



May 5, 2025

December 5, 2025 revision

Minnesota State Historic Preservation Office
50 Sherburne Avenue
Administration Building 203
Saint Paul, Minnesota 55155

RE: Phase I Archeological Survey for the Proposed Blue Lake Energy Storage Project in Scott County, Minnesota ; SHPO
Number:2025-1687

Dear Sir or Madam,

This report describes the results of a Phase I archaeological survey for the proposed Blue Lake Energy Storage (BESS) Project (Project) in Scott County, Minnesota (Appendix A: Figure A-1). Xcel Energy (Xcel) retained Burns and McDonnell Engineering Company, Inc. (Burns & McDonnell) to conduct a Phase I archaeological survey to identify archaeological resources within the 20 acres Project boundary (Project Area). This report was completed as part of due diligence associated with the Project's approval from the Minnesota Public Utilities Commission via a Site Permit.

All archaeological survey work met the standards set by the Minnesota Office of State Archaeology (MN OSA) and the Minnesota state historic preservation office (SHPO) and/or Section 106 of the National Historic Preservation Act (NHPA).

Introduction

Xcel is proposing construction of the Project area in Scott County approximately 15 miles (mi) southwest of Minneapolis, Minnesota (Appendix A: Figure A-1). Currently, the Project is located within undeveloped wood and scrub consisting of some areas of hardwoods, pine, briars, and mixed vegetation. One wetland area is located within the Project area, and Minnesota River is 1.23 mi north. The Project is located between two quarry ponds.

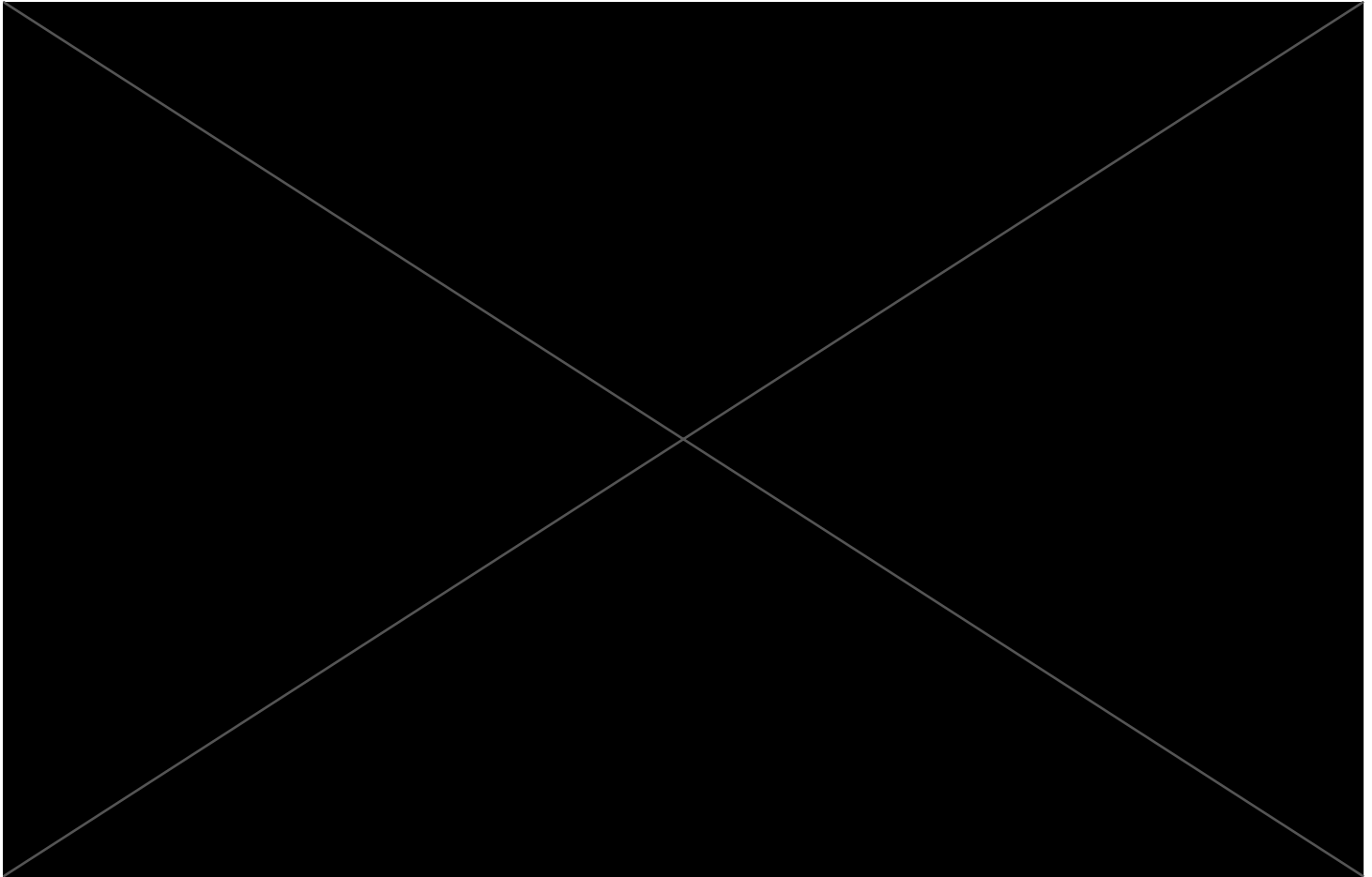
The Project will consist of approximately 128 ESS units, 32 medium voltage transformers and one main power transformer. In addition to battery energy storage units, the Project will consist of inverters and electrical feeder lines, a gen-tie transmission line, storage and parking areas, access roads, fencing, and other minor equipment and appurtenant components typical of an ESS project. The Project will utilize existing space at the adjacent Blue Lake Peaking Plant for staging and laydown.

Desktop Review: Methods

In March 2025, Burns & McDonnell archaeologist reviewed archaeological and historical literature relevant to the Project Area and a surrounding 1-mile area (Study Area). Records maintained through the MN OSA online portal was the primary source of data. The review of MN OSA public and archaeological online portal included archaeological site inventory records, listings and locations of historic structures, cemeteries, and National Register of Historic Places (NRHP) properties and districts. Additional information was obtained from historic-era maps including 1947, 1957, 1966, 1979 and 1992 historic aerials, and 1886, 1905, 1928, 1949, 1959, 1969 and 1987 historic topographic maps. These historic maps provide approximate location information for structures such as houses, outbuildings, churches, schools, and cemeteries which may be nonextant or unmarked in the present day.

Desktop Review: Results

[PROTECTED DATA BEGINS



PROTECTED DATA ENDS]

FIELD SURVEY: METHODS

Various field methods can be utilized to identify archaeological resources and to obtain data needed to identify age, function, and other characteristics of each site investigated. Pedestrian survey and systematic shovel testing at 15-meter intervals were selected based on the research design, environmental conditions, and the scope of work required by the Project.

The examination included visual inspection of the ground surface, any visible cut banks, animal burrows, trails, and borrow pits. Slopes greater than 15 percent and any areas of inundation were not shovel tested. All excavated soils were screened through ¼-inch hardware cloth mesh. This approach helped determine the presence or absence of archaeological resources and provided the investigators insight into the environmental characteristics of the Project.

FIELD SURVEY: RESULTS

Archaeological field survey was conducted from April 14-17, 2025, by Burns & McDonnell archaeologists Douglas Shaver and Andy May. In general, at the time of survey, the Project area was wooded with ground surface visibility ranging from 40 to 100 percent. There were patches of upland hardwoods, pines, scrub, and a wetland. Soils within the Project are predominantly mapped as Sartell fine sand (Natural Resources Conservation Service 2025). A central portion of the Project area north of the access road is mapped as Klossner muck and a water is mapped in the northeastern corner.



A total of 288 shovel tests were excavated within the Project area (Appendix A: Figure A-3, Appendix B). The observed soils generally matched a typical Sartell series profile, except that the A horizon was deeper, ranging from 12-60 centimeters (cm) deep, with the average being 35 cm deep. Soils resembling Klossner muck were not observed, as mapped, north of the access road in the central portion of the Project area. The wetland was observed in the northeast corner of the Project. No prehistoric or historic-age artifacts or features were discovered in any of the shovel tests nor during the pedestrian survey.

SUMMARY

The primary objectives of the archaeological survey for the Project were (1) to identify existing cultural resources or areas with the potential for archaeological resources, and (2) to provide recommendations for avoidance or minimization of impacts on archaeological resources, if extant.

No previously recorded archaeological sites are located within the Project area. No new archaeological sites, artifacts, features, or cultural materials were identified within Project area.

Although state and Federal review of historic resources is not currently required for the Project, if permitting ultimately requires such consultation, the NRHP eligibility of all recorded resources and the Project's potential to adversely affect historic (NRHP-listed or eligible) properties would require agency review and concurrence.

If you have any questions or require additional information, please feel free to contact me by telephone at (314) 391-5332 or by e-mail at deshaver@burnsmcd.com.

Sincerely,

A handwritten signature in blue ink, appearing to read "Douglas Shaver".

Douglas Shaver, M.S., R.P.A.
Senior Cultural Resources Specialist, Principal Investigator

Attachments:

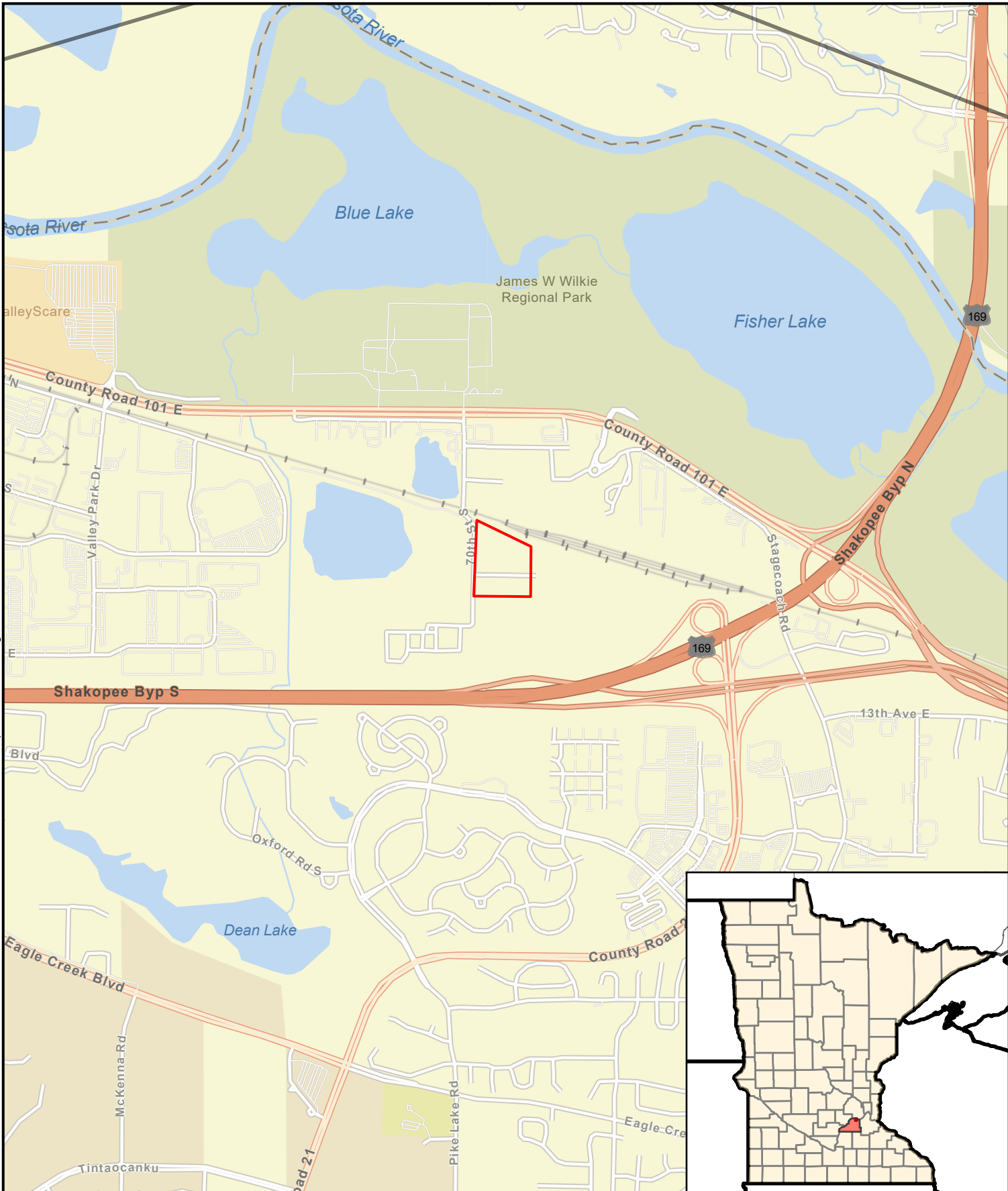
- Appendix A – Map Figures
- Appendix B – Shovel Test Table

References

Natural Resources Conservation Service (NRCS). 2025. Soil Web. Electronic document, <http://www.gelib.com/soilweb.htm>, accessed December 2025.

Appendix A – Map Figures

Service Layer Credits: Outline: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
World Street Map: Metropolitan Council, MetroGIS, Three Rivers Park District, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, MET/INASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS



- Legend**
- Project
 - County Boundary

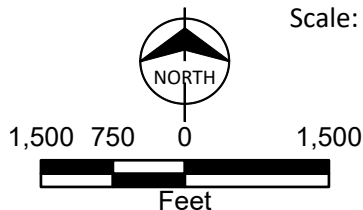
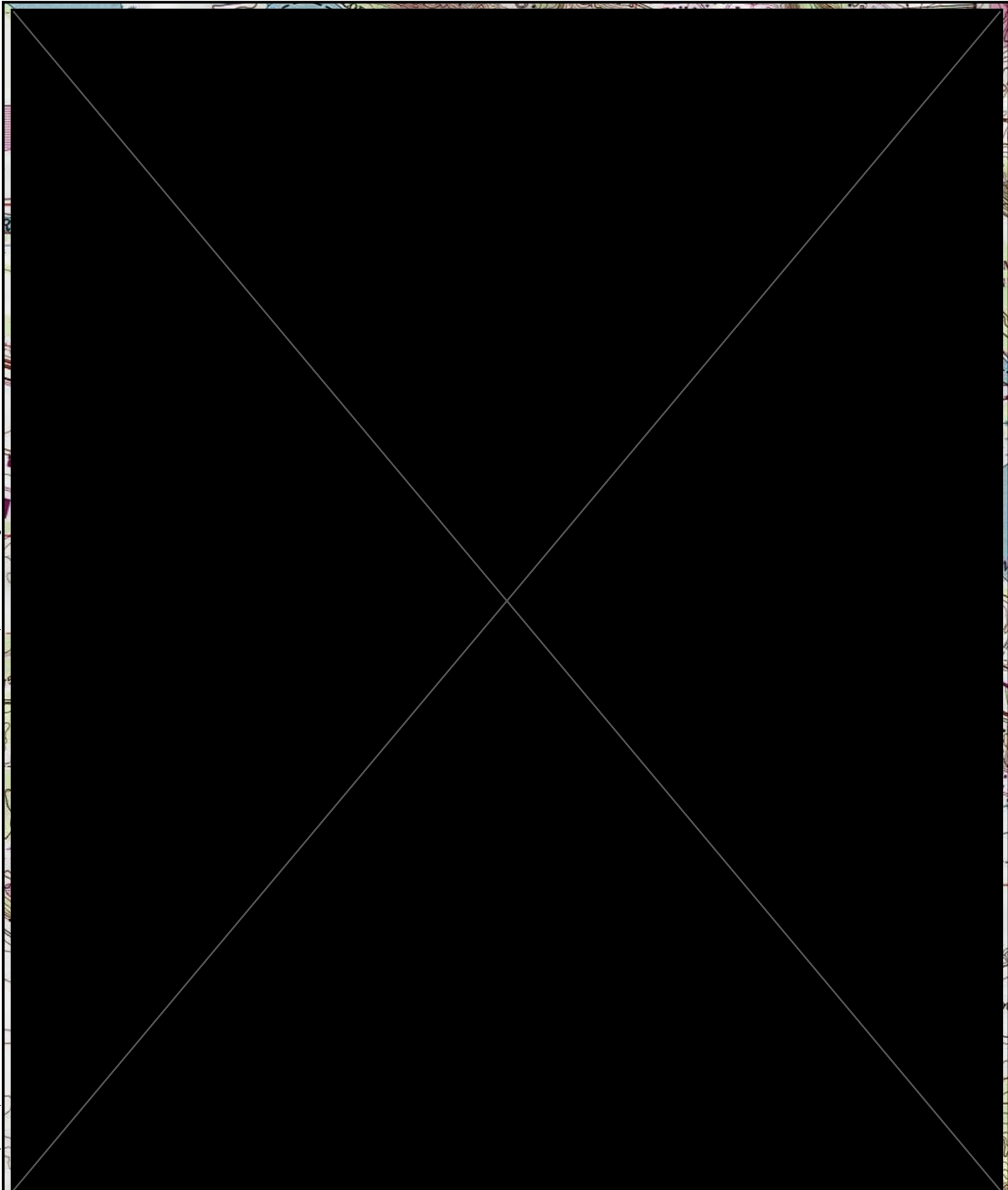








Figure A-1
Blue Lake Energy Storage System
Project Location
Scott County, MN

Service Layer Credits: USA_Topo_Maps: Copyright © 2013 National Geographic Society, i-cubed
Hybrid Reference Layer (US Edition): Metropolitan Council, MetroGIS, Three Rivers Park District, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, MET/INASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS



<p>Legend</p> <ul style="list-style-type: none">  Project  One-Mile Buffer  Archaeological Sites <div style="text-align: center;">  <p>NORTH</p> <p>Scale: 1:24,000</p> <p>1,500 750 0 1,500</p>  <p>Feet</p> </div>		<p style="text-align: center;">Figure A-2 Blue Lake Energy Storage System Cultural Resources Review Scott County, MN</p>
--	--	---

Chicago Milwaukee Saint Paul and Pacific Railroad

70th St S

70th St S



Service Layer Credits: Hybrid Reference Layer (US Edition): Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community APointFeature.

Legend

- Project
- Shovel Test

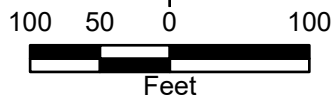


Figure A-3
Blue Lake Energy
Storage System
Shovel Tests
Scott County, MN

Appendix B – Shovel Test Table

Shovel Test Table										
Test Number	Date	Result	A Horizon			B Horizon			Total Depth cmbs	Comment
			Depth (cm)	Munsell	Soil	Depth (cm)	Munsell	Soil		
ds1	4/14/25	Negative	0-38	10YR 2/1	Sa	38-50	10YR 5/3	Sa	50	
ds2	4/14/25	Negative	0-35	10YR 2/1	Sa	35-46	10YR 5/3	Sa	46	
ds3	4/14/25	Negative	0-26	10YR 2/1	Sa	26-37	10YR 5/3	Sa	37	
ds4	4/14/25	Negative	0-23	10YR 2/1	Sa	23-36	10YR 5/3	Sa	36	
ds5	4/14/25	Negative	0-35	10YR 2/1	Sa	35-45	10YR 5/3	Sa	45	
ds6	4/14/25	Negative	0-37	10YR 2/1	Sa	37-47	10YR 5/3	Sa	47	
ds7	4/14/25	Negative	0-23	10YR 2/1	Sa	23-37	10YR 5/3	Sa	37	
ds8	4/14/25	Negative	0-36	10YR 2/1	Sa	26-39	10YR 5/3	Sa	39	
ds9	4/14/25	Negative	0-30	10YR 2/1	Sa	30-42	10YR 5/3	Sa	42	
ds10	4/14/25	Negative	0-34	10YR 2/1	Sa	34-48	10YR 5/3	Sa	48	
ds11	4/14/25	Negative	0-16	10YR 2/1	Sa	16-31	10YR 6/3	Sa	31	
ds12	4/14/25	Disturbed								Disturbed due to embankment and leveling for substation
ds13	4/14/25	Disturbed								Disturbed due to embankment and leveling for substation
ds14	4/14/25	Negative	0-24	10YR 2/1	Sa	24-35	10YR 6/3	Sa	35	
ds15	4/14/25	Negative	0-26	10YR 2/1	Sa	26-38	10YR 6/3	Sa	38	
ds16	4/14/25	Negative	0-25	10YR 2/1	Sa	25-35	10YR 6/3	Sa	35	
ds17	4/14/25	Negative	0-33	10YR 2/1	Sa	33-48	10YR 6/3	Sa	48	
ACM-001	4/14/25	Negative	0-18	10YR 2/2	Sa	18-28	10YR 4/4	Sa	28	no Gr
ACM-002	4/14/25	Negative	0-20	10YR 2/2	Sa	20-30	10YR 3/3	Sa	30	no Gr
ACM-003	4/14/25	Negative	0-20	mottled 10YR 3/3 & 10YR 4/4	Sa	20-30	10YR 2/2	Sa	30	no Gr
ACM-004	4/14/25	Negative	0-17	10YR 2/2	Sa	17-27	10YR 3/3	Sa	27	No Gr, roots
ACM-005	4/14/25	Negative	0-15	10YR 3/3	Sa	15-25	10YR 2/2	Sa	25	No Gr, roots
ACM-006	4/14/25	Negative	0-17	10YR 2/2	Sa	17-27	10YR 3/3	Sa	27	No Gr, roots
ACM-007	4/14/25	Negative	0-30	10YR 2/2	Sa	30-40	10YR 3/3	Sa	40	no Gr
ACM-008	4/14/25	Negative	0-25	10YR 2/2	Sa	25-35	10YR 3/3	Sa	35	No Gr, roots
ACM-009	4/14/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-010	4/14/25	Negative	0-20	10YR 2/2	Sa	20-30	10YR 3/3	Sa	30	No Gr, roots
ACM-011	4/14/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 4/4	Sa	25	No Gr, roots
ACM-012	4/14/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 4/4	Sa	25	No Gr, roots
ACM-013	4/14/25	Negative	0-15	10YR 2/1	SiSa	15-25	10YR 3/3	Sa	25	no Gr
ACM-014	4/14/25	Negative	0-15	10YR 2/1	SiSa	15-25	10YR 3/1	Sa	25	no Gr
ACM-015	4/14/25	Negative	0-17	10YR 2/1	SiSa	17-27	10YR 4/4	Sa	27	No Gr, roots, offset from tree
ACM-016	4/14/25	Negative	0-12	10YR 2/1	SiSa	12-22	10YR 4/4	Sa	22	No Gr, roots
ACM-017	4/14/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/3	Sa	30	No Gr, roots
ACM-018	4/14/25	Negative	0-18	10YR 3/3	Sa	18-28	10YR 4/4	Sa	28	no Gr
ds18	4/15/25	Negative	0-38	10YR 2/1	Sa	38-50	10YR 5/2	Sa	50	
ds19	4/15/25	Negative	0-31	10YR 2/1	Sa	31-41	10YR 5/2	Sa	41	
ds20	4/15/25	Negative	0-25	10YR 2/1	Sa	25-35	10YR 5/2	Sa	35	
ds21	4/15/25	Negative	0-33	10YR 2/1	Sa	33-46	10YR 5/2	Sa	46	
ds22	4/15/25	Negative	0-28	10YR 2/1	Sa	28-40	10YR 5/2	Sa	40	
ds23	4/15/25	Negative	0-32	10YR 2/1	Sa	32-45	10YR 5/2	Sa	45	
ds24	4/15/25	Negative	0-21	10YR 2/1	Sa	21-35	10YR 5/2	Sa	35	
ds25	4/15/25	Negative	0-28	10YR 2/1	Sa	28-38	10YR 5/2	Sa	38	
ds26	4/15/25	Negative	0-30	10YR 2/1	Sa	30-41	10YR 5/2	Sa	41	
ds27	4/15/25	Negative	0-31	10YR 2/1	Sa	31-45	10YR 5/2	Sa	45	
ds28	4/15/25	Negative	0-41	10YR 2/1	Sa	41-53	10YR 5/2	Sa	53	
ds29	4/15/25	Negative	0-33	10YR 2/1	Sa	33-45	10YR 5/2	Sa	45	
ds30	4/15/25	Negative	0-25	10YR 2/1	Sa	25-38	10YR 5/2	Sa	38	
ds31	4/15/25	Negative	0-30	10YR 2/1	Sa	30-40	10YR 5/2	Sa	40	
ds32	4/15/25	Negative	0-22	10YR 2/1	Sa	22-33	10YR 5/2	Sa	33	
ds33	4/15/25	Negative	0-12	10YR 2/1	Sa	12-25	10YR 5/2	Sa	25	
ds34	4/15/25	Negative	0-13	10YR 2/1	Sa	13-24	10YR 5/2	Sa	24	
ds35	4/15/25	Disturbed								Pipeline Corridor
ds36	4/15/25	Negative	0-24	10YR 2/1	Sa	24-36	10YR 5/2	Sa	36	
ds37	4/15/25	Negative	0-21	10YR 2/1	Sa	21-35	10YR 5/2	Sa	35	
ds38	4/15/25	Negative	0-22	10YR 2/1	Sa	22-34	10YR 5/2	Sa	34	
ds39	4/15/25	Negative	0-22	10YR 2/1	Sa	22-36	10YR 5/2	Sa	36	
ds40	4/15/25	Negative	0-38	10YR 2/1	Sa	38-48	10YR 5/2	Sa	48	
ds41	4/15/25	Negative	0-30	10YR 2/1	Sa	30-41	10YR 5/2	Sa	41	
ds42	4/15/25	Negative								No dig-Slope
ds43	4/15/25	Negative	0-26	10YR 2/1	Sa	26-38	10YR 5/2	Sa	38	
ds44	4/15/25	Disturbed								Disturbed
ds45	4/15/25	Negative								No dig-Slope
ds46	4/15/25	Negative	0-39	10YR 2/1	Sa	39-50	10YR 5/2	Sa	50	
ds47	4/15/25	Negative	0-35	10YR 2/1	Sa	35-45	10YR 5/2	Sa	45	
ds48	4/15/25	Negative	0-31	10YR 2/1	Sa	31-44	10YR 5/2	Sa	44	
ds49	4/15/25	Negative	0-28	10YR 2/1	Sa	28-40	10YR 5/2	Sa	40	

Test Number	Date	Result	A Horizon			B Horizon			Total Depth cmbs	Comment
			Depth (cm)	Munsell	Soil	Depth (cm)	Munsell	Soil		
ds50	4/15/25	Negative								No dig-Slope
ds51	4/15/25	Negative								No dig-Slope
ds52	4/15/25	Negative								No dig-Slope
ds53	4/15/25	Negative	0-25	10YR 2/1	Sa	25-36	10YR 5/2	Sa	36	
ds54	4/15/25	Negative	0-29	10YR 2/1	Sa	29-39	10YR 5/2	Sa	39	
ds55	4/15/25	Negative	0-31	10YR 2/1	Sa	31-41	10YR 5/2	Sa	41	
ds56	4/15/25	Negative	0-35	10YR 2/1	Sa	35-47	10YR 5/2	Sa	47	
ds57	4/15/25	Negative								No dig-Slope
ds58	4/15/25	Negative								No dig-Slope
ds59	4/15/25	Negative								No dig-Slope
ds60	4/15/25	Negative								No dig-Slope
ds61	4/15/25	Negative								No dig-Slope
ds62	4/15/25	Negative								No dig-Slope
ds63	4/15/25	Negative								No dig-Slope
ds64	4/15/25	Negative								No dig-Slope
ds65	4/15/25	Negative								No dig-Slope
ds66	4/15/25	Negative								No dig-Slope
ds67	4/15/25	Negative								No dig-Slope
ds68	4/15/25	Negative								No dig-Slope
ds69	4/15/25	Negative								No dig-Slope
ds70	4/15/25	Negative	0-25	10YR 2/1	Sa	25-39	10YR 5/4	Sa	39	
ds71	4/15/25	Negative	0-24	10YR 2/1	Sa	24-39	10YR 5/4	Sa	39	
ds72	4/15/25	Negative	0-22	10YR 2/1	Sa	22-34	10YR 5/4	Sa	34	
ds73	4/15/25	Negative	0-20	10YR 2/1	Sa	20-31	10YR 5/4	Sa	31	
ds74	4/15/25	Negative	0-21	10YR 2/1	Sa	21-32	10YR 5/4	Sa	32	
ds75	4/15/25	Negative	0-23	10YR 2/1	Sa	23-36	10YR 5/4	Sa	36	
ds76	4/15/25	Negative	0-19	10YR 2/1	Sa	19-31	10YR 5/4	Sa	31	
ds77	4/15/25	Negative	0-12	10YR 2/1	Sa	12-25	10YR 5/4	Sa	25	
ds78	4/15/25	Negative	0-12	10YR 2/1	Sa	12-25	10YR 5/4	Sa	25	
ds79	4/15/25	Negative	0-13	10YR 2/1	Sa	13-28	10YR 5/4	Sa	28	
ds80	4/15/25	Negative	0-11	10YR 2/1	Sa	11-23	10YR 5/4	Sa	23	
ds81	4/15/25	Negative	0-13	10YR 2/1	Sa	13-27	10YR 5/4	Sa	27	
ds82	4/15/25	Negative	0-12	10YR 2/1	Sa	12-25	10YR 5/4	Sa	25	
ds83	4/15/25	Negative	0-13	10YR 2/1	Sa	13-25	10YR 5/4	Sa	25	
ds84	4/15/25	Negative	0-15	10YR 2/1	Sa	15-28	10YR 5/4	Sa	28	
ds85	4/15/25	Negative	0-20	10YR 2/1	Sa	20-33	10YR 5/4	Sa	33	
ACM-019	4/15/25	Negative	0-35	10YR 3/3	Sa				35	No Gr, roots, root impasse @ 35 cmbs, offset from tree
ACM-020	4/15/25	Negative	0-50	10YR 2/2	Sa	50-60	10YR 4/4	Sa	60	No Gr, roots, offset from tree
ACM-021	4/15/25	Negative	0-13	10YR 2/1	SiSa	13-23	10YR 3/1	Sa	23	No Gr, roots
ACM-022	4/15/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-023	4/15/25	Negative	0-05	10YR 2/2	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-024	4/15/25	Negative	0-20	10YR 3/3	Sa	20-30	10YR 3/1	Sa	30	no Gr
ACM-025	4/15/25	Negative	0-45	10YR 3/3	Sa	45-55	10YR 4/4	Sa	55	no Gr
ACM-026	4/15/25	Negative	0-20	10YR 3/3	Sa	20-30	10YR 2/2	Sa	30	No Gr, roots
ACM-027	4/15/25	Negative	0-40	10YR 3/3	Sa	40-50	10YR 4/4	Sa	50	no Gr
ACM-028	4/15/25	Negative	0-47	10YR 3/3	Sa				47	No Gr, roots, root impasse @ 47 cmbs
ACM-029	4/15/25	Negative	0-30	10YR 3/3	Sa	30-40	10YR 4/4	Sa	40	No Gr, roots
ACM-030	4/15/25	Negative	0-35	10YR 3/3	Sa	35-45	10YR 4/4	Sa	45	No Gr, roots
ACM-031	4/15/25	Negative	0-47	10YR 3/3	Sa	47-57	10YR 4/4	Sa	57	no Gr
ACM-032	4/15/25	Negative	0-45	10YR 3/3	Sa	45-55	10YR 4/4	Sa	55	no Gr
ACM-033	4/15/25	Negative	0-40	10YR 3/3	Sa	40-50	10YR 4/4	Sa	50	No Gr, roots, offset from tree
ACM-034	4/15/25	Negative	0-45	10YR 3/3	Sa	45-55	10YR 4/4	Sa	55	No Gr, roots
ACM-035	4/15/25	Negative	0-25	10YR 3/1	Sa	25-35	10YR 2/1	SiSa	35	No Gr, roots, offset from dense thicket
ACM-036	4/15/25	Negative	0-25	10YR 2/1	SiSa	25-35	10YR 5/1	Sa	35	No Gr, roots, ZII w/redox
ACM-037	4/15/25	Negative	0-15	10YR 2/1	SiSa	15-25	10YR 4/4	Sa	25	No Gr, roots
ACM-038	4/15/25	Negative	0-25	10YR 3/3	Sa	25-35	10YR 4/4	Sa	35	Light med subangular Gr (2m from access road)
ACM-039	4/15/25	Negative	0-23	10YR 3/3	Sa	23-33	10YR 2/2	Sa	33	No Gr, roots
ACM-040	4/15/25	Negative	0-25	10YR 3/3	Sa	25-35	10YR 4/4	Sa	35	No Gr, roots
ACM-041	4/15/25	Negative	0-45	10YR 3/1	Sa	45-55	10YR 3/3	Sa	55	No Gr, roots
ACM-042	4/15/25	Negative	0-25	10YR 3/1	Sa	25-35	10YR 4/4	Sa	35	No Gr, roots
ACM-043	4/15/25	Negative	0-30	10YR 3/1	Sa	30-40	10YR 4/4	Sa	40	No Gr, roots
ACM-044	4/15/25	Negative	0-25	10YR 3/1	Sa	25-35	10YR 3/3	Sa	35	No Gr, roots
ACM-045	4/15/25	Negative	0-15	10YR 3/1	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-046	4/15/25	Negative	0-40	10YR 3/1	Sa	40-50	10YR 3/3	Sa	50	No Gr, roots
ACM-047	4/15/25	Negative	0-30	10YR 3/1	Sa	30-40	10YR 3/3	Sa	40	No Gr, roots
ACM-048	4/15/25	Negative	0-45	10YR 3/1	Sa	45-55	10YR 3/3	Sa	55	No Gr, roots
ACM-049	4/15/25	Negative	0-20	10YR 3/1	Sa	20-30	10YR 3/3	Sa	30	No Gr, roots
ACM-050	4/15/25	Negative	0-15	10YR 3/1	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-051	4/15/25	Negative	0-20	10YR 3/3	Sa	20-30	10YR 4/4	Sa	30	no Gr

PUBLIC DOCUMENT - NOT-PUBLIC DATA HAS BEEN EXCISED

Test Number	Date	Result	A Horizon			B Horizon			Total Depth cmbs	Comment
			Depth (cm)	Munsell	Soil	Depth (cm)	Munsell	Soil		
ACM-052	4/15/25	Negative	0-25	10YR 3/3	Sa	25-35	10YR 4/4	Sa	35	no Gr
ACM-053	4/15/25	Negative	0-30	10YR 3/3	Sa	30-40	10YR 4/4	Sa	40	No Gr, roots
ACM-054	4/15/25	Negative	0-50	10YR 3/3	Sa	50-60	10YR 4/4	Sa	60	No Gr, roots
ACM-055	4/15/25	Negative	0-60	10YR 3/1	Sa	60-70	10YR 3/3	Sa	70	No Gr, roots
ACM-056	4/15/25	Negative	0-40	10YR 3/1	Sa	40-50	10YR 3/3	Sa	50	no Gr
ACM-057	4/15/25	Negative	0-35	10YR 3/1	Sa				35	No Gr, roots, root impasse @ 35 cmbs, offset from juniper tree
ACM-058	4/15/25	Negative	0-30	10YR 2/2	Sa	30-40	10YR 3/3	Sa	40	No Gr, roots
ACM-059	4/15/25	Negative	0-15	10YR 2/1	SiSa				15	No Gr, roots, root impasse @ 15 cmbs
ACM-060	4/15/25	Negative	0-25	10YR 2/1	SiSa	25-35	10YR 3/1	Sa	35	No Gr, roots
ACM-061	4/15/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ACM-062	4/15/25	Negative	0-25	10YR 2/1	SiSa	25-35	10YR 3/1	Sa	35	No Gr, roots
ACM-063	4/15/25	Negative	0-15	10YR 2/1	SiSa	15-25	10YR 3/1	Sa	25	No Gr, roots
ACM-064	4/15/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 4/4	Sa	30	No Gr, roots
ACM-066	4/15/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ACM-066	4/15/25	Negative	0-30	10YR 2/1	SiSa	30-40	10YR 3/1	Sa	40	No Gr, roots
ACM-067	4/15/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ACM-068	4/15/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 4/4	Sa	30	No Gr, roots
ACM-069	4/15/25	Negative	0-30	10YR 2/1	SiSa	30-40	10YR 4/4	Sa	40	No Gr, roots
ACM-070	4/15/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ACM-071	4/15/25	Negative	0-27	10YR 2/1	SiSa	27-37	10YR 3/1	Sa	37	No Gr, roots
ACM-072	4/15/25	Negative								No dig-Slope
ACM-073	4/15/25	Negative								No dig-Slope
ACM-074	4/15/25	Negative	0-15	10YR 2/1	SiSa	15-25	10YR 3/1	Sa	25	No Gr, roots
ACM-075	4/15/25	Negative	0-15	10YR 2/1	SiSa	15-25	10YR 3/1	Sa	25	No Gr, roots
ACM-076	4/15/25	Negative	0-32	10YR 2/1	SiSa				32	No Gr, roots, root impasse @ 32 cmbs
ACM-077	4/15/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ACM-078	4/15/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots, ZII w/redox
ACM-079	4/15/25	Negative								No dig-Slope
ACM-080	4/15/25	Negative								No dig-Slope
ACM-081	4/15/25	Negative								No dig-Slope
ACM-082	4/15/25	Negative	0-15	10YR 2/1	SiSa	15-25	10YR 3/1	Sa	25	No Gr, roots, offset from deadfall
ACM-083	4/15/25	Negative	0-18	10YR 2/1	SiSa	18-28	10YR 3/1	Sa	28	No Gr, roots
ACM-084	4/15/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ds86	4/16/25	Negative	0-36	10YR 2/1	Sa	36-48	10YR 5/3	Sa	48	
ds87	4/16/25	Negative	0-33	10YR 2/1	Sa	33-45	10YR 5/3	Sa	45	
ds88	4/16/25	Negative	0-21	10YR 2/1	Sa	21-33	10YR 5/3	Sa	33	
ds89	4/16/25	Negative	0-22	10YR 2/1	Sa	22-48	10YR 5/3	Sa	48	
ds90	4/16/25	Negative	0-21	10YR 2/1	Sa	21-34	10YR 5/3	Sa	34	
ds91	4/16/25	Negative	0-23	10YR 2/1	Sa	23-35	10YR 5/3	Sa	35	
ds92	4/16/25	Negative	0-21	10YR 2/1	Sa	21-33	10YR 5/2	Sa	33	
ds93	4/16/25	Negative	0-19	10YR 2/1	Sa	19-30	10YR 5/2	Sa	30	
ds94	4/16/25	Negative	0-15	10YR 2/1	Sa	15-27	10YR 5/2	Sa	27	
ds95	4/16/25	Negative	0-16	10YR 2/1	Sa	16-29	10YR 5/2	Sa	29	
ds96	4/16/25	Negative	0-17	10YR 2/1	Sa	17-31	10YR 5/2	Sa	31	
ds97	4/16/25	Negative	0-10	10YR 2/1	Sa	10-26	10YR 5/2	Sa	26	
ds98	4/16/25	Negative								No dig-Slope
ds99	4/16/25	Negative								No dig-Edge of Wetland
ds100	4/16/25	Negative	0-16	10YR 2/1	Sa	16-30	10YR 5/2	Sa	30	ZII mottled, ZII redox
ds101	4/16/25	Negative	0-17	10YR 2/1	Sa	17-28	10YR 5/3	Sa	28	
ds102	4/16/25	Negative	0-12	10YR 2/1	Sa	12-25	10YR 5/3	Sa	25	
ds103	4/16/25	Negative	0-14	10YR 2/1	Sa	14-28	10YR 5/2	Sa	28	ZII redox
ds104	4/16/25	Negative								No dig-Wetland
ds105	4/16/25	Negative								No dig-Wetland
ds106	4/16/25	Negative								No dig-Wetland
ds107	4/16/25	Negative								No dig-Slope
ds108	4/16/25	Negative	0-12	10YR 2/1	Sa	12-24	10YR 5/2	Sa	24	
ds109	4/16/25	Negative								No dig-Slope
ds110	4/16/25	Negative								No dig-Slope
ds111	4/16/25	Negative	0-13	10YR 2/1	Sa	13-30	10YR 5/3	Sa	30	
ds112	4/16/25	Negative	0-25	10YR 2/1	Sa	25-40	10YR 5/3	Sa	40	
ds113	4/16/25	Negative	0-23	10YR 2/1	Sa	23-36	10YR 5/3	Sa	36	
ds114	4/16/25	Negative	0-20	10YR 2/1	Sa	20-32	10YR 5/3	Sa	32	
ds115	4/16/25	Negative	0-14	10YR 2/1	Sa	14-25	10YR 5/3	Sa	25	
ds116	4/16/25	Negative	0-13	10YR 2/1	Sa	13-29	10YR 5/3	Sa	29	
ds117	4/16/25	Negative	0-15	10YR 2/1	Sa	15-29	10YR 5/3	Sa	29	
ds118	4/16/25	Negative	0-12	10YR 2/1	Sa	12-28	10YR 5/3	Sa	28	
ds119	4/16/25	Negative	0-15	10YR 2/1	Sa	15-29	10YR 5/3	Sa	29	
ds120	4/16/25	Negative	0-13	10YR 2/1	Sa	13-28	10YR 5/3	Sa	28	

Test Number	Date	Result	A Horizon			B Horizon			Total Depth cmbs	Comment
			Depth (cm)	Munsell	Soil	Depth (cm)	Munsell	Soil		
ds121	4/16/25	Negative	0-16	10YR 2/1	Sa	16-29	10YR 5/3	Sa	29	
ds122	4/16/25	Negative	0-18	10YR 2/1	Sa	18-30	10YR 5/3	Sa	30	
ds123	4/16/25	Negative	0-16	10YR 3/3	Sa	16-29	10YR 5/3	Sa	29	
ds124	4/16/25	Negative	0-21	10YR 3/3	Sa	21-33	10YR 5/3	Sa	33	
ds125	4/16/25	Negative	0-26	10YR 3/3	Sa	26-40	10YR 5/3	Sa	40	
ds126	4/16/25	Negative	0-22	10YR 3/3	Sa	22-35	10YR 5/3	Sa	35	
ds127	4/16/25	Negative	0-23	10YR 3/3	Sa	23-48	10YR 5/3	Sa	48	
ds128	4/16/25	Negative	0-19	10YR 3/3	Sa	19-30	10YR 5/3	Sa	30	
ds129	4/16/25	Negative	0-18	10YR 3/3	Sa	18-31	10YR 5/3	Sa	31	
ds130	4/16/25	Negative	0-16	10YR 3/3	Sa	16-29	10YR 5/3	Sa	29	
ds131	4/16/25	Negative	0-18	10YR 3/3	Sa	18-30	10YR 5/3	Sa	30	
ds132	4/16/25	Negative	0-20	10YR 3/3	Sa	20-32	10YR 5/3	Sa	32	
ds133	4/16/25	Negative	0-18	10YR 3/3	Sa	18-30	10YR 5/3	Sa	30	
ds134	4/16/25	Negative	0-21	10YR 3/3	Sa	21-36	10YR 5/3	Sa	36	
ds135	4/16/25	Negative	0-22	10YR 3/3	Sa	22-34	10YR 5/3	Sa	34	
ds136	4/16/25	Negative	0-26	10YR 3/3	Sa	26-40	10YR 5/3	Sa	40	
ds136	4/16/25	Negative	0-28	10YR 3/3	Sa	28-41	10YR 5/3	Sa	41	
ds138	4/16/25	Negative	0-28	10YR 3/3	Sa	28-39	10YR 5/3	Sa	39	
ds140	4/16/25	Negative	0-26	10YR 3/3	Sa	26-37	10YR 5/3	Sa	37	
ds141	4/16/25	Disturbed	0-10							Disturbed
ds142	4/16/25	Disturbed	0-10							Disturbed
ds143	4/16/25	Negative	0-15	10YR 3/3	Sa	15-30	10YR 5/3	Sa		
ds144	4/16/25	Negative	0-16	10YR 3/3	Sa	16-29	10YR 5/3	Sa		
ds145	4/16/25	Disturbed	0-10							Disturbed
ds146	4/16/25	Disturbed	0-10							Disturbed
ds147	4/16/25	Negative	0-22	10YR 3/3	Sa	22-34	10YR 5/3	Sa	34	
ds148	4/16/25	Negative	0-25	10YR 3/3	Sa	25-36	10YR 5/3	Sa	36	
ds149	4/16/25	Negative	0-27	10YR 3/3	Sa	27-38	10YR 5/3	Sa	38	
ds150	4/16/25	Negative	0-22	10YR 3/3	Sa	22-35	10YR 5/3	Sa	35	
ds151	4/16/25	Negative	0-25	10YR 3/3	Sa	25-35	10YR 5/3	Sa	35	
ds152	4/16/25	Negative	0-18	10YR 3/3	Sa	18-30	10YR 5/3	Sa	30	
ds153	4/16/25	Negative	0-20	10YR 3/3	Sa	20-32	10YR 5/3	Sa	32	
ds154	4/16/25	Negative	0-24	10YR 3/3	Sa	24-36	10YR 5/3	Sa	36	
ACM-085	4/16/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ACM-086	4/16/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ACM-087	4/16/25	Negative	0-25	10YR 2/1	SiSa	25-35	10YR 3/1	Sa	35	No Gr, roots
ACM-088	4/16/25	Negative	0-23	10YR 2/1	SiSa	23-33	10YR 3/1	Sa	33	No Gr, roots
ACM-089	4/16/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/3	Sa	30	No Gr, roots
ACM-090	4/16/25	Negative	0-25	10YR 3/3	Sa	25-35	10YR 4/4	Sa	35	No Gr, roots
ACM-091	4/16/25	Negative	0-55	10YR 3/3	Sa	55-65	10YR 4/4	Sa	65	No Gr, roots
ACM-092	4/16/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-093	4/16/25	Negative	0-17	10YR 3/3	Sa	27-27	10YR 2/2	Sa	27	No Gr, roots
ACM-094	4/16/25	Negative	0-20	10YR 3/3	Sa	20-30	10YR 2/2	Sa	30	No Gr, roots
ACM-095	4/16/25	Negative	0-15	10YR 2/2	SiSa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-096	4/16/25	Negative	0-20	10YR 3/3	Sa	20-30	10YR 2/2	Sa	30	No Gr, roots
ACM-097	4/16/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-098	4/16/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-099	4/16/25	Negative	0-20	10YR 2/2	Sa	20-30	10YR 3/3	Sa	30	No Gr, roots
ACM-100	4/16/25	Negative	0-25	10YR 3/3	Sa	25-35	10YR 4/4	Sa	35	No Gr
ACM-101	4/16/25	Negative	0-10	10YR 2/2	Sa	10-20	10YR 3/3	Sa	20	No Gr, roots
ACM-101a	4/16/25	Negative	0-18	10YR 2/2	Sa	18-28	10YR 3/3	Sa	28	No Gr, roots
ACM-102	4/16/25	Negative	0-10	10YR 2/2	Sa	10-20	10YR 3/3	Sa	20	No Gr, roots
ACM-103	4/16/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 3/1	Sa	25	No Gr, roots
ACM-104	4/16/25	Negative	0-27	10YR 2/1	SiSa				27	No Gr, roots, root impasse @ 27 cmbs
ACM-105	4/16/25	Negative	0-15	10YR 2/1	SiSa	15-25	10YR 3/1	Sa	25	No Gr, roots
ACM-106	4/16/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ACM-107	4/16/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ACM-108	4/16/25	Negative	0-20	10YR 2/1	SiSa	20-30	10YR 3/1	Sa	30	No Gr, roots
ACM-109	4/16/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-110	4/16/25	Negative	0-17	10YR 2/2	Sa	17-27	10YR 3/3	Sa	27	No Gr, roots
ACM-111	4/16/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-112	4/16/25	Negative	0-15	10YR 3/3	Sa	15-25	10YR 4/4	Sa	25	No Gr
ACM-113	4/16/25	Negative	0-45	10YR 3/3	Sa	45-55	10YR 4/4	Sa	55	No Gr
ACM-114	4/16/25	Negative	0-35	10YR 3/3	Sa	35-45	10YR 4/4	Sa	45	No Gr
ACM-115	4/16/25	Negative	0-40	10YR 3/3	Sa	40-50	10YR 4/4	Sa	50	No Gr
ACM-116	4/16/25	Negative	0-27	10YR 3/3	Sa	27-37	10YR 4/4	Sa	37	No Gr, offset from juniper tree
ACM-117	4/16/25	Negative	0-40	10YR 3/3	Sa	40-50	10YR 4/4	Sa	50	No Gr
ACM-118	4/16/25	Negative	0-30	10YR 2/2	Sa	30-40	10YR 3/3	Sa	40	No Gr, roots
ACM-119	4/16/25	Negative	0-20	10YR 2/2	Sa	20-30	10YR 3/3	Sa	30	No Gr, roots
ACM-120	4/16/25	Negative	0-15	10YR 2/2	Sa	15-25	10YR 3/3	Sa	25	No Gr, roots
ACM-121	4/16/25	Negative	0-30	10YR 2/2	Sa				30	No Gr, roots, root impasse @ 30 cmbs, offset from tree

Test Number	Date	Result	A Horizon			B Horizon			Total Depth cmbs	Comment
			Depth (cm)	Munsell	Soil	Depth (cm)	Munsell	Soil		
ACM-122	4/16/25	Negative	0-30	10YR 3/3	Sa	30-40	10YR 4/4	Sa	40	No Gr
ACM-123	4/16/25	Negative	0-18	10YR 3/3	Sa	18-28	10YR 2/2	Sa	28	No Gr
ACM-124	4/16/25	Negative	0-20	10YR 2/2	Sa	20-30	10YR 3/3	Sa	30	No Gr, roots
ACM-125	4/16/25	Negative	0-20	10YR 2/2	Sa	20-30	10YR 3/3	Sa	30	No Gr, roots, modern refuse- aluminum can fragment @ 0-5 cmbs
ACM-126	4/16/25	Negative	0-25	10YR 2/2	Sa	25-35	10YR 3/3	Sa	35	No Gr, roots
ACM-127	4/16/25	Negative	0-17	10YR 2/2	Sa	17-27	10YR 3/3	Sa	27	No Gr, roots
ACM-128	4/16/25	Negative	0-35	10YR 2/2	Sa				35	No Gr, roots, root impasse @ 35 cmbs, offset from juniper tree
ACM-129	4/16/25	Negative	0-40	10YR 2/2	Sa	40-50	10YR 3/3	Sa	50	No Gr
ACM-130	4/16/25	Negative	0-45	10YR 2/2	Sa	45-55	10YR 3/3	Sa	55	No Gr
ACM-131	4/16/25	Negative	0-35	10YR 2/2	Sa	35-45	10YR 3/3	Sa	45	No Gr
ACM-132	4/16/25	Negative	0-24	10YR 3/3	Sa	24-34	10YR 2/2	Sa	34	No Gr
ACM-133	4/16/25	Negative	0-35	10YR 3/3	Sa	35-45	10YR 2/2	Sa	45	No Gr
ACM-134	4/16/25	Negative	0-35	10YR 3/3	Sa	35-45	10YR 2/2	Sa	45	No Gr