

Intensive Phase I Archaeological Investigation of Areas Deemed to Have Prehistoric Burial Potential at the Proposed Story County Dotson Farms Residential Subdivision, Section 7, T84N, R24W, Franklin Township, Story County, Iowa

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Information contained in this report relating to the nature and location of archaeological sites is considered private and confidential and not for public disclosure in accordance with Section 304 of the National Historic Preservation Act (54 U.S.C. § 307103); 36 CFR Part 800.6 (a)(5) of the Advisory Council on Historic Preservation's rules implementing Sections 106 and 110 of the Act; Section 9(a) of the Archaeological Resource Protection Act (54 U.S.C. § 100707), and Chapter 22.7, subsection 20 of the Iowa Code.



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Abstract

This report presents the results of a Phase I archaeological survey conducted for Quarry Estates, LLC of Ames, Iowa by Impact7G, Inc. of Clive, Iowa. This survey was conducted to determine if prehistoric burial locations occur in areas identified by the Office of the State Archaeologist as having potential for prehistoric burials at the proposed Story County Dotson Farms Residential Subdivision north of Ames, Iowa. The project area encompasses approximately 5.4 ha (13.3 ac) in Section 7, T84N, R24W, Franklin Township, Story County, Iowa. The project area is positioned on upland and glacial outwash landforms in the Des Moines Lobe physiographic region.

No previously recorded archaeological sites occur in the project area and the area has not been previously surveyed. Historic maps and aerial photographs identified no potential historic resources within the project area. Soil survey data suggest that the project area occurs on upland and glacial outwash landforms. Available county histories identify no significant individuals or activities associated with the project area. Additional data sources provided by the Office of the State Archaeologist identified no known historic Native American locations in the Historic Indian Location Database or otherwise “notable locations” within the project area.

Field survey was conducted by Branden K. Scott (principal investigator) and field technician Eric Lindeen on March 20, 2020. Three soil profiles were recorded within the project area. Soil profiles indicated that plowing and erosion have truncated the B horizon in upland locations. While archaeological sites could occur, disruptions to the soil profiles indicate that they are unlikely to be significant. The project area occurred on upland landforms covered with grass and within an agricultural field. Pedestrian survey was conducted across the project area and no prehistoric earthworks were identified. Pedestrian survey was conducted at 15 m (49.2 ft) intervals in the agricultural field. No archaeological sites were identified during pedestrian survey of the agricultural field. To locate archaeological sites in grass-covered areas, Impact7G, Inc. conducted shovel testing of upland shoulder and summit locations. Shovel tests followed the contours of the upland summits and shoulders and tests were spaced at 10 m (32.8 ft) intervals ($n = 64$). Backslopes were not subjected to shovel testing because these areas have low potential for archaeological sites and burials. Shovel tests were excavated in 10 cm levels and all sediment was screened through ¼” wire hardware cloth. Tests were excavated at least 15 cm into the underlying B horizon. One prehistoric site was identified. This investigation encountered no evidence of burials.

Archaeological site 13SR370 is an indeterminate prehistoric open habitation located on the summit of the northernmost ridge within the project area. Only one piece of prehistoric flaking debris was encountered, and it derived from plowzone contexts. The upland ridge had an Ap-Bt soil profile, indicating that plowing and erosion have affected this landform. Because artifacts were sparse and only found in plowzone contexts, this site is recommended not eligible of the National Register of Historic Places. No further archaeological work is recommended for site 13SR370.

Impact7G, Inc. recommends no additional archaeological work for the project area.

Introduction

This report presents the results of a Phase I archaeological survey conducted for Quarry Estates, LLC of Ames, Iowa by Impact7G, Inc. (Impact7G) of Clive, Iowa. This survey was conducted to determine if prehistoric burial locations occur in areas identified by the Office of the State Archaeologist (OSA) as having potential for prehistoric burials at the proposed Story County Dotson Farms Residential Subdivision north of Ames, Iowa. The project area encompasses approximately 5.4 ha (13.3 ac) in Section 7, T84N, R24W, Franklin Township, Story County, Iowa. The project area is positioned on upland and glacial outwash landforms in the Des Moines Lobe physiographic region (Prior 1991; Figure 1). Methods employed during this investigation are consistent with the National Historic Preservation Act (Advisory Council on Historic Preservation 1984, 1999), the Secretary of the Interior's Standards for the Identification of Historic Properties (National Park Service 1983), and guidelines for archaeological investigations in Iowa (Association of Iowa Archaeologists 2018). Furthermore, this investigation is consistent with Story County Land Development Regulations for land suitability/environmentally sensitive areas (Chapter 86.15.4(6)). Notes, photographs, and all other records associated with this project are housed at Impact7G.

No previously recorded archaeological sites occur in the project area and the area has not been previously surveyed. Historic maps and aerial photographs identified no potential historic resources within the project area. Soil survey data suggest that the project area occurs on upland and glacial outwash landforms. Available county histories identify no significant individuals or activities associated with the project area. Additional data sources provided by the OSA identified no known historic Native American locations in the Historic Indian Location Database (HILD) or otherwise "notable locations" within the project area.

Field survey was conducted by Branden K. Scott (principal investigator) and Eric Lindeen on March 20, 2020. Recorded soil profiles ($n = 3$) indicated that plowing and erosion have truncated the B horizon throughout upland locations within the project area. The project area occurred in grass-covered areas and within an agricultural field. Pedestrian survey was conducted across the project area and no prehistoric earthworks were identified. Pedestrian survey was conducted at 15 m (49.2 ft) intervals in the agricultural field. No archaeological sites were identified during pedestrian survey of the field. To locate archaeological sites in grass-covered areas, Impact7G conducted shovel testing of upland shoulder and summit locations. Shovel tests followed the contours of the upland summits and shoulders and tests were spaced at 10 m (32.8 ft) intervals ($n = 64$). Backslopes were not subjected to shovel testing because these areas have low potential for archaeological sites and burials. Shovel tests were excavated in 10 cm levels and all sediment was screened through ¼" wire hardware cloth. Tests were excavated at least 15 cm into the underlying B horizon. One prehistoric site was identified. This investigation encountered no evidence of burials. Archaeological site 13SR370 is an indeterminate prehistoric open habitation located on the summit of the northernmost ridge within the project area. Only one piece of prehistoric flaking debris was encountered, and it derived from plowzone contexts. The upland ridge had an Ap-Bt soil profile, indicating that plowing and erosion have affected this landform. Because artifacts were sparse and only found in plowzone contexts, this site is recommended not eligible of the National Register of Historic Places (NRHP). No further archaeological work is recommended for site 13SR370. Furthermore, no additional archaeological work is recommended for the project area.

Information contained in this report relating to the nature and location of archaeological sites is considered private, confidential, and not for public disclosure in accordance with Section 304 of the National Historic Preservation Act (54 U.S.C. § 307103); 36 CFR Part 800.6 (a)(5) of the Advisory Council on Historic Preservation's rules implementing Sections 106 and 110 of the Act; Section 9(a) of the Archaeological Resource Protection Act (54 U.S.C. § 100707), and Chapter 22.7, subsection 20 of the Iowa Code.

Project Area Location

The project area occurs in northwest Story County in the Des Moines Lobe physiographic region (Prior 1991; Figure 1). The project area is positioned in the NW ¼, and the SW ¼, NW ¼, NE ¼, Section 7, T84N, R24W, Franklin Township, Story County, Iowa (Figure 2). The project area consists of four distinct areas that were identified by the OSA as locations with prehistoric burial potential. The entirety of the residential development was not included in this assessment. The project area occurs south of 170th Street and east of 500th Avenue (Figure 3). The project area encompasses 5.4 ha (13.3 ac) positioned primarily on higher topographic locations overlooking Squaw Creek to the west. Project plans indicate that a housing development will occur at this location. Because the project area occurs on upland and glacial outwash landforms, archaeological deposits at any vertical provenience might be affected by this undertaking.

Research Design

The purpose of an intensive Phase I archaeological investigation is to identify, delineate, and describe specific archaeological resources within a defined project area to ensure NRHP-eligible sites are not adversely affected by a specific undertaking. In Iowa, the Association of Iowa Archaeologists (2018) have outlined best-practices for research and this investigation adheres to those standards. According to the Secretary of the Interior's Guidelines for Identification:

Intensive survey is most useful when it is necessary to know precisely what historic properties exist in a given area or when information sufficient for later evaluation and treatment decisions is needed on historic properties. Intensive survey describes the distribution of properties in an area; determines the number, location, and condition of properties; determines the types of properties actually present within the area; permits classification of individual properties; and records the physical extent of specific properties (National Park Service 1983).

Impact7G utilizes a mixture of historic documentation, site records data, and geologic/topographic information to predict potential for archaeological resources. These predictions are then tested by mixed geomorphological and archaeological field investigations. Impact7G focuses on the geologic environment containing archaeological resources to locate and evaluate archaeological properties and we cater field investigations to local geomorphological conditions. Local geomorphology and site formation processes are responsible for burial, preservation, and destruction of archaeological resources and these same processes affect our ability to locate sites. Geologic environments also weigh heavily on human settlement decisions and they affect locations/types of plant and animal communities. Utilizing geomorphological data can aid in predicting site locations in relation to area landforms, as has been demonstrated throughout Iowa alluvial environments (e.g., Bettis and Benn 1984; Bettis et al. 1992; Bettis and Thompson 1981; Bettis et al. 1996) and upland landscapes (e.g., LANDMASS site suitability model). Focusing on local geologic conditions can lead to identification of post-settlement alluvium (PSA), disturbances, manipulated landscapes, and buried surfaces. An understanding of local geology also provides an archaeologist the ability to make informed decisions regarding where and how deep to conduct subsurface testing. Geological data greatly weigh on a site's context/artifact associations and utilizing these data can aid in determining NRHP eligibility at the intensive Phase I level.

Environmental and Geomorphological Context

Physiographic Region

The project area is positioned in Prior's (1991) Des Moines Lobe physiographic region (Figure 1). The Des Moines Lobe represents Iowa's youngest glacial landscape. This region was formed when the Wisconsin Laurentide ice sheet extended into Iowa approximately 14,000 years ago (Kemmis et al. 1981). Upland terrain in the region is dominated by glacially deposited materials known as the "Dows Formation" (Hoyer 1980; Kemmis et al. 1981; Ruhe 1969). The Dows Formation consists of four members: the Alden Member represented by ground moraine till, the Morgan Member represented by end/lateral moraines, the Pilot Knob Member associated with kames and eskers, and the Lake Mills Member which is associated with glacial lakes. Major glacial ice advances/retreats are marked by the Bemis, Altamont, and Algona moraines. The Des Moines Lobe has limited topographic relief and stream valleys have not incised as deeply as elsewhere in Iowa. The landscape has a ridge and swale topography that has created a hummocky surface with elevational highs and linked drainage-depression systems. Glacial features common to the region include kettle lakes, kames, eskers, moraines, depressions, and drained glacial lakes.

Another notable landform within the Des Moines Lobe is the Noah Creek Formation. This formation represents coarse-grained sand and gravels associated with outwash plains and outwash terraces (Bettis et al. 1996). These outwash deposits date to between 14,000 and 11,000 before present (BP). Noah Creek Formation terraces are also referred to as "Wisconsinan outwash terraces".

Upland Landscapes in Iowa

"Uplands" refers to hills and bluffs throughout Iowa. Iowa's upland landscape did not result from tectonic uplift. Instead, the uplands were formed through a mixture of glacial till deposition and stream valley incision. Ruhe (1969) identified five upland components: summit, shoulder, backslope, footslope, and toeslope. Upland summit, shoulder, and backslope components tend to be erosional. In plowed landscapes, archaeological sites are usually visible on the surface of these upland components and summit and shoulder locations often have potential for archaeological sites. Van Nest (1993, 2002) has demonstrated that intact archaeological materials can be shallowly buried in these types of upland components. Backslopes often lack significant archaeological sites because degree of slope tends to limit extended settlement and erosion often affects artifact context and associations. Footslope and toeslope components tend to be comprised of materials derived from higher upland positions, making these locations depositional in nature. Intact archaeological sites can be found in these locations. Historic Euro-American sites can occur on any upland component. Most uplands in Iowa have been subjected to historic agricultural pressures, which has lowered the potential for intact archaeological materials.

Regional Topography and Geomorphology

The topographic map depicts the project area on high upland summits along the eastern valley wall of Squaw Creek (Figure 2). Backslopes adjoining the project area are relatively steep, offering the upland summit locations extended views of the stream valley. This type of landscape would be ideal for prehistoric settlement as well as potential locations for burials. Squaw Creek is positioned 485 m (1,591 ft) west of the project area. Squaw Creek flows southeast for approximately 14 km (8.7 mi) before draining into the South Skunk River on the south side of Ames. The project area resides between 293 and 299 m (960–980 ft) above mean sea level.

The LiDAR image shows the project area on elevated upland landforms and a possible higher outwash terrace overlooking the Squaw Creek floodplain (Figure 4). Steep backslopes border the project area, accentuating the elevational difference between the floodplain and the surrounding uplands. Agricultural terracing is visible in the southern portion of the project area. Given the surrounding slopes and erosion control measures, the project area likely has significant erosion of upland landforms.

Soil Survey Data

Soil survey data were obtained from the web application provided by the Natural Resources Conservation Service (2020), the paper soil survey compiled by DeWitt (1984), and information provided by Artz (2005). Described soils within the project area are detailed below and on Figure 5.

Symbol	Soil Series	Member/Landform	Description
L62D2	Storden loam, Bemis moraine, 10–16% slopes, moderately eroded	Alden	This is a strongly sloping, well drained soil found on convex sideslopes in the uplands. This soil formed in calcareous loamy glacial till under tall prairie grasses. Permeability is moderate and the available water capacity is high. The typical profile is Ap-Bk1-Bk2-C.
L62E2	Storden loam, Bemis moraine, 10–22% slopes, moderately eroded	Alden	This is a moderately steep, well drained soil found on convex sideslopes that border streams and upland drainageways. This soil formed in calcareous loamy glacial till under tall prairie grasses. Permeability is moderate and the available water capacity is high. The typical profile is Ap-Bk1-Bk2-C.
L138B	Clarion loam, Bemis moraine, 2–6% slopes	Alden	This is a gently sloping, well drained soil found on convex knolls on uplands. This soil formed in glacial till under tall prairie grasses. Permeability is moderate and the available water capacity is high. The typical profile is Ap-A1-A2-Bw1-Bw2-C1-C2.
L138C	Clarion loam, Bemis moraine, 6–10% slopes	Alden	This is a moderately sloping, well drained soil found on knolls on uplands and on convex sideslopes that border streams. This soil formed in glacial till under tall prairie grasses. Permeability is moderate and the available water capacity is high. The typical profile is Ap-A1-A2-Bw1-Bw2-C1-C2.
175	Dickinson fine sandy loam, 0–2% slopes	Noah Creek	This is a nearly level, somewhat excessively drained soil found on convex areas on stream terraces and uplands. This soil formed in glacial or alluvial deposits reworked by wind under tall prairie grasses. Permeability is moderately rapid to rapid and the available water capacity is low. The typical profile is Ap-A1-A2-Bw1-Bw2-BC-C.
175B	Dickinson fine sandy loam, 2–5% slopes	Noah Creek	This is a gently sloping, somewhat excessively drained soil found on convex mounds and dunes on stream terraces and uplands. This soil formed in glacial or alluvial deposits reworked by wind under tall prairie grasses. Permeability is moderately rapid to rapid and the available water capacity is low. The typical profile is Ap-A1-A2-Bw1-Bw2-BC-C.

The project area occurs on upland and glacial outwash landforms. Most of these areas represent summit locations and the edges of backslopes. Glacial outwash is confined to the southern project location. All the documented soil types are well drained and would make suitable locations for prehistoric occupations. Because there are no Holocene alluvial landforms in the project area, archaeological sites (if present) should occur in near surface contexts.

Use of soil survey data requires geomorphological field investigations for corroboration. While useful at a pre-field stage to identify landforms that might contain significant archaeological sites, soil types can be plotted incorrectly, or local conditions can create profiles that deviate from the “typical profile” outlined by the soil survey.

Historic and Current Land Uses

The earliest maps indicate the project area was covered with prairie grasses. Later aerial photographs and maps indicate that this location was under agricultural production. The project area is currently under grass with some agricultural cultivation.

Historic and Cultural Context

Iowa's prehistoric past is divided into four basic cultural periods, which divide further into regional traditions and phases. Taxonomic classifications are commonly defined by shared characteristics in material culture, space, time, and settlement-subsistence patterns. These cultural periods are used throughout the Midwest, Plains, and Eastern North America. Additionally, two historic-era periods are defined in Iowa. Ages are approximations because archaeologists are constantly refining temporal sequences and cultural periods/traditions do not mark rigid taxonomic groups.

Cultural Period	Tradition	Radiocarbon Age BP*	Calendar Age
Paleoindian	Early Paleoindian	12,950–12,450 BP	11,000–10,500 BC
	Late Paleoindian	12,450–10,450 BP	10,500–8500 BC
Archaic	Early Archaic	10,450–7450 BP	8500–5500 BC
	Middle Archaic	7450–4950 BP	5500–3000 BC
	Late Archaic	4950–2750 BP	3000–800 BC
Woodland	Early Woodland	2750–2150 BP	800–200 BC
	Middle Woodland	2150–1550 BP	200 BC–400 AD
	Late Woodland	1550–750 BP	400–1200 AD
Late Prehistoric	Great Oasis	1000–850 BP	900–1100 AD
	Mill Creek	950–750 BP	1000–1200 AD
	Glenwood/Central Plains	800–660 BP	1150–1290 AD
	Oneota	900–250 BP	1050–1700 AD
Historic Native American/Contact	---	300–100 BP	1650–1850 AD
Historic Euro-American	---	100 BP–post Present	1850 AD–Present

* BP is "Before Present". Present is defined as 1950 AD based on the discovery of ¹⁴C dating.

Site Records Data

Site records data provided by I-Sites Pro through the OSA was utilized to determine the presence of previously recorded archaeological sites, previous survey areas, notable locations, previously recorded architectural properties, NRHP-listed sites and districts, and documented historic Native American locations.

Current records available on I-Sites indicate that there are 10 previously recorded archaeological sites within a 1.6 km (1 mi) radius of the project area. These sites are summarized below.

Site Number	Affiliation	Site Type	Landform	SHPO NRHP Eligibility	Reference
13BN281	Archaic, Woodland	Scatter	Outwash	No data	Ballard 1985a
13BN282	Prehistoric	Open habitation	Upland	No data	Ballard 1985b
13BN283	Prehistoric, Euro-American	Scatter, townsite	Mixed	No data	Ballard 1985c; Peterson 2004

Site Number	Affiliation	Site Type	Landform	SHPO NRHP Eligibility	Reference
13BN400	Euro-American	Farm/residence	Upland	No data	Marcucci 1999, Jonathan R. Sellars 2006a
13BN401	Prehistoric	Isolated find	Upland	No data	Marcucci 1999
13BN441	Prehistoric	Scatter	Upland	No data	Jonathan R. Sellars 2006b
13BN442	Prehistoric	Scatter/resource procurement	Upland	No data	Jonathan R. Sellars 2006c
13BN444	Prehistoric	Scatter/resource procurement	Upland	No data	Jonathan R. Sellars 2006d
13SR214	Euro-American	Scatter	Upland/outwash	Not evaluated	Morrow 2005
13SR215	Prehistoric	Isolated find	Upland	Not eligible	Morrow 2005

Five surveys are logged in I-Sites within a 1.6 km (1.0 mi) radius of the project area (Figure 2). The current project area has not been previously surveyed. Details about these surveys are presented below.

R&C Number	Purpose of Survey	Landforms Encountered	Reference
19881285005	Road improvement and bridge replacement	Mixed	Collins 1994; Hirst 1988
19960600058	Rural waterline	Mixed	Stemper 2002
19990608012	Bridge replacement	Mixed	Marcucci 1999
20060185009	Rural waterline	Mixed	Morrow 2005
20181185023	Water treatment plant	Upland	Stroh-Messerole and Whittaker 2018

No historic Native American (HILD database) or “notable locations” are documented on I-Sites databases within the project area. Additionally, there are no previously recorded architectural properties or NRHP-listed properties within the project area.

Buried Site Potential

The project area is positioned on upland landforms and glacial outwash terraces. Deeply buried archaeological sites are not anticipated at this location.

Historic Maps and Aerial Photographs

The 1847 General Land Office map depicts no historic resources in the project area (Figure 6). Additionally, no streams are depicted through the project area. Andreas (1875) depicts no historic resources or streams in the project area (Figure 7). Huebinger (1902) and Nevada Representative (1908) depicts no historic resources or streams in the project area (Figures 8 and 9). The Nevada Representative (1919), the Ames Daily Tribune (1926), and Hixson (1930) show no historic resources in the project area, but a couple of small streams are depicted close to the area to the north and west (Figures 10–12).

An attempt was made to locate former landowners in the available county history (Payne 1911). Landowners include S. G. Wheeler, Schuyler J. Wheeler, and Elisha F. Rainbolt. These landowners are not mentioned in the county history. No significant events are known to have occurred in the project area.

Aerial photographs from 1939, 1953, 1965, and 1971 were used to determine the historic nature of the project area (Figures 13–16). No buildings are indicated in the project area on these aerial photographs. The project area was a mix of cultivated agricultural land and pastures during the historic period.

Field Methods and Investigations

Geomorphological Methods and Results

The geomorphological investigation sought to map landforms within the project area, determine if buried soils exist, identify deflated prehistoric earthworks, and identify locations of past disturbances. Surface investigations were used to identify initial landform types within the project area. A ¾” soil probe was used to document profiles ($n = 3$; Figure 3). The results of soil profiles are presented below.

Profile Designation: Soil Profile 1; Archaeological Site 13SR370

Landscape Position: Upland summit

Method: Shovel test

Slope: 3–5%

Vegetation: Grass and snow, <25% GSV

Recorder: B. Scott, 3/20/2020

Comments: The B horizon has been truncated by plowing at this location. Intact archaeological sites are unlikely to occur.

Depth (cm)	Soil Horizon	Description
0–18	Ap	Brown (10YR 4/3) silt loam; massive structure; friable; abrupt boundary.
18–40+	Bt	Yellowish brown (10YR 5/4) sandy clay loam; moderate, fine subangular blocky structure; friable; frequent rock. End.

Profile Designation: Soil Profile 2

Landscape Position: Upland summit/sand dune

Method: Shovel test

Slope: 1–3%

Vegetation: Grass, <25% GSV

Recorder: B. Scott, 3/20/2020

Comments: This upland summit is covered with dune sands that likely originated during the late Pleistocene. Plowing and erosion have thinned dune sands, and some natural, glacial rock is present in the sands, likely the result of frost heaving.

Depth (cm)	Soil Horizon	Description
0–21	Ap	Very dark grayish brown (10YR 3/2) and dark yellowish brown (10YR 4/4) sand loam; massive structure; friable; abrupt boundary.
21–40+	Bw	Dark yellowish brown (10YR 4/4) loamy sand; weak, fine subangular blocky structure; friable. End.

Profile Designation: Soil Profile 3

Landscape Position: Upland summit/sand dune

Method: Shovel test

Slope: 0–2%

Vegetation: Grass, <25% GSV

Recorder: B. Scott, 3/20/2020

Comments: Plowing and/or landscape manipulation from agricultural terracing has truncated the B horizon at this location. Dune sand at this location likely originated during the late Pleistocene. Sand deposits are

thicker here than were observed in Soil Profile 2 and no rock was observed in any of the shovel tests on this ridge.

Depth (cm)	Soil Horizon	Description
0–10	Ap	Very dark grayish brown (10YR 3/2) loamy sand; massive structure; friable; abrupt boundary.
10–30+	Bw	Strong brown (7.5YR 4/6) medium-fine sand; weak, very fine subangular blocky structure; friable to loose. End.

Soil profiles in the uplands indicate that plowing has truncated the underlying B horizon. If present, archaeological sites should be visible in near surface contexts. No indication of prehistoric mound fill was observed in any of the profiles or shovel tests. The two prominent ridges that border the Squaw Creek valley have dune sands deposited across them. These sands were likely transported to the upland locations at the end of the Pleistocene when the Des Moines Lobe retreated from this area. Archaeological sites are unlikely to be buried below these sands.

Survey Methods

Weather conditions were cloudy with scattered rain. Temperatures during the survey were around -1.1 °C (30 °F). Most of the project area was found in grass-covered areas with thin amounts of snow blanketing the project area during the morning hours (<25% GSV; Figures 3 and 17–21). A small portion of the project area occurred in an agricultural field (80–90% GSV; Figures 3 and 22). Pedestrian survey was conducted in the agricultural field with transects spaced at 15 m (49.2 ft) intervals. In areas of reduced surface visibility, subsurface shovel testing was employed ($n = 64$; Figure 3). Shovel tests were spaced at 10 m (32.8 ft) intervals and they concentrated on the summit and shoulder positions of the upland landforms. Tests were excavated in 10 cm levels and all sediment was screened through ¼” wire hardware cloth. Testing ceased at least 15 cm into the underlying B horizon.

Constraints to Investigation and Deviations from Best-Practice Guidelines

Lack of reasonable GSV (<25%) is always a limiting factor in landscapes where archaeological materials might be visible in surface contexts. Much of the project area was covered with grass that limited surface visibility. Impact7G utilized systematic subsurface shovel testing to mitigate this limiting factor. This investigation did not deviate from Association of Iowa Archaeologists (2018) best-practice guidelines.

Results

Pedestrian survey of the agricultural field yielded no archaeological sites or evidence of burials. Subsurface shovel testing identified one prehistoric artifact on the northernmost ridge. This archaeological site is described in greater detail below. No evidence of prehistoric mounds or burials were encountered within the project area.

13SR370

Site Type: Open habitation

Affiliation: Indeterminate prehistoric

USGS 7.5’ Quad: Ames, West 1975

Legal Location: NE ¼, NW ¼, NW ¼, Section 7, T84N, R24W, Franklin Township, Story County, Iowa (Figure 2)

UTM Coordinates: NAD83, Zone 15, 4,661,772 North, 442,612 East

Area: 620 m² (6,675 ft²)

Mapped Soil Type(s): Storden loam, Bemis moraine, 10–22% slopes, moderately eroded (Symbol L62E2)

Elevation: 299 m (980 ft) above mean sea level

Nearest Water Source: Intermittent stream, 315 m (1,033 ft)

Disturbances: Plowing, erosion, wind deflation

Present Investigations: Impact7G researchers identified 13SR370 on March 20, 2020 during shovel testing of an upland ridge. At the time of investigation, the site was positioned on an upland summit covered with pasture grass (<25% GSV; Figures 17, 18, and 23). A soil profile was recorded at the site (Soil Profile 1 above) and it indicated that erosion and plowing has truncated the underlying Bt horizon, lessening the potential for intact archaeological sites. Subsurface shovel testing was conducted at 10 m (32.8 ft) intervals across the ridge summit and shoulders. Tests were excavated in 10 cm levels and all sediment was screened through ¼” wire hardware cloth. Tests were excavated at least 15 cm into the underlying Bt horizon. Of the 10 tests placed on the landform, only one was positive for prehistoric artifacts (Shovel Test A3; Figure 23). The recovered prehistoric artifact was obtained from the plowzone.

Artifact Analysis: Shovel Test A3 produced a single flake fragment from 10–20 cm within the Ap horizon (Figure 24). This flake fragment is a knapped piece of Croton chalcidonic chert. The flake fragment has a weight of 3.7 g, a length of 25.9 mm, a width of 17.5 mm, and a thickness of 10.2 mm. Additional information pertaining to this artifact is presented in Appendix B.

Interpretations: Prehistoric flaking debris rarely occurs in a vacuum, and while only one piece of flaking debris was recovered from shovel testing at this site, there are likely other artifacts at this site. No diagnostic artifacts were recovered; therefore, 13SR370 is considered an “indeterminate prehistoric” site. Resource procurement sites often yield a small quantity of artifacts and flaking debris tends to be small, typically the result of late-stage biface reduction and tool maintenance. The recovered flake fragment is relatively large, indicating that the recovered flake is more likely associated with early stage biface production or core reduction. This type of activity usually occurs at habitation sites. Because of the type of flake recovered, the site is interpreted as an “open habitation”. The location of the site (prominent ridge overlooking a perennial stream valley) is also consistent with upland prehistoric habitation site locations throughout Iowa. Soils documented at this location indicate that the plowzone has truncated the underlying Bt horizon. As such, there is low potential for intact archaeological materials.

Recommendations: Impact7G recommends that 13SR370 is not eligible for the NRHP because artifacts are sparse and appear to be confined to plowzone contexts. No further archaeological work is recommended for this site.

Recommendations

No burial locations were identified. Archaeological site 13SR370 had artifacts confined to the plowzone of a heavily eroded upland ridge. Site 13SR370 is recommended not eligible for the NRHP. Impact7G recommends no additional archaeological work for the project area.

Despite our best efforts, archaeologists have not devised survey and testing methods that can guarantee all archaeological sites will be identified within a project area all the time. If unanticipated archaeological sites are encountered during earthmoving/development, activities should cease, and the overseeing Federal/State agency should be contacted as well as the State Historic Preservation Office at (515) 281-5111. The developer is responsible for protecting cultural resources from additional disturbance until a professional examination is made and permission to proceed with development is granted by the overseeing

Federal/State agency and State Historic Preservation Office. Human burials are protected by Iowa law (Chapter 716.5, Iowa Code). If human remains are encountered, take measures to secure the find(s) and contact the State Medical Examiner at (515) 725-1400 or city, county, or state law enforcement agencies. If human remains are suspected to be 150 years old or older, also contact the Bioarchaeology Program at the Office of the State Archaeologist at (319) 384-0740.

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Figures

Figure 1. Physiographic location of the project area

Project Area

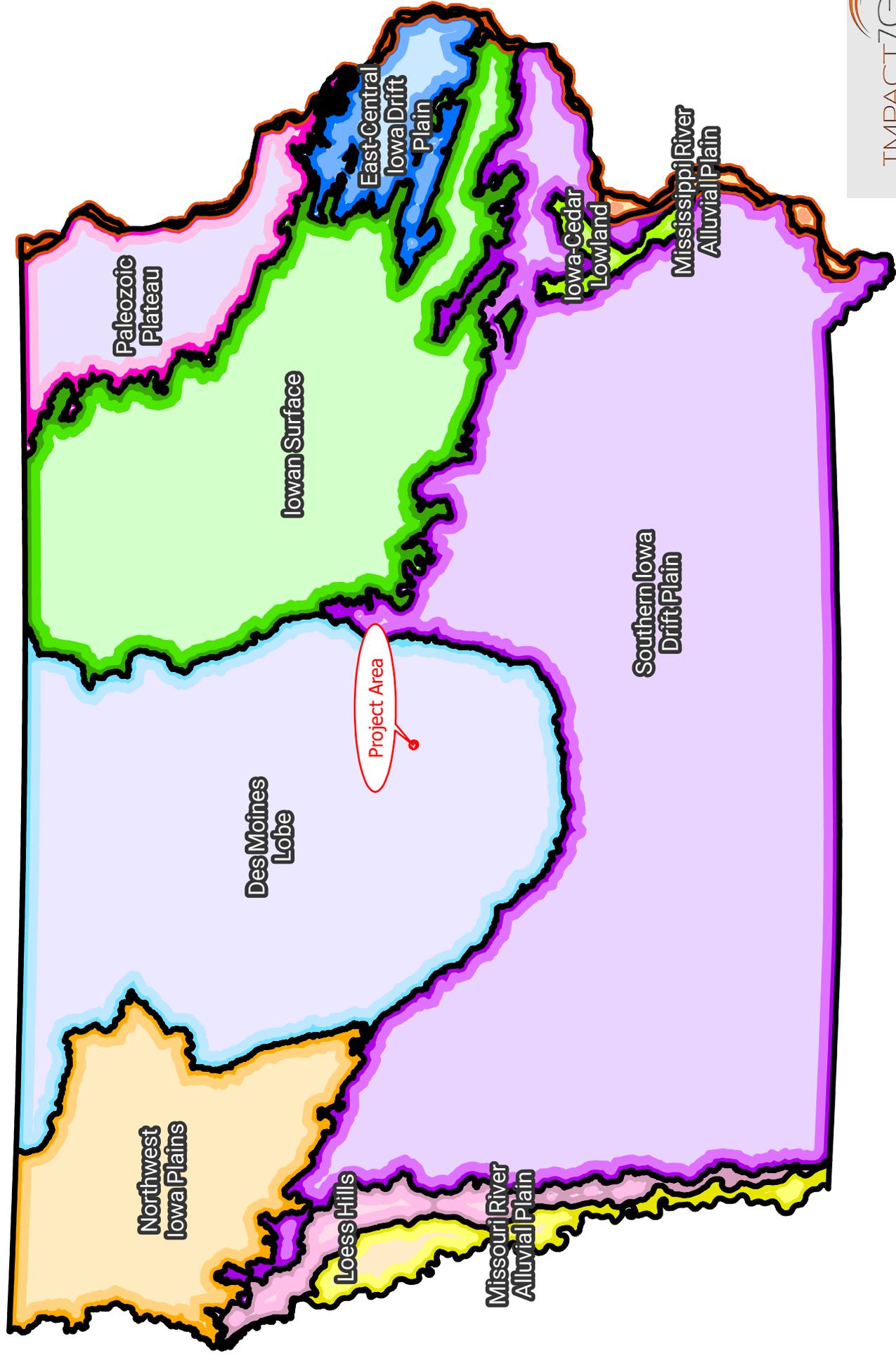


Figure 2. Topographic location of the project area

- Project Area
- Previous Survey
- Site Boundary

Not for public distribution.
May contain confidential
site information.

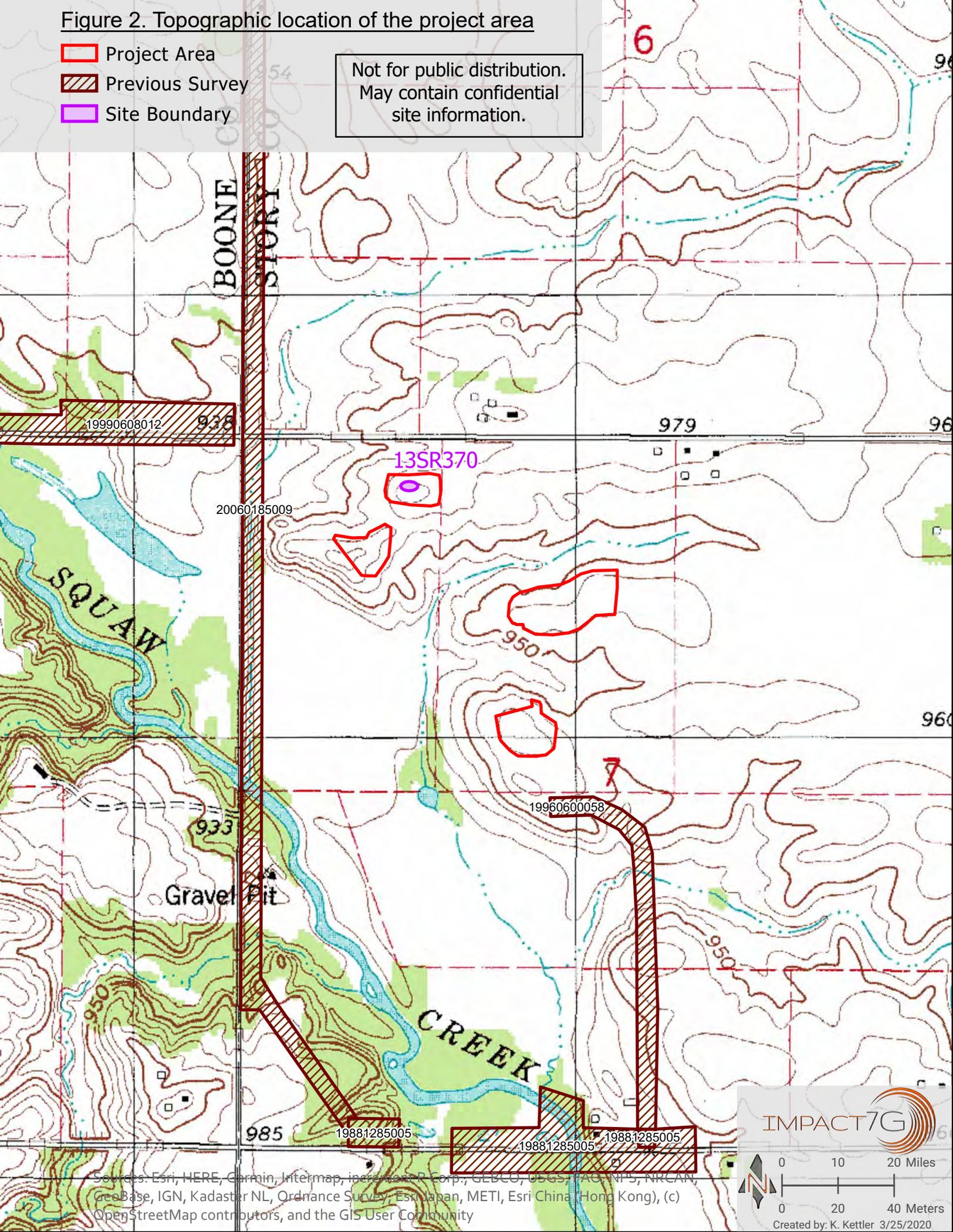
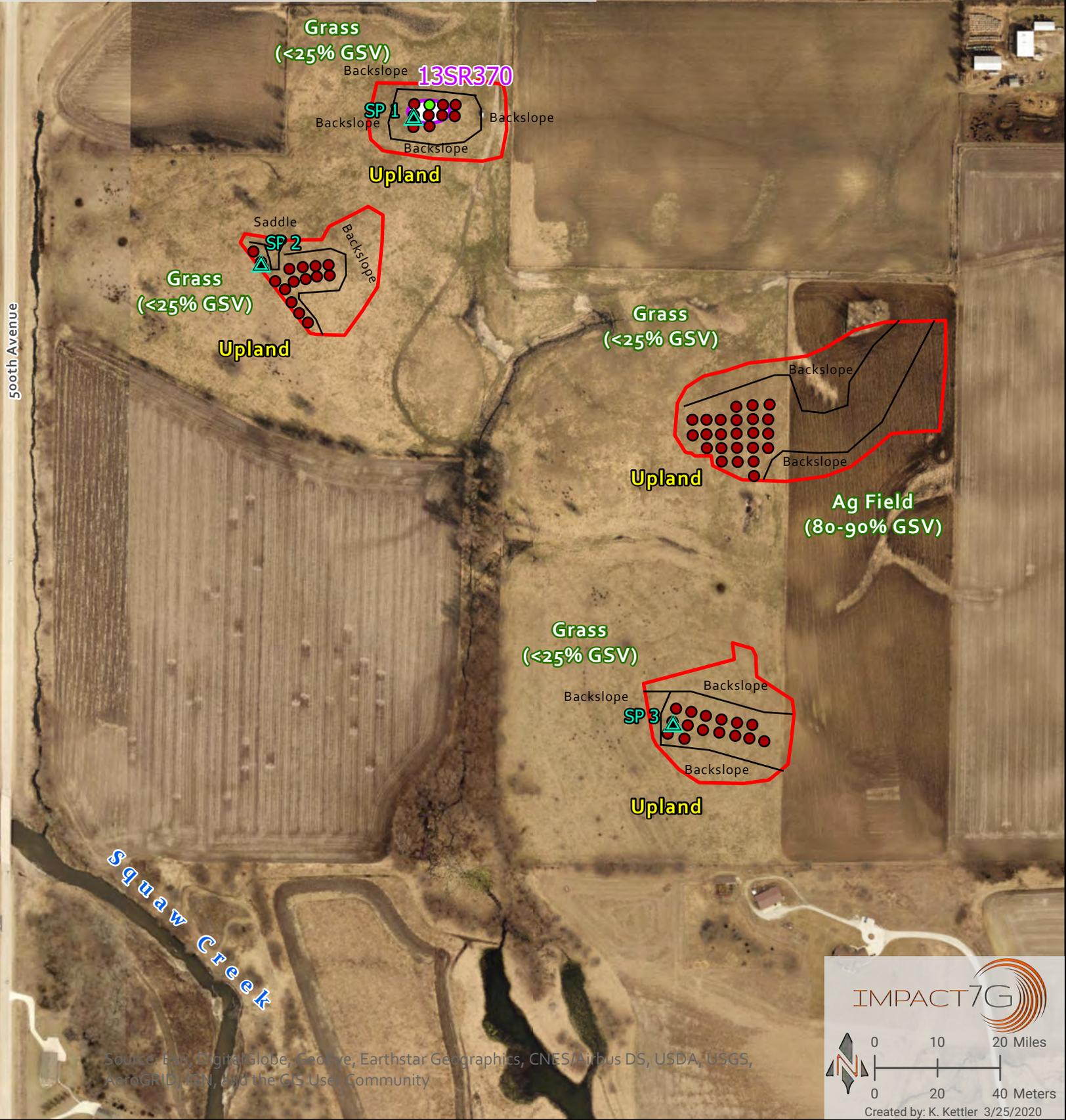


Figure 3. Scale map of the project area

- Project Area
- Site Boundary
- ▲ Soil Profile
- Shovel Test
 - Positive
 - Negative

Not for public distribution.
May contain confidential
site information.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

IMPACT7G

0 10 20 Miles
0 20 40 Meters

Created by: K. Kettler 3/25/2020

Figure 4. LiDAR image of the project area

 Project Area

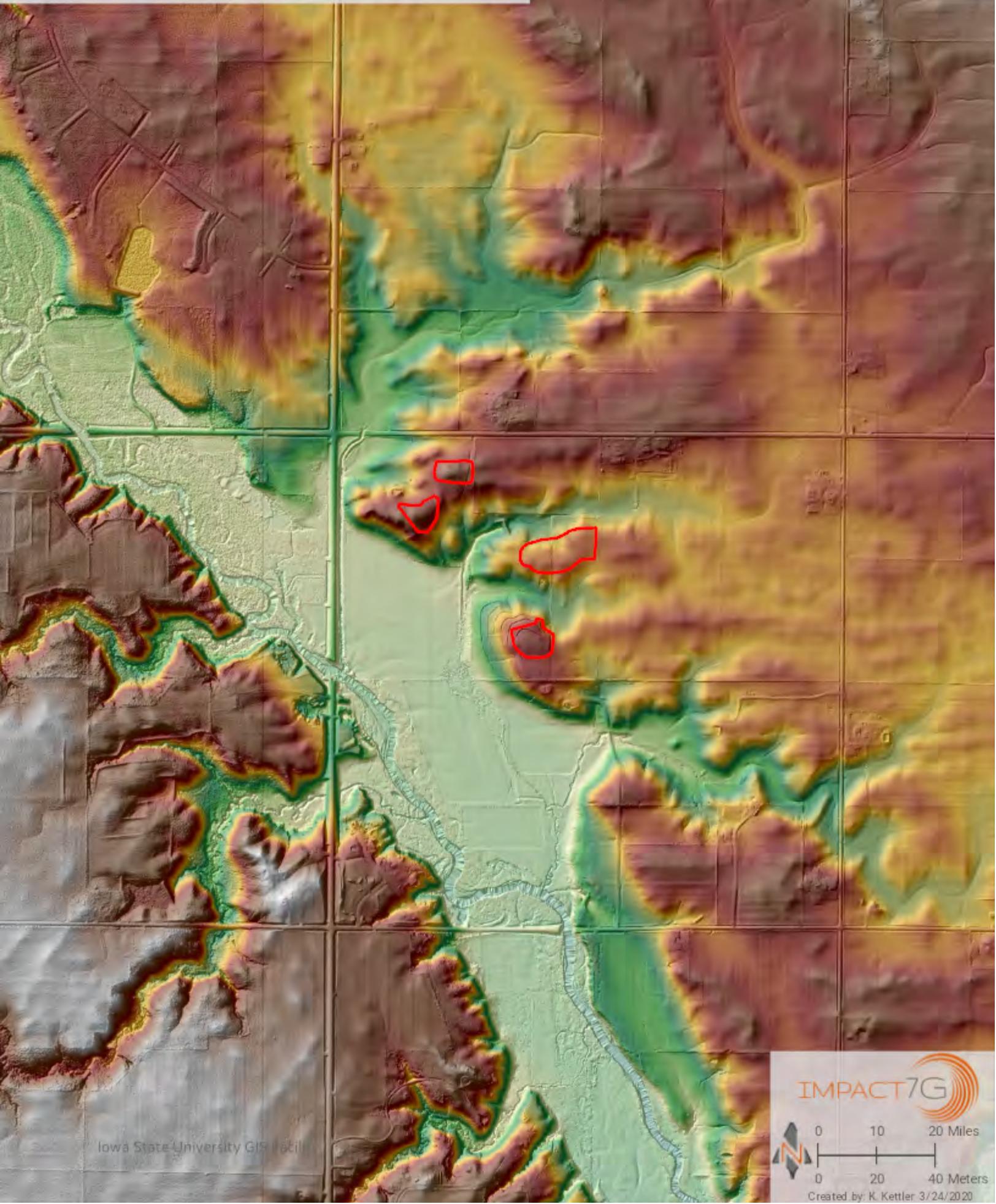


Figure 6. 1847 General Land Office map of the project area

 Project Area

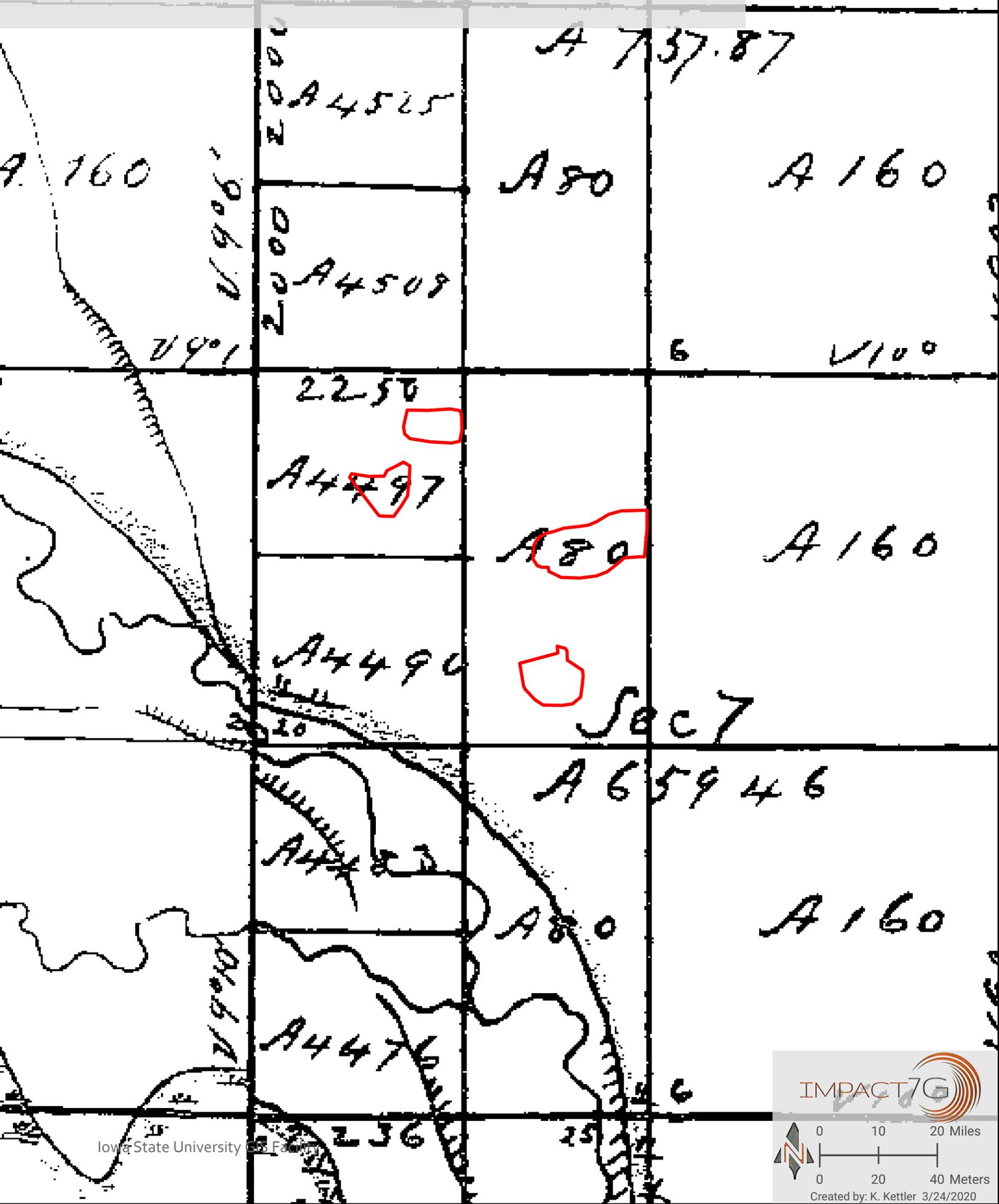


Figure 7. 1875 map of the project area (Andreas)

 Project Area

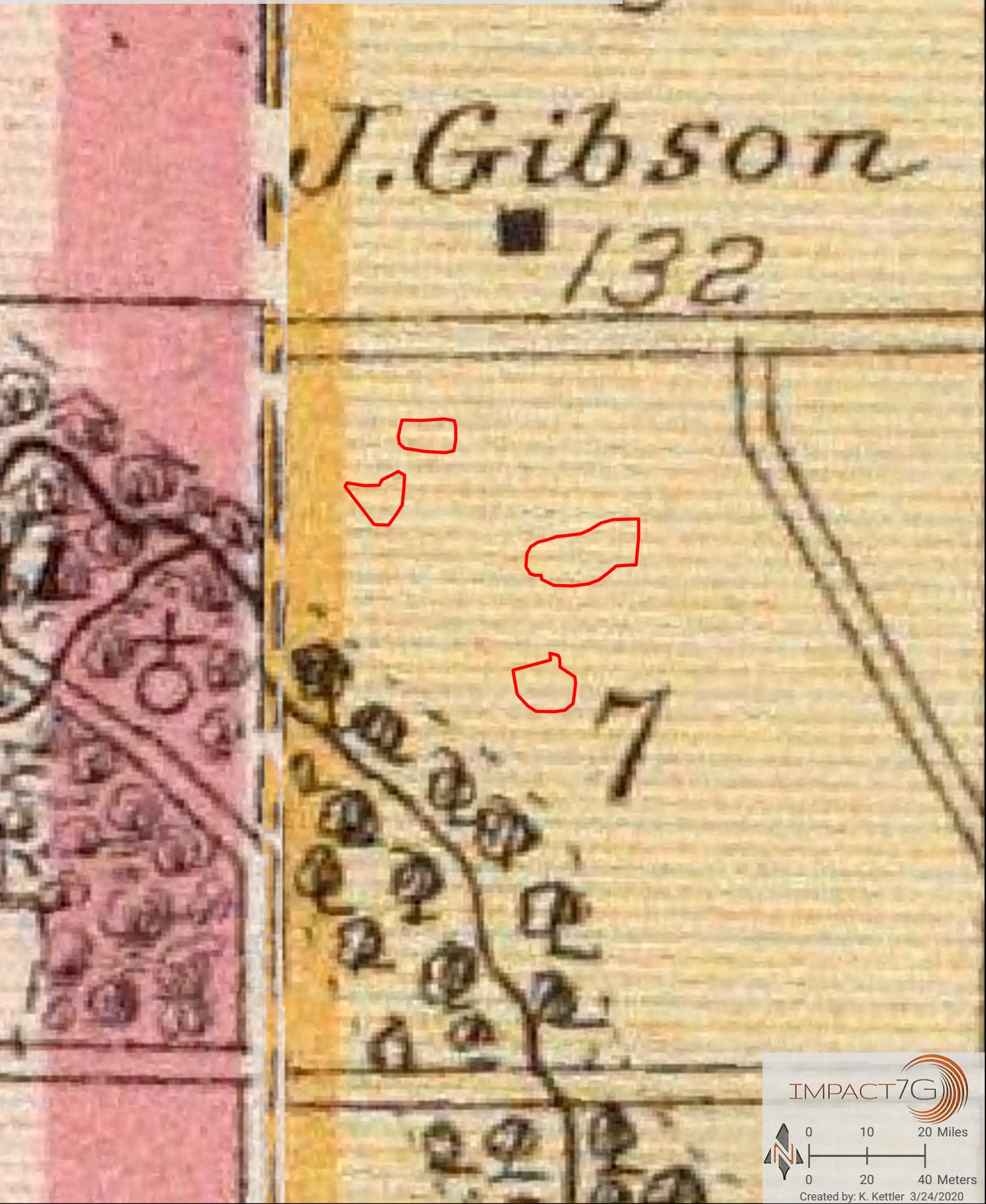
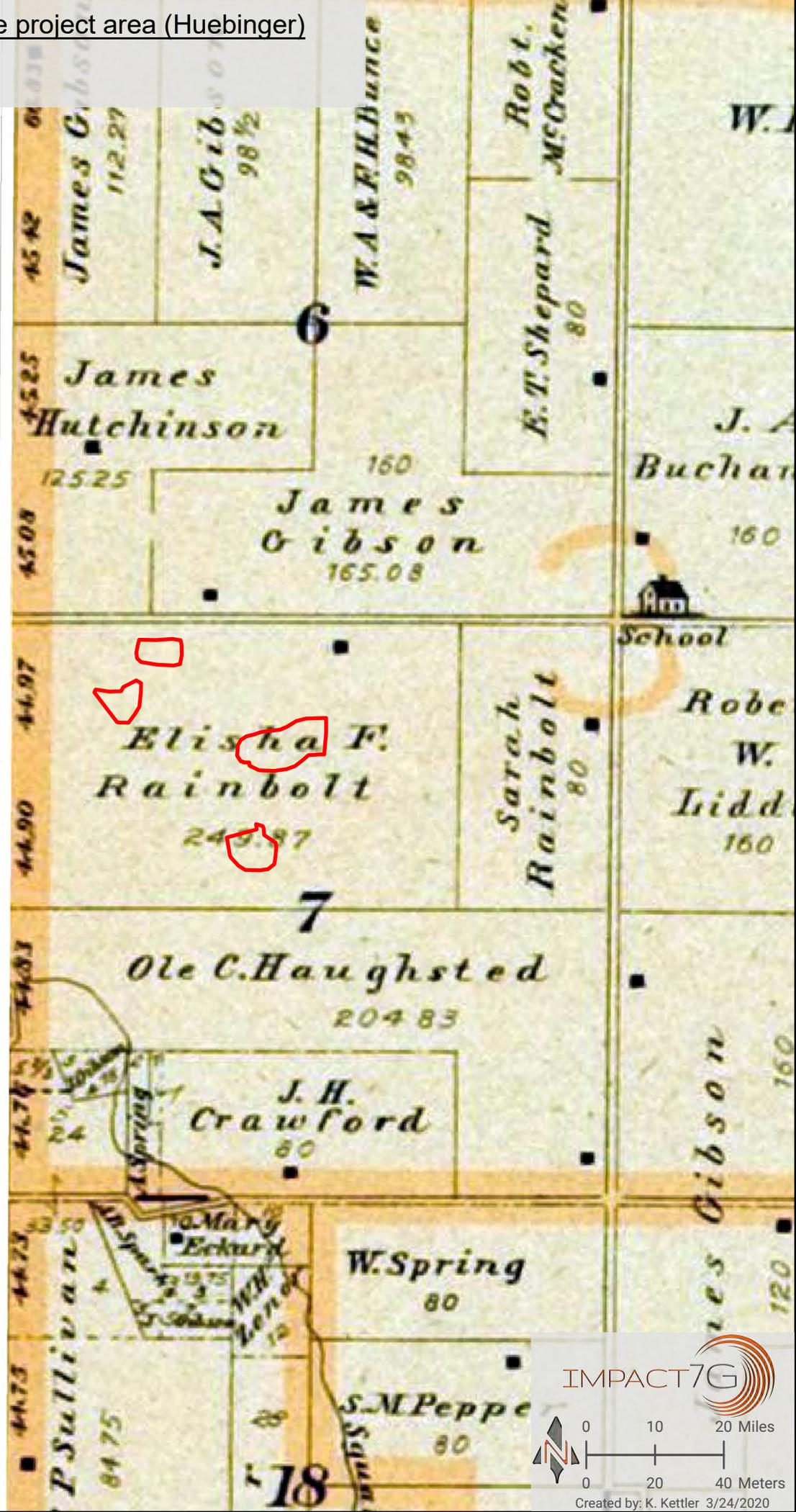
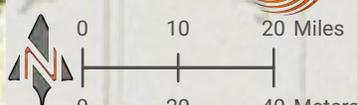


Figure 8. 1902 map of the project area (Huebinger)

 Project Area



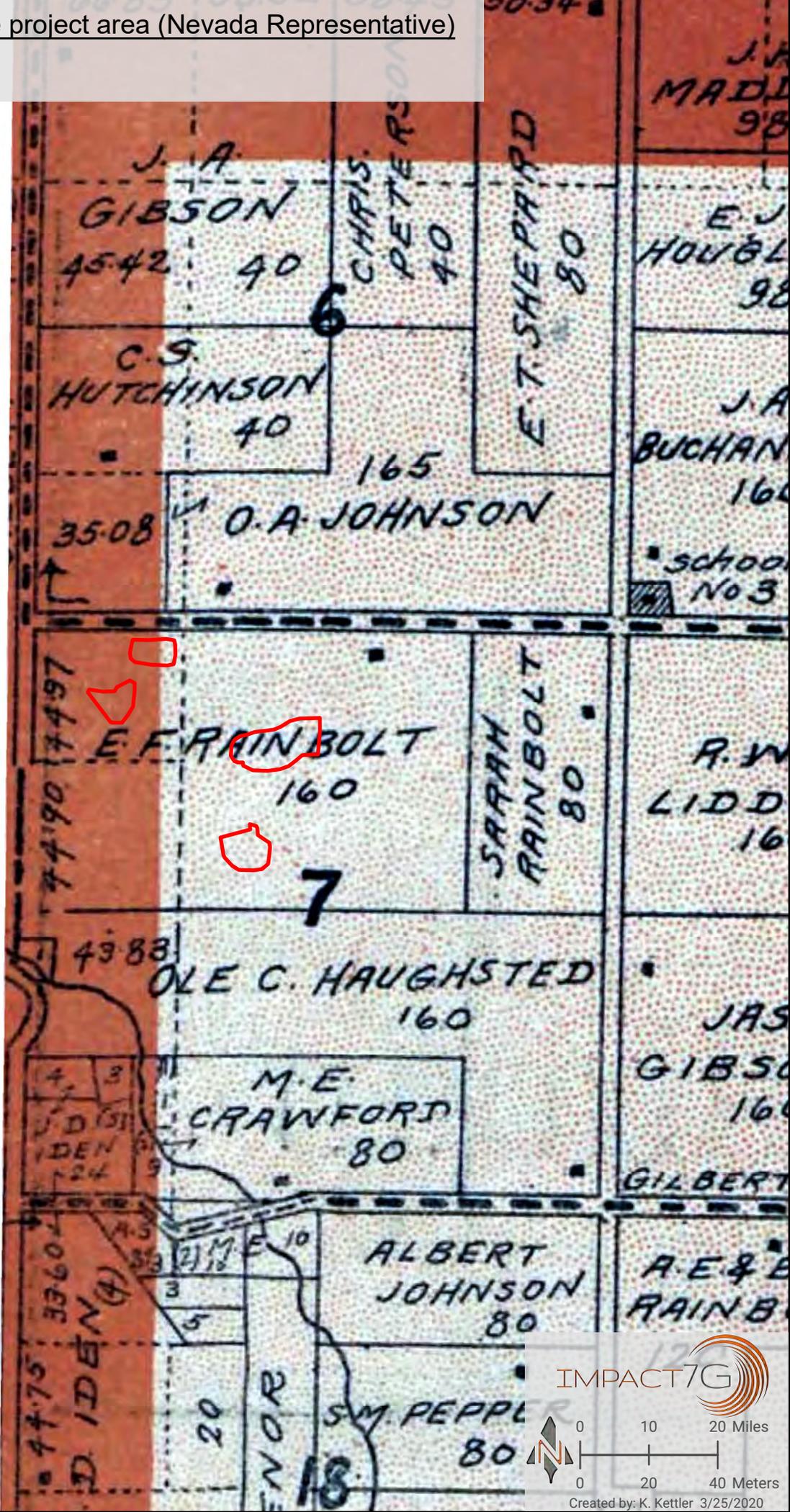
IMPACT7G



Created by: K. Kettler 3/24/2020

Figure 9. 1908 map of the project area (Nevada Representative)

 Project Area



IMPACT7G

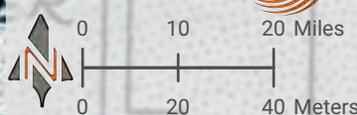


Figure 10. 1919 map of the project area (Nevada Representative)

 Project Area

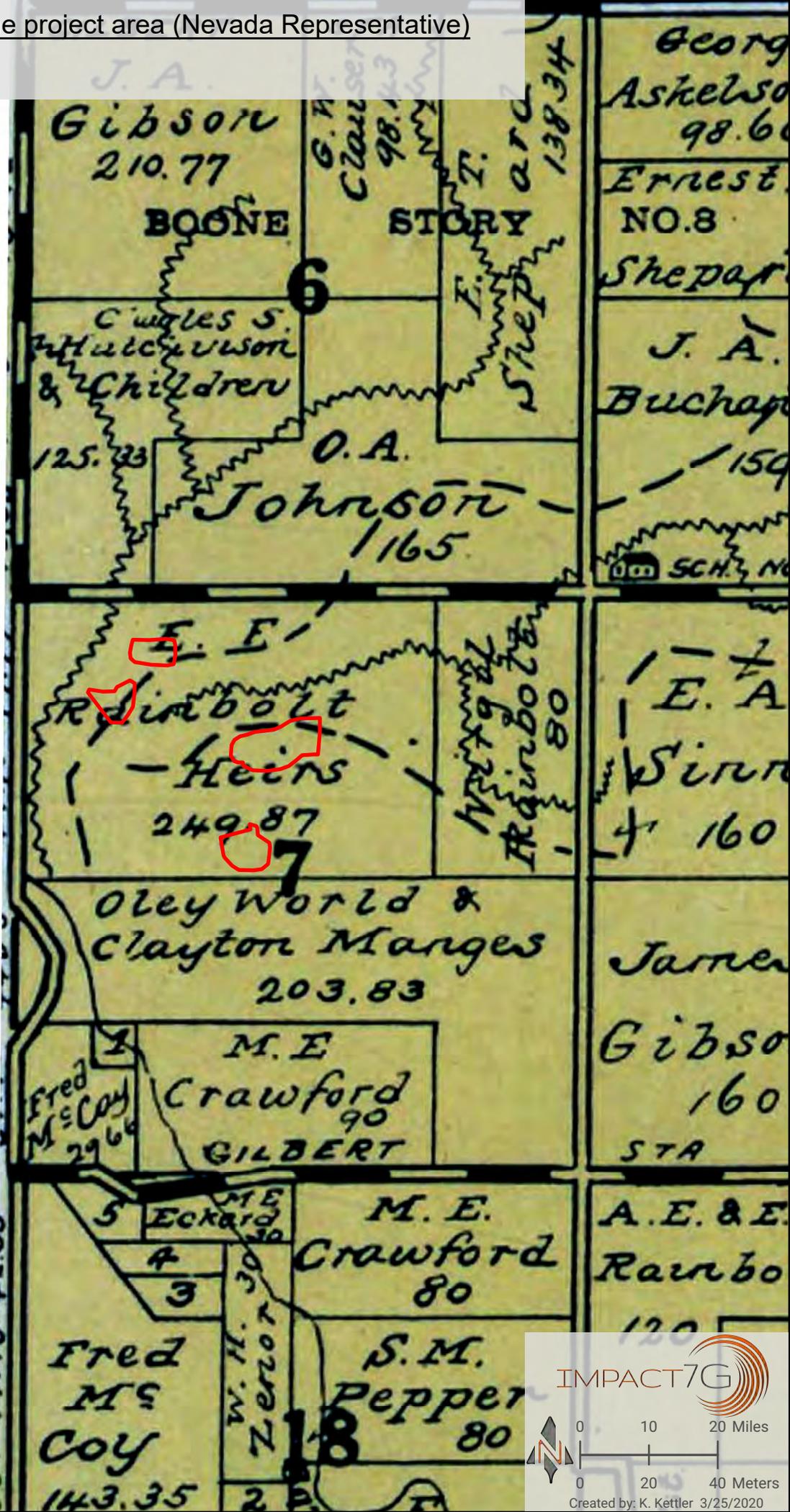


Figure 11. 1926 map of the project area (Ames Daily Tribune)

 Project Area

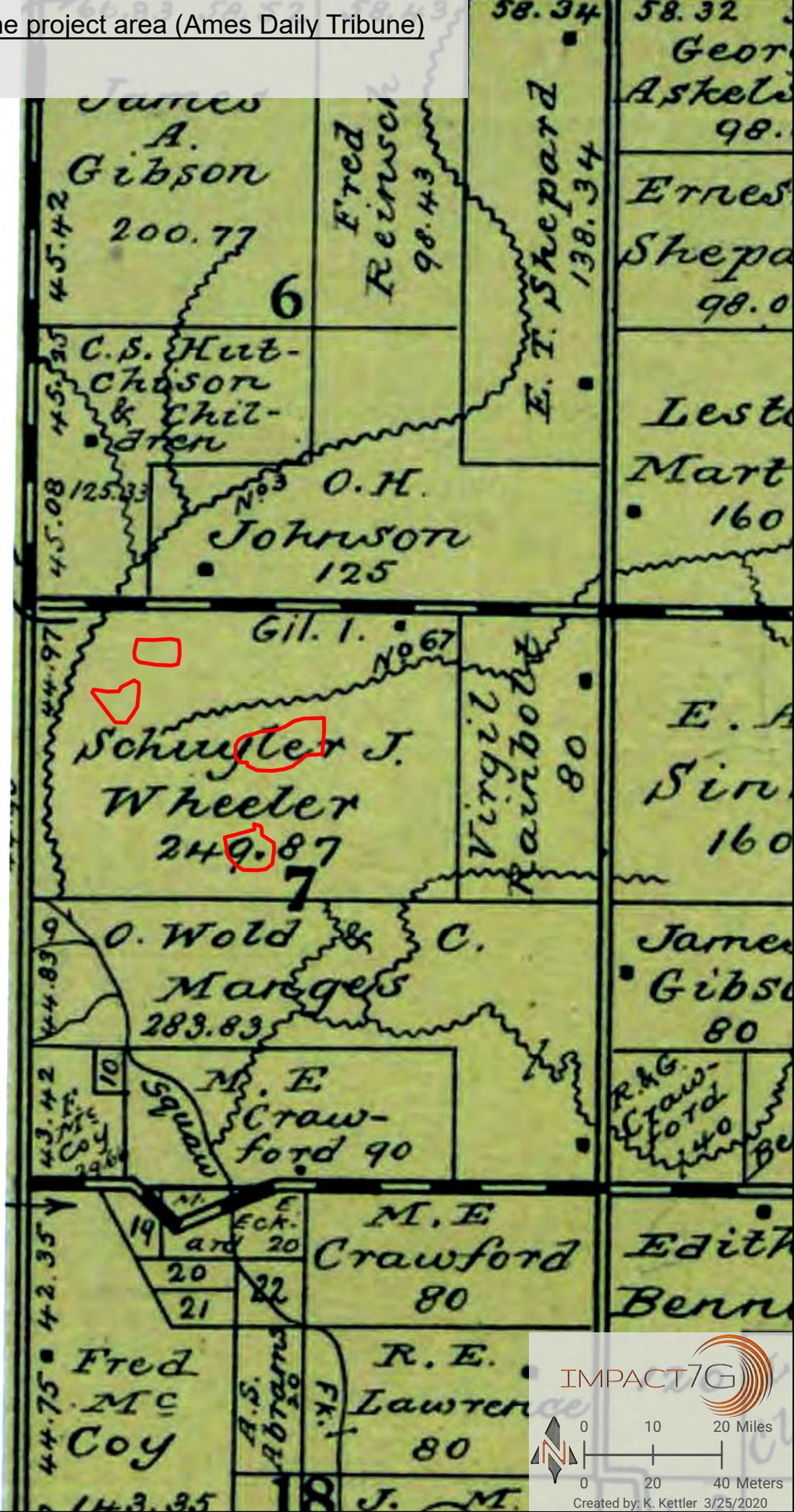


Figure 12. 1930 map of the project area (Hixson)

 Project Area

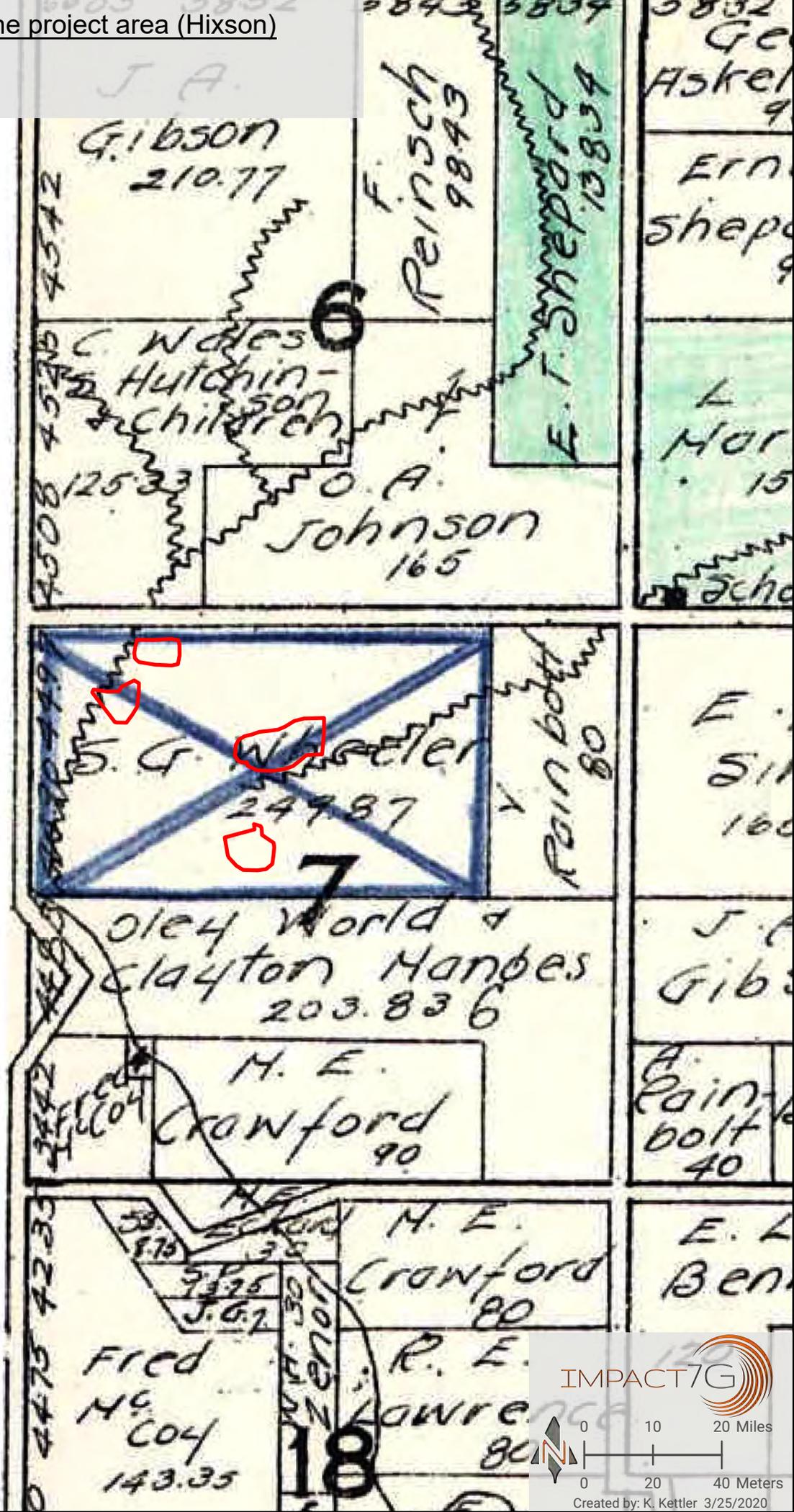
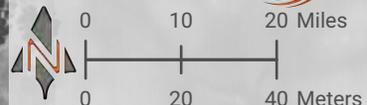


Figure 13. 1939 aerial photograph of the project area

 Project Area



IMPACT7G



Created by: K. Kettler 3/25/2020

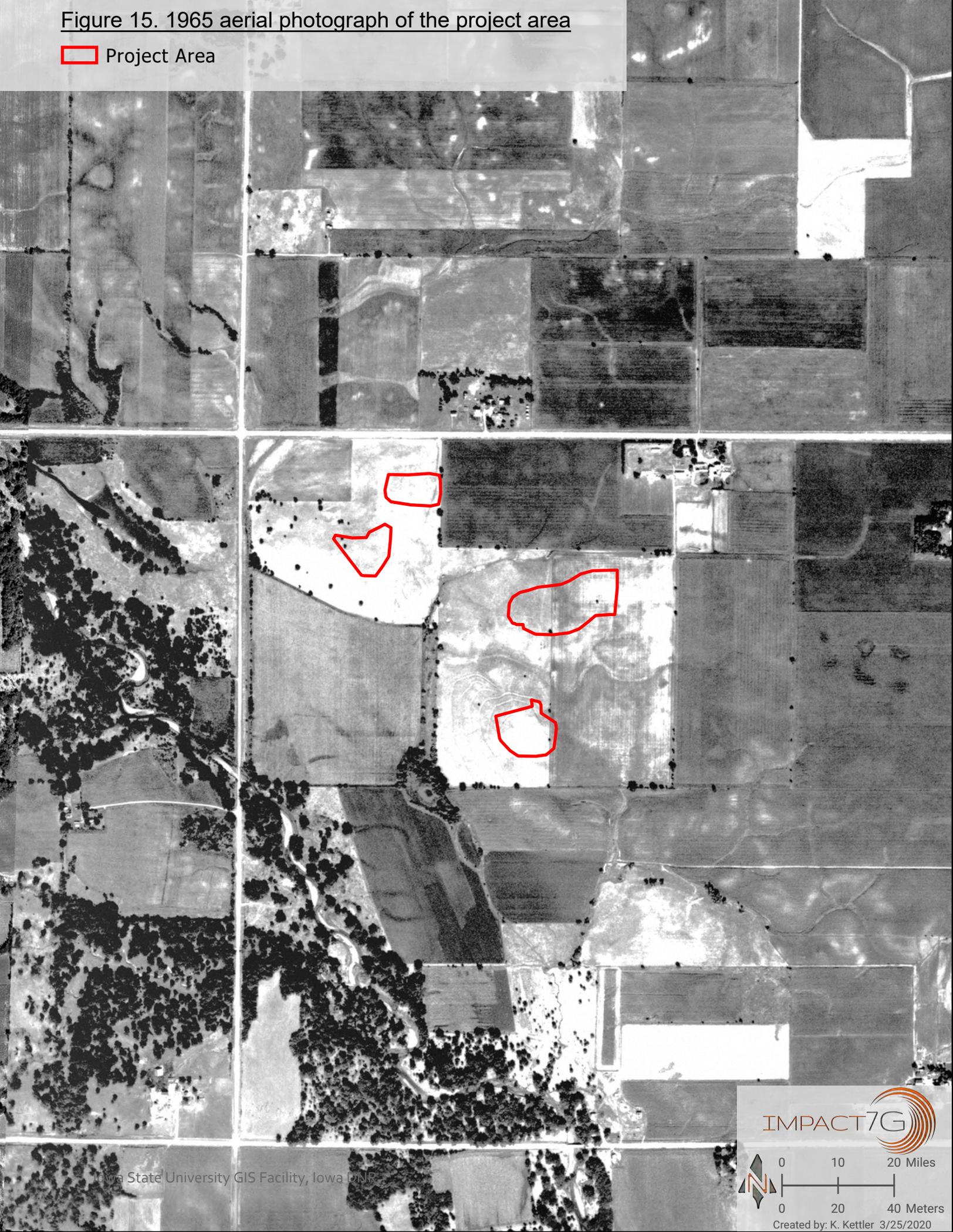
Figure 14. 1953 aerial photograph of the project area

 Project Area



Figure 15. 1965 aerial photograph of the project area

 Project Area



IMPACT7G

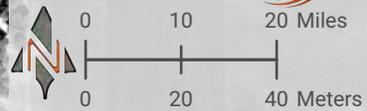
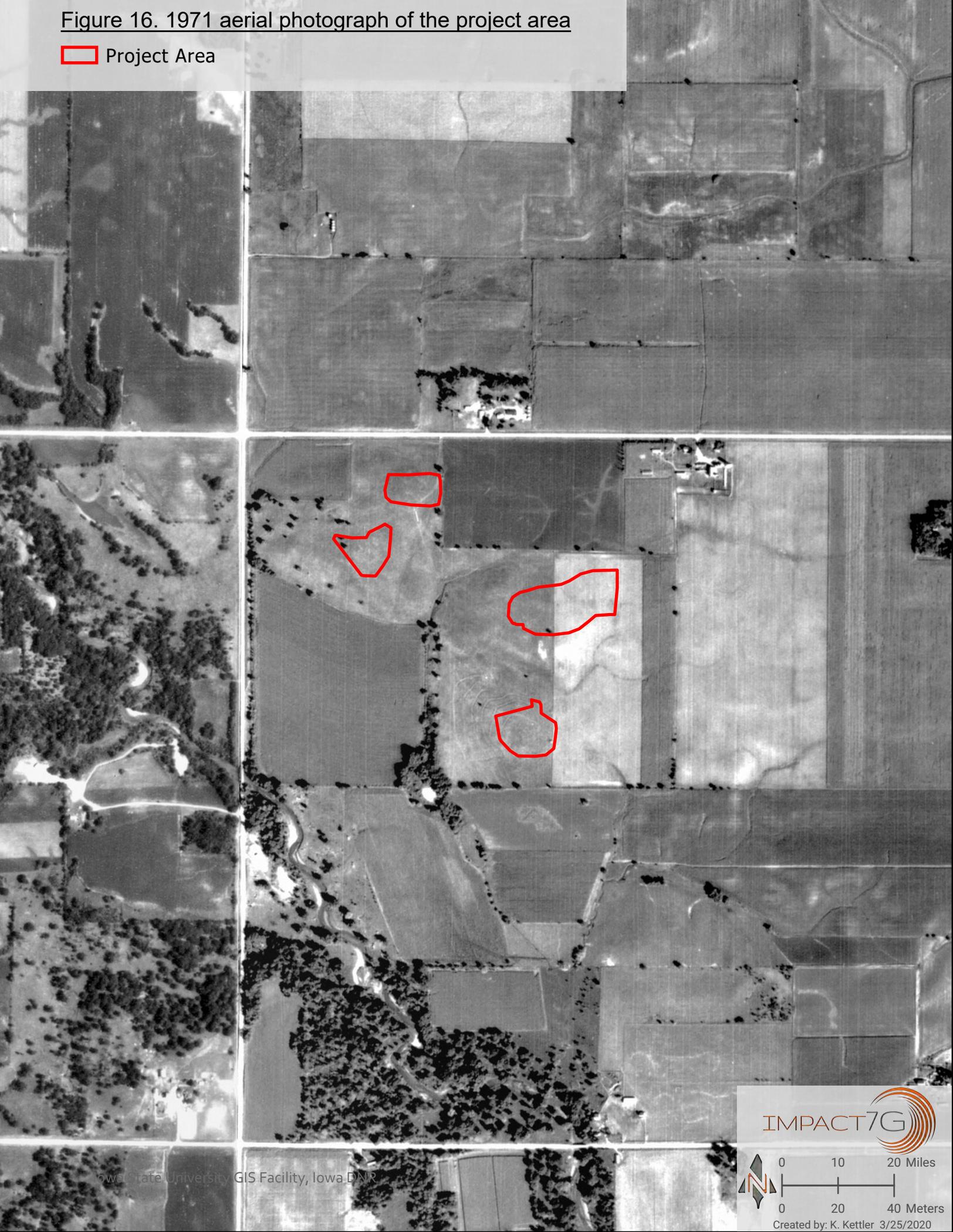


Figure 16. 1971 aerial photograph of the project area

 Project Area



IMPACT7G



0 10 20 Miles

0 20 40 Meters

Created by: K. Kettler 3/25/2020



Figure 17. Coverage of 13SR370. View west (3/20/2020)



Figure 18. Coverage of 13SR370. View east (3/20/2020)

Project Area Photographs
Dotson Farms Residential Subdivision, Story County, Iowa





Figure 19. Coverage of the project area. View east (3/20/2020)



Figure 20. Coverage of the project area. View west (3/20/2020)

Project Area Photographs
Dotson Farms Residential Subdivision, Story County, Iowa





Figure 21. Coverage of the project area. View east (3/20/2020)



Figure 22. Coverage of the project area. View west-southwest (3/20/2020)

Project Area Photographs
Dotson Farms Residential Subdivision, Story County, Iowa



Figure 23. Scale map of 13SR370

Site Boundary

Soil Profile

Shovel Test

Positive

Negative

Not for public distribution.
May contain confidential
site information.

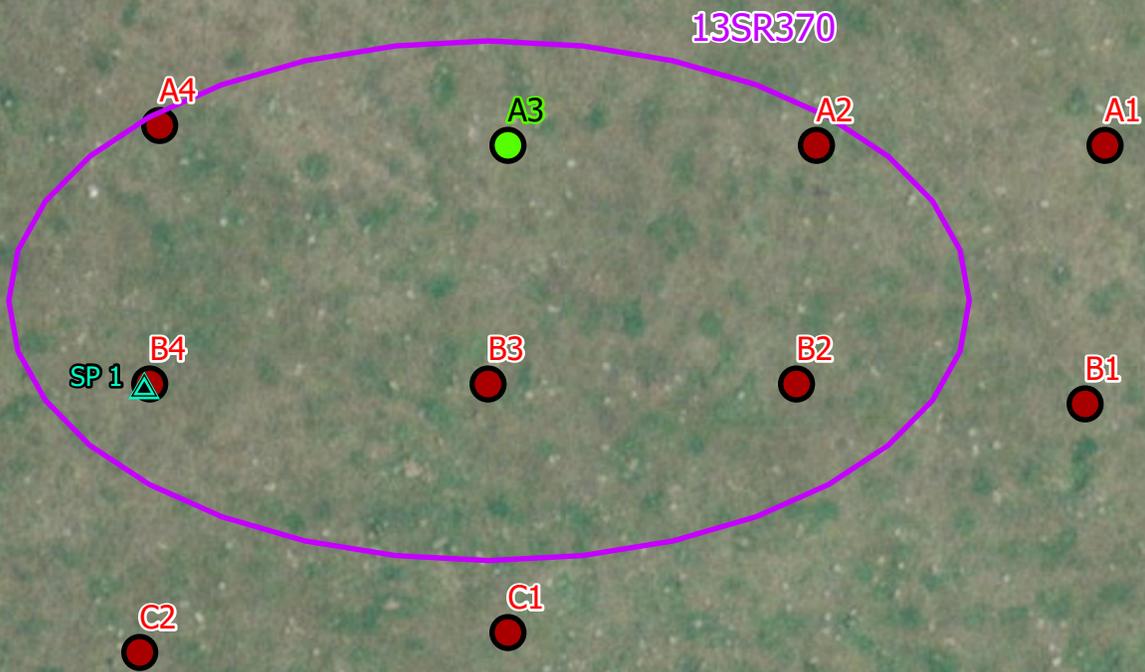




Figure 24. Flaking debris recovered from 13SR370 (3/23/2020)

Appendix A: Iowa Archaeological Site Form

IOWA ARCHAEOLOGICAL SITE FORM

Office of the State Archaeologist
700 Clinton Street Building
University of Iowa
Iowa City, Iowa 52242-1030

Site Number: 13SR370
County: STORY
Name/Field No.:
New Form: **Supplemental:**

I. SITE TYPE INFORMATION

Legal

Location:

Township: T84N

Range: R24W

Section: 7

NW 1/4 NW 1/4

Quadrangle(s): AMES W

Reliability of Site Location: Good

Site Type/Function

Open habitation

Period/Cultural Affiliation

Period: Prehistoric

II. CULTURAL MATERIALS: 13SR370

Location of Artifact Collection: Impact7G

Category	Description	Collected?
Stone, chipped, debitage	1 flake fragment	yes

Collection Method(s): shovel/posthole/auger tests

Ground Cover: row crops grass brush/weedy/open woods forest/heavy timber exposed/eroded unknown

Amount of Ground Surface Visible: <10% 10-50% 50-90% 90-100% unknown

Notes on Visibility: Grass and snow

Surface Conditions in Cropland: dry recent rain wet unknown

Recently Tilled Cropland: true false

III. GEOGRAPHIC INFORMATION 13SR370**Topography/Landform:** Uplands, Summit**Nearest Water Source:** Intermittent stream**Distance to Nearest Water:** 315 m**Site Size****Dimensions:** 38 x 20 m**Area:** 620 sq m**Notes on Map Method(s):** Landform boundaries**Integrity:** _ excellent _ good poor _ completely destroyed _ unknown**Threats To Site****Past/****Present****Future****Threat Type****Description**

X

X

agriculture/livestock

X

X

erosion/weathering/rodents

X

development/construction

Housing development

Current Land Use: pasture/grass**IV. INVESTIGATION INFORMATION 13SR370****Recorder(s)****Name****Address**

Scott, Branden K.

Impact7G

Start Date of Investigation: 3/20/2020**Level of Investigation:** Phase I**Recommendations:** No further work**National Register Eligibility Recommendation:** Not Eligible for NR**Present Landowner(s)****Name****Address****Attitude Toward
Investigation**

Quarry Estates, LLC

100 6th Street Ames IA 50010

positive

Photo(s)**Photo Type****Curated At**

Digital

Impact7G

V. VERBAL DESCRIPTION 13SR370

Location: Provide a verbal description of how to locate the site, including distances and direction.

This information must be sufficiently detailed to permit accurate site relocation. If possible, include permanent landmarks, roadways, and distances.

From Gilbert, Iowa, proceed west on 170th Street to 500th Avenue. The site is positioned on the summit of the northern most prominent ridge south off 170th Street and east of 500th Avenue, approximately 400 meters west-southwest from the aforementioned intersection.

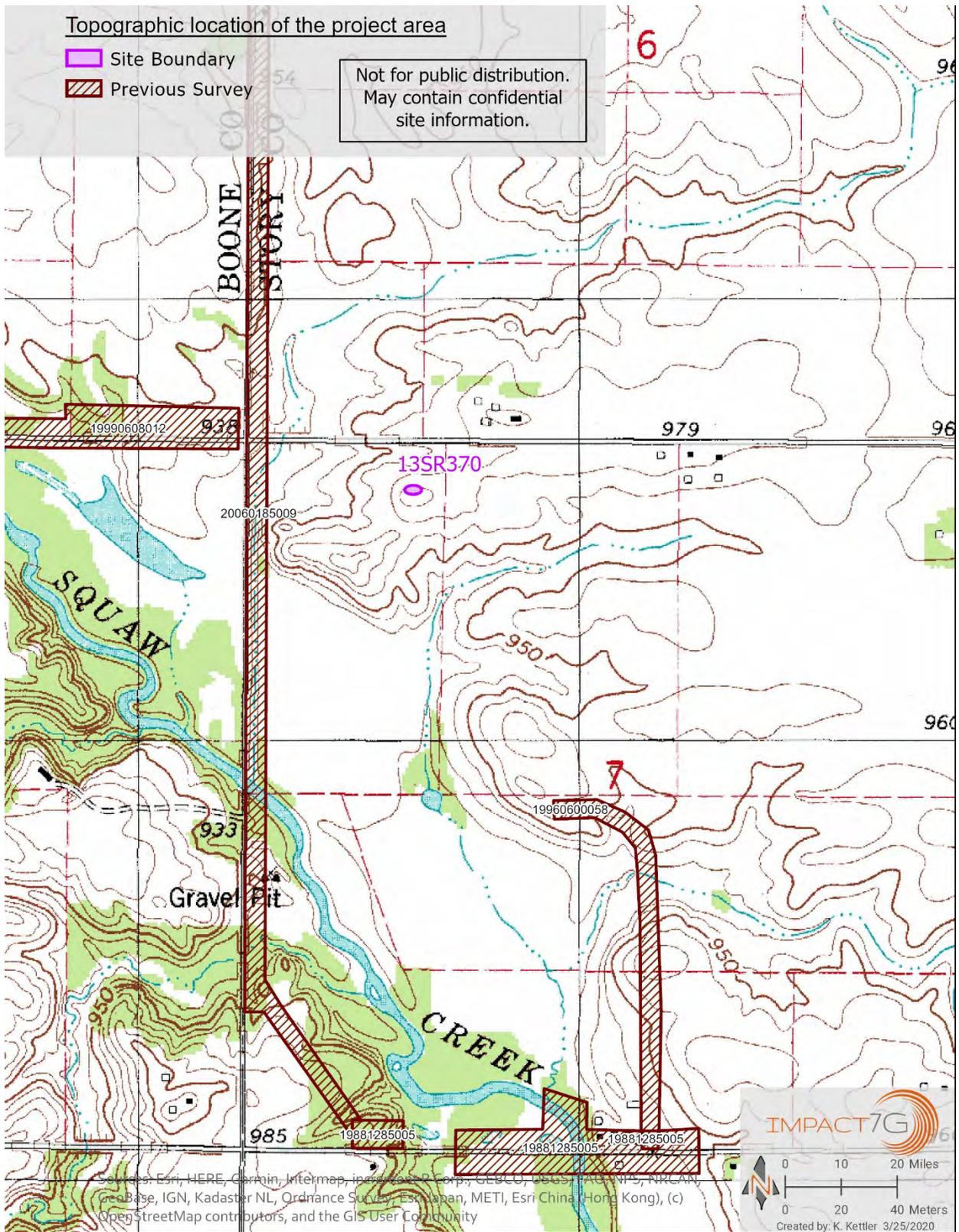
Site Description: Describe the site and include dimensions, features, nature and content of artifacts and concentrations, extent and location of disturbances, etc.

Impact7G researchers identified 13SR370 on March 20, 2020 during shovel testing of an upland ridge. At the time of investigation, the site was positioned on an upland summit covered with pasture grass. A soil profile was recorded at the site and it indicated that erosion and plowing has truncated the underlying Bt horizon. Subsurface shovel testing was conducted at 10 m intervals across the ridge summit and shoulders. Tests were excavated in 10 cm levels and all sediment was screened through quarter-inch wire hardware cloth. Tests were excavated at least 15 cm into the underlying Bt horizon. Of the 10 tests placed on the landform, only one was positive for prehistoric artifacts. The recovered prehistoric artifact was obtained from the plowzone. Prehistoric flaking debris rarely occurs in a vacuum, and while only one piece of flaking debris was recovered from shovel testing at this site, there are likely other artifacts at this site. No diagnostic artifacts were recovered; therefore, 13SR370 is considered an "indeterminate prehistoric" site. The recovered flake fragment is relatively large, indicating that the recovered flake is more likely associated with early stage biface production or core reduction. This type of activity usually occurs at habitation sites. Because of the type of flake recovered, the site is interpreted as an "open habitation". The location of the site (prominent ridge overlooking a perennial stream valley) is also consistent with upland prehistoric habitation site locations throughout Iowa. Soils documented at this location indicate that the plowzone has truncated the underlying Bt horizon. As such, there is low potential for intact archaeological materials. Impact7G recommended that 13SR370 is not eligible for the NRHP. Reference: Scott, Branden K. and Kurtis Kettler. 2020. Intensive Phase I Archaeological Investigation of Areas Deemed to Have Prehistoric Burial Potential at the Proposed Story County Dotson Farms Residential Subdivision, Section 7, T84N, R24W, Franklin Township, Story County, Iowa. CRM Report 102. Impact7G, Inc., Clive, Iowa.

Topographic location of the project area

- Site Boundary
- Previous Survey

Not for public distribution.
May contain confidential
site information.



Sources: Esri, HERE, Garmin, Intermap, iGeo, GeoEye, GEBCO, USGS, AeroGRID, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Scale map of 13SR370

Site Boundary

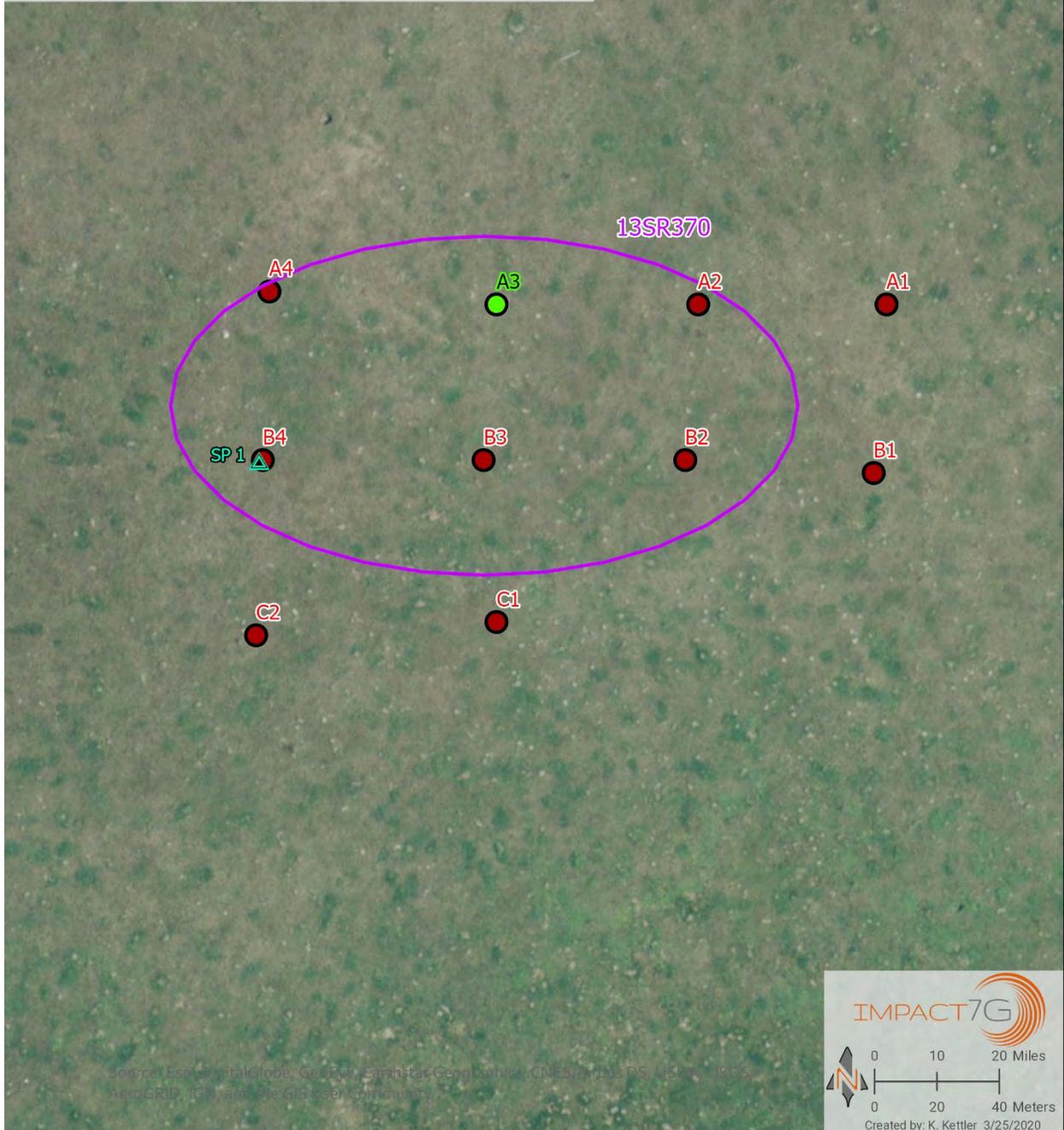
Soil Profile

Shovel Test

Positive

Negative

Not for public distribution.
May contain confidential
site information.



Appendix B: Catalog Sheet

Impact7G

Accession Number: Site Number 13SR370 Site Name

Sponsor Quarry Estates, LLC Principal Field Archaeologist B. Scott Principal Lab Archaeologist B. Scott

Catalog Number	Specimen Category and Description	No. of Artifacts	Area/Unit/Feature	Depth Below Surface (cm)	Collection Date	Collector/Remarks
1	FD Flake fragment, Croton calcedonic, 3.7g	1	ST A3	10-20	3/20/2020	BS
Total		1				

Appendix C: National Archaeological Database Form

Database Doc Number: _____

NATIONAL ARCHAEOLOGICAL DATABASE – REPORTS; DATA ENTRY FORM

1. R and C #: _____
2. Authors: Branden K. Scott and Kurtis Kettler

Year of Publication 2020

3. Title Intensive Phase I Archaeological Investigation of Areas Deemed to Have Prehistoric Burial Potential at the Proposed Story County Dotson Farms Residential Subdivision, Section 7, T84N, R24W, Franklin Township, Story County, Iowa

3. Report Title: Impact7G Reports

Volume #: _____ Report #: CRM 102 NTIS: _____
Publisher: Impact7G
Place: Clive, Iowa

5. Unpublished
Sent From: _____
Sent To: _____
Contract #: _____

6. Federal Agency: _____

7. State: Iowa
County: Story
Town: _____

8. Work Type: 31
9. Keyword: 0 - Types of Resources / Features 1 - Generic terms / Research Questions
2 - Taxonomic Names 3 - Artifact Types / Material Classes
4 - Geographic Names / Locations 5 - Time Periods
6 - Project Names / Study Unit 7 - Other Key Words
5.4 ha (13.3 ac) [7] _____ []
Des Moines Lobe [4] _____ []
Upland landforms [7] _____ []
Squaw Creek [4] _____ []
Prehistoric sites [0] _____ []
_____ [] _____ []
_____ [] _____ []

10. UTM Zone: 15 Easting: _____ Northing: _____
15 Easting: _____ Northing: _____
15 Easting: _____ Northing: _____
15 Easting: _____ Northing: _____

11. Township: 84N
Range: 24W

