Booth, early Native American missions historian and author Stephen Schaitberger, Cass County historian Sue Vanhal, and owners of the Barrows mine site Tom and Mike Mertens. Interviews were conducted by Jeremy Jackson and video-recorded by Barry Madore.

5.3 Geographic Information Systems

This section includes a technical discussion of the GIS work completed for the project. For those unfamiliar with GIS systems, the first mentions of technical vocabulary in this section will be bolded. These bolded terms can be looked up in the glossary in Appendix A.

The majority of the GIS work and file geodatabase building was completed using **ESRI's ArcMap** and **ArcCatalog** version 10.8. In the late stages of the project, starting in February 2022, the utilized GIS software was transitioned to **ArcGIS Pro** v. 2.9.1. The geodatabase was also paired with map projects designed to efficiently display and work within the project area's extent and ideal coordinate system (HARN Corrected NAD83 UTM Zone 15N). The map projects include one for ArcMap users, and one for ArcGIS Pro users. All created vector and raster layers were also drawn in this coordinate system. Data types include both **rasters** and **shapefiles** with shapefiles consisting of point, line, and polygon **vector** types depending on the resources they were illustrating. The geodatabase and associated map projects were built and stored on an external hard drive physically delivered to the Sylvan Township Board with copies also given to Camp Ripley, OSA, and SHPO.

GIS data generation included a mixture of drawing in polygon and point features by hand; acquiring existing shapefile and raster data produced by MNDOT, MNDNR, and the University of Minnesota; **projecting** in point features using coordinates collected during the research stage; and **georeferencing** historic mapping. The specific types of data generated and the means in which they were created are discussed below. Information included in the **Attribute Tables** for each shapefile nearly directly reflect the data collection tables utilized throughout the research component. Attribute Table input data was standardized to allow a user to **query** for multiple variables across the *Recorded Archaeological Sites*, *Historical Structures*, and *Cultural Resource Potential* layers. The intended query-able **fields** and terminology for each layer is outlined in

in the database was often recorded inaccurately, and if the structure could not otherwise be located using the reference material at hand, the field visits were conducted to confirm structure location (described in Section 2.2.1).

This quality control phase also included collecting addresses not already included in the SHPO database. Once a structure was located down to the highest reasonable degree of accuracy, the coordinates were recorded. The entire SHPO database list for the project area was checked twice for locational accuracy, and the coordinates ultimately decided upon are likely as accurate as can be determined for these structures. During the process, the current status of the structures (standing, foundation-only, demolished) was also noted and included in the data collection table.

Once all of this information was confirmed and quality-checked, the point data was imported into the geodatabase as a shapefile using the recorded coordinates. All SHPO inventory forms were attached to their corresponding structures where possible.

Line Features

None of the rail line inventory forms could be procured as they had been pulled for a separate project and were not available during SHPO's scanning project. Instead of inventory form mapping, topographic and General Land Office survey maps were instead relied upon for manually drawing in rail lines. Forms for other linear structures also often included no mapping or vague location information. Topographic and General Land Office survey maps were again used for these features to ensure the highest reasonable level of accuracy. As with the point features, available SHPO inventory forms were attached to all non-railroad linear structural features.

It also must be noted a structure's status noted during the research stage is only as up-to-date as the most recent satellite imagery available for many of the structures. Modern satellite imagery dates vary across the project area, and often it was only as recent as 2016. Some of the structures noted as still standing in the modern satellite imagery may have been demolished since the imagery was taken. This is also why some of the structures were field visited for verification.

If a feature in the *Historic Structures* layer was found to be Listed on the National Register of Historic Places, a weblink to the NRHP listing was included in the Attribute Table.

5.3.3 Historic Districts

Historic Districts were mapped in manually as polygon features. This was done by referencing mapping included in the National Register of Historic Places (NRHP) and SHPO documentation for each historic district where applicable. If there was discrepancy between the NRHP mapping and SHPO mapping, deference was given to the NRHP mapping. SHPO inventory forms for each district were attached to the polygon features, and, if Listed, a link to the NRHP webpage for the listing was included for the Attribute Table.

5.3.4 Cultural Resource Potential

The *Cultural Resource Potential* category included points, lines, and polygons. Points were utilized when a discrete location less than an acre could be identified for the cultural resource, i.e. structures. Lines were drawn for abandoned rail lines, roadways, and pathways. Polygons were used for locations over an acre in size, i.e. a quarry or historic reservation. If a cultural resource was identified during the research but a specified, precise location could not be determined, it was not included in the geodatabase. As with the *Historic Structures* points, coordinates were collected for the *Cultural Resource Potential* points throughout the research phase. These were used to import the cultural resource points directly into a shapefile which was subsequently incorporated into the geodatabase.

Locations of linear features were mapped using historic topographic maps, GLO maps, and **LiDAR**. Since the linear features and areas were being delineated by the team's researchers, the researchers would map the features in Google Earth. They would send the resulting .kmz file to the GIS technician to convert to shapefile. This essentially took the place of importing coordinates collected during the research phase, though Attribute Table data was then manually entered for the lines and polygons instead of imported with the table containing point coordinates.

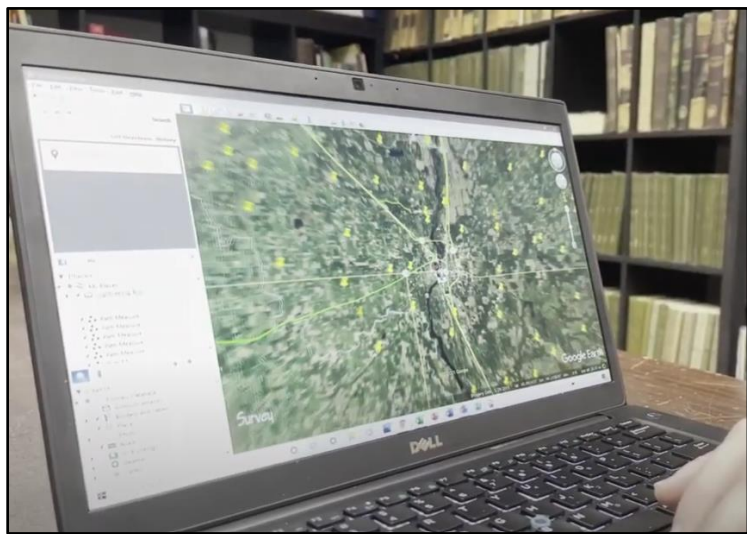


Figure 8. Example of Google Earth waypoints saved by a researcher during the data collection phase.

Significant maps, articles, and photographs collected during the research process were attached to each applicable feature allowing for them to be opened from clicking the feature in the geodatabase. Reference material citations as well as weblinks to references available online were also included in the Attribute Table to allow an end-user to pursue further research if necessary.

5.3.5 Tribally-Informed Potential Traditional Cultural Property

All cultural properties in this category were drawn in as polygons. This is because tribes prefer to keep specific locations of important properties intentionally vague for the property's protection. These polygons were drawn referencing either the Minnesota Indian Affairs Council (MIAC) layer on the OSA web portal (illustrating sites deemed significant to MIAC and requiring further communication) or using mapping agreed upon through tribal communication. Attribute Table data was kept scarce as well but provides a contact email for the THPO to reach out to for further information.

5.3.6 Unrecorded Burial Sites

This category includes literature or historic mapping-indicated unmarked burial sites not already displayed in the OSA web portal. Because the exact bounds of the burials could not be determined with certainty, this layer was drawn in as points only. Source material references are cited within the Attribute Table and attached to each feature where applicable for viewing within the geodatabase.

Note about the Historic Structures and Cultural Resource Potential categories:

SHPO-inventoried structures were largely inventoried in the 1960s through 1990s, and not all of the structures in the SHPO database are still standing (i.e. non-extant). Therefore, distinctions between the non-extant structures included in the *Historic Structures* and *Cultural Resource Potential* categories need to be made. Early in the methods-defining phase of the project, it was decided all SHPO-inventoried structures should be kept within one category (*Historic Structures*). This helped data collection methods more easily function between the categories of ‘Known’ and ‘Unknown’ resources. To be clear, the *Historic Structures* category includes both extant and non-extant structures. The only non-extant structures are SHPO-inventoried. There is a query-able field in the Attribute Table with ‘standing’ for extant structures ‘demolished’ for fully non-extant, and ‘foundation only’ for structures demolished but with a foundation remaining. The *Cultural Resource Potential* category contains *only* resources that are non-extant, not otherwise inventoried with a state agency, and may have subsurface deposits.

5.3.7 Raster Data

Five layers of historical and elevational raster data were also included in the geodatabase to be used as basemaps and reference imagery: MnModel v.4, Trygg Historical Maps, GLO Maps, Aerial Photography, and LiDAR. The methodology utilized for incorporating each is described below.

MnModel v.4

MnModel is a geostastical raster created by MNDOT. Its purpose is to model areas of high, low, and moderate potential for pre-1837 archaeological sites in Minnesota. Primary input data for the model includes pre-contact hydrography, pre-contact vegetation, and corrected elevational data (LiDAR). The model has been in development since 1995 with the most recent version of the model, Version 4, published in 2019. While each dataset used to generate the model is provided with open access by MNDOT, the full model is currently only made available to archaeologists through the OSA web portal. Both the CRSL geodatabase and Camp Ripley GIS teams put in a joint-request to MNDOT for permission to use this data in the CRSL geodatabase. Permission was granted, and the model raster data was provided. The MnModel data has been incorporated into the final geodatabase product both as a raster reference and analytical layer.

Trygg Historical Maps

Trygg Historical Maps are composite maps of the General Land Office survey maps and associated field notes created by Bill Trygg Sr. and his team starting in 1956. At the outset of the project, the necessary maps for the project area were ordered from the Trygg Land Office. The maps were digitized using digital photography and saved as .png files to ensure the resulting imagery would be sharp and high quality. The photographs were then georeferenced by aligning the Township/Range/Section grid on the maps to a digital Township/Range/Section shapefile. Once all images were georeferenced they were stitched together into one raster image using the **Mosaic** tool. The resulting single raster layer was then cut down to only the portion of the map laying within the project area boundary using the **Clip** tool.

GLO Maps

GLO maps are the original plat maps of the United States and the first to establish and utilize the Township/Range/Section system (Figure 8). These were surveyed and drawn by the U.S. Surveyor General's Office (General Land Office) between the years of 1849 and 1907. Maps landing within the project area were acquired through the Minnesota Geospatial Office (MNGEO). MNGEO staff had previously georeferenced all GLO maps in Minnesota and provided these georeferenced rasters online as open-access data (MNGEO 2022). The necessary georeferenced GLO maps for the project area were downloaded and saved in a workspace file. While the previous georeferencing work of the MNGEO team was a good first step, the rasters did not project quite accurately into the mapping workspace and were always one section south and west or north and east of where they should land. All GLO rasters went through a corrective georeferencing process using the Township/Range/Section grid for reference. Once all GLO rasters were properly georeferenced they were stitched together into one raster using the Mosaic tool. The resulting single raster layer was then cut down to only the portion of the map laying within the project area boundary using the Clip tool.

Aerial Photography

At the outset of the project, the intent was to georeference and Mosaic together all available historical aerial photography for every available year within the project area, similar to the Trygg and GLO mapping. However, once all the photography was collected it soon became evident this method would not be feasible. This was for two reasons: 1) Each decade of images could often be split amongst three different years and even within a single decade there could be large gaps of data, 2) Some flight transects photographed at a slight angle and when imagery is angled it cannot be accurately georeferenced to flat reference imagery.

Instead, methodology pivoted to generating two kinds of index systems. One system is slightly more convenient and can be used with a reliable internet connection for as long as the University of Minnesota is hosting the associated website. The other is slightly less convenient but can be used entirely offline and relies on locally stored files. The online system uses a shapefile originally created by the institution housing the most historical aerial photographs in the state, the John R. Borchert Library at the University of Minnesota. This shapefile contains centroid points for digitized aerial photographs from the 1930s, 1940s, 1950s, 1960s, and 1970s. Clicking on a point

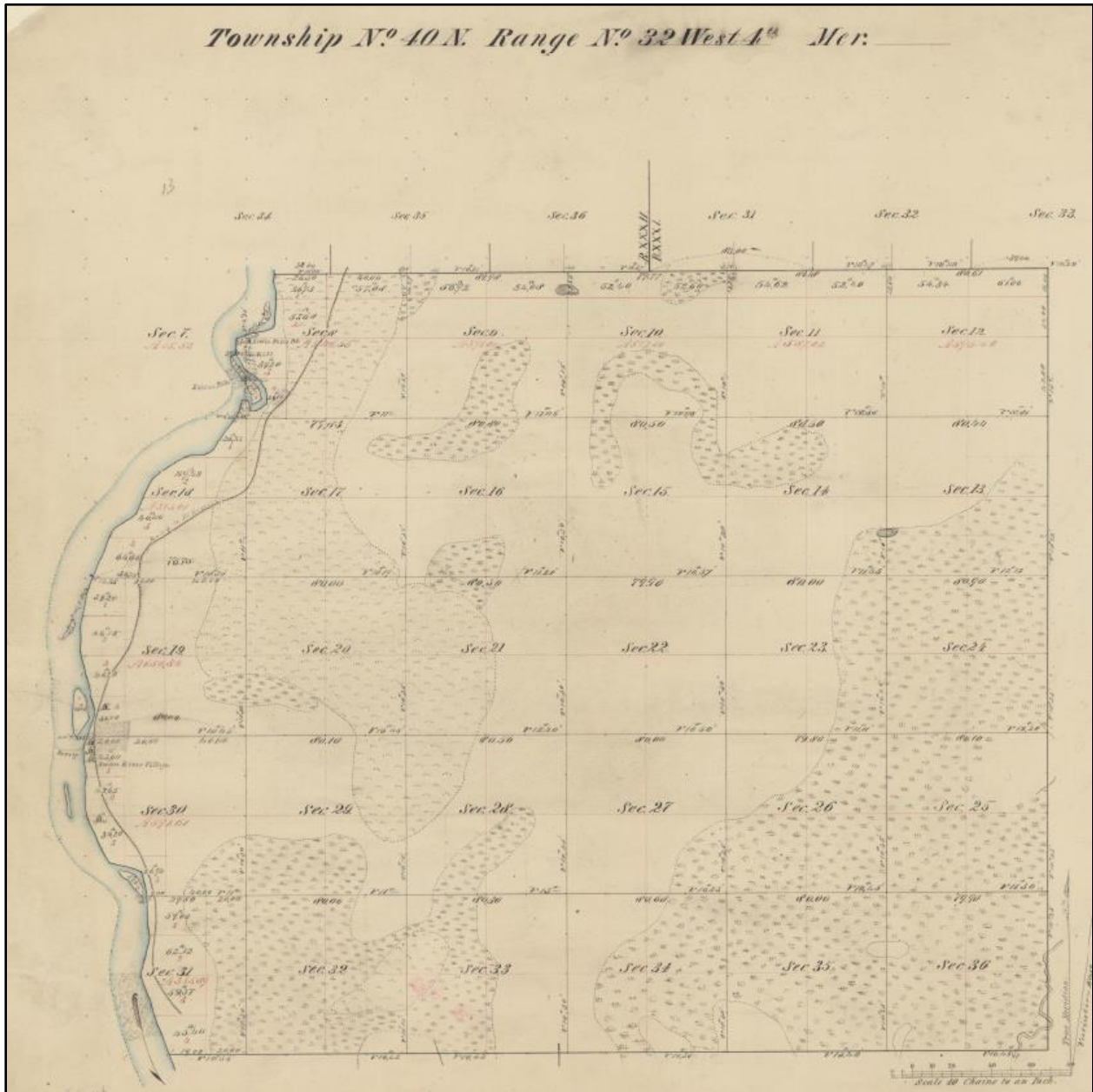


Figure 9. Example of an 1852 GLO survey plat map. This map is of Township 40 North, Range 32 West and includes the southeast portion of Little Falls (Section 8, northwest corner of the map).

using the ‘HTML’ pop-up tool or ‘Information’ tools will provide a link to view the aerial photograph in a browser window. Photographs can be downloaded from this browser for further use. The shapefile was clipped down to only include photograph centroid points within the project area.

The offline index pairs this shapefile with a grid generated to create a quick reference system for finding and pulling aerial photographs from where they have been downloaded and saved in the local files. The aerial photograph associated with every centroid point within the project area was downloaded and the file named after the photo year, index grid square, and individual flight identification number (the FID field in the Attribute Table). With this system, a user simply needs to find the flight year and flight identification number using the Attribute Table data, then see which grid square the point lands within using the *Historical Aerial Index Grid* layer. The photographs were saved to the local external drive sorted into folders by decade. The user would then open the appropriate decade folder stored in local files, sort alphanumerically by index square, then flight identification number.

LiDAR

The largest LiDAR (Light Detection and Ranging) collection project in Minnesota was completed by the MNDNR between the years of 2008 and 2012. All of this LiDAR data is made available online through the Minnesota Geospatial Information Office as individual raw data raster tiles organized via an index system. This index system was utilized to identify which LiDAR tiles land within the project area. Once the needed tiles were identified, the necessary data was downloaded. All LiDAR data collected during the MNDNR 2008-2012 project is already georeferenced and was loaded into the GIS workspace as-is. All data projected accurately and no adjustments were needed. The whole of the raster data was too much to stitch altogether from scratch. Instead, tiles were then stitched together using the Mosaic tool in east-west rows a single tile in height. Adjacent rows were then stitched together in pairs, and finally all pairs were stitched together to create a single, continuous raw LiDAR raster layer. The resulting single raster layer was then cut down to only the portion of the map laying within the project area boundary using the Clip tool. With this layer, a user can create a **Hillshade** of the LiDAR using the Image Analysis or Hillshade functions in ArcMap, or the Hillshade function in ArcGIS Pro. With this process, the user can manipulate the Hillshade lighting angles to the desired azimuth and altitude. A pre-made Hillshade is already available to the user in both map project views with a standard lighting azimuth of 315° (northwest lighting angle) and altitude of 25° (a low lighting angle to help spot low, wide features).

5.3.8 Environmental Data

Pertinent environmental data was also pursued for the project area. Two primary functions were kept in mind while curating the incorporated environmental data: 1) To provide reference layers of environmentally protected areas to support CRSL goals of natural resource preservation, and 2) To provide insight into pre-contact vegetation and hydrographic resources as well as which areas still contain untouched forests and native plant communities. Generation of environmental data was not part of the scope of this project. Instead, shapefiles and rasters created by MNDNR and

MNDOT were retrieved through the MN Geospatial Office and modified for the project area. Modification included using the Clip tool to ensure shapefiles and rasters reflect the geospatial extent of the project area and simplifying the Attribute Tables to only display data relevant to the end users of this geodatabase project. Layers illustrating contemporary hydrography and geology were also included as reference and for potential future modeling. Permission was sought and granted for any layers not defined as open-access on MN Geospatial Commons.

5.3.9 Reference Layers

Basic reference layers were also created for ease of navigating the geodatabase data. The formal project area boundary itself and the Camp Ripley military reservation boundary were provided by Camp Ripley GIS staff at the very beginning of the project. The project GIS technician then shared the shapefiles with the project researchers, who imported the data into Google Earth and used it throughout as reference for the project's geographic scope. Other reference layers, including city and township boundaries, county boundaries, and Township/Range/Section, were acquired through the MN Geospatial Office.

5.3.10 File Organization and ArcCatalog

Shapefiles and rasters were named according to the layer's content, but each file name was also assigned a code at the beginning to force the files to auto-sort into their appropriate category. These codes were CUL, ENV, and REF. All primarily cultural layer file names start with CUL, all primarily environmental layers start with ENV, and all reference layer file names start with REF. This allows the end-user to more easily navigate to the file type they are looking to add to their map view when using the geodatabase.

Metadata for all layers was added using ArcCatalog 10.8. This includes static thumbnails illustrating each layer, Tags, layer Summaries and Descriptions, Credits, and recommended Scale Ranges (Figure 9). The Credits metadata always includes the data source. For instance, for the environmental layers discussed above, a link to the original metadata for the parent shapefile/raster is provided in the Credits box for further information.

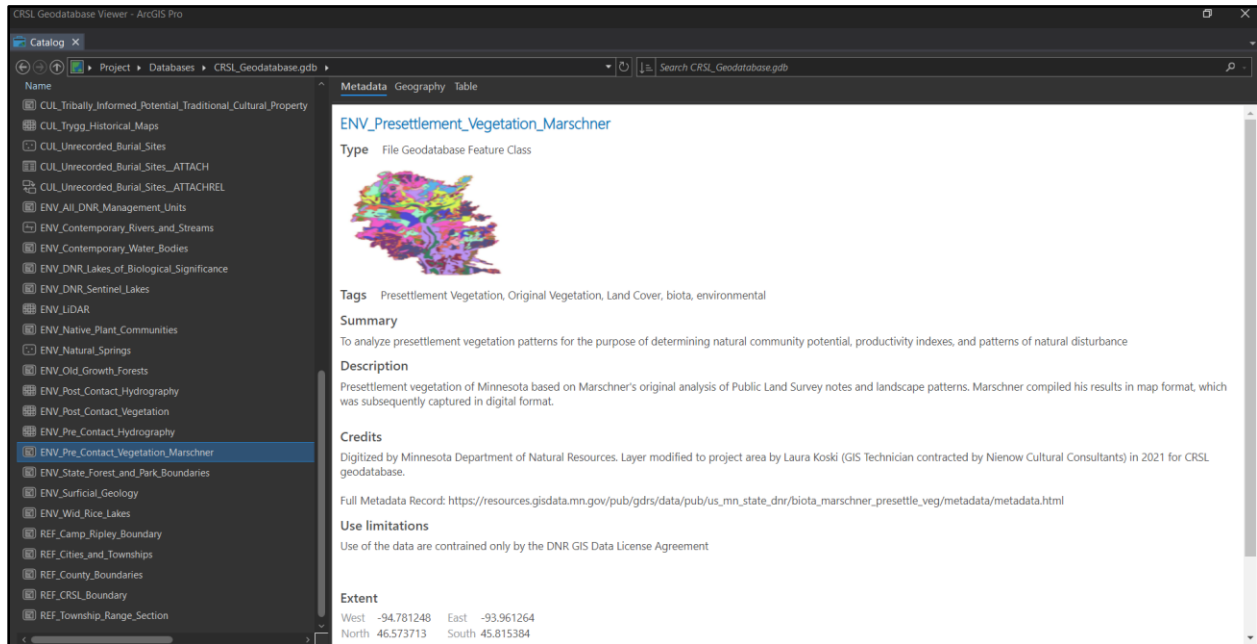


Figure 10. Example of file naming conventions organization (to the left) and an example metadata entry (to the right) when viewed in ArcGIS Pro.

5.4 Video Documentation

Barry Madore of Fire on the Bluff Productions (FBP) was contracted to complete video documentation of the CRSL process from beginning to end. This included conducting interviews with the CRSL board, Sylvan Township staff, project team members, and the public, and filming stages of the research and GIS process. The content producer then edited the material into a video series, with the introductory video in the series being nearly 21-minutes in length and the following videos being shorter encapsulations of different steps of the process. FBP also collected images and video footage, commonly called ‘b-roll’ to illustrate concepts and activities described by the interviewees.

After these initial interviews, FBP accompanied team members as much as possible to document their work. COVID restrictions made this work challenging. Coordinating visits to historical societies, state archaeology records sites, libraries, etc. was difficult given closures and restrictions as to who could visit and how many individuals would be allowed.

Despite these challenges, FBP was able to accompany the team on multiple site visits to document their investigative approach to the project. These visits included:

- Douglas A. Birk Papers – St. Cloud State University
- Camp Ripley Open House
- Little Falls / Royalton / Pillager / Nisswa / Buckman (site and interview trip)

- Pillager public archaeology dig event

These visits included collecting video of specific sites being investigated, interviews with historians identified by the Sylvan Township Board and NCC team members, observation of the team working and interviews with team members about the work being conducted.

Additionally, FBP communicated with historians and others whose names were forwarded by the NCC team and the Sylvan Township Board to seek interviews and feedback. Again, COVID and other challenges made interviews difficult to coordinate; however, the multi-day trip to the CRSL region (cited above) resulted in on-site interviews with a number of local historians and stakeholders including:

- Horst Hanneken
- Carl Faust
- Brainerd mayor, Dave Badeaux
- Ray Nelson
- Mike North
- Collin Swift
- Greg Booth
- David Macarthur
- Stephen Schaitberger
- Sue Vanhal
- Tom Mertens

In addition, large amounts of b-roll footage was shot at the following locations:

- Douglas A. Birk Papers at St. Cloud State University
- Little Falls downtown and area
- Lindbergh State Park
- Royalton downtown and area sites (creamery, historical society, etc.)
- Swan River historical marker
- Dixville (original location and relocated standing structures)
- Barrows mine site
- Northern Pacific Shops
- Brainerd water tower
- Brainerd bridge collapse and Ojibwe encampment site
- Old Crow Wing village sites and cemetery (incl. Beaulieu House)
- Gull River Village site
- B&NM logging railroad grade site
- Pillager archaeology dig site
- Camp Ripley

Throughout the project, FBP set up semi-regular check-in meetings with the NCC team to review progress and be updated on discoveries, challenges, and opportunities. FBP also conducted short interview videos with team members at a number of these meetings.

Video Production

All video was shot in 4K resolution on two devices, an iPhone 12 Max Pro and an iPhone 13 Max Pro, using PolarPro photographic filters, a Zhiyun stabilizing gimbal, and the Filmic Pro video app. To ensure clear quality sound, all sound was recorded separately onto a pro-grade digital field recorder (Zoom F8) using a cinema-quality shotgun microphone (Rode NTG3) with a wind-protection blimp (when necessary outdoors). Sound was then synced to the video during post-production editing which was done using Final Cut Pro X software on a Macbook Pro laptop.

6.0 RESULTS

In total, 40 layers are included in the final geodatabase. These are comprised of 18 cultural layers, 17 environmental layers, and five reference layers. Out of these totals, the cultural and environmental layers also include five reference basemaps. Table 2. outlines all of these layers by resource type (cultural, environmental, reference) and defines data types and original source for each.

Table 2. All Final Geodatabase Layers

Resource Type	Layer	Data Type	Source
Reference	CRSL Boundary	Polygon Shapefile	Camp Ripley GIS Staff
	Camp Ripley Boundary	Polygon Shapefile	Camp Ripley GIS Staff
	Cities and Townships	Polygon Shapefile	MNDOT
	County Boundaries	Polygon Shapefile	MNDNR
	Township Range Section	Polygon Shapefile	MN Geospatial Information Office
Cultural	Recorded Archaeological Sites	Polygon Shapefile	Data manually collected from OSA Web Portal, SHPO files, and communication with OSA staff
	Cultural Resource Potential Points	Point Shapefile	Manual research and entry
	Cultural Resource Potential Linear	Polyline Shapefile	Manual research and entry
	Cultural Resource Potential Areas	Polygon Shapefile	Manual research and entry
	Historical Standing Structures Points	Point Shapefile	SHPO Database and manual research and entry
	Historical Standing Structures Linear	Polyline Shapefile	SHPO Database and manual research and entry
	Historic Districts	Polygon Shapefile	SHPO Database and manual research and entry
	Traditional Cultural Properties	Polygon Shapefile	OSA web portal and tribal communications

Table 2. All Final Geodatabase Layers

Resource Type	Layer	Data Type	Source	
	Unrecorded Burial Sites	Point Shapefile	Manual research and entry	
	Historical Aerials Index Grid	Polygon Shapefile	Manually generated	
	Historical Aerials Index Points	Point Shapefile	Minnesota Historical Aerial Photos Online (John R. Borchert Library, University of Minnesota)	
	Historical Pedestrian Pathways	Polyline Shapefile	MNDOT	
	Risk Assessment Model	Polygon Shapefile	Modeling using USGS, MNDNR, MNDOT, and Pigeon Consulting data	
	MNDOT MnModel v.4	Raster	MNDOT	
	General Land Office Historic Plats	Raster	Minnesota Geospatial Information Office	
	Trygg Historical Maps	Raster	Trygg Land Office	
Environmental	Contemporary Reference	LiDAR	Raster	MNDNR
		Contemporary Rivers and Streams	Polyline Shapefile	MNDNR
		Contemporary Water Bodies	Polygon Shapefile	MNDNR
		Contemporary Land Cover	Raster	USGS
		Surficial Geology	Polygon Shapefile	MNDOT
	Preservation/ Land Protections	All DNR Management Units	Polygon Shapefile	MNDNR
		DNR Lakes of Biological Significance	Polygon Shapefile	MNDNR
		DNR Sentinel Lakes	Polygon Shapefile	MNDNR
		State Forest and Park Boundaries	Polygon Shapefile	MNDNR
	Informs Archaeological Site Probability	Native Plant Communities	Polygon Shapefile	MNDNR
		Natural Springs	Point Shapefile	MNDNR
		Wild Rice Lakes	Polygon Shapefile	MNDNR
		Old Growth Forests	Polygon Shapefile	MNDNR
		Post-Contact Hydrography	Raster	MNDOT
		Post-Contact Vegetation	Raster	MNDOT
Pre-Contact Hydrography		Raster	MNDOT	
Pre-Contact Vegetation ala Marschner	Polygon Shapefile	MNDOT		

The literature review resulted in a total of 3,578 separate assets recorded, collected, and organized. This breaks down into 372 Recorded Archaeological Sites inventoried at OSA, approximately 1,165 Historical Standing Structures (1067 SHPO-inventoried, 98 newly identified), five Historic Districts, 210 locations of Cultural Resource Potential, three Traditional Cultural Properties, one Tribally-Informed Potential Traditional Cultural Property, two unrecorded post-contact burial sites, 492 separate LiDAR tiles, 1,252 separate historical aerial images, four Trygg maps, 58 GLO plat maps, 16 environmental GIS files, and one predictive model (MnModel). Aerial images collected by decade include 347 for the 1930s, 143 for the 1940s, 506 for the 1950s, and 256 by the 1960s. No sharp aerial imagery was located for the 1970s onward. Table 3. breaks down key identified cultural resources by county.

Table 3. Identified Cultural Resources by County

County	Archaeological Sites	Historic Structures	Cultural Resource Potential	TOTAL
Cass	92	25	64	181
Crow Wing	118	169	54	341
Morrison	158	963	87	1,208
Todd	5	8	6	19
TOTAL	372	1,165	210	1749

6.1 Risk Assessment Model

Time remaining in the project also allowed for the creation of a risk assessment model. The intention of the model is to highlight three levels of risk potential:

Low: areas with little chance of prior disturbance or future development. This includes forested areas away from towns/cities, state or county parks, DNR land, etc. Individual properties considered to be low risk are locally or nationally designated historic landmarks and National Register of Historic Places listed properties.

Moderate: areas not previously or currently intended for development, but have a likelihood of past or future disturbance. While this includes risk for future development (i.e. proximity to towns/cities) and roadway expansion, it also includes risk for erosion along waterways and disturbance within cultivated fields through tilling and plowing. Pastureland was also considered moderate risk for its potential to alternate between fallow, pasturing fields and cultivation.

High: all previously developed areas, areas currently under development, or areas recently purchased for future development

This model incorporated several sets of data starting with an investigation into areas of future development that may pose a risk to archaeological or architectural sites. This part of the

assessment was contracted to Pigeon Consulting (Pigeon) in December, 2021 through March of 2022. Pigeon focused their research into parcels recently purchased in the Little Falls and Brainerd areas. For Brainerd, this included communication and research with the Brainerd Lakes Area Economic Development Authority. For Little Falls, this included research with Morrison County Community Development. These two sources generally only include public listings, therefore results could not include private property not yet listed for sale. Otherwise, active listings and recently sold properties were communicated to Pigeon by Appro Development.

This research resulted in the identification of 79 individual parcels and three general ill-defined areas purchased or up for sale in the greater Brainerd/Baxter areas. Many of these parcels were purchased as large groupings, breaking down these purchases into 29 separate areas being purchased/listed for development in the Brainerd/Baxter area overall. In the greater Little Falls area, nine separate parcels were purchased/are up for sale for development. Three of these parcels were bought together, breaking this down into six separate areas overall. All of these parcels were included in the final model under the High potential risk category.

The remainder of the data for the model included a combination of existing environmental and land use data and applied buffers. This started with creating a base layer out of modified land use data first generated by the United States Geological Survey (USGS). The most recent version of this layer was used (titled NLCD 2019 Land Cover). This layer was acquired as a raster. To be able to assign risk values, the raster was clipped to the project area and vectorized. Each land cover type was then assigned a risk value of Low, Moderate, or High. Table 4 outlines which land cover type received which risk level.

Table 4. Land Cover Type Risk Levels

Barren Land	Low
Cultivated Crops	Moderate
Deciduous forest	Low
Developed, High Intensity	High
Developed, Medium Intensity	High
Developed, Low Intensity	High
Developed, Open Space	Moderate
Emergent Herbaceous Wetlands	Low
Evergreen Forest	Low
Hay/Pasture	Moderate
Herbaceous	Low
Open Water	Low
Shrub/Scrub	Low
Woody Wetlands	Low

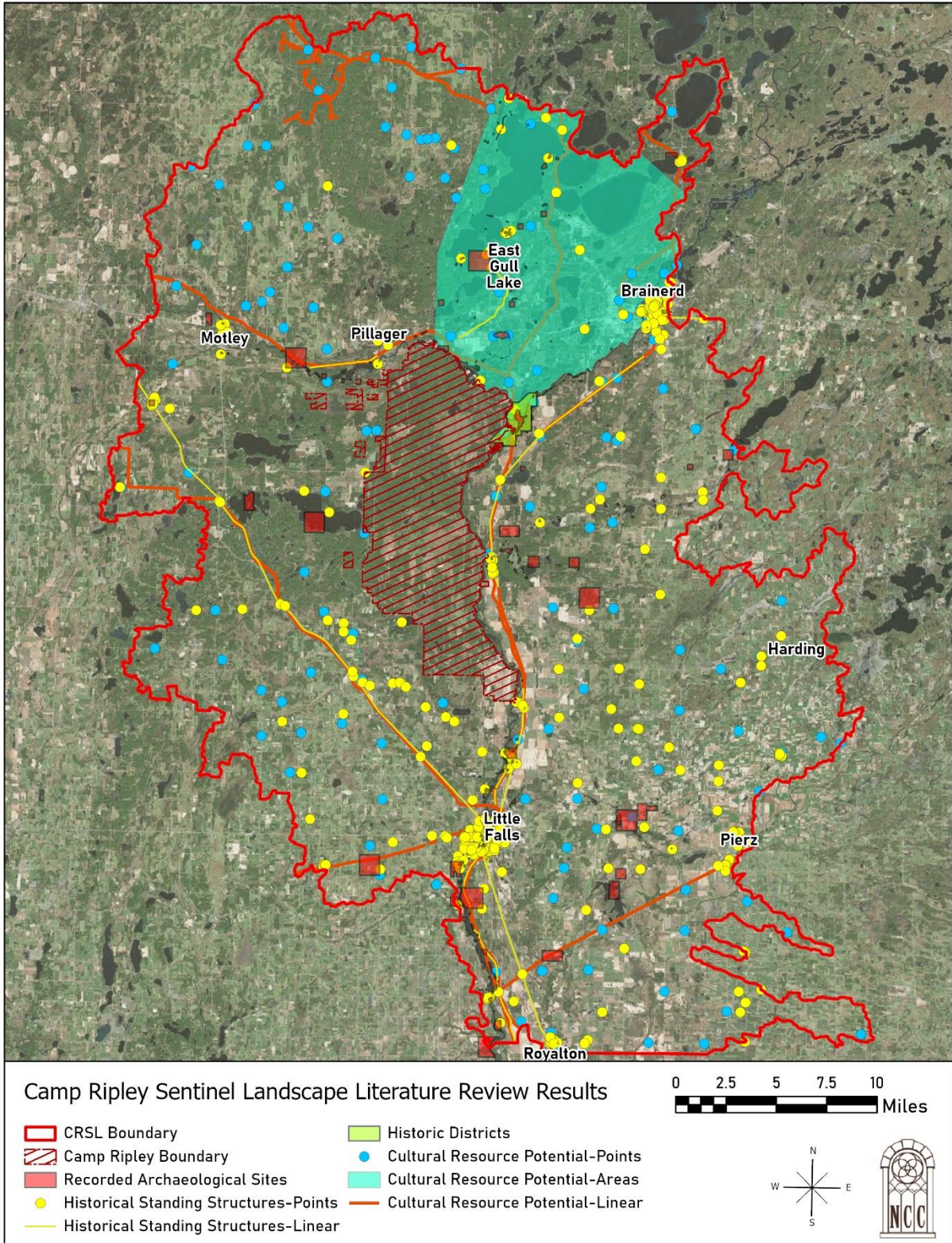


Figure 11. Overview map of literature review results.

Next, streams and rivers were pulled from the Minnesota DNR Hydrography Dataset layer created by MNDNR. Waterways were given a Moderate-level buffer to account for erosion risk. Considering long stretches of the Minnesota and Crow Wing Rivers (the two major rivers running through the project area) are lined with wooded edges, the erosion buffer for waterways was set to a maximum of 50-feet.

The final set of incorporated data included roadways pulled from the Roadway Details in Minnesota polyline layer created by MNDOT. This layer included information about whether roads were two-way, one-way, non-mainline roads, or ramps. Two buffers were created for roadways: one to reflect likely road width and the disturbance created to grade it (considered High potential for previous disturbance), and second to reflect potential road alteration limits in the future (considered Moderate risk). For the initial width buffer, different buffer distances were assigned based on the road type. Ramps received the largest buffer at 200-feet due to the intense ground disturbance and grading required for ramp creation. After measuring a sampling of two-way streets throughout the CRSL, two-way streets were assigned the average width of 40-feet. One-ways and non-mainline streets were assigned a width of 20-feet after measuring a sample of these streets in the project area. Buffers reflecting the Moderate potential for disturbance around these roadways included 100-feet around ramps, and 20-feet around two-way and one-way streets.

All of the above data was then combined into a single vector model covering the entirety of the CRSL. See Figure 12 for examples of the Brainerd and Little Falls areas. Overlapping this model with the cultural resources recorded in the geodatabase resulted in identifying no Recorded Archaeological Sites or Historic Structures within the areas Pigeon identified for potential future development. However, three Cultural Resource Potential features were identified as overlapping these areas. This includes a section of the Jefferson Highway west of Little Falls, a very short section of the Fort Ripley Military Road north of Little Falls, and several potential development parcels land within the large area of the large 1855-1867 Gull Lake Chippewa Reservation in the Baxter area. Otherwise, using this model, 119 Recorded Archaeological Sites were determined to be High Risk for disturbance (outside of the areas Pigeon identified), 145 were determined to be at Moderate Risk, and the remaining 108 were determined to be at Low Risk for impact.

6.2 Results Benefiting State Agencies

This research also resulted in the submission of four new alpha sites to the OSA. These new alpha sites were selected out of the collected sites of Cultural Resource Potential as the locations of highest archaeological potential paired with concrete historical information on location and context. Submitted sites included the Northern Pacific Railroad Hospital Complex, Vawter Ghost Town, Gorman Mine, and Duclos Brick Works. These sites have not been formally surveyed, and therefore have been listed as alpha sites (sites based on literature review without being field-checked). All four sites were accepted and given the following site numbers (in order respectively): 21CWbe, 21MOaz, 21MObb, and 21MOba.

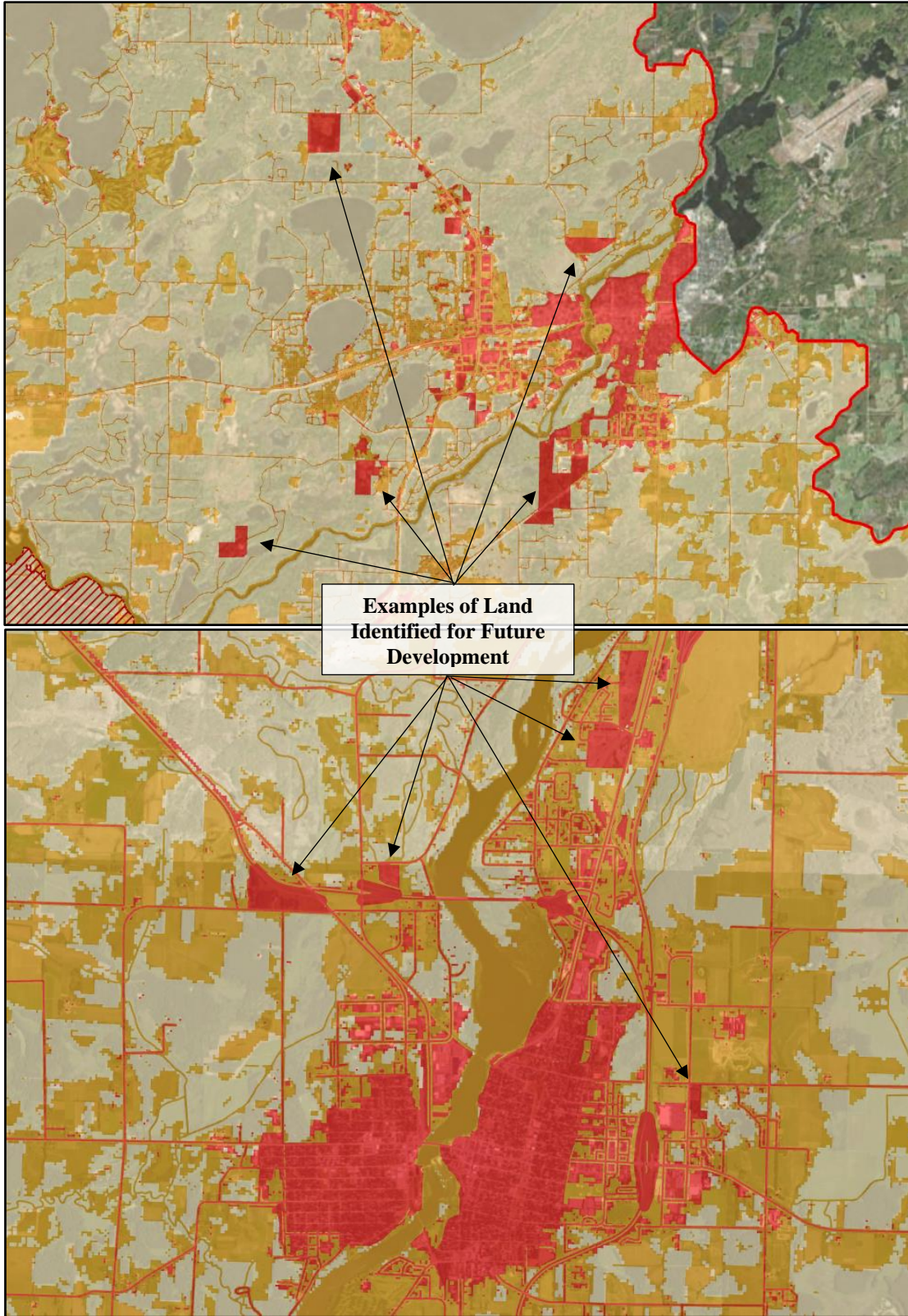


Figure 12. Examples of the Risk Assessment Model in the Brainerd/Baxter (above) and Little Falls (below) areas. Red is High risk, yellow is Moderate, and white is Low.

A single existing alpha site was also refined as a result of the research for this project: Gravelville (21MOas). During the research for locations of Cultural Resource Potential, researchers identified more information for Gravelville, including maps which help narrow down the specific likely site location. This information, along with the refined alpha site boundaries, was submitted to and accepted by the OSA in February of 2022.

Likewise, throughout the SHPO data integration process, numerous errors were noted in the SHPO database records for the project area. These ranged from basic typos to missing addresses, and often incorrect Township/Range/Section. These errors were brought up in a meeting with SHPO staff soon after data collection was completed. Some errors were known, others not, and an agreement was made to send an updated version of the data to SHPO once all quality checks were completed and permission granted by Sylvan Township. As the location of each SHPO-inventoried historic structure was confirmed, necessary updates or edits to the data were made on the data collection spreadsheet. After all data collection was completed and quality-checked, this spreadsheet was sent to SHPO to use in their database management efforts.

6.3 Video Documentation

Using the video material gathered from site visits and team interviews as well as relevant maps, newspaper clips and still photos researched to accompany the interviews, FBP created the videos originally outlined in the project scope. After creating the introductory 21-minute overview video, NCC received feedback that shorter, more focused videos would be helpful, especially for distribution not just to the stakeholders but also to the general public. FBP changed their approach to focus on shorter focused videos in addition to project documentation.

Completed videos include the following:

- Camp Ripley Sentinel Landscape Literature Review: Phase 01 Introduction
- Historian interview series videos
 - Collin Swift
 - Ray Nelson
- Pillager Public Archaeology Dig video (collaboration with Great River Greening)
- CRSL Phase 02 Review (interview with team member Jeremy Jackson)
- Dixville, Minnesota – “Lost” Settlement Rediscovered (team interview, site visit, Horst Hanneken interviews)
- CRSL 100 Percent Review (team retrospective interviews, database overview presentation)

In addition, FBP also packaged some of the interviews (raw footage, minimal editing) which were only minimally included in the above videos or not featured at all:

- Mike North
- Dave Badeaux
- David Macarthur
- Greg Booth

- Stephen Schaitberger

Video Distribution

At the outset of the project, FBP set up a new YouTube channel for Nienow Cultural Consultants (https://www.youtube.com/channel/UCGRbXt0FyNc_JFf_azr3aHw).

At the conclusion of the project, Sylvan Township will need to decide if and how to continue with some form of public distribution, if they so desire. FBP strongly advises closed caption subtitles be produced for any videos ultimately made public. Such production is relatively simple to do but is time-consuming to proof and correct transcription mistakes.

As with any video production, there is still material gathered which was not included in finished products. Video production focused on producing the in-scope videos required by the original project agreement. If there is potential for finding funding to engage FBP to produce further videos using and augmenting some of the unused material, they are open to being engaged. FBP has greatly enjoyed being on the team for this project and learning the region's rich history, archaeology in general, and the literature review processes. This project enabled FBP to visit areas previously only passed through or spent little time appreciating, and they are definitely interested in pairing with team members and potential clients to create videos, audio podcast series (FBP's specialty), or journalistic articles.

7.0 CONCLUSIONS, RECOMMENDATIONS, AND FUTURE RESEARCH DIRECTIONS

7.1 Summary and Conclusion

On December 1, 2020, Sylvan Township was awarded a \$129,980 grant from the Minnesota Historical and Cultural Heritage Grants program. The purpose of this grant was to fund a comprehensive literature review of cultural and environmental resources within the Camp Ripley Sentinel Landscape, with an ultimate product of storing all of this information in a Geographic Information Systems (GIS) geodatabase for management use by the Camp Ripley Sentinel Landscape board. Nienow Cultural Consultants (NCC) was contracted to complete this work in February of 2021.

The Camp Ripley Sentinel Landscape project area encompasses large portions of Cass, Crow Wing, Morrison, and Todd Counties. The entire project area falls within Anfinson's Archaeological Region 4: Central Deciduous Lakes (Anfinson 1990). This geodatabase is designed to be used as a management tool by mapping all identified cultural resources and relevant environmental and historical information to encourage protection and preservation of the lands within the CRSL boundary. The project scope as defined by Sylvan Township included the following:

- 1) Research documented archaeological sites and surveys within the CRSL geographic boundary, an area of approximately 805,000 acres;
- 2) Conduct research and interviews with staff and/or knowledgeable volunteers at local historical societies with information about the CRSL area in Cass, Crow Wing, Morrison and Todd Counties;
- 3) Conduct research at the Douglas A. Birk Papers housed at the Anthropology Department at St. Cloud State University;
- 4) Research Historic Standing Structures recorded at the State Historic Preservation Office (SHPO);
- 5) Consult with applicable American Indian Tribes regarding archaeological and historic sites in the CRSL area;
- 6) Create GIS layers on known archaeological and historical sites in the CRSL area and data found through this research that are compatible with the GIS system already in use by the CRSL program, in a shapefile or file geodatabase.

Besides creating GIS layers reflecting the known archaeological and historical sites, GIS goals specified at the beginning of the project included researching General Land Office, Aerial data, and Trygg maps for the project area; using the Minnesota Statewide Archaeological Predictive Model (Mn/Model) to predict presence/absence of archaeological resources; and creating additional GIS data to map the results of this research. NCC met all of the above outlined goals during the course of the project with an additional focus on identifying areas of possible subsurface cultural resource potential and standing historic structures not already inventoried by the

Minnesota Office of the State Archaeologist (OSA) and State Historic Preservation Office (SHPO).

The literature review began on April 1, 2021. This began with archaeological and historical architectural data collection using data maintained by the Minnesota Office of the State Archaeologist (OSA) and Minnesota State Historic Preservation Office (SHPO) followed by archival research completed both online and in-person at various county and township historical societies. All collected cultural data was synthesized into a singular file geodatabase along with environmental geospatial data. In total, the geodatabase includes five locational reference layers, 18 cultural data layers, 17 environmental data layers, and five raster basemap and imagery layers. Cultural data collection focused primarily around previously recorded and potential archaeological sites and previously recorded and newly identified historic architecture and rail lines/roadways/trails. This data includes 372 previously recorded archaeological sites, 210 locations with subsurface cultural resource potential, 1067 SHPO-inventoried historical architectural structures (including rail lines, roads, and trails), 98 newly recorded historical architectural structures, five historic districts, three Traditional Cultural Properties, and one Tribally-Informed Potential Traditional Cultural Property.

On April 15, 2022, NCC turned over this final report to Sylvan Township Board, after it was reviewed by the CRSL advisory committee the previous two weeks, along with NCC's 100% complete report and final invoices. Furthermore, NCC turned over to Camp Ripley, the Office of the State Archaeologist, and the Minnesota State Historic Preservation Office digital copies of the completed GIS geodatabase. NCC enjoyed the research rigor and challenge of this project and found the overall project deeply rewarding. NCC wishes to thank both the Sylvan Township Board, the CRSL advisory committee, and the people of Minnesota who made the Legacy funding for this project possible.

7.2 General Recommendations Related to the Project and Geodatabase

Once the geodatabase was completed and NCC began to give presentations to regional, state, and local stakeholders, a series of recommendations related to the overall project and the geodatabase itself took shape.

- This project could not have happened without the input of data at all levels of the research spectrum including statewide information (MnDOT, SHPO, OSA, MN Geospatial Commons data, etc.), regional repositories (St. Cloud State University's Doug Birk Papers, county historical societies, etc.), and local level experts (Nisswa Historical Society, the Cities of Little Falls and Brainerd, local historians, etc.). *It is imperative future projects of a similar nature continue to nourish these relationships.*
- The data is only as good as the moment it was added to the database. This means the moment new information is available or learned about the CRSL, this database begins to become obsolete. *It is imperative this database be maintained on an annual or biannual basis to incorporate new information at the city, county, and state levels.*

- Similar to the above, the Risk Assessment Model created during this project highlighted 119 Recorded Archaeological Sites which have likely been heavily impacted during past development. Fortunately, no Recorded Archaeological Sites land within areas Pigeon Consulting identified as slated for development in the near future. *It would be in the best interest of the overall project to complete an audit of the archaeological sites identified as 'high risk of impact' (specifically denoted in the shapefile), and determine if any portion of these sites may still be intact. Formal site updates with the OSA may be necessary.*
- Although this project attempted to incorporate as many data sources as was practical, it still has room for improvement. *One area where the database could be immediately improved would be in the adding of Native American and Euro-American place names wherever possible.* When an area receives a name, it clearly implies cultural importance, and the recording of these names could provide new spatial insights when looked at overall. One way to begin this process would be to incorporate information from Warren Upham's *Minnesota's Geographic Names* as well as Alan Woolworth's brief article in the *Minnesota Archaeologist* "Indian Place Names of the Minnesota Region". NCC strongly suggests coordination with regional THPOs to glean as much cooperative information as possible.

7.3 Immediate, Practical Applications

Related to the above, there are a series of practical applications or outgrowths from completing this project which could begin immediately. These should be lead primarily at the local and county level.

- *Development of local history educational products (self-guided, audio, walking and bike tours; school lessons, interpretive panels, etc.) and expanded heritage promotion products (history trails, site tourism, etc.).* These would focus on one of the strongest overall tenants of this projects, the redistribution of spatially oriented data back to stakeholders.
- *Implementing qualified repositories, typically done at the county level, so archaeological materials can remain as close to where they were collected as possible.* This can also be implemented to strong tribal support so cooperative, respectful research can be produced. Example county level repositories have already been set up by several county historical societies in the Twin Cities metropolitan area.
- *Establishing a Heritage Preservation Commission for the City of Brainerd.* One of the clear observational outcomes of this project was the realization of the level of involvement the City of Little Falls has had in the active documentation and preservation of its urban environment. Most recorded properties within the overall CRSL project area came from the area immediately surrounding Little Falls. Brainerd could begin by coordinating and learning with the Little Falls Historic Preservation Commission.
- Within the database itself, there are two properties which are both on the National Register of Historic Places (NRHP), and have also had archaeological survey, evaluation, or data recovery completed on them: Crow Wing State Park Historic District (NRHP # 70000288) and the Charles A. Lindbergh State Park (NRHP # 89001655). Because these properties were added to the NRHP before archaeological work was completed, none of these

properties have had their archaeological components formally added to their NRHP nomination forms. *Adding archaeological components to existing nominations will strengthen the overall NRHP status of these properties and help combat data loss.*

- *Nominating eligible standing historic structures to the NRHP.* There are currently 20 historic structures in the project area that have been previously determined eligible to the NRHP, with an additional 17 considered to be potentially eligible. These structures should be re-evaluated for eligibility and those still considered or newly determined to be eligible should be nominated to the NRHP.
- *Nominating significant, existing archaeological sites to the NRHP.* Finally, in looking at just the archaeological sites within the CRSL which are not already associated with a National Register site, there are multiple properties which either should be formally evaluated to determine their eligibility, or have already been determined to be eligible, but have not been nominated. Two archaeological sites have previously been determined eligible, and an additional 24 have been recorded as potentially eligible.

7.4 Future Research Directions

Finally, this project has generated a myriad of future research directions which could excite collective local, county, and regional groups including historical societies, municipalities, and broader coalitions such as the Mississippi Headwaters Board. The information collected within this project is not just of research interest to historians, but is of immense practical importance to city, township, and county planners – as well as its intended audience, Camp Ripley. These research directions are generally organized from smallest to largest in scope.

- *Compiling lists and short reports related to various properties organized by property type, theme, age, etc.* These reports would assist local groups, educators, and planners in better understand the scope of research potential and create a tangible list for pursuing funding opportunities. Suitable examples of this work could include archaeological sites by period (Paleo Indian, Archaic, Woodland, Contact, 19th Century, and 20th Century) by function (schoolhouses, trails, ghost towns, fur trade, lumber camps, railroads, etc.), or by general type such as archaeological site, archaeological alpha site, or architectural property.
- *Building on the above, completing thematic research, writing, or even additional archaeological investigation around the sites listed above.* This could result in products which would dovetail nicely into regional education, tourism, and preservation opportunities. It is also important here to realize that revitalization and redevelopment projects are not necessarily destructive and can lead to positive outcomes for historic sites.
- *It is worth separating out alpha site or site leads within the CRSL.* These are locations where there is strong potential for an archaeological site to be present based on documentary evidence. Currently there are 56 of these sites in the CRSL. Taken individually, regionally, or collectively; *existing alpha site locations should be surveyed by professional archaeologists* and either eliminated if nothing is present or added to the known sites database via formal recordation with the Office of the State Archaeologist.
- *There is also a potential site lead group which NCC specifically compiled as part of this project.* Of this initial group of twelve locations, four were already added to the alpha sites

list. *It would be recommended the eight remaining potential site leads have alpha site forms completed for them:* Minnesota Brick Works, Spandrel Brick Works, Platte Ghost Town, an 1870s Ojibwe Encampment, Kilpatrick Landing (logging site), Gull Lake and Northern Logging Railroad Terminus, Island Logging Camp, and the Barrows Mine Location. Once this is completed, the remaining eight locations should be further researched to see if they are either good candidates for moving to the alpha sites list – or perhaps for simply completing archaeological survey and skipping the alpha site step.

- *Create archaeological geodatabases for properties where at least three different archaeological projects have been completed.* Like the larger CRSL project, which was completed at the macro level, this would be completed at the micro level by georeferencing excavation, photographic, and documentary information to assist site managers and planners in understanding where work has already been completed to eliminate unnecessary resurvey, or conversely highlight locations where future work still needs to be completed.
- *Creating archaeological geodatabases for larger management areas including state parks, wildlife management areas, reservoirs, etc.* These would greatly assist managers, the MnDNR and Minnesota Power for example, in better understanding ongoing, required, archaeological needs.
- *Creating archaeological understandings for townships/municipalities which have a significant number of cultural resources,* such as Brainerd, Little Falls, and Sylvan Township. These archaeological understandings would focus on relevant cultural contexts, lists of completed archaeological projects, archaeological and architectural sites, as well as relevant existing collections in local to state-level archival facilities.
- *Creating archaeological understandings for Cass, Crow Wing, Morrison, and Todd Counties.* These archaeological understandings would focus on relevant cultural contexts, lists of completed archaeological projects, a history of how archaeological work has been completed within the county, archaeological and architectural sites, as well as relevant existing collections in county collections. An example of a county-level archaeological understanding for Dakota County has been added as an appendix to this report (Appendix E).
- *Completing county-wide archaeological surveys for Cass, Crow Wing, Morrison, and Todd Counties.* The Minnesota Office of the State Archaeologist has been conducting these archaeological surveys consistently since 2008 and the inception of the Legacy Amendment. Thus far, county-wide surveys have been completed in Dakota, Lac Qui Parle, Le Sueur, McLeod, Red Lake, Olmsted, Steele, Swift, and Watonwan Counties and are available at the following website: <https://mn.gov/admin/archaeologist/professional-archaeologists/research/statewide-survey/>.

REFERENCES CITED

- 1855 Land Cession Treaty with the Ojibwe
n.d. *1855 Land Cession Treaty with the Ojibwe*. Hosted by Treaties Matter.org with support from the Minnesota Indian Affairs Council and Minnesota Humanities Center. <http://www.treatiesmatter.org/treaties/land/1855-ojibwe>. Accessed 18 February 2022.
- Anfinson, Scott F.
1979 *A Handbook of Minnesota Ceramics*. Compiled and Edited by S. Anfinson. Occasional Publications in Minnesota Anthropology No. 5. Minnesota Archaeological Society, St. Paul, Minnesota.
1987 The Prehistory of the Prairie Lake Region in the Northeastern Plains. PhD Dissertation. Department of Anthropology, University of Minnesota, Minneapolis.
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 Gibbon, pp. 135-166. University of Minnesota Publications in Anthropology No. 4, Minneapolis.
1997 *Southwestern Minnesota Archaeology: 12,000 years in the Prairie Lake Region*. St Paul: Minnesota Historical Society.
- Arzigian, C.
2008 Minnesota Statewide Multiple Property Documentation Form for the Woodland Tradition. Minnesota Department of Transportation, St. Paul.
- Bleed, P.
1969 *The Archaeology of Petaga Point: The Preceramic Component*. Minnesota Prehistoric Archaeology Series No. 2. Minnesota Historical Society. St. Paul, Minnesota.
- Birk, Douglas A.
1995 *The 1994 Phase I Archaeological Survey of Selected Parcels at the Pillager Hydro Reservoir (Lake Placid) on the Crow Wing River, Cass and Morrison Counties, Minnesota*. Reports of Investigation Number 316. Institute for Minnesota Archaeology, Minneapolis.
2001 *The Story of Crow Wing*. Unpublished manuscript. Douglas A. Birk Papers. St. Cloud State University.
- Birk, D.A., and E. Johnson
1991 The Mdewakanton Sioux and Initial French Contact. In *Calumet and Fleur-de-Lys: Archaeology of Indian and French Contact in the Midcontinent*, John Walthall and Thomas Emerson editors. Smithsonian Institution Press, Washington, D.C.
- Buhta, A.A., C.M. Johnson, E.C. Grimm, L.A. Hannus, and T.V. Gillen
2014 *On the Periphery?: Archaeological Investigations of the Woodland Tradition in West-Central Minnesota*. Archaeological Contract Series 269. Archaeology Laboratory Augustana College. Prepared for the Oversight Board of the Statewide Survey of Historical and Archaeological Sites and the Minnesota Historical Society.

- Buhta, A.A., S. Anfinson, E. Grimm, and L.A. Hannus
 2017 *Minnesota's Archaic Tradition: An Archaeological and Paleoenvironmental Overview and Assessment*. Archaeological Contract Series 292. Archaeological Laboratory, Augustana University. Prepared for the Oversight board of the Statewide Survey of Historical and Archaeological Sites and the Minnesota Historical Society.
- Fay, R.P.
 1985 *Cultural Resources Literature Search and Records Review of Camp Ripley, General E.A. Walsh Training Center, Morrison County, Minnesota*. Old Northwest Research, Report No. 7. Madison, Wisconsin.
- Gibbon, Guy
 2012 *Archaeology Minnesota: The Prehistory of the Upper Mississippi River Region*. University of Minnesota Press, Minneapolis.
- Gibbon, Guy and Scott F. Anfinson
 2008 *Minnesota Archaeology: The First 13,000 Years*. Publications in Anthropology, No. 6. University of Minnesota, Minneapolis.
- Gibbon, Guy E., Craig M. Johnson, and Elizabeth Hobbs
 2002 *Minnesota's Environment and Native American Culture History. A Predictive Model of Precontact Archaeological Site Location for the State of Minnesota*, edited by G. Joseph Hudak et al. Minnesota Department of Transportation, St. Paul.
- Gnabaski, V.
 1994 *A Phase I and II Cultural Resources Investigation of Various Farmsteads Sites at Camp Ripley, Morrison County, Minnesota*. U.S. Army Corps of Engineers, St. Paul District, Minnesota.
- Hennepin
 1683 *Narrative of the Voyage to the Upper Mississippi*. Springfield, 1903.
- Hohman-Caine, C.
 1986 *Spirit of the Headwaters, Reconnaissance Survey, 1986; Wolf Lake to Allen's Bay*. Mississippi Headwaters Project Report No. 1. Unpublished report, Chippewa National Forest.
- Hohman-Caine, C. and G. Goltz
 1995 *Assessing the Archaic: A Preliminary View from the Headwaters of the Mississippi River*. Research conducted with the assistance of the Chippewa National Forest, the Mississippi Headwaters Board, and Hamline University.
- Johnson, Elden
 1988 *Prehistoric Peoples of Minnesota*. 3rd Edition. St. Paul: Minnesota Historical Society.

Mather, David

2018 Zooarchaeology of Fort Snelling (21HE99) and the Native Ecology of Bdote. Presented to the Minnesota Archaeological Society. Hamline University, St. Paul, Minnesota.

(MHAPO) Minnesota Historical Aerial Photographs Online

2021 Minnesota Historical Aerial Photographs Online. Accessed 9 December 2021. Website at <<https://apps.lib.umn.edu/mhapo/>>

Minnesota Treaty Interactive

n.d. *Minnesota Treaty Interactive*. Hosted by the Minnesota Historical Society www.usdakotawar.org/history/treaties/minnesota-treaty-interactive. Accessed 18 February 2022.

Terrell, Michelle

2006 “Historical Archaeology of Minnesota Farmsteads: Historic Context Study of Minnesota Farmsteads, 1820-1960.” *Two Pines Resource Group*. On file with the Minnesota Department of Transportation, St. Paul, Minnesota.

APPENDIX A:
GLOSSARY OF TERMS

Glossary of GIS (Geographic Information Systems) Terms

ArcCatalog: ArcCatalog is one component of the ArcGIS Desktop software package developed by **ESRI**. It is an administration application used to manage geospatial data created in **ArcMap** and other ArcGIS Desktop software.

ArcGIS Pro: This is the latest GIS software produced by ESRI, first released in 2015. While the ArcGIS Desktop package was the most commonly distributed software ESRI produced (released 1999), ESRI has announced they will stop support for the software in 2026 and transition resources to ArcGIS Pro support.

ArcMap: ArcMap is one component of the ArcGIS Desktop software package developed by **ESRI**. ArcMap is a digital geographic mapping tool used for map creation, spatial analysis, and management of geographic data.

Attachments: Attachments in GIS are image (i.e. .jpg, .png, .tif) and document files (i.e. .pdf) that are embedded within the geodatabase to be connected to specific features within a **shapefile** (i.e. a single point, line, or polygon within the greater shapefile). This allows a user to click on a point and readily view associated files (archaeological site forms, structural inventory forms, etc.).

Attribute Table: This table is part of a **shapefile** or layer and contains the data attached to each feature within the greater shapefile. Each individual line, point, and polygon gets its own row in the table. This table can be modified to include any information relevant to each feature within a layer. For instance, the *Recorded Archaeological Sites* Attribute Table includes the site name, number, and locational and cultural data for each archaeological site in the shapefile.

Clip: Different versions of this GIS software tool can trim **vector** or **raster** files to a designated shape. For this project, all vector and raster files were Clipped using the CRSL project area boundary **shapefile** where possible.

ESRI: Stands for Environmental Systems Research Institute. ESRI is the dominant international developer and supplier of GIS software, and it developed the software used in this project (**ArcMap, ArcCatalog, ArcGIS Pro**).

Fields: These are the data columns within a **shapefile's Attribute Table**. Some fields are auto-generated (i.e. object ID, shape type, shape length, shape area), and the rest are created to include data relevant to each feature within the shapefile.

Georeference: Georeferencing is the process of assigning x, y coordinates to image files (i.e. **raster** files), like aerial photographs and scanned historical maps, so GIS software can place the image in its assigned location.

Hillshade: This is the most common method for processing raw LiDAR elevational raster data. This translates the data into a three-dimensional topographic raster layer.

LiDAR: Stands for Light Detection and Ranging. It is a remote sensing method which uses a pulsed laser to measure ranges from the devices sending the laser (usually a plane) to the earth's surface. This data is then processed into an elevational **raster** image for further use and analysis.

Metadata: Metadata is data living outside, but connected to, **vector** and **raster** layers. This data relates to the layer as a whole instead of individual features, like the **Attribute Table**. If using ArcGIS Desktop software, this is added and edited using **ArcCatalog**. Metadata can include tags to aid data searches, descriptions, credits, use limitations, and geospatial extent suggestions.

Mosaic: This is a GIS software tool that can stitch together separate **raster** files into one.

Project: To 'project' geospatial data is to display data using any particular geographic coordinate system onto a flat map surface. Since there are multiple means of translating the spherical globe into a flat map, different 'projections' for different geographic areas need to be utilized depending on the target area.

Query: A query is a directed search of data stored within an **Attribute Table**. Queries can search for specific terms (or absence of terms) within one or multiple **fields** of the table. A query of the *Historic Structures* shapefile, for instance, could be done on the National Register field of the Attribute Table for the term 'Listed' to highlight all National Register of Historic Places listed structures within the CRSL project area. See Appendix B for the Querying Lexicon.

Raster: This is a continuous image file used within GIS software. It can be as simple as a picture of a historic map, or complex like **LiDAR** in which every pixel in the image is storing a type of data. In the case of LiDAR, each pixel stores elevational data.

Shapefile: This is a **vector** data file type. It is a simple format for storing the geometric location and attributes (i.e. found in the **Attribute Table**) of geographic features.

Vector: Vector data represents real-world features in GIS using the specific geometry of either a point, line, or polygon.

APPENDIX B:
GRANT CONTRACT

MINNESOTA HISTORICAL SOCIETY
MINNESOTA HISTORICAL AND CULTURAL HERITAGE GRANT AGREEMENT

<u>Account No.</u>	<u>Fiscal Year</u>	<u>Object Code</u>	<u>MNHS Grant No.</u>	<u>Amount</u>
02484	2021	5260	2005-24728	\$129,980.00 grant
				\$15,000.00 match

This agreement is made by and between the Minnesota Historical Society, 345 Kellogg Boulevard West, Saint Paul, Minnesota 55102, hereinafter called the SOCIETY, acting through its Director, and **Sylvan Township**, 12956 24th Avenue SW Pillager, Minnesota 56473 herein called the GRANTEE.

WHEREAS, the Minnesota Legislature, under Minnesota Session Laws 2019, 1st Special Session, Chapter 2, Article 4, Section 2, Subdivision 4, approved funding to the SOCIETY for Statewide Historic and Cultural Heritage Grants for the purpose of supporting history programs and projects operated or conducted by or through local, county, regional, or other historical or cultural organizations; or for activities to preserve significant historic and cultural resources such as that which is contemplated by GRANTEE, and

WHEREAS, the GRANTEE and its project *Camp Ripley Sentinel Landscape Comprehensive Literature Assessment* meets the eligibility criteria for funding under the grants program; and

WHEREAS, the SOCIETY'S Governing Board approved a grant recommended for funding by the Historical Resources Advisory Committee on October 22, 2020.

NOW THEREFORE, in consideration of the award of the grant, the GRANTEE agrees to administer said grant in accordance with the following policies and procedures:

I. PROJECT DESCRIPTION

- A. The project period for this activity is from December 01, 2020 to June 01, 2022.
- B. The project will be carried out in accordance with the provisions of the *Minnesota Historical and Cultural Heritage Grants Manual*. The project will also be carried out in accordance with the GRANTEE'S Minnesota Historical and Cultural Heritage Grants Program Grant Application. Page 1 of the application is included as Attachment A, and the entire application is hereby incorporated by reference.
- C. The official project budget as approved by the SOCIETY supersedes the GRANTEE'S grant application budget and is included as Attachment B and hereby incorporated by reference.
- D. Only the items set forth in the Approved Project Budget (Attachment B) may be charged against the grant project.
- E. Any project expense not specifically approved in the Approved Project Budget will not be allowed except upon prior written request by the GRANTEE and prior written approval by the SOCIETY.
- F. Changes in the Approved Project Budget may not exceed twenty (20) percent of any line item. Changes occurring after the project begins that exceed twenty (20) percent of any line item will not be allowed except upon prior written request by the GRANTEE and prior written approval by the SOCIETY.
- G. Changes in the Project Completion Date will not be allowed except upon prior written request by the GRANTEE and prior written approval by the SOCIETY.
- H. No grant funds may be used to pay indirect costs, commonly referred to as overhead.

II. ASSURANCES

- A. The GRANTEE understands that this agreement is funded by a grant financed by the State of Minnesota.
- B. The GRANTEE agrees that this project will be administered and conducted in accordance with the following:
 - a. Minn. Stat. 129.17 for Arts and Cultural Heritage Fund;
 - b. Minn. Stat. 16B.98 for Grants Management;
 - c. Secretary of the Interior's Standards for Archaeology and Historic Preservation;
 - d. History and Architecture Survey Manual (June 2017) and the SHPO Manual for Archaeological Projects in Minnesota (July 2005).
- C. The Grantee agrees that work will be carried out by project personnel who meet the Secretary of the Interior's Professional Qualifications Standards (as published in the Federal Register of September 29, 1983).
- D. The GRANTEE shall hold the SOCIETY and the State of Minnesota harmless from any loss, damage, or expense including reasonable attorneys' fees and other costs of defense, arising as the result of any claim, action, complaint, proceeding, or litigation of any kind whatsoever, directly or indirectly brought about as a result of the funded project.
- E. The GRANTEE agrees that in hiring of common or skilled labor for the performance of any work on the grant project that no contractor, material supplier or vendor shall, by reason of race, creed, color, religion, national origin, sex, marital status, status with regard to public assistance, membership or activity in a local commission, disability, sexual orientation, or age, discriminate against any person or persons who are citizens of the United States, or resident aliens, who are qualified and available to perform the work to which the employment relates.
- F. The GRANTEE agrees no contractor, material supplier or vendor shall, in any manner, discriminate against, or intimidate, or prevent the employment of any person or persons identified in the preceding paragraph, or on being hired, prevent or conspire to prevent, the person or persons from the performance of work under any contract on account of race, creed, color, religion, national origin, sex, marital status, status with regard to public assistance, membership or activity in a local commission, disability, sexual orientation, or age.
- G. This Agreement may be canceled or terminated by the SOCIETY, and all money due, or to become due hereunder may be forfeited for a second or any subsequent violation of the terms of this section.
- H. The GRANTEE assures that no part of the project budget will be used directly or indirectly to pay for any personal service, advertisement, telegram, telephone, letter, printed or written matter, or other device intended or designed to influence in any manner a member of the Minnesota Legislature, to favor or oppose, by vote or otherwise, any legislation or appropriation by the Legislature, whether before or after the introduction of any bill or resolution proposing such legislation or appropriation. This shall not prevent communicating to members of the Minnesota Legislature on the request of any member or to the Legislature, through the proper official channels, requests for legislation or appropriations which they deem necessary for the efficient conduct of the public business.
- I. Both parties agree that if intellectual property is created in project, the parties will discuss the allocation of ownership and use rights.

- J. Copyright to copyrightable materials, including computer software, resulting from this project shall vest in the GRANTEE with a non-transferable royalty-free license to the SOCIETY for its non-commercial use. The GRANTEE shall grant the SOCIETY an option to license any such material(s) it wishes to develop for commercial purposes on terms and conditions, including a royalty, as the parties hereto agree in a subsequent writing.
- K. Except for (a) the above limitation, (b) the GRANTEE's right to control publication of its own research results, (c) patented and patent-pending property and (d) the GRANTEE's confidential information, the SOCIETY will have the free, irrevocable, non-exclusive unlimited right to use any research results collected in project by both the GRANTEE and the SOCIETY for any purpose worldwide.
- L. The GRANTEE agrees to include the Arts and Cultural Heritage logo on any and all communications, websites, and promotional materials associated with the approved project. The logo can be found at <http://www.legacy.leg.mn/legacy-logo/legacy-logo-download>.
- M. The GRANTEE agrees to post a sign in a prominent location while restoration/preservation project work is in progress substantially incorporating the following acknowledgment:

"This project has been financed in part with funds provided by the State of Minnesota from the Arts and Cultural Heritage Fund through the Minnesota Historical Society."
- N. The GRANTEE agrees that any publicity releases, informational brochures, public reports, publications, and public information relating to approved projects must acknowledge funding assistance from the State of Minnesota from the Arts and Cultural Heritage Fund. Any written materials shall include the following:

"This publication was made possible in part by the people of Minnesota through a grant funded by an appropriation to the Minnesota Historical Society from the Minnesota Arts and Cultural Heritage Fund. Any views, findings, opinions, conclusions or recommendations expressed in this publication are those of the authors and do not necessarily represent those of the State of Minnesota, the Minnesota Historical Society, or the Minnesota Historic Resources Advisory Committee."

III. PROCEDURES FOR CONTRACTING SERVICES AND MATERIALS

- A. Any services and/or materials that are expected to cost \$20,000 or more must undergo a formal notice and bidding process. Evidence of the process along with copies of the bids received must be included in the GRANTEE's financial records for the project.
- B. Any services and/or materials that are expected to cost between \$10,000 and \$19,999 must be scoped out in writing and offered to a minimum of three (3) bidders. The GRANTEE must maintain financial records that verify the cost was competitively based on at least three written quotes submitted in response to written specifications.
- C. Any services and/or materials that are expected to cost between \$5,000 and \$9,999 must be competitively based on a minimum of three (3) verbal quotes. The GRANTEE must maintain financial records that verify the cost was competitively based on at least three verbal quotes.

IV. PAYMENT SCHEDULE

- A. The total obligation of the SOCIETY for all compensation and reimbursements to the GRANTEE under this grant agreement will not exceed **\$129,980.00**.
- B. Grantee must obtain and supply matching funds as indicated in the approved budget (Attachment B) or for any project overages necessary to complete the approved project.

- C. GRANTEE will receive payments from the SOCIETY in accordance with the following for up to eighty percent (80%) of the grant award.

Project Milestone:	Payment Percentage
Execute Grant Agreement	30
1. Grantee must submit an interim progress and spending report at 50% project completion. (Upload to Milestone/Condition 1 report in the SOCIETY’S grants portal, https://mnhs.fluxx.io . Reviews may take up to 30 working days. Incomplete materials, or revisions to already submitted requests, restart the review clock.)	25
2. Grantee must present to the Grants Office on the project progress at 75% project completion. To schedule a presentation, upload proposed dates and times at least 30 days prior to the proposed presentation. (Upload to Milestone/Condition 2 report in the SOCIETY’S grants portal, https://mnhs.fluxx.io .) (Upload to Milestone/Condition 2 report in the SOCIETY’S grants portal, https://mnhs.fluxx.io .)	25

- D. Reimbursement. A total of twenty percent (20%) of the grant funds will be released as the final payment after work is complete and financial documentation and the project completion report, have been reviewed and accepted by the SOCIETY.

V. FINANCIAL DOCUMENTATION AND FINAL REPORTING

- A. The GRANTEE will submit a completed final report including documentation for project expenditures and project products on or before July 01, 2022. (Work on the project must be concluded by June 01, 2022)
- B. The final report must be completed electronically in the Minnesota Historical Society’s Grants Portal (<https://mnhs.fluxx.io>).
 - a. The financial documentation for project costs to be uploaded with the final report shall include acceptable types of documentation such as: (1) copies of paid invoices/receipts, (2) copies of project personnel timesheets (if applicable), (3) copies of in-kind and/or donated services timesheets (if applicable), and (4) copies of donated materials forms.
 - b. The Final Products to be uploaded with the final report are: **Copy of the literature review report(s)**.
- C. Unexpended Funds. The Grantee must promptly return any unexpended funds that have not been accounted in the financial documentation to the SOCIETY at grant closeout.

VI. AUDIT

- A. The GRANTEE must maintain records and accounts consistent with generally accepted accounting principles, and to provide for such fiscal control as is necessary to assure the proper disbursing of and accounting for grant funds. The GRANTEE must maintain records and accounts for this project on file for a minimum of six (6) years after approval of the Final Report.

- B. The GRANTEE agrees to maintain records to document any matching funds claimed as part of the project. The GRANTEE further agrees to secure reasonable written proof of the value of Staff or Volunteer Labor, and for Donated Materials contributed to the project.
- C. The GRANTEE agrees that accounts and supporting documents relating to project expenditures will be adequate to permit an accurate and expeditious audit. An audit may be made at any time by the SOCIETY, its designated representatives, or any applicable agency of the State of Minnesota.

VII. AMENDMENTS AND CANCELLATION

A. Amendments

Any significant variations from proposed work, costs, and/or time frames described in this agreement which are experienced or anticipated during the course of the project and any significant problems, delays, or adverse conditions which materially affect planned performance should be submitted in writing to Grants Office, Minnesota Historical Society, 345 Kellogg Boulevard West, Saint Paul, Minnesota 55102.

The SOCIETY will respond in writing, either approving or not approving the changes, and may amend the agreement if deemed necessary. Variations which are not known until the conclusion of the project may be submitted with the Financial Documentation; however, the GRANTEE understands that costs may be disallowed if changes are not approved. Any amendments to this agreement shall be in writing, and shall be executed by the same parties who executed the original agreement or their successors in office.

B. Cancellation

The SOCIETY may withhold, cancel, or revoke in whole or in part the grant amount if it determines that the GRANTEE has materially breached any term or condition of this agreement. GRANTEES will be given a 30-day notice. In lieu of cancellation, GRANTEES may be given proposed remedies to ensure successful completion of the project.

In addition, both parties may mutually agree to cancel the agreement if they determine that the project will not produce beneficial results commensurate with further expenditure of funds or because of circumstances beyond the control of either party. In the event of cancellation, the SOCIETY may withhold proceeds of the Grant; demand that the GRANTEE return any already disbursed proceeds to the Finance Commissioner; and seek any additional legal or equitable remedy(ies).

Finally, the GRANTEE hereby acknowledges that the proceeds of the Grant are being financed in part with funds provided by the State of Minnesota and administered through the SOCIETY, and that, per Minnesota Session Laws 2019, 1st Special Session, Chapter 2, Article 4, Section 2, Subdivision 4, the funding will be canceled to the extent a court determines that the appropriation, or portion thereof, unconstitutionally substitutes for a traditional source of funding.

Sylvan Township
Camp Ripley Sentinel Landscape Comprehensive Literature Assessment
2005-24728

I have read the above agreement and agree to abide by all of its provisions. Upon execution, this Agreement controls all activities during the project period.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed on the date(s) indicated below intending to be bound thereby.

MINNESOTA HISTORICAL SOCIETY
345 KELLOGG BOULEVARD WEST
SAINT PAUL, MINNESOTA 55102

SYLVAN TOWNSHIP
12956 24TH AVENUE SW,
PILLAGER, MINNESOTA 56473

Carolyn Veese-Egbide (date)
Grants Manager

signature (authorized official)

Mary Green-Toussaint (date)
Contract Manager

(print name)

(print title) (date)



MINNESOTA HISTORICAL AND CULTURAL HERITAGE PROGRAM

Sylvan Township

G-MHCG-2005-24728 | \$ 129,980 | MN Historical and Cultural

Camp Ripley Sentinel Landscape Comprehensive Literature Assessment

APPLICANT INFORMATION

Program Organization: Sylvan Township
 Project Director: Faith Broberg
 Authorized Officer: Faith Broberg
 Applicant County: Cass
 Applicant Organization Type: Local/Regional Government

Governance/Board Members:

Board of Supervisors: Greg Booth, Chair; John Wulff, Vice-Chair; Arlene Schmit; Greg Bennett; Yvette Adelman-Dullinger

Township Clerk/Treasurer: Faith Broberg

Deputy Clerk/Treasurer: Jenna Ruggles

PROJECT INFORMATION

Project Title: Camp Ripley Sentinel Landscape Comprehensive Literature Assessment

Brief Project Summary:

Hire a qualified Archaeologist to perform a comprehensive archaeological & historic literature assessment of Camp Ripley Sentinel Landscape, 805,000 acres in a 10 mile radius around Camp Ripley.

MINNESOTA HISTORICAL SOCIETY
Heritage Preservation Department
Minnesota Historical and Cultural Heritage Grants
Approved Project Budget

Grantee: Sylvan Township

MNHS Grant #: 2005-24728

Project: Camp Ripley Sentinel Landscape Comprehensive Literature Assessment

	Budget Item	Amount Requested	Grant Amount	Match
1.	Research archaeological sites and surveys within landscape, 2 techs for 240 hours	\$19,200.00	\$19,200.00	\$0.00
2.	Research & interviews at local historical societies, 2 techs for 32 hours	\$2,560.00	\$2,560.00	\$0.00
3.	Research at Doug Birk Collection, 2 techs for 24 hours	\$1,900.00	\$1,900.00	\$0.00
4.	Research Historic Standing Structures recorded at SHPO, 2 techs for 480 hrs	\$38,400.00	\$38,400.00	\$0.00
5.	GIS mapping, 1 GIS specialist for 320 hours	\$16,000.00	\$16,000.00	\$0.00
6.	GLO/Aerial data/Trygg maps research, 1 GIS Specialist for 160 hours	\$8,000.00	\$8,000.00	\$0.00
7.	MN Model/predictive layer, 1 GIS specialist for 80 hours	\$4,000.00	\$4,000.00	\$0.00
8.	Tribal consultation & acquisition of data, 1 tech for 40 hours	\$1,600.00	\$1,600.00	\$0.00
9.	Project management by certified Archaeologist, principal investigator, 199 hours	\$15,920.00	\$15,920.00	\$0.00
10.	Report Production, 3 techs for 160 hours and principal investigator for 40 hours	\$22,400.00	\$22,400.00	\$0.00
11.	Project management and coordination by CRSL staff & partner			\$13,000.00
12.	Assistance in coordination & data gathering with Tribes and local historical societies, by CRSL staff & partners	\$0.00	\$0.00	\$2,000.00
	TOTAL		\$129,980.00	\$15,000.00

APPENDIX D:
SYLVAN TOWNSHIP BOARD RESOLUTIONS



Sylvan Township

12956 24th Avenue SW, Pillager, MN 56473

phone: (218) 746-3652 / fax: (218) 746-3612 / e-mail: clerk@sylvantwp.com

Sylvan Township in Collaboration with Camp Ripley Sentinel Landscape to Acquire a Grant through MN Historical and Cultural Heritage Program for Future Research

RESOLUTION 2020-13

WHEREAS Sylvan Township has placed a priority on the preservation of Township history, and

WHEREAS the Sylvan Township Comprehensive Plan emphasizes the importance of Township cultural and natural history, and

WHEREAS the Township has applied for a grant from the Minnesota Historical and Cultural Heritage Program in cooperation with The Nature Conservancy, and

WHEREAS the grant application is titled "Camp Ripley Sentinel Landscape Comprehensive Literature Assessment," and

WHEREAS the purpose of the search is to investigate the Camp Ripley Sentinel Landscape (CRSL) area for cultural resources through a comprehensive archaeological and historic literature assessment, as a first step in creating a program to identify and protect cultural resources in the area, and

WHEREAS Strategy 1, Goal 5 of the CRSL "Strategic Plan" is to "Collaborate with local, state, federal and tribal stakeholders to develop and implement a cultural resources protection strategy," and

WHEREAS the Township supports the training, educational and environmental work provided by Camp Ripley, and

WHEREAS the Township sustains a History Series focusing on the geological and cultural history of Sylvan Township, and

WHEREAS the Sylvan Township Board is aware that some of the search funded by the Grant will take place outside of Sylvan Township in the CRSL area, and

WHEREAS the grant will cover the cost of the search and not use Sylvan Township revenues,

NOW, THEREFORE, the Sylvan Township Board agrees to make Sylvan Township the Applicant and Grantee for the Grant.



Sylvan Township

12956 24th Avenue SW, Pillager, MN 56473

phone: (218) 746-3652 / fax: (218) 746-3612 / e-mail: clerk@sylvantwp.com

Continue on next page

Adopted this 6th day of August 2020.

Attest: Faith C. Broberg
Town Clerk/Treasurer

BY THE TOWN BOARD

[Signature]

Chair Person or other if chair is
contracting



Sylvan Township

12956 24th Avenue SW, Pillager, MN 56473

phone: (218) 746-3652 / fax: (218) 746-3612 / e-mail: info@sylvantwp.com

**RESOLUTION 2022-11
CRSL Comprehensive Literature Assessment**

WHEREAS Sylvan Township has placed a priority on the preservation of Township history, and

WHEREAS the Sylvan Township Comprehensive Plan emphasizes the importance of Township cultural and natural history, and

WHEREAS the Township has received a grant from the Minnesota Historical and Cultural Heritage Program in cooperation with The Nature Conservancy, and the Camp Ripley Sentinel Landscape program, and

WHEREAS the grant project is titled "Camp Ripley Sentinel Landscape (CRSL) Comprehensive Literature Assessment," hereinafter referred to as "the Project" and the Township has contracted with Nienow Cultural Consultants LLC to complete the Project, and

WHEREAS the purpose of the Project is to investigate the Camp Ripley Sentinel Landscape area for cultural resources through a comprehensive archaeological and historic literature assessment, as a first step in creating a program to identify and protect cultural resources in the area, and

WHEREAS some elements of the collected data and geographic information system (GIS) spatial representation of said data are determined to be culturally sensitive and not generally available to the public but through state agency approval,

NOW, THEREFORE, be it resolved that the Sylvan Township Board instructs Nienow Cultural Consultants LLC to deliver a final copy of the full data set, notes, public report, and GIS spatial data compiled during the duration of the Project to the Office of the State Archeologist, the State Historic Preservation Office, and Camp Ripley's Cultural Resource Manager. Furthermore, once the grant is closed, Sylvan Township will bear no further liability for the data, future updates to the data, or service requests for the data.

Adopted this 17th day of February 2022.



Greg Booth, Board Chair

Attest:



Jenna Ruggles, Clerk/Treasurer

APPENDIX D:
QUERYING READ-ME

APPENDIX E:
ARCHAEOLOGICAL UNDERSTANDING OF DAKOTA COUNTY

Dakota County: An Archaeological Understanding

Prepared for

Metro Area Historical Society Collaborative
Dakota County Historical Society
130 3rd Ave North
South St. Paul, MN 55075

Prepared By

Nienow Cultural Consultants LLC
574 Blair Ave,
St. Paul, MN 55103

January 31st, 2016

This project was funded in part by the Ramsey County Historical Society and the Minnesota Arts and Cultural Heritage Fund as part of R-HP-1407-04941, a Heritage Partnership Program Grant administered by the Minnesota Historical Society and awarded to Ramsey County Historical Society in partnership with the Metro Area Historical Society Collaborative.



Metro Area Historical Society Collaborative Members

Anoka County Historical Society
Rebecca Ebnet-Mavencamp, Executive Director
Vickie Wendel, Program Manager

Dakota County Historical Society
Matthew Carter, Executive Director
Rebecca Snyder, Director of Research and Publishing
Nancy Hanson, Collections Manager

Ramsey County Historical Society (Lead Partner)
Chad Roberts, President
Mollie Spillman, Curator/Archivist
Terry Swanson, Gibbs Museum Site Manager

Scott County Historical Society
Kathy Klehr, Executive Director
Stephanie Herrick, Curator of Education

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Introduction

This report is in partial fulfillment of a project partially funded by the Ramsey County Historical Society and the Minnesota Arts and Cultural Heritage Fund R-HP-1407-04941, a Heritage Partnership Program Grant administered by the Minnesota Historical Society and awarded to Ramsey County Historical Society in partnership with the Metro Area Historical Society Collaborative. Ramsey County Historical Society proposed a 12-month pilot program providing archaeology and cultural resource management outreach services to local history organizations in the seven-county metro area. Four organizations were included in the pilot project: Anoka, Dakota, Ramsey, and Scott County Historical Societies. This pilot project sought to immediately address the archaeological needs of participating organizations, including public programming, data collection, collections care, and staff training; while providing valuable insight into long-term needs. Pooling together four metro-area county historical societies established a common base of knowledge, a cost-effective way to assess collections, and create tools useful to each member and the collective as a whole. This approach saved time and effort while reducing costs versus what would be necessary for each entity to individually develop their own processes.

Partner organizations worked together to: 1) hire an archaeological contractor, 2) meet multiple times in person during the project to assess the quality of the work, discuss future opportunities, and develop recommendations for improvements for any future replication of this project; 3) participate in presenting the project and specific findings at the Minnesota Association of Local History Museums and Minnesota Association of Museums conferences; 4) review and approve all final work products; and were available to other organizations to provide advice for the foreseeable future.

The project had seven objectives the first of which directly relates to this document. This objective was to "Provide each participating organization an archaeological baseline/county level archaeological context report. This document would include the history of archaeology in the state, how it relates to their county, the number and types of sites in the county, national register sites, and related, already developed historic contexts." To this end, the following document was created primarily using the guidelines laid out for literature searches in the Minnesota Office of the State Archaeologist 2011 *State Archaeologist's Manual for Archaeological Projects in Minnesota*. Additional research was also conducted to generate the summary Prehistoric and Historic contexts included herein. Finally, records relating to work done by previous individuals, such as the State's first State Archaeologist Lloyd Wilford to the Institute for Minnesota Archaeology were also consulted in the creation of this document.

A Brief History of Archaeology in Minnesota and Dakota County

A comprehensive history of archaeological excavations within Dakota County has not to date been undertaken. Archaeological work is typically driven either by personal research interests or the demands of a growing, working County. For example, a document similar to this one was produced in 2013 for the Mississippi River Trail that passed along the eastern edge of the County. Be that as it may, one can examine the timeline within which archaeological sites have been documented and numbered in the County to better understand its overall archaeological history and relationship to that of the State. After looking back over the past 165 years of archaeological investigation in the region, four general periods can be easily recognized: Antiquarian and Early Archaeological Work; the Jenks/Wilford Era; the Rise of Institutional Archaeology; and Historic/Public Archaeology and Modern Practices.

Antiquarian and Early Archaeological Work (1849-1917)

Euro-Americans have long been interested in the peoples that populated North America before their colonial arrivals of the 15th through 18th centuries. Much of this curiosity and speculation centered around those peoples known as the “mound-builders” or earlier cultures that had built mounds common throughout the eastern and central portions of the continent including Minnesota. President Jefferson, himself an avid historian and naturalist, conducted some of the first scientific excavations into mounds on his own property and correctly concluded that they had been built by earlier Native Americans for ritual, territorial, group identity and burial purpose – and not by such august groups as the Phoenicians, Atlantis, or a Lost Tribe of Israel.

In Minnesota, interest in the State’s cultural and natural resources began even prior to statehood with the formation of the Minnesota Historical Society in 1849. Here, too, archaeological interest primarily revolved around documentation of Native American villages and mound groups by avocational archaeologists. Noted contributors to the period include civil engineer Alfred J. Hill, rail clerk and later surveyor Theodore Hayes Lewis, attorney and politician Jacob V. Brower, and geologist/archaeologist Newton H. Winchell. Together with others in the Territory and later State, these historically-minded individuals worked to understand the prehistoric cultures of the State prior to Euro-American arrival. Two specific larger-scale Minnesota efforts to document archaeological sites during this period are specifically the work of Brower and Lewis. Brower published a collection of eight volumes entitled *Memories of Exploration in the Basin of the Mississippi* (1898-1904). Lewis was employed by Hill to conduct broad surveys of the mounds still present on the landscape at the turn of the century. The period culminates with the publication in 1911 of Winchell’s *Aborigines of Minnesota* by the Minnesota Historical Society which for the most part pulls together the notes of Brower and Hill. This document is a primary resource for archaeologists to this day and was only recently complimented by the production of Arzigian and Stevenson *Minnesota's Indian Mounds and Burial Sites: A Synthesis of Prehistoric and Early Historic Archaeological Data* published by the Minnesota Office of the State Archaeologist in 2003.

Archaeological sites in Dakota County associated with this period include over a dozen (n=16) early single mound or mound clusters primarily along the eastern half of the County stretching from the Historic Native American village of Kaposia to Hastings. Although many of these locations have been thought to have been destroyed by later development, current state-of-the-art methods, such as the use of LIDAR could show in many cases cultural resources still present.

The Jenks/Wilford Era (1918-1959)

In 1918 the University of Minnesota split Anthropology from its Sociology Department and appointed professor Albert E. Jenks to head it. Jenks began his career in economics, however, he shifted to ethnographic work early and published in 1900 his dissertation, *The Wild Rice Gatherers of the Upper Lakes*. After becoming chair of the newly formed Anthropology Department, he began to focus more and more of the Department's interests on Archaeology. In 1928 Lloyd Wilford, then a political science graduate student looking for a minor from a professor that was a good lecturer, joined the Department at the age of 35. Jenks, with Wilford as his assistant, began doing archaeological work with students throughout the region, United States, and the world including trips to New Mexico and Algeria. Their initial work in the State again focused on key, ancient, populations including work along the western edge of Minnesota/North Dakota.

The work of these two men represents the first archaeological investigations by trained individuals – although it should be noted that neither Jenks or Wilford, who succeeded Jenks in 1938 after his retirement until 1959, had started their careers as archaeologists. Wilford did, however, with the assistance of Jenks undertake and complete a PhD from Harvard University between 1932 and 1937. His dissertation, *Minnesota Archaeology with Special Reference to the Mound Area* was based on the work that he and Jenks had earlier completed. More information about Wilford's career can be found in the chapter one of *Aspects of Upper Great Lakes Anthropology: Papers in Honor of Lloyd A. Wilford* (1974) edited by Elden Johnson.

This period also includes passage in 1939 of the Minnesota Antiquities Law which also created the informal position of State Archaeologist, a position first held by Wilford.

Wilford's personal notes later mention Dakota County several times over the space of five years: 1939, 1940, 1947, 1952, and 1954. Each of these visits to the County was related to mound groups, village sites, or artifacts reported to him by local informants or from earlier recordings. Wilford did not spend as much time in Dakota County as he did in other counties of the MASHC, such as Anoka County, however, later archeologists would reverse this trend - specifically Elden Johnson and his work at Spring Lake. Here is a recounting of the notes from two of these years (taken from the University of Minnesota Archaeological Site Files currently housed at the Fort Snelling Department of Archaeology):

Memo on Dakota County, May 16, 1939. Visited following groups with Edward Schmidt of Northfield. (See Rice Co. memo of this date).

1. Group of two mounds on Chub Creek, two miles south of Castle Rock on the Everett Boudreau farm, Sec. 12, R. 20, T. 112. One dug by Schmidt (See, p. 11 of his 1937 report) was sterile (DK-21).
2. Mounds on east shore of Castle Rock Slough immediately west of highway 65 in Sec. 5, R 19, T. 112. This slough is a peat bed, the bed of a former lake now drained and very acid. The mounds would probably yield nothing, as they are but little elevated above the slough (DK-22).
3. Mounds on John Street far, Secs. 4 and 5, R. 19, T. 112. These are directly east of previous group, across highway 65 and up over a hill where the Cox cottage is. Schmidt dug some of these (p. 10 of 1937 report) and found nothing (DK-23).

4. Immediately south of depot at Castle Rock station is a group of 70 mounds on the north shore of Castle Rock Slough.

Memo on Dakota County, April 21 1940.

Search for site of Black Dog Village on south side of Minnesota river variously stated to be from 3 to 5 ½ miles above Mendota. Winchell locates 104 mounds on the E1/2 and SW1/4 of Sec. 19, T. 27, R. 23 (p. 177) as mounds of the Black Dog group (21DK08). This should be close to the junction of highway 13 with the road running south from Cedar avenue bridge, about 1 ½ miles south of this bridge. This junction is on the lower land at the center of section 19. The mounds should be on the bluffs immediately south of highway 13. I did not find these mounds. I was told that a Mr. Scott, old-timer of Nichols station, might know of the mound group of village site. (Note: Wilford was later to identify the Historic Mdewakanton Sioux Black Dog Burial Sites, 21DK25 and 21DK26, in 1944, see their respective OSA site files.)

An additional item of note specific to Dakota County is the pioneering efforts during this period of Fred E. Lawshe. Mr. Lawshe, himself an avid avocational archaeologist, formed the Dakota County Historical and Archaeological Society in 1939 and was its Director and Museum Curator until his death in 1971. This represents a sterling example of the commitment to historical and archaeological professionalism burgeoning during this period. Because of the pioneering efforts to Mr. Lawshe and more importantly his focus on collecting within and around the region, the Dakota County Historical Society has more archaeological materials than all of the other Counties in the MAHSC combined.

The Rise of Institutional Archaeology (1960-1990)

After Wilford's retirement in 1959, Elden Johnson was hired to replace him. Johnson was a 1948 graduate of the University of Minnesota Anthropology Department and had been working at the Science Museum after doing graduate work at Yale and ethnographic work abroad. Johnson's return also corresponded with the passage of the Minnesota Field Archaeology Act in 1963, which formally established the Office of the State Archaeologist (Elden held this jointly with his other appointment until 1978).

On the whole, this period is dominated with the formal entrance of legislation and federal endeavors into the heretofore primarily academic field. This need was driven by the unprecedented expansion of major government projects after WWII and the realization that earlier eras of American history were literally being razed to make way for new endeavors. In order to place a check on this new expansion, the National Historic Preservation Act was passed in 1966 establishing the National Register and dictating that those entities undertaking federally funding projects, or utilizing federally managed lands, should consider cultural resources as well as any other natural resources they may impact. Thus the era of Cultural Resource Management (CRM) was born, irrevocably changing the extent, direction, and character of archaeology in the United States. Work during this era shifted from being dominated by the Science Museum and the University of Minnesota to such agencies as the Army Corp of Engineers, the Minnesota Department of Transportation, the Minnesota Department of Natural Resources, and various other state and federal government agencies. This period is capped by the passage of a final act in 1990, namely the Native American Graves Protection and Repatriation Act, which sought again to change how academic pursuits interacted with native peoples specifically focused on Native American Burials and objects of cultural patrimony.

A prime example of the archaeology of this period is the Minnesota Statewide Archaeological Survey. Although Wilford attempted to do something similar during his tenure by having members of his staff reach out to various State agencies and journals, this effort met with much more success. The undertaking was mandated by the Minnesota Legislature in 1977 and was funded by the Legislative Commission on Minnesota's Resources for the four years of its operation. The project was directed by Ted Lofstrom and supervised by Charles Skreif of the State Historic Preservation Office. The survey located a substantial number of previously unrecorded archaeological sites throughout Minnesota and systematically used the methods for the most part commonly practiced today (Lofstrom 1981).

This period is very well represented in Dakota County in several ways. Principally, the area around the Spring Lake Park Preserve (see later Figure 2) encompasses a series of archaeological sites that chronologically comprised thousands of years of seasonal occupation (21DK01 through 21DK06) and represent some of the first investigations by Elden Johnson in the 1959 before he shifted his attention northward to Mille Lacs. One of these sites, 21DK01 the Sorg Site, is the type site for the Sorg Phase, a Middle Woodland geographically discrete component similar to the Howard Lake Phase in Anoka County, which will be further describe in a later section. Secondly, two sites, 21DK28 and 21DK29, are both lithic scatters that were identified during the State Wide Survey in 1978. Finally, well over half of the sites in the County were initially identified during this period with clusters of them, such as 21DK47 through 21DK57, discovered as part of large area surveys for such projects as the Dakota County Airport Study in the early 1990s (see Harrison 1993).

Historical / Public Archaeology and Modern Practices (ongoing)

This final period generally represents the continuation of cultural resource management and modern practices involving state and federal oversight of compliance driven archaeological inquiry. However, a few major advancements have taken place since 1990 in Minnesota. Chief among has been an increasing acceptance and shift toward understanding the State's historic sites in contrast to its predominately prehistoric focus. This has drawn in additional members of the public through archaeology excavations at places such as Eliot Park in Minneapolis, a multi-year (2004-2008) investigation of several urban yards and residential foundations.

Moreover, because agencies continue to update and expand their existing infrastructures, they are increasingly impacting sites created since the 1850s and our own Statehood – leading to additional interest in these periods of Minnesota history. Recently, the citizens of Minnesota, through an amendment to the state constitution, have continued to show their support for the natural and cultural resources of their region with the passage of the Legacy Amendment. One of the chief outcomes for archaeology associated with the Legacy Amendment is new funding for archaeological investigations through the Office of the State Archaeologist. Undoubtedly, as we continue to impact our surroundings, we will continue to come into contact with our own histories and those of the Native Americans that lived here prior to statehood (and still live here today). Since its passage, nearly two dozen OSA projects have been supported by Legacy funds including countywide archaeology surveys in McLeod, Olmsted, Red Lake, Steele and Swift counties; examinations of Native American sacred sites and LiDAR examination of Native American burial mounds; to evaluations of historic masonry ruins and dams.

In Dakota County, this final period is strongly represented and could be seen as emblematic among the MAHSC Counties. First sites including 21DK61, the Ramsey Mill, and 21DK62, the LeDuc Estate, represent the archaeological sites actually on the National Register of Historic Places, a rarity in the State. Additionally sites 21DK81, the St. Johns Hotel & Saloon, and 21DK87, Block 13, were both excavated in 2008 as part of the ongoing updates to the Hastings Bridge, undertaken using state and federal funding revenues. Second is the renewed interest by educational and research institutions including the Science Museum, the University of Minnesota, and Inver Hills Community College. They have returned to, or expanded upon, the earlier excavations conducted in the County. Jointly, the Science Museum and the University of Minnesota have returned to the Spring Lake Park Preserve, including 2010 geophysical and archaeological investigation at 21DK4, and 2011 and 2012 summer Field Schools at 21DK6, all overseen by Science Museum Curator of Archaeology Dr. Edward Fleming as well as the finding of new sites during this work including 21DK96 through 21DK99, the Ordway Sites. Similarly, during his tenure at Inver Hills Community College, Jeremy Nienow took students as part of a summer field experience to Lebanon Hills and identified several early county farmsteads (21DK90 - 21DK94). Thirdly, in just looking at sites that have been recorded in the last 15 years, there are nearly a dozen different entities doing this work, primarily local, privately managed CRM firms, but still some work done by state entities, specifically the MnDNR Division of Fish & Wildlife Cultural Resources Program.

Interestingly, there are multiple sites that have investigation during several of the periods listed above and show the continued attention that Dakota County continues to have with the archaeological community. This includes both prehistoric sites such as 21DK27 the Freitag Mounds Site and 21DK35 the Kennealy Creek Village Site as well as historic sites. An excellent historic example is the LeDuc mansion that has been investigated multiple times (Sigrid 1998; Nienow 2003 & 2010) and the Sibley House / Hypolite DuPuis House (Lothson 1987; Birk 1993; Clouse 1999; Gilman 2004; Kapler 2004; Wilson and Breakey 2004; Gronhovd, Day, Andrews and Simpson 2006; Terrell and Eigenberger 2008) and prehistoric ones.

Archaeological Sites

The process of compiling archaeological sites within Dakota County involved two steps: a) assessing the site forms and map locations available at the Office of the State Archaeologist (OSA), and b) examining alpha site locations at the State Historic Preservation Office (SHPO). Both locations provide archives accessible to archaeological researchers including original reports, documented locations with associated maps, etc., and knowledgeable support staff. Conversations aiming at assisting in this work at each location were conducted with Bruce Koenen, Assistant State Archaeologist, and David Mather, National Register Archaeologist.

There are other kinds of cultural/historic information to be provided at these two archaeological repositories, especially the SHPO, which has documentation on historic standing structures within each county, as well as the aforementioned National Register nominated sites (which are also typically still-standing, historic, structures although archaeological sites can be included under Criterion D). These types of information were not examined in detail for this report, as its focus was on the archaeology of the region; however, a brief reconnaissance of these materials showed that there are more than 961 historic standing structures in the County, as well as 38 National Register sites (which includes four historic district listings).

Additional information on these National Register site locations in Dakota County is available at https://en.wikipedia.org/wiki/National_Register_of_Historic_Places_listings_in_Dakota_County,_Minnesota as well as at the MNHS page <http://www.mnhs.org/preserve/nrhp/> or by contacting David Mather directly david.mather@mnhs.org.

Looking specifically at archaeology and Dakota County National Register, two site locations have archaeological listed as a contributing element of their nomination: the Sibley House and Mendota Historic District and Historic Fort Snelling. Although partially in Dakota County, Historic Fort Snelling is generally considered to be in Hennepin County and has a Hennepin County archaeological site designation (21HE99). The Sibley House also has an archaeological designation, 21DK31. Archaeological investigations have been carried out in 1987, 1993, 1995-1997, and 2004 in association with multiple buildings and features on the property including the caretaker's house, pump house, and other outbuildings (Wilson and Breakey 2004).

Thinking of Dakota County's National Register sites under this lens, it is easy to see the majority of these sites would be considered historical archaeological sites, as they contain or are likely to contain below ground features and artifacts which could inform the community as a whole about the rich histories of each of these location. Indeed, archaeological work has been carried out at several of these locations including the Ramsey Mill (21DK61) and the LeDuc Historic Estate (21DK62). The Ramsey Mill, located at the junction of 18th Street and the Vermillion River in Hastings, was nominated to the National Register in 1997. The mill was in operation from 1856 to 1894 and has been a city park since 1925. Three of the four original mill walls remain standing as masonry ruins and although above ground evidence for associated buildings is scarce, sub-surface, archaeological evidence is very likely. The LeDuc-Simmons Site has also been archaeologically investigated in both 1998 and 2003 with work associated both with the Carriage Barn (Arnott 1998) and house proper (Nienow 2003). Since this time it has also been investigated in a limited capacity as part of archaeological classes at Inver Hills Community College as well as archaeology camps put on by the historic estate.

Finally, there are several statewide Multiple Property Nomination Forms which could impact future Dakota County sites and locations including: American Indian Rock Art; Precontact American Indian Earthworks; and Masonry Ruins.

Currently in Minnesota, archaeological sites are given a particular number after archaeological documentation. This designation is provided by the OSA. Criterion for giving site numbers is different depending on the cultural nature of the materials found, the condition of the site, and other factors. Sites in Dakota County have the prefix 21DK in front of them denoting Minnesota's numeric designation (21) as determined by the National Register, and its county abbreviation code (DK). As each new site is documented and incorporated into the system, it is given the next number in the system. Therefore, the earliest investigated sites in each county are typically those with the lowest numbers.

Known Sites

Within Dakota County there are a total of 101 archaeological sites as of early spring 2015, a fairly average number for the MAHSC counties (Table 1). These sites represent all the prehistoric Traditions established for Minnesota, as well as several of the post-contact contexts developed by the State Historic Preservation Office. Overwhelmingly, the known archaeological sites of Dakota County are prehistoric in nature (over 70%). Of these sites, the largest number

(n=31) are associated with the Woodland period - demonstrating the importance that this region played in the lives of Native Peoples beginning more than 2000 years ago. However, the largest single group of sites are prehistorically unaffiliated sites (n=35). These typically just include a scatter of lithic materials or even an individual lithic artifact, and it is thus not possible to tie them specifically to a chronological period. In terms of site types, again the majority of sites are small habitation or campsites where the archeological assemblage contains both lithic debitage from making, sharpening, or using stone tools as well as ceramics for cooking, storing, or transporting materials. More specifics about these time periods and type sites will be discussed in the section immediately following this one. Finally, Dakota County does have a larger number of historic sites (more than 20) versus the other MAHSC counties which are as diverse as cemeteries, mills, schools, farmsteads, and historic homes.

Table 1: Known Sites in Dakota County By Number

Site No.	Site Name	Cultural Affiliation	Primary References
21DK01	Sorg Site	Woodland	Johnson 1959, Adams 2004
21DK02	Lee Mill Cave Site	Archaic-Oneota	Johnson & Taylor 1956
21DK03	Hamm Site	Woodland	Johnson 1959?
21DK04	Ranelius Site	PaleoIndian-Oneota	Flemming & Hager 2010, Johnson 2010
21DK05	Bremer Mounds	Woodland	Jensen 1959
21DK06	Bremer Village	Woodland-Oneota	Jensen 1959, Flemming 2012 & 2013
21DK07	Nininger Mounds	Woodland	Winchell 1911, Arzigian & Stevenson2003
21DK08	Black Dog Mound Group	Woodland	Winchell 1911, Arzigian & Stevenson 2003; Gronhovd 2007
21DK09	Kaposia Mounds	Woodland	Winchell 1911, Werner 1974, Arzigian & Stevenson2003
21DK10	Grand Ave Mound Group	Woodland	Winchell 1911, Werner 1974, Arzigian & Stevenson2003
21DK11	Unnamed Mound Group	Woodland	Winchell 1911, Werner 1974, Arzigian & Stevenson2003
21DK12	Buron Lane Mound	Woodland	Winchell 1911, Werner 1974, Arzigian & Stevenson2003
21DK13	Unnamed Mound Group	Woodland	Winchell 1911, Werner 1974, Arzigian & Stevenson2003
21DK14	Unnamed Mound	Woodland	Werner 1974, Arzigian & Stevenson2003
21DK15	Unnamed Mound	Woodland	Likely not a site, miss located, or possibly 21RA03
21DK16	Silk Mounds	Woodland	Winchell 1911, Werner 1974, Arzigian & Stevenson2003
21DK17	Unnamed Mounds	Woodland	Winchell 1911, Arzigian & Stevenson 2003
21DK18	Unnamed Mounds	Woodland	Winchell 1911; Arzigian & Stevenson

			2003
21DK19	Unnamed Mounds	Woodland	Winchell 1911; Arzigian & Stevenson 2003
21DK20	Unnamed Mounds	Woodland	Winchell 1911; Arzigian & Stevenson 2003
21DK21	Potential Mina Mounds	Woodland	Winchell 1911; Schmidt 1937; Wilford Memo 1939, Arzigian & Stevenson 2003
21DK22	Potential Mina Mounds	Woodland	Winchell 1911; Schmidt 1937; Wilford Memo 1939; Arzigian & Stevenson 2003
21DK23	Potential Mina Mounds	Woodland	Winchell 1911; Schmidt 1937; Wilford Memo 1939; Arzigian & Stevenson 2003
21DK24	New Hope Cantonment	Historic 1820s	Friends of Fort Snelling 2007
21DK25	Kennealy Site / Black Dog Historic Burials	Mdewakanton Sioux	Wilford 1944
21DK26	Black Dog Burial Site	Mdewakanton Sioux 1820-1855	OSA Site File
21DK27	Freitage Site Mounds	Woodland	Winchell 1911, Terrell 2001, Arzigian & Stevenson 2003
21DK28	Lithic Scatter	Unaffiliated	OSA Site File
21DK29	Lithic Scatter	Unaffiliated	State Wide Survey 1978 (Johnson 1979); Harrison 1978
21DK30	Artifact Scatter	Unaffiliated	State Wide Survey 1978 (Johnson 1979)
21DK31	Sibley House Complex	Historic	Kapler 2004; Gilman 2004, Clouse 1998, Lothson 1986
21DK32	Lithic Scatter	Unaffiliated	Dobbs 1987
21DK33	Lithic Scatter	Unaffiliated	Dobbs 1987
21DK34	Habitation / shell midden	Late Woodland	Radford 1988
21DK35	Kennealy Creek Village	Eastern Dakota	Willoughby 1945; Radford and George 1991, 1992, 1993.
21DK36	Gun Club Lake Outlet	Historic 1840s	Radford and George 1993
21DK37	Unnamed Site	Historic	Radford and George 1993
21DK38	Lithic Scatter	Unaffiliated	Harrison 1978
21DK39	Renner Findspot	PaleoIndian	OSA Site File
21DK40	Roselind	unaffiliated	OSA Site File
21DK41	Pemtom / River Hills Pit Burials	Archaic	Helmen 1963
21DK42	Crystal Lake Island Findspot	Archaic / Woodland	OSA Site File
21DK43	Bud Joseph's Site	Unaffiliated	Johnson & Taylor 1956

21DK44	Alimagnet Lake Lithic Scatter	Unaffiliated	OSA Site File
21DK45	Unnamed Site	Unaffiliated	Harrison 1993
21DK46	Unnamed Site	Unaffiliated	Peterson 1990
21DK47	Unnamed Site	Unaffiliated	Harrison 1993
21DK48	Tool Find Spot	Unaffiliated	Harrison 1993
21DK49	Rathburne Site	Archaic Woodland	Harrison 1993
21DK50	Lithic Scatter	Unaffiliated	Harrison 1993
21DK51	Lithic Scatter	Unaffiliated	Harrison 1993
21DK52	Lithic Scatter	Unaffiliated	Harrison 1993
21DK53	Lithic Scatter	Unaffiliated	Harrison 1993
21DK54	Lithic Scatter	Unaffiliated	Harrison 1993
21DK55	Single Artifact	Unaffiliated	Harrison 1993
21DK56	Lithic Scatter	Unaffiliated	Harrison 1993
21DK57	Lithic Scatter	Unaffiliated	Harrison 1993
21DK58	Samuelsons Farm	Historic - Farmstead	Pleger 1995
21DK59	Bauer-Mamer Site Flake and Cobble	Unaffiliated	Harrison 1993
21DK60	1895 School	Historic School	Harrison 1993
21DK61	Ramsey Mill Site	Historic - Flour Mill	NRHP 1996
21DK62	Leduc Site	Historic - Homestead	Sigrid 1998, Nienow 2003 & 2010
21DK63	John Clague Cemetery	Historic Cemetery	Informant; North Star Publishing 1881
21DK64	Greiner Site Single Projectile Point Agate Basin	PaleoIndian	Informant
21DK65	Pahl site – artifact scatter / habitation	Woodland	MSPCMP 1998
21DK66	St. Peter Cemetery	Precontact and Historic Cemetery	Informant
21DK67	Single Artifact – biface fragment	Unaffiliated	Perkl 1999
21DK68	Artifact Scatter	Woodland	Walter & Walter 1999
21DK69	Murphy Farm #1 Single Artifact Side Notched	Late Archaic	Ollendorf 2000
21DK70	Murphy Farm #2 Single Artifact	Woodland	Ollendorf 2000
21DK71	Lake Byllesby IX Lithic Scatter	Unaffiliated	Dobbs 1987
21DK72	Freitage Ridge Site	Archaic-Woodland	Terrell 2001, Vermeer 2002
21DK73	Unnamed Site	Unaffiliated	Lyon & Eckstrom 2002

21DK74	Simons Ravine	Unaffiliated	Harrison 2002
21DK75	Empey Site	Historic Agricultural	106 Group 2007, Eigenberger 2013
21DK76	Single Artifact - flake	Unaffiliated	Gronhovd, 2006
21DK77	Single Artifact - flake	Unaffiliated	Gronhovd, 2006
21DK78	Lithic Scatter	Unaffiliated	Gronhovd, 2006
21DK79	Artifact Scatter – asbestos shingles near foundation	Historic post 1870	Buhta, 2007
21DK80	Single Artifact - flake	Unaffiliated	Justin HDR, 2007
21DK81	St. John's Hotel and Saloon	Historic - Hotel/Saloon	Terrell 2008
21DK82	Pine Bend Bluff Site	Unaffiliated	Harrison 2011
21DK83	Single Artifact - flake	Unaffiliated	Aulwes & Jenkins 2011
21DK84	Single Artifact - flake	Unaffiliated	Aulwes & Jenkins 2011
21DK85	Philip Caron Residence	Historic post 1870	Schoen, 2011
21DK86	Single Artifact - flake	Unaffiliated	Doperalski, et. al, 2011
21DK87	Block 13 Site	Historic - Grocery/Saloon	Terrell & Vermeer 2011
21DK88	Spring Lake Park Bluff	Unaffiliated	Harrison 2011
21DK89	Ravenna Mounds	Historic - Cemetery	OSA Site File
21DK90	T. Polski Site	Post 1870 Farmstead	Nienow 2012
21DK91	Mary Bell & Mary Lewis Site	Post 1870 Farmstead	Nienow 2012
21DK92	J. Donnelly Site	Post 1870 Farmstead	Nienow 2012
21DK93	Linkert Site	Post 1870 Farmstead	Nienow 2012
21DK94	Foundation	Post 1870 Farmstead	Eigenberger 2013
21DK95	Spring Lake Overlook lithic scatter	Unaffiliated	Harrison 2013
21DK96	Ordway 1	Woodland	Legge and Fleming 2013
21DK97	Ordway 2	Woodland - Havana	Legge and Fleming 2013
21DK98	Ordway 3	Woodland	Legge and Fleming 2013
21DK99	Ordway Island	Unaffiliated	Legge and Fleming 2013
21DK100	K. D. Olson	Cabin pre 1956	Allan & Magner 2014
21DK101	Hastings Burial	Historic	OSA Site File

Alpha Sites

Beyond the known archaeological sites in Dakota County, there are 40 alpha sites (Table 2). Alpha sites are locations that have been documented from written accounts, area maps, or oral tradition but have never been formally investigated to see if they still contain intact cultural deposits. Additionally, these sites do not have site numbers; they are only given lower case

letters for designation and often do not appear on examinations of archaeological reports, investigations, etc.

Many of these locations likely have little archaeological materials remaining because they have been destroyed by continued development. For example, 21DKw the Oliver Grove Fur Post/Hastings Fur Post is documented as being a fur trade post built by Joseph Brown in 1832 on Lot 1, Block 12 in the “original town” of Hastings – at the southwest corner of Second & Vermillion. Subsequently, the post was ordered closed by Indian agent Taliaferro in September of 1834. Due to the continued development of downtown Hastings, this site has likely been destroyed or certainly impacted by subsequent history. Be that as it may, the documentary record of these locations can still provide materials for regional interpretation; and until these sites are actually examined archaeologically, we will never truly know their condition.

In examining the list, one can see that the majority of alpha sites are historic in nature (early town sites, lumber mills, and trading posts) with some prehistoric sites also represented (primarily mounds). Alpha sites can potentially be an excellent source for stirring the imagination of those locally interested in county history; and with a small amount of historic literature research / review (this is called a Phase Ia by the archaeological community), the list could be winnowed down to sites containing the highest probability of retained cultural materials.

Table 2: Alpha Sites in Dakota County recorded at SHPO

Site No.	Site Type / Name	TSR	Primary Reference
21DKa	Brotzler Mound	SW1/4NW1/4 Sec. 16 T28N R22W	Peterson 1974: 36
21DKb	Basalt Adze	NE1/4NW1/4 Sec. 16 T27N R23W	Informant
21DKc	Ivory Totem Pole	S1/2 Sec. 25 T112 R19W	Wilford 1954
21DKd	Large Mound Group	Sec. 6 T112N R19W	Wilford 1939
21DKe	Mound	NE1/4NE1/4 Sec. 13 T114N R19W & NW1/4NW1/4 Sec. 18 T114N R18W	Trygg
21DKf	Historic Structure	NE1/4 Sec. 8 T114N R18W	Andreas
21DKg	Historic Mill	NE1/4 Sec. 31 T114N R18W	Andreas
21DKh	Nininger Mill	SE1/4 Sec. 14 T115N R18W	Andreas 1874
21DKi	Not a Site		
21DKj	Not a Site		
21DKk	Collection	E1/2NW1/4 Sec. 17 T113N R19W	Informant
21DKl	Kaposia Village		Dakota County 1963
21DKm	Auburn Townsite	NW1/4 Sec. 30 T114N R18W	Andreas
21DKn	Bellwood Townsite	E1/2 Sec. 28 T114N R17W	Neill 288
21DKo	Dakota City Townsite	SW1/4 Sec. 29 T114 R19W	
21DKp	Empire Townsite	NW1/4 Sec. 29 T114N R19W	
21DKq	Glentoro Townsite	S1/2 Sec. 30 T28N R22 & SE1/4	

		Sec. 25 T28N R23W	
21DKr	Lewiston	Sec. 14 T112 R19W	Nienow 2012
21DKs	Marshan Townsite	NE1/4 Sec. 27 T114 R17 and W1/2NW1/4 Sec. 26 T114 R17W	
21DKt	Merrimack Town	Sec. 10 T27N R22W	OSA abandoned town file
21DKu	Mound was 21DKal	NE1/4 Sec. 21 and NW1/4 Sec. 22 T28N R22W	No information available
21DKv	Wescott Town	Sec. 11 T27N R22W	OSA abandoned town file
21DKw	Oliver's Grove/Hastings Fur Post	NE1/4 Sec. 28 T115N R20W	OSA abandoned town file
21DKx	Penichon's Village	Sec. 28 T27N R24W	Archaeological Field Services 1979
21DKy	Mound Group was 21DKak	NE1/4 Sec. 21 T28N R22W	Werner 1974
21DKz	Ramsey Mill	NE1/4 Sec. 33 T115N R17W	Neill & Williams 216, 279
21DKaa	Mound	NW1/4SE1/4 Sec. 25 T115 R21W	Winchell 1888: 101
21DKab	Mounds	E1/2 Sec. 23 T112N R20W	Winchell 1888: 100
21DKac	Mounds	SW1/4 Sec. 24 T112N R20W	Winchell 1888: 100
21DKad	Mounds	SE1/4 Sec. 18 T112 R20W	Winchell 1888:100
21DKae	Mounds	N1/4 Sec. 2 T112N R20W and S1/4 Sec. 35 T113N R20W	Winchell 1888:101
21DKaf	Mounds	S1/4 Sec. 34 T113N R20W	Winchell 1888: 101
21DKag	Two Mounds	SW1/4NW1/4 Sec. 32 T115 R20W	Winchell 1888: 101
21DKah	Mounds	C Sec. 31 T115N R20W	Winchell 1888: 101
21DKai	Cole dugout or root house	NW1/4 Sec. 6 T113N R117W	Caspers 1980:86
21DKaj	Bell dugout or root house	Sec. 4 and Sec. 5 T113N R18W	Caspers 1980:86
21DKak	Projectile Points	Sec. 17 T115N R22W	Reeves
21DKal	Etter Ridge Mound	SE1/4SE1/4 Sec. 21 T114N R16W	
21DKam	John Danner House	NW1/4 Sec. 24 T115N R19W	OSA site form
21DKan	John Drake House	SW1/4 Sec. 24 T115N R19W	OSA site form
21DKao	Rich Valley Village	SE1/4 Sec. 24 T115N R19W	OSA site form
21DKap	J. O'Brian House Site	SW1/4 Sec. 31 T115N R19W	OSA site form
21DKaq	R. H. Pattingill Farm	SW1/4 Sec. 19 T115N R18W	OSA site form

Precontact and Historic Contexts

In order to more fully understand the complex relationships of past peoples within Minnesota, archaeologists typically place their work into a series of spatial and/or chronological contexts. This has allowed them to record the cultural changes and adaptations previous peoples have experience throughout the region. Some of this work, however, is arbitrary. Assembling meaningful typologies often begins with general, morphological characteristics and then moves toward chorological and functional understandings. Broadly speaking, archaeologists divide the Upper Midwest into Prehistoric/Precontact and Historic/Contact periods based upon the material cultural remains of the past that they recover and their spatial relationships (contexts) to one another from which one can often imply temporal relationships.

Similar to the overall history of archaeology in the County, a detailed application of these contexts to Dakota County has not yet been attempted or implemented to include all of the archaeological sites known in county, instead archaeologists often focus on those contexts that directly relate to the materials they have identified during a particular investigation. That said, it is clear that Dakota County has a strong connection to the Woodland context in Minnesota. Finally, although the general public may take at face value the production of knowledge archaeologists engage in as they present their interpretations of the past and how they scientifically arrive at their conclusions, it is important to note the following: 1) the archaeological record is a partial one as organic materials rapidly break down and where archaeologists do their work is typically development focused not research driven; 2) archaeological materials become mixed or jumbled on sites as natural (frost, animals, etc.) and cultural (development) factors impact them; and 3) objects do not come for the most part already dated, they must be studied in relationship to their site context and the contexts of sites around them to more fully appreciate their place in the larger scheme of regional settlement.

Precontact Traditions

There are six generally accepted precontact traditions for Minnesota as listed on the Minnesota OSA site form beginning at least as far back as 12,000 years ago and extending until historic contact with French fur traders in the late 1600s: Paleoindian, Archaic, Woodland, Plains Village, Mississippian, and Oneota. The following is a general summary of these traditions using the Author's general knowledge and various disseminated sources for information including, the OSA's website, Johnson's (1988) *The Prehistoric Peoples of Minnesota*, Gibbon and Anfinson's (2008) *Minnesota Archaeology: The First 13,000 Years* and more recently Gibbon's (2012) *Archaeology of Minnesota*. In addition to these and as was stated above, over the past several years monies made available through the Legacy Amendment have given rise to the opportunity to conduct meaningful research into some of these contexts. It is important to note that these time periods have considerable overlaps from one period to the next and are not uniform over the entirety of State. This document has been tailored to the counties of the MAHSC.

Paleoindian

Minnesota's cultural sequence begins approximately 13,000 years ago as glaciers pulled back from their southern extents through most of Minnesota and groups of nomadic hunter / gatherers began migrating through the region exploiting newly expanded resource areas. This period is typically thought of as belonging to "Big Game" hunters including extinct forms of bison and mastodon but also likely included exploitation of available small game, fish and plant resources as well. Over the next 4,000 years, the region became warmer and drier changing environments throughout the region as well as impacting migration patterns for animals and those that hunt and gather them.

Paleoindian sites are sparse in this portion of the State and are recognizable by lanceolate projectile points, large knives, and other tools associated with the processing of animal hides – such as simple choppers and large scrapers. Indeed, there are only about 300 projectile points associated with the first peoples to occupy this region in the entire State (there are undoubtedly many hundreds more in private, undocumented, collections). This lack of sites is not surprising given the relatively small numbers of individuals that the region would have supported in a post-glacial environment and their highly mobile way of life. Dakota County lies geographically just above areas in Minnesota where we typically find Paleoindian sites. These sites are possible in the county evidenced by cultural materials in local avocational collections, however, there are only a handful of documented sites that are confirmed for this tradition (21DK04, 21DK39, and 21DK64). Of these three sites, 21DK39 and 21DK64 are find spots reported by collectors with 21DK04 representing the only formally excavated location in the County with Paleoindian components (Figure 1).

Archaic

The archaic tradition in some ways represents the long period of shift from focused large game hunting to a much more diverse assemblage of resource acquisition technologies between 8,000 and 2,800 years ago. Individuals are still primarily nomadic during this time period but are likely migrating in smaller areas and adapting to increasingly local environments just prior to long-term settlement. This period is dominated by large environmental shifts. One such shift is

Dakota County

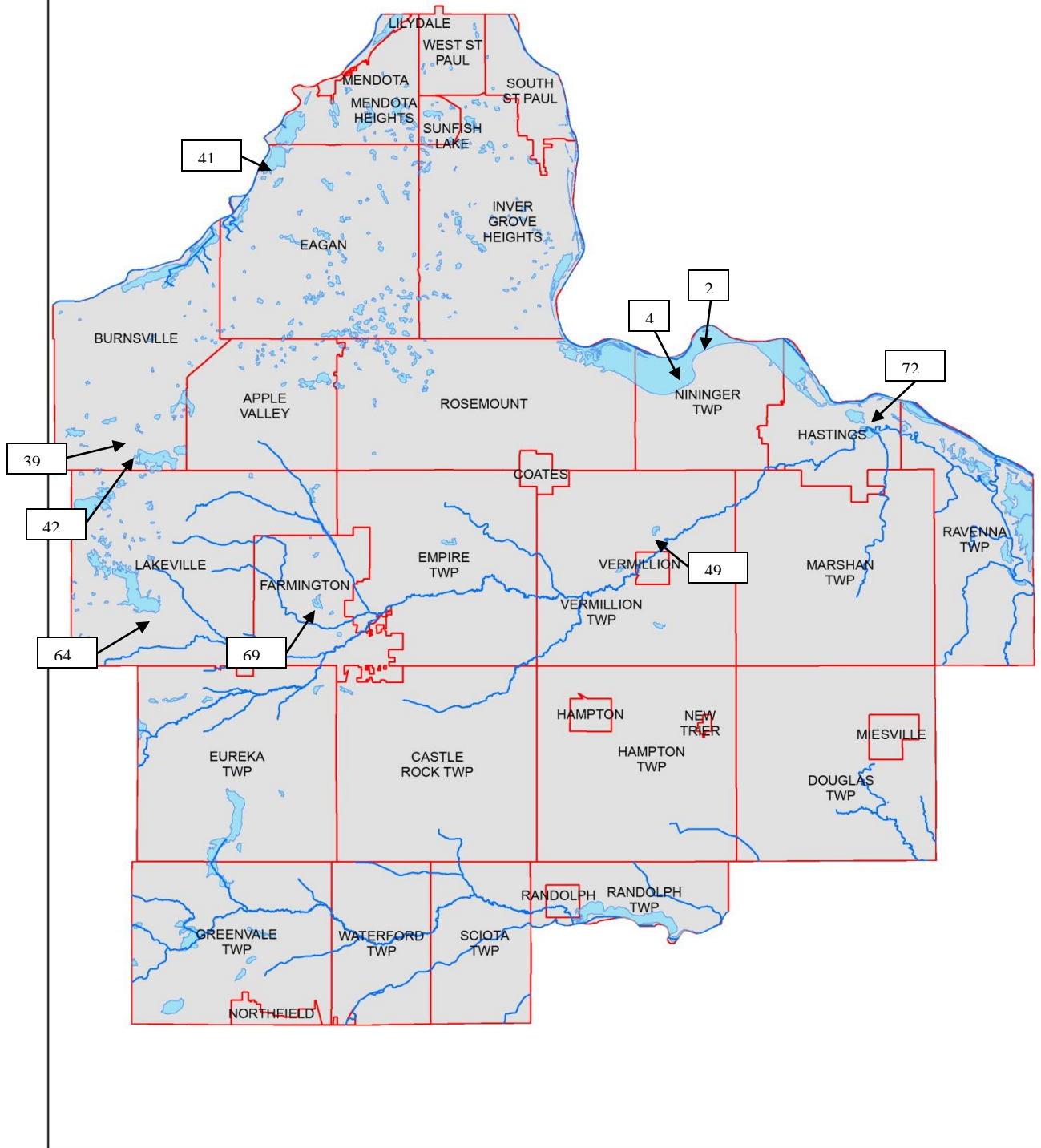


Figure 1: Paleoindian and Archaic Sites in Dakota County.

the initial expansion of prairie far to the northeast of this recent position before it receded by the end of the period to its approximate modern location. These events are called in various places the Atlantic climate episode, Holocene Climatic Optimum, and Hypsithermal. By the end of this period, the climate again changes shifting to a cooler, wetter pattern which we see up through the strong human-driven, warmer climates of the modern era.

Resource gathering technologies during the archaic include the aforementioned hunting, as well as trapping, fishing, foraging, woodworking and plant processing. Projectile points continue to change in size and shape during this period moving toward stemmed and notched varieties; and there is, for the first time in the archaeological assemblage, the inclusion of ground stone and even cold-hammered copper implements. This diversity of material types also points to increases in populations and social constructs. Again for both the Paleoindian and Archaic Traditions it is important to note that all we have are the inorganic (lithic) materials left in the archaeological assemblage. Certainly skins, wood, cord, and textile objects, including clothing, shelter, and transportation (boats) would have been present in these periods.

In Dakota County, there are more than double the number of archaic sites listed than the previous period (21DK02, 21DK04, 21DK41, 21DK42, 21DK49, 21DK69, and 21DK72) with the majority being multi-component late Archaic and forward (Woodland through Oneota) sites (Figure 1).

Woodland

This tradition represents a major shift in occupation and presence of Native Americans in the region. Beginning approximately 2,800 years ago, peoples in the region experienced increases in population with the advent of first horticultural and then agricultural subsistence strategies to augment those already extant systems of hunting, gathering, etc. As populations increase, settlements near favorable transportation and resource corridors shifted from seasonal to year round including the use of fortifications (by the very end of the period).

The period also witnessed the technical transition from spear/atlatl to bow and arrow weaponry – useful for both hunting and warfare. This change in technology leads to the use of smaller projectile points, invoking the first correct use of the term “arrowheads”. Similarly, the period also saw the invention of ceramic vessels; and it is these vessels and their change over time, from thick-walled, grit-tempered, conoidal vessels, to thinner-walled, shell-tempered, globular vessels, that has greatly assisted the archaeological community in further refining their understanding of group identity, cohesion, and integration throughout the region and is a major area of study. A final example representing not only identity and permanence on the landscape – but also religious practices – was the use of earthen burial mounts.

Within the region stretching from immediately south of St. Cloud through the metro area and continuing into southeastern Minnesota, the portion of the Woodland most represented is the Middle or Havana-Related Woodland. Two phases or locally discrete sequences are the Sorg and Howard Lake phases. Howard Lake, with 21AN08 the Anderson Site, the type site for the phase, is centered on the rivers, lakes, and wetlands of roughly the metro region with its greatest concentration of materials on the wet prairies and lakes of eastern and southern Anoka County. The Sorg phase concentrated materials lie to the southeast on the other side of the metro area

around Spring Lake (21DK01 is the Sorg Site) in Dakota County. Diagnostic ceramics from these phases are wide-mouth vessels, with thick walls, straight rims, slightly constricted necks, slightly rounded shoulders, and subconoidal bases. The phases are associated with the Havana complex in Illinois in terms of their overall vessel shape, hence the connection to this region even farther southeast. In essence, these phases represent local peoples being influenced by elements from regions outside of Minnesota.

Typical burial patterns for these peoples are groups of a few to over a dozen conical-shaped earthen mounds. Heights vary from a few feet to more than 30 feet in height. Larger mounds typically contain period goods and burials, although few Howard Lake phase and no Sorg phase mounds have been excavated. The three sites with the most representative expressions of Middle Woodland mounds for the region are 21AN01 (the Howard Lake Mound Site) and 21AN08 (The Anderson Site) in Anoka County and 21RA10 (Indian Mounds Park) in Ramsey County.

As has been stated above, by end of the Woodland Tradition, Native People's social and technological lives had become increasing complex. By the end of the Tradition, the bow and arrow has become to primary tool of hunting and warfare, shifting projectile points to the much smaller "arrowheads" we are accustomed to today. Plant domestication was also leading to the potential for much larger, sustained, social groups and further, sedentary changes to their lifestyles. Other change included thinner-walled and finer-tempered ceramics, and changes in mortuary practices away from conical mounds to effigy mounds. These mounds that represent bird, human, turtle, fish, snake, and other mammal forms are found in Scott, Dakota, Goodhue, Houston, Wabasha and Winona Counties. The Sorg Site in Dakota County (21DK01) again plays a prominent role in understanding the Late Woodland in the region as its artifact assemblages not only include those mentioned for the Middle Woodland but extend further forward in time, denoting a period of overlapping, seasonal, and then year-round, habitual settlement. Late Woodland ceramics are thin walled, fine-grit tempered, with cordmarking on exterior surface of vessels that are generally more globular than earlier forms and also have constricting necks and flaring rims. The Prior Lake Effigy Mound Site (21SC16) is a representative example of Late Woodland mound building with a group of five bird effigies flying east with four linear mounds behind them. These are massive features on the landscape. The only excavated effigy mound in the State, one of the birds from this site, had a body 52 feet long, 15 feet wide, with wings spanning a total of 141 feet long and 12 feet wide. No artifacts or burials were found within the mound.

As is evidenced by the above narrative, the Woodland is the best represented tradition in the prehistoric archaeological assemblage for Dakota county, especially the middle Woodland with the Sorg Phase centered around Spring Lake (21DK01). There are more than a dozen mound and mound related sites, consisting of individual to clusters of mounds and associated habitations. Beyond this, more than a third of the sites documented in the county come from this time period (Figure 2).

Dakota County

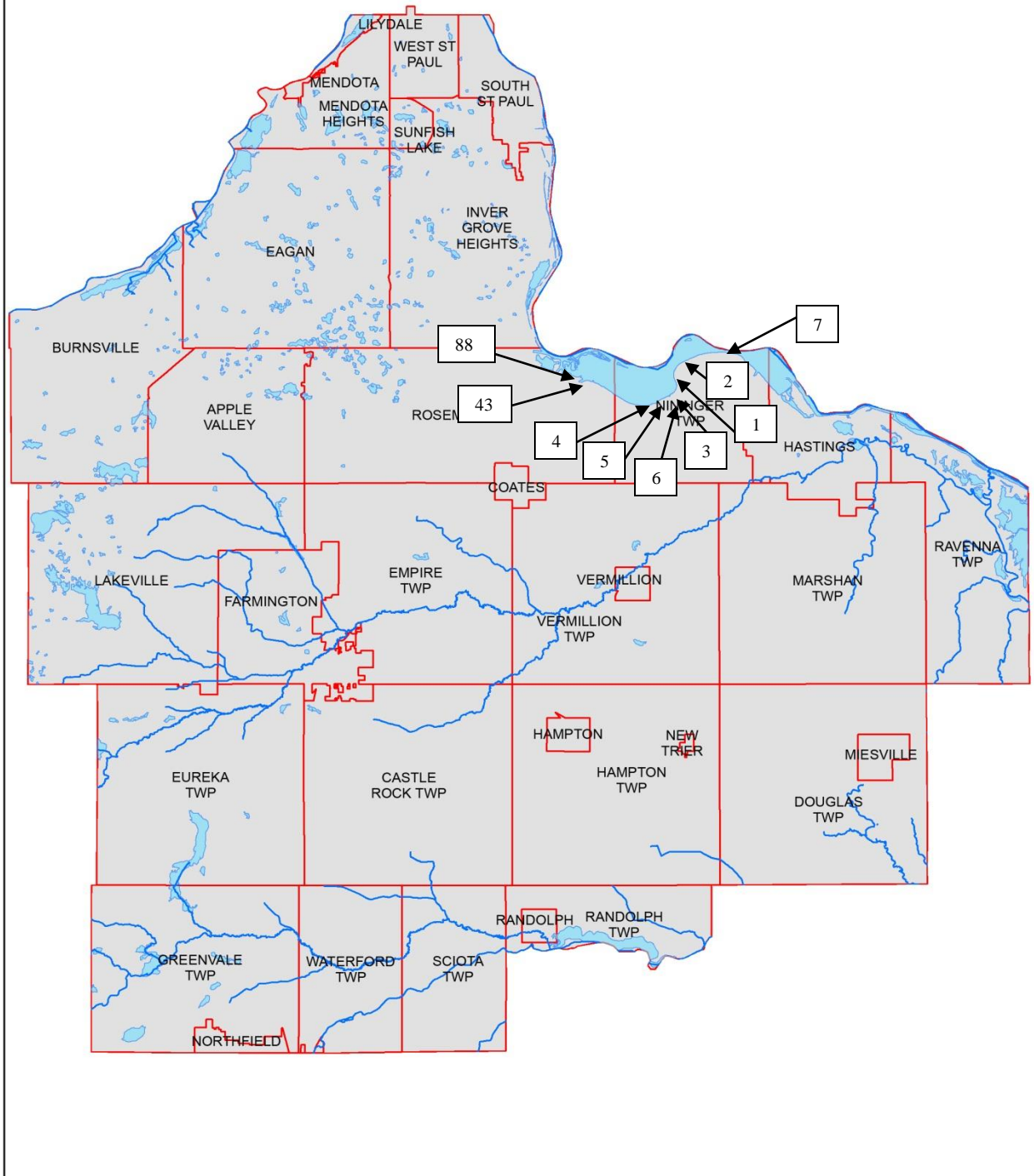


Figure 2: Prehistoric and Historic Sites in the Spring Lake Locality Area.

Mississippian

Between 1,000 and 300 years ago, the Native Peoples of the Minnesota's Woodland Tradition began leaving behind cultural materials expressive of increasingly complex lives. As they became more sedentary, often within fortified settlements, and increasingly dependent upon maize, they began to resemble those peoples identified in the early 20th century along the central Mississippi River corridor in terms of their ideologies, technologies, and social lives – hence the term Mississippian. Initially, Native Peoples of the Upper Midwest were called the Upper Mississippians to reflect this assimilation of cultural trajectory and many believed that groups living in our area were, in fact, emigrants from farther south or so acculturated into their views as to make them similar.

Archaeology today has shown that migration, cultural diffusion, and local cultural evolution created a much more complex picture than the model espoused above. The term Mississippian is still used if for no other reason than to mark the period of cultural complexity transition as separate from the earlier Woodland expressions.

Mississippian archaeological localities within Minnesota are divided into four complexes: Cambria, Great Oasis, Silvernale and Oneota. Over time, archaeologists have struggled to continue making large generalizations in Minnesota concerning these peoples as they increased in population and individual identity. Each complex extends through different areas of the state and slightly different periods of time, making for a quilt work of new material cultures and subsistence and settlement patterns. One of the more distinctive markers of this tradition as a whole is the continued shift to larger, shell-tempered vessels with smoothed exteriors, decoration on the shoulder, and lugs or handles. What is interesting to note is that, for the most part, the Metro Area is relatively absent of this period's archaeological assemblages. To the southeast, south, southwest, and North of the Metro Area assemblages from these very Late Woodland to protohistoric period Peoples are represented. This could mean that more work simply needs to be done in this part of the State, or that as Native identities began to gel into those that we know today (the Dakota and Ojibwa) they attempted to avoid overlapping with one another, essentially creating a "no-man's land". Regardless, by the time persistent settlement by Euro-Americans entered this region in the 1800s, there were several documented large Native American villages in the southern half of the metro area around the Minnesota and Mississippi River waterways. Three sites, 21DK02, 21DK04, and 21DK06 are specifically listed as being from the Mississippian Tradition (Oneota) in Dakota County, however, many of the late woodland sites denoted for the County could have a relationship to this tradition (Figure 2). Future research and a closer reading of available materials could bear this out.

Oneota / Plains Village

Generally then, this last Tradition covers the period from approximately 900 AD through contact with Euro-Americans in the 1600s. Again, archaeologists struggled to create neat generalizations for the purposes of typology buildings; and this Tradition, which should be re-divided into each of the four larger Mississippian complexes mentioned above, is instead typically reduced to represent influences and life ways that either lie primarily along the Mississippi River (Oneota and Silvernale) and looked south and eastward for similarity or lie along the western edge of the State and, therefore, looked westward toward the plains for group identity (Great Oasis and Cambria).

Generally then, those on the western edge appear to have developed a blended subsistence strategy based on simple agriculture, gathering and bison hunting. Those on the eastern edge, however, continued to build larger villages and focus on maize agriculture. Distinctions continued to be made in terms of their material culture specifically the shape, temper, and decoration of ceramic vessels as well as shifts in ideology, identity, social organization, etc.

As can be surmised from the above, the Native Peoples living along the Dakota County portion of the metro area identified as coming from the Oneota and Silvernale complexes. Eventually, these peoples were to become the historic tribes first encountered by Euro-Americans in the 1600s as they were impacted by other Native Americans migrating westward after Euro-American settlement of the East Coast began.

Beyond the subsistence and settlement patterns listed above for the Oneota complex are others that relate to those peoples with complex trading patterns and partners, including other Mississippian complexes, and continued and modified mound use for ceremonial purposes. Eventually, these settlements would become the historic villages of the first contact period and post-contact contexts listed below. Here again, only the three sites identified above are specifically listed as being part of this Tradition, however, there is likely some amount of overlap with earlier periods. Additional reading of the available archaeological materials on these sites, as well as a closer look at their material culture, could increase this number.

SHPO Historic Contexts

By the late 1600s Euro-American colonists, missionaries, and entrepreneurs were increasingly aware of the Native American peoples in the Upper Midwest. French fur traders and Jesuit priests were the first to arrive in the region, followed later by English and finally American traders. Actual Euro-American settlement began around military and trade centers by the early 1800s with the establishment of Fort Snelling at the confluence of the Minnesota and Mississippi Rivers. By the 1850s, Minnesota was a United States Territory and concerted, urban centers formed in earnest first in southeastern and central Minnesota.

As the public's attention has turned to understanding the Euro-American historic and archaeological past, the SHPO has developed a series of eight post-contact statewide contexts, with five of these (bolded) present within the metro region / MAHSC and expanded upon below. These contexts are traditionally used to lay the historic basis or understanding for archaeological sites or historic structures that may be determined eligible to the National Register of Historic Places:

Indian Communities & Reservations (1837-1934)

St. Croix Triangle Lumbering (1830s-1900s)

Early Agriculture & River Settlement (1840-1870)

Railroads & Agricultural Development (1870-1940)

Northern MN Lumbering (1870-1930s)

Iron Ore Industry (1880s-1945)

Tourism & Recreation (1870-1945)

Urban Centers (1870-1940)

Indian Communities & Reservations (1837-1934)

This context begins during the period of Native American land cessations in the early 1800s, ushering in the first wave of permanent Euro-American settlement to the region. Unfortunately, this period is also marked with concerted efforts by the US government to restrict and, where possible, eliminate the traditional Native American way of life, by means of every institutional avenue open to them. This included the economic restriction of traditional subsistence strategies, the creation of Indian schools for re-education, severe restriction on traditional religious practices, as well as general efforts encouraging the acceptance of traditional Euro-American life ways including rural and urban life, dress, mannerisms, beliefs, etc.

At the start of this period Native Americans in the region are living at large, historically documented, villages typically along the major waterway corridors in the State – especially the Minnesota and Mississippi Rivers. Over time, these villages are shifted to established reservations in association with promises of remuneration and continued support; promises that were ultimately not kept, leading to economic hardship and starvation; ushering in the U.S./Dakota War in 1862 and ultimately the dispersal of many groups outside of Minnesota.

Examples of history and archaeological property types associated with this context include reservation sites, battlefield and skirmish locations, and other locations associated with federal Native American policy. However, there are also many property types that focus on Native American traditional cultural properties (TCPs), trails, portages, pow wow locations, trading posts, and late contact period historic Native American village sites.

An additional short list of example references for this context include the following: Anderson, G. C. (1984) *Kinsmen of Another Kind*; Branam, K. M. (2010) "Survey to Identify and Evaluate Indian Sacred Sites and Traditional Cultural Properties in the Twin Cities Metropolitan Area"; Gibbon, G. (2003) *The Sioux*.

In Dakota County, there are multiple examples of this context, primarily historically documented villages and burials. In specific, sites 21DK25 and 21DK26 (the Black Dog Burial Sites), 21DK31 (the Sibley House and surroundings) and 21DK35(the Kennealy Creek Village Site) are historic Dakota localities. Beyond these, there are two alpha sites, 21DK1, the Kaposia Village Site, and 21DKw, the Hastings Fur Trade post of 1832-34 that would be included in this context (Figure 3).

Early Agriculture & River Settlement (1840-1870)

This period represents for many the “Frontier” period of Euro-American Minnesota history. It begins with the first farming in the state and ends with railroad expansion to the North Dakota / Minnesota border. Euro-American settlement, therefore, is the chief concern of this context with major events including Native American land cessations, Territory and Statehood establishments, wars and conflicts, as well as economic boom and bust cycles all affecting the ebb and flow of settlement into and within the region.

Agricultural attempts were primarily for personal or local consumption; however, by the end of the period, Minnesotans had successfully diversified some of their crop / land use and were also

Dakota County

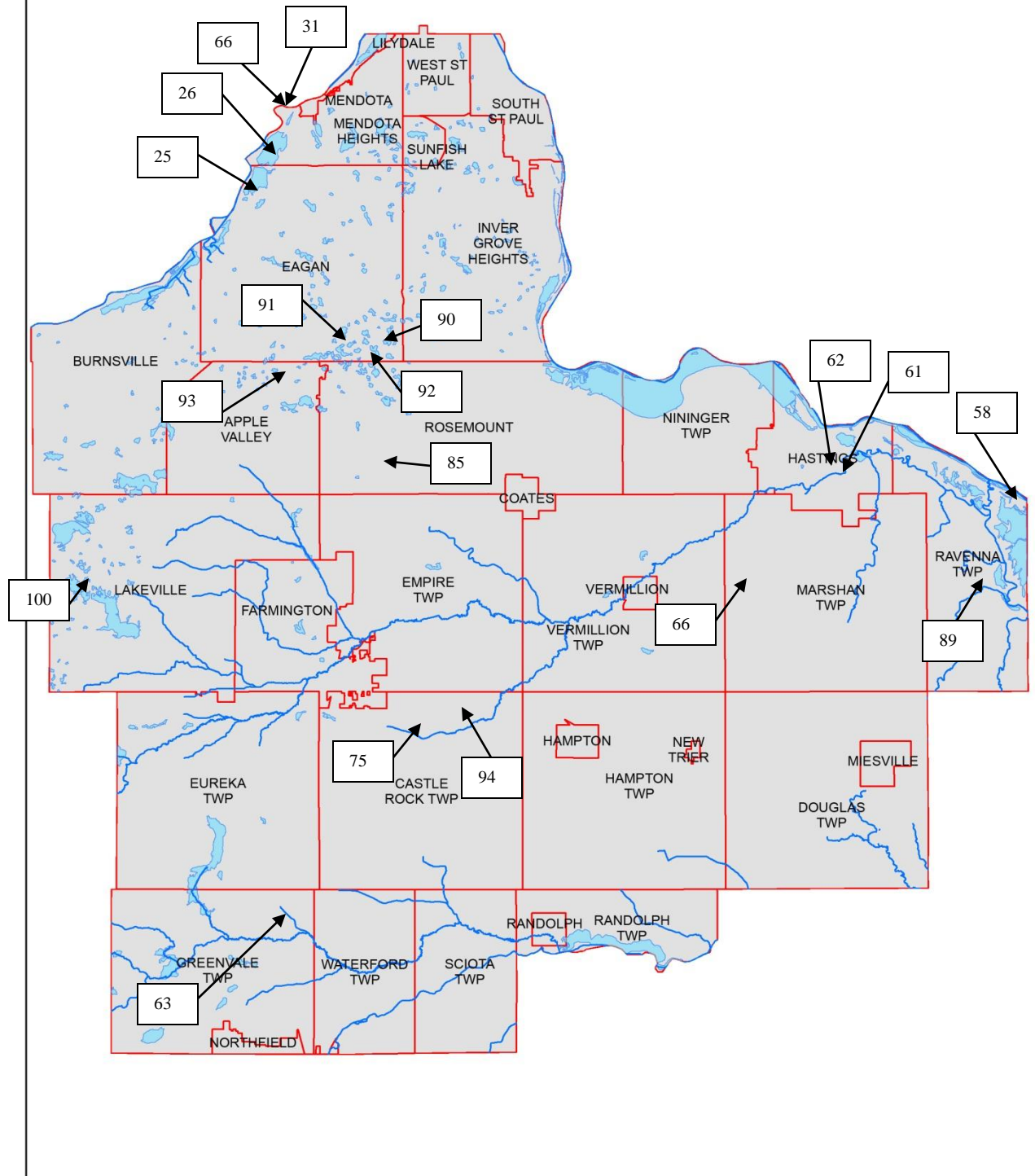


Figure 3: Example Historic Context Sites in Dakota County.

participating in the initial wheat markets that would make Minneapolis the king of the flour industry in later years.

Settlements expanded into the region primarily from the east, south and southeast essentially between the Twin Cities and smaller frontier communities along the Mississippi corridor and southwards. Hundreds of frontier settlements were founded between 1855 and 1870 in this region with dozens failing in less than 10 years as financial panics swept the region and railroads and institutionally successful communities consolidated their nearest neighbors.

Examples of property types associated with this context include farmsteads, industrial mills, quarries, brickyards, stage and government roads, steamboats and ferries, as well as those accoutrement associated with commercial and agricultural towns (post offices, churches, town halls, warehouses, homes, businesses, etc.).

An additional short list of example references for this context include the following: Bloomberg, B. (1979) Historic Resources of Scott County. Multiple Resource Area Nomination; Hess, Jeffrey A. (1987) History and Architecture of St. Paul, 1840-1985; Frame, R. M. III (1989) Grain Elevator Design in Minnesota. National Register of Historic Places Multiple Property Documentation Form; Murphy, P. A. (1983) Historic Sites Survey of St. Paul and Ramsey County, 1980-1983, Final Report; Pizza, A.C. (2013) Documenting Minnesota's Nineteenth-Century Masonry Ruins.

In Dakota County, there are multiple properties that are clearly associated with this context, including the aforementioned 21DK31 (Sibley House). Beyond sites like these, and the City of Hastings itself, there are multiple failed frontier communities including the town site of Nininiger, as well as 21DKt (Merrimack) and 21DKv (Westcott). Other notable sites include 21DK62 the LeDuc estates (also known as the LeDuc-Simmons Site) which in many ways is the primary example for this context, as well as 21DKh, a mill recorded near Spring Lake Park, and 21DK61 the Ramsey Mill. Finally 21DK58, the Samuelson Farm, may also relate to this context or more likely fall into the next context (Figure 3).

Railroads & Agricultural Development (1870-1940)

This context represents the region's shift from initial settlement attempts to concerted agricultural concerns and dominance of the flour industry and later agricultural products including dairy, etc. By the 1870s, regional rail routes throughout the region had formed an efficient means for the transportation of materials back East and settlers through the region towards the West. By this period, the frontier had moved on to North Dakota and beyond, its death eventually lamented in the work of historian Jackson Turner.

Similar to the end of the previous period, rural communities continued to consolidate or be founded around railroad routes as communities worked to strengthen their identities, resulting in a period of continued triumphs and failures for individual communities. Institutional structures, centers, and symbols become even more important during this period as Minnesotans shifted from merely carving out their own place on the landscape to creating concrete manifestation of pride in place / community, etc. On the rural landscape, this means congregations at grange halls, rural schools, and farmers' associations / clubs. In more urban settings, this means an even stronger shift toward transportation alignment as railroad companies platted towns, consolidating shipping and industrial elements and developing local and regional markets, exchanges,

elevators, warehouses, for either local use, shipment to larger regional centers like Duluth, Rochester, and the Twin Cities, or to farther afield markets in the East.

Property types for this period are similar to those of the previous context with more emphasis on railroad structures, town sites, agricultural production and processing and larger family and community farms.

An additional short list of example references for this context include the following: Berg, W. G. (1900) "Buildings and Structures of American Railroads"; Brochert, J. R. (1989) "Network of Urban Centers" in *Minnesota a Century of Change*, edited by C. E. Clark; Crooks, W. (1905) "The First Railroads in Minnesota"; Frame, R. M. III (1977) *Millers to the World: Minnesota's Nineteenth Century Water Power Flour Mills*; Stover, J. F. (1970) "The Life and Decline of the American Railroad".

In Dakota County, some of the previously mentioned sites could have a contextual relationship to this context. Beyond these are a myriad of locations including cemeteries (21DK63, 21DK66, and 21DK89), schools (21DK60), and multiple farmsteads (21DK75, 21DK85, 21DK90-21DK94) that have been identified as late 19th century / early 20th century (Figure 3).

Minnesota Tourism and Recreation in the Lakes Regions (1870-1945)

Minnesota has a rich tradition of recreation, beginning with escapes from the developed "in state" core to its fringes – places like White Bear Lake or Lake Minnetonka, to extended vacations in "out state" centered on hunting, fishing, or simply partaking in the good health of clean air. As railroads created a spider web network throughout the state, vacationers and entrepreneurs were quick to capitalize on their use throughout southwestern, central, and northern Minnesota. Seasonal residents to the region even came from other regions of the U.S. to escape summer's heat, engage in recreation, or capitalize on commercial aspects. Economic drivers often turned early industrial activities into recreational ones – with the shift of lumber camps and private lodges or residences into recreational ones. Minnesota expanded these opportunities during the years of the Great Depression by expanding its state parks and forest system. After WWI, improving roads, automobile usage, promotion, and perceived increases in leisure time all facilitated a rapid expansion of this context into the precursor of the industry we recognize today.

Example property types specifically mentioned in the context narrative include: seasonal estates; sites associated with boating and fishing; public amenities for tourists; and structures associated with travel to, from, and within the resort area.

An additional short list of example references for this context include the following : Aguar, C. E. (1971) "Exploring St. Louis County's Historic Sites"; Sommer, L. J. (1984) "Duluth Historic Resources Survey: Final Report"; Bulena, G. L.(ND) "Recreation in the Upper Great Lakes Area: a summary of social research"; Heald, S. T. (ND) "History and Development of the Summer Resorts Region"; Sielaff, R. O. (1958) "Economics of the vacation and travel industry in nineteenth century northern Minnesota counties"; numerous National Register Nominations for resort/recreation properties.

In Dakota County, a site was recently added to the archaeological record that can relate to this context - specifically 21DK100 a pre-1956 cabin located on the shores of Orchard Lake. Although there are no other historic archaeological sites per se that directly are connected to this context, conversation with Dakota County Historical Society staff and other informants could certainly show several instances of tourism and attractions being specifically set up in the County to attract individuals from the core of the Twin Cities and beyond. These could include both hunting/fishing/recreational activities as well as road side attractions, park areas, etc. This could be a prime area for increasing archaeological knowledge in the County.

Urban Centers (1870-1940)

Overlapping with the previous context is a more narrow understanding of a few places within Minnesota that became centers for economic and political activity that then cast their shadows over the entire region. There is, of course, a series of scaling points for these urban centers and often these represent geographic accommodations with the understanding that there can be only so many centers to which the surrounding periphery can be attached and drawn in. Similarly, these locations become increasingly non-residential and more the place that individuals travel to and from during their work day, be that political, commercial, educational, etc. Indeed, this set of dynamic movements, as they are called, between residence and workplace / work and leisure, are some of the center characterizations identified by SHPO in writing this context.

In considering Minnesota, therefore, one can easily see the two-tiered network of urban centers in the State with the Twin Cities of St. Paul and Minneapolis representing the political and economic heart of the State, Duluth its primary artery, then smaller communities of St. Cloud, Mankato, Rochester, etc. representing the second rung of urban life.

Property types here shift somewhat from those of early agricultural work and railroad development to highlight the dynamic movements discussed above. Therefore, this new set of properties include office buildings, factories, government buildings, police and fire stations, streetcar lines, etc.

An additional short list of example references for this context include the following: Brochert, J. R. (1989) "Network of Urban Centers" in *Minnesota a Century of Change*, edited by C. E. Clark; Hess, Jeffrey A. (1987) *History and Architecture of St. Paul, 1840-1985*; Martin, J. and D. Lanegran (1983) "Where We Live"; Olson, R. L. (1976) "The Electric Railways of Minnesota"; Pizza, A.C. (2013) *Documenting Minnesota's Nineteenth-Century Masonry Ruins*, and Westrooks, N. (1983) "A Guide to the Industrial Archaeology of the Twin Cities".

In Dakota County, similar to the other historic contexts, sites directly associated with the expansion of South Saint Paul could be included in association with this context. As Dakota County continues to expand and be incorporated more fully into the larger urban center of the Twin Cities, local histories, including those around transportation and agricultural/stockyard production to feed that growth, could be incorporated into the larger narrative of the region as a whole and bear research and archaeological understanding.

Institute for Minnesota Archaeology site files and reports for Dakota County

The following is a listing of folders, correspondence, and reports from the IMA that are currently in the possession of State Archaeologist's office. Potentially, these materials represent an area for continued research as well as archaeological materials if any materials for the County remained in the IMA at the time of its dissolution and have not been officially transferred to MHS or another entity. They are listed by Report of Investigation or ROI.

ROI #78

Pratt, D. R.

- 1990 A Phase I Archaeological Survey of the Casperson Park Development Property, (Dakota County). Folder with Notes and Correspondence

ROI #213

Johnson, C. M.

- 1992 Phase I Cultural Resources Investigation in Eagan Township, Dakota County, Minnesota. Folder with Correspondence and notes

ROI #470

Breakey, K. and R. Schirmer

- 1997 A Discussion of Cultural Resources Along Two Proposed Pipeline Routes: Minnesota and Wisconsin. Folder with correspondence and notes

Murray, M. L.

- 2002 The Proposed Glendale Heights Residential Development in the City of Hastings, Dakota County, Minnesota. An Archaeological Reconnaissance (Phase I) Survey. IMA Consulting Report No. 02-04. Folder with notes and correspondence

ROI #529

Mathys, A.

- 1998 A GPS Survey at the Pilot Knob Road Cemetery for the City of Apply Valley, Minnesota. Folder with correspondence and notes.

ROI #621

Fassler, T. W.

- 2000 Phase I Cultural Resources Investigation of Orrin Thompson Homes Property at Lakeville, Dakota County, Minnesota. Folder with Notes and Correspondence

Literature Review for Beacon Hills Planned Unit Development – negative results. Folder has correspondence and notes.

Literature Review for Lundgren Bros. N1/2 of Sec. 19, T. 114N, R 20 W, City of Lakeville, Dakota County –negative results. Folder has correspondence and notes.

Literature Review for Tigh Property – negative results. Folder has correspondence and notes.

Dakota County Related Articles in the Minnesota Archeologist

The *Minnesota Archaeologist* is Minnesota's only archaeological journal. It has been published by the Minnesota Archaeological Society since 1936. The following articles are related to Dakota County or Fred Lawshe. An index pdf article for 1936 to 2011 as well as information on their other publications is available at: <http://mnarchsociety.org/publications.html>

Christianson, Diane

1964 The Black Dog Village 26(3, July):91-93

Fleming, Edward P. & Travis Hager

2010 Archaeological Investigations at the Ranelius Site (21DK04), Dakota County, Minnesota, 1954-1955 and 2010 69:53-96

Johns, Verlan R., Katherine Johns, Susan Queripel, Ted Lofstrum

1977 An Early Nineteenth Century Occupation of Pike Island, Dakota County, Minnesota: Discovery of the Site 36(2, July):50-60

Lawshe, F. E.

1947 The Mero Site, Diamond Bluff, Pierce County, Wisconsin 13(4, October):74-95

1950 The efficiency of Stone Age Tools 16(4, October):3-11

1954 Faking, An Old Archaeological Pastime 19(2, April):4-16

Wilford, Lloyd A.

1944 Indian Burials Near Black Dog's Village (a field report) 10(3, July):92-97

Additionally, here are some articles of Minnesota-wide general interest:

Babcock, Willoughby M.

1945 Sioux Villages in Minnesota Prior to 1837 11(4, October):126-146

Bakken, Kent

1997 Lithic Raw Material Resources in Minnesota 56 (Omnibus Issue):49-83

Finney, Fred A.

2001 An Introduction to the Northwestern Archaeological Survey by Theodore H. Lewis 60:13-29

Fiske, Timothy

1966 Historical Sites Archaeological Survey 28(4):145-192

Kachelmyer, Clement P., P.E.

1984 Minnesota Department of Transportation Involvement in Archaeology 43(2, Fall/Winter):4-6

Keys, Charles R.

1977 The Hill-Lewis Archaeological Survey (reprint) 36(4, December):146-154

Lass, Barbara

1980 Radiocarbon Dates from Minnesota Archaeological Sites to 1979 39(1, February):29-39

Lewis, T. H.

1936 Mounds of the Mississippi Basin (reprint) 2(7, July):1-5

1937 Ancient Mounds of Minnesota (reprint) 3(10, October):82-84

Lofstrum, Edward W.

1976 An Analysis of Temporal Change in a 19th-Century Ceramic Assemblage from Fort Snelling, Minnesota 35(1):16-47

Lofstrum, Ted, Jeffrey P. Tordoff & Douglas C. George

1982 A Seriation of Historic Earthenware's from the Midwest, 1780-1870 41(1, Spring/Summer):3-29

Lothson, G. A.

1967 The Distribution of Burial Mounds in Minnesota 29(2):29-47

Nute, Dr. Grace Lee

1949 Posts in the Minnesota Fur-Trading Area, 1660-1855 (reprint) 15(3, July):61-79

Stubbs, Donna L. & Charles O. Diesen

2001 A History of the Archaeological Collections of the Minnesota Historical Society 60:37-44

Archaeological Reference Materials for Dakota County available at the Office of the State Archaeologist and/or the State Historic Preservation Office

(Note: this is done by year and not alphabetical author - to better represent the archaeological chronology of the County).

Wilford, L. A.

1944 Indian's Burials near Black Dog's Village

Powell, L. H.

1955 Spring Lake Archeology: Point Profiles

Johnson Elden., and P.S. Taylor

1956 Spring Lake Archeology: The Lee Mill Cave

Johnson, Elden

1959 Spring Lake Archeology: The Sorg Site

Johnson, Loren

1964 A Preliminary Report on the Archaeological Explorations on the Site of Cantonment New Hope, 21DK24

1964 A Report on the Archeological Explorations on the Site of Cantonment New Hope (21DK24), Minnesota

Werner, R.O.

1974 Burial Places of the Aborigines of Kaposia

Woolworth, N. L.

1975 An Historical Sketch of Government Lot No. 10, Section 35, South St. Paul, Minnesota

1975 A Historical Sketch of the CF Industries Waste Disposal Area in Sections 17 & 20, Rosemount Township, Dakota County, Minnesota

Woolworth, A.R.

1975 An Archaeological Survey of the CF Industries Waste Disposal Site, Pine Bend, Dakota County, Minnesota

1975 An Archaeological Survey of the Packer Terminal Area, South St. Paul, Minnesota

1976 An Archaeological Survey of the Koch Refinery Barge Slip Area, Pine Bend, Dakota County, Minnesota

Waitkus, B. and B. S. Swanson

1976 Field Notes: Alimagnet Park, Apple Valley, Minnesota

Woolworth, N. L.

1976 A Historical Sketch of Section 18, Township 115N, Range 18W of the 5th Prime Meridian, Rosemount Township, Dakota County, Minnesota

Hudak, G. J.

1977 Cultural Resources Investigation Along the Vermillion River at Hastings, Minnesota

Peterson, L. D.

1977 Investigations of the Black Dog Village and Burial Site (MNDOT SP1925-11) for TH 36 Disposal and Borrow Pit Area on Vogelpahl Property (Report and Addendum)

- Salkin, P.H.
1978 A Preliminary Archaeological Survey of a Proposed Recreational Development and Fish and Wildlife Enhancement Project in Lake Rebecca, Hastings.
- Gibbon, G. E.
1980 Archaeological Survey of Lac du Bois Corporation Property, Burnsville, Dakota County, Minnesota.
- Hudak, G. J.
1980 An Archaeological Reconnaissance Survey of the Foxborough Subdivision, Dakota County, Minnesota.
- Helmen, V. R.
1980 Apple Valley Archaeological Survey
1982 Archaeological Survey of the Proposed Comserve Office Site, Dakota County, Minnesota
- Lothson, G. A.
1984 Phase I Archaeological Survey and Testing of the Greenhaven Village Complex, Burnsville, Minnesota.
1985 Phase I Archaeological Survey and Testing of the Keller Lake Residential Complex, Burnsville.
- Overstreet, D. F.
1986 Archaeological Survey of the Proposed Brackett's Townhomes Site, Dakota County, Minnesota.
- Lothson, G. A.
1987 A Final Archaeological and Recommendations Report for the Ice House-Carriage House Structure, Sibley House Historic Site Complex (21DK31), Mendota, Minnesota (Preliminary)
1987 An Preliminary Archaeological and Recommendations Report for the Ice House-Carriage House Structure, Sibley House Historic Site Complex (21DK31), Mendota, Minnesota (Preliminary)
- Hudak, G. J.
1989 Phase I Archaeological Reconnaissance Survey Proposed Rottlund IGH Development, Inver Grove Heights, Dakota County, Minnesota.
- Emerson, P.
1990 MN DNR Trails And Waterways Unit Water Access Program Cultural Resource Review - Preliminary Report: Mississippi River/ South ST. Paul Public Water Access.
- Pratt, D. R.
1990 A Phase I Archaeological Survey of the Casperson Park Development Property, Dakota County, Minnesota.
- Hudak, G. J.
1990 Phase I Archaeological Reconnaissance Survey, Proposed Rottlund IGH Development, Inver Grove Heights, MN, Dakota County.
- Halloran, T.
1990 Phase I Archaeological/Geoarchaeological Reconnaissance Survey of the 113th Street Interchange, Burnsville, Minnesota.
- Johnson, C.
1991 Phase I survey, Ft. Snelling State Park (Letter Only)

- Breakey, K. C.
 1992 Preliminary Investigations on the Utecht Property, City of Eagan, Dakota County, Minnesota.
- Johnson, C. M.
 1992 Phase I Cultural Resources Investigation in Eagan Township, Dakota County, Minnesota
- Peterson, L.
 1993 Survey Report: History/Architecture, Minnesota Trunk Highway Archaeological Reconnaissance Survey (MNDOT SP1901, 1908, 1918).
- Harrison, C.
 1993 Cultural Resources Survey, Dakota County Airport Study Area (Vol. 1: The Archaeological Record).
- Ketz, A.
 1993 Archaeological Reconnaissance Survey, Spring Lake Park Reserve, Dakota County Parks Department, Hastings, Dakota County.
- Birk, D. A.
 1993 The Henry Sibley Site Complex (21DK31) Brick House Archaeological Project: Exterior East Wall Investigations, 1993.
- Granger, S. and S. Kelly
 1994 Finding of Adverse Effect Section 106 Review of Properties Along I-35W.
- 106 Group
 1994 Soo Line Abandonment from Mile Post 160.7 To 164.9 Dakota County, Minnesota.
- Roise, C., S. Rounds, C. De Miranda, and C. Harrison
 1994 Intensive Level Cultural Resources Survey, Dakota County Airport Site 3, Archaeology and the Built Environment
- 106 Group
 1995 Determination of Eligibility for Three Houses Along CSAH 50 in Lakeville, Minnesota.
- Sargent, C.
 1995 Letter Report: Cultural Resources Reconnaissance Survey for Homart Retail Center
- Rickers, C. S.
 1995 The Farmsteads of Vermillion Township – A Study of Settlement and Building Site Patterns in Dakota County, Minnesota, 1854-1880. Masters of Arts Thesis. Anthropology Department University of Minnesota.
- Teigrob, R., A. Schmidt, and S. Meyer
 1995 CSAH 50 Reconstruction Phases I and II Cultural Resources Survey, Lakeville and Farmington, Dakota County.
- Groetze, E., and J Warner
 1995 Phase I Survey of the Naas Property for American Bank, National Association Burnsville, Minnesota.
- Maki, C., A. Gronhovd, J. Sluss and C. Johnson
 1995 Phase I and II Cultural Resources Investigation along the CSAH 42 Corridor (from Co. Rd. 87 to TH 61), Dakota County, Minnesota.

- Sluss, J. and S. Morris
 1995 CSAH 31 Corridor Study: Cultural Resources Investigation from Co. Rd. 50 to CSAH 33, Dakota County, Minnesota.
- Vogel, R. C.
 1995 Cultural Resources Reconnaissance Survey of the Minnesota Veterans Home Bikeway Segment, City of Hastings, Dakota County, Minnesota.
- Meyer, S. B.
 1996 Letter Report: Update on Archaeological Investigations; Spring Lake park, Dakota County, Minnesota.
- Clouse, R. A.
 1996 Preliminary Report on Archaeological Investigations at the Leduc Carriage House, Hastings, Minnesota.
- Harrison, C.
 1996 Cultural Resources Survey, Dakota County Airport Study Area: The Archaeological Resources and Intensive-Level Cultural Resources Survey Dakota County Airport Site 3 Archaeology and the Built Environment (Addendum to Volume I).
- Vogel, R. and D. Stanley
 1996 Archaeological Reconnaissance Survey of the Minnesota Veterans Home Bikeway Segment near Lake Isabelle in the City of Hastings, Dakota County, Minnesota.
- Clouse, R. A.
 1996 Interim Report on the Archaeological Excavations at the American Fur Company District Headquarters/Henry H. Sibley House (21DK31) Mendota, Minnesota.
- Henning, D.
 1996 Archaeological Site Locations in the City of Hastings, Dakota County, Minnesota. A Study of Predictive Modeling in an Urban Environment.
- Skaar, K.
 1996 Preliminary Project Report MNDNR Public Water Access South St. Paul/Mississippi River.
- Clouse, R. A.
 1997 Interim Report on Archaeological Excavations at the American Fur Company District Headquarters/Henry H. Sibley House (21 DK 31), Mendota, Minnesota.
- Sluss, J. and C. Malmquist
 1998 A Phase I Archaeological Investigation of Future County Road 46 (CSAH 46), and Phase II Evaluation of the Gopher Ordnance Works, Dakota County, Minnesota.
- Sigrid, A.
 1998 Archaeological Data Recovery at the Le Duc-Simmons Historic Site (21DK62) Carriage Barn/ Worker's Quarter's Hastings. Dakota County, Minnesota.
- The 106 Group
 1998 Phase I Cultural Resources Survey for the Oakbrooke Development Project by Pulte Homes. City of Eagan, Dakota County, Minnesota.
- George, D.
 1999 Minnesota State Park Cultural resources Management Program Dredge Spoil Site Project, Fort Snelling State Park, Dakota County, Minnesota.

- McFarlane, J.
 1999 Phase I Cultural Resources Investigation of the Proposed Hedberg Aggregates Sand And Gravel Mining Operation in Portions of Empire Township, Dakota County T114N R19W Section 24.
- Clouse, R. A.
 1999 Archaeological Investigations at the Hypolite Dupuis House, Mendota, MN.
- Perkl, B. E.
 1999 Phase I Cultural Resource Survey for the Augusta Shores Development. Mendota Heights, Dakota County, Minnesota.
- Walter J. S. and G. Walter
 1999 Phase I Cultural Resources Investigation of the Pahl Dredge Disposal Site Access Road, Dakota County, Minnesota.
- Harrison, C.
 2000 Report on Cultural Resource Reconnaissance Conducted in Connection with the "Northwest Expansion Area" AUAR (Alternative Urban Areawide Review), City of Inver Grove Heights, Dakota County, Minnesota.
- Fassler, T. W.
 2000 Phase I Cultural Resources Investigation of Orrin Thompson Homes Property at Lakeville, Dakota County, Minnesota.
- Jennifer S. and G. Walter
 2000 Phase I Cultural Resources Investigation of the Pahl Dredge Disposal Site Access Road, Dakota County, Minnesota.
- 106 Group
 2000 Phase I Cultural Resources Reconnaissance Survey for the Proposed Interstate 35 (I-35)/185th street Interchange Ramps Lakeville, Dakota County, MN.
- Stubbs, D. and A. Ollendorf
 2000 Cultural Resources Management Investigation: Murphy Farm Residential Development, Farmington, Dakota County, Minnesota. Phase I Investigation.
- Skaar, K. A.
 2000 Minnesota Department of Natural Resources Trails and Waterways Cultural Resources Program. Preliminary Project Report. MNDNR and Waterways Unit Public Fishing Pier. Schwanz Lake / Trapp Farm Park, Dakota County.
- Litwinionek, L.
 2001 Phase I Archaeological Survey for the Blue Cross/Blue Shield of MN Main Campus Expansion Project AUAR, Eagan, Dakota County.
- Stark, W. E. and A. Vermeer
 2001 Cultural Resources Assessment for the Blue Cross/Blue Shield of Minnesota Main Campus Expansion Project, Alternative Urban Areawide Review (AUAR), Eagan, Dakota County, Minnesota.
 2001 Cultural Resources Assessment for the Cedar Grove Redevelopment Alternative Urban Areawide Review (AUAR), Eagan, Dakota County, Minnesota.
- Skaar, K. A. and M. Magner
 2001 MnDNR Trails and Waterways Cultural Resources Program - Project Survey Report - MnDNR Trails and Waterways Unit, City of Mendota Heights, Rogers Lake Fishing Pier, Dakota County.

- 2001 MNDNR Trails and Waterways Unit City of Mendota Heights Rodgers Lake Fishing Pier Dakota County.
- Harrison, C.
2002 Report on Archaeological Reconnaissance Survey Along Proposed Segment of North Urban Regional Trail (Thompson County park to Kaposia Park), Cities of West St. Paul and South St. Paul, Dakota County, Minnesota.
- Lyon, M. and H. Ekstrom
2002 Phase I Archaeological Survey for the Empire Wastewater Treatment Plant Expansion and Outfall Project in Dakota county, Minnesota.
- Terrell, M.
2002 Phase I Archaeological Survey for the Cedar Grove Redevelopment AUAR, Eagan, Dakota County.
2003 A Historical, Cultural and Archaeological Evaluation and Determination of Eligibility of Pilot Knob for the Proposed "The Bluffs of Mendota Heights" Development, Mendota Heights, Dakota County, Minnesota.
- Emerson, P. M.
2003 Report of Archaeological Reconnaissance Survey: Chub Lake WMA Parking Area.
- Woolworth, A.
2003 The Scenic, Historical, and Cultural Heritage of Pilot Knob, and Mendota, at the Mouth of the Minnesota River.
- Harrison, C.
2003 Report on Archaeological Reconnaissance Survey Conducted for the General Sieben Drive Bridge Project, City of Hastings, Dakota County, Minnesota.
- Harrison, C.
2004 Report on Cultural Resource Reconnaissance Conducted in Connection with the "Northwest Expansion Area" Auar (Alternative Urban Areawide Review), City of Inver Grove Heights, Dakota County, Minnesota.
- Nienow, J. L.
2004 2003 Archaeological Investigations, The William G. LeDuc-Carroll Simmons Historic Site (21DK62) Hastings, Dakota County, Minnesota.
- Wilson, J. F. and K. Breakey
2004 2004 Data Recovery at the Sibley Caretaker and Well House (21DK31), Mendota, Dakota County, Minnesota.
- The 106 Group
2005 Heritage Village Park, Inver Grove Heights, Dakota County, Minnesota. Cultural Resources Overview.
2005 Phase I Archaeological Survey for the Proposed Schaar's Bluff Cultural Center at Spring Lake Park Reserve, Nininger Township, Dakota County, Minnesota.
- Gonsior, L.
2006 Cultural Resource Reconnaissance Survey for a Proposed Trail Reroute Project, Brustle Farmstead Segment, Dakota County, Minnesota.
- Gronhovd, A., G. Day, S. Andrews and D. Simpson
2006 1996 and 1998 Archaeological Excavations at the Sibley House.

- Vermeer, A
 2006 Letter Report: Cultural Resources Review for T-Mobile Project No. A1Q853, Mendota Heights, Dakota County, Minnesota.
- Mendota
 2006 Letter Report: Cultural Resources Review for T-Mobile Project No. A1Q852, Mendota Heights, Dakota County, Minnesota.
- Allan, S. and M. A. Magner
 2007 Report of Archaeological Reconnaissance Survey: Proposed Parking Lot Development in the Vermillion Highlands WMA. Dakota County, Minnesota.
- Gronhovd, A.
 2007 Phase I Cultural Resource Survey of the New Cedar-High Bridge/Black Dog/St. Paul 1Q/Eagan 1A TBS for the Northern Lights Pipeline Project Dakota County, Minnesota.
- Buhta, A. A.
 2007 Cultural Resources Monitoring of Construction Activities at Northern Natural Gas Company's New Cedar-High Bridge/Black dong/St. Paul 1Q/Eagan 1A Town Border Station, Eagan, Dakota County, Minnesota.
- Bielakowski, A
 2007 Archaeological Monitoring for Saint Peter's Church and Cemetery Road Reconstruction Project, Mendota, Dakota County, Minnesota.
- Dickson, R.
 2008 Phase I Archaeological Survey in Response to a Proposed Cell Tower Located at 17185 Valley Road, Eden Prairie, Minnesota 55346.
- Terrell, M. M. and D. J. Eigenberger
 2008 Hypolite DuPuis House (21DK31): 2000 Archaeological Investigations, Mendota, Dakota County, Minnesota.
- 106 Group
 2009 Phase IA Archaeological Survey for the Umore Park Sand and Gravel Mining Environmental Review Services, Dakota County, Minnesota.
 2009 Additional Phase IA Archaeological Survey for the Umore Park Sand and Gravel Mining Environmental Review Services, Dakota County, Minnesota.
- Allan, S. and M. A. Magner
 2009 Cultural Recourse Reconnaissance Survey for Proposed Vermillion River Channel Restoration. Dakota County, Minnesota.
- Terrell, M. M.
 2009 Phase I and II Archaeological Investigations for the Trunk Highway 61 Hastings Bridge Project, Dakota and Washington Counties, Minnesota Addendum Report: Excel Energy Parcel.
- Terrell, M. M. and M. L. Porwoll
 2009 Phase I Archaeological Survey for the Canada Avenue Bridge Project Waterford Township, Dakota County, Minnesota.
- The 106 Group
 2010 Phase IA Archaeological and Architectural History Survey for the Umore Park Research Wind Turbine Project, Dakota County, Minnesota.
- Allan, S. and M. A. Magner
 2010 Cultural Resource Reconnaissance Survey for Proposed Parking Lots in the Vermillion River AMA. Dakota County Minnesota.

- Boden, P.
2010 Phase Ia Literature Review for the Xcel Energy Proposed Black Dog Repower Project, Dakota County, Minnesota.
- Nienow, J. L.
2010 Letter Report: Public Archaeology at the LeDuc Historic Estate, Dakota County, Minnesota.
- Michael, J.
2010 Archaeological Reconnaissance Survey for Proposed Transmission Structure 61 Replacement.
- Schoen, C.
2011 Phase II Archaeological Investigations of Site 21DK85 for the Proposed Rosemount Park and Ride Facility, Dakota County, Minnesota.
- Doperalski, M., S. Van Erem, G. Mathis, and K. Ohland
2011 Phase I Cultural Resources Survey for the Northern Lights Ventura III (VN3) Project Rosemount Junction to Cedar Avenue Loop (Rosemount Junction) Dakota County, Minnesota.
- Allan, S. and M. A. Magner
2011 Cultural Resource Reconnaissance Survey for Proposed Vermillion River Habitat Improvements. Dakota County, Minnesota. Minnesota Historical Society Archaeology Department.
- Aulwes, G. and A. Jenkins
2011 Phase I Cultural Resource Survey for the Vermillion River Bike Trail.
- Fleming, E.
2011 Letter Report: Summary Report for the Science Museum of Minnesota's Investigation of the Ranelius Site (21DK04) in the Spring Lake Park Preserve, Dakota County.
- Harrison, C.
2011 Phase I Archaeological Review for the Mississippi River Regional Trail: Pine Bend Segment, Inver Grove Heights, Dakota County, Minnesota.
2011 Addendum to Phase I Archaeological Review for the Mississippi River Regional Trail: Pine Bend Segment, Inver Grove Heights, Dakota County, Minnesota: Phase I Archaeological Review of Department of Natural Resources Scientific and Natural Area Parcels to be Traversed by the Proposed Trail.
- Varilek, T. and L. Ollila
2011 Letter Report: Cultural Resources Review for T-Mobile Project No. A1Q631, Eagan, Dakota County, Minnesota - T27N, R23W, S27.
- Schoen, C. M.
2011 Phase II Archaeological Investigations of Site 21DK85 for the Proposed Rosemount Park and Ride Facility. Dakota County, Minnesota.
- Nienow, J. L.
2012 Letter Report: Inver Hills Community College's Anthropology 2120: Archaeology Field Experience Course, Shovel Testing at the LeDuc Property (21DK62).
2012 Report and Recommendations on Cultural Resources within the Lebanon Hills Regional Park, Dakota County, Minnesota.

- Fleming, E.
 2012 Summary Report of the 2011 Joint Science Museum of Minnesota/University of Minnesota Investigation of the Bremer Habitation Site (21DK06) in Spring Lake Park Reserve, Dakota County.
- Gronhovd, A.
 2012 Letter Report: Background Research and Fieldwork at the "Fossil Grounds" Lilydale Regional Park, Dakota County, Minnesota.
- Allan, S. and M. A. Magner
 2013 Cultural Resource Reconnaissance Survey for Proposed Vermillion River Bank Stabilization. Dakota County, Minnesota. Minnesota Historical Society, Archaeology Department.
- Hodgson, J. G. and T. Kirwan
 2013 Phase I Archaeological and Cultural Resource Investigation Results, Proposed Flint Hills Project Natural Gas Project, Rosemount and Vermillion Townships, Dakota County, Minnesota.
- Hodgson, J. G.
 2013 Letter Report: Addendum Phase I Archaeological and Cultural Resources Investigation Results, Proposed Rosemount Loop and Rosemount Loop Meter Station Project, Rosemount Township, Dakota County, Minnesota.
- Nienow, J. L.
 2013 Archaeological Literature Review for the Mississippi River Trail Project.
- Fleming, E. P.
 2013 Summary Report of the 2012 joint Science Museum of Minnesota/University of Minnesota Investigation of the Bremer Habitation Site (21DK06).
- Legge S. S. and E. P. Fleming
 2013 Phase I Survey of Macalester College's Katharine Ordway Natural History Study Area, Inver Grove Heights, Dakota County, Minnesota.
- Allan, S. and M. A. Magner
 2014 Cultural Resource Reconnaissance Survey for Divestiture of the Orchard Lake AMA. Dakota County, Minnesota. Minnesota Historical Society Archaeology Department.
- Fleming, E. P.
 2014 Letter Report: 2013 Joint Science Museum of Minnesota/University of Minnesota Investigation of the Bremer Habitation Site (21DK06).
- Florin, F. and M. Bradford
 2014 Phase I Archaeological Survey of a Proposed American Tower Collocation Project: Inver Grover Heights, Site No: 305802, Dakota County, Minnesota.

References Cited in Report Narratives and / or Tables not otherwise included in the OSA and SHPO database

- 106 Group
2007 Phase I and II Cultural Resource Survey for the Minnesota Pipeline Company's MinnCan Pipeline, Clearwater, Hubbard, Wadena, Todd, Morrison, Stearns, Meeker, Wright, McLeod, Carver, Sibley, Scott, and Dakota Counties, Minnesota.
- Aguar, C. E.
1971 Exploring St. Louis County's Historic Sites. State Historic Preservation Office.
- Anderson, G. C.
1984 *Kinsmen of Another Kind*. Minnesota Historical Society, St. Paul, Minnesota.
- Andreas, A. T.
1874 *An Illustrated Atlas of the State of Minnesota*.
- Anfinson, S.
1981 Annual Report, Minnesota Department of Transportation.
- Archaeological Field Services, Inc.
1979 A Cultural Resources Records Check and Archaeological Investigation of the Minnesota River Valley Refuge Lands.
- Berg, W. G.
1907 *Buildings and Structures of American Railroads*. Wiley & Sons, New York, New York.
- Bloomberg, B.
1979 Historic Resources of Scott County. Multiple Resource Area Nomination. State Historic Preservation Office.
- Branam, K. M.
2010 Survey to Identify and Evaluate Indian Sacred Sites and Traditional Cultural Properties in the Twin Cities Metropolitan Area. St. Cloud State University. Office of the State Archaeologist website
<http://www.osa.admin.state.mn.us/documents/MetroSacredPlaces.pdf>
last accessed on 4/24/15.
- Brochert, J. R.
1989 Network of Urban Centers" in *Minnesota a Century of Change*, edited by C. E. Clark. Minnesota Historical Society Press, St. Paul, Minnesota.
- Caspers, J.
1980 Compendium History of the Dugout and Sod House in Minnesota.
- Clouse, R.
1998 Interim Report on Archaeological Excavations at the American Fur Company Headquarters (21DK31) Mendota, Minnesota; Archaeological Excavations at the Hypolite DuPuis House (1999).
- Crooks, W.
1905 The First Railroads in Minnesota. *Minnesota Historical Collections*, Vol. 10, part 1, pp. 445-48
- Bulena, G. L.
1961? Recreation in the Upper Great Lakes Area: a summary of social research. State Historic Preservation Office.
- Eigenberger, D.
2013 Phase I Archaeological Reconnaissance Survey for the Chub Lake Substation to

Hampton Substation Segment of the CapX2020 Brookings County to Hampton
345 kV Transmission Line Project.

- Frame, R. M. III
1977 *Millers to the World: Minnesota's Nineteenth Century Water Power Flour Mills.* State Historic Preservation Office.
1989 *Grain Elevator Design in Minnesota.* National Register of Historic Places Multiple Property Documentation Form. State Historic Preservation Office.
- Gibbon, G.
2003 *The Sioux.* Blackwell Publishing, Malden, Massachusetts.
2012 *Archaeology of Minnesota.* University of Minnesota Press, Minneapolis, Minnesota.
- Gibbon, G. and S. Anfinson
2008 *Minnesota Archaeology the First 13,000 Years.* Department of Anthropology, University of Minnesota, <http://anthropology.umn.edu/labs/wlnaa/first/> website last accessed 4/24/2015.
- Gilman, R.R.
2004 *Henry Hastings Sibley: Divided Heart.* Minnesota Historical Society Press, St. Paul, Minnesota.
- Gronhovd, A.
2006 *Phase I Cultural Recourse Survey of Previously Recorded Sites and Areas with High Potential for Archaeological Sites for the Northern Lights Pipeline Project,* Minnesota.
- Heald, S. T.
ND *History and Development of the Summer Resorts Region.* State Historic Preservation Office.
- Helmen, V. R.
1963 *Salvage Archaeology at the Science Museum.* *Minnesota Observer* 3(2):10-12.
- Hess, J. A.
1987 *History and Architecture in St. Paul, 1840-1985.* State Historic Preservation Office.
- Hess, J. A., and P. C. Larson
2006 *St. Paul's Architecture: A History.* University of Minnesota Press, Minneapolis, Minnesota.
- Johnson, E.
1988 *The Prehistoric Peoples of Minnesota.* Reprint of 1969 original. Minnesota Prehistoric Archaeology Series. Minnesota Historical Society, St. Paul, Minnesota.
- Lofstrom, T.
1981 *Minnesota Statewide Archaeological Survey: Summary 1977-1980.* Minnesota Historical Society, St. Paul, Minnesota.
- Lothson, G. A.
1978 *A Final Archaeological and Recommendations Report for the Ice House-Carriage House Structure Sibley House Historic Site Complex (21DK31) Mendota,* Minnesota, 55150.

- Martin, J. and D. Lanegran
 1983 *Where We Live: The residential districts of Minneapolis and Saint Paul.* University of Minnesota Press, Minneapolis, Minnesota.
- Murphy, P. A. and S. W. Granger
 1981 *Historic Sites Survey of Saint Paul and Ramsey County, 1980-1983, Final Report.* State Historic Preservation Office.
- Neill, E. D.
 1858 *The History of Minnesota.* J. B. Lippincott & Company, Philadelphia, Pennsylvania.
- North Star Publishing Company
 1881 *History of Dakota County Minnesota.* Minneapolis, Minnesota.
- Olson, R. L.
 1976 *The Electric Railways of Minnesota.* Minnesota Transportation Museum, St. Paul, Minnesota.
- Peterson, L. D.
 1974 *The Minnesota Trunk Highway Archaeological Reconnaissance Survey.*
- Pizza, A.C.
 2013 *Documenting Minnesota's Nineteenth-Century Masonry Ruins.* Two Pines Resource Group. Office of the State Archaeologist website
<http://www.osa.admin.state.mn.us/documents/> last accessed 4/24/15
- Radford, D. S. and D. C. George
 1991 *Minnesota State Park Cultural Resource Management Program Annual Report.*
 1992 *Minnesota State Park Cultural Resource Management Program Annual Report.*
 1993 *Minnesota State Park Cultural Resource Management Program Annual Report.*
- Radford, D. S. et al
 1998 *Minnesota State Park Cultural Resource Management Program Annual Report.*
- Shaw, T.
 2007 *1820s Sketch of "New Hope" Discovered by Thomas Shaw.* The Fort Snelling State Park Association.
- Sielaff, R. O.
 1958 *Economics of the vacation and travel industry in nineteen century northern Minnesota counties.* Iron Range Resources and Rehabilitation Commission, Minnesota Arrowhead Association. Minnesota.
- Sommer, L. J.
 1984 *Duluth Historic Resources Survey: Final Report.* State Historic Preservation Office.
- Stover, J. F.
 1970 *The Life and Decline of the American Railroad.* Oxford University Press, New York, New York.
- Reeves, W.
 ND *St. Paul Boy Discovers Indian Munition Plan at Pine Bend.* St. Paul Pioneer Press, July 31st, 19**
- Vermeer, A. et. al.
 2008 *Phase I Cultural Resources Survey for the Northern Natural Gas Company's Proposed Northern Lights 2009-2010 Zone EF Expansion Project, Anoka, Carver, Dakota, Freeborn, Hennepin, Rice, Washington, and Wright Counties, Minnesota.*

Westrooks, N.

- 1983 A Guide to the Industrial Archaeology of the Twin Cities. Prepared for the 12th Annual conference of the Society for Industrial Archaeology in Minneapolis, MN. Society for Industrial Archaeology.

Willoughby M.

- 1945 Sioux Villages in Minnesota Prior to 1837. *Minnesota Archaeologist* Vol. XI:4 pp. 126-147.

Winchell, N. H.

- 1911 *The Aborigines of Minnesota*. Minnesota Historical Society.