

Contract Publication Series 22-146

2022 INTENSIVE CULTURAL RESOURCE INVENTORY OF TARGETED COMPONENTS OF THE ØRSTED NORTH AMERICA, INC., BADGER WIND PROJECT, LOGAN AND MCINTOSH COUNTIES, NORTH DAKOTA

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by
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Prepared for

State Historical Society
of North Dakota

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**2022 INTENSIVE CULTURAL RESOURCE INVENTORY
OF TARGETED COMPONENTS OF THE ØRSTED NORTH
AMERICA, INC., BADGER WIND PROJECT,
LOGAN AND MCINTOSH COUNTIES, NORTH DAKOTA**

By
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and
Jason D. Weston, MA, RPA 15092

Prepared for

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Under Contract with

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I certify the information provided in this report is correct, accurate, and meets all applicable State Historical Society of North Dakota standards.

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Jason D. Weston, MA, RPA 15092
Principal Investigator

June 27, 2022

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ABSTRACT

Cultural Resource Analysts, Inc., was contracted by DNV Energy USA Inc. to conduct a file search and an intensive cultural resource inventory of infrastructure redesigns for the proposed Ørsted North America, Inc. Badger Wind Farm in Logan and McIntosh Counties, North Dakota. This project is supplementary and related to the Class III cultural resource inventory of the Badger Wind Project that was completed by Atwell, LLC. This project consists of a series of irregular linear inventories associated with infrastructure redesigns that extend beyond the previously accepted Atwell inventory. This includes additional segments of access roads, turbine strings, and block inventory areas. All of the project components are located on private lands. This intensive cultural resource inventory examined multiple individual inventory areas that collectively cover 764 acres.

Existing developments in and around the project area locations included paved highways, gravel crown and ditch roads, two-track roads, fences, overhead power lines, existing buried fiber optic lines, historic and modern farm buildings, agricultural fields, grain elevators, and silos.

Four previously identified sites (32LO163, 32LO168, 32MT044, and 32MT451) were revisited/rerecorded and reevaluated for inclusion on the National Register of Historic Places. Additionally, two newly identified sites (32LO169 and 32LO170) and three newly identified isolated finds were recorded and evaluated (32LOX74, 32MTX114, and 32MTX115). All of the previously and newly identified resources are recommended not eligible for inclusion in the National Register of Historic Places. No avoidance or further work is recommended for these resources.

On front cover:

Upper image: Project area overview of the typical agricultural field within the inventory areas. View to the northwest. Photograph taken by Jason Weston on May 19, 2022. This image has not been modified.

Lower image: Project area overview showing one of the large seasonal wetlands within the project area. View to the north. Photograph taken by Jason Weston on May 26, 2022. This image has not been modified.

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I. INTRODUCTION

Cultural Resource Analysts, Inc. (CRA), was contracted by DNV Energy USA, Inc. (DNV), to complete a cultural resource investigation of a series of irregular linear inventories associated with infrastructure redesigns for the proposed Badger Wind Project in Logan and McIntosh Counties, North Dakota. This project is supplementary and related to the original Badger Wind cultural resource inventory that was completed by Atwell, LLC (Atwell) in 2022 (Wilk et al, 2022). For the current undertaking the project area is defined as the physical area of potential effect (APE) plus the records review study area. The records review study area includes all sections containing the proposed project components, plus a 1-mi buffer (Table 1). The inventory areas are associated with redesigned project components that extend beyond the previously accepted Atwell inventory and consist of additional segments of access roads, turbine strings, and block inventory areas. All of these project components are located on privately owned lands. This intensive cultural resource inventory examined multiple individual inventory areas that collectively equal 764 acres. (see Table 1; Figure 1 map a–map h).

This intensive cultural resource inventory and subsequent report were completed to support compliance with the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA) prior to ground disturbing activities associated with the proposed redesigned infrastructural elements. Fieldwork for this project was conducted under the North Dakota 2022 Annual Permit received on December 28, 2021. Fieldwork was conducted and supervised by the principal investigator Jason D. Weston. Fieldwork was conducted between May 17 and 27, 2022. CRA Staff Archaeologists Morgan Thurman and Mathew Tedrow aided in conducting the fieldwork. Fieldwork consisted of pedestrian survey, shovel testing, and site recordation.

Project Description

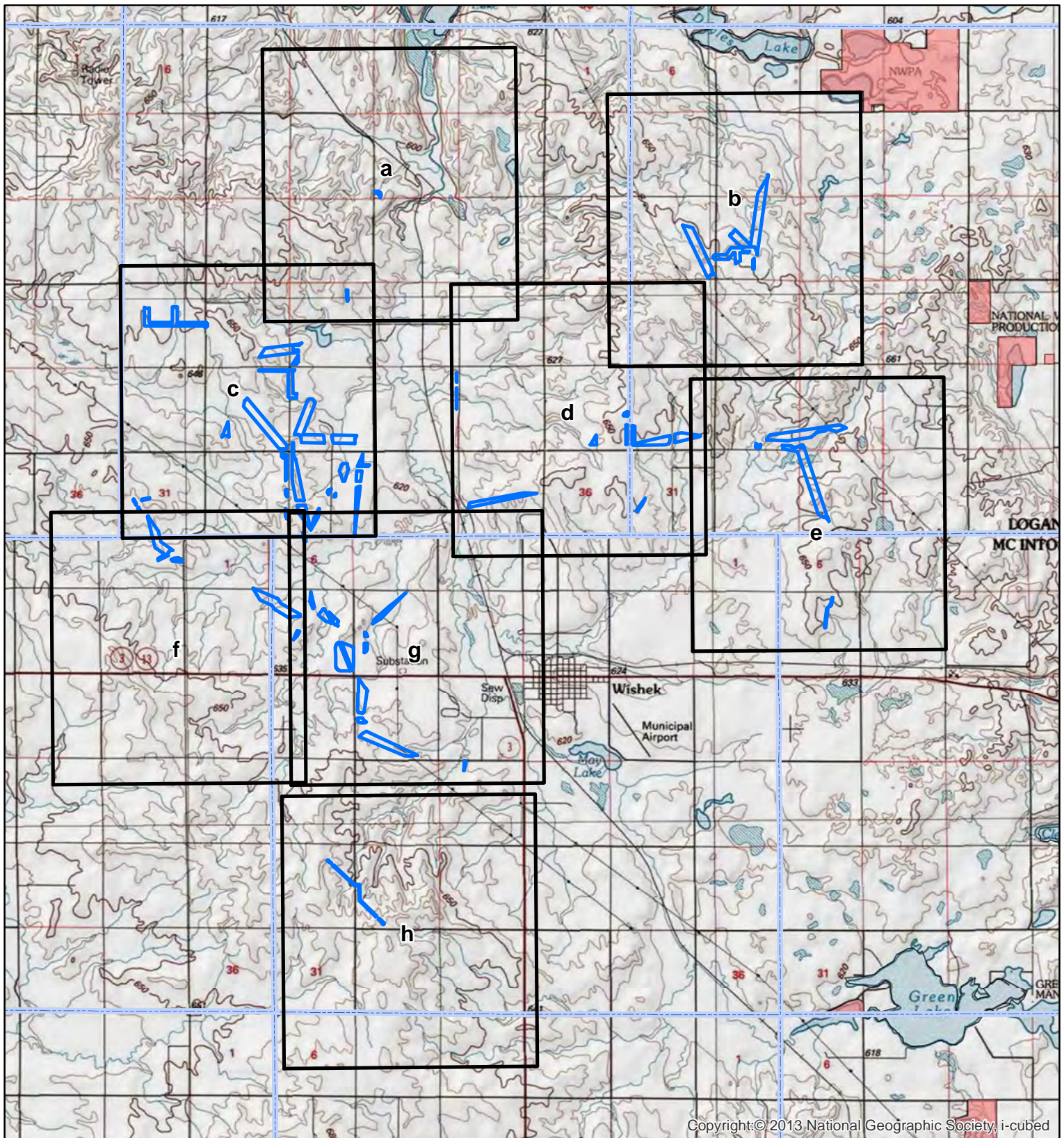
The proposed project consists of the Badger Wind Farm and its associated infrastructure, which in its entirety covers approximately 31,514 acres (49 sq mi). This proposed project will have a nameplate capacity of up to 251.6 megawatts and consists of an array of wind turbines, each with an associated transformer. Proposed facilities include the following: up to 74 wind turbines; all-weather access roads to each turbine site; one collection substation (approximately 2 acres); underground electrical collection lines and fiber optic cables that connect each turbine to the substation; and an operations and maintenance (O&M) facility (approximately 2 acres); a temporary concrete batch plant location (up to 3 acres); a temporary marshaling yard (up to 10 acres); a temporary laydown yard (up to 15 acres); temporary turning radii; an Aircraft Detection Lighting System (ADLS) tower; up to three permanent meteorological towers (MET); and one generation transmission line that will not exceed 0.75 mi in length.

II. ENVIRONMENTAL SETTING

The current project area consists of numerous linear survey areas scattered across nearly 100 sq mi to the southwest, west, northwest, north, and northeast of Wishek, North Dakota in Logan and McIntosh Counties (see Figure 1). The project area is located on the eastern edge of the Southern Missouri River Study Unit, which is within the Glaciated Missouri Plateau Subsection of the Missouri Plateau Section of the Great Plains Physiographic Province (Gregg et al. 2021). Specifically, this area lies in the Upland Plains portion of the Southern Missouri River Study Unit. This area is typified by soils that developed from glacial outwash that form a thin mantle from the rim of the Missouri River Trench out onto the upland plain that lies away from the Missouri River. The uplands east of the river are characterized by rolling knob and kettle terrain punctuated by numerous pothole lakes and sloughs. This section presents the general environmental setting of the project areas. Field conditions that are specific to each individual inventory area are described in the Inventory Results (Figures 2–9).

Table 1. Inventory Area Legal Locations.

Township	Range	Section(s)	Figure 1 Map Location	Approximate Legal Locations	Land Ownership
132N	70W	7	Map e	W2/SW/NE/NW/NE, W2/E2/SW/NW/NE, W2/E2/NW/SW/NE, E2/NW/SW/SW/NE	Private
132N	71W	8	Map g	SE/NE/NW, NW/NW/SE/NW, SW/SE/SW/NW, NW/NW/NE, NW/SE/NW/SW, SW/NE/NW/SW	Private
132N	71W	9	Map f	SW/NW/NW, NE/SW/NW, NE/NW/SW/NW, NW/SE/NW, W2/NW/NE/SW	Private
132N	71W	9	Map g	W2/W2/NW/NE, SW/SE/NW/NE, NE/SW/NE, NE/NW/SW/NE, S2/NE/SE, SE/SE	Private
132N	71W	17	Map g	SW/NW/NW/NW, SW/NW/NW, NW/SW/NW, N2/SW/SW/NW, N2/NW/NW/SW, SE/SW/NW/SW, SE/NW/SW, N2/SE/SW, SW/NW/SW/SE, N2/SW/SW/SE, N2/SE/SW/SE	Private
132N	71W	21	Map g	W2/W2/NW/NE/NW	Private
132N	71W	29	Map h	SW/SW/SW/NW, E2/W2/W2/NW/SW, SE/SW/NW/SW, NW/NE/SW/SW, SE/NE/SW/SW, NW/SW/SE/SW	Private
132N	71W	30	Map h	SE/SE/SE/NE, NW/SE/SE/NE, NW/NW/SE/NE, SE/SE/NW/NE, SE/NE/SW/NW	Private
132N	72W	2	Map f	E2/SW/NW/NE, E2/SW/NE, NW/NE/SE, N2/SE/NE/SE, NE/SE/NW/SE	Private
132N	72W	12	Map f	NE/NE/NE, NE/NW/NE/NE, N2/SE/NE/NE	Private
133N	70W	8	Map b	SW/SW/SE, SW/NW/SW/SE	Private
133N	70W	17	Map b	W2/NW/NE, W2/W2/SW/NE, E2/E2/SE/NW, NW/SE/SW/SW, SE/SE/SW/NW, N2/NE/SW, W2/SW/NE/SW, NW/SE/NE/SW, SE/SE/NE/SW, W2/E2/NE/SE/SW, S2/NW/SW	Private
133N	70W	18	Map b	SE/SE/SE, NE/SE/SE, E2/NW/SE/SE, W2/NE/SE, NE/NE/NW/SE, SE/SW/NE, SW/SW/SE/NE	Private
133N	70W	28	Map e	S2/SW/SW/SW, N2/SW/SW, N2/NW/SE/SW, S2/SE/NE/SW, SW/SE/SW/SW, S2/SW/NE/SE, N2/NW/SW/SE	Private
133N	70W	29	Map e	E2/NE/SW/SW/SE, E2/E2/NW/SE/SW/SEN2/SE/SE, S2/SE/SE/SE	Private
133N	70W	30	Map d	E2/W2/NW/SW/SW, NE/SW/SW/SW, N2/SE/SW/SW, E2/SW/SW/NW/SW, N2/S2/SE/SW, S2/NE/SE/SW, N2/SW/SES2/NW/SE/SE	Private
133N	70W	31	Map d	SE/NE/NW/SW, NW/SE/NW/SW	Private
133N	70W	33	Map e	W2/NW/NW, E2/SW/NW, NE/NW/SW, W2/NW/NE/SW, SW/NE/SW	Private
133N	71W	10	Map a	SW/SW/SW	Private
133N	71W	19	Map c	E2/W2/E2/NW, W2/E2/W2/NE, S2/S2/S2/SE/NW, S2/S2/S2/NE	Private
133N	71W	20	Map c	NW/SW/SW, N2/SE/SE, E2/NE/SW/SE	Private
133N	71W	21	Map a	E2/SW/NE/NW/NE, E2/NW/SE/NW/NE	Private
133N	71W	21	Map c	S2/S2/SW/NW/SW, NW/SW/SW, SW/SW/SW	Private
133N	71W	25	Map d	SE/NE/NE/SE, SE/SE/NE/SE, E2/E2/SE/SE, NE/SW/SW/SE, SE/NW/SW/SE	Private
133N	71W	27	Map d	W2/E2/SE/NE/NE/NE, W2/E2/SE/NE/NE, W2/E2/E2/SE/NE	Private
133N	71W	28	Map c	N2/SW/SE, NW/SE/SW, W2/NE/SE/SW, NE/SW/SW, E2/W2/SW/SW/SW, NE/NW/SW/SW, E2/NW/SW, E2/SE/SW/NW, W2/NW/SW/NW, W2/W2/NW/NW, SW/SE/NW	Private
133N	71W	29	Map c	SW/SW/NE, N2/N2/NE/NE, S2/N2/NE/NW/NE, E2/E2/NE/NE, E2/NE/SE/NE, E2/E2/SE/SE/NW, W2/SW/NE/SW, NE/NE/SW/SW, NW/NW/SE/SW, NW/SE/SE/SE, NW/SE/SE, SW/SW/NE/SE, SE/NW/SE, SW/NE/NW/SE, NE/NW/NW/SE	Private
133N	71W	32	Map c	NE/NE/NE/NE	Private
133N	71W	33	Map c	W2/W2/W2/NW/NW, E2/W2/NW/NW, W2/SW/NW/NW, W2/NW/NW/SW/NW, E2/NW/SW/NW, E2/SW/NW, SW/SW/SW/NW, W2/SW/NE/SW, SE/NW/SW, N2/NE/NW/SW, W2/SW/SE/NE/SW, E2/W2/NE/SE, W2/E2/W2/SE/SE, SE/NW/NE, NE/SW/NE, SW/SW/SW/NE, SW/NE/NE/NE, W2/NE/NW/NW/SE, NW/SE/NE/NE, E2/NW/SE/NE, W2/NE/SE/NE, E2/SW/SE/NW	Private
133N	71W	35	Map d	S2/NE/NW/SW, S2/NW/NE/SW, S2/N2/NE/NE/SW, N2/N2/NW/SE, S2/S2/SW/SE/NE	Private



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- Map page boundary
- Inventory Area
- Township Boundary
- US Fish and Wildlife
- Private

Badger Wind Project Inventory

Figure 1. Index Map



N
 1:100,000
 1 inch = 8,333 feet
 1 inch = 2,540 meters

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CONFIDENTIAL

Prepared By: MAT	Date: 5/10/2022
Project Number: Y220137	Project Name: Badger Wind Project

Coordinate System:
 UTM NAD 83 Zone14N



Figure 2. Project overview of parcel in T133N/R71W S10, showing grassy rolling plain, looking north. Photograph taken by Jason Weston on May 18, 2022. This image has not been modified.



Figure 3. Project overview of parcel in T133N/71W S21, showing cultivated fields, looking east. Photograph taken by Jason Weston on May 18, 2022. This image has not been modified.



Figure 4. Project Overview of survey area in T133N/71W S29, showing cultivated field, looking west. Photograph taken by Jason Weston on May 18, 2022. This image has not been modified.



Figure 5. Project Overview of survey area in T133N/R71W S32, showing cultivated field, looking south. Photograph taken by Jason Weston on May 19, 2022. This image has not been modified.



Figure 6. Project Overview of survey area in T133N/R71W S29, showing freshly planted cultivated fields, looking northwest. Photograph taken by Jason Weston on May 19, 2022. This image has not been modified.



Figure 7. Project Overview in survey area within T133N/R70W S18, showing rolling grasslands, looking northwest. Photograph taken by Jason Weston on May 20, 2022. This image has not been modified.



Figure 8. Project Overview of survey area within T133N/R71W S28, showing a pothole lake, looking southeast. Photograph taken by Jason Weston on May 22, 2022. This image has not been modified.



Figure 9. Wetland example from survey area within 133N/R71W S28, looking east. Photograph taken by Jason Weston on May 22, 2022. This image has not been modified.

The nearest major water sources are Beaver Creek, which is approximately 3 mi north of the northernmost portions of the project area, and the Southern Branch of Beaver Creek which is located approximately 8 mi to the southwest from the southernmost end of the project area. The terrain throughout the project is punctuated with numerous unnamed tributary drainages that run into these two water sources, as well as numerous sloughs and unnamed pothole lakes.

The land use in this region is split between cultivated fields, where corn, wheat, hay, and soybeans are grown, and pasture used for livestock grazing. The uncultivated areas are largely characterized by mixed prairie grass with sparse prairie shrubs and wildflowers.

Based on the Web Soil Survey database, which is maintained by the Natural Resources Conservation Service (NRCS), sediments within the project area are generally loams overlying horizons of clay loams, with a smaller proportion of area characterized as loams overlying gravelly or sandy loams (NRCS 2022). The most common soil series present consist of Typic Calcicustolls, Typic and Pachic Argicustolls, and Typic and Pachic Haplustolls (NRCS 2022). These soils are very deep, well drained soils formed from glacial till and/or alluvium on glacial plains and moraines. CRA's field observations generally match the NRCS predictions, and are discussed further in the Results section below.

Current Land Use and Existing Built Environment

Existing developments in and around the project area include paved highways, gravel crown and ditch roads, two-track roads, fences, overhead power lines, existing buried fiber optic lines, historic and modern farm buildings, agricultural fields, grain elevators, and grain silos. Specific existing developments pertinent to each inventory area will be summarized in the Inventory Results. The current land use for the project area is split between cultivated agricultural fields and pasture land for livestock grazing.

III. CULTURAL/HISTORIC OVERVIEW

A wide variety of archaeological sites are found throughout North Dakota. These are associated with all time periods from the Paleoindian through the Historic. This project area lies on the eastern edge of the Southern Missouri River Study Unit as defined by the State Plan (Gregg et al. 2021). As a result, a generalized overview of the archaeological periods known in North Dakota is presented in this section.

Paleoindian Period (11,500–7900 BP)

Resources that date directly to the Paleoindian period are not common, but temporally diagnostic projectile points dating to this period have been identified in North Dakota. These include Agate Basin, Clovis, Cody, Folsom, Hell Gap, and Scottsbluff points (Gregg and Bleier 2016:6.37; Gregg et al. 2016:5.43; Swenson and Beier 2016:7.23). Identifiable settlement types related to this period are rare, but lithic caches and hunting sites are known, and settlement locations appear to be associated with uplands, valley rims, or valley side-slopes (Gregg and Bleier 2016:6.37).

Plains Archaic Period (8000–1500 BP)

Early Plains Archaic projectile points are similar to those of the Paleoindian period with parallel flaking, changing only with the addition of side notches. Early Archaic sites are rare with most sites dating to the Middle and Late Archaic (Gregg and Beier 2016:6.40). Oxbow, McKean, Duncan, and Hanna points represent Middle Plains Archaic components. Intact deposits dating to the Middle Archaic are the earliest components that are found consistently throughout North Dakota (Gregg et al. 2016).

Late Plains Archaic components are indicated by Yonkee and Sandy Creek style points. Sites and isolated finds with diagnostic projectile points in North Dakota contain examples spanning the Early, Middle, and Late Plains Archaic periods (Gregg et al. 2016). Middle and Late Plains Archaic deposits are found in a relatively young sedimentary context, which correlates with erosion in the uplands from a subsequent drought. Plains Archaic artifacts are frequently found in upland settings, as well as in terrace and riverbank locations that were also likely occupied in later periods (Gregg et al. 2016).

Plains Woodland Period (circa 2000–450 BP)

The development of biomass spiked twice during the Plains Woodland period. This created environmentally favorable conditions that coincided with the peak of the Besant/Sonota culture of the Middle Plains Woodland period and Late Plains Woodland period to the Early Plains Village period (Gregg and Beier 2016:6.42–6.43). Sites dating to these periods are numerous in North Dakota. Ceramic technologies and evidence of trading activities associated with lithic materials are notable throughout the Middle Plains Woodland period (Gregg et al. 2016). In general, Knife River Flint was transported westward and obsidian eastward (Gregg et al. 2016).

Plains Village Period (circa 1050–350 BP)

Prior to AD 1780, hunting camps and temporary settlements were common. Field camps were established along drainages (Gregg et al. 2016). In the middle of the Plains Village period, undeveloped sediments indicate a time of drought. Correlating with these periods of drought are diminished subsistence resources and evidence of conflict between neighboring groups (Gregg et al. 2016). The first arriving European Americans noted that besides hunting, the Plains Villagers grew corn, melons, pumpkins, and beans. Several ceramic styles occurred during this period that are identified by vessel forms and types of decoration. These are associated with the Knife River phase and Scattered Village complex (Gregg et al. 2016).

Equestrian/Fur Trade Period (AD 1738–1880)

The Fur Trade and European American exploration throughout the nineteenth century brought about many changes in the traditional culture of Native American groups. The Fort Berthold Reservation was established in 1870 for the Mandan, Hidatsa, and Arikara as they moved to the area away from hostile equestrian nomadic tribes (Gregg et al. 2016). Metal tools and implements obtained via trade became integrated with traditional tools made from stone, bone, wood, shell, and clay. The gun became commonly used alongside the bow and arrow. Hunting parties set up temporary camps during different seasons of the year, and these settlements functioned as the field camps of pedestrian hunter-gatherers. Many of these locations, unless repeatedly reoccupied or marked by stone circles, probably contain little in the way of identifiable material. The horse-mounted hunting and gathering peoples subsisted on bison; however, wild plant foods, other wild animal foods, and garden produce received in exchange with settled village gardeners also were part of the diet (Gregg et al. 2016).

Intertribal trade that occurred during the Equestrian period has its beginning in pre-contact times. The Hidatsa traded with the Crow, Dakotas, Cheyenne, and others to the south and southwest (Gregg et al. 2016). Fur trade between Native Americans and European Americans within the area began circa 1826. In addition to trading, there are a number of written and ethnographic accounts of horse-mounted Native American groups using the area in what is now North Dakota, including the Assiniboine, Cheyenne, Crow, Dakota, Hidatsa, and Mandan. Fort Union and Fort Buford trading posts played a central role in supplying trade items to the nomadic groups of the region (Gregg and Beier 2016:6.50; Gregg et al. 2016:5.64).

Reservation Era (AD 1880–present)

Between 1850 and 1870, the United States government created reservations to separate the Native Americans and the influx of European American settlers. Where the Native Americans were once able to move freely, they were then restricted to designated areas. In 1887, the Dawes Act divided tribal land into individual land allotments as a means of assimilating Native Americans into European American society. By using individual land allotments as a means of breaking tribal culture, the United States government sought to cease their way of life and force conversion to Christianity, farming, and education of children at boarding schools. Children were taken from their families and placed in boarding schools (Indian schools), such as the Fort Stevenson Indian School, Bismarck Indian School, St. Labre Indian School in Montana, and the Carlisle Indian School in Pennsylvania. At these schools, Native American students were prohibited from using their language, practices, and culture; there was a strict emphasis on assimilating to European American culture. The Dawes Act has left a negative legacy concerning the treatment and assimilation of Native American peoples (State Historical Society of South Dakota 2021).

Today, reservations have tribal governments, which administer many governmental, economic, health, welfare, and educational programs. Tribes residing on the reservations maintain a strong living culture that continues to span generations (Mandan, Hidatsa, and Arikara Nation 2012).

Homesteading in the Dakotas (AD 1860–1930)

The first homestead patent in North Dakota was filed in 1868. The homestead rush began in 1885 as a result of the extension of the Northern Pacific Railroad across the Red River from Minnesota. The discovery of deposits of lignite coal and oil and gas resources increased the number of people moving to North Dakota. The mining and oil and gas industries took hold in the 1930s. Today, these industries remain major components of the local economy. Within rural North Dakota, historic sites are typically related to early farming and ranching activities (Baer et al. 2011). In the 1920s and 1930s, as many droughts impacted the area, homesteads failed and were purchased by the Federal Government as part of the Resettlement and Bankhead Jones Acts. In North Dakota many of these tracts of land became components of the Little Missouri National Grasslands (National Park Service 2016).

IV. RESEARCH GOALS

The goals of the inventory were three-fold and developed to comply with the legal mandates of the NHPA as amended and the NEPA. The first goal was to establish if cultural resources exist that may be affected by the proposed project either directly or indirectly; the second was to determine the significance of these resources; and the third was to recommend measures that would appropriately mitigate adverse effects to significant resources.

V. METHODS

Literature Search Results

An official file search was conducted on May 16, 2022 at the Archaeology & Historic Preservation File Room at the Heritage Center and State Museum utilizing the records of the North Dakota State Historical Society (NDSHS) and State Historic Preservation Office (SHPO). This file search was conducted in order to identify any previously conducted investigations and previously recorded cultural resources that have occurred within or within 1 mi of proposed project infrastructure locations. The file search identified 18 manuscripts (reports) resulting from previous cultural resource investigations conducted within, or within 1 mi of, the inventory area locations. These previous investigations occurred between 1998 and 2021. These previous investigations were conducted for a

variety of undertakings, including communications projects, water development projects, road improvements, and wind energy infrastructure projects.

The file search originally identified 1 previously recorded isolated find, 20 previously recorded sites, and 1 site lead within, or within 1 mi of, the inventory areas (North Dakota State Historic Preservation Office 2021).

The town of Wishek, North Dakota is outside of the inventory area but within the 1-mi file search parameters. The 2021 literature review and architectural reconnaissance inventory for the Badger Wind Project identified 578 architectural resources in the town of Wishek that typically date from the early to mid-twentieth century (Dickerson and Ball 2022). Non-historic structures dating to the late twentieth and early twenty-first centuries are scattered throughout the town (Dickerson and Ball 2022:2, 35–47). None of the cultural resources within Wishek are present within the current inventory areas. For more information regarding this architectural history study, see *Class I Literature Review and Class II Architectural Reconnaissance Inventory for the Proposed Badger Wind Project in Logan and McIntosh Counties, North Dakota* by Dickerson and Ball (2022).

Historical Background Research

In addition to the file search, the background research for this project included examination of the 1883–1885 General Land Office (GLO) plat maps of the project area locations (North Dakota State Water Commission 2022). The GLO plat maps covering the project area illustrated one unnamed historic road that crossed T133N/R71W and the northeast corner of T133N/R72W. Satellite imagery from Google Earth indicates that this road has likely been destroyed by agricultural cultivation and construction of the modern road system. Additionally, no historic roads or trails were observed during the fieldwork for this project. No other man made features or settlements were illustrated.

A search of the GLO land patent records at (Bureau of Land Management [BLM] 2022) was conducted to identify the origins of historic occupation within or near the project area locations. The GLO Land Patent Records revealed 89 land patents issued within the Sections that comprise the area of the project area. These patents were issued between 1889 and 1918 (Table 2). Twenty-four patents were issued to the Northern Pacific Railroad in 1895, 1896, 1907, and 1908 to help fund and establish railroad access through North Dakota. The other 65 land patents were related to settlement, including 25 cash sales, 33 patents issued under the 1862 Homestead Act, and 7 patents issued under the 1873 Timber Culture Act. The 1862 Homestead Act provided land grants on the condition that 160 acres of land were to be improved and occupied for five years (Cassity 2007:23). The 1873 Timber Culture Act was a follow up/supporting act to the 1862 Homestead Act. The intention of the act was to promote the planting of trees (Nebraska.gov 2020). It allowed for 160 acres to be claimed, provided that at least 40 acres be planted in trees; this requirement was later reduced to 10 acres (Nebraska.gov 2020). The act required no fewer than 2,700 trees to be planted within the 10-acre area. Unfortunately, the goals of this act were not attained; although millions of trees were planted in attempt to qualify for land under the Timber Act, most groves were haphazardly planted and poorly maintained. Consequently, very few viable groves were created (Nebraska.gov 2020).

Table 2. GLO Land Patent Search Results

Township	Range	Section	Patentee	Date	Accession Number	Authority
132N	70W	7	Northern Pacific Railroad Co	4/2/1896	NDMTAA009338	1864 Northern Pacific RR Grant
132N	71W	6	Gohl, Friedrich	4/17/1907	ND2250.431	1862 Homestead Act
132N	71W	6	Krein, John A	10/9/1913	359331	1862 Homestead Act
132N	71W	6	Ruble, John C	8/3/1904	ND1720.129	1820 Cash Entry Sale
132N	71W	8	Ackermann, Peter	6/2/1905	ND1950.475	1862 Homestead Act
132N	71W	8	Rath, John G.	5/14/1906	ND2100.309	1862 Homestead Act
132N	71W	30	Bundrock, William	1/7/1914	375428	1862 Homestead Act
132N	71W	30	Deters, Charley A	3/5/1908	MV-0743-359	1820 Cash Entry Sale
132N	71W	30	Peters, Charley A	3/5/1908	NDMTAA 012153	1820 Cash Entry Sale
132N	71W	30	Sprenger, John F	8/20/1907	MV-0635-440	1820 Cash Entry Sale
132N	71W	30	Sprenger, John F	8/20/1907	NDMTAA 012141	1820 Cash Entry Sale
132N	72W	2	Doyle, John	6/30/1906	ND2200.010	1820 Cash Entry Sale
132N	72W	12	Doyle, John J.	6/8/1906	ND2080.368	1820 Cash Entry Sale
132N	72W	12	Rub, Philip	7/16/1907	MV-0642-029	1862 Homestead Act
132N	72W	12	Rub, Philip	7/16/1907	NDMTAA 014759	1862 Homestead Act
133N	71W	10	Kekkefoit, Albert	5/26/1910	132215	1862 Homestead Act
133N	71W	10	Lathrop, Elsbeth	2/4/1905	ND1980.058	1820 Cash Entry Sale
133N	71W	10	Schnor, Peter	11/8/1905	ND2070.224	1862 Homestead Act
133N	71W	10	Wenger, Fred	12/21/1911	239667	1862 Homestead Act
133N	71W	20	Diegel, Johannes	10/25/1913	361920	1862 Homestead Act
133N	71W	20	Hochhalter, Christoph	5/8/1901	ND1310.050	1873 Timber Culture
133N	71W	20	Krien, Jacob C	6/20/1912	278311	1862 Homestead Act
133N	71W	20	Obershaw, Samuel B	5/11/1911	197333	1862 Homestead Act
133N	71W	28	Eissinger, Adam	12/2/1901	ND1310.213	1873 Timber Culture
133N	71W	28	Maier, Karl	7/19/1909	72940	1862 Homestead Act
133N	71W	28	Willey, Ray	5/17/1909	62523	1820 Cash Entry Sale
133N	71W	32	Gall, Johann	4/17/1907	ND2250.457	1862 Homestead Act
133N	71W	32	Sayler, Friedrich	5/8/1901	ND1310.055	1873 Timber Culture
133N	70W	8	Herr, Gottlieb	5/20/1912	1/18/2634	1820 Cash Entry Sale
133N	70W	8	Herr, Gottlieb	4/14/1909	55806	1820 Cash Entry Sale
133N	70W	8	Knudson, Albert E.	4/23/1908	MV-0763-496	1820 Cash Entry Sale
133N	70W	8	Knudson, Albert E.	4/23/1908	NDMTAA 009570	1820 Cash Entry Sale
133N	70W	8	Welch, Johanna	4/27/1908	MV-0766-049	1862 Homestead Act
133N	70W	8	Welch, Johanna	4/27/1908	NDMTAA 009572	1862 Homestead Act
133N	70W	8	Welsh, James	7/19/1909	72951	1862 Homestead Act
133N	70W	18	Bronner, John	9/29/1910	153904	1862 Homestead Act
133N	70W	18	Hartwell, Lura/Newton, Lura	2/15/1912	248366	1862 Homestead Act
133N	70W	18	Newton, Frank I	12/14/1911	239140	1862 Homestead Act
133N	70W	18	Newton, Mattie J.	3/28/1912	255841	1862 Homestead Act
133N	70W	28	Boschee, John	5/27/1918	631750	1862 Homestead Act
133N	70W	28	Cochrane, William F	6/1/1910	132971	1820 Cash Entry Sale
133N	70W	28	Olsen, Christiana/Olsen, John	4/27/1909	58221	1862 Homestead Act
133N	70W	28	Pfeifle, Elizabeth	3/16/1908	MV-0748-479	1820 Cash Entry Sale
133N	70W	28	Pfeifle, Elizabeth	3/16/1908	NDMTAA 009566	1820 Cash Entry Sale
133N	70W	28	Teske, Christian	10/21/1909	85005	1820 Cash Entry Sale
133N	70W	30	Blanchard, Emmet	2/4/1905	ND1980.065	1820 Cash Entry Sale
133N	70W	30	Blanchard, Job	1/13/1905	ND1910.176	1862 Homestead Act
133N	70W	30	Burr, George L	3/19/1906	ND2080.176	1820 Cash Entry Sale
133N	70W	30	Olson, Sever	4/27/1908	MV-0765-231	1862 Homestead Act
133N	70W	30	Olson, Sever	4/27/1908	NDMTAA 009574	1862 Homestead Act
133N	70W	32	Pfeifle, Maria/Pfeifle, Andrew P	7/16/1907	MV-0642-050	1862 Homestead Act
133N	70W	32	Pfeifle, Maria/Pfeifle, Andrew P	7/16/1907	NDMTAA 009558	1862 Homestead Act
133N	70W	32	Pritchard, Marie/Pfeifle, Marie	12/31/1903	ND1580.140	1820 Cash Entry Sale
133N	70W	32	Ruzicka, James	9/30/1907	MV-0663-145	1862 Homestead Act
133N	70W	32	Ruzicka, James	9/30/1907	NDMTAA 009560	1862 Homestead Act
133N	70W	32	Spurzem, Frank	6/24/1907	ND2220.315	1820 Cash Entry Sale

The railroad facilitated settlement in the area, with 55 of the 66 settlement-related patents being issued after the railroad was completed in 1901.

Based on the previously identified sites, it was expected that prehistoric sites would consist of sparse lithic scatters and stone circles. Previously identified historic sites, plat maps, and land patent records, indicate that historic sites would likely consist of homesteads and early twentieth-century artifact scatters related to homesteading and farming activities. Overall site density was expected to be low. The cultural resources located near the project area locations do not suggest the presence of a prehistoric or historic district or landscape.

Survey Methodology

This intensive cultural resource inventory consisted of 764 acres. Fieldwork for this inventory was undertaken May 17–27, 2022, by Jason D. Weston, who served as principal investigator and was supported by CRA Staff Archaeologists Morgan Thurman and Mathew Tedrow. Weather during fieldwork ranged from mild, windy, and sunny to cool, cloudy, and rainy. In circumstances where rain was heavy enough to negatively impact survey conditions, fieldwork was delayed until conditions improved. Surface visibility at the time of fieldwork ranged from 0 to 100 percent, with pasture areas averaging at very low visibility (approximately 10 percent), and much higher visibility in the cultivated fields (approximately 80 percent). At each survey location, surface visibility was assessed to determine the need for subsurface testing.

This inventory was carried out in accordance to the North Dakota SHPO guidelines and cultural resource definitions (SHS 2020). Pedestrian transects were spaced no more than 20 m apart, and field personnel examined subsurface exposures, such as road cuts, ant mounds, animal burrows, trails, and other disturbances, for signs of buried cultural materials. A Trimble GeoXT GPS unit with sub-meter accuracy was utilized for navigation and the mapping of cultural resources.

Artifacts were identified using common local chronologies and references standard for use in North Dakota. Debitage cortex was noted in terms of primary, secondary, and tertiary. All pertinent dimensions of lithic tools were measured. The identification of lithic biface reduction stages (Stage 1 through Stage 5) utilized in this investigation is derived from Andrefsky (2005:187–193). Since the manufacture of stone tools is a reductive process, this system allows for classification via the amount of reduction in each tool. The classification is best viewed as a continuum of artifact production beginning with the initial reduction of unmodified tool stone masses and ending with finely retouched bifaces and hafted bifaces.

Cultural resources located during the inventory were recorded and photographed in accordance with the North Dakota SHPO guidelines (SHS 2020). All photographs included a visual reference or scale bar to establish the photographic scale. All lithic tools were shown at a 1:1 scale unless specifically noted. Most other artifacts were scaled as shown with a scale bar. When possible, all artifacts were placed on a photo mat board in the field to ensure a high quality photograph. No artifacts were collected during this inventory.

Shovel testing was conducted within the boundaries of cultural resources in order to assist in determining depositional regimes and the potential for buried cultural materials to be present. Shovel testing was also conducted in areas of dense vegetation where surface visibility averaged less than 30 percent, and where the deposits had the potential for buried cultural materials to occur. Shovel tests (ST) were placed in areas where sediments appeared likely to be intact. All shovel test pits were dug in accordance with natural stratigraphic levels. All excavated sediments and/or soils were screened through 0.25-inch (0.64-cm) hardware cloth. Sediment examination during shovel testing followed an abbreviated soil analysis as outlined in the United States Department of Agriculture's (USDA) *Soil Survey Manual* (Soil Science Division Staff 2017). The recorded data included the moist soil color, as established by *Munsell Soil Color Charts* (2000), and soil texture, as defined by the *Soil Survey Manual*

(Soil Science Division Staff 2017). Soil texture was determined by the standard wet test of sediment for ribbon development, which indicates clay, sand, and silt proportions. The presence or absence of pebbles was noted, as was the presence or absence of bedrock or subsurface cultural materials. Shovel tests were terminated upon encountering bedrock or after three culturally sterile levels. The information from the shovel test was collected on standardized shovel test forms. In order to accurately identify sediment types within the project area, archaeologists referred to the Web Soil Survey, an online database that is maintained by the NRCS (2022).

VI. INVENTORY RESULTS

Two newly identified sites (32LO169 and 32LO170) and three newly identified prehistoric Isolated Finds (32LOX74, 32MTX114, and 32MTX115) were observed within the current inventory areas. All of the newly identified cultural resources are recommended not eligible for inclusion in the National Register of Historic Places (NRHP), and no avoidance or further work is recommended. Four previously recorded sites were revisited during this survey (32MT044, 32LO163, 32LO168 [ATBAD-6], and 32MT451 [ATBAD-10]). Each of these sites is recommended not eligible for inclusion in the NRHP, and no avoidance or further work is recommended. 32MT044 is unevaluated for eligibility, because only the associated cultivated fields are within the project APE, with the main building complex lying outside the APE. Therefore, no avoidance or further work is recommended for 32MT044.

Archaeological Sites

32LO0163

NRHP Eligibility: Not eligible

Avoidance Recommended: No

Site 32LO0163 is located on top of a broad hill within an upland plain. It is bound on the north, south, and west sides by agricultural fields, and on the east side by a crown and ditch gravel road (42nd Ave). Sediments are Zahl-Williams-Zahill complex (9–15 percent slopes) fine loam glacial till deposits with scattered cobbles and boulders (NRCS 2022). Vegetation is primarily upland grasslands with 0–5 percent bare ground. Impacts to this site include past cultivation, rock clearing, and artifact decomposition. This site measures 136-x-133 m, covering 10,497 sq m of privately owned land.

This site was recently recorded and evaluated by Atwell (Wilk et al, 2022). This site was recommended as not eligible for inclusion in the NRHP (Wilk et al, 2022).

During the current inventory, there were no discernable changes to site condition compared to the condition described by Atwell (Wilk et al, 2022). As a result, a re-recording of this site was not conducted.

CRA agrees with the previous recommendation that this site is not eligible for inclusion in the NRHP. This site exhibits no planned organization, has a limited number of cultural materials, and overall does not retain integrity of design, setting, materials, workmanship, feeling, and association. This site is not known to be associated with events that have made a significant contribution to the broad patterns of our history (Criterion A) and it is not associated with the lives of significant persons in our past (Criterion B). This site does not contain architecture that may

embody a the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C). This site has not provided any new information on historic trash discarding practices, technology, economics, subsistence, or ethnicity, and has not yielded and is not likely yield information important to prehistory or history (Criterion D).

Site 32LO0163 is located within the APE/inventory area for the proposed project and may be impacted; however, the site is not eligible for inclusion in the NRHP and no further work or avoidance is recommended. A determination of no historic properties affected is recommended for this site.

32LO168

NRHP Eligibility: Not eligible

Avoidance Recommended: No

Site 32LO168 is located on the top and north side of a low, broad hill within a gently rolling upland plain. Sediments are Zahl-Williams Zahill complex (6–9 percent slopes) glacial moraine loam deposits with scattered cobbles and boulders (NRCS 2022). A large seasonal wetland occupies the low ground to the north of this site. This wetland was well saturated at the time of recording and had standing water. Vegetation is primarily upland grasslands with 0–5 percent bare ground. An east-west trending crown and ditch driveway accesses the site from the southwest side, stemming east from a crown and ditch gravel county road. Impacts to this site include structural decay, razing of buildings, continued use, and livestock grazing. This site measures 187-x-143 m, covering 26,741 sq m of privately owned land.

This site was first recorded by Atwell in 2020 as ATBAD-6. Atwell reported that the site was on land granted to Johanna Welch in 1908 under the authority of the 1916 Homestead Act. The 1916 county atlas labeled the land as belonging to the R. Puddwill Estate with no buildings illustrated at the homestead location (Geo A. Ogle & Co. 1916; Kulevsky et al. 2020). The site was recommended not eligible for inclusion in the NRHP (Dickerson and Ball 2022:A-7).

Site 32LO168 is recommended as not eligible for inclusion in the NRHP. This site has degraded physical integrity which yields a poor integrity of design, setting, materials, workmanship, feeling, and association. This site is not known to be associated with events that have made a significant contribution to the broad patterns of our history (Criterion A) and it is not associated with the lives of significant persons in our past (Criterion B). This site does not contain architecture that may embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C). This site has not provided any new information on historic settlement, agricultural practices, technology, economics, construction methods, subsistence, or ethnicity, and has not yielded and is not likely yield information important to prehistory or history (Criterion D).

This site is located within the APE/inventory area for the proposed project and may be impacted; however, the site is not eligible for inclusion in the NRHP and no further work or avoidance is recommended. A determination of no historic properties affected is recommended for this site.

32LO169

NRHP Eligibility: Not eligible

Avoidance Recommended: No

Site 32LO169 is located within an east-descending ephemeral drainage within a rolling plain. Sediments are Max-Zahl-Arnegard complex (9–35 percent slopes) very stony fine loam glacial till deposits (NRCS 2022). Ample cobbles and boulders are present. During recording, the drainage was saturated with ample standing water. Vegetation was primarily upland grasses with 0–5 percent bare ground. Impacts to this site include erosion, livestock grazing, artifact and feature decomposition, and the razing of structures. This site measures 5-x-15 m, covering approximately 75 sq m of privately owned land.

Lacking any depressions, additional features, or associated artifact scatter, and being located in a seasonally waterlogged area, the potential for buried cultural materials at this site is low.

This historic site is located on land patented to Frank I. Newton in 1911 under the authority of the 1863 Homestead Act (BLM 2022). By 1916, this land was owned by N.R. Percile of Keystone Farms (Geo A. Ogle and Co. 1916).

Site 32LO169 is recommended as not eligible for inclusion in the NRHP. This site lacks standing structures and associated artifacts or features. It has been impacted by decomposition resulting in poor integrity of design, setting, materials, workmanship, feeling, and association. This site is not known to be associated with events that have made a significant contribution to the broad patterns of our history (Criterion A) and it is not associated with the lives of significant persons in our past (Criterion B). This site does not contain architecture that may embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C). This site has not provided any new information on historic settlement, agricultural practices, water pumping technology, economics, construction methods, subsistence, or ethnicity, and has not yielded and is not likely yield information important to prehistory or history (Criterion D).

This site is located within the APE/inventory area for the proposed project and may be impacted; however, the site is not eligible for inclusion in the NRHP and no further work or avoidance is recommended. A determination of no historic properties affected is recommended for this site.

32LO170

NRHP Eligibility: Not eligible

Avoidance Recommended: No

Site 32LO170 is located within a broad lowland below the south facing slope of a large hill. Sediments are Max-Zahl-Arnegard complex (9–35 percent slopes) and Noonan-Niobell-Williams loams (0–6 percent slopes) which are both fine loam glacial till deposits (NRCS 2022). Ponds and a large seasonal wetland bound the site to the south. Vegetation is primarily mixed grasses and forbes with 0–20 percent bare ground. Impacts include livestock grazing, and erosion, as well as modifications and upkeep of the windmill and water well. This site measures 15-x-43 m, covering approximately 645 sq m.

Lacking any depressions, additional features, or any artifact scatter, the potential for buried cultural materials at this site is low.

This historic site is located on land patented to Christiana and John Olsen in 1909 under the authority of the 1863 Homestead Act (BLM 2022).

Site 32LO170 is recommended as not eligible for inclusion in the NRHP. This site lacks associated artifacts or features, and it has been impacted by modernization. This has resulted in poor integrity of design, setting, materials, workmanship, feeling, and association. This site is not known to be associated with events that have made a significant contribution to the broad patterns of our history (Criterion A) and it is not associated with the lives of significant persons in our past (Criterion B). This site does not contain architecture that may embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C). This site has not provided any new information on historic settlement, agricultural practices, technology, economics, construction methods, subsistence, or ethnicity, and has not yielded and is not likely yield information important to prehistory or history (Criterion D).

This site is located outside the current inventory area, but is within the APE for the proposed project and may be impacted; however, the site is not eligible for inclusion in the NRHP and no further work or avoidance is recommended. A determination of no historic properties affected is recommended for this site.

32MT44

NRHP Eligibility: Not eligible

Avoidance Recommended: No

Site 32MT44 is located on the west- and east-facing slopes of a low, broad hill within a gently rolling plain. Sediments in the northern site area are primarily Reeder-Arnegard residual loams (3–6 percent slopes), and sediments in the southern site area are Arnegard fine loam glacial till deposits with pockets of alluvial silty clay loams in the low areas (NRCS 2022). During recording, there were two seasonal ponds in the southcentral and southeastern portion of the site area. Vegetation is primarily agricultural crops with mixed grasses associated with the farmstead complex. Surface visibility during the inventory was 90 percent. Impacts to the site include plowing and planting of the fields and continued use of the farmstead complex, including the modification and upkeep or razing of historic structures and the addition of new structures. This site measures 802-x-357 m, covering 286,354 sq m of privately owned land.

This site was originally identified in 1979 (LAB and JS 1979). This site was subject to an architectural evaluation by CRA in 2021. It was recommended as not eligible (Dickerson and Ball 2022:A-15).

During the current recording, CRA had access only to the eastern portion of the site area located within the project APE/inventory area where a proposed staging area will be located. As a result, only the eastern portion of the site area could be intensively examined. Within the APE/inventory area, the site is an agricultural field with no artifacts or features present.

This site sits on land patented to the Northern Pacific Railroad under the authority of the 1864 railroad grant to the Northern Pacific Railroad Company (BLM 2022). The land would have been sold by the railroad into private ownership sometime after that. By 1916, the landowner was listed as W.S. Wischof (Geo A. Ogle & Co. 1911).

CRA agrees with the previous recommendation that this site is not eligible for inclusion in the NRHP. This site has been heavily modified yielding poor integrity of design, setting, materials, workmanship, feeling, and association. Site 32MT44 is not known to be associated with events that have made a significant contribution to the broad patterns of our history (Criterion A) and it is not associated with the lives of significant persons in our past (Criterion B). This site does not contain architecture that may embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C). This site has not provided any new information on historic settlement, agricultural practices, technology, economics, construction methods, subsistence, or ethnicity, and has not yielded and is not likely yield information important to prehistory or history (Criterion D).

The eastern portion of Site 32MT44 is located within the APE/inventory area for the proposed project and may be impacted; however, the site is not eligible for inclusion in the NRHP and no further work or avoidance is recommended. Additionally, none of the historic buildings associated with this site are within the APE, and they will not be impacted by the proposed project. A determination of no historic properties affected is recommended for this site

32MT451

NRHP Eligibility: Not eligible

Avoidance Recommended: No

Site 32MT451 is located on top of a broad upland hill within a rolling upland plain. Sediments are Reeder-Arnegard loams (3–6 percent slopes) and Amor-Werner loams (9–15 percent slopes) which are residual deposits. The landforms surrounding this site are characterized by glaciofluvial deposition (NRCS 2022). Vegetation is primarily upland grasslands with 0–10 percent bare ground. Impacts to this site include structural decay, fire, razing of buildings, and livestock grazing, as well as continued use. An east-west-trending crown and ditch gravel road bounds this site on the north side, with another bounding it on the east. This site measures 103-x-82 m, covering 8,490 sq m of privately owned land.

This site was first recorded by Atwell in 2021 as ATBAD-10. The site was not evaluated at the time. Atwell reported that the site was on land granted to William Bundrock in 1919 under the authority of the 1916 Homestead Act. The 1911 McIntosh County Atlas illustrated three structures in association with this farmstead (Geo A. Ogle & Co. 1911; Wilk et al. 2021). Atwell recommended this site as not eligible for inclusion in the NRHP (Wilk et al. 2021).

Lacking any indications of undiscovered buried historic cultural features or artifacts, the potential for intact subsurface historic cultural materials is estimated to be low.

Site 32MT451 is recommended as not eligible for inclusion in the NRHP. This site has been impacted by decay and temporally diagnostic artifacts are rare resulting in a loss of context and feature function information. The degraded physical integrity of the features at this site yield a poor integrity of design, setting, materials, workmanship, feeling, and association. This site is not known to be associated with events that have made a significant contribution to the broad patterns of our history (Criterion A) and it is not associated with the lives of significant persons in our past (Criterion B). This site does not contain architecture that may embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C). This site has not provided any new information on historic settlement, agricultural practices, technology, economics, construction methods, subsistence, or ethnicity, and has not yielded and is not likely yield information important to prehistory or history (Criterion D).

Site 32MT451 is located within the APE/inventory area for the proposed project and may be impacted; however, the site is not eligible for inclusion in the NRHP and no further work or avoidance is recommended. A determination of no historic properties affected is recommended for this site.

Isolated Finds

32LOX74

Isolated find 32LOX74 is recommended as not eligible for inclusion in the NRHP. It is located within an agricultural field and is highly disturbed, resulting in poor integrity of location, design, setting, materials, workmanship, feeling, and association. It is not known to be associated with events that have made a significant contribution to the broad patterns of our history (Criterion A) and it is not associated with the lives of significant persons in our past (Criterion B). This isolate does not contain architecture that may embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C). This isolate has not provided any new information on prehistoric settlement, site organization, technology, subsistence, or chronology, and has not yielded and is not likely yield information important to prehistory or history (Criterion D).

This isolated find is located inside the current APE/inventory area, and may be impacted; however, it is not eligible for inclusion in the NRHP and no further work or avoidance is recommended. A determination of no historic properties affected is recommended for this cultural resource.

32MTX114

Isolated find 32MTX114 is recommended as not eligible for inclusion in the NRHP. It is located within an agricultural field and is highly disturbed, resulting in poor integrity of location, design, setting, materials, workmanship, feeling, and association. It is not known to be associated with events that have made a significant contribution to the broad patterns of our history (Criterion A) and it is not associated with the lives of significant persons in our past (Criterion B). This isolate does not contain architecture that may embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C). This isolate has not provided any new information on prehistoric settlement, site organization, technology, subsistence, or chronology, and has not yielded and is not likely yield information important to prehistory or history (Criterion D).

This isolated find is located inside the current APE/inventory area, and may be impacted; however, it is not eligible for inclusion in the NRHP and no further work or avoidance is recommended. A determination of no historic properties affected is recommended for this cultural resource.

32MTX115

Isolated find 32MTX115 is recommended as not eligible for inclusion in the NRHP. It is located within an agricultural field and is highly disturbed, resulting in poor integrity of location, design, setting, materials, workmanship, feeling, and association. It is not known to be associated with events that have made a significant contribution to the broad patterns of our history (Criterion A) and it is not associated with the lives of significant persons in our past (Criterion B). This isolate does not contain architecture that may embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C). This isolate has not provided any new information on prehistoric settlement, site organization, technology, subsistence, or chronology, and has not yielded and is not likely yield information important to prehistory or history (Criterion D).

This isolated find is located inside the current APE/inventory area, and may be impacted; however, it is not eligible for inclusion in the NRHP and no further work or avoidance is recommended. A determination of no historic properties affected is recommended for this cultural resource.

On-Survey Shovel Test Results

Per the research design and in accordance with North Dakota SHPO regulations, shovel tests were excavated in areas with low surface visibility and areas with higher potential to contact buried cultural materials (SHS 2020:17). The results of the 47 on-survey shovel tests are detailed in Table 3. Soil profiles in the inventory area varied somewhat due to the dispersed nature of the inventory parcels, but could typically be described as silt loams or loams overlying layers of clay loams and clays, or in fewer instances, sandy loams. The A horizon generally consisted of a very dark brown or black (10 YR 2/2 or 10 YR 2/1) silt loam or loam that extended down 20–40 cm bgs, and sometimes as far as down 60 cm bgs. The texture of the A horizon varied depending on the material of the B and C horizons, which showed more variability in color and texture across the project area than the A horizon. The B horizon typically consisted of clay loams or sandy clay loams beginning between 20 and 40 cm bgs, and ending between 45 and 60 cm bgs. Colors ranged between dark brown (10 YR 3/3), to brown (10 YR 4/3), to dark yellowish brown (10YR 4/4). The C Horizons tended to show the greatest amount of variability. Starting depths ranged from 35 to 50 cm bgs (Figure 10). Depending on the shovel test location, the C horizon was most often composed of clay loam, but loamy sands, sandy loams, or sandy clay loams, and clays were also encountered. Typically, these soil layers were lighter in color than the layers above, ranging from brown (10 YR 4/3 or 5/3), to grayish brown (10 YR 5/2), and light brownish gray (10 YR 6/2).

Many of the soil profiles in the shovel tests displayed evidence of severe disturbance in the past. Several tests displayed mixing of the A and B horizons, creating vertical striations of multicolored soils. In some cases, mixing of the B horizon with both the upper portion of the C horizon and the lower portion of the A horizon, resulted in vertical inclusions from both. The majority of the shovel tests were located within 200 m of modern cultivated fields, and field clearing cobble piles were present nearby, indicating it is likely that these areas may have been subjected to cultivation and plowing in the past.

No buried cultural materials were encountered in on-survey shovel tests. The negative shovel test results are likely due to the erosional impacts from agriculture and to the survey area being located mostly on uplands away from permanent water sources.

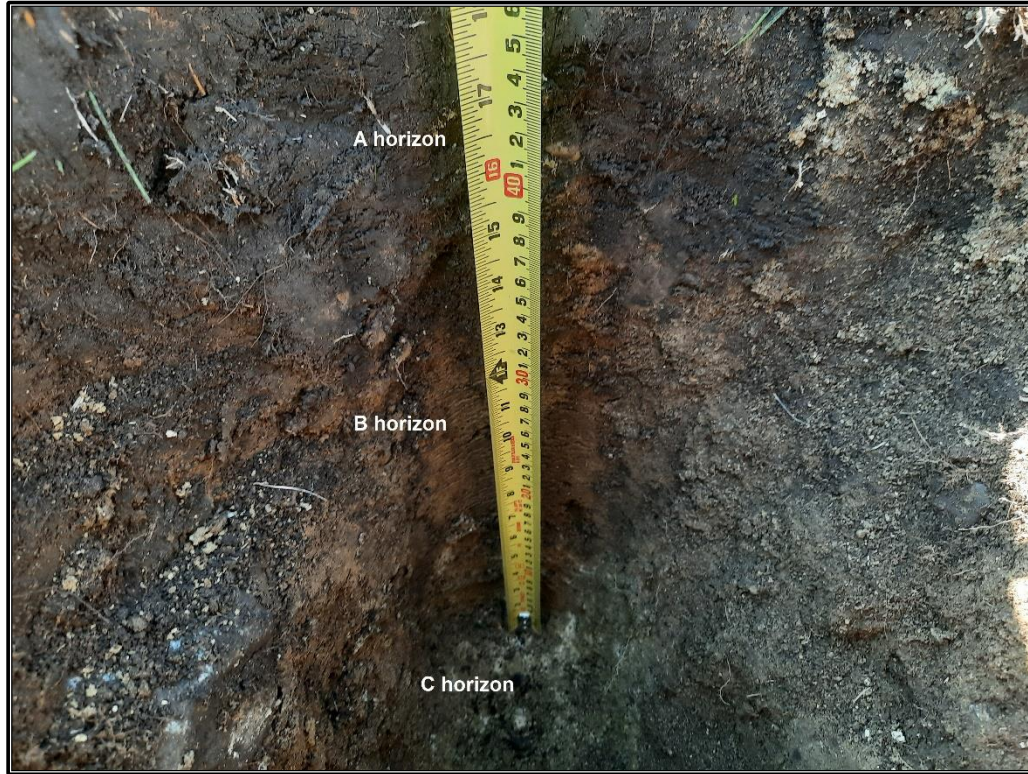


Figure 10. Shovel test 3-34 as an example of the typical soil profile encountered within the inventory area. A horizon is 10YR 2/1 black loam; B horizon is 10YR 4/4 dark yellowish brown sandy clay loam; C horizon is 10YR 5/2 grayish brown sandy clay with gravels and back oxidizing ferrous inclusions. Photograph taken by Jason Weston on May 24, 2022. This image has been modified by the addition of digital labels.

Table 3. On-Survey Shovel Test Results.

Subsurface Test Type and No.	Stratigraphic or Arbitrary Levels?	Depth (cm bgs)	Munsell No. and Soil Color	Soil Texture	Inclusions	Contact with Bedrock or Regolith?	Test Terminated Due To:	Results	Comments
1-18	Stratigraphic	0-25	10 YR 2/1, black	silt loam	Dense roots, no gravels	No	N/A	No cultural materials present	judgmental, land form
1-18	Stratigraphic	25-42	10 YR 3/3, dark brown	silty clay loam	Moderate roots, no gravels	No	N/A	No cultural materials present	
1-18	Stratigraphic	42-52	10 YR 4/4 dark yellowish brown	clay	Few roots, no gravels, one glacial cobble at 52 cm bgs	No	Ended in subsoil	No cultural materials present	judgmental, land form
2-18	Stratigraphic	0-35	10YR 2/1 black	silt loam	Dense roots, no gravels	No	N/A	No cultural materials present	
2-18	Stratigraphic	36-45	10YR 4/3 brown	clay loam	Moderate roots, no gravels	No	Ended in subsoil	No cultural materials present	judgmental, land form
1-20	Stratigraphic	0-20	10YR 3/2, very dark grayish brown	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
1-20	Stratigraphic	20-45	10YR 4/3, brown	clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	judgmental, land form
1-20	Stratigraphic	45-65	10YR 5/2, grayish brown	clay	Few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
2-20	Stratigraphic	0-23	10YR 3/2, very dark grayish brown	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	judgmental, land form
2-20	Stratigraphic	23-47	10YR 4/3, brown	clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
2-20	Stratigraphic	47-63	10YR 5/2, grayish brown	clay	Few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
3-20	stratigraphic	0-22	10YR 3/2, very dark grayish brown	loam	Dense roots, 20 percent cobbles	No	N/A	No cultural materials present	judgmental, land form
3-20	Stratigraphic	22-51	10YR 4/3 brown	loam	Moderate roots, 5 percent cobbles	No	Ended in dense granite cobble layer	No cultural materials present	
4-20	Stratigraphic	0-20	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	judgmental, land form
4-20	Stratigraphic	20-43	10YR 4/3 brown	clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
4-20	Stratigraphic	43-63	10YR 5/2, grayish brown	clay	Few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
5-20	Stratigraphic	0-60	10 YR 2/1, black	loam	Dense roots, no gravels	No	N/A	No cultural materials present	judgmental, land form
5-20	Stratigraphic	60-67	10 YR 4/4 dark yellowish brown	clay loam	Dense granite cobbles at 67 cm bgs	No	Ended in dense granite cobble layer	No cultural materials present	
6-20	Stratigraphic	0-50	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	judgmental, land form
6-20	Stratigraphic	50-56	10 YR 4/4 dark yellowish brown	silty clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
6-20	Stratigraphic	56-70	10 YR 4/3 brown	clay	Few roots, no gravels	No	Ended in subsoil	No cultural materials present	judgmental, land form
7-20	Stratigraphic	0-40	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
7-20	Stratigraphic	40-45	10 YR 4/4 dark yellowish brown	silty clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	judgmental, land form
7-20	Stratigraphic	45-55	10 YR 4/3 brown	clay	Few roots, no gravels	No	Ended in subsoil	No cultural materials present	

Subsurface Test Type and No.	Stratigraphic or Arbitrary Levels?	Depth (cm bgs)	Munsell No. and Soil Color	Soil Texture	Inclusions	Contact with Bedrock or Regolith?	Test Terminated Due To:	Results	Comments
8-20	Stratigraphic	0-38	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
8-20	Stratigraphic	38-50	10 YR 4/4 dark yellowish brown	silty clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
8-20	Stratigraphic	50-60	10 YR 4/3 brown	clay	Few roots, no gravels	No	Ended in subsoil	No cultural materials present	
9-20	Stratigraphic	0-40	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
9-20	Stratigraphic	40-46	10 YR 4/4 dark yellowish brown	silty clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
9-20	Stratigraphic	45-56	10 YR 4/3 brown	clay	Few roots, no gravels	No	Ended in subsoil	No cultural materials present	
1-22	Stratigraphic	0-11	10 YR 3/2 very dark grayish brown	sandy loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
1-22	Stratigraphic	11-40	10 YR 3/3 dark brown	loamy sand	Moderate roots, no gravels	No	N/A	No cultural materials present	
1-22	Stratigraphic	40-63	10 YR 3/4 dark yellowish brown	sand	Few roots, no gravels	No	Ended in third sterile stratigraphic layer	No cultural materials present	
2-22	Stratigraphic	0-14	10 YR 3/2 very dark grayish brown	sandy loam	Dense roots, no gravels	No	N/A	No cultural materials present	
2-22	Stratigraphic	14-38	10 YR 3/3 dark brown	loamy sand	Moderate roots, no gravels	No	N/A	No cultural materials present	
2-22	Stratigraphic	38-55	10 YR 3/4 dark yellowish brown	sand	Few roots, no gravels	No	Ended in third sterile stratigraphic layer	No cultural materials present	
1-24	Stratigraphic	0-22	10 YR 2/1 black	silty clay loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
1-24	Stratigraphic	22-42	10 YR 4/4 dark yellowish brown	silty clay	Moderate roots, 1 percent gravels, mottled soils	No	N/A	No cultural materials present	
1-24	Stratigraphic	42-47	10 YR 5/2 grayish brown	silty clay	Few roots, dense gravels	No	Ended in third sterile stratigraphic layer	No cultural materials present	
2-24	Stratigraphic	0-15	10 YR 3/2 very dark grayish brown	loam	Dense roots, 2 percent gravels	No	N/A	No cultural materials present	
2-24	Stratigraphic	15-35	10 YR 3/4 dark yellowish brown	sandy loam	Moderate roots, 2 percent gravels with granite cobbles present	No	Ended in dense granite cobble layer	No cultural materials present	
3-24	Stratigraphic	0-23	10 YR 2/1 black	loam	Dense roots, 2 percent gravels	No	N/A	No cultural materials present	field clearing pile of granite cobbles are located 22 m south of this stp.
3-24	Stratigraphic	23-44	10 YR 4/4 dark yellowish brown	sandy clay loam	Moderate roots, 2 percent gravels with granite cobbles present	No	N/A	No cultural materials present	
3-24	Stratigraphic	44-56	10 YR 5/2 grayish brown	sandy clay	Few roots, 5 percent gravels with black oxidizing ferrous inclusions	No	Ended in third sterile stratigraphic layer	No cultural materials present	
4-24	Stratigraphic	0-21	10 YR 2/1 black	silty clay loam	Dense roots, 2 percent gravels	No	N/A	No cultural materials present	
4-24	stratigraphic	21-52	10 YR 4/4 dark yellowish brown	silty clay loam	Moderate roots, 2 percent gravels	No	N/A	No cultural materials present	
4-24	stratigraphic	52-54	10 YR 5/2 grayish brown	silty clay loam	Few roots, 5 percent gravels with regolith mixed in	Yes	Ended at contact with regolith	No cultural materials present	

Subsurface Test Type and No.	Stratigraphic or Arbitrary Levels?	Depth (cm bgs)	Munsell No. and Soil Color	Soil Texture	Inclusions	Contact with Bedrock or Regolith?	Test Terminated Due To:	Results	Comments
5-24	Stratigraphic	0-13	10 YR 3/2 very dark grayish brown	loam	Dense roots, dense gravel and cobble layer	No	Ended in dense granite cobble layer	No cultural materials present	
1-25	Stratigraphic	0-25	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
1-25	Stratigraphic	25-40	10 YR 4/3 brown	sandy clay loam	Moderate roots, no gravels	No	N/A	No cultural materials present	
1-25	Stratigraphic	40-50	10 YR 4/3 brown	clay	Few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
2-25	Stratigraphic	0-16	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
2-25	Stratigraphic	16-38	10 YR 4/3 brown	sandy clay loam	Moderate roots, no gravels	No	N/A	No cultural materials present	
2-25	Stratigraphic	38-48	10 YR 4/3 brown	clay	Few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
3-25	Stratigraphic	0-12	10 YR 2/1, black	loam	Dense roots, 2 percent cobbles	No	N/A	No cultural materials present	
3-25	Stratigraphic	12-25	10 YR 3/4 dark yellowish brown	clay	Moderate roots, no cobbles	No	Ended in subsoil	No cultural materials present	
4-25	Stratigraphic	0-13	10 YR 2/2 very dark brown	silty clay loam	Dense roots, 1 percent gravels	No	N/A	Negative	
4-25	Stratigraphic	13-29	10 YR 4/4 dark yellowish brown	silty clay	Moderate roots, 5 percent gravels	No	N/A	Negative	
4-25	Stratigraphic	29-38	10 YR 4/3 brown	sandy clay	Few roots, dense gravels with regolith and calcium carbonate mixed in	No	Ended in subsoil at third sterile stratigraphic layer	Negative	
5-25	Stratigraphic	0-29	10 YR 2/1, black	loam	Dense roots, 2 percent gravels	No	N/A	No cultural materials present	
5-25	Stratigraphic	29-38	10 YR 4/3 brown	clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
5-25	Stratigraphic	38-48	10 YR 5/2 grayish brown	clay	Few roots, 1 percent gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
6-25	Stratigraphic	0-35	10 YR 3/2 very dark grayish brown	loam	Dense roots, 10 percent gravels	No	N/A	No cultural materials present	
6-25	Stratigraphic	35-40	10 YR 3/4	sandy clay loam	moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
6-25	Stratigraphic	40-50	10 YR 5/2 grayish brown	clay	Few roots, 1 percent gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
7-25	Stratigraphic	0-15	10 YR 2/1, black	loam	dense roots, few gravels	No	N/A	No cultural materials present	
7-25	Stratigraphic	15-35	10 YR 4/3 brown	clay loam	moderate roots, few gravels	No	N/A	No cultural materials present	
7-25	Stratigraphic	35-45	10 YR 5/3, brown	sandy clay	few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
8-25	Stratigraphic	0-16	10 YR 2/2 very dark brown	silty clay loam	Dense roots, 2 percent gravels	No	N/A	No cultural materials present	

Subsurface Test Type and No.	Stratigraphic or Arbitrary Levels?	Depth (cm bgs)	Munsell No. and Soil Color	Soil Texture	Inclusions	Contact with Bedrock or Regolith?	Test Terminated Due To:	Results	Comments
8-25	Stratigraphic	16-31	10 YR 3/4 dark yellowish brown	silty clay	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
8-25	Stratigraphic	31-46	10 YR 6/3 pale brown	clay	Few roots, no gravels	No	Ended in subsoil	No cultural materials present	
9-25	Stratigraphic	0-13	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
9-25	Stratigraphic	13-44	10 YR 4/3 brown	clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
9-25	Stratigraphic	44-54	10 YR 5/3, brown	sandy clay	Few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
10-25	Stratigraphic	0-54	10YR 2/1 black	silt loam	Moderate roots, 1 percent gravels	No	Ended on contact with large cobble at base of level	No cultural materials present	
11-25	Stratigraphic	0-23	10 YR 2/ 2 very dark brown	silt loam	Dense roots, 1 percent gravels	No	N/A	Negative	
11-25	Stratigraphic	23-49	10 YR 3/2 very dark greyish brown	silty clay	Moderate roots, no gravels	No	N/A	Negative	
11-25	Stratigraphic	49-53	10 YR 3/3 dark brown	clay	Few roots, no gravels	No	Ended in subsoil	Negative	
12-25	Stratigraphic	0-14	10YR 2/1 black	loam	many roots, few cobbles and gravels	No	N/A	No cultural materials present	
12-25	Stratigraphic	14-32	10YR 5/3, brown	sandy loam	Few roots, no gravels	No	N/A	No cultural materials present	
12-25	Stratigraphic	32-42	10YR 5/4, yellowish brown	sandy clay	Few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
1-26	Stratigraphic	0-28	10YR 2/2 very dark brown	loam	Dense roots, 2 percent gravels	No	N/A	No cultural materials present	
1-26	Stratigraphic	28-36	10 YR 5/2 grayish brown	clay	Few roots, no gravels	No	Ended in subsoil	No cultural materials present	
2-26	Stratigraphic	0-15	10 YR 3/2 very dark grayish brown	loam	Dense roots, 5 percent cobbles	No	N/A	No cultural materials present	
2-26	Stratigraphic	15-35	10 YR 5/2 grayish brown	sandy clay	Moderate roots, 5 percent cobbles	No	Ended in subsoil	No cultural materials present	
3-26	Stratigraphic	0-9	10 YR 2/1 black	silty clay loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
3-26	Stratigraphic	,9-23	10 YR 3/4 dark yellowish brown	clay loam	Moderate roots, dense gravel layer	No	Ended in dense gravel layer	No cultural materials present	
4-26	Stratigraphic	0-16	10 YR 2/1 black	silty clay loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
4-26	Stratigraphic	16-36	10 YR 4/3 brown	silty clay	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
4-26	Stratigraphic	36-42	10 YR 5/2 grayish brown	clay	No roots, no gravels	No	Ended in subsoil	No cultural materials present	
5-26	Stratigraphic	0-21	10 YR 2/1 black	silty clay loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
5-26	Stratigraphic	21-42	10 YR 4/3 brown	silty clay	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
5-26	Stratigraphic	42-55	10 YR 5/2 grayish brown	clay	No roots, no gravels	No	Ended in subsoil	No cultural materials present	

Subsurface Test Type and No.	Stratigraphic or Arbitrary Levels?	Depth (cm bgs)	Munsell No. and Soil Color	Soil Texture	Inclusions	Contact with Bedrock or Regolith?	Test Terminated Due To:	Results	Comments
6-26	Stratigraphic	0-30	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
6-26	Stratigraphic	30-34	10 YR 4/3 brown	sandy clay loam	Few roots, 1 percent gravels	No	Ended on contact with granite boulder	No cultural materials present	
7-26	Stratigraphic	0-35	10 YR 2/1, black	loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
7-26	Stratigraphic	35-40	10 YR 4/3 brown	clay loam	Few roots, 1 percent gravels	No	N/A	No cultural materials present	
7-26	Stratigraphic	40-60	10 YR 4/4 dark yellowish brown	clay	Few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
8-26	Stratigraphic	0-40	10 YR 2/1, black	silty clay loam	many fine roots	no	N/A	Negative	
8-26	Stratigraphic	40-62	10 YR 3/1 very dark grey	clay	no	no	contact with clay subsoil	Negative	
9-26	Stratigraphic	0-22	10YR 2/1, black	loam	Dense roots, 3 percent gravels	No	N/A	No cultural materials present	
9-26	Stratigraphic	22-44	10YR 5/3, brown	clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
9-26	Stratigraphic	44-58	10YR 6/2, light brownish gray	clay	Few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
10-26	Stratigraphic	0-20	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
10-26	Stratigraphic	20-38	10 YR 4/3 brown	clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
10-26	Stratigraphic	38-45	10 YR 4/3 brown	loamy sand	Few roots, 70 percent gravels	No	Ended in third sterile stratigraphic layer	No cultural materials present	
11-26	Stratigraphic	0-20	10YR 2/2, very dark brown	Loam	Dense roots, 1 percent cobbles	No	N/A	No cultural materials present	
11-26	Stratigraphic	20-48	10YR 3/3, dark brown	clay loam	Few roots, 5 percent gravels	No	N/A	No cultural materials present	
11-26	Stratigraphic	48-58	10YR 4/2, dark grayish brown	sandy loam	No roots, 5 percent gravels	No	Ended in third sterile stratigraphic layer	No cultural materials present	
1-27	Stratigraphic	0-28	10 YR 2/2 very dark brown	silty loam	Dense roots, no gravels	No	N/A	No cultural materials present	
1-27	Stratigraphic	28-40	10 YR 3/3 dark brown	silty clay loam	Moderate roots, no gravels	No	N/A	No cultural materials present	
1-27	Stratigraphic	40-60	10 YR 4/4 dark yellowish brown	sandy loam	Few roots, no gravels	No	Ended in third sterile stratigraphic layer	No cultural materials present	
2-27	Stratigraphic	0-13	10 YR 3/2 very dark grayish brown	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
2-27	Stratigraphic	0-26	10 YR 3/2 very dark grayish brown	loam	Moderate roots, 20 percent cobbles	No	N/A	No cultural materials present	
2-27	Stratigraphic	26-39	10 YR 4/3 brown	clay loam	Few roots, dense cobble layer	No	Ending on contact with dense cobble layer	No cultural materials present	
2-27	Stratigraphic	0-14	10YR 2/2, very dark brown	loam	Dense roots, no gravels	No	N/A	No cultural materials present	
2-27	Stratigraphic	14-37	10YR 4/3, brown	clay loam	Few roots, 1 percent gravels	No	N/A	No cultural materials present	
2-27	Stratigraphic	37-47	10YR 5/4, yellowish brown	sandy clay loam	No roots, no gravels	No	Ended in third sterile stratigraphic layer	No cultural materials present	

Subsurface Test Type and No.	Stratigraphic or Arbitrary Levels?	Depth (cm bgs)	Munsell No. and Soil Color	Soil Texture	Inclusions	Contact with Bedrock or Regolith?	Test Terminated Due To:	Results	Comments
3-27	Stratigraphic	0-16	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
3-27	Stratigraphic	16-40	10 YR 4/3 brown	sandy clay loam	Few roots, 10 percent gravels	No	Ending on contact with dense gravel layer	No cultural materials present	
4-27	stratigraphic	0-20	10 YR 2/2 very dark brown	silt loam	Dense roots, no gravels	No	N/A	No cultural materials present	
4-27	Stratigraphic	20-45	10 YR 3/3 dark brown	silty clay loam	Moderate roots, no gravels	No	N/A	No cultural materials present	
4-27	Stratigraphic	45-53	10 YR 4/4 dark yellowish brown	sandy clay loam	No roots, no gravels	No	Ended in third sterile stratigraphic layer	No cultural materials present	
5-27	Stratigraphic	0-16	10 YR 2/1, black	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
5-27	Stratigraphic	16-26	10YR 5/3, brown	clay loam	Moderate roots, 1 percent gravels	No	Ended in subsoil	No cultural materials present	
5-27	Stratigraphic	26-36	10YR 6/1	clay	Few roots, no gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
6-27	Stratigraphic	0-10	10 YR 3/2 very dark grayish brown	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
6-27	Stratigraphic	10-20	10 YR 3/4 dark yellowish brown	clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
6-27	Stratigraphic	20-27	10 YR 5/2 grayish brown	clay	Few roots, 1 percent gravels	No	Ended in subsoil at third sterile stratigraphic layer	No cultural materials present	
7-27	Stratigraphic	0-18	10 YR 3/2 very dark grayish brown	loam	Dense roots, 1 percent gravels	No	N/A	No cultural materials present	
7-27	Stratigraphic	18-45	10 YR 3/4 dark yellowish brown	clay loam	Moderate roots, 1 percent gravels	No	N/A	No cultural materials present	
7-27	Stratigraphic	45-65	10 YR 5/1, gray	clay	Few roots, 5 percent gravels	No	N/A	No cultural materials present	

VII. CONCLUSIONS AND RECOMMENDATIONS

Based on the previously identified sites overall site density was expected to be low. Weather during fieldwork varied from sunny and mild to overcast, with occasional severe thunderstorms. Fieldwork was delayed or rescheduled to avoid thunderstorms. Survey was only conducted when conditions were conducive. Ground visibility was variable depending upon the inventory area location, ranging from 0 to 100 percent. Subsurface testing was conducted within intact sediments where surface visibility was low. No cultural materials were observed in the subsurface tests, road cuts, animal burrows, or other disturbances. Existing and past disturbances associated with construction and maintenance of the public roads and ditches, as well as agricultural activity reduced the potential for encountering intact surface and subsurface cultural resources. This indicates a low potential for intact buried cultural materials to be present. The type of cultural resources expected during the intensive cultural resource inventory was encountered, and a low site density was observed as anticipated. Confidence in meeting the objective of the intensive cultural resource inventory is high.

Recommendations

Two newly identified sites (32LO169 and 32LO170) and three newly identified isolated finds (32LOX74, 32MTX114, and 32MTX115) were encountered during the inventory.

Additionally, four previously recorded sites were revisited, and Sites 32LO168 and 32MT451 were re-recorded and reevaluated with site forms completed per North Dakota SHPO comments. All four previously identified sites are recommended not eligible for inclusion in the NRHP and no avoidance or further work is recommended.

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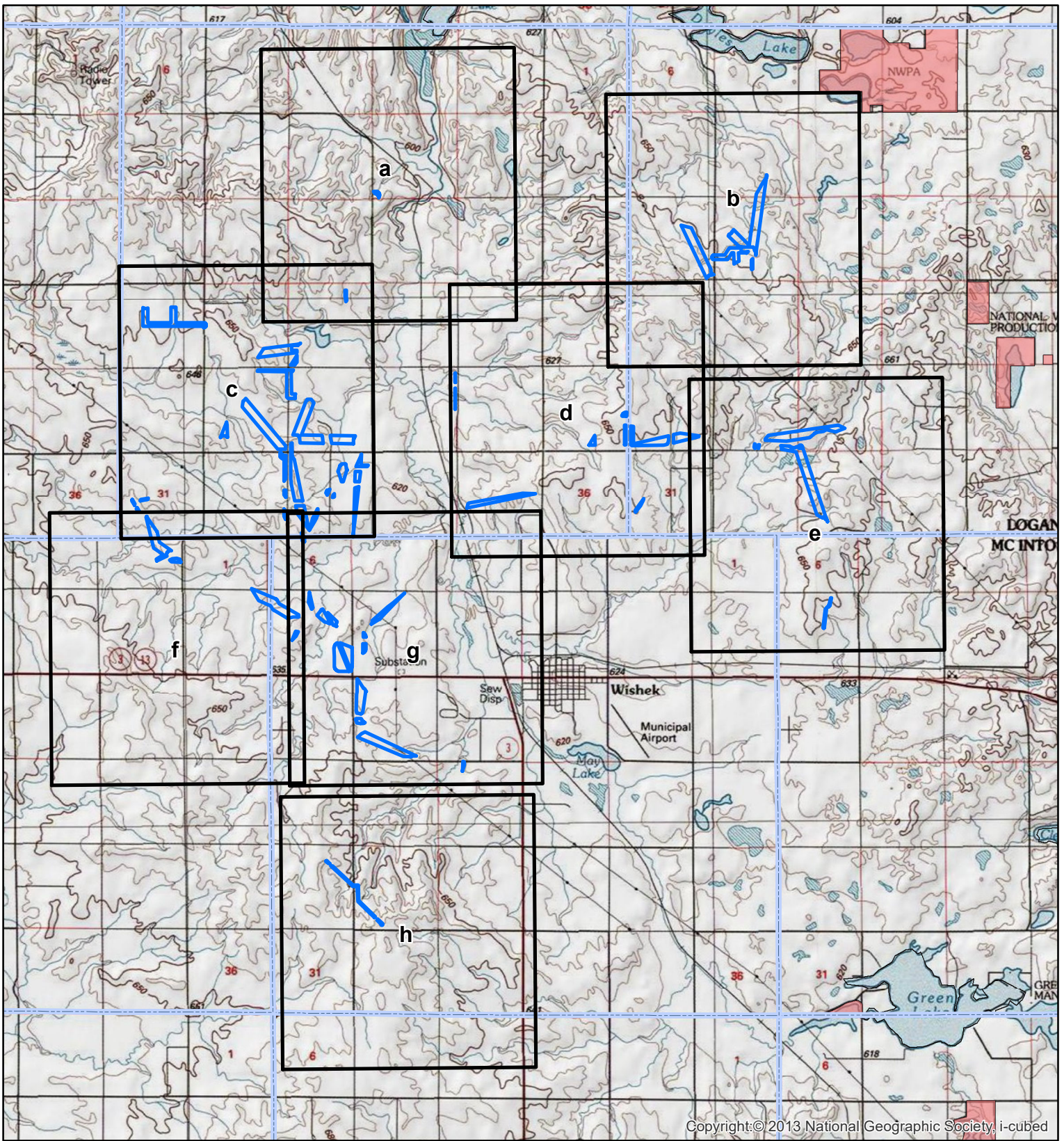
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-  Map page boundary
-  Inventory Area
-  Township Boundary
-  US Fish and Wildlife
-  Private

Badger Wind Project Inventory

Index Map



1:100,000
 1 inch = 8,333 feet
 1 inch = 2,540 meters



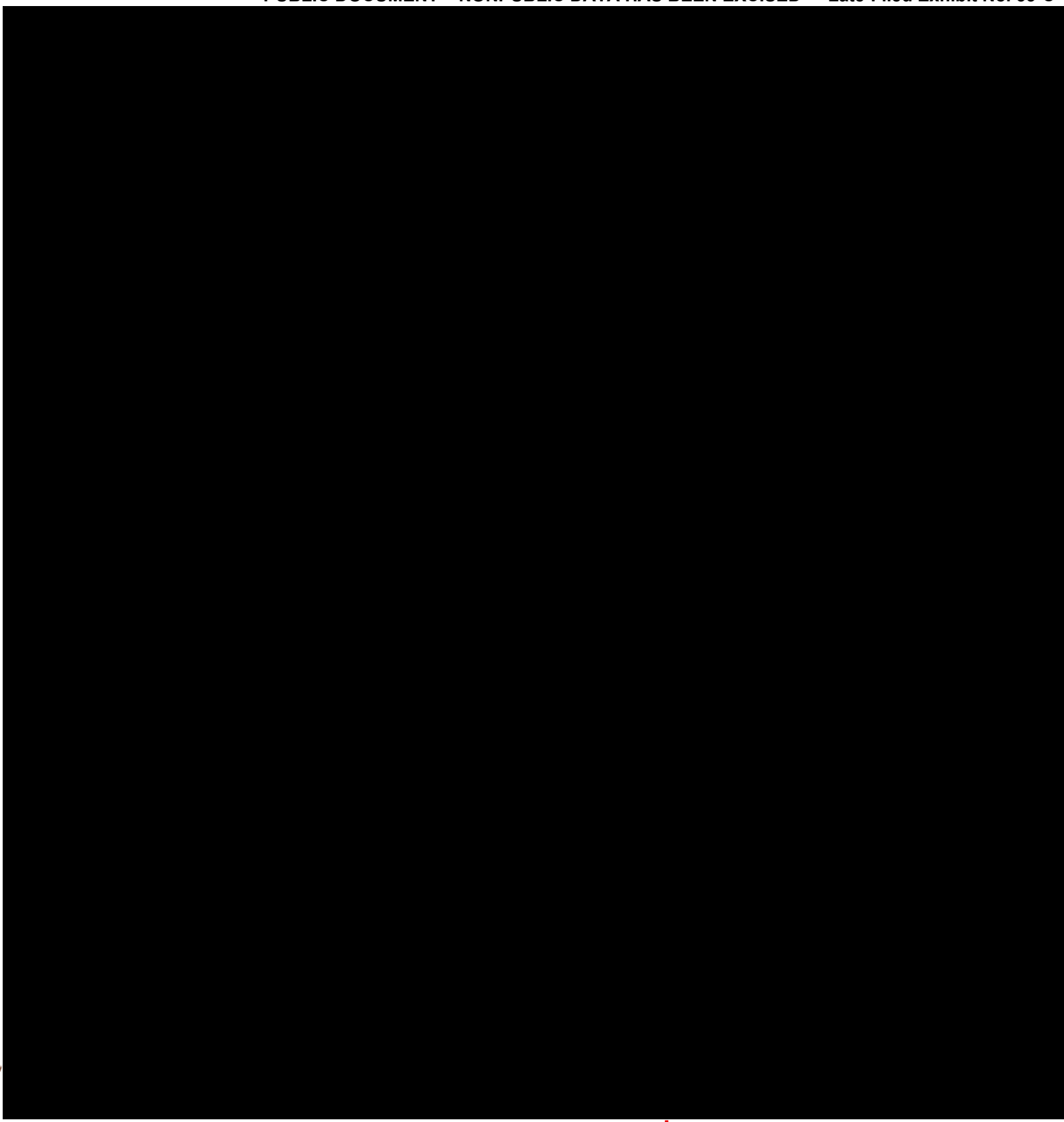
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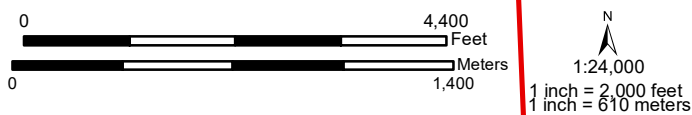
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- Linear Site
- Site
- Site Point
- Architectural Site Point
- Inventory Area
- Previous Inventory (Digitized)
- Previous Inventory from Atwell
- Township/Range
- Quadrangle
- Private

Badger Wind Project Inventory

Figure 1, map a: Project and Site Location Map





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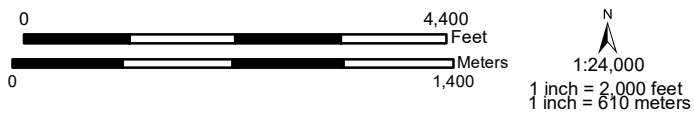
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Coordinate System:
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Badger Wind Project Inventory

Figure 1, map b: Project and Site Location Map

- Site
- Architectural Site Point
- Subsurface Test
- Inventory Area
- Previous Inventory from Atwell
- Township/Range
- Quadrangle
- Private



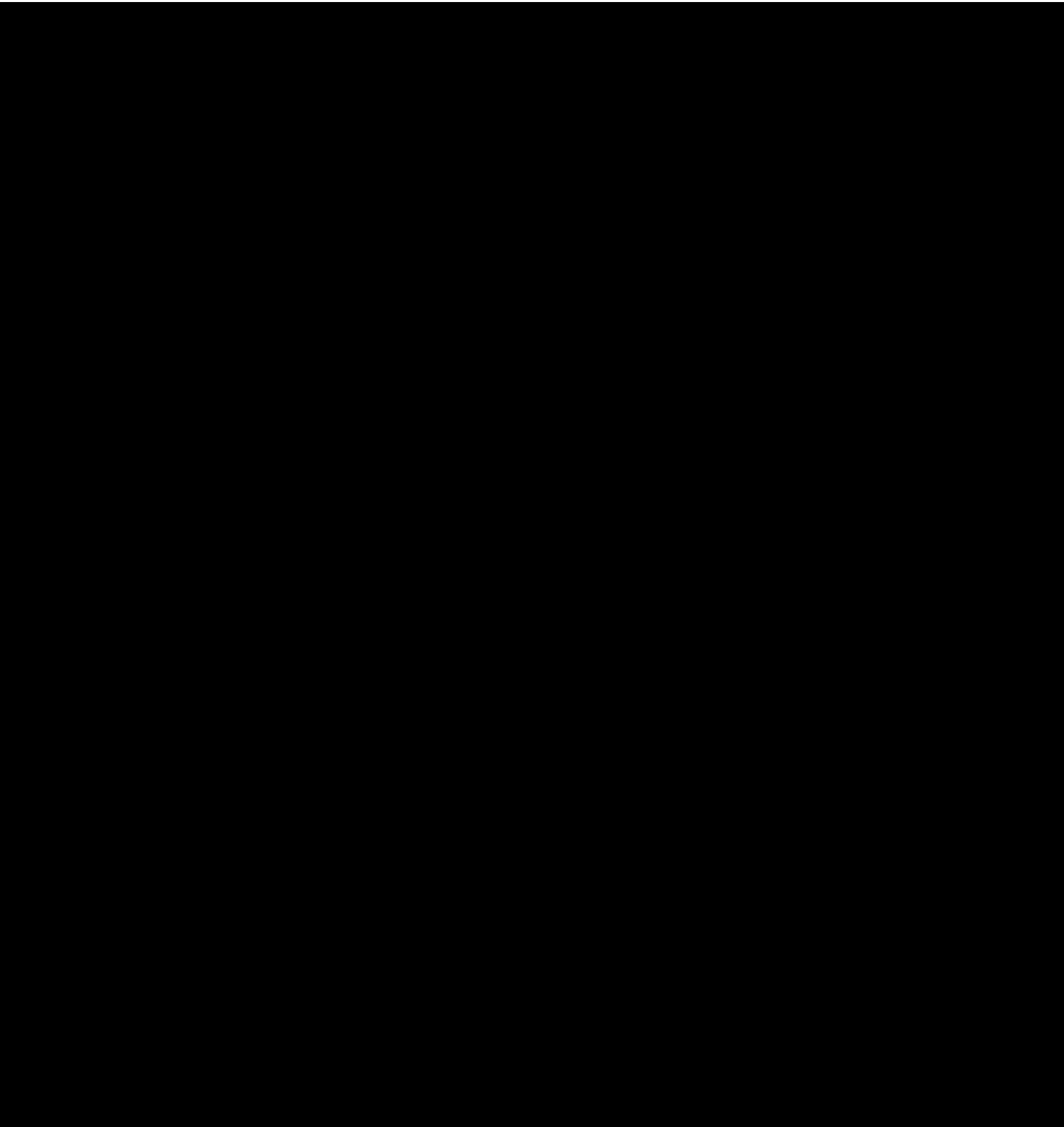


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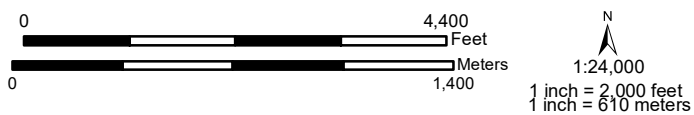
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- Site
- Site Point
- Architectural Site Point
- Isolate
- Subsurface Test
- Inventory Area
- Previous Inventory (Digitized)
- Previous Inventory from Atwell
- Township/Range
- Quadrangle
- Private

Badger Wind Project Inventory

Figure 1, map c: Project and Site Location Map



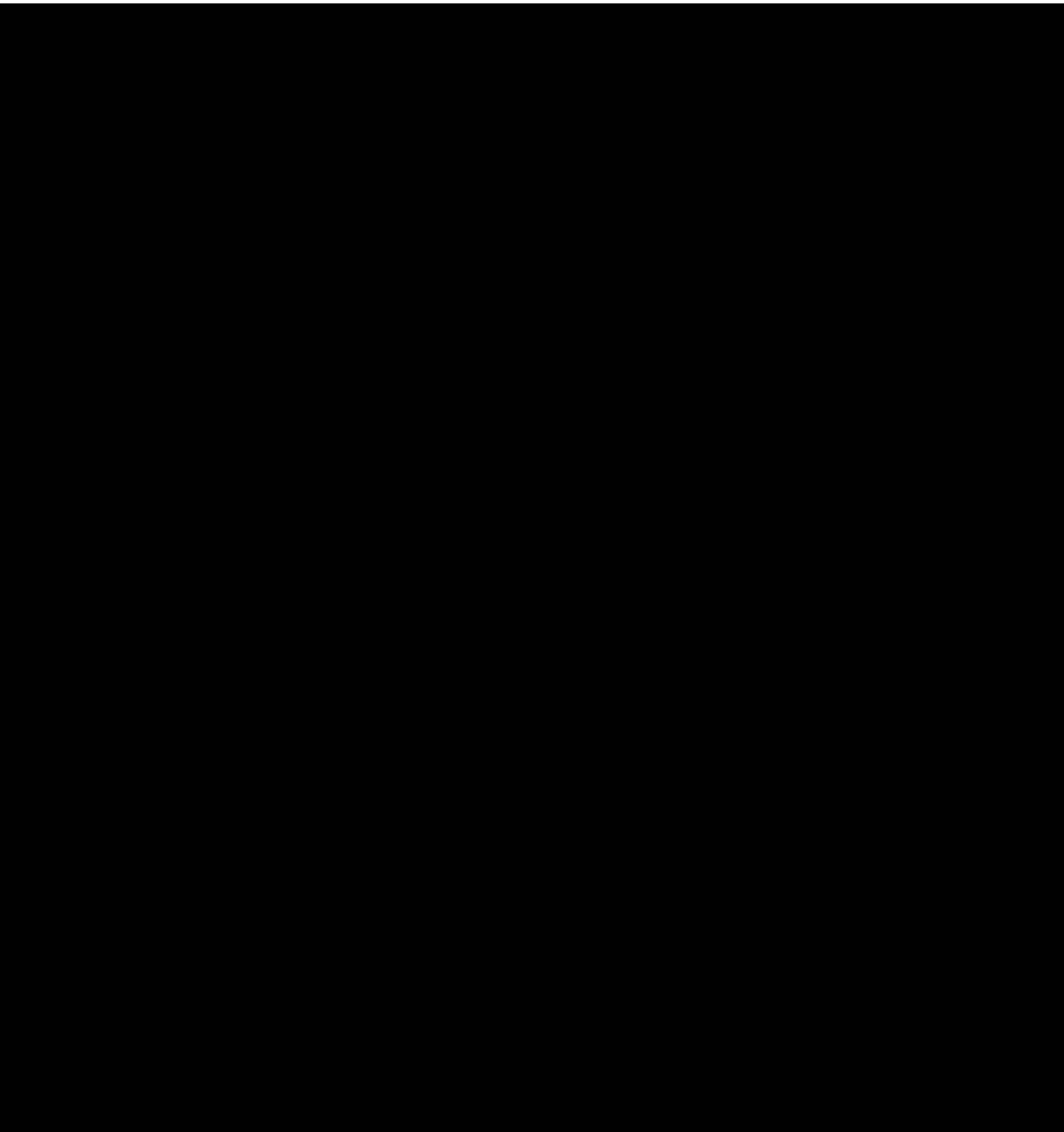
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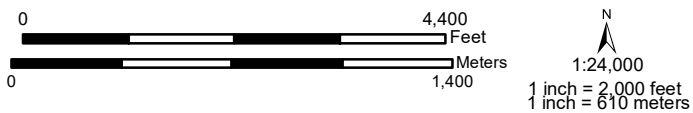
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- Site
- Architectural Site Point
- Subsurface Test
- Inventory Area
- Previous Inventory (Digitized)
- Previous Inventory from Atwell
- Township/Range
- Quadrangle
- Private

Badger Wind Project Inventory

Figure 1, map d: Project and Site Location Map



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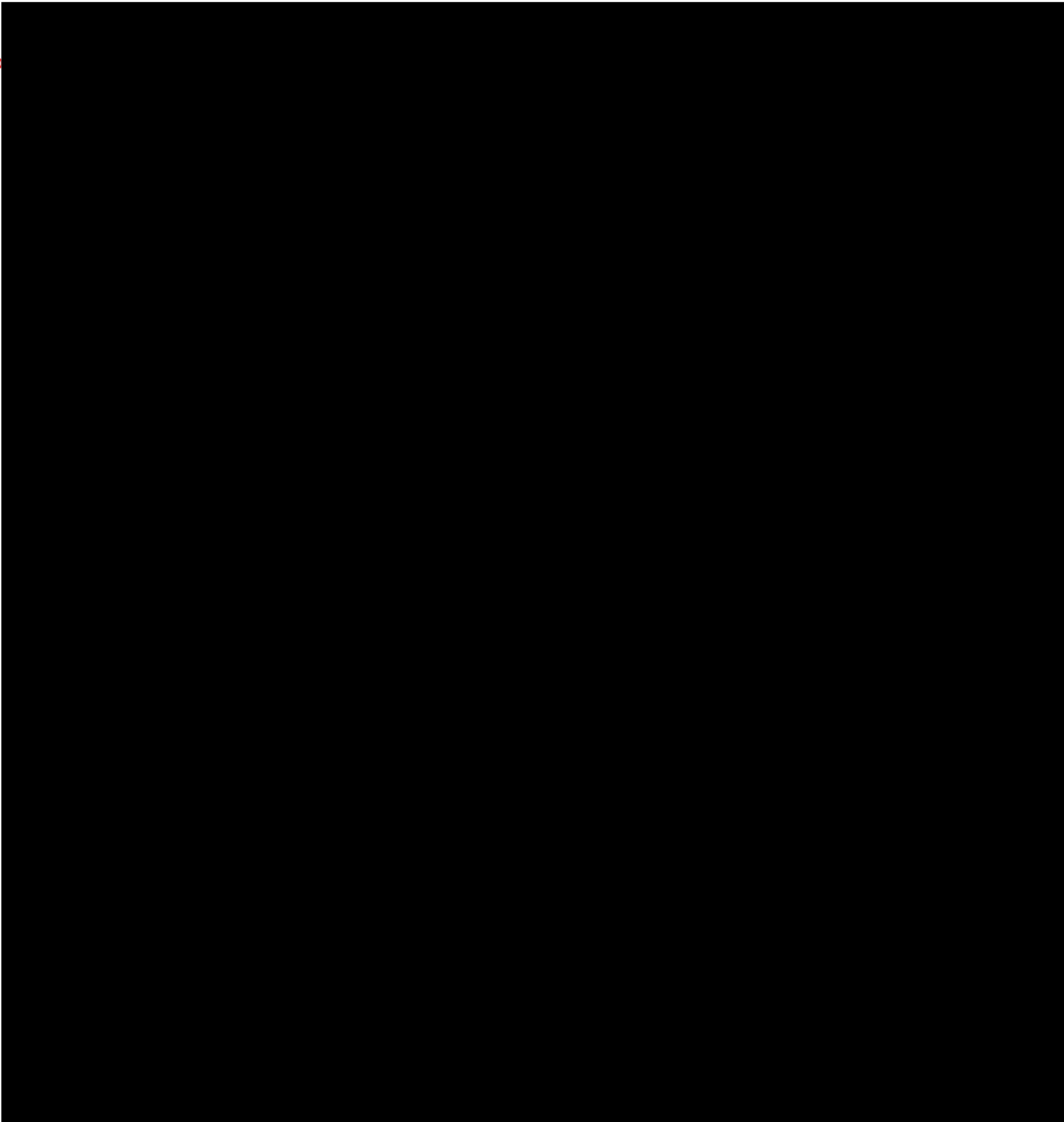
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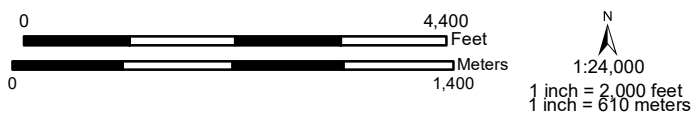
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- Site
- Architectural Site Point
- Subsurface Test
- Inventory Area
- Previous Inventory from Atwell
- Township/Range
- Quadrangle
- Private

Badger Wind Project Inventory

Figure 1, map e: Project and Site Location Map



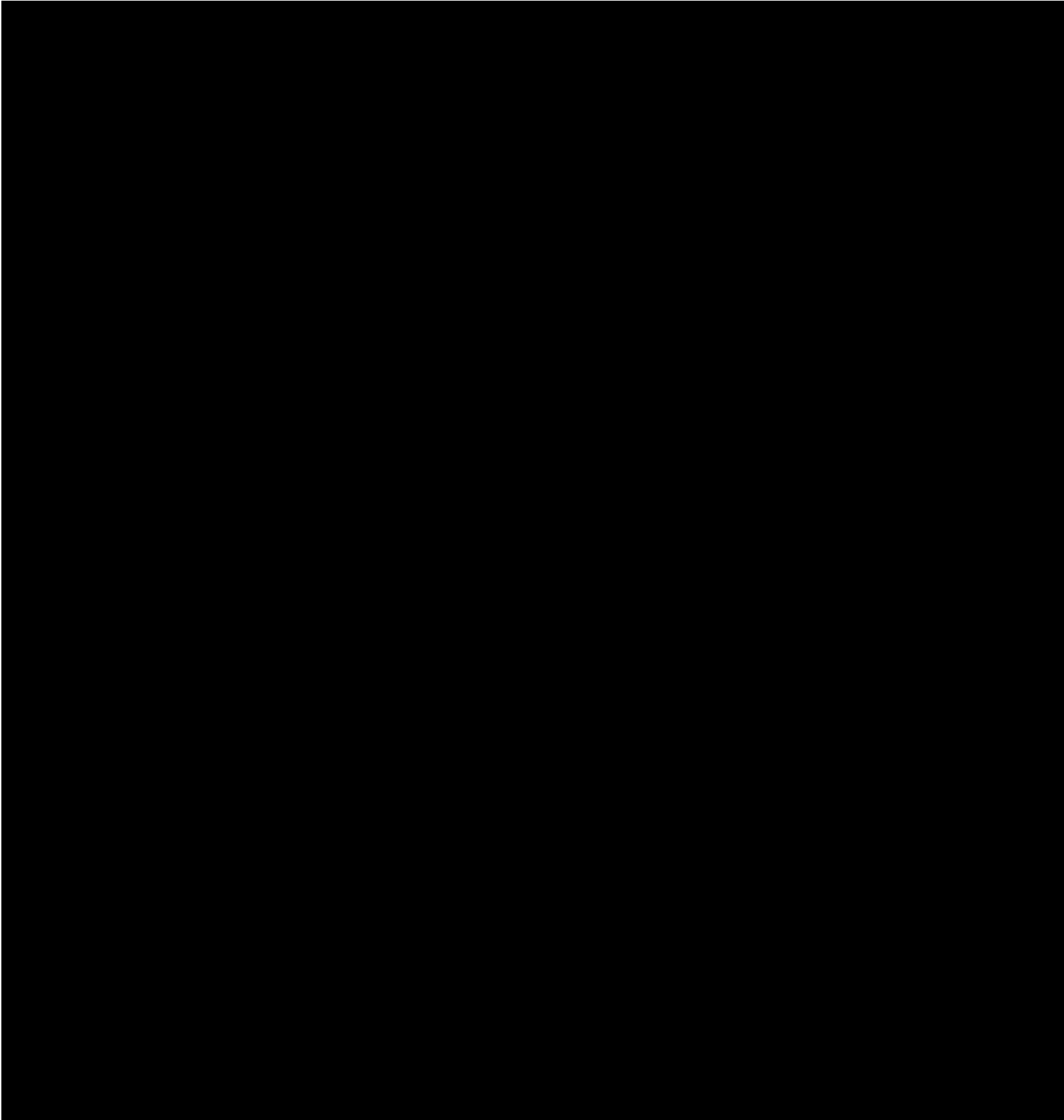
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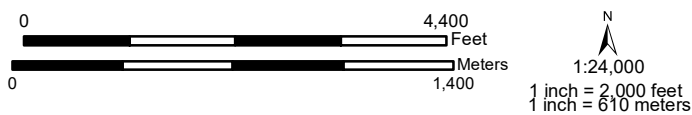
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- Site
- Architectural Site Point
- + Isolate
- Inventory Area
- Previous Inventory (Digitized)
- Previous Inventory from Atwell
- Township/Range
- Quadrangle
- Private

Badger Wind Project Inventory

Figure 1, map f: Proejct and Site Location Map



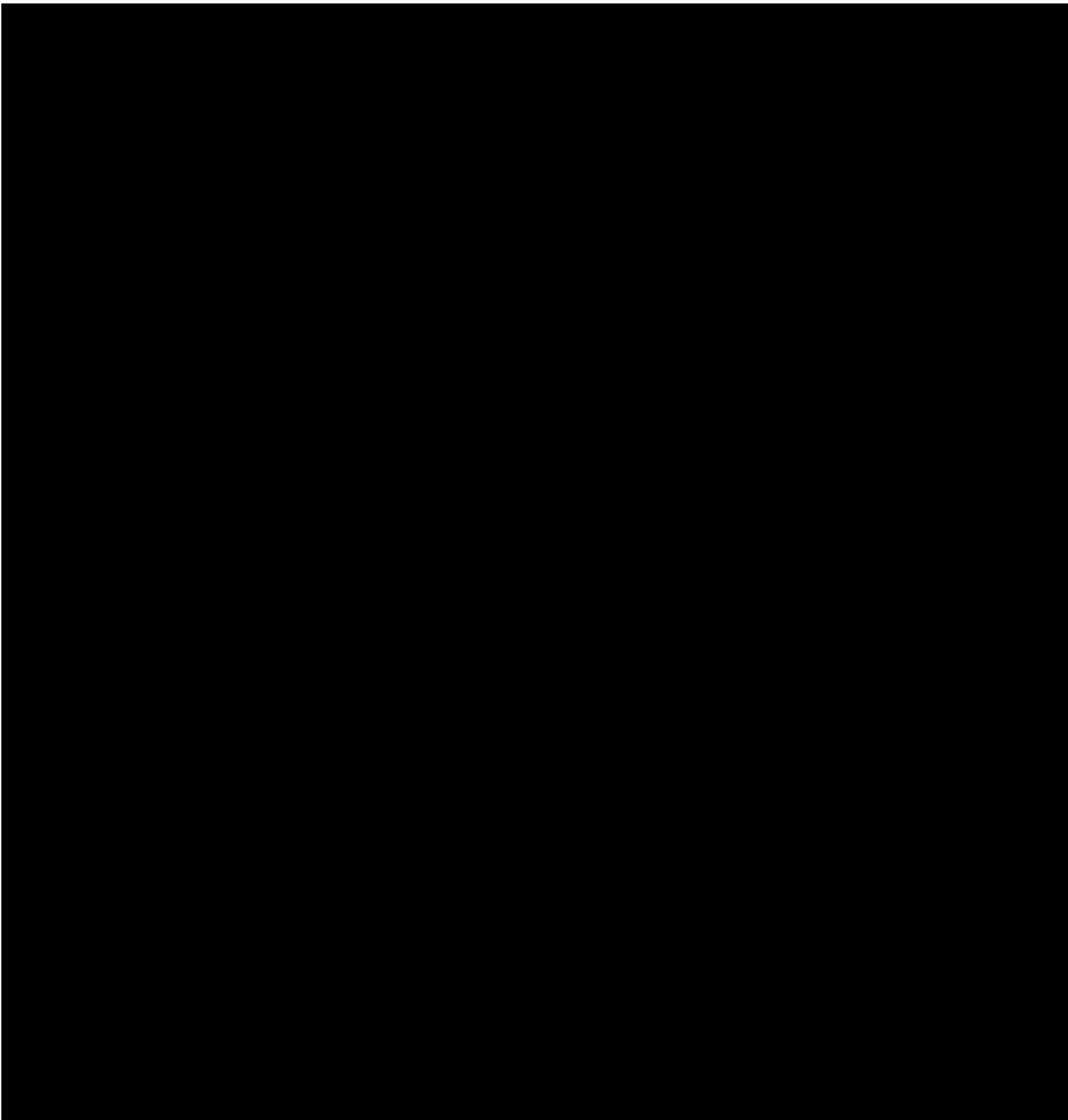
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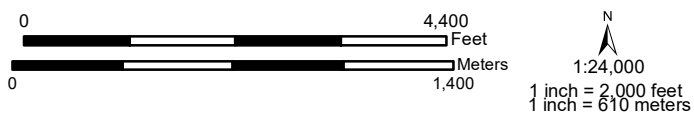
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-  Site
-  Architectural Site Point
-  Isolate
-  Inventory Area
-  Previous Inventory (Digitized)
-  Previous Inventory from Atwell
-  Multiple Architectural Points
-  Township/Range
-  Quadrangle
-  Private

Badger Wind Project Inventory

Figure 1, map g: Proejct and Site Location Map



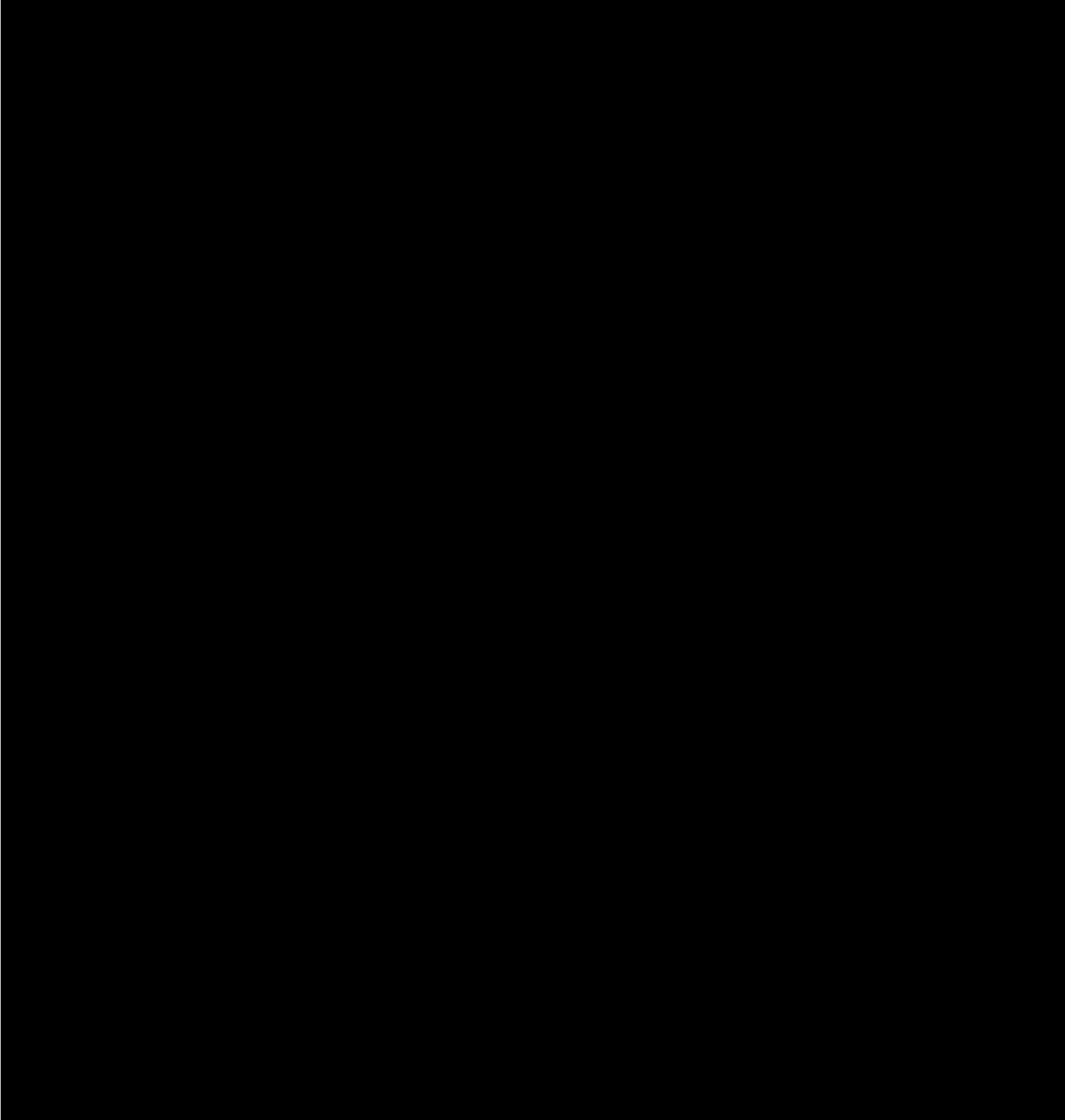

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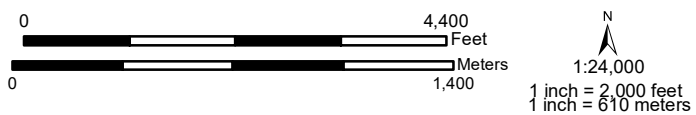
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- Site
- Architectural Site Point
- Subsurface Test
- Inventory Area
- Previous Inventory (Digitized)
- Previous Inventory from Atwell
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- Private

Badger Wind Project Inventory

Figure 1, map h: Project and Site Location Map



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