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Appendix E
Phase 1 Cultural Resources Report
(Public Version)

Regal Solar, LLC
Docket No. IP7003 / GS-19-395
Site Permit Addendum
August 2020

Phase I Archaeological Reconnaissance Survey of the Regal Solar LLC Above-Ground Collection Line

an Addendum to the

Regal Solar LLC Project

BENTON COUNTY, MINNESOTA

Submitted to:

Geronimo Energy

8400 Normandale Lake Boulevard, Suite 1200

Bloomington, MN 55437

Submitted by:

Area M Consulting

7302 Claredon Drive

Edina, MN 55439

REPORT AUTHORS:

Garrett L. Knudsen & Jonathan R. Knudsen

REPORT DATE:

July 2020

MANAGEMENT SUMMARY

Geronimo Energy, LLC (Client) has proposed to develop the Regal Solar Project (Project) in Benton County, Minnesota. Regal Solar, LLC (Regal), the owner of the Project, is a wholly-owned subsidiary of the Client, a National Grid Company.

Previously, in May 2018, Area M Consulting (Area M) completed a Phase I Archaeological Reconnaissance Survey (Survey) for the solar arrays and associated structures of the Project, a solar development. Survey was completed June, 2018, the results compiled into a report dated November, 2018; after reviewing this report, the Minnesota State Historic Preservation Office (SHPO) issued correspondence in April, 2019 concluding that no properties were listed in the National or State Registers of Historic Places and no known or suspected archaeological properties in the area would be effected by the Project (see Appendix C).

In June 2020, the Client finalized Project design, which was expanded to include an above-ground collection line and a substation and switchyard location, the Regal Solar LLC Above-Ground Collection Line (Addendum). The Addendum includes the linear corridor, measuring approximately 3.5 miles in length and 49 acres (Corridor), and the substation and switchyard review area for siting measures approximately 35 acres (Footprint); total acreage for the Addendum is approximately 84 acres.

The Addendum will include collection line poles suspending over-head 34.5 kilovolt (kV) lines and a substation/switchyard connecting photovoltaic panels and associated equipment for the purpose of interconnection with the grid.

As currently defined, the Addendum is not considered a federal undertaking as defined by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36 CRF 800). Utility-scale solar projects are typically subject to state-level permitting. In this case, the Addendum is seeking approval from the Minnesota Public Utilities Commission.

The Client contracted Area M to complete additional Survey to ensure that no cultural resources will be disturbed during Addendum activities. The general purpose of a Phase I survey is to identify archaeological sites within the Addendum's *Area of Potential Effect* (APE) that are potentially eligible for inclusion in the National Register of Historic Places (NRHP). This archaeological study was conducted in accordance with the Minnesota Field Archaeology Act of 1963.

The APE of the Addendum includes the areas where ground-disturbing activities may potentially occur, including the Footprint and the locations where collection line poles will be erected within the Corridor, buffered with a 50-foot radius.

The Survey included literature search, predictive modeling, and field survey of 100 percent the APE, in addition to 100 percent of the entire study area, including both the Corridor and the Footprint (study area). The archaeological field survey consisted of

systematic pedestrian reconnaissance and sub-surface testing in those portions of the Addendum APE considered to have the highest potential for holding unrecorded cultural resources.

One previously-recorded archaeological site was located within the Corridor (21BN003) and zero historical facilities were identified within the study area. Two site leads are documented in the vicinity of the study area (21BNh-Langola and and the Woods Trail): neither of these site leads could be field verified. Three previously-recorded archaeological resources were identified within a half-mile buffer surrounding the APE (21BN005, 21BN010, and 21BN011).

Zero unrecorded sites were identified during Phase I Reconnaissance survey conducted June 22, 2020. 21BN003 was revisited; although sparse possible cultural materials were observed on the ground surface, extensive sub-surface testing failed to locate any cultural horizons, features, or artifacts. No materials, structures, or other evidence associated with 21BNh was observed during survey. No evidence for the location of the Woods Trail was observed during survey.

Area M recommends that ***the project may proceed as planned with no negative impact to cultural resources***. If the Addendum's APE or is altered to include areas outside the study area considered here, a new survey must be conducted and a new report must be rendered.

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LIST OF FIGURES

1. INTRODUCTION

Geronimo Energy, LLC (Client) has proposed to develop the Regal Solar Project (Project) in Benton County, Minnesota. Regal Solar, LLC (Regal), the owner of the Project, is a wholly-owned subsidiary of the Client, a National Grid Company.

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The Project is located in Sections 3 and 10-12, Township 38N, Range 32W in Benton County, Minnesota (Figure 1). The APE for archaeology includes the maximum potential construction limits and all areas of potential ground disturbance associated with the construction of the study area. The Addendum occurs within the *Central Lakes Deciduous* **(4e)** archaeological sub-region, as defined in the SHPO Manual for Archaeological Projects in Minnesota (Anfinson, 2005).

PROJECT	COUNTY	LEGAL LOCATION	ESTIMATED AREA
Regal Solar LLC Interconnect Corridor Project	Benton	T38N - R32W - Sections 3, 10-12	84 Acres

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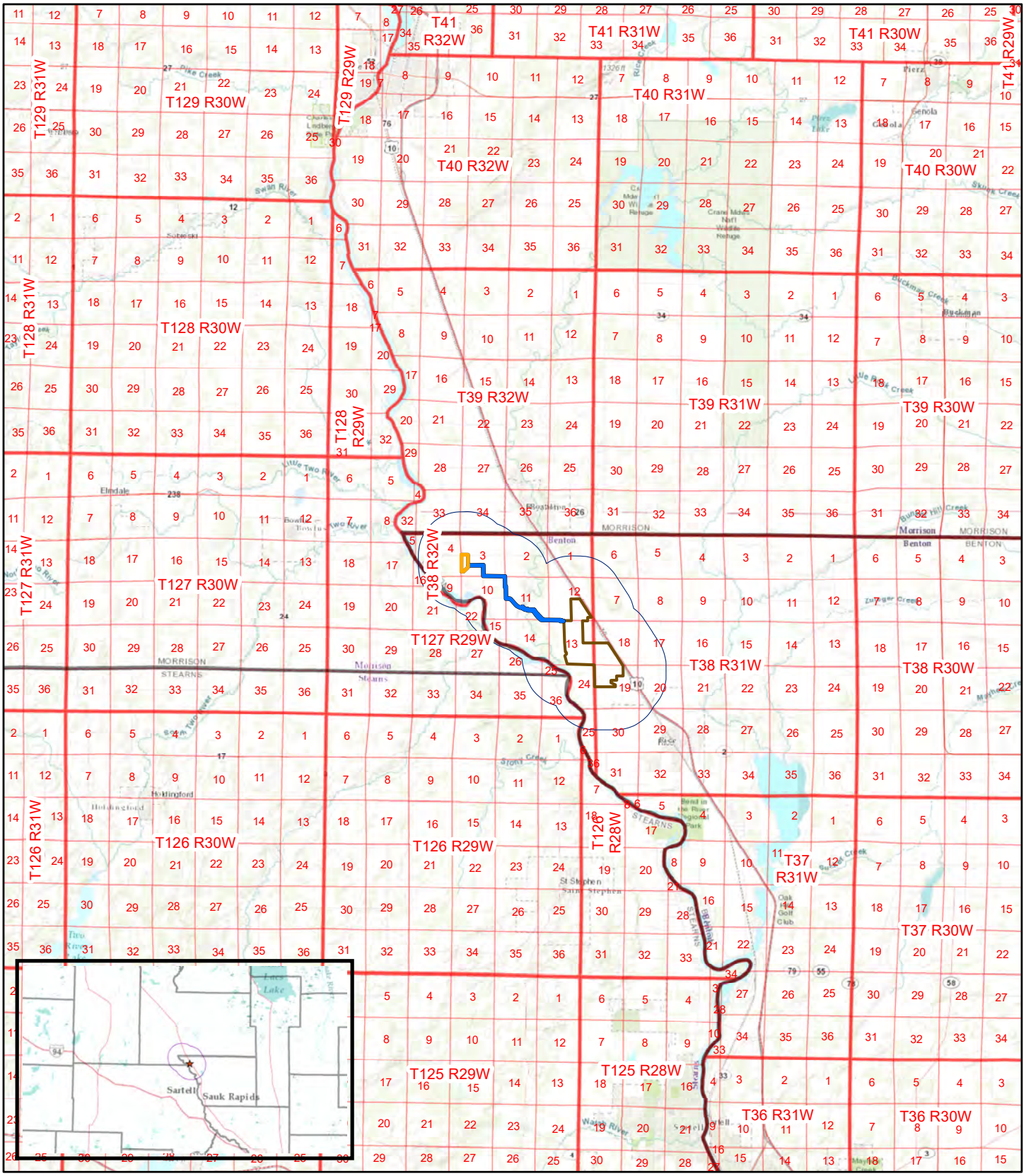

Figure 1. Addendum Location Map

Regal Solar LLC

Benton County, Minnesota

- Regal Array Area
- Regal Addendum Collection Corridor
- Regal Addendum Substation/Switchyard Footprint
- 1-mile Buffer
- 5-mile Buffer
- Project location
- County Boundary

0 1 2 4 Miles (1:200,000)

N

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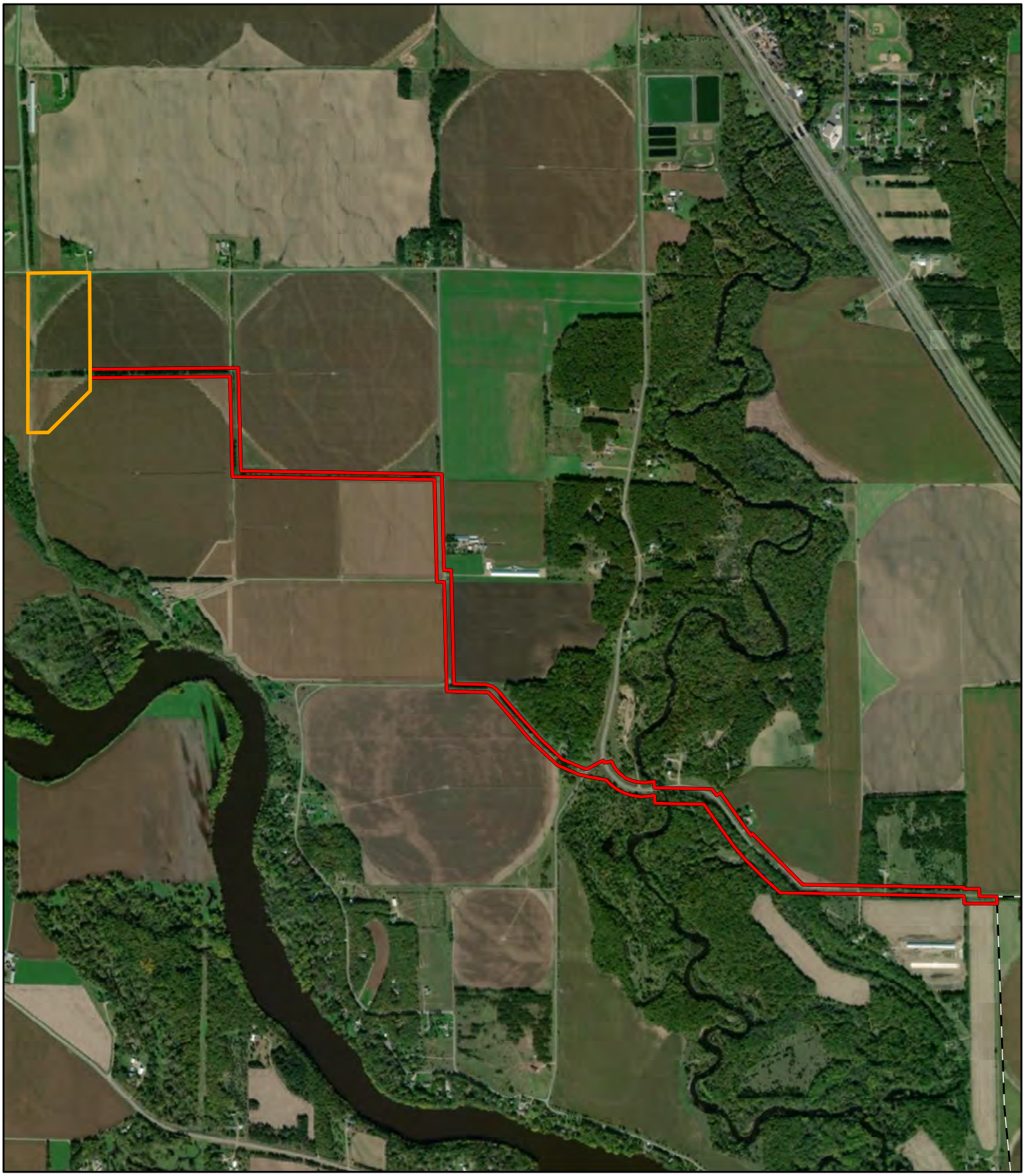

Figure 2. Addendum Site Map

Regal Solar LLC

Benton County, Minnesota

Regal Array Area

Regal Addendum Collection Corridor

Regal Addendum Substation/Switchyard Footprint

0 950 1,900 3,800 Feet

1:21,130

N

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2. METHODS

2.1. OBJECTIVES

The principal objectives of the Phase I Archaeological Reconnaissance survey (Phase I) are:

1) To identify all previously recorded archaeological resources within the archaeology Project Footprint that are listed in or are eligible for listing in the NRHP; and

2) To identify, to the extent possible by means of systematic in-field inspection and testing, other potentially NRHP-eligible resources within each Project Footprint.

Area M's investigation was guided by the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716) and by the *SHPO Manual for Archaeological Projects in Minnesota* (Anfinson 2006). Fieldwork, laboratory analysis, and preparation of the final report with recommendations were accomplished by Garrett Knudsen, a professional archaeologist meeting the standards set forth in 36 CFR 61.

2.2. LITERATURE SEARCH

Area M has reviewed information available at the Minnesota State Historic Preservation Office (SHPO), located in St. Paul, Minnesota, through a record search query. Various private databases and online sources were also reviewed to perform an assessment of cultural resources within the Project area and within one-half mile. In addition, the online database of archaeological data managed by the Office of the State Archaeologist (OSA) was reviewed in June, 2020. The purpose of research at SHPO and OSA was to identify previously-recorded cultural resources and cultural resource surveys conducted near Project area. Further, Area M has analyzed Century Public Land Survey (PLS) maps, Andreas maps, General Land Office (GLO) maps, Trygg maps, and historic aerial photographs in order to identify potential historic-period cultural features within the Project area. Finally, Area M conducted extensive analysis of LiDAR imagery at various sales and shadings for the Project area with a specific focus on the identification of unrecorded burial mound complexes.

2.3. PREDICTIVE MODELLING

Probability maps for unrecorded resources were completed for the Project. Assessments of the project area's potential to contain pre-contact archaeological resources was based on analyses of terrain, water sources, and other natural resources adjacent to the project area. Permanently wet areas (e.g., wetlands and streams), poorly drained areas, and areas with slopes greater than 20 percent are generally considered inhospitable to human occupation and are unlikely to contain cultural resources. In general, areas with higher pre-contact archaeological potential are in proximity to a relatively substantial water source, typically within 500 feet, though the exact distance often varies according to environmental conditions such as the size of the body of water, the nature of the water source (perennial versus intermittent), and the extent of the floodplain. Topographic

prominence and/or proximity to previously recorded pre-contact sites are also typically indicative of high pre-contact archaeological potential.

2.4. FIELD METHODS

Phase I field investigations consist of systematic pedestrian survey, systematic shovel testing, and soil auger testing. The use of these methods is based on ground surface visibility, slope, distance to water, degree of previous disturbance, terrain, and vegetation as found within the survey areas.

Areas demonstrably disturbed through previous construction or other modern landuse practices are excluded from survey unless the potential exists for intact cultural deposits beneath the disturbance. In addition, permanently wet areas (wetlands, lakes, ponds, streams) and slopes greater than 20 percent are excluded from survey because they are generally inhospitable to human occupation and are unlikely to contain cultural resources.

Visual reconnaissance of the study area is conducted during Phase I field survey to identify above-ground archaeological features or other indicators of the presence of past peoples, such as burial mounds. Areas of moderate to high archaeological potential exhibiting 25 percent or more surface visibility are examined through systematic pedestrian survey. A systematic pedestrian survey is a visual examination of the ground surface, during which field personnel walk across the project area at regular intervals to observe ground surfaces for the presence of cultural resources. During this project, pedestrian reconnaissance was conducted along transects spaced 3 meters apart.

Areas of medium- and high-potential for unrecorded cultural resources exhibiting less than 25 percent surface visibility are examined through systematic shovel testing. Systematic shovel testing involves the manual excavation of small holes 30 to 40 centimeters in diameter at regular intervals to identify subsurface archaeological materials. Shovel tests are placed at intervals of 15 meters.

In areas where archaeological sites are identified, shovel testing is used to define the boundaries of those sites within the study area. Shovel tests are excavated 5 or 10 meters from all positive shovel tests in the cardinal directions until two consecutive negative shovel tests spaced 5 meters apart are encountered, until severe disturbances were encountered, or until the edge of the study area was reached.

Shovel tests are excavated through all soil horizons with the potential for containing cultural remains and into the underlying sterile subsoil (C horizon), or to a maximum depth of one meter (three feet), depending on which condition was first encountered. Excavated soils are passed through ¼-inch hardware mesh to ensure consistency in the

recovery of cultural materials. Shovel test data are recorded on standardized forms. Recorded information includes: 1) the designated field area within which each test was located; 2) the location of each shovel test in relation to natural or cultural features, or to other shovel tests, as appropriate; 3) a description of soil horizons, including depth, texture, and Munsell® color designation; and 4) the nature and depth of natural or cultural inclusions. The locations of all shovel tests are recorded using a Trimble.

When archaeological sites are encountered during fieldwork, they are documented and given a unique field number. Site locations, characteristics, and conditions are recorded manually and digitally. GPS coordinates are recorded for each site, also recorded on 7.5-minute USGS quadrangle maps of the project area.

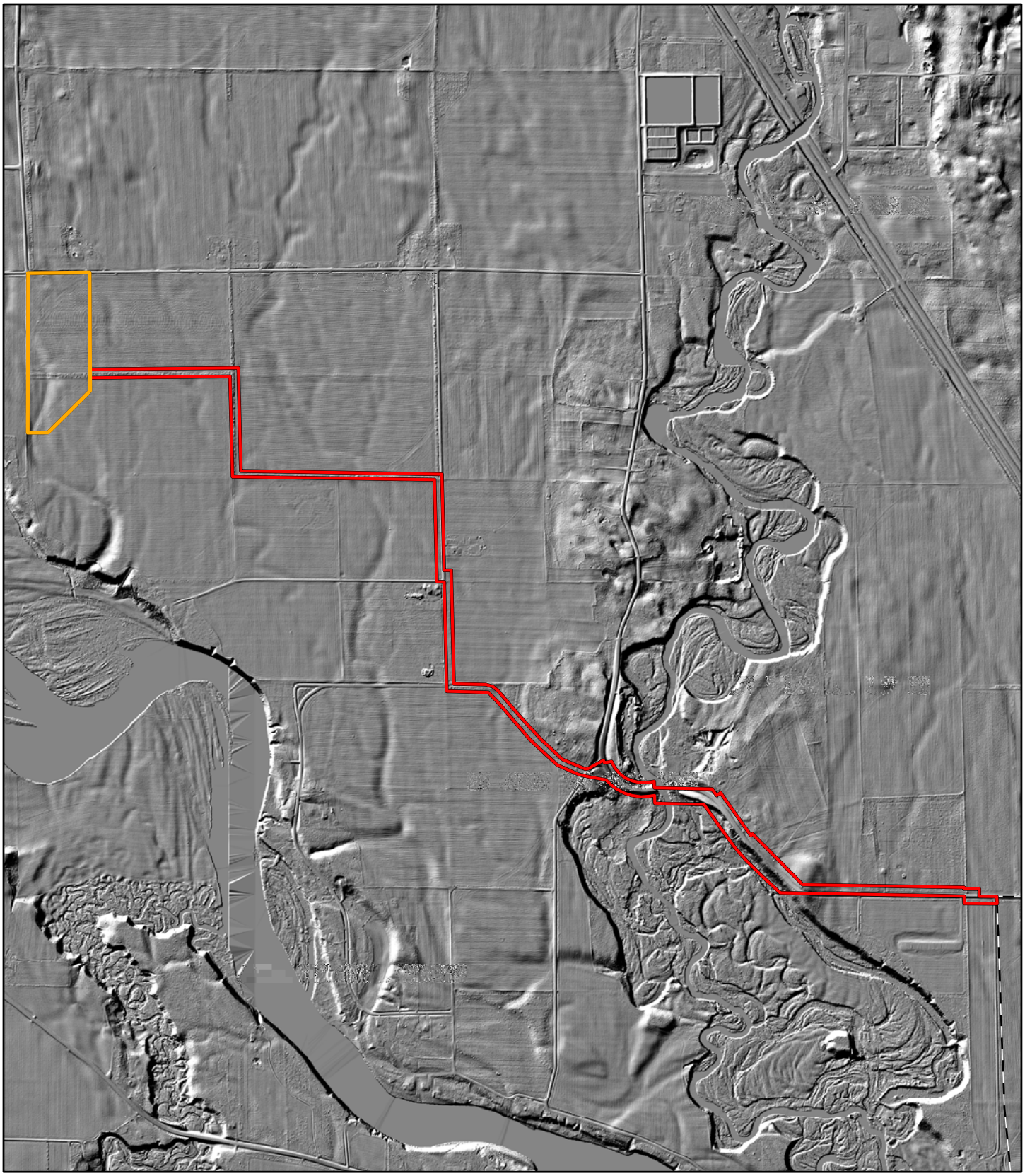

Figure 3. Addendum LiDAR Map

Regal Solar LLC

Benton County, Minnesota

Regal Array Area

Regal Addendum Collection Corridor

Regal Addendum Substation/Switchyard Footprint

0 950 1,900 3,800

1:21,130

Feet

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3. LITERATURE SEARCH RESULTS

3.1. PREVIOUS INVESTIGATIONS

Area M was able to locate two archaeological surveys that have previously occurred within the Addendum study area:

BN-91-01

THY-69-01

Additional information pertaining to these surveys could not be accessed due to restricted SHPO access.

3.2. RECORDED ARCHAEOLOGICAL RESOURCES

Literature and archival research indicates that one numbered, pre-contact archaeological site has been recorded (field verified) within the Addendum study area:

21BN0003 (Posch Site) - Prehistoric lithic scatter; listed on the NRHP

Two site leads have reported (not field verified) within the Addendum study area:

21BNh (Langola) - Abandoned settlement, occupied 1850s-1870s

Red River Trail System, Woods Trail - Oxcart Trail

Three numbered, pre-contact archaeological site have been recorded (field verified) within the 1/2 mile of the Addendum study area:

21BN0005 (Indian Hill/Oglala Hill) - Prehistoric lithic/artifact scatter

21BN0010 (Parsons Site) - Prehistoric lithic/artifact scatter 21BN0011

(Langola Gravel Quarry) - Prehistoric lithic/artifact scatter

3.3. RECORDED HISTORICAL FACILITIES

The records search at SHPO produced no previously-recorded historic facility resources within the study area. No previously-recorded historical facilities were identified within a half-mile buffer of the study area.

3.4. PREDICTIVE MODEL

The study area was studied to estimate the potential for holding unrecorded cultural resources. The majority of the study area has low-potential to hold unrecorded cultural resources, based on local chronologies and settlement patterns.

However, areas of high-probability were identified, including those areas with elevation and less than 20% slope along either bank of the Platte River and the associated terrace edge.

3.5. HISTORIC CONTEXTS

Historic contexts are discussed in terms of a pre-contact period (before ca. 375 years ago), a contact period (A.D. 1630-1820), and a historical period (A.D. 1820-present) in North America in general and apply to Benton County, Minnesota in particular. These contexts are further divided into a number of periods and sub-periods, and constitute research themes under which archaeological resources identified are evaluated for NRHP significance; full contexts related to the pre-contact, contact, and historical periods are extraneous to this report and are not provided here.

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4. FIELDWORK RESULTS

Area M conducted systematic survey, constituting a full Phase I Archaeological Reconnaissance of the Addendum study area and associated APE on June 22, 2020. Garrett Knudsen (Knudsen) served as Principal Investigator for the investigation. Predictive modeling, LiDAR analysis, literature review results, pedestrian reconnaissance, windshield survey, and models depicting natural features as they appeared historically were used to ascertain which portions of the APE had greater potential to contain intact unrecorded archaeological resources; 100 percent of the APE, as well as 100 percent of the entire Addendum study area, was surveyed at the request of the Client.

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4.1. SUBSTATION/SWITCHYARD FOOTPRINT

The Project substation/switchyard footprint, located at the northwest limit of the survey area, is constituted by flat sandy soil, fallow in the North/Northwest, planted in corn in the South (crop height was less than 24 inches and surface visibility was greater than 75%).

No unrecorded cultural resources were identified; no evidence of were observed.

4.2. COLLECTION LINE CORRIDOR

The corridor of the collection line connects the Project substation/switchyard footprint of the Addendum in the Northwest to the original Project (2018) footprint in the Southeast. Ground cover, land use, and topography varied across the survey area. In general terms, the transmission line corridor follows existing shelter belts, rural road ways, and disturbed right-of-ways adjacent to Surface visibility ranged from 30-100%.

No unrecorded cultural resources were identified; no evidence of were observed.

4.3.

quarry and previously-recorded site 21BN0011, was considered high-probability for holding unrecorded cultural resources. Ground cover was forest floor leaf litter and eroded prairie vegetation; surface visibility was 30% and 40%, respectively. A transect of ten shovel tests were

placed along the sliver of the terrace edge that falls within the Project corridor: all were negative for cultural resources.

; this landform has a slope greater than 20%. Ground cover was forest vegetation, with surface visibility of 25%.

No unrecorded cultural resources were identified; no evidence of were observed.

4.4.

in the vicinity of the survey corridor is completely Here, the is a slope greater than 20% descending ; surface visibility was greater than 25% at the time of survey.

No unrecorded cultural resources were identified; no evidence of were observed.

4.5. SITE 21BN0003 REVISIT

Previously-recorded site 21BN0003 falls within the survey corridor. However the Addendum's APE, consisting of areas where ground-disturbing activities are likely, spans the mapped location of the site, with collection pole footprints designed more than (see Figure 5).

21BN0003 takes up

At the time of survey, 21BN003 ; surface visibility was greater than 75%.

Several fragments of quartzite shatter were observed on the ground surface of the site, but no formal artifacts, retouched tools, primary flakes, secondary flakes, or tertiary flakes were identified. Perpendicular transects of shovel tests were placed over the site where it falls within the survey corridor: none of the 20 shovel tests, each dug though uniform sandy soil to a depth of .8-1.0 meters, identified any cultural horizons, artifacts, or other evidence of past human use. Therefore, it is unlikely that 21BN003 has sub-surface integrity or substantial research value; the site has likely been destroyed through agriculture and erosion.

No unrecorded cultural resources were identified; no evidence of Langola (21BNh) or the Oxcart Trail of the Woods Trail were observed.

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Recommendations

Based on the Addendum's design avoiding ground-disturbing activities within 50 feet of the recorded boundary for 21BN0003, the negative results of subsurface testing at high-probability areas and location of 21BN0003, and the absence of any identified evidence for Langola (21BNh) or the Woods Trail of the Red River Trail System, no further archaeological work is recommended for the Addendum.

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5. SUMMARY OF RECOMMENDATIONS

One previously-recorded archaeological resource was identified within the s study area (21BN0003). Three previously-recorded archaeological resources were identified within a half-mile buffer surrounding the study area (21BN0005, 21BN0010, and 21BN0011). In addition, two site leads, unverified, are recorded in the vicinity of the Addendum (21BNh and the Woods Trail of the Red River Trail System).

Area M completed systematic survey of the entire APE and the entire study area for the Addendum; no unrecorded cultural resources were identified. Based on the Addendum's design avoiding ground-disturbing activities within 50 feet of the recorded boundary for 21BN0003, the negative results of subsurface testing at high-probability areas and location of 21BN0003, and the absence of any identified evidence for Langola (21BNh) or the Woods Trail of the Red River Trail System, Area M believes this project has low potential to hold unrecorded cultural resources.

Therefore, Area M recommends that ***the project may proceed as planned with no negative impact to cultural resources***. If the Addendum APE or study area is altered, a new survey must be conducted and a new report must be rendered.

REFERENCES CITED

Anfinson, Scott F.

2001 *SHPO Guidelines for Archaeological Projects in Minnesota*. State Historic Preservation Office, St. Paul.

General Land Office

1855 Original Public Land Survey Plat Map of Minnesota. Available online at: http://www.gis.state.mn.us/GLO/Index.htm.

APPENDIX A: LIST OF PROJECT PERSONNEL

Project Manager & Principal Investigator	Garrett L. Knudsen
Field Archaeologists	Garrett L. Knudsen Jonathan R. Knudsen
GIS/Graphics Specialist	Jonathan R. Knudsen

APPENDIX B: PROJECT PHOTOS

FIGURE 1. View South from NW corner of the study area (substation/switchyard; Footprint)

FIGURE 2. View North from SW corner of substation/switchyard Footprint

FIGURE 3. View SE from SE corner of substation/switchyard Footprint

FIGURE 4. View E from center of collection line Corridor

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FIGURE 5.

FIGURE 6.

FIGURE 7.

FIGURE 8.

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APPENDIX C: PREVIOUS CORRESPONDENCE

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

April 18, 2019

Ms. Jenny Monson-Miller
Geronimo Energy
7650 Edinborough Way, Suite 750
Edina, MN 55435

RE: Regal Solar Energy Project - Installation of ground-mounted solar arrays, fencing, roads, and associated utilities and equipment
T38 R31 S18-19; T38 R32 S12-13
Langola Twp., Benton County
SHPO Number: 2018-3083

Dear Ms. Monson-Miller:

Thank you for the opportunity to comment on the above project. It has been reviewed pursuant to the responsibilities given the State Historic Preservation Office by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act.

We have reviewed the cultural resources survey report that was prepared for this project. Based on the results of the survey, we conclude that there are no properties listed in the National or State Registers of Historic Places, and no known or suspected archaeological properties in the area that will be affected by this project.

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

Please contact our Environmental Review Program at (651) 201-3285 if you have any questions on our review of this project.

Sincerely,

Sarah J. Beimers

Sarah J. Beimers
Environmental Review Program Manager

cc: Garett Knudsen, Area M Consulting