

INTENSIVE PHASE I CULTURAL RESOURCE SURVEY,
GEOMORPHOLOGICAL ASSESSMENT, AND
ARCHITECTURAL AND HISTORICAL RECONNAISSANCE
SURVEY FOR THE PROPOSED EXPANSION OF YARD L,
IOWA ARMY AMMUNITION PLANT, FLINT RIVER
TOWNSHIP, DES MOINES COUNTY, IOWA

Purchase Order IA15W00062
Prime Contract W52P1J-09-G-0001/0267

Sections 29–32, T70N, R3W

BCA 2122

**THIS REPORT CONTAINS SITE LOCATION INFORMATION
NOT FOR PUBLIC DISTRIBUTION**

Prepared for
American Ordinance, LLC
Iowa Munitions Plant
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FINAL

MANAGEMENT SUMMARY

Bear Creek Archeology, Inc. (BCA) under contract with American Ordnance LLC (AO), has conducted a Phase I cultural resources and geomorphological investigation of the area being proposed for an expansion of Yard L within the Iowa Army Ammunition Plant (IAAAP). Additionally, a historic architectural reconnaissance survey of a .4 km (.25 mi) wide area surrounding the proposed Yard L expansion area was also conducted. This cultural resources investigation was conducted under Prime Contract W52P1J-09-G-0001/0267, Purchase Order IA15W00062. The fieldwork for this project was conducted in March 2015.

The Phase I survey project area is located in the northeastern portion of the IAAP, within Sections 31 and 32, T70N, R3W; Flint River Township and the reconnaissance survey area also includes portions of Sections 29–32. The geomorphological investigation resulted in a finding that the Phase I project area is a loess-mantled upland agricultural field where any archeological sites should be surface evident. Additionally, based on the soil profiles observed, the project area has a low potential to contain intact cultural deposits. All five archeological sites present in the Phase I project area as well as the previously recorded isolated finds are recommended to be not eligible for listing to the National Register of Historic Places (NRHP). The historic architectural reconnaissance survey identified nine properties that are older than 50 years, including several that were previously recorded. The architectural properties within the IAAAP are all considered to be contributing elements to a potential plant-wide historic district, while those outside of the plant are all recommended not NRHP eligible. While the IAAAP is a NRHP eligible historic district for its involvement in World War II, Cold War, and likely other historic contexts, but the development, recording, and defining of a plant-wide historic district is beyond the scope of this project.

The proposed Yard L expansion project is considered to be an on-going use of the plant consistent with its historic and current mission and would therefore not constitute an adverse effect to a potential IAAP historic district. Additionally, the portion of the plant that is proposed for the Yard L expansion does not currently contain any architectural properties and the archeological properties within it are all recommended not NRHP eligible. These archeological sites are not considered to be contributing elements to a potential plant-wide historic district. Therefore, no additional cultural resources investigation is recommended prior to the proposed Yard L expansion project.

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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INTRODUCTION AND BACKGROUND

American Ordnance, LLC (AO) has contracted Bear Creek Archeology, Inc. (BCA) to conduct a Phase I cultural resources and geomorphological investigation of the area being proposed for an expansion of Yard L within the Iowa Army Ammunition Plant (IAAAP). In addition to the Phase I survey in the proposed expansion area, BCA also conducted a historic architectural reconnaissance survey of a .4 km (.25 mi) wide area surrounding the proposed Yard L expansion area. The cultural resources investigation was conducted under Prime Contract W52P1J-09-G-0001/0267, Purchase Order IA15W00062. The fieldwork, archival research, analysis, and reporting have been completed in accordance with the Secretary of the Interior's standards regarding the identification of historic properties (National Park Service [NPS] 1983). The fieldwork and report presented herein were designed and conducted in order to meet or exceed the guidelines for archeological investigations in Iowa (Association of Iowa Archaeologist [AIA] 1999). The purpose of this investigation was to identify any historic and archeological properties at the Phase I level that may be present within the area of potential effect (Advisory Council on Historic Preservation 2009). The fieldwork was conducted in March 2015. This report presents the findings of this investigation.

PROJECT AREA DESCRIPTION

This Phase I cultural resources survey area is located in southeastern Iowa, within the southern portion of Des Moines County (Figure 1). The Phase I survey project area is located in the northeastern portion of the IAAAP, within Sections 31 and 32, T70N, R3W, Flint River Township (Figure 2). As described in the Scope of Work provided by AO, the area of the cultural resources and geomorphological survey is 61.7 ha (152.4 ac) in size and is irregular in shape (Figure 3). In addition to this survey area, a reconnaissance level architectural and historical investigation was conducted in an additional area that extends out .4 km (.25 mi) from the Phase I survey area (Figures 2 and 3). This reconnaissance survey area consists of approximately 229 ha (566 ac) within Sections 29–32, T70N, R3W. The Phase I and reconnaissance survey areas are positioned on part of a large loess-mantled upland divide. Nearly all of the archeological survey area is an agricultural field, the northern portion of which had been planted last year in soybeans and the southern part in corn. The weathered residue from these harvested crops partially covered the field, but overall ground surface visibility (GSV) was between 50 and 60% (Figures 4 and 5). A small portion of the Phase I survey area, along its northern boundary, is grass and tree covered (<10% GSV). The area of the reconnaissance architectural survey has mixed land use, including agricultural fields, lawns, buildings, and structures.

PHYSIOGRAPHIC CONTEXT

The project area is located within the Southern Iowa Drift Plain physiographic region (Prior 1991; Figure 1). The Southern Iowa Drift Plain was not glaciated during the Wisconsinan glacial stage. However, previous glacial stages, the Illinoian and Pre-Illinoian, deposited tremendous amounts of sediment across the Southern Iowa Drift Plain. In most places, such as the current project area, the till is blanketed by Wisconsinan-age loess (Muhs et al. 2001). Mississippian bedrock is present below the till in the southeastern part of Iowa. Since the end of the Illinoian glacial stage in southern Iowa, approximately 500,000 years ago, the Southern Iowa Drift Plain has been exposed to stream erosion, weathering processes, soil development, loess deposition, and hillslope evolution. These processes resulted in a well integrated drainage network and multi-stepped erosional surfaces. Physical features within the Southern Iowa Drift Plain include level upland divides, steeply rolling hills, narrow interfluves, and alluvial lowlands (Bettis and Littke 1987; Prior 1991). Due to the age of sediment, archeological sites in the uplands are limited to the near surface and are generally incorporated into the plowzone in agricultural fields.

Project Area Landforms and Soils

As indicated above, large upland divides interspersed with well-established drainages are common within the Southern Iowa Drift Plain. The project area is positioned on a portion of one of these loess-mantled divides and little topographic relief is present within the Phase I survey area (Figures 2 and 5). The Phase I survey area has a gradual slope toward the southeast, with about a 3 m (10 ft) difference in elevation between the northwestern portion and the southeastern corner (Figure 2). The far upper reaches of some ephemeral drainages are present in the survey area resulting in some undulations of the surface.

The Natural Resources Conservation Service (NRCS) maps five soils and a small area of disturbed, urban land within the project area (Brown 1983; NRCS 2014; Table 1; Figure 6). The soils mapped in the project area are composed of loess or locally redeposited loess. The environment that these mapped soils developed in consists of tall grass prairie and most of the area is poorly drained. The soils present are fine-textured and drainage tile has been installed to increase the field's utility to grow crops. During the fieldwork, several soil profiles were recorded. Two representative profiles are presented below (Figure 3) and others accompany the archeological site descriptions.

DESIGNATION: Soil Profile 1

LANDSCAPE POSITION: slight rise on an upland divide

PARENT MATERIAL: loess

METHOD: hand core

VEGETATION: agricultural field

UTM: Zone 15; NAD83; E648264; N4520976

DESCRIBED BY: Lowell Blikre

DATE DESCRIBED: March 18, 2015

REMARKS: Compared to the soil at 13DM601, the soil here is eroded. The plowzone truncates a Bt horizon. Very low potential for intact cultural deposits.

Depth (cm)	Soil Horizon	Description
Loess		
0–21	Ap	Black (10YR 2/1) silty clay loam; moderate, fine subangular blocky structure; plastic; abrupt boundary.
21–39	Bt	Very dark gray (2.5Y 3/1) silty clay loam; weak, medium subangular blocky breaking to strong, fine subangular blocky structure; plastic; continuous black (2.5Y 2.5/1) cutans on smaller ped surfaces; gradual boundary.
39–55	Bg1	Olive (5Y 5/3) clay loam; strong, fine to medium subangular blocky structure; plastic; continuous dark olive gray (5Y 3/2) cutans; clear boundary.
55–65	Bg2	Olive gray (5Y 5/2) clay loam; strong, medium subangular blocky structure; plastic; discontinuous dark olive gray (5Y 3/2) cutans. End.

DESIGNATION: Soil Profile 2

LANDSCAPE POSITION: area disturbed by railroad and road construction

PARENT MATERIAL: loess

METHOD: hand core

VEGETATION: agricultural field

UTM: Zone 15; NAD83; E648609; N4520637

DESCRIBED BY: Lowell Blikre

DATE DESCRIBED: March 19, 2015

REMARKS: Profile recorded near the western edge of the southern portion of the survey area. This area is between an active railroad track and an abandoned and plowed up road bed. The soil is truncated and covered by fill which is now being plowed. Very low potential for intact cultural deposits.

Depth (cm)	Soil Horizon	Description
Loess		
0–19	Ap1	Very dark gray (2.5Y 3/1) clay loam; weak, fine subangular blocky structure; friable to plastic; abrupt boundary. Plowed fill.
19–31	C	Very dark grayish brown and light brownish gray (2.5Y 3/2 and 2.5Y 6/2) clay loam; massive structure; abundant, fine, strong yellowish brown (10YR 5/8) iron stains; abrupt boundary. Fill, mixed sediment.
31–42	Ap2	Very dark gray (10YR 3/1) clay loam; massive to very weak, fine subangular blocky structure; plastic; abrupt boundary. Disturbed Bt horizon.
42–51	Bt	Very dark gray (2.5Y 3/1) clay loam; strong, fine subangular blocky structure; plastic; clear boundary. Truncated.
51–65	Bg	Very dark grayish brown (2.5Y 3/2) clay loam; strong, medium subangular blocky structure; firm to plastic; continuous very dark gray (2.5Y 3/1) cutans. End.

Project Area Landform Summary

The Phase I archeological and geomorphological survey area consists of a portion of a broad, loess-covered upland divide. Drainages on the north side of the divide flow into Flint Creek while those to the south enter the Skunk River. Both Flint Creek and the Skunk River are tributaries of the Mississippi River. The Phase I survey area consists mostly of a plowed field, with a small grass and tree covered area along the northern edge. Most of this currently unplowed area was formerly an agricultural field and all of it has a disturbed surface horizon (see the 13DM601 soil profile later in text for the most intact soil observed). Much of the western edge of the Phase I area has been disturbed by road and railroad construction (see Soil Profile 2 above). The demolition of buildings and removal of foundations have caused substantial disturbances in the northeastern corner of the project area (see the 13DM604 soil profile). In the remainder of the Phase I survey area, the active plowzone is truncating a Bt or Bg horizon. Characteristics of the near-surface B horizon are dependent of the quality of soil drainage in the immediate area. In the areas with better drainage, the upper Bt horizon is oxidized and lighter in color (see the 13DM1322 soil profile); while in more poorly drained areas, the upper Bt or Bg horizon is darker. In all cases, gleyed soil horizons are present either immediately below the plowzone or under the near-surface Bt horizon. One other area of disturbance that was noted is a now plowed over gravel road that extends east–west across the southern portion of the Phase I survey area and along the southwestern boundary of the area. This former road is visible as a light-colored linear area on the aerial photographs (Figure 3).

RESEARCH DESIGN AND METHODS

The BCA investigation was designed to meet or exceed the Iowa guidelines for cultural resources surveys (AIA 1999) and the Secretary of the Interior’s standards for archeology and historic preservation (NPS 1983). This Phase I archeological and geomorphological survey and the architectural and historical reconnaissance survey were conducted in order to provide for the preservation planning needs of AO within the IAAAP and its legal obligations under Section 106 of the National Historic Preservation Act and other pertinent environmental regulations.

PREFIELD PROCEDURES AND BACKGROUND RESEARCH

The Phase I and reconnaissance surveys began with a review of archival records and prior cultural resources work in the area. This review included an examination of the National Archaeological Database (NADB), the Iowa archeological site files, previously completed cultural resources reports, the IAAAP archeological management plan, historic maps, aerial photographs, Des Moines County histories, and other pertinent literature and manuscripts.

Previous Investigations and Previously Recorded Sites

An examination of the NADB, digital cultural resources files maintained by the Office of the State Archaeologist (OSA) and Iowa Department of Transportation (Iowa DOT), and the records at BCA was conducted to determine if portions of the current project area had been previously surveyed. A reconnaissance level field survey of most of the IAAAP had previously been conducted by Augustana College of Sioux Falls, South Dakota, and this survey included the current Phase I project area. This earlier reconnaissance survey consisted of a surface examination with crews spread out to about 30 m (98 ft) intervals (Winham et al. 1991:45). Four archeological sites (13DM601–13DM604) and six isolated finds (IF 367–IF 369, IF 373, IF 375, and IF 383) were located within the current project area during that prior surface examination (Table 2). Sites 13DM601 and 13DM604 are both remnants of historic farmsteads from which the buildings have been removed. Sites 13DM602 and 13DM603 were recorded as prehistoric artifact scatters. The isolated finds are an area of gravel, an area with cement fragments and railroad ties, a retouched flake, two single flakes, and a flake and core found near each other (Table 2). No shovel testing or soil profiling were conducted at the site and isolated find locations during the reconnaissance survey and the State Historic Preservation Office (SHPO) considered these sites and the areas of the isolated finds to be unevaluated. Later, two of the sites (13DM602 and 13DM603) were Phase II tested and recommended to be not eligible for listing to the National Register of Historic Places (NRHP; Bienenfeld 2001). More recently, a BCA Phase I survey project included a corridor through the far southern portion of the current Phase I study area (Gooder and Blikre 2011). During this Phase I investigation, the area containing the previously recorded IF 367 (a core and a flake) was examined and additional prehistoric artifacts, consisting of knapping debris and a piece of fire-cracked rock (FCR), were located. That isolated find location was redefined as a short-term occupation and recorded as archeological site 13DM1322. This site was interpreted to be a location where Burlington, Keokuk, and Warsaw tabular cherts were knapped and at least one hearth feature was made and used. Shovel testing within that study corridor exposed highly eroded soil profiles and no artifacts were recovered below the plowzone. The portion of the site that was tested was recommended to be not NRHP eligible and SHPO has concurred with that recommendation. During that same BCA investigation, the boundaries of 13DM603 were expanded to the south based on the presence of surface exposed artifacts. These artifacts include about 50 pieces of flaking debris and three chipped stone tools, including a drill and broken projectile point (Gooder and Blikre 2011:29). The projectile point is a contracting stemmed fragment suggesting the presence of an Early Woodland component. The new portion of the site includes the earlier recorded IF 689 (one flake) and IF 369 (cement fragments and railroad ties). This portion of 13DM603 was shovel tested and no artifacts were recovered below the plowzone. Because of the lack of integrity, the newly recorded portion of 13DM603 was recommended to be not eligible for listing to the NRHP.

In addition to the four sites and six isolated finds recorded within the current Phase I project area, there are 30 archeological sites and 18 isolated finds on record within 1.6 km (1 mi) of the project area (Table 2). Ten of these sites and all of the isolated finds were first recorded during the reconnaissance survey of the IAAAP (Winham et al.

1991). Additional sites within the IAAAP were recorded by BCA (Gooder and Blikre 2011) and the sites outside of the IAAAP were recorded during cultural resource surveys for the improvements to U.S. Highway 35 (Ramirez 1999; Stanley 1994) and for the construction of an ethanol plant (Sellars and Ambrosino 2002). Twenty-one of these sites have prehistoric components, all of which have been interpreted to be short-term encampments or activity areas. Most commonly, the prehistoric sites in this area appear to be locations where the local Burlington chert was knapped to produce tools. The only diagnostic artifact to be reported from these sites is a Late Prehistoric Madison arrowpoint. Historic components have been recorded at 14 of the 30 sites in the vicinity of the current project area. Most of the historic components consist of artifact scatters that are not directly associated with former building locations. Four of the historic components are the remnants of farmsteads. The four farmstead sites are all on the IAAAP at locations where the buildings had been removed when the plant was built. Twenty-five of the sites in the area surrounding the current project area have been determined by SHPO to be not NRHP eligible and the remaining five are unevaluated. Most of the isolated finds are locations of historic materials, but five are the locations of a single prehistoric artifact. With one exception, the isolated find areas have not been formally recorded as archeological sites.

Historic Maps, Aerial Photographs, and Histories

Four historic maps of the area were examined for this project (Andreas 1873, 1875; General Land Office [GLO] 1838; North West Publishing Company 1897). The earliest of these maps depicts a trail going through the project area, but no buildings or structures (Figure 7). The GLO surveyor's notes that were recorded when the data for this map was being obtained indicate that the project area contained a timber reserve (GLO 1838). Two farmsteads are plotted on the 1873 county atlas within the Phase I survey area (Andreas 1873). Both are shown to have associated orchards and a third orchard is present in the far western end of the survey area (Figure 8). This map also shows roads bordering the project area on the north and east sides. These two farmstead locations have been recorded as archeological sites 13DM601 and 13DM604. The Des Moines County map in the 1875 state atlas does not show any buildings in the project area (Andreas 1875), but this map generally does not plot private residences. The two farmsteads are also plotted on the 1897 atlas (Figure 9) and are visible on the 1937 aerial photograph (Figure 10). The next available aerial photograph is from 1951, but the area of the IAAAP has been redacted and so offers no information regarding the early era of the IAAAP. More recent aerials (1963 and later) show the project area as an open field with trees marking the two former farmstead locations (Figure 3).

Two older county histories (Antrobus 1915; Western Historical Company 1879), the brief county history in the 1873 atlas (Andreas 1873) and the historical overview produced by Conard and Nash (1994), were also examined. None of these references contained any direct information regarding the Phase I survey area although they do provide some historic context for the area.

ARCHEOLOGICAL SURVEY FIELDWORK AND RESULTS

The Phase I investigation began with a geomorphological assessment of the project area. The project area is an agricultural field positioned on a loess-mantled upland. Soil profiles extracted with a hand core in various locations indicate that across the project area, the plowzone is truncating a Bt horizon. Therefore, any archeological deposits within the survey area are expected to be surface evident and the means of site discovery used during the fieldwork for this project was a pedestrian visual surface examination. The entirety of the survey area was walked in a series of east–west transects that were spaced at 10 m (32.8 ft) intervals. The survey was reduced to 5 m (16.4 ft) intervals in areas thought to have higher site potential. When the fieldwork was conducted, the weathered residue for last year’s crops were still present (Figures 4 and 5). The north portion of the project area had been planted in soybeans and the southern portion in corn. Surface visibility was between 40 and 50 percent in the agricultural field.

Although artifacts were observed at the five known site areas, no other areas with artifacts were located during the surface inspection. The areas where the earlier reconnaissance survey recorded isolated finds were examined, but no artifacts were located in these areas. The two prehistoric isolated finds that are not within a recorded site appear to have been out of context artifacts, and the historic isolated find is an area of gravel likely associated with a former road bed. No previously unrecorded archeological sites were recorded during the current fieldwork.

Following the completion of the surface examination, the areas that were to be shovel tested were examined for buried utilities by Jim Carpenter of the AO, Mechanical Operations. These areas were cleared and a utility locate permit was issued (Ticket No. 14504021). Shovel testing was conducted at three sites (13DM601, 13DM604, and the northern portion of 13DM1322). Shovel tests were spaced at 10 m (32.8 ft) intervals across the site areas. The tests were excavated in 10 cm levels into Bt or Bg horizons, and the sediment from the tests was screened through one-quarter inch mesh. During the excavation, care was taken to excavate and screen the plowzone (Ap) soil separately from the underlying intact horizons. Recovered artifacts were bagged and taken to the BCA laboratory, where they were cleaned, analyzed, cataloged, and readied for curation. At the completion of this project the artifacts will be curated at OSA. For those sites where new information has been obtained, updated site forms have been submitted to OSA (Appendix D). The following section details the sites and isolated finds within the project area.

Site Number: 13DM601

Property Type: historic farmstead

Legal Location: NE¹/₄ NE¹/₄ NE¹/₄ Section 31, and NW¹/₄ NW¹/₄ NW¹/₄ Section 32, T70N, R3W

UTM Center Point: NAD83, Zone 15, E648686, N4520983

Site Area: 11,621 m² (2.9 ac)

Landform and Soil: Site 13DM601 is located in a grass and tree covered portion of the project area (Figure 11). The soil in the site area tends to be relatively intact, with some surface disturbance. However some areas, likely former building locations, were found to be disturbed to greater depths.

Described By: L. Blikre

Date Described: March 18, 2015

Depth (cm)	Soil Horizon	Description
Loess		
0–16	Ap	Black (10YR 2/1) silt loam; moderate, fine granular structure; plastic; abrupt boundary. Artifacts in this horizon.
16–29	A	Very dark brown (10YR 2/2) silt loam; moderate, medium subangular blocky breaking to strong, fine, subangular blocky structure; plastic; near continuous, very dark brown (10YR 2/2) cutans; gradual boundary. Artifacts in this horizon.
29–41	AB	Very dark gray (10YR 3/1) silty clay loam; strong, fine to medium subangular blocky structure; plastic; continuous, very dark brown (10YR 2/2) cutans; gradual boundary.
41–60	Bt	Very dark gray (2.5Y 3/1) silty clay loam; weak, medium subangular blocky breaking to strong, fine subangular blocky structure; plastic; continuous, black (2.5Y 2.5/1) cutans; gradual boundary.
60–73	Bg1	Olive (5Y 5/3) clay loam; strong, fine to medium subangular blocky structure; plastic; discontinuous, very dark grayish brown (2.5Y 3/2) cutans; gradual boundary.
73–75	Bg2	Olive gray (5Y 5/2) clay loam; strong, medium subangular blocky structure; plastic; discontinuous, very dark grayish brown (2.5Y 3/2) cutans. End.

Previous Investigation: This site was first recorded during the reconnaissance survey conducted by Augustana College (Winham et al. 1991). No shovel testing was conducted at that time, but the surface inspection located two small depressions and a large galvanized steel pipe that was set vertically into the ground and filled with rubble.

Current Investigation: BCA relocated the site and excavated a line of shovel tests from east to west across the grass and tree covered area. A total of 19 shovel tests were excavated (Figure 12). Artifacts were recovered from only four tests (STs A7, A8, A12, and A13). During a surface inspection of the plowed field adjacent to the site only a small amount of stove waste and some glass fragments were observed. These items were not collected. The site boundary was expanded in order to encompass the entire area of the farmstead that is visible on the 1937 aerial photograph (Figure 13).

Artifact Analysis: The four positive shovel tests produced 35 artifacts and most of these were recovered from ST A8 (Table 3). Among the artifacts recovered from ST A8 are multiple corroded machine cut and wire nails, pieces of a stoneware drain pipe, several vessel glass fragments, whiteware and stoneware sherds, and a mussel shell shirt button. The drain pipe fragments are portions of a collar joint that had a 9 inch diameter interior. The vessel glass includes a piece of clear, melted bottle glass and a fragment of a drinking glass. A fragment of a decorative vase or dish is also present. ST A7 came down in an area of mottled fill or disturbed sediment but produced only one artifact, an unglazed stoneware body sherd. Two machine cut nails and one wire

nail were collected from ST A12. A larger machine cut spike and a piece of stove waste were recovered from ST A13.

Interpretation: According to the historic atlases (Figures 8 and 9), the farmstead was owed by the J. K. Scott estate in 1873 and Bell B. McMaken in 1897. An examination of the area histories (Antrobus 1915; Western Historical Company 1879) did not produce much information regarding these people. A brief reference to J. K. Scott indicates that he served as County Surveyor between 1855 and 1857 (Antrobus 1915:344). The only mention of Bell McMaken is that she was married to James W. McMaken and her maiden name was Scott (Western Historical Company 1879:693). Therefore, she is presumed to be J. K. Scott's daughter. The house that was once present on-site was removed and the rest of the buildings were demolished when IAAAP was constructed. Although portions of the site area have a relatively intact soil, few artifacts were recovered. Those materials collected are mostly nails, most commonly machine cut, but also some wire nails. Pieces of ceramic drain pipe was also collected. No other construction materials were found. The few domestic artifacts are a small number of stoneware and whiteware and some vessel glass.

Recommendation: Site 13DM601 is recommended to be not eligible for listing to the NRHP. The testing suggests that the artifact deposit related to this former occupation is sparse. Apparently the post-occupation cleanup at this site was thorough. This site is not considered to have the potential to produce additional information regarding the history of the area. No additional cultural resources work is recommended for 13DM601.

Site Number: 13DM602

Property Type: prehistoric artifact scatter

Legal Location: S½ NW¼ NW¼ and N½ SW¼ SW¼ Section 32, T70N, R3W

UTM Center Point: NAD83, Zone 15, E648855, N4520618

Site Area: 4,210 m² (1 ac)

Landform and Soil: This site is in a slight rise along the headwall of an upland drainage (Figure 2). The soil in this area is eroded with the plowzone truncating a Bt horizon.

Previous Investigation: Site 13DM602 was recorded during the Augustana College reconnaissance survey of the IAAAP (Winham et al. 1991). A biface of fossiliferous Burlington chert was collected. A core and several pieces of flaking debris were observed on the plowed surface. This site was not shovel tested during the reconnaissance survey. Phase II testing was later conducted and 13DM602 was recommended to be not eligible for listing to the NRHP (Bienenfeld 2001). The Iowa SHPO has concurred with this recommendation.

Current Investigation: Because the Iowa SHPO has issued an opinion that 13DM602 is not NRHP eligible, no formal work was conducted at this site by BCA. A hand core was used to briefly look at the soil profile (see above).

Artifact Analysis: No artifacts were collected during the current project from 13DM602. A fragment of a grinding slab, a core, and several large hard hammer produced flakes were observed on the surface.

Recommendation: Site 13DM602 was previously recommended to be not eligible for listing to the NRHP and SHPO has concurred with that recommendation. No additional cultural resources work is recommended for 13DM602.

Site Number: 13DM603, IF 368, and IF 369

Property Type: possible Early Woodland habitation and historic rubble

Legal Location: SE¼ NW¼ Section 32, T70N, R3W

UTM Center Point: NAD83, Zone 15, E649267, N4520457

Site Area: 4,512 m² (1.1 ac)

Landform and Soil: This site is in a slight rise bordered by an upland drainage (Figure 3).

The soil in this area is eroded with the plowzone truncating a Bt horizon.

Previous Investigation: Site 13DM603 was recorded during the Augustana College reconnaissance survey of the IAAAP (Winham et al. 1991). A biface fragment and a few flakes were observed on the plowed surface. This site was not shovel tested during the reconnaissance survey. The isolated finds (a flake and some cement fragments and railroad ties) were recorded a little south of the site on the same rise. Phase II testing was later conducted and 13DM603 was recommended to be not eligible for listing to the NRHP (Bienenfeld 2001). The Iowa SHPO has concurred with this recommendation. In 2011, a BCA crew examined the area containing the isolated finds and noted that flaking debris and other artifacts extended from the original site area, through the area of both isolated finds. For this reason, the boundary of 13DM603 was enlarged. The new portion of 13DM603 (including the two isolated find areas) was shovel tested. This portion of the site was found to be eroded and recommended not NRHP eligible. SHPO has concurred with this recommendation.

Current Investigation: Because the Iowa SHPO has issued an opinion that 13DM603 is not NRHP eligible, no investigation was conducted at this site by BCA during the current project.

Artifact Analysis: No artifacts were collected during the current project from 13DM603.

Recommendation: 13DM603 was previously recommended to be not eligible for listing to the NRHP and SHPO has concurred with that recommendation. No additional cultural resources work is recommended for 13DM603.

Site Number: 13DM604

Property Type: historic farmstead

Legal Location: NE¼ NE¼ NW¼ Section 32, T70N, R3W

UTM Center Point: NAD83, Zone 15, E649358, N4520939

Site Area: 11,444 m² (2.8 ac)

Landform and Soil: Most of 13DM604 is within a plowed field on a loess-covered upland (Figure 14). Across most of the site the soil was found to be substantially disturbed, presumably from the demolition of the buildings that were once present. Multiple layers of disturbed sediment were observed. Two clusters of trees on-site contain large pieces of concrete foundation rubble (Figures 15 and 16).

Described By: L. Blikre

Date Described: March 18, 2015

Depth (cm)	Soil Horizon	Description
Loess		
0–22	Ap1	Very dark gray (2.5Y 3/1) silty clay loam; weak, fine granular structure; plastic; clear boundary. Artifacts in this horizon.
22–36	Ap2	Gray (2.5Y 5/1) clay loam; moderate, fine subangular blocky structure; plastic; abrupt boundary. Artifacts in this horizon.

Depth (cm)	Soil Horizon	Description
36–56	Ap3	Very dark gray and dark grayish brown (10YR 3/1 and 10YR 4/2) silty clay loam; weak, fine subangular blocky structure; plastic to friable; clear boundary.
56–73	Bg1	Olive (5Y 5/3) clay loam; strong, fine to medium subangular blocky structure; plastic; discontinuous, very dark grayish brown (2.5Y 3/2) cutans; abundant, fine yellowish brown (10YR 5/6) iron oxide stains and weak concretions; clear boundary.
73–90	Bg2	Olive gray (5Y 5/2) clay loam; strong, medium subangular blocky structure; plastic; discontinuous, very dark grayish brown (2.5Y 3/2) cutans; abundant, medium yellowish brown (10YR 5/6) iron oxide stains and weak concretions. Cutan presence decreases with depth. End.

Previous Investigation: This site was first recorded during the reconnaissance survey conducted by Augustana College (Winham et al. 1991). No shovel testing was conducted at that time. A depression, two areas of concrete and limestone rubble, a concrete pad, and a scatter of domestic and structural debris were observed. No artifact collection was made.

Current Investigation: BCA relocated 13DM604 and initially conducted a surface examination during which the features recorded by the Augustana field crew were relocated (Figure 17). The concrete pad recorded by Augustana is not associated with the pre-IAAAP farmstead. This feature does not appear on the aerial photographs until 1983, and there is a driveway extending to it from Road E that goes through a gate in the plant fence (compare Figures 17 and 18). The two areas of concrete and limestone fragments are out of context piles of foundation rubble (Figures 15 and 16). Pieces of a concrete foundation and terra cotta block fragments were also noted within and near the small depression observed by the Augustana crew, suggesting that this was an outbuilding location. A small number of stoneware, whiteware, and vessel glass fragments were observed in the eastern portion of the site, near one of the rubble piles, and multiple large pieces of glassy slag were observed in the southwestern portion of the site. Following the surface examination, shovel testing commenced. Two transects of 11 shovel tests each were excavated in a north-south direction across the site area (Figure 17). Twelve of the 22 shovel tests produced historic artifacts. The profiles exposed by the shovel tests are extensively disturbed (see profile above).

Artifact Analysis: Twenty-two artifacts were recovered during the shovel testing (Table 4). The domestic materials are limited to a few small stoneware and whiteware sherds, and a fragment of a porcelain dish. A piece of pale blue bottle glass was collected, but this appears to be modern. Construction materials consist of several machine cut nails, a piece of flat (window) glass, and a fragment of a hollow terra cotta brick. Several other similar terra cotta brick fragments were observed, but were not collected. The pole end of a large steel stake was also recovered. In addition to these materials, a great deal of glassy furnace waste was observed on-site as were pieces of metallic slag. These materials are not associated with the wood or coal stoves and furnaces that were commonly present in farmhouses. Instead these materials are waste products from high heat producing devices like a foundry or a blast furnace.

Interpretation: The two late nineteenth century county atlases (Figures 7 and 8) indicate that the farmstead recorded as 13DM604 was owned by Robert Lynn at least for the

period between 1873 and 1897. A short biography of Mr. Lynn is presented in one of the examined county histories (Western Historical Company 1879). This text indicates that he was a farmer living on this farmstead with his wife Rebecca McGraff and that he had held “various school and township offices” (Western Historical Company 1879:692). Nothing in this short biography indicates a likelihood for a foundry, a forge, or a blast furnace being present on-site. These histories were also examined for references to metal working and no industry of this nature was recorded as being present at 13DM604. Further, the archeological overview and management plan of the IAAAP indicates that a farmstead was at this location when the land was acquired (Stafford et al. 1984). This document notes the former locations of blacksmith shops and similar properties and if a foundry was present at 13DM604, it should be indicated in this overview. It may be that the presence of the furnace slag is due to undocumented waste disposal. The buildings that made up this farmstead were removed and the foundations demolished when the IAAAP was constructed. The soil present is extensively disturbed (see profile above). Other than the furnace waste, the artifacts present are typical of a late nineteenth to early twentieth century farmstead.

Recommendation: Site 13DM604 is recommended to be not eligible for listing to the NRHP. The testing suggests that the site has been substantially disturbed by building removal and foundation demolition. Additionally, the artifact deposit is sparse and most of the artifacts are out of context. This site is not considered to have the potential to produce additional information regarding the history of the area. No additional cultural resources work is recommended for 13DM604.

Site Number: 13DM1322 and IF 367

Property Type: prehistoric habitation

Legal Location: W½ SE¼ NW¼ Section 32, T70N, R3W

UTM Center Point: NAD83, Zone 15, E649105, N4520451

Site Area: 9,607 m² (2.4 ac)

Landform and Soil: This prehistoric site is located on a rise in an upland plowed field (Figure 19). The loess soil present is eroded with a Bt horizon being truncated by the plowzone. Artifacts have only been found in the plowzone. The following profile was recorded in a better drained portion of the site. Other areas have a gleyed B horizon immediately under the plowzone.

Described by: L. Blikre

Date Described: March 19, 2015

Depth (cm)	Soil Horizon	Description
Loess		
0–19	Ap1	Very dark grayish brown (10YR 3/2) silty clay loam; weak, fine subangular blocky structure; friable to plastic; abrupt boundary. Artifacts and road gravel in this horizon.
19–27	Ap2	Very dark gray (10YR 3/1) silty clay loam; moderate, fine subangular blocky structure; plastic; abrupt boundary.
27–41	Bt	Light olive brown (2.5Y 5/4) clay loam; moderate, fine subangular blocky structure; plastic; clear boundary.

Depth (cm)	Soil Horizon	Description
41–58	Bg1	Greenish gray (10Y 6/1) clay loam; moderate, medium subangular blocky structure; plastic; discontinuous, very dark grayish brown (2.5Y 3/2) cutans; common, fine yellowish brown (10YR 5/6) iron oxide stains and weak concretions; clear boundary.
58–65	Bg2	Olive gray (5Y 4/2) clay loam; moderate, medium subangular blocky structure; plastic; discontinuous, very dark grayish brown (2.5Y 3/2) cutans; common, fine yellowish brown (10YR 5/6) iron oxide stains and weak concretions. End.

Previous Investigation: During the reconnaissance survey conducted by Augustana College (Winham et al. 1991), IF 367 was recorded at this location. The isolated find consisted of a flake and a core. This location was not formally recorded as a site and was not shovel tested during the reconnaissance survey. In 2011, the area was revisited as part of a waterline survey. Surface examination produced multiple flakes, two unfinished biface fragments, and a piece of fire-cracked rock (FCR). The portion of the site within the waterline project corridor was shovel tested, but despite the amount of material on the surface only one test contained an artifact. Because of the eroded nature of the site and the lack of artifacts below the plowzone, the portion of 13DM1322 that was shovel tested was recommended to be not eligible for nomination to the NRHP.

Current Investigation: For the current project, BCA relocated 13DM1322 by surface examination and shovel tested the northern portion of the site, which was outside of the project corridor when it was first recorded. Twenty-one shovel tests were excavated between two transects and none of the tests produced artifacts (Figure 20). The soil present is eroded and the northern portion of the site contains a great deal of crushed limestone from a now plowed up road.

Artifact Analysis: No artifacts were collected from 13DM1322 during the current project. Several flakes and a core were observed and left on the plowed surface of the site.

Interpretation: Observed and previously documented artifacts from 13DM1322 indicate that this site is a location where the production of chipped stone tools from locally available Burlington chert was the primary task. A small amount of Warsaw tabular and Keokuk chert knapping debris have also been collected (Gooder and Blikre 2011:38–39). No diagnostic artifacts have been recovered from 13DM1322 and the cultural affiliation(s) of the artifacts are undetermined. The site has not produced any used tools and only one piece of FCR, a reddened piece of sandstone.

Recommendation: Site 13DM1322 is recommended to be not eligible for listing to the NRHP. The shovel testing indicates that the site is eroded, with a B horizon underlying the plowzone. This site does not have the potential to produce additional information regarding the prehistory of the area. No additional cultural resources work is recommended for 13DM1322.

Augustana Isolated Find Number: IF 373

Legal Location: NE¼ NW¼ SE¼ NW¼ Section 32, T70N, R3W

UTM Center Point: NAD83, Zone 15, E649160, N4520635

Landform and Soil: This location is along the slope of the upper reaches of an upland drainage (Figure 3). The area is eroded and the plowzone is truncating a B horizon.

Previous Investigation: IF 373 was recorded during the Augustana College reconnaissance survey of the IAAAP (Winham et al. 1991). One artifact, identified as a unifacially retouched flake, was recorded at this location during a surface examination. No shovel testing was conducted.

Current Investigation: This area was reexamined by BCA, but no artifacts were located. Some road gravel is present although this area is about 100 m (328.1 ft) north of the former road bed corridor. The soil is eroded and this area is on a slope above an upland drainage. Because no artifacts were observed, no shovel testing was conducted.

Artifact Analysis: No artifacts were observed or collected at this location during the current project.

Interpretation: This setting, an eroded upland slope, is unlikely to contain an intact archeological site.

Recommendation: This recorded isolated find location is recommended to be not eligible for listing to the NRHP. No additional cultural resources work is recommended for the plotted IF 373 area.

Augustana Isolated Find Number: IF 375

Legal Location: E ½ SE¼ NW¼ Section 32, T70N, R3W

UTM Center Point: NAD83, Zone 15, E649411, N4520447

Landform and Soil: This location is near the intersection of Road E and Road B (Figure 3). The area is disturbed with a great deal of crushed limestone gravel on the surface.

Previous Investigation: IF 375 was recorded during the Augustana College reconnaissance survey of the IAAAP (Winham et al. 1991). The isolated find at this location was reported to be an area of gravel.

Current Investigation: This area was reexamined by BCA and a lot of gravel (crushed limestone) is present on the surface at this location. No artifacts were observed. An examination of the historic maps and various aerial photographs do not indicate that any building or structure was present. No additional investigation was conducted because the reported cultural resource is an “area of gravel” (Winham et al. 1991).

Artifact Analysis: No artifacts were observed or collected at this location during the current project.

Interpretation: This area of gravel may have been a temporary parking or staging area related to road or other construction or possible disturbance related to the installation of drainage tile. It is located about 60 m (196.9 ft) south of the abandoned and now plowed road bed that runs east-west through this field.

Recommendation: This recorded isolated find location is recommended to be not eligible for listing to the NRHP. No additional cultural resources work is recommended for the plotted IF 375 area.

Augustana Isolated Find Number: IF 383

Legal Location: SW¼ NE¼ SW¼ NW¼ Section 32, T70N, R3W

UTM Center Point: NAD83, Zone 15, E648829, N4520492

Landform and Soil: This location has been disturbed by construction and later demolition of a gravel road and the excavation of a drainage ditch (Figure 3).

Previous Investigation: IF 383 was recorded during the Augustana College reconnaissance survey of the IAAAP (Winham et al. 1991). One artifact, identified as a

tertiary flake, was recorded at this location during the surface examination. No shovel testing was conducted.

Current Investigation: This area was reexamined by BCA, but no artifacts were located. A large amount of road gravel is present as a road was formerly in this area. Immediately south is an artificial drainage ditch. No artifacts were observed during the current fieldwork and because of the obvious and extensive disturbance, no shovel testing was conducted.

Artifact Analysis: No artifacts were observed or collected at this location during the current project.

Interpretation: This setting is unlikely to contain an intact archeological site.

Recommendation: This recorded isolated find location is recommended to be not eligible for listing to the NRHP. No additional cultural resources work is recommended for the plotted IF 383 area.

Phase I Archeological Survey Results

The area examined during the Phase I archeological survey is a plowed upland area. Five archeological sites and several isolated finds have been located within this field. The geomorphological investigation indicates that the portions of the survey area are substantially disturbed by past construction and later demolition and that the remainder of the field is eroded. All five archeological sites are recommended not eligible for nomination to the NRHP and no additional cultural resources work is recommended within the Phase I survey area.

ARCHITECTURAL SURVEY FIELDWORK AND RESULTS

In addition to the Phase I cultural resources investigation, a reconnaissance survey was conducted of the architectural resources within a 402 m (.25 mi) wide band around the proposed Yard L expansion area (Figures 2 and 3). This reconnaissance survey focused on architectural properties that are older than 50 years. To locate these resources, the modern aerial photograph was compared to the 1963 and 1969 aerial photographs. This examination identified nine properties that are older than 50 years within the architectural reconnaissance survey area. Of these, four were previously recorded. These previously recorded properties were documented during a historic resources survey conducted in preparation for improvements along U.S. Highway 34 (Conard and Nash 1994). This survey also recorded seven properties that are less than 50 years old in the reconnaissance survey area (Table 2). With one exception, all of these previously recorded properties were recommended to be not eligible for nomination to the NRHP. The exception is the IAAAP car barn (Site Inventory Number 29-03463) which was recommended eligible as part of a potential historic district that would include the entirety of the IAAAP (Conard and Nash 1994:33–34).

For the current examination, the architectural properties that are older than 50 years were recorded. One of the previously recorded properties, the IAAAP car barn (29-03463) is

located within the larger heavy equipment shops which has now also been recorded (29-03768). Other properties within the IAAAP that were recorded are Yard L and Line 1. All of the IAAAP properties are recommended to be NRHP eligible as contributing to a potential historic district that would encompass the entirety of the IAAAP. The newly recorded properties older than 50 years that are outside of the IAAAP are recommended not NRHP eligible mainly due to integrity and association issues. The following are descriptions of all of the architectural properties older than 50 years that are present within the historical architectural reconnaissance survey area. Iowa Site Inventory Forms have been completed and filed with SHPO for those properties that were newly recorded for this project (Appendix E).

Site Inventory Number: 29-03378

Property Type: Soukup House

Legal Location: SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 30, T70N, R3W

UTM Center Point: NAD83, Zone 15, E647602, N4521071

Investigations: This house was recorded during the historic property survey conducted by Tallgrass Historians, LC for the proposed improvements along U.S. Highway 34 (Conard and Nash 1994).

Description: This property is a one-story ranch house with an attached garage that was built in 1955. A hipped roof covers the house and garage. Also on the property is a shed that was built in 1950.

Recommendations: The Soukup House was recommended not eligible for listing to the NRHP, and SHPO has concurred with this recommendation.

Site Inventory Number: 29-03460

Property Type: Horn House

Legal Location: SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 29, T70N, R3W

UTM Center Point: NAD83, Zone 15, E649669, N4521095

Investigations: This house was recorded during the historic property survey conducted by Tallgrass Historians, LC for the proposed improvements along U.S. Highway 34 (Conard and Nash 1994).

Description: The house at this property is two story residence with Queen Anne characteristics (Conard and Nash 1994). According to the Site Inventory form, the house was built in 1909 but the Des Moines County Assessor provides a construction date of 1890. Since its construction, the house has been altered. The front porch has been removed and a garage was attached in 1987. Two utility buildings, built in 1960, and a shed are associated with the house.

Recommendations: The Horn House was recommended to be not eligible for listing to the NRHP, and SHPO has concurred with this recommendation.

Site Inventory Number: 29-03461

Property Type: Siefken House

Legal Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 29, T70N, R3W

UTM Center Point: NAD83, Zone 15, E649409, N4521092

Investigations: This house was recorded during the historic property survey conducted by Tallgrass Historians, LC for the proposed improvements along U.S. Highway 34 (Conard and Nash 1994).

Description: This property is one and one-half story bungalow (Conard and Nash 1994) built in 1930. The house has been altered since construction. Solar panels have been installed in the front and the siding has been replaced. The house is associated with two detached garages that were built ca. 1960.

Recommendations: The Siefken House was recommended to be not eligible for listing to the NRHP, and SHPO has concurred with this recommendation.

Site Inventory Number: 29-03463 and 29-03768

Property Type: IAAAP Car Barn and Heavy Equipment Shops

Legal Location: NE¼ Section 32, T70N, R3W

Car Barn UTM Center Point: NAD83, Zone 15, E649728, N4520977

Heavy Equipment Shops UTM Center Point: NAD83, Zone 15, E649779, N4520795

Investigations: The IAAAP car barn (29-03463), which is located in the northern portion of the heavy equipment shops, was recorded during the historic property survey conducted by Tallgrass Historians, LC for the proposed improvements along U.S. Highway 34 (Conard and Nash 1994). The remainder of the heavy equipment shops has been recorded as 29-03768 during the current project (Figures 21 and 22).

Description: As previously recorded by Conard and Nash (1994), the front of the car barn is brick-clad and contains office space (Figure 23). The larger back (south) portion consists of two large repair facilities for the trains that transport much of the material on the plant. The exterior walls of the repair facilities are currently covered by metal siding, but the original walls are still underneath. Also present on-site are two large Quonset huts (Figure 24) and a metal sided shed. Much of the yard is composed of railroad track, switches, and parking area (Figure 25). Using the aerial imagery, the metal shed a little south of the main car barn was built between 1994 and 2002 and the two Quonset huts were built between 1963 and 1969.

Recommendations: The car barn and the heavy equipment shops have been and continue to be important properties within the IAAAP. This area is used to service the train engines and cars that transport materials throughout the plant. The IAAAP car barn (29-03463) and the encompassing heavy equipment shops (29-03768) are recommended to be NRHP eligible as contributing properties to a potential historic district that would consist of the entire IAAAP.

Site Inventory Number: 29-03769

Property Type: IAAAP Yard L

Legal Location: NE¼ and NW¼ Section 31 and SW¼ NW¼ Section 32, T70N, R3W

UTM Center Point: NAD83, Zone 15, E648002, N4520553

Investigations: Yard L, located on the IAAAP, is recorded for the first time as part of the current architectural reconnaissance survey. Because this is a reconnaissance survey, the buildings and structures within Yard L were not closely examined. Oblique aerial images were obtained from the Des Moines County GIS Commission and overview photographs were taken while conducting the fieldwork (Figures 26–32).

Description: At the time it was recorded, the IAAAP Yard L consists of 33 long narrow warehouse buildings. These buildings are 152 m (500 ft) long by 15 m (50 ft) wide. These warehouse buildings are divided into three primary groups (Figure 33). In the southern portion of the yard are two groupings of 13 buildings each. The long axes of these buildings are oriented east-west. The northern group contains seven buildings that are oriented southeast-northwest. A 34th building with the same dimensions was present in the north grouping, but all that currently remains at this location is a cement foundation pad. The building that was at this location burned down on October 13, 1992 (Joseph Haffner personal communication, April 22, 2015). Railroad tracks run between the buildings along the same orientation as the long axes of the buildings and a grid-work of gravel roads also connect the buildings and the building groups (Figures 28 and 29). The warehouse buildings have multiple entries of differing styles and sizes and loading docks are present on the fronts of the buildings (Figures 30–32). Most of the windows are glass block and the exterior walls are painted metal. The roofs are also metal, but some now have a covering of asphalt shingles. Yard L was built in 1941 as part of the initial plant construction (Stafford et al. 1984:Table 3.1). Based on an examination of aerial photographs, with the exception of the removal of one of the storage buildings, the configuration of Yard L is the same as it was in 1963. The earlier 1951 aerial photograph is not available for examination.

Recommendations: Yard L is a storage facility on the IAAAP that is scheduled for expansion. Although there have been some alterations to Yard L, for instance the removal of one of the buildings, it continues to retain its historic characteristics. The IAAAP Yard L (29-03769) is recommended to be NRHP eligible as a contributing property to a potential historic district that would consist of the entire IAAAP.

Site Inventory Number: 29-03770

Property Type: IAAAP Line 1

Legal Location: much of Section 32, T70N, R3W and Section 5, T69N, R3W

UTM Center Point: NAD83, Zone 15, E649722, N45219499

Investigations: This architectural reconnaissance investigation is the first to formally record the IAAAP Line 1 production facility. Because this is a reconnaissance survey and all but the north-most portion of Line 1 is outside of the study area, the buildings and structures within the property were not closely examined. Oblique aerial images were obtained from the Des Moines County GIS Commission and overview photographs were taken during the fieldwork (Figures 34–39).

Description: Line 1 is a complex property consisting of multiple buildings, structures, and objects (Figure 40). This property was built in 1941 as part of the initial plant construction (Stafford et al. 1984:Table 3.1). Between 1948 and 1975 the Line 1 facility was involved in the assembly of nuclear weapons and since then has been used for the construction of conventional weapons (U.S. Department of Energy [USDOE] 1999). Although there have been some modifications to the property, based on an examination of the aerial photographs, the external configuration of most of Line 1 is unchanged since at least 1963 (the IAAAP has been redacted from the 1951 aerial photographs).

Recommendations: Line 1 is an important production facility within the IAAAP that despite continued use, retains its historic feeling and context. The IAAAP Line 1

facility (29-03770) is recommended to be NRHP eligible as a contributing property to a potential historic district that would consist of the entire IAAAP.

Site Inventory Number: 29-03771 and 29-03772

Property Type: R. Gray Farmstead and House

Legal Location: NE¼ SE¼ SW¼ Section 30, T70N, R3W

R. Gray House UTM Center Point: NAD83, Zone 15, E647650, N4521331

R. Gray Farmstead UTM Center Point: NAD83, Zone 15, E647674, N4521333

Investigations: This property had not been recorded prior to the current project. The recording techniques used during this reconnaissance investigation include an examination of the Des Moines County Assessor data and a comparison of aerial photographs. Oblique aerial images of the property were obtained from the Des Moines County GIS Commission and photographs were taken of the house during the fieldwork (Figures 41–44).

Description: The R. Gray Farmstead consists of a house, a garage, a steel utility building, and three sheds (Figure 45). The house (29-03772) at the Gray farmstead is the only extant building that is over 50 years of age. According to the assessor's data, the house was constructed in 1930. This date is supported by the aerial imagery and county atlases as the farmstead appears on the 1937 aerial photograph, but no residence is plotted on this location in the earlier county atlases. The Gray House is a one and one-half story building. The gable roof has an east-facing dormer and on the west side a large enclosed porch addition that is the principal entrance for the house. The shed roof of the porch has been incorporated into the main roof. The eastern end of the house has a second enclosed porch that is covered by the main house roof. The entrance into this portion is positioned on the eastern end of the south face of the house. The main 28 x 34 ft portion of the house is underlain by a basement, but not the porches. The house has some elements of the bungalow/craftsman style (dormer, decorative exposed rafter ends under the roof and dormer overhangs, and pronounced window surrounds), but is not a good example of that style. The other buildings on the farmstead include a garage and a steel loafing shed both built in 1980, a steel utility building constructed in 1974, a garden shed built around 1994, and a garage shed that was put up in 2005.

Recommendations: Although the farmstead dates to the early twentieth century, the house is the only building remaining on the property that is greater than 50 years old. The house has been modified by the additions of enclosed porches on the west and east sides and the subsequent altering of the house's roof line. Because the house has been modified from its original form and is no longer associated with buildings from its period of construction, this property is recommended to be not eligible for listing to the NRHP.

Site Inventory Number: 29-03773

Property Type: Heritage Baptist Church Outbuilding

Legal Location: NE¼ SE¼ SE¼ Section 30, T70N, R3W

R. Gray House UTM Center Point: NAD83, Zone 15, E648073, N4521378

Investigations: This property was recorded during the current architectural reconnaissance survey. The recording techniques used include an examination of the

Des Moines County Assessor data, a comparison of the available aerial photographs, and field examination of the property.

Description: This property consists of a single story, steel sided, shed that was built in 1950 (Figures 46 and 47). This building was part of a larger farmstead, but the other buildings of that farmstead were demolished and removed in 2010. The farmstead that was once present appears on the 1873 county atlas (Figure 8).

Recommendations: This property is recommended to be not eligible for listing to the NRHP. None of the other buildings at this former farmstead location that this shed was once associated with is standing. Further, the construction date (1950) of the shed indicates that it was built well after the primary period of construction at this farmstead.

Site Inventory Number: 29-03774

Property Type: S. and M. Nelson Elevator

Legal Location: NW¼ SW¼ SE¼ Section 29, T70N, R3W

UTM Center Point: NAD83, Zone 15, E649507, N4521306

Investigations: This property was first recorded during the current architectural reconnaissance survey. The recording techniques used include an examination of the Des Moines County Assessor data, a comparison of the available aerial photographs, and field examination of the property.

Description: The Nelson property is a grain elevator and storage facility. No residences or other domestic buildings are present (Figures 48–53). Along the eastern edge of the property are four cylindrical steel grain storage bins each 64 ft tall and 38 ft in diameter. Attached to these bins are four smaller steel hopper bins that are 50 ft tall and 12 ft in diameter. All of these bins were built in 1960. Associated with these bins are a bucket conveyor, a drag conveyor, and a grain dryer, all of which have 1980 installation dates. Another much smaller cylindrical bin is located along the northern edge of the property. This small bin is not connected by a conveyor to any of the other structures or buildings on the property. The buildings present include a concrete block utility building with a lean-to shed on both the east and west sides. These attached sheds are also concrete block and all three of these buildings have flat roofs. The utility building and the eastern shed attachment have rolled asphalt or rubber roofs and the shed on the west has a metal roof. The main building is a 32 x 48 ft rectangle. The adjoining shed to the west is 10 x 18 ft and the shed on the east is 16 x 28 ft. The main building has two garage doors on its south wall. Another, separate building is a smaller shed with a hipped roof covered by asphalt shingles. This building measures 11 x 20 ft and is also made of concrete block.

Recommendations: This elevator facility was built in the middle to late twentieth century. It does not possess unique or exceptional characteristics of design and is not associated with any known important historical event or person. This property is recommended not eligible for listing to the NRHP.

Architectural Reconnaissance Survey Results

As stated by Conard and Nash (1994:33–34) “Buildings, structures, and sites of the ordnance plant...are potentially eligible as contributing elements to a historic district, eligible under Criterion A because of its association with World War II mobilization and

defense operations.” Additionally, the IAAAP has been instrumental in maintaining United States defense readiness since that time, including being a vital defense component during the Cold War era. As a historic district, the IAAAP is undoubtedly NRHP eligible. However, the development, recording, and defining of a plant-wide historic district is beyond the scope of this project.

The proposed Yard L expansion project would be an on-going use of the plant consistent with its historic and current mission and would therefore not constitute an adverse effect to a potential IAAAP historic district. The other architectural properties within the reconnaissance survey area are recommended not eligible for listing to the NRHP. Therefore, the proposed Yard L expansion is not considered to represent an adverse effect to any NRHP eligible properties.

SUMMARY AND RECOMMENDATIONS

BCA, under contract with AO, conducted a Phase I cultural resources and geomorphological investigation of the area being proposed for an expansion of Yard L within the IAAAP and a historic architectural reconnaissance survey of a .4 km (.25 mi) wide area surrounding the proposed Yard L expansion area. The cultural resources investigation was conducted under Prime Contract W52P1J-09-G-0001/0267, Purchase Order IA15W00062. The geomorphological investigation resulted in a finding that the Phase I project area is a loess-mantled upland agricultural field where any archeological sites should be surface evident. Additionally, based on the soil profiles observed, the project area has a low potential to contain intact cultural deposits. All five archeological sites present in the Phase I project area as well as the previously recorded isolated finds are recommended to be not eligible for listing to the NRHP. The historic architectural reconnaissance survey identified nine properties that are older than 50 years, including several that were previously recorded. The architectural properties within the IAAAP are all considered to be contributing elements to a potential plant-wide historic district, while those outside of the plant are all recommended not NRHP eligible.

The proposed Yard L expansion project is considered to be an on-going use of the plant consistent with its historic and current mission and would therefore not constitute an adverse effect to a potential IAAAP historic district. Additionally, the portion of the plant that is proposed for the Yard L expansion does not currently contain any architectural properties and the archeological properties within it are all recommended not NRHP eligible. These archeological sites are not considered to be contributing elements to a potential plant-wide historic district. Therefore, no additional cultural resources investigation is recommended prior to the proposed Yard L expansion project.

Despite our best efforts, no archeological investigation method can guarantee discovery of all sites or cultural resource materials. If any human remains or previously unrecorded archeological artifacts or features are encountered within the project area, the Bureau of Historic Preservation, State Historical Society of Iowa should be contacted immediately.

In such an instance, it is the responsibility of the developer to protect cultural resources from disturbance until a professional examination can be made or until clearance to proceed is authorized by the State Historic Preservation Office or a designated representative.

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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TABLES

Table 1. Soil survey data (Brown 1983; NRCS 2014).

Symbol and Soil Name	Project Area %	Typical Horizons	Geomorphic Context	Drainage Class	Parent Material	Native Vegetation
133B Colo silty clay loam, 2–5% slopes	2.7	Ap, A1–3, BA, Bg, BCg, Cg	Upland drainageways	Poor	Silty alluvium	Tall grass prairie
279 Taintor silty clay loam, 0–2% slopes	48	Ap, A1–2, Btg1–4, Cg	Interfluvial summits	Poor	Loess	Water tolerant tall grass prairie
280 Mahaska silty clay loam, 0–2% slopes	43.2	Ap, A1–2, BA, Bt, Btg1–3, BCg	Interfluvial summits	Somewhat poor	Loess	Tall grass prairie
570B Nira silty clay loam, 2–5% slopes	5.9	Ap, A, Bt1–2, Bg1–2, BCg, Cg1–2	Interfluvial summits and shoulders	Moderately well	Loess	Tall grass prairie
571B Hedrick silt loam, 2–5% slopes	.2	Ap, Bt1–2, Btg1–2, BCg, Cg	Interfluvial summits	Moderately well	Loess	Tall grass prairie and deciduous trees
4000 Urban land	.1	N/A	N/A	N/A	N/A	N/A

Table 2. Previously recorded cultural resources within 1.6 km (1 mi) of the Phase I survey area.

Property #	Resource Description	SHPO NRHP Opinion	Reference
13DM385	prehistoric lithic scatter and historic farmstead	not eligible	Overstreet et al. 2000; Winham et al. 1991
13DM386	historic farmstead	not eligible	Winham et al. 1991
13DM479	historic artifact scatter	not eligible	Winham et al. 1991
13DM598	historic artifact scatter	not eligible	Winham et al. 1991
13DM599	historic farmstead	not eligible	Bond and Stanley 2011; Gooder and Blikre 2011; Winham et al. 1991
13DM600 [§]	historic artifact scatter	not evaluated	Winham et al. 1991
13DM601 [*]	historic farmstead	not evaluated	Winham et al. 1991
13DM602 [*]	prehistoric lithic scatter	not eligible	Bienenfeld 2001; Winham et al. 1991
13DM603 [*]	possible Early Woodland habitation	not eligible	Bienenfeld 2001; Gooder and Blikre 2011; Winham et al. 1991
13DM604 [*]	historic farmstead	not evaluated	Winham et al. 1991
13DM605	historic artifact scatter	not evaluated	Winham et al. 1991
13DM608	historic farmstead	not evaluated	Winham et al. 1991
13DM609	historic artifact scatter	not evaluated	Winham et al. 1991
13DM622	prehistoric lithic scatter and historic artifact scatter	not evaluated	Winham et al. 1991
13DM691	prehistoric habitation and resource procurement and historic artifact scatter	not eligible	Blikre et al. 1999; Ramirez 1999; Stanley 1994
13DM694	prehistoric habitation and resource procurement	not eligible	Ramirez 1999; Stanley 1994
13DM695	prehistoric habitation	not eligible	Ramirez 1999; Stanley 1994
13DM700	prehistoric habitation and resource procurement and historic artifact scatter	not eligible	Stanley 1994
13DM940 [§]	prehistoric lithic workshop	not eligible	Ramirez 1999
13DM941	prehistoric lithic workshop	not eligible	Ramirez 1999
13DM942 [§]	prehistoric lithic workshop	not eligible	Ramirez 1999
13DM943	prehistoric lithic workshop	not eligible	Ramirez 1999
13DM944 [§]	prehistoric lithic workshop and resource procurement	not eligible	Ramirez 1999
13DM961	prehistoric lithic workshop and resource procurement	not eligible	Ramirez 1999
13DM962	prehistoric lithic workshop and resource procurement	not eligible	Ramirez 1999

^{*}Previously recorded cultural resources property within the Phase I survey area.

[§]Previously recorded cultural resources property within the Architectural Reconnaissance survey area.

Table 2. Previously recorded cultural resources within 1.6 km (1 mi) of the Phase I survey area, continued.

Property #	Resource Description	SHPO NRHP Opinion	Reference
13DM963	prehistoric lithic workshop and resource procurement	not eligible	Ramirez 1999
13DM964	prehistoric lithic workshop and resource procurement	not eligible	Ramirez 1999
13DM965	prehistoric lithic workshop and resource procurement	not eligible	Ramirez 1999
13DM1034	Late Prehistoric resource procurement	not eligible	Sellars and Ambrosino 2002
13DM1035	prehistoric resource procurement	not eligible	Sellars and Ambrosino 2002
13DM1037	prehistoric resource procurement	not eligible	Sellars and Ambrosino 2002
13DM1320	historic dump	not eligible	Gooder and Blikre 2011
13DM1321 [§]	prehistoric habitation and historic dump	not eligible	Gooder and Blikre 2011
13DM1322 [*]	prehistoric habitation	not eligible	Gooder and Blikre 2011
13DM1323	prehistoric isolated find	not eligible	Gooder and Blikre 2011
IF 79	brick and crushed rock	not evaluated	Winham et al. 1991
IF 81	historic brick	not evaluated	Winham et al. 1991
IF 84	concrete fragments	not evaluated	Winham et al. 1991
IF 90	brick	not evaluated	Winham et al. 1991
IF 360	core	not evaluated	Winham et al. 1991
IF 361	crushed rock within 13DM598	not eligible	Winham et al. 1991
IF 365 [§]	building rubble	not evaluated	Winham et al. 1991
IF 366 [§]	concrete foundation pads	not evaluated	Winham et al. 1991
IF 367 [*]	core and flake within 13DM1322	not eligible	Gooder and Blikre 2011; Winham et al. 1991
IF 368 [*]	flake within 13DM603	not eligible	Winham et al. 1991
IF 369 [*]	cement fragments and railroad ties within 13DM603	not eligible	Winham et al. 1991
IF 370 [§]	building rubble	not evaluated	Winham et al. 1991
IF 371 [§]	mano	not evaluated	Winham et al. 1991
IF 373 [*]	retouched flake	not evaluated	Winham et al. 1991
IF 374 [§]	flake	not evaluated	Winham et al. 1991
IF 375 [*]	area of gravel	not evaluated	Winham et al. 1991
IF 376 [§]	cement fragments	not evaluated	Winham et al. 1991
IF 377 [§]	chert fragment	not evaluated	Winham et al. 1991
IF 378 [§]	whiteware fragment	not evaluated	Winham et al. 1991
IF 379 [§]	cement footings	not evaluated	Winham et al. 1991
IF 380 [§]	cement footings	not evaluated	Winham et al. 1991
IF 381 [§]	limestone rock	not evaluated	Winham et al. 1991
IF 382	cement footings	not evaluated	Winham et al. 1991

^{*}Previously recorded cultural resources property within the Phase I survey area.

[§]Previously recorded cultural resources property within the Architectural Reconnaissance survey area.

Table 2. Previously recorded cultural resources within 1.6 km (1 mi) of the Phase I survey area, continued.

Property #	Resource Description	SHPO NRHP Opinion	Reference
IF 383*	flake	not evaluated	Winham et al. 1991
29-01706	F. and A. Cross house	not eligible	I-Sites Public Website
29-03120	Middletown Cemetery	not eligible	I-Sites Public Website
29-03123	Ward house	not evaluated	I-Sites Public Website
29-03124	Numann house	not eligible	I-Sites Public Website
29-03125	Wahl house	not eligible	I-Sites Public Website
29-03126	Luttenegger house	not eligible	I-Sites Public Website
29-03127	Ziegler house	not eligible	I-Sites Public Website
29-03156	Queen Anne house	eligible	I-Sites Public Website
29-03157	Fogel house	not eligible	I-Sites Public Website
29-03173	farmstead	not eligible	I-Sites Public Website
29-03370	house	not eligible	Conard and Nash 1994
29-03371	house	not eligible	Conard and Nash 1994
29-03372	house	not eligible	Conard and Nash 1994
29-03373 [§]	IAM and AW Local Lodge #1010	not eligible	Conard and Nash 1994
29-03374 [§]	Heincy house	not eligible	Conard and Nash 1994
29-03375 [§]	Wilkerson house	not eligible	Conard and Nash 1994
29-03376 [§]	house	not eligible	Conard and Nash 1994
29-03377 [§]	Johnson house	not eligible	Conard and Nash 1994
29-03378 [§]	house	not eligible	Conard and Nash 1994
29-03379 [§]	house	not eligible	Conard and Nash 1994
29-03380	Casey's General Store	not eligible	Conard and Nash 1994
29-03450	Kum and Go	not eligible	Conard and Nash 1994
29-03451	Cross house	not eligible	Conard and Nash 1994
29-03452	Quayle Garage	eligible	Conard and Nash 1994
29-03460 [§]	Horn house	not eligible	Conard and Nash 1994
29-03461 [§]	Siefken house	not eligible	Conard and Nash 1994
29-03462 [§]	Centre State International Trucks, Inc.	not eligible	Conard and Nash 1994
29-03463 [§]	IAAP car barn, within Heavy Equipment Shops (29-03768)	eligible as part of an IAAP district	Conard and Nash 1994
29-03464	IAAP Gate 3	eligible as part of an IAAP district	Conard and Nash 1994
29-03465	IAAP warehouses	eligible as part of an IAAP district	Conard and Nash 1994
29-03466	IAAP Central Stores parking lot	eligible as part of an IAAP district	Conard and Nash 1994
29-03467	IAAP Administration Building	eligible as part of an IAAP district	Conard and Nash 1994
29-03468	Elsm Mobile Home Court	not eligible	Conard and Nash 1994

*Previously recorded cultural resources property within the Phase I survey area.

[§]Previously recorded cultural resources property within the Architectural Reconnaissance survey area.

I-Sites Public Website: <http://ags.gis.iastate.edu/IsitesPublicAccess/>

Table 2. Previously recorded cultural resources within 1.6 km (1 mi) of the Phase I survey area.

Property #	Resource Description	SHPO NRHP Opinion	Reference
29-03469	Texaco Service Station and Coach House Restaurant	not eligible	Conard and Nash 1994
29-03472	McMaken-McIntire farmstead	eligible	Conard and Nash 1994
29-03488	IAAP Dayman Crossing	eligible as part of an IAAP district	Conard and Nash 1994
29-03513	residence	not eligible	I-Sites Public Website
29-03516	Boundary Road subdivision	not eligible	I-Sites Public Website
29-03519	house	eligible	I-Sites Public Website
29-03724	Leuins Point Cemetery	not evaluated	I-Sites Public Website

I-Sites Public Website: <http://ags.gis.iastate.edu/IsitesPublicAccess/>

Table 3. Artifacts collected from 13DM601.

Provenience	Artifact	Count	Weight
ST A7, 14–20 cm	stoneware body sherd, unglazed	1	2 g
ST A8, 0–10 cm	machine cut nails, construction size, corroded, some may be wire nails	4	7.3 g
ST A8, 0–10 cm	wire nail, construction size, corroded	1	4.4 g
ST A8, 10–20 cm	stoneware body sherd, dark brown slip on interior and exterior	1	23.0 g
ST A8, 10–20 cm	clear glass vessel fragment, possible drinking glass	1	1 g
ST A8, 10–20 cm	clear glass vessel fragment, partially melted, bottle glass	1	3.9 g
ST A8, 10–20 cm	machine cut nails, construction size, corroded, some may be wire nails	6	21.2 g
ST A8, 10–20 cm	wire nails, construction size, corroded	2	8.3 g
ST A8, 10–20 cm	fence staple	1	5.8 g
ST A8, 20–30 cm	stoneware drain pipe collar joint fragments, dark brown slip on interior and exterior, 9 inch interior diameter, 10.5 inch exterior diameter	4	533.1 g
ST A8, 20–30 cm	whiteware base sherd	1	.7 g
ST A8, 20–30 cm	translucent white glass vessel fragments, decorative vase or bowl	4	18.8 g
ST A8, 20–30 cm	machine cut nails, construction size, corroded	2	7.9 g
ST A8, 30–40	mussel shell shirt button, four hole, 11 mm diameter	1	.1 g
ST A12, 10–20 cm	machine cut nails, construction size, corroded, one may be a wire nail	2	6.4 g
ST A12, 10–20 cm	wire nail, 1.3 inches long	1	1.2 g
ST A13, 0–15 cm	machine cut spike. 3.6 inches long	1	13.7 g
ST A13, 0–15 cm	stove waste, frothy slag	1	4.7 g

Table 4. Artifacts collected from 13DM604.

Provenience	Artifact	Count	Weight
ST A1, 10–30 cm	whiteware rim sherd	1	4 g
ST A1, 10–30 cm	flow blue body sherd	1	.6 g
ST A2, 10–20 cm	machine cut nails, rusted, construction size	3	8.1 g
ST A3, 0–20 cm	stoneware body sherd, white glaze on interior and exterior	1	3.2 g
ST A3, 0–20 cm	stoneware base sherd, orange slip on interior	1	3.1 g
ST A4, 10–20 cm	stoneware body sherd, dark brown slip on interior and exterior	1	5.8 g
ST A4, 10–20 cm	corroded metal fragment	1	4.8 g
ST A4, 20–30 cm	whiteware body sherd	1	1.2 g
ST A4, 20–30 cm	cast iron fragment, corroded	1	21.2 g
ST A5, 0–10 cm	clear flat glass fragment, 2.55 mm thick	1	.5 g
ST A6, 0–30 cm	porcelain body sherd	1	3.6 g
ST A6, 0–30 cm	stoneware body sherd, dark brown slip interior	1	5.4 g
ST A7, 0–29 cm	pale blue glass vessel base fragment, likely modern	1	2.4 g
ST A8, 0–30 cm	whiteware body sherd, burned	1	.3 g
ST B2, 0–25 cm	structural terra cotta block fragment	1	309.3 g
ST B4, 10–20 cm	machine cut spike	1	41.1 g
ST B4, 10–20 cm	furnace waste, glassy slag	1	2.2 g
ST B6, 20–30 cm	steel stake	1	500.8 g
ST B10, 10–30 cm	corroded steel fragment, possibly pointed end of stake	1	17.8 g
ST B10, 10–30 cm	furnace waste, metallic slag	1	185.4

FIGURES

Information regarding the location, character, or ownership of historic resources withheld pursuant to National Historic Preservation Act, Section 304, and Advisory Council on Historic Preservation regulations at 10 CFR 800.11(c).

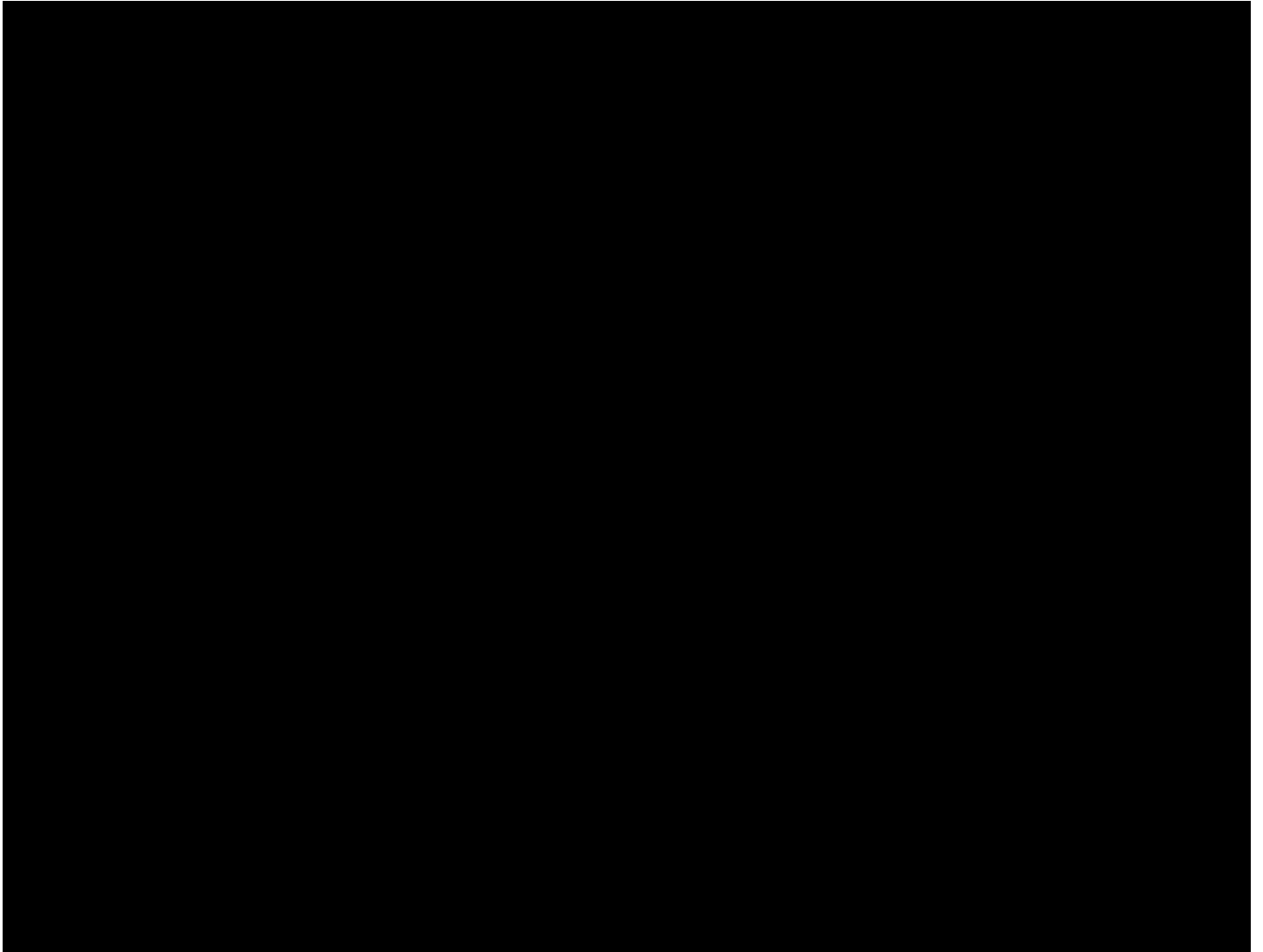


Figure 1. Physiographic location of the project areas (adapted from Prior [1991:31]).

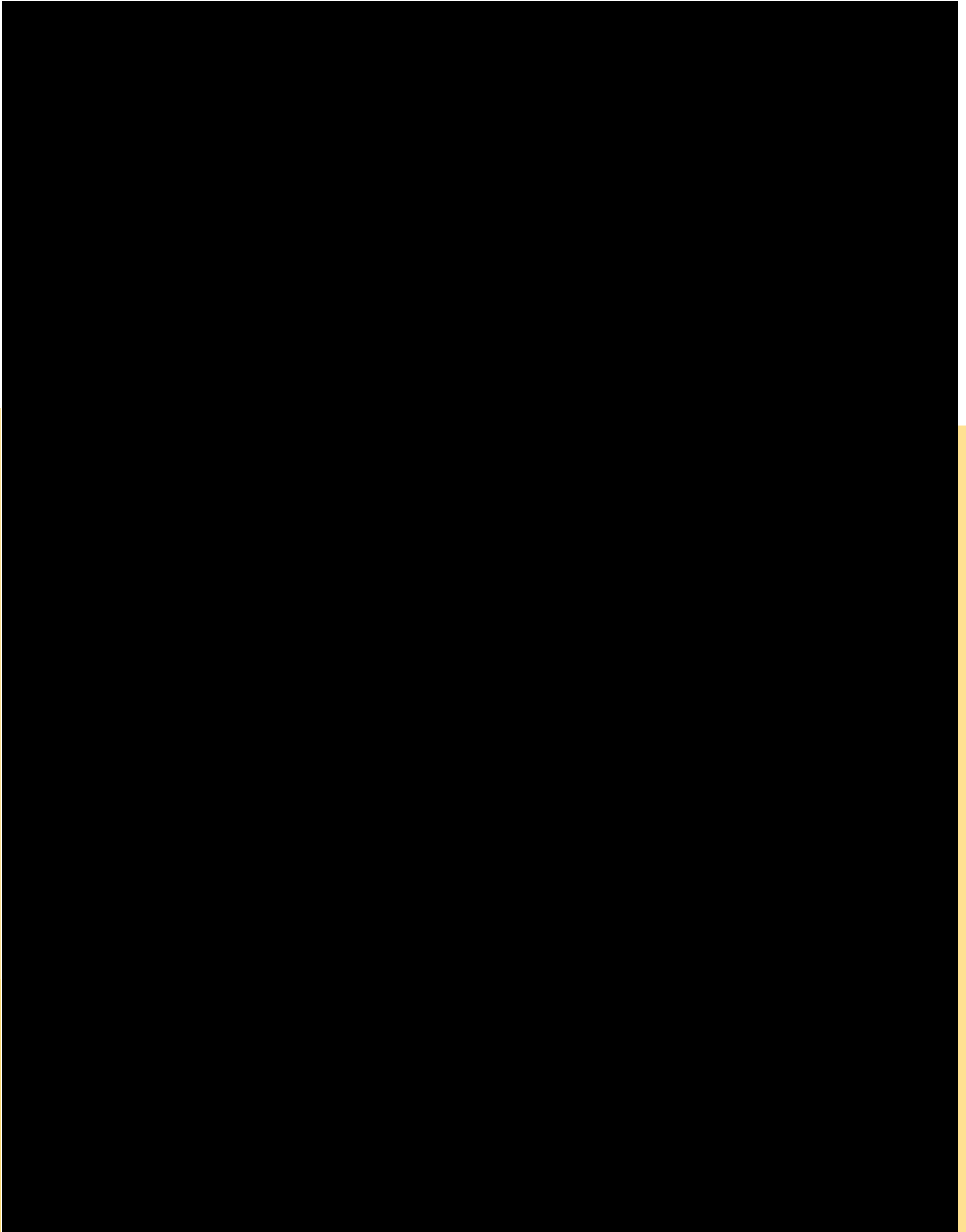


Figure 2. Topographic coverage of the project areas.

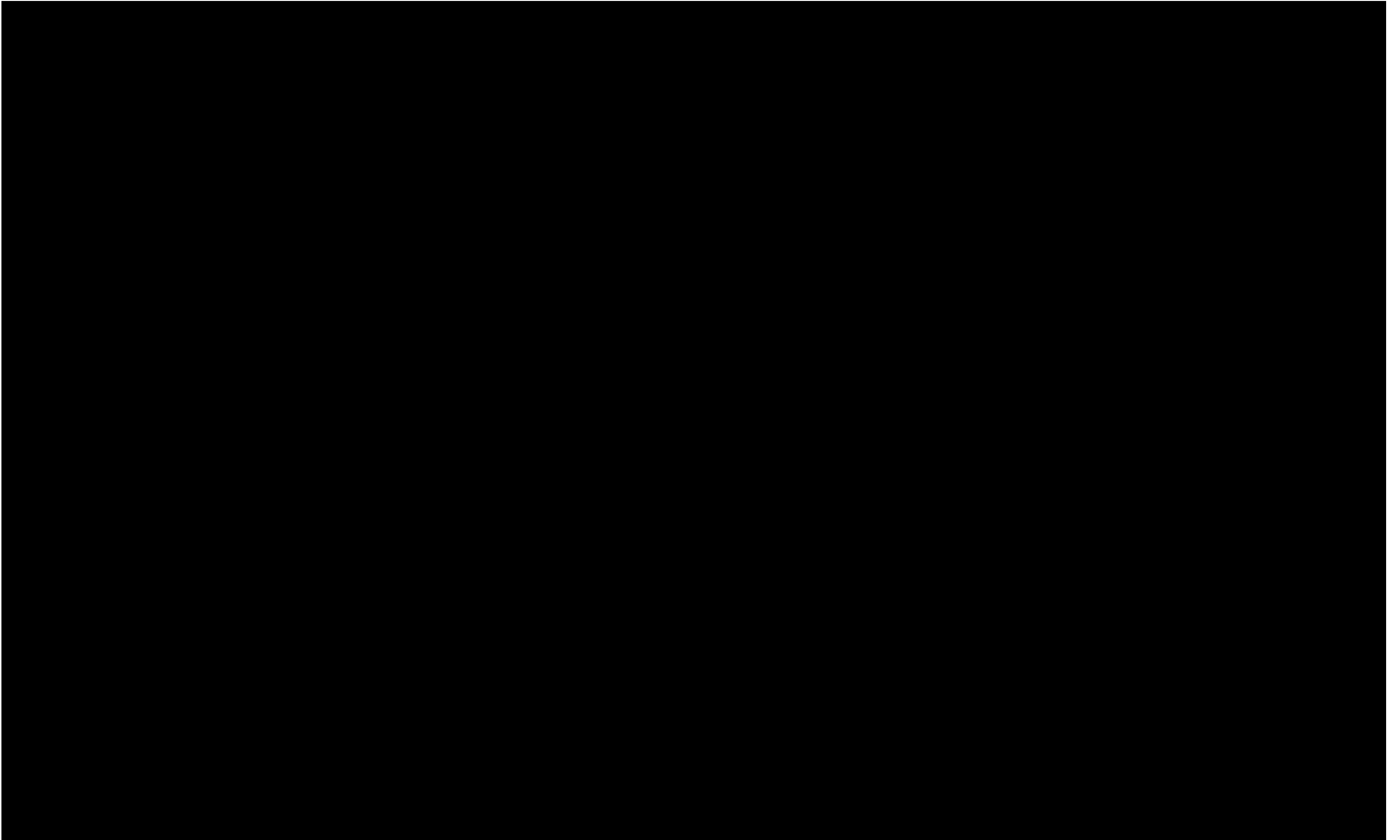


Figure 3. Scale map of the project areas.



Figure 4. Photograph of the northern portion of the Phase I survey area. View to the southwest (3/18/15).



Figure 5. Photograph of the southern portion of the Phase I survey area. View to the northwest (3/17/15).

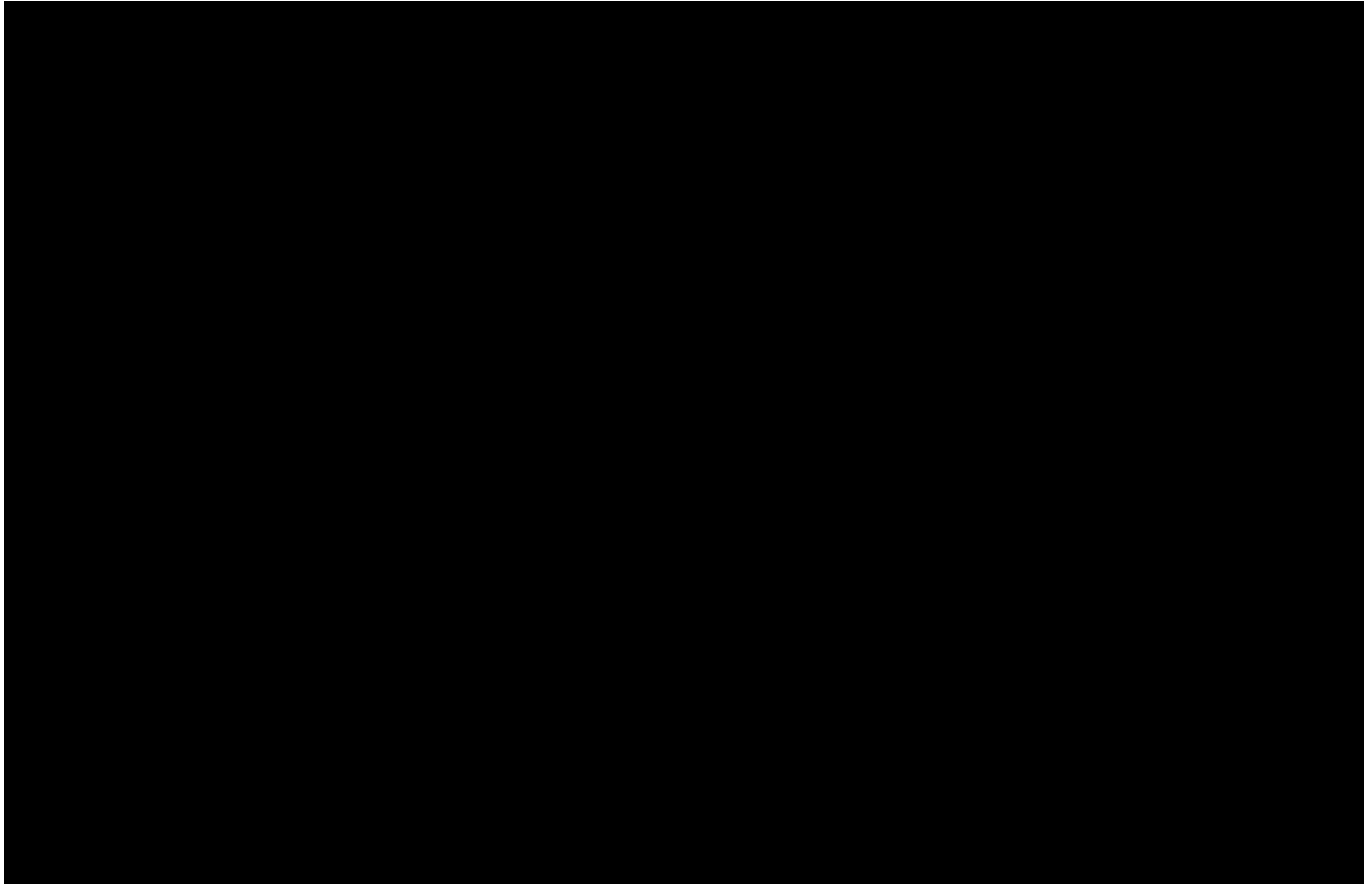


Figure 6. Soil map of the Phase I survey area (NRCS 2014).

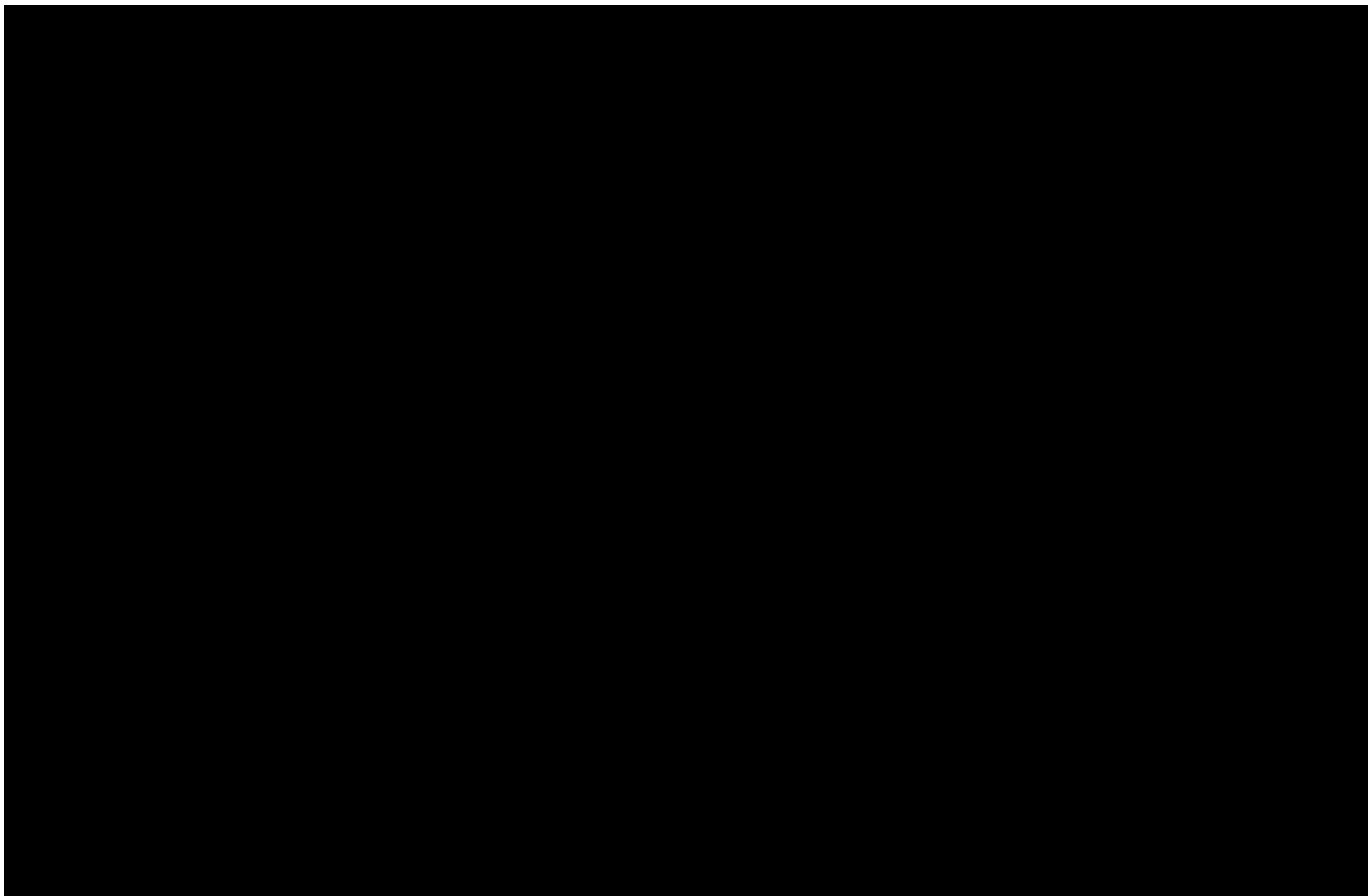


Figure 7. 1838 map of the project areas (GLO).

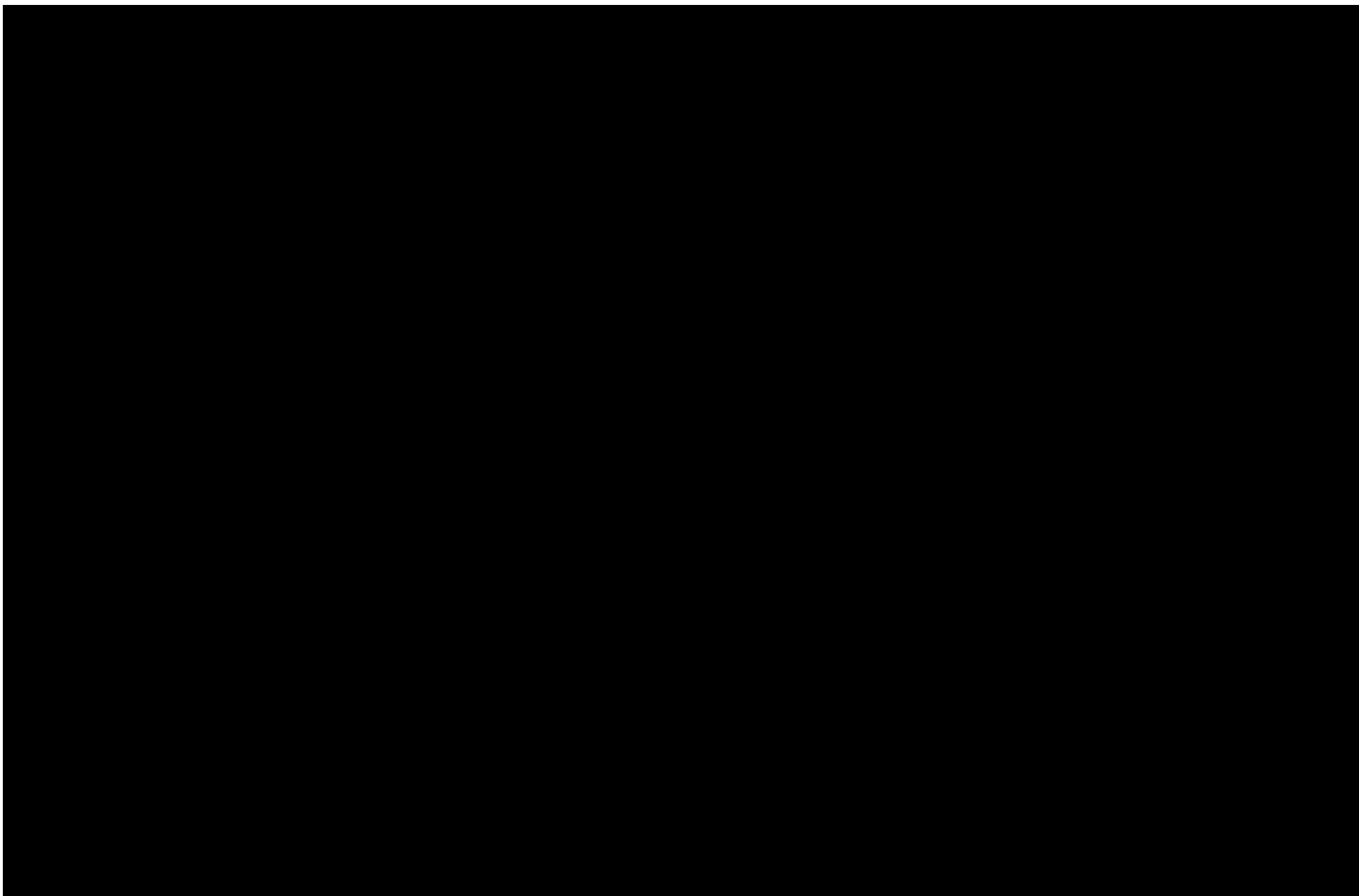


Figure 8. 1873 map of the project areas (Andreas).

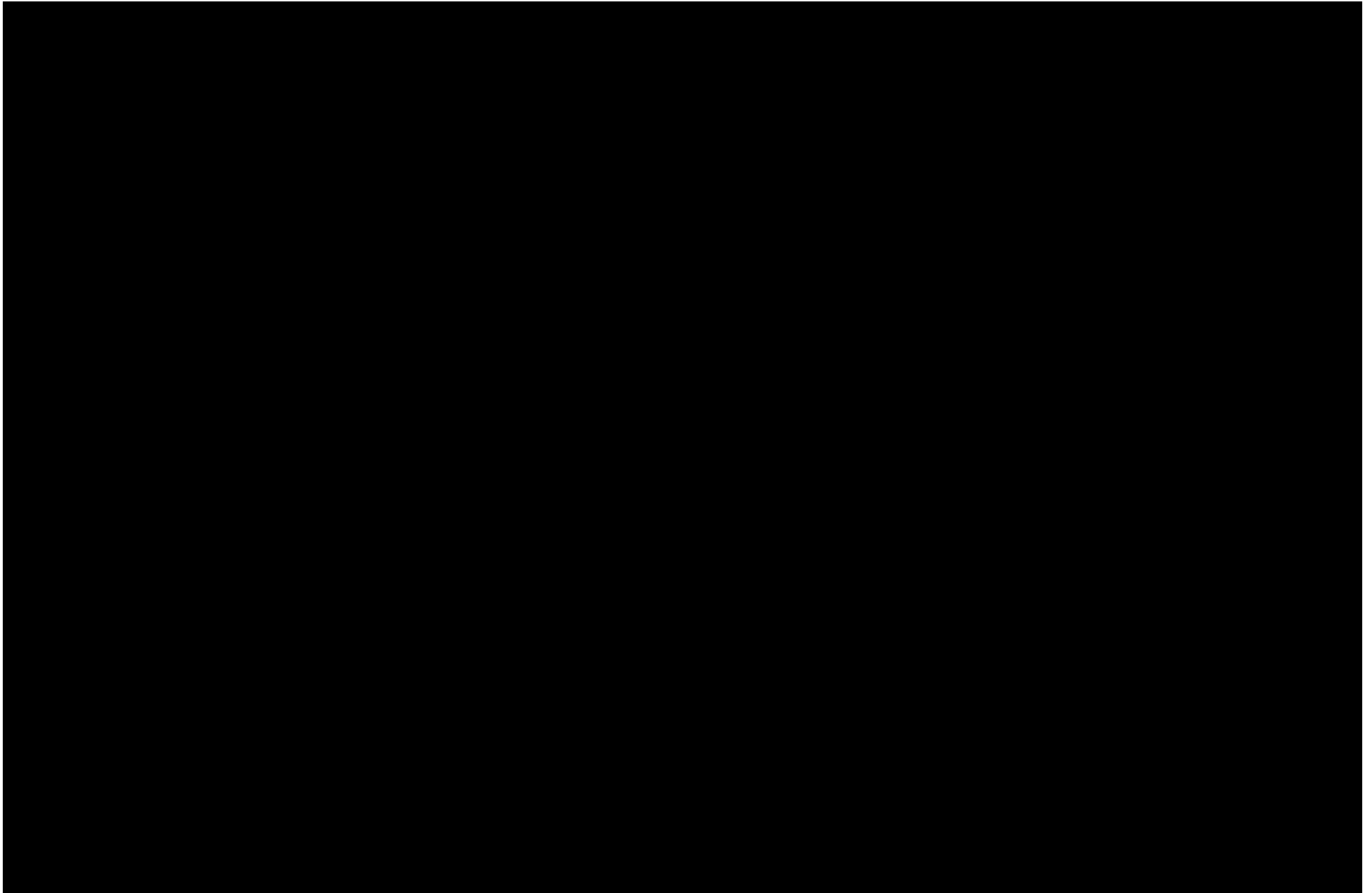


Figure 9. 1897 map of the project areas (North West Publishing Company).



Figure 10. 1937 aerial photograph of the project areas.



Figure 11. Photograph of 13DM601. View to the west (3/18/15).

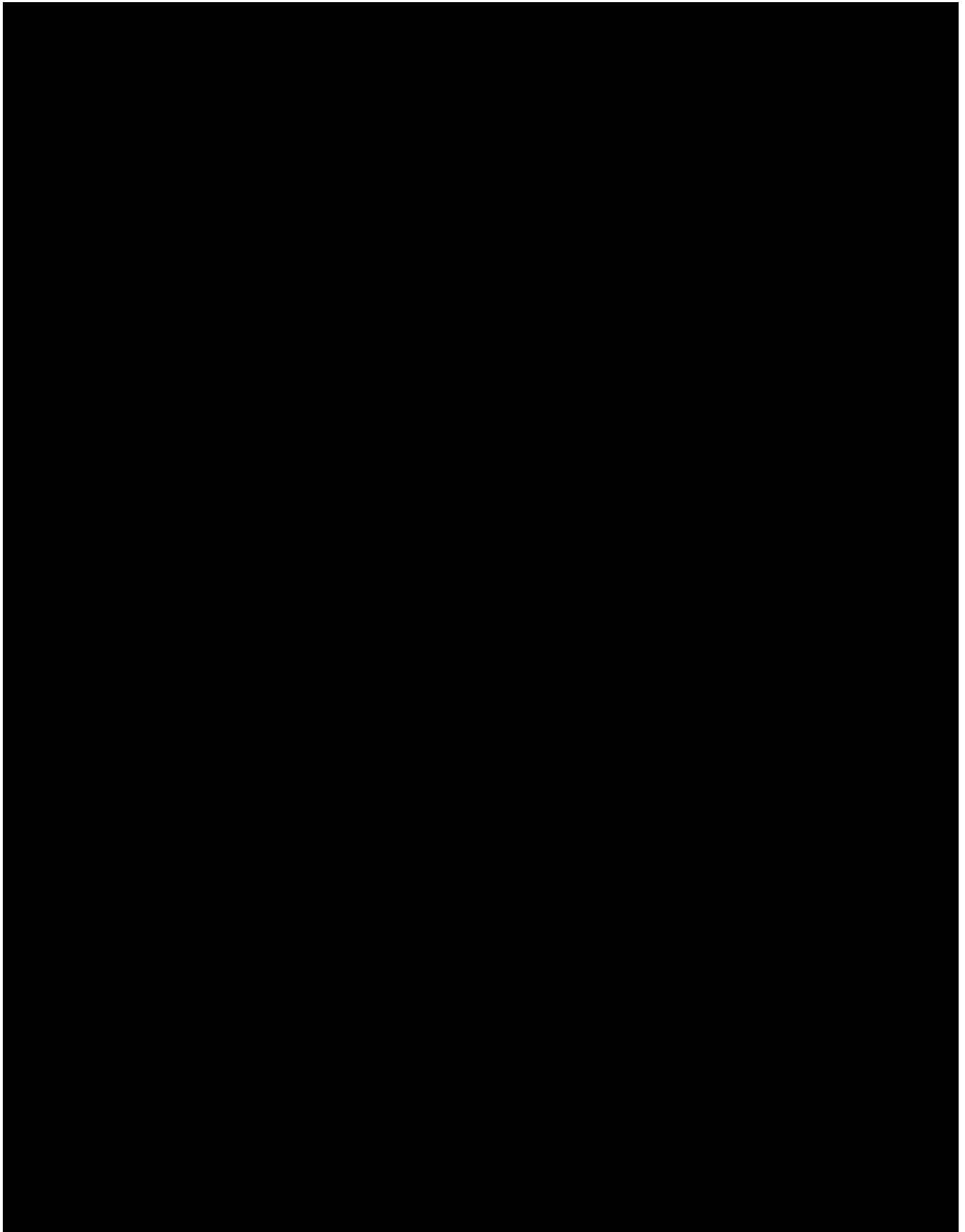


Figure 12. Scale map of 13DM601.

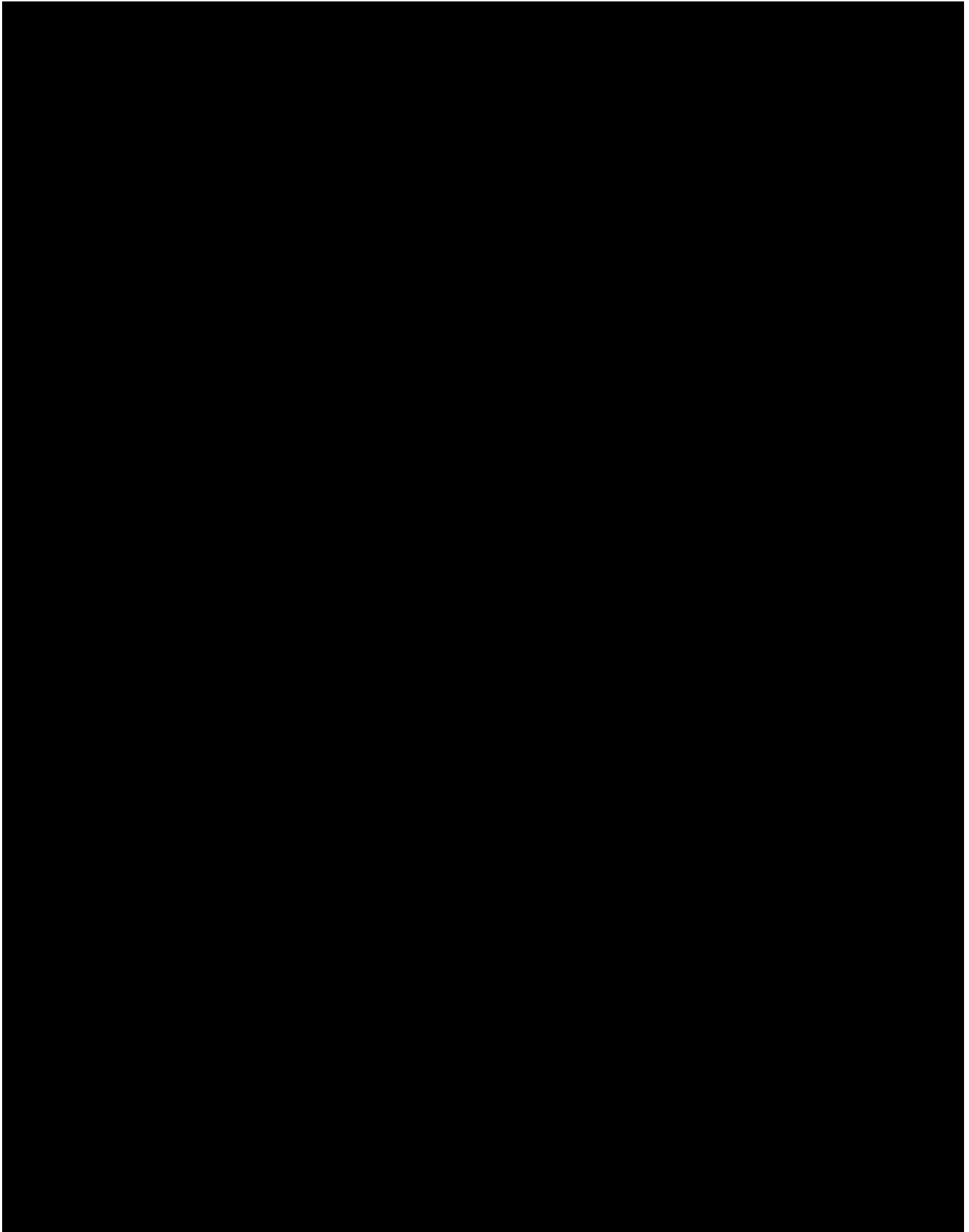


Figure 13. 1937 aerial photograph of 13DM601.



Figure 14. Photograph of 13DM604. View to the northwest (3/18/15).



Figure 15. Photograph of rubble pile in field at 13DM604. View to the west (3/18/15).



Figure 16. Photograph of rubble pile on east edge of field at 13DM604. View to the north (3/18/15).

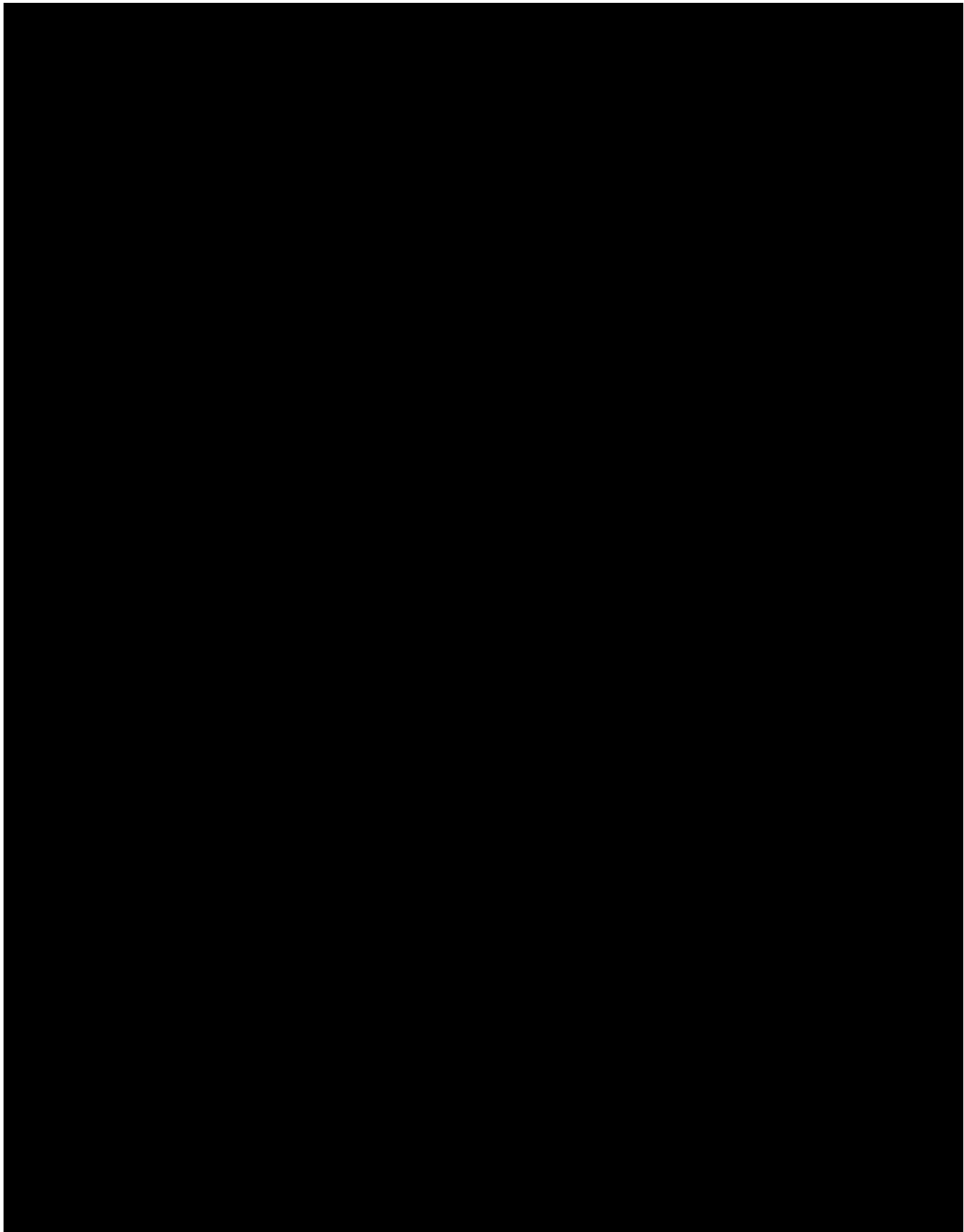


Figure 17. Scale map of 13DM604.

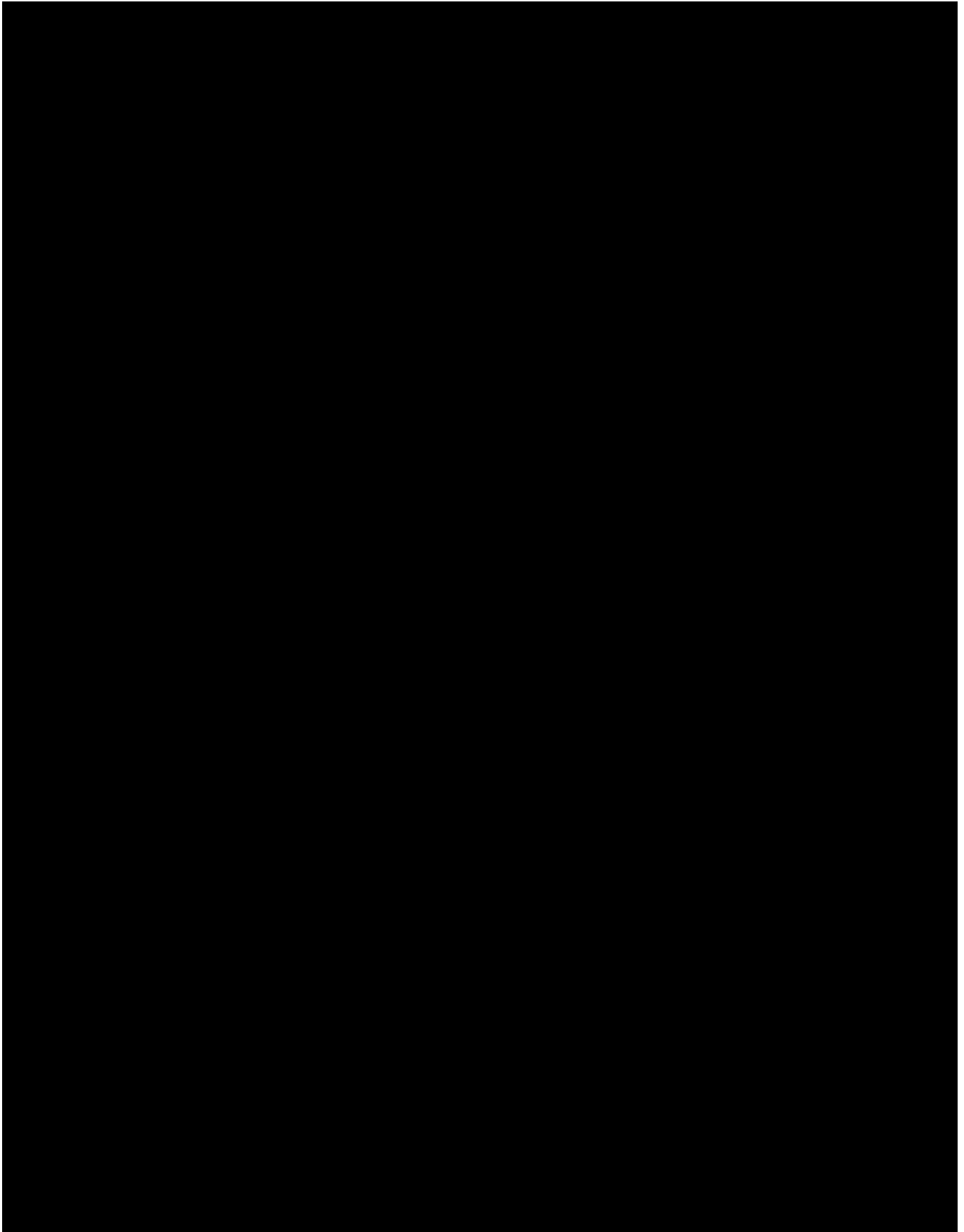


Figure 18. 1937 aerial photograph of 13DM604.



Figure 19. Photograph of 13DM1322. View to the west (3/19/15).

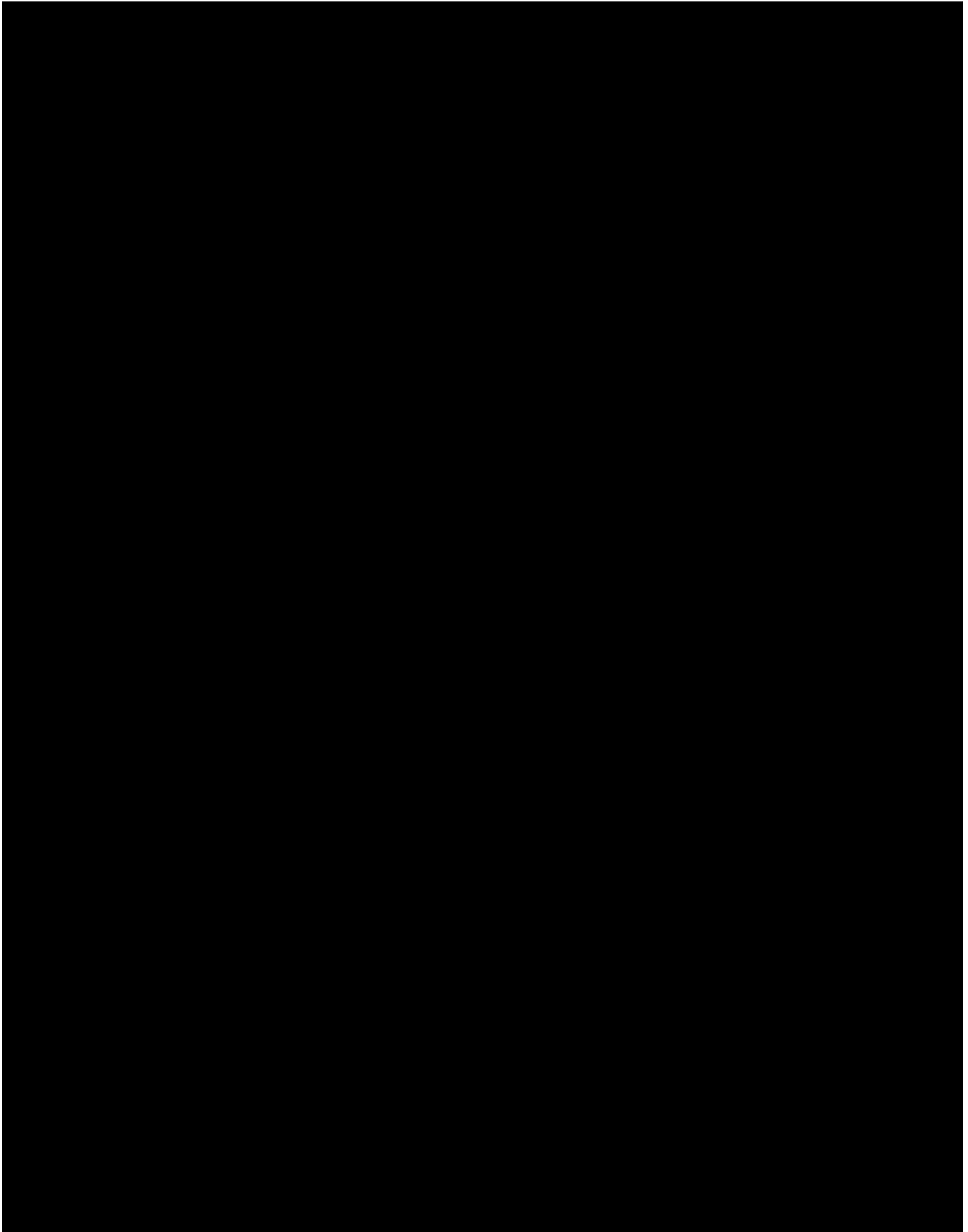


Figure 20. Scale map of 13DM1322.



Figure 21. Oblique aerial photograph of the IAAAP heavy equipment shops (29-03768) with the car barn (29-03463) on the left. View to the east (4/4/13), photo by the Des Moines County GIS Commission (<http://www.dmcgis.com/>).



Figure 22. Oblique aerial photograph of the IAAAP heavy equipment shops (29-03768) with the car barn (29-03463) in front. View to the south (3/11/12), photo by the Des Moines County GIS Commission (<http://www.dmcgis.com/>).



Figure 23. Photograph of the car barn (29-03463) in the northern portion of the IAAAP heavy equipment shops (29-03768). View to the southeast (3/17/15).



Figure 24. Photograph of Quonset huts in the IAAAP heavy equipment shops property (29-03768). View to the south-southeast (3/17/15).

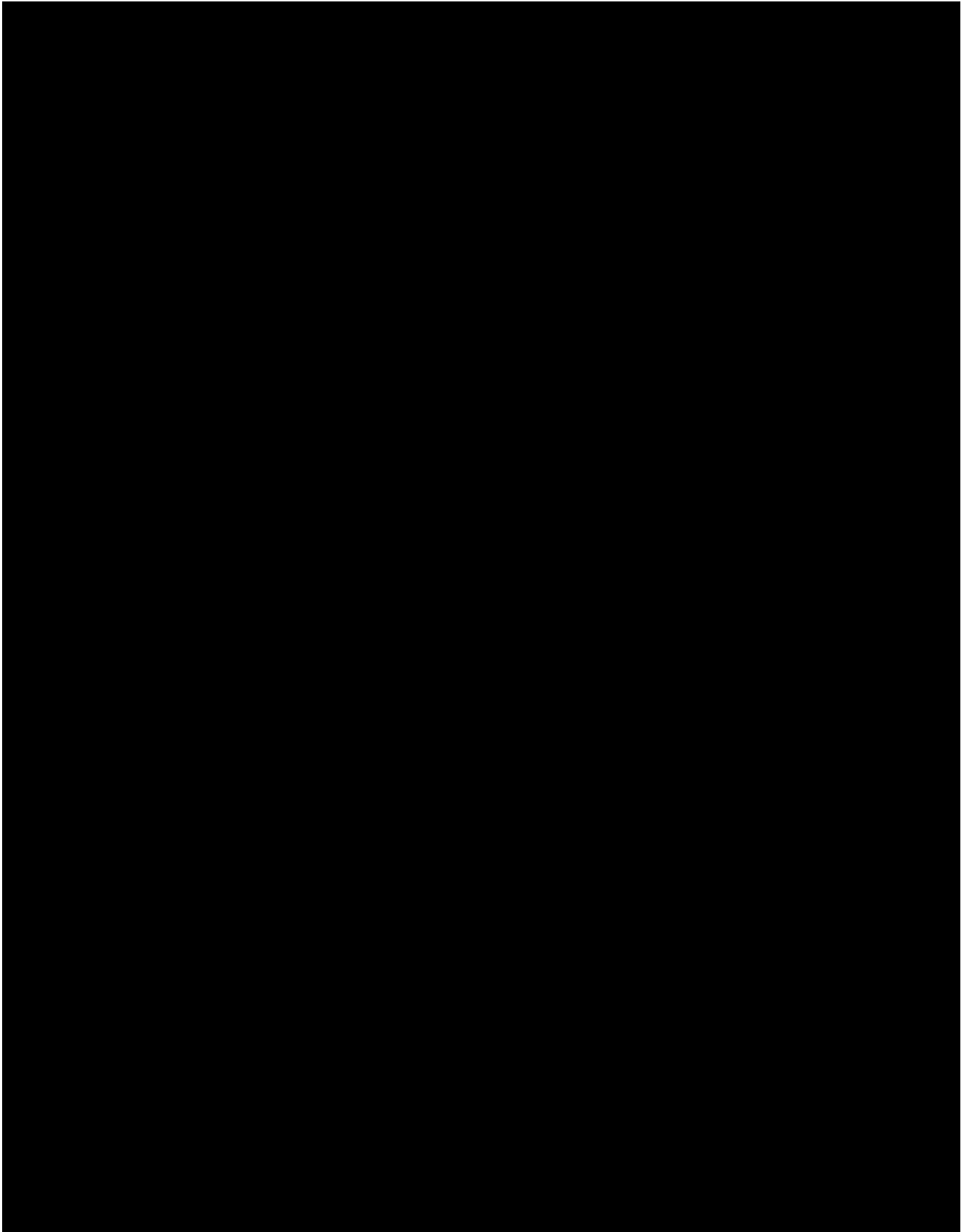


Figure 25. Modern aerial photograph of the IAAAP heavy equipment shops (29-03768) and car barn (29-03463).



Figure 26. Oblique aerial photograph of the IAAAP Yard L (29-03769). View to the south (3/17/09), photo by the Des Moines County GIS Commission (<http://www.dmcgis.com/>).



Figure 27. Oblique aerial photograph of the IAAAP Yard L (29-03769). View to the west (3/10/12), photo by the Des Moines County GIS Commission (<http://www.dmcgis.com/>).



Figure 28. Photograph of Yard L (29-03769) showing railroad lines with orange train car on right. View to the northwest (3/17/15).



Figure 29. Photograph of Yard L (29-03769) showing warehouses and gravel roads. View to the north (3/17/15).



Figure 30. Photograph of the front of a warehouse in Yard L (29-03769) with loading dock. View to the north (3/17/15).



Figure 31. Photograph of the back of a warehouse in Yard L (29-03769). View to the southwest (3/18/15).



Figure 32. Photograph of the side of two warehouses in Yard L (29-03769). View to the northeast (3/17/15).

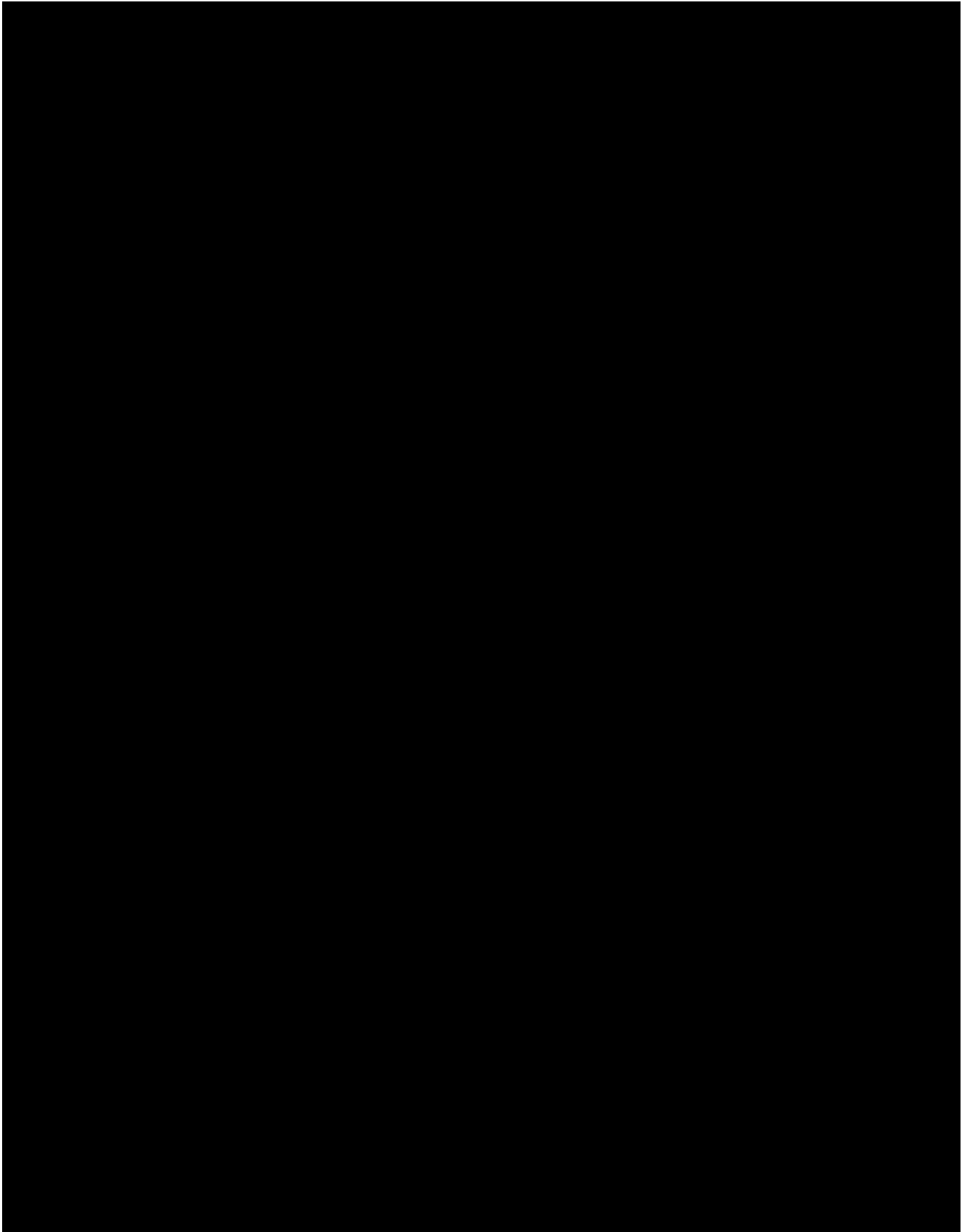


Figure 33. Modern aerial photograph of the IAAAP Yard L (29-03769).

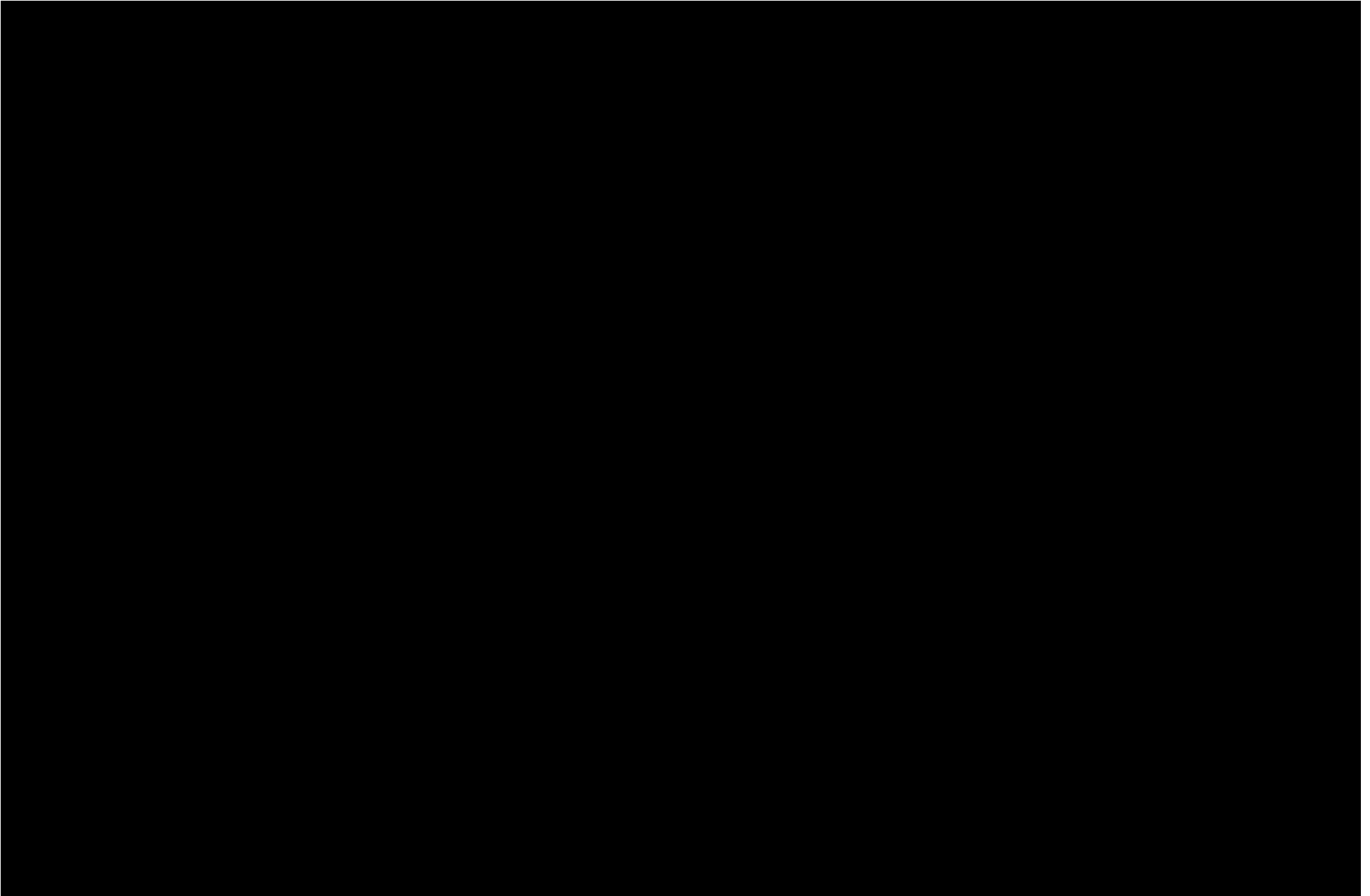


Figure 34. Oblique aerial photograph of the IAAAP Line 1 (29-03770). View to the south (3/17/09), photo by the Des Moines County GIS Commission (<http://www.dmcgis.com/>).