Appendix H

Phase Ia Literature Review and Natural Heritage Information System Review Request

A summary of findings is available in Sections 8.7 and 8.21 of the Application.

Northern States Power Company
Grand Meadow Wind Farm Repower Project
Docket No. IP-6646/WS-07-839
May 2021

PUBLIC DOCUMENT - NONPUBLIC DATA HAS BEEN EXCISED

Xcel Energy, Inc.

Phase Ia Literature Search for the Grand Meadow Wind Farm Repower Project

Mower County, Minnesota

PREPARED BY

Merjent, Inc.
1 Main Street SE, Suite 300
Minneapolis, Minnesota 55414

Kevin Mieras

Michael Madson, MS, RPA
Principal Investigator

February 2021

TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

ACRONYM LIST

BCE	before common era
BLM	Bureau of Land Management
CE	Common era
GIS	Geographic Information System
GMC	Grand Meadow Chert
Merjent	Merjent, Inc.
MHS	Minnesota Historical Society
MnDNR	Minnesota Department of Natural Resources
MnDOT	Minnesota Department of Transportation
MnSHPO	Minnesota State Historic Preservation Office
NPS	National Parks Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSA	Office of the State Archaeologist
PLSS	Public Land Survey System
Project	Grand Meadow Wind Farm Repower Project
Xcel	Xcel Energy, Inc.

EXECUTIVE SUMMARY

Xcel contracted with Merjent, Inc. (Merjent) to conduct a Phase Ia literature search of the Project area and 1-mile buffer consisting of 23,287 acres. In February 2021, Merjent conducted the literature review of cultural resources reports, archaeological sites, and historic architectural sites provided by the Minnesota State Historic Preservation Office and Minnesota Office of the State Archaeologist, as well as 19th century General Land Office maps, Trygg Historical Maps, and historic aerial photography.

The literature review identified six cultural resources reports, one historic architectural inventory, eight archaeological sites, one archaeological site lead, and 11 historic architectural sites. Merjent recommends Phase I archaeological survey in all areas of proposed Project ground disturbance outside of areas that have been previously surveyed. Additionally, no impacts to historic architectural sites have been identified during the initial construction and continued operation of the existing wind farm. If there is physical alteration to a structure or building during the course of construction, then Merjent recommends that Xcel sponsor a Phase II architectural survey of that structure or building to evaluate the resource.

1.0 PROJECT DESCRIPTION

Project description

2.0 LITERATURE REVIEW STUDY AREA

The proposed Project traverses Marshall, Clayton, Grand Meadow, Dexter, and Pleasant Valley Townships in Nobles County, Minnesota (Figure 1). The literature search includes the proposed Project boundary and a 1-mile extension around it; this area encompasses the entire Study Area. The public land survey system (PLSS) locations are listed in Table 2.0-1 and shown as the Study Area on Figure 1.

TABLE 2.0-1

Grand Meadow Wind Farm Repower Project Study Area

Township Name	Township	Range	Sections included in Study Area
Marshall	102N	15W	4-9
Clayton	102N	16W	1, 2, 12
Grand Meadow	103N	15W	2-11, 15-22, 27-34
Dexter	103N	16W	1, 12-14, 23-26, 35, 36
Pleasant Valley	104N	15W	33, 34

3.0 METHODOLOGY

This literature search constitutes an analysis of protected datasets on file at the Minnesota State Historic Preservation Office (MnSHPO) and the Minnesota Office of the State Archeologist (OSA). Merjent archaeologist Erika Eigenberger received the results of a data request of known archaeological sites and historic structures within the Study Area from MnSHPO on February 1, 2021. Due to restricted in-person access at the MnSHPO, copies of previous cultural resources reports on file at MnSHPO are limited to digital copies that can be requested by accession number only. Additional data regarding previous cultural resources surveys was obtained from known archaeological site forms and online resources. Merjent archaeologist Kevin Mieras submitted a request for previous cultural resources reports within the Study Area to MnSHPO on February 8, 2021. MnSHPO provided one report within the request on February 12, 2021. OSA maintains a secured online dataset of known and suspected archaeological sites, which is regularly updated and referenced (OSA Portal). Ms. Eigenberger reviewed the files of the OSA Portal and downloaded copies of all known sites within the Study Area.

Merjent also reviewed 19^{h} century General Land Office (GLO) maps and notes on file with the Bureau of Land Management (BLM, 2021), Trygg Historical Maps (Trygg, 1964), and aerial photographs from 1938 and 1954 on file with the OSA.

Since geographic information system (GIS) shapefiles of archaeological survey locations and archaeological site boundaries are not available from MnSHPO or OSA, Ms. Eigenberger digitized survey (Table 5.1-1) and site locations (Table 5.2-1) based on digital files provided by MnSHPO and available on the OSA portal. Merjent also received a list of historic architectural structures within the requested study area (Table 5.3-1). Merjent digitized structure locations and provided them with this report. Finally, Merjent archaeologist Kevin Mieras reviewed background materials on file at Merjent, and publicly available data sources available online for information about Mower County and the ecological setting of the Study Area.

4.0 ENVIRONMENTAL AND CULTURAL BACKGROUND

As defined by the Ecological Classification System (ECS) developed by the Minnesota Department of Natural Resources (MnDNR) and U.S. Forest Service, the Project is in the Oak Savanna subsection of the Minnesota and Northeast Iowa Morainal section of the Eastern Broadleaf Forest province (MnDNR, 2021a). The Oak Savanna subsection consists of a series of end moraines. It is bounded by a large block of deciduous forest to the north, hardwood forest to the east, moraine ridges to the south, and open prairie to the west.

4.1 TOPOGRAPHY

Topography within the Oak Savanna subsection is generally gently rolling, comprising Late Wisconsin end moraines, small, steep stagnation moraines, and outwash. There are few lakes within the subsection (MnDNR, 2021a).

4.2 HYDROLOGY

The Oak Savanna subsection contains few lakes (MnDNR, 2021a). The portion of the subsection that contains the Project is within the Root River Watershed (NRCS, 2021). The Root River begins om the western edge of the watershed and flows east approximately 80 miles to the Mississippi river. The Root River Watershed drains an area of 1,659 square miles (MnDNR, 2021b).

4.3 GEOLOGY

Bedrock within the Oak Savanna subsection consists of Ordovician and Devonian dolomite covered by up to 100 feet of glacial drift. Bedrock is locally exposed in the eastern edge of the subsection in dissected stream valleys (MnDNR, 2021a; Morey, 1976).

4.4 SOILS

Soils within the Oak Savanna subsection consist of primarily Mollisols, which correlate with flat ridgetops in upland prairie and broad depressions in wetland prairies, and Alfisols which correlate with savanna and forested areas (NRCS, 2021).

Soil series mapped by the NRCS potentially provide clues, but should be recognized as having considerable limitations in archaeological applications (Holliday, 2004). Although these soil types generally have depth and consistently occur on level upland areas, agricultural activities have likely diminished the potential for intact subsurface cultural deposits across the Project area.

4.5 FLORA AND FAUNA

Few remnants of presettlement vegetation remain within the Oak Savanna subsection as agriculture is currently the predominant land use. Presettlement vegetation consisted of mostly bur oak savanna on moraine ridges and dissected ravines with areas of maple-basswood in steep, dissected ravines, and tallgrass prairie on gently rolling portions. Edible plants within the subsection included acorns, prairie turnip, water lily, and other aquatic flora.

Presettlement fauna were dominated by deer, elk, and scattered bison in the uplands. White-tailed deer and small animals were abundant along river valleys. Wetlands and lakes within the subsection provided fish, mussels, and waterfowl. (MnDNR, 2020; Gibbon et al., 2002).

4.6 CULTURAL AND HISTORICAL OVERVIEW

Culturally, the Project is within the Minnesota Archaeological sub-region 3 (Southeast Riverine). The Southeast Riverine region covers the southeast corner of Minnesota in all or part of Dodge, Fillmore, Goodhue, Houston, Mower, Olmsted Wabasha, and Winona counties. (Gibbon et al., 2002).

4.6.1 Pre-Contact Period (10,900 BCE-1650 CE)

The first inhabitants of Minnesota are known as Paleo-Indians (10,900 to 7,500 years Before the Common Era [BCE]). These people were highly nomadic hunter-gatherers, moving in small bands in search of food and other subsistence resources; however, in the Late Glacial and Early Holocene forests of Minnesota, Paleo-Indians likely relied more on gathering and the hunting of a variety of smaller animals. Paleo-Indian sites are small and relatively ephemeral and are commonly identified with the recovery of distinctive spear tips that occur across much of North America (Gibbon et al., 2002).

The Paleo-Indian peoples were followed by Archaic Tradition hunter-gatherers. At the end of the Ice Age, around 10,000 years BCE, the climate became warmer and drier, which led to major changes in plant and animal communities. Spruce forests followed the retreating glacial ice northward and were replaced by a new landscape comprised of extensive lakes and rivers. Many large-game species became extinct.

Archaic Tradition hunters-gatherers (7,500 to 500 BCE) adapted to this new environment, becoming less nomadic and shifting their focus to smaller game such as deer and elk, the abundant fish and shellfish in the numerous lakes and rivers, and wild plants such as nuts and berries (Gibbon et al., 2002). Archaic sites are identified by large notched and stemmed projectile points. Immense sedimentation during the early part of the Archaic, corresponding with the Early and Middle Holocene periods, resulted in many Archaic Tradition sites being deeply buried under river valley deposits; therefore, these sites are not usually evident in surficial contexts (Gibbon et al., 2002).

The Woodland Tradition followed the Archaic Tradition. In Minnesota, the Woodland culture is separated into two periods, the earlier Initial Woodland period (ca. 500 BCE to 500 years into the Common Era [CE]), and the later Terminal Woodland period (500 to 1650 CE) (Gibbon et al., 2002).

The frequent surficial expression of Woodland site locations, coupled with burial mounds that frequently mark their place, has resulted in more frequent documentation and excavation of Woodland sites. Due to this higher frequency of identification, many Woodland sites have also been grouped into specific regional archaeological cultures (Gibbon et al., 2002; Gibbon, 2012).

The Initial Woodland period is primarily marked by the emergence of Pre-contact ceramic traditions and burial mounds. Regional archaeological cultures of the Initial Woodland period include Howard Lake, Malmo, Elk Lake, and Laurel (Gibbon et al., 2002; Gibbon, 2012).

The Terminal Woodland period has been defined throughout eastern and central Minnesota, the Red River Valley, and portions of the Dakotas (Gibbon, 2012). During this time period, populations began to increase, which in turn led to an increase in size and number of Pre-contact sites. Burial mounds became more prevalent and the cultural material artifacts began shifting to smaller, unnotched triangular projectile points and thinner ceramic vessels that were more

globular in shape. Agriculture and wild rice harvests also increased (Gibbon et al., 2002; Gibbon, 2012).

In the northern portion of the state, ceramic types and burial practices indicate specific regional archaeological cultures, including Kathio, Blackduck, and Psinomani. In the southern portion of the state, primarily comprised of deciduous forests and prairie, some cultures adopted the cultivation of maize and the construction of effigy burial mounds (Gibbon et al., 2002; Gibbon, 2012).

Around approximately 1,000 CE, Mississippian populations from Cahokia, near St. Louis, Missouri, began to extend their influence northward into the Upper Mississippi River Valley and evidence suggests that there were attempts at colonization. Archaeologists tend to regard some southern Minnesota Terminal Woodland cultures as the northern expression of a "Mississippian" lifeway, distinguished by distinctive ceramic styles, larger and more diverse artifact assemblages, and evidence of maize production. In southern Minnesota, three Mississippian complexes have been identified: Silvernale, Oneota, and Plains Village (Gibbon et al. 2002). It was the Mississippian peoples in the south, and the Terminal Woodland peoples in the north, who had contact with the first Europeans to explore Minnesota in the mid-17th century (Gibbon et al. 2002; Gibbon 2012).

4.6.2 Contact Period (1650-1837 CE)

The Contact Period includes American Indian and Euro-American contexts. The OSA subdivides the American Indian context into "Indeterminate" or "Eastern Dakota," and the Euro-American context into "Indeterminate," "French," "British," and "Initial US" (OSA, 2009). This section focusses on developing a context for those sites investigated during the project. The remaining information provides a temporal framework as a context.

Euro-American fur traders and settlers encountered the Dakota (also known as Sioux) and Ojibwe (also known as Chippewa) Native American peoples when they moved into traditional lands in what is now Minnesota. Several other Native American tribes, including the Assiniboine moved west in the early 1600s, soon after the explorers and traders entered the region (Holmquist 1981). The Dakota lived in village-centered societies in the southern portion of Minnesota while the Ojibwe were organized into independent migratory bands in the northern portion of Minnesota. (Gibbon, 2012:205). Traditionally, Ojibwe individuals lived in bands and were members of a clan (Roy, 2018).

The first written European accounts about the Ojibwe appeared in Jesuit diaries, published in collected form as the *Jesuit Relations and Allied Documents 1610-1791* (Thwaites 1898) described by Roy (2018). The documents are so detailed in their descriptions of Native Americans and their cultures, they are considered ethnographic accounts. Following the Jesuits, French explorers and trappers traveled portions of Minnesota in the 17th century and established a fur trading economy with local native populations, including the Dakota and Ojibwe. Early trading posts were established along the lower Mississippi River and the first French fort was established in 1700 near present day Mankato. The fur trade resulted in the Ojibwe becoming reliant on traded goods rather than the clothing, utensils, and weapons they had traditionally constructed (Roy 2018).

In the early 18th century, the French began to move their fur trade north into Canada. Over the next 100 years, the Ojibwe and French established strong relationships and the French embraced Ojibwe culture, learned the language, and married into Ojibwe families. Territorial disputes,

competition, and shifts in political alliances eventually led to the French and Indian War (1754-1763). The Ojibwe sided with the French against the British in the final Colonial War, fought between 1689 and 1763, which culminated with the French and Indian War. At the end of the French and Indian War, the 1763 Treaty of Paris resulted in the French ceding all land east of the Mississippi River in the New World to the British (Fond du Lac Band of Lake Superior Chippewa 2018). The French had already ceded the land west of the Mississippi River to Spain with the 1762 Treaty of Fontainebleau, but the transfer was not publicly announced until 1764. The region was retroceded to France, under the terms of the 1800 Third Treaty of San Ildefonso and the 1801 Treaty of Aranjuez, then was transferred to the United States in 1803 by the Louisiana Purchase (World History Project 2018). Although the United States purchased the land, the Dakota, Ojibwe, and several other Native American groups maintained sovereignty, resulting in numerous subsequent treaties with the United States.

After the Treaty of Paris in 1763, the British quickly set up fur trading posts throughout Minnesota. The British fur trading economy was centered at Grand Portage, where traders would bring their furs and leave with other valuable trade goods. Jonathon Carver explored the upper Mississippi River in the 1760s. After the Revolutionary War of 1776, competition between the United States and British companies intensified throughout Minnesota. In 1803, the Louisiana land purchase established United States lands extending from the Atlantic to the Rocky Mountains. The War of 1812 saw a demise in the British fur traders due to the United States denying business licenses to British traders.

Early British and United States citizens conducted the first fully documented land survey of Minnesota in the mid-18th and early 19th centuries. By 1806, Zebulon Pike had explored portions of the Mississippi River. Missionaries began to arrive in the early 19th century, primarily along the Minnesota River. The American Fur Company was founded by John Jacob Astor in 1811, after which numerous fur trading posts were quickly established throughout the state. At the confluence of the Minnesota and Mississippi River, Fort Snelling was constructed in 1819 to protect the new United States' investments in the area. Large-scale fur trade resulted in a major decline in the native beaver populations and by 1842, the fur trade in Minnesota came to an end when the American Fur Company came to its demise (Dobbs, 1989). After the passing of the fur trading industry, land was opened to Euro-American settlers.

5.0 LITERATURE REVIEW RESULTS

In February 2021, Merjent conducted a Phase Ia Literature Review for the Project Study Area. Merjent reviewed archaeological site forms, historic structure forms, and cultural resource reports on file at MnSHPO and OSA. Additionally, nineteenth century GLO maps, Trygg historical maps, and historic aerial photography were reviewed.

Although the Grand Meadow Chert Quarry (21MW0008) is outside the Study Area (Figure 2), lithic procurement sites played an important cultural, social, and economic role for precontact hunter-gatherers. Therefore, the Grand Meadow Chert Quarry provides important information regarding potential site types and lithic materials within the Study Area and is included in this literature review.

5.1 PREVIOUS SURVEYS

Table 5.1-1 indicates that six archaeological inventories and one architectural history inventory were conducted within the Study Area. These studies are associated with the construction of the Grand Meadow, Wapsipinicon, and Prairie Star wind farms (Grohnke et al., 2008; Grohnke and

Mieras, 2008; Kennedy and Jenkins, 2008; MacFarlane and Rothaus, 2007), natural gas pipeline construction (Lyon, et al., 2003), a state sponsored survey (Minnesota Historical Society, 1981), and an architectural history reconnaissance survey (Historic Research Inc). Full copies of Grohnke at al. (2008), Lyon et al. (2003), and MHS (1981) were not accessible, therefore scope and location of these surveys are not provided within this document. Kennedy and Jenkins (2008) is a literature review with no physical survey conducted and Grohnke and Mieras (2008) and McFarland and Rothaus (2007) do not intersect with the Project area. Therefore, survey locations of these investigations were not included within figures for this report.

TABLE 5.1-1

Previous Surveys within the Study Area

Report Number	Report Title	Author/Year	Comments
Unknown	Phase I Cultural Resources Survey of the Grand Meadow Wind Project (South), Mower County, MN	Grohnke, et al./2008	Report title provided within known site forms. Full report not currently accessible
Unknown	Phase I Cultural Resources Survey of the Wapsipinicon Wind Project (North), Mower County, Minnesota	Grohnke and Mieras/2008	Full report provided from public online resources
Unknown	Phase IA Archaeological and Historic Architecture Inventory Report, Grand Meadow (formerly Wapsipinicon) Wind Energy Project, Mower County, Minnesota	Kennedy and Jenkins/2008	Full report provided from public online resources
Unknown	Phase I Archaeological Survey of the Prairie Star Wind Farm, Mower County, Minnesota	McFarlane and Rothaus/2007	Full report provided from public online resources
Unknown	A Phase I Archaeological Survey for the Northern Natural Gas LaCrosse Loop Pipeline Project, North Branch Root River, Township 104 North, Range 15 West, Section 6, Olmsted County, Minnesota	Lyon, et al./2003	Report title provided within original Project Phase Ia report. Full report not currently accessible
Unknown	Minnesota Statewide Archaeological Survey. Summary – 1977-1980	Minnesota Historical Society (MHS)/1981	Report title provided within original Project Phase Ia report and known site form. Full report not currently accessible
MW-85-1H	National Register Survey of Mower County Report	Historical Research, Inc.	Architectural history report

5.2 PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES

Table 5.2-1 and Figure 2 show eight documented archaeological sites and one archaeological site lead in the Study Area. The archaeological sites include three lithic scatters, three precontact single artifact find spots, and two precontact artifact scatters. An additional archaeological site lead (21MWl), described as the ghost town of Sutton, MN, is also present. The site location for 21MWl is listed as the entirety of Section 26 in Township 103 North, Range 15 West, as the precise location of the site lead has not been verified. National Register of Historic Places (NRHP) eligibility for each site is provided in Table 5.2-1 below. National Register of Eligibility Recommendations are from the initial recorder/consultation. They do not reflect SHPO concurrences or Federal agency determinations.

The Study Area is primarily within the Unknown Site Potential/Poorly Surveyed layer of the Mn-Model (Phase 4) Survey Implementation Model (MnDOT, 2020) with areas of Low Potential/Well Surveyed and High Site Potential/Poorly Surveyed layers. Approximately 23,287 acres are within the Study Area; the overall site density in the Study Area is low and does not reflect the likely intense Native American or early Euro-American land use. The impacts of 150 years of cultivation,

the general absence of archaeological survey in the Study Area, and artifact collection are possible reasons for this low density. Merjent expects that more archaeological sites are present near water sources within the Study Area should formal surveys occur outside of previously surveyed areas.

TABLE 5.2-1

Previously Recorded Archaeological Sites within the Study Area

Site Number	Site Name	Township	Range	Section	Context	Site Type	NRHP Status
21MW0055	None	T103N	R15W	19, 30	Precontact	Artifact Scatter	Unevaluated/Potentially Eligible
21MW0056	None	T103N	R15W	30	Precontact	Lithic Scatter	Unevaluated/Potentially Eligible
21MW0059	None	T103N	R15W	6	Precontact	Lithic Scatter	Potentially Eligible
21MW0066	None	T103N	R15W	7	Precontact	Single Artifact	Unevaluated (Avoidance recommended by consultant)
21MW0067	None	T103N	R15W	7	Precontact	Lithic Scatter	Not Eligible
21MW0068	None	T103N	R15W	7	Precontact	Single Artifact	Not Eligible
21MW0069	None	T103N	R15W	7	Precontact	Single Artifact	Unevaluated/Potentially Eligible
21MW0078	None	T103N	R15W	17	Precontact	Artifact Scatter	Unevaluated/Potentially Eligible
21MWw	Sutton	T103N	R15W	26	Historic	Ghost Town	Unevaluated/Potentially Eligible

The Grand Meadow Chert Quarry covers 170 acres just north of the town of Grand Meadow in Township 103 North, Range 15 West, Sections 13 and 14, in Mower County, Minnesota (Figure 2). The district has been known to local collectors for decades and was first recorded by archaeologists during the Minnesota Statewide Archaeological Survey in 1980 (Trow and Hunn, 1980; MHS, 1981). In 1994, the district was listed on the NRHP under Criterion D (NPS, 2021). Approximately 15 acres of the quarry lies in a wooded area containing a series of between 50 and 60 large intact quarry pits (Trow and Hunn, 1980). These pits measure up to 5 meters in diameter and 3 meters deep (Trow, 1981). The remainder of the site is within agricultural fields. Evidence of quarry pits outside of the wooded area has likely been obscured by agricultural activities. Artifacts identified include massive amounts of debitage, cores, anvils, scrapers, and side-notched and stemmed projectile points (Trow and Hunn, 1980).

Grand Meadow Chert (GMC) is a fine textured, light to medium gray lithic material. Natural GMC is found in cylindrical nodules measuring up to 12 inches in length. GMC within the district occurs naturally in dense layers approximately 1 to 2 meters below ground surface. Although the natural distribution of GMC is not well documented, secondary deposits have been reported in gravel deposits along the root river and in utility trenches excavated 1-mile east of the main quarry (Bakken, 2011; Gonsoir, 1992).

5.3 PREVIOUSLY RECORDED HISTORIC STRUCTURES

Table 5.3-1 and Figure 2 show 11 documented historic architectural structures in the Study Area. These structures include four bridges, one house, one bank, one grain elevator, one service

station, one public school, one post office, and a commercial block. Bridge No. 1942 is listed as a Certified Not Eligible Finding within the MnSHPO historic structure database. The remaining 15 historic architectural structures are unevaluated for inclusion on the NRHP. Locational information beyond the PLSS section number was not provided for four of the 11 properties, therefore, these properties are listed in Table 5.3-1 but not included within Figure 2.

TABLE 5.3-1

Previously Recorded Historic Architectural Sites within the Study Area

Site Number	Site Name	Township	Range	Section	NRHP Eligibility	Comments
MW-DEX-001	First State Bank of Dexter	T103N	16	13	Unevaluated	
MW-DEX-002	Dexter Elevator	T103N	16	13	Unevaluated	
MW-DEX-003	Standard Station	T103N	16	13	Unevaluated	
MW-DEX-004	Dexter Public School	T103N	16	24	Unevaluated	
MW-DEX-005	House	T103N	16	13	Unevaluated	
MW-DEX-006	Bridge 9678	T103N	16	24	Unevaluated	Location not provided in MnSHPO digital files
MW-ELK-001	Elkton Post Office	T102N	16	1	Unevaluated	
MW-ELK-002	Commercial Block	T102N	16	1	Unevaluated	
MW-GRA-015	Bridge No. 1942	T103N	15	15	Not Eligible	Location not provided in MnSHPO digital files
MW-GRA-017	Bridge 9680	T103N	15	18	Unevaluated	Location not provided in MnSHPO digital files
MW-MAR-006	Bridge L4977	T102N	16	2	Unevaluated	Location not provided in MnSHPO digital files

Merjent reviewed 19th century GLO maps and notes on file with the BLM (Figure 3) (BLM, 2021) and Trygg historical maps (Trygg, 1964). The maps show no structures, roads or improvements within the study area. The GLO notes mention that the land within the Study Area is generally flat or gently rolling first rate prairie.

Merjent reviewed aerial photographs taken from 1938 and 1954 on file with the OSA. The Study Area in predominately agricultural fields and largely unchanged. By 1938, many of the present-day farmsteads, roads, and field drainages are already established. The Chicago, Milwaukee, & St. Paul Railroad appears in both the 1938 and 1954 photographs, but has since been decommissioned and removed.

6.0 SUMMARY AND RECOMMENDATIONS

The Phase Ia literature review for the Study Area identified six previous cultural resource investigations and one historic architectural inventory. Eight previously recorded archaeological sites, one archaeological site leads, and 11 historic architectural sites were identified within the Study area. No sites or structures are listed to have been determined eligible for listing on the NRHP. Although Project construction plans include limited ground disturbance outside of previously surveyed areas, the results of this literature review show there is potential for undiscovered archaeological sites within the literature review Study Area. Therefore, Merjent recommends Phase I archaeological survey be conducted in all areas of proposed Project ground disturbance that have not been previously surveyed.

In the event that proposed construction activities would directly impact a standing, historic-period structure greater than 45 years old, Merjent recommends that Xcel sponsor an architectural history of that structure and evaluation of eligibility for inclusion on the NRHP. The evaluation should be provided to the MnSHPO to make a determination of effects and, if applicable, work with Xcel through avoidance, minimization, or mitigation activities.

7.0 REFERENCES CITED

Bakken, K.E. 2011. Lithic Raw Material Use Patterns in Minnesota. Dissertation submitted to University of Minnesota.

Bakken, K.E. 2016. Chapter 6: Chipped Stone Raw Materials. In Stone Tools of Minnesota. ed. Toby Morrow. Wapsi Valley Archaeology, Inc.

Bureau of Land Management (BLM). 2021. General Land Office Records. Available online at: https://glorecords.blm.gov/. Accessed February 1, 2021.

Cummins, J.F. and D.F. Grigal. 1981. Legend to Map: Soils and Land Surfaces of Minnesota, 1980. Soil Series No. 110. Miscellaneous Publication 11. Department of Soil Science. University of Minnesota Agricultural Experiment Station. St. Paul, Minnesota.

Dobbs, C. 1989. Historical Context Outlines: the Contact Period Contexts (CA. 1630 A.D. – 1820 A.D.). Institute for Minnesota Archaeology. Minneapolis, Minnesota.

Fond du Lac Band of Lake Superior Chippewa. 2018. Onigamiinsing Dibaajimowinan: Duluth's Stories. Available online at: http://www.duluthstories.net/. Accessed February 1, 2020.

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

Gibbon, G.E., C.M. Johnson, and E. Hobbs. 2002. Minnesota's Environment and Native American Culture History. Available online: https://www.dot.state.mn.us/mnmodel/P3FinalReport/chapter3.html#ch342. Accessed February 1, 2021.

Grohnke, R. and K. Mieras. 2008. Phase I Cultural Resource Survey of the Wapsipinicon Wind Project (North), Mower County, Minnesota.

Grohnke, R., K. Mieras, and A. Gronhovd. 2008. Phase I Cultural Resources Survey of the Grand Meadow Wind Project (South), Mower County, MN. Prepared by Westwood Professional Services. Submitted to enXco.

Gonsoir, L. 1992. Lithic Materials of Southeastern Minnesota, Part II. The Platform: A Publication of the Minnesota Knappers Guild (4(1):4-6

Historical Research, Inc. 1985. National Register Survey of Mower County Report. Historical Research, Inc. Minneapolis, Minnesota.

Holliday, V.T. 2004. Soils in Archaeological Research. Oxford University Press, Oxford.

Holmquist, J.D. (ed). 1981. They Chose Minnesota: A Survey of the State's Ethnic Groups. Chicago: Minnesota, Historical Society Press, St. Paul.

Kennedy, L. and S. Jenkins. 2008. The Phase IA Archaeological and Historical Architecture Inventory, Grand Meadow (formerly Wapsipinicon) Wind Energy Project. Mower County, Minnesota.

Lyon, et al. 2003. A Phase I Archaeological Survey for the Northern Natural Gas LaCrosse Loop Pipeline Project, North Branch Root River, Township 104 North, Range 15 West, Section 6, Olmsted County, Minnesota.

MacFarlane, J. and R. Rothaus. 2007. Phase I Archaeological Survey of the Prairie Star Wind Farm, Mower County, Minnesota.

Minnesota Department of Natural Resources (MnDNR). 2021a. Coteau Moraines Subsection. Available online at: https://www.dnr.state.mn.us/ecs/251Bb/index.html. Accessed February 1, 2021.

Minnesota Department of Natural Resources (MnDNR). 2021b. Watershed Reports. Available online at: https://www.dnr.state.mn.us/whaf/about/watershed-reports.html. Accessed February 2, 2021.

Minnesota Department of Transportation (MnDOT). 2021. MnModel, Minnesota Statewide Archaeological Predictive Model. Available online at: http://www.dot.state.mn.us/mnmodel/index.html. Accessed February 1, 2021.

Minnesota Historical Society (MHS). 1981. Minnesota Statewide Archaeological Survey. Summary 1977-1980. Minnesota Historical Society, St. Paul.

Morey, G.B. 1976. Geologic map of Minnesota, bedrock geology, M-24. Available online at: https://geo.btaa.org/catalog/0c29bf68-634f-49f9-a174-ce8203e6965f. Accessed February 2, 2021.

National Parks Service (NPS). 2021. National Register Database and Research. Available online at: https://www.nps.gov/subjects/nationalregister/database-research.htm. Accessed February 8, 2021.

Natural Resources Conservation Service Minnesota. 2021. MN NRCS Root River Watershed. Available online at: https://www.nrcs.usda.gov/wps/portal/nrcs/mn/technical/dma/rwa/nrcs142p2_023617/. Accessed February 2, 2021.

Office of the State Archaeologist (OSA). 2009. Minnesota Archaeological Site Form. Archaeology 14:1-40.

Roy, L. 2018. Ojibwe. Available online: https://www.everyculture.com/multi/Le-Pa/Ojibwe.html. Accessed February 11, 2021.

Thwaites, R.G. (ed). 1898. The Jesuit Relations and Allied Documents 1610 to 1791. The Burrows Brothers, Cleveland. http://moses.creighton.edu/kripke/jesuitrelations/. Accessed November 13, 2018.

Trow, T.L. 1981. Surveying the Route of the Root.: An Archaeological Reconnaissance in Southeastern Minnesota. In Current Directions in Midwestern Archaeology: Selected Papers from the Mankato Conference, ed. by S.F. Anfinson, pp. 91-107. Minnesota Archaeological Society, St. Paul.

Trow T.L. and Hunn. 1980. Minnesota State Archaeological Site Form 21MW0008. On file at the Minnesota Office of the State Archaeologist.

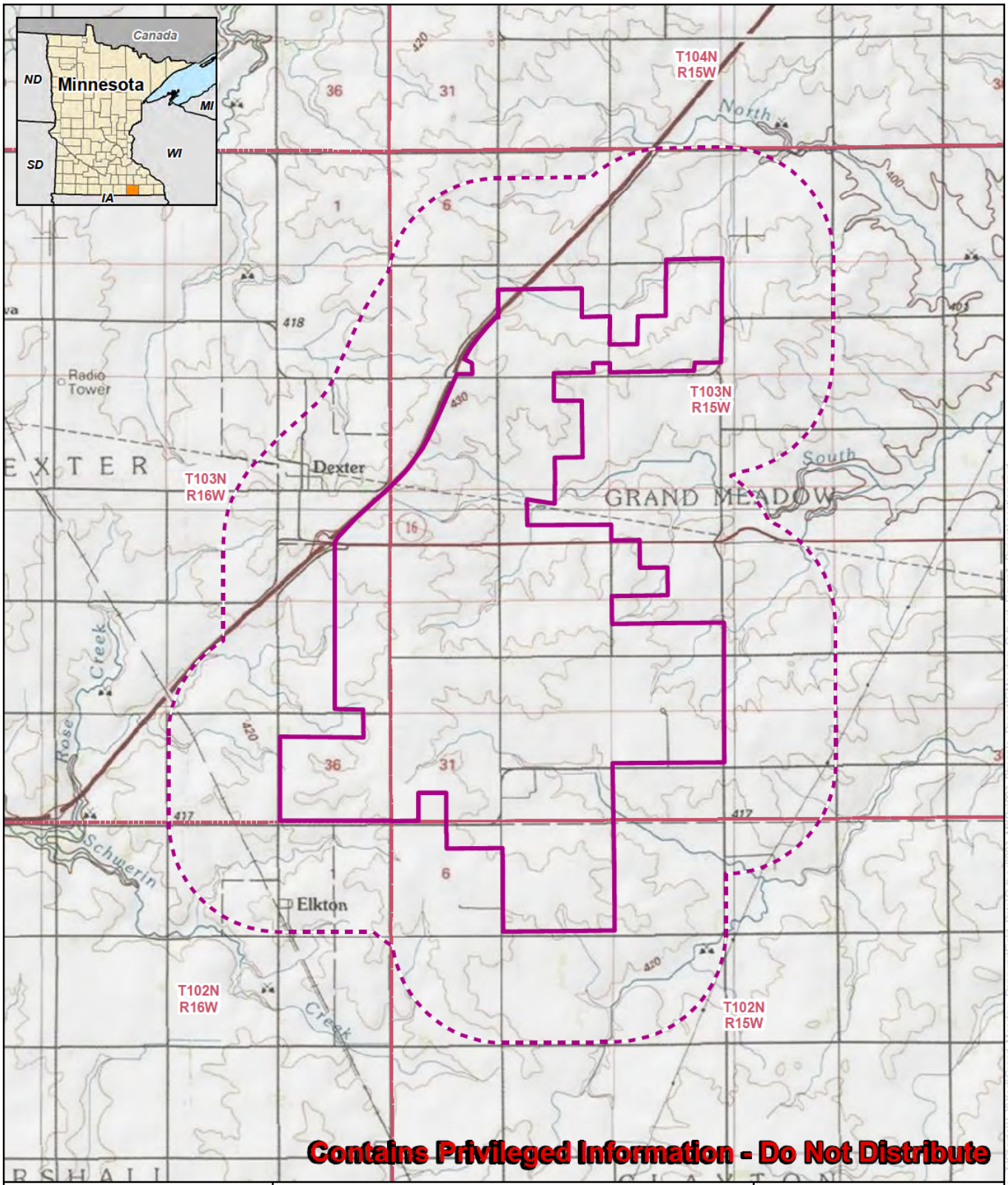
Trygg, J.W. 1964. Trygg Historical Map 2. Ely, Minnesota

World History Project (WHP). 2018. Nov 30, 1803: Louisiana Is Transferred From Spanish Control To French Control. Available online: https://worldhistoryproject.org/1803/11/30/louisiana-is-transferred-from-spanish-control-to-french-control. Accessed February 11, 2021.

APPENDIX A

Figures

PUBLIC DOCUMENT - NONPUBLIC DATA HAS BEEN EXCISED



0 750 1,500 Feet

For Environmental Review Purposes Only

Figure 2.1: Previous Cultural Resources
Xcel Energy
Grand Meadow Wind Farm Repower Project
Mower County, Minnesota

Project Area
Literature Search Study Area
Turbine Location
Access Road
Previously Recorded Architectural Structure
Previously Recorded Archaeological Site
Township Boundary

merjent

0 750 1,500 Feet

N W E S

For Environmental Review Purposes Only

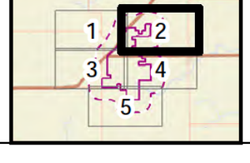


Figure 2.2: Previous Cultural Resources
Xcel Energy
Grand Meadow Wind Farm Repower Project
Mower County, Minnesota

Project Area
Literature Search Study Area
Turbine Location
Access Road
Previously Recorded Architectural Structure
Previously Recorded Archaeological Site
Township Boundary

merjent

Date: 07/19/2021

0 750 1,500 Feet

N W E S

For Environmental Review Purposes Only

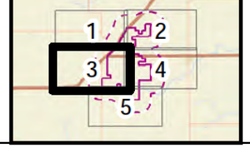


Figure 2.3: Previous Cultural Resources
Xcel Energy
Grand Meadow Wind Farm Repower Project
Mower County, Minnesota

Project Area
Literature Search Study Area
Turbine Location
Access Road
Previously Recorded Architectural Structure
Previously Recorded Archaeological Site
Township Boundary

merjent

Date: 07/19/2021

0 750 1,500 Feet

N W E S

For Environmental Review Purposes Only

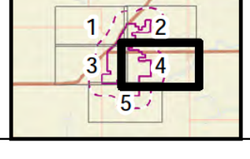


Figure 2.4: Previous Cultural Resources
Xcel Energy
Grand Meadow Wind Farm Repower Project
Mower County, Minnesota

Project Area
Literature Search Study Area
Turbine Location
Access Road
Previously Recorded Architectural Structure
Previously Recorded Archaeological Site
Township Boundary

merjent

Date: 07/19/2021

0 750 1,500 Feet

N W E S

For Environmental Review Purposes Only

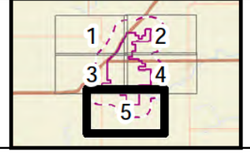


Figure 2.5: Previous Cultural Resources
Xcel Energy
Grand Meadow Wind Farm Repower Project
Mower County, Minnesota

Project Area
Literature Search Study Area
Turbine Location
Access Road
Previously Recorded Architectural Structure
Previously Recorded Archaeological Site
Township Boundary

merjent

Source: MnGeo (2021)