SIUE FIELD SCHOOL INVESTIGATIONS

IN THE LOCALE OF THE D. HITCHINS SITE (11MS1124**)**

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ABSTRACT

The Anthropology Department of Southern Illinois University Edwardsville conducted an archaeological field school in Hamel Township, Madison County, Illinois, between May 15 and July 3, 2006. Field school investigations included surface survey over approximately 30 acres of agricultural fields, an area which included previously recorded sites 11MS1124, 11MS1125, 11MS1126, and 11MS1127; shovel testing at 11MS1125; and excavation at 11MS1124, the D. Hitchins site. Excavations focused on the D. Hitchins Site (11MS1124) because it was predicted that Mississippian features would be encountered there. Artifacts recovered from the plowzone during excavation at 11MS1124 date from the Early Archaic through Mississippian periods. In the northernmost excavation unit, two shallow pit features appear to date to the early Late Woodland period. A concentration of fire cracked rock was recovered from an excavation unit farther south. In the southernmost excavation unit, a small circular post structure and four pit features were encountered. Three of these four pits were excavated, two of which were found to contain ceramics dating to the early Mississippian period. Their proximity to the structure suggests that it and the adjacent pits also date to the Mississippian period. The three excavated pit features contained maize, seeds of native cultigens, and nutshell. These features are believed to represent a small Mississippian camp used primarily to shelter people engaged in agricultural tasks during the early Lohmann phase. Other activities undertaken by Mississippian occupants included hunting, nut gathering, and possibly games and/or rituals.

ACKNOWLEDGMENTS

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INTRODUCTION

The Anthropology Department of Southern Illinois University Edwardsville (SIUE) conducted an archaeological field school on the property of Henry and Julie Holt in rural Hamel Township in Madison County, Illinois, between May 15 and July 3, 2006. Field school investigations included surface survey over approximately 30 acres of agricultural fields, an area which included previously recorded sites 11MS1124, 11MS1125, 11MS1126, and 11MS1127; shovel testing at 11MS1125; and excavation at 11MS1124, also known as the D. Hitchins site (Woods and Holley 1991). Julie Holt acted as field director and instructor of record. Nine full-time students (Lori Belknap, Linda Coats, Gregory Guntren, Lacy Heflin, Brian Kumpf, Sarah Linhart, Erin Marks, Kye Miller, and Patrick Sullivan) and three part-time students (Nicholas Jahlbert, Valerie Starr, and Miranda Yancey) enrolled in the course and acted as field crew.

The primary goal of the SIUE archaeology field school is to teach students standard archaeological field methods. In addition, the field school offers research opportunities to SIUE faculty and also students, who are encouraged to do original research for their senior projects. Perhaps most important, the field school provides a means for recording endangered archaeological sites, which are rapidly disappearing due to development in Madison County. In the case of the area investigated by the 2006 field school, there is little danger of development since the current landowners are committed to preserving the site. In fact, the project area was taken out of cultivation following the SIUE investigations, and efforts are underway to restore native habitat under the Conservation Reserve Program. With this restoration project in mind, the field school provided the opportunity to document the archaeological resources of the project area while it was still cleared for agriculture and before it became hidden underneath prairie grasses.

The field school achieved all of these goals. All students completed the course successfully and received experience in all phases of archaeological fieldwork. In terms of research, we were particularly interested in Mississippian use of 11MS1124, the D. Hitchins site, which is why we conducted excavations in this area. The data recovered provide significant new information about the Mississippian occupation at the D. Hitchins site, and also information about early Late Woodland utilization of the uplands of northern Madison County. As of this writing, two senior projects (Marks 2007; Guntren 2008) and one master's thesis (Yancey 2007) have been completed that utilize data recovered during the field school investigations.

This report summarizes results of the SIUE field school undertaken on the Holt property in the summer of 2006. Surface surveys yielded mostly debitage and FCR, but artifact distributions led us to redefine the boundaries of several sites and record a new site. Shovel testing at 11MS1125 indicated a low-density lithic scatter confined to the plowzone of a single ridge top. Excavations were conducted at 11MS1124, the D. Hitchins site, because it had the highest potential to contain intact Mississippian features. Artifacts recovered by the SIUE field school from 11MS1124, however, date from the Early Archaic through Mississippian periods. In the northernmost excavation block on 11MS1124, two shallow pit features appear to date to the early Late Woodland period. Farther south, an undated concentration of FCR was recovered from another excavation block. In the southernmost excavation block, a small circular post structure and four pit

features were encountered. The deepest pit and one shallow pit contained ceramics dating to the early Mississippian period. Based on their apparent association with these pits, the structure and the other pits are also assumed to date to the early Mississippian period.

This report will begin with a description of the site setting and a summary of previous investigations in the area. We will then detail our methods and results of all phases of research. Finally, our findings will be compared with data from the greater American Bottom. While the project area is deep in the uplands and outside of the American Bottom technically speaking, it is clear from our research that the people who used this area during virtually all periods of prehistory were engaged in the social arena of the greater American Bottom.

SETTING

The portion of the Holt property investigated lies in the east half of the northeast quarter of Section 6, Township 5 North, Range 7 West in Madison County, on a rolling terrace located above an old channel of Sherry Creek (Figure 1). Today this channel contains water only seasonally, since Sherry Creek was straightened and rerouted away from the terrace, apparently in the late 19th century. The 1815 GLO map shows Sherry Creek in this old, meandering channel, although it is unnamed on the map (Figure 2). Cahokia Creek is named and appears much larger than Sherry Creek on the 1815 map. The 1815 map also shows that the area investigated was in timber at that time, although the prairie's edge lies just northwest of the project area (less than 0.5 km away) and prairie was also located ca. 1 km southeast of the area, on the other side of Cahokia Creek. The 1873 plat map indicates that the project area was still wooded at that time. The land was sold in 1875 to Henry Gunkel, who apparently cleared the land for agriculture. The 1892 plat map indicates that Sherry Creek was straightened and rerouted by that time.

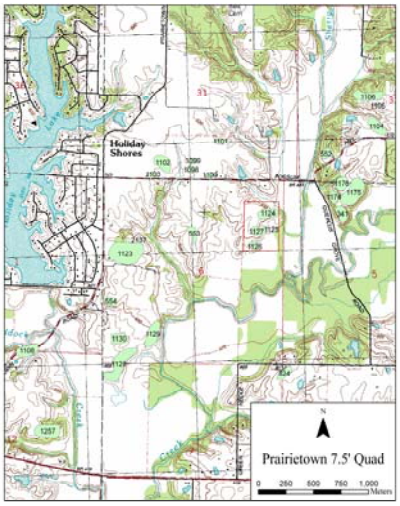

Figure 1. USGS map showing project area and previously recorded sites.

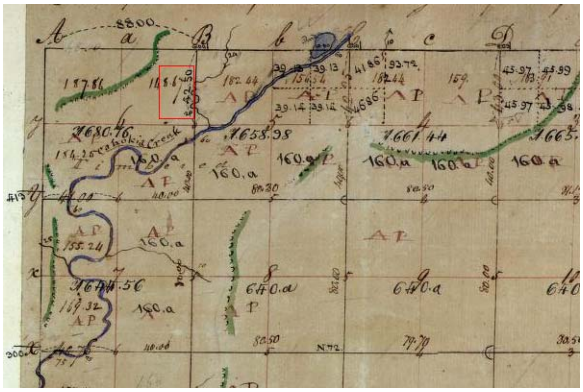

Figure 2. 1814 GLO map. Hamel township.

Prehistorically the creek channel below the project area would have been active, joining with Cahokia Creek immediately south of the area investigated. The creek would have provided both water and food (e.g. fish, frogs, and turtles). People living here would have had easy access to forest resources (e.g. venison, nuts, turkeys, and wood), edge resources (e.g. berries, bobwhite, and cottontail rabbit), and prairie resources (e.g. prairie chickens and prairie grasses). Although the project area is located well into the uplands, ca. 20 km north of the American Bottom, creeks like Cahokia Creek and Sherry Creek dissect the uplands and create floodplain environments within them. Thus, inhabitants of the project area had access to both upland and floodplain resources. Both upland and floodplain soils are suitable for cultivation, and the area was probably cultivated during later periods of prehistory, certainly during the Mississippian period. The D. Hitchins site, 11MS1124, is situated on Hickory and Homen silt loams, which are formed on till plains (Leeper 2004). Wakeland soils are found on the floodplain below the D. Hitchins site to the east. Woods (1986) argued that Wakeland soils were selected by Mississippian groups for agriculture based on a correlation between Wakeland soils and Mississippian sites in the upland Cahokia Creek drainage. The forests which occurred within upland drainages would have been easily cleared for agriculture using slash and burn techniques. Away from the forested creeks, prairie soils were less likely to be farmed prehistorically since breaking through dense prairie sods with stone hoes would have been comparatively more difficult.

The social setting of the site is less clear, since relatively little archaeological work has been done in the uplands north of Edwardsville. Woods' survey (1986) recorded over 100 sites in the upland Cahokia Creek drainage, but only 45 could be assigned to a time period and none were known to be excavated prior to the 2006 SIUE field school. Both Woods' survey (see below) and the 2006 SIUE investigations suggest that the project area was occupied repeatedly throughout prehistory, but most occupations seem to have been short term. Woods' team also surface collected 11MS341 (the Kruckeberg No. 1 site) ca. 0.5 km east of the project area, which they identified as a Mississippian village. Woods and Holley (1991) suggest that this village may have been fortified, based on their interpretation of aerial photographs. They also suggest that both 11MS341 and 11MS1124 (the D. Hitchins site) date to the Moorehead phase. If the two sites were contemporary, perhaps 11MS1124 was an extension of 11MS341, such as a camp for hunting, farming, and possibly ritual activities. However, the Mississippian features excavated by the SIUE field school at 11MS1124 more likely date to the early Lohmann phase (the start of the Mississippian period) than the Moorehead phase (mid-late Mississippian period). Besides the possible Mississippian village at 11MS341, it is striking that no other long-term habitation sites dating to any time period are known to exist in the uplands of Cahokia Creek.

While there is relatively little information about the nature of prehistoric occupation in the upland Cahokia Creek drainage, there is an abundance of information for the area where Cahokia Creek exits the uplands into the American Bottom at Edwardsville (some 20 km south of the project area). Today, Cahokia Creek is channelized there and heads due west for the Mississippi River, but prehistorically, Cahokia Creek meandered southward along the base of the bluff, finally turning west as it passed Cahokia and emptied into the Mississippi River. Many sites have been recorded at both the top of the bluff and the base of the bluff in the Edwardsville area, and some of

these have been excavated (e.g., see Holt et al. 2005). It is clear that by the end of the Late Woodland period, occupation along the bluff bordering the American Bottom in this area was intense and long term. At this time it does not appear that occupation of the uplands to the north was as intense or long term, with the possible exception of the Kruckeberg No. 1 site, but the lack of excavation data from this area makes it impossible to know this with certainty. In any case, it would have been an easy canoe trip from the D. Hitchins site downstream to Cahokia (some 35 km via Cahokia Creek) and the Mississippi River beyond.

PREVIOUS RESEARCH

Given that artifact collectors frequented the Hitchins' farm for several decades prior to its purchase by the Holts in 2003, the project area is probably better known to avocational archaeologists than it is to professional archaeologists. Of these collectors, only Dave Klostermeier's collection is well known because Yancey (2005) documented it as part of her senior project at SIUE. Klostermeier's collection from the Hitchins' farm contains mostly lithic artifacts but also some ceramics. Yancey reports that projectile points in the Klostermeier collection date to the Early Archaic, Middle Archaic, Late Archaic, Middle Woodland, Late Woodland, and Mississippian periods. In addition, Klostermeier has identified one point fragment within his collection as a broken Clovis point (personal communication, July 2006); this identification has been confirmed by Brad Koldehoff. Thus, projectile points in Klostermeier's collection indicate that the site was occupied or utilized during every prehistoric time period with the possible exception of the Early Woodland period. Particularly notable within Klostermeier's lithic collection are Mississippian artifacts including a flare-tip celt and chunkey stone. The chunkey stone or discoidal is a Cahokia type and crudely engraved with a weeping eye on one side and a sun on the other side (Yancey 2005). Based on the presence of these non-utilitarian artifacts, Klostermeier believed that D. Hitchins was a Mississippian ritual site, possibly containing burials. Ceramics collected by Klostermeier include several dozen cordmarked grit tempered sherds, most of which were identified by Yancey as z-twisted, and a few shell tempered sherds. These indicate occupation from the Late Woodland through Mississippian periods; more precisely, one shell-tempered rim sherd collected by Klostermeier probably dates to the Moorehead phase (Yancey 2005).

The first professional research done on the property was a survey by SIUE, which was conducted in 1982 as part of Woods' dissertation research (Woods 1986). Woods recorded four sites on the Hitchins' farm: 11MS1124, 11MS1125, 11MS1126, and 11MS1127. 11MS1127 was identified as a Late Woodland site; 11MS1125 and 11MS1126 were simply identified as prehistoric. The D. Hitchins site, 11MS1124, was identified as a multi-component site, with artifacts recovered dating to the Early or Middle Woodland, Late Woodland, and Mississippian periods. Notably, Woods reported one rim sherd from an angled jar that was red-slipped with a smudged-black rim. This rim, like the rim sherd in the Klostermeier collection, suggests a Moorehead phase component at 11MS1124 (see Woods and Holley 1991:figure 3.4b). Woods (1986:90) suggests that 11MS1124 was a Mississippian farmstead.

Yancey's work with Klostermeier suggested that 11MS1124 is larger than initially reported by Woods to the IAS, perhaps as large as 3 hectares (Yancey 2005).

However, we will argue below that the western portion of what Yancey referred to as 11MS1124 should be considered the northern end of 11MS1127. In addition, Yancey (2005) documented another site ca. 150 m north of 11MS1124, where the current landowners (Henry and Julie Holt) had observed debitage and FCR. We reported this site to the IAS when we completed site forms for the present project, naming it the Gunkel site to honor Henry and Katie Gunkel, who owned, lived on, and farmed the property from 1875 until 1924. The site number assigned to the Gunkel site by the IAS is 11MS2336.

GEOPHYSICAL SURVEY

Our primary research goal was to determine the nature of the Mississippian occupation at 11MS1124, the D. Hitchins site. Based on discussions with Klostermeier, it was predicted that intact Mississippian features would most likely be located on the eastern portion of the site. Remote sensing was used to guide our excavations in this area, since this non-invasive method can be used to predict more precisely where features might be located.

In April of 2006, Henry Holt located two survey pins set by surveyor Bill Lovsey on the property when it was still owned by Don and Martha Hitchins. These pins marked the northeast and southeast corners of the Hitchins' pasture; today, the area is a reconstructed wetland. Using these pins to establish a north-south base line, Holt set in a hub 55 meters south of Lovsey's southern pin. This point sat at the crest of a slope and was later named N300 E300 on the SIUE grid. The survey instrument used was a Realist-David White 4.5 inch transit, model TR300.

On April 15, 2006, Michael Hargrave of Engineer Research and Development Center/Construction Engineering Research Laboratory (ERDC/CERL) conducted a geophysical survey at 11MS1124 at the request of Julie Holt (Photo 1). Several field school students assisted in the field work. A magnetic field gradient survey and an electrical resistance survey were conducted with the goal of identifying possible prehistoric features that would be investigated by the SIUE field school. Time permitted magnetic sensing in six complete and two partial 20 x 20 m squares, and electrical survey of one complete and one partial 20 x 20 m square. The squares chosen for the survey were deemed most likely to contain Mississippian features based on topography (two flat "saddles" were surveyed; a ravine in between these two "saddles" was not surveyed). The eastern edge of the northeastern survey block ended approximately where the terrace suddenly drops in elevation down to the floodplain of Sherry Creek.

Photo 1. Geophysical survey at 11MS1124: Dr. Mike Hargrave with magnetometer in the foreground; Miranda Yancey and Kyle Miller testing electrical resistance in the background.

Results of the electrical survey suggested two relatively large rectilinear anomalies southeast of N300 E300 (see Figure 3). Hargrave suggested that these could be possible structures but were more likely the intersection of plow furrows. The magnetic survey revealed a number of smaller, generally circular anomalies, mostly located in the southern survey blocks (see Figure 3). Hargrave indicated that some of these could be prehistoric pits, while others were possibly the result of small fragments of iron or dips in the plowzone. In general, Hargrave noted that the site was magnetically "quiet."

Hargrave and Julie Holt cored several anomalies and several non-anomalies for comparison on the day of the survey. Soil compaction made it very difficult to penetrate the ground with the core. Cores made inside and outside the rectilinear electrical anomalies suggestive of structures showed similar profiles, indicating a plowzone 15-20 cm thick over subsoil. In the vicinity of N220 E300, two magnetic anomalies (possible pits) and one control location were cored. Cores of the two anomalies showed no evidence of features, indicating a plowzone approximately 30 cm thick over subsoil. Ironically, the control core indicated a plowzone approximately 20 cm thick over 10 cm of dark soil containing charcoal flecks over subsoil. That is, the control core suggested a possible feature where none was expected. Subsequent coring 30 cm north and 30 south of this possible feature showed no trace of it, indicating that whatever it was, it was small. Holt and field school students attempted to core several more anomalies in early June but were unable to penetrate the ground below the plowzone with the core.

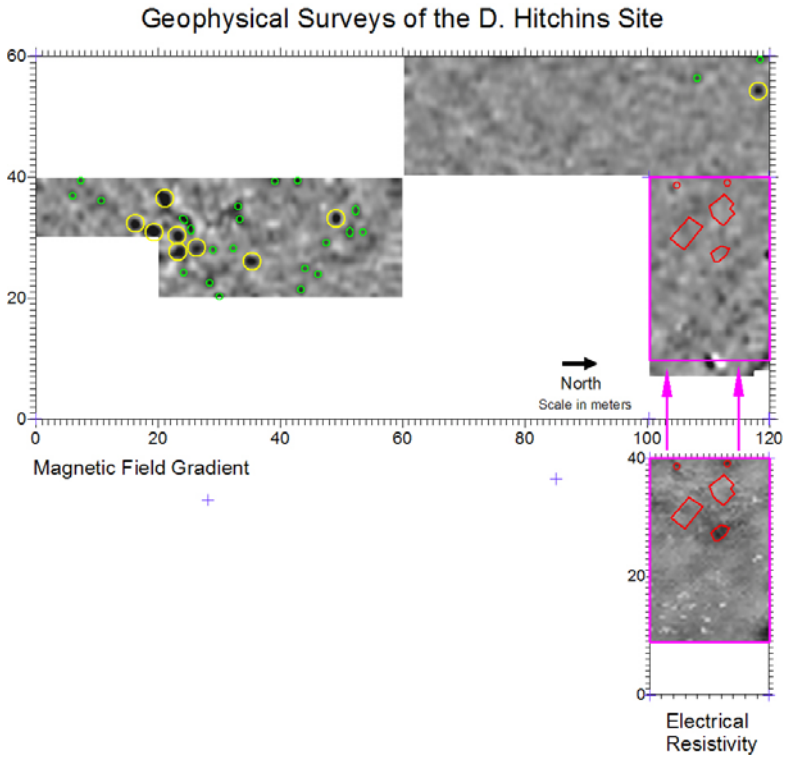

Figure 3. Locations of magnetic and resistance anomalies at 11MS1124 recommended for ground truthing. Map by Dr. Michael Hargrave of ERDC/CERL. Hargrave's N120 W40 = SIUE's N300 E300.

Several anomalies were selected for excavation. These anomalies included one possible structure identified in the electrical survey and two possible pit features

identified in the magnetic survey. The possible structure did not materialize; however, two shallow pits were found in this area. One possible pit feature excavated did indeed turn out to be a pit feature, while the other magnetic anomaly excavated was found to be a large concentration of FCR. Results of these excavations will be discussed in detail below.

SURFACE SURVEY

Pedestrian survey was conducted over approximately 30 acres of an upland agricultural field in May and June of 2006 (Photo 2). A surveyor walked down every eighth planted row, resulting in transects spaced 5.3 m apart. The rows ran north-south, except where the planter had turned corners. The majority of the field was surveyed on May 15 and 16. At the time of the May survey, the corn crop was only several inches tall, but visibility was poor, perhaps 25% at best. The poor visibility was caused by soybean residue left from the previous year's crop, which remained in the field because the 2006 crop had been drilled without tilling.

Photo 2. Surface survey, 11MS1127.

Students placed pin flags wherever a possible artifact was encountered. After the instructor (Julie Holt) verified the find, students recorded the location, artifact type, and count using a Garmin GPSMAP 76CS. Artifacts were left in the field unless they were diagnostic to time period.

Most artifacts recorded during this controlled surface survey were debitage or FCR. Only one diagnostic artifact was collected, a broken spear point tentatively identified by Brad Koldehoff as a Middle Archaic Falling Springs point made of Burlington chert. This point was recovered from 11MS1127, which Woods' crew had identified as a Late Woodland site. Beside the Archaic point, no other artifacts were recovered from 11MS1127 (Figure 4). However, the landform containing 11MS1127 continues to rise in elevation toward the north, and it was along this ridge that most artifacts were found during surface collection. Therefore, we submitted site forms to the IAS that expand the boundaries of 11MS1127 to continue up the ridge to the north (see Figure 5). Klostermeier's collections on the peak of this landform primarily yielded Archaic artifacts (see Yancey 2005), but Klostermeier also found one Late Woodland ceramic vessel in this area. In sum, Archaic artifacts were found from the north to the south end of this landform, Klostermeier found evidence of a Late Woodland component toward the northern end of the landform (the highest point in elevation), and Woods' crew also found evidence of Late Woodland use at the southern end of the landform.

Few artifacts were observed on the surface of 11MS1126. A small concentration of artifacts was noted in an area of higher elevation west of 11MS1126, in the

southwestern corner of the area surveyed (Figure 4). This lithic scatter was previously identified by Yancey (2005). Although the controlled survey made by SIUE in 2006 recovered nothing diagnostic from this site, Klostermeier's collections indicate that it contained Archaic occupations. Thus, we submitted site forms to the IAS identifying this as an Archaic site. The IAS site number assigned was11MS2337.

The area surveyed on May 15-16 included only what had been planted in corn prior to that date. The unplanted/unsurveyed portion of the field to the east included both 11MS1125 and 11MS1124, the D. Hitchins site. The landform containing 11MS1125 was shovel tested between May 17 and 23 (see below). On May 23, the eastern portion of the field was planted in soybeans. Excavation of 11MS1124 was begun on May 25 (see below). A controlled surface collection was finally made of the area planted in soybeans, including sites 11MS1124 and 11MS1125, on June 15. Artifacts were recorded by students led by Yancey using the Garmin GPS. Only debitage and FCR were observed, mostly in association with 11MS1124 (see Figure 4). Few artifacts were noted on the surface of 11MS1125. However, by this date, visibility was extremely poor: the soybeans were only about 6 inches tall, but weeds were dense and often taller than the soybeans, resulting in visibility ranging between 5 and 25%. Two diagnostic artifacts were recovered from the surface of 11MS1124, not during the controlled surface survey, but prior to that date since they happened to be lying near excavation units. An early Late Woodland Steuben point was found near N294 E302, and a Mississippian Cahokia point was found near N230 E305. Archaic points were also recovered during our excavations.

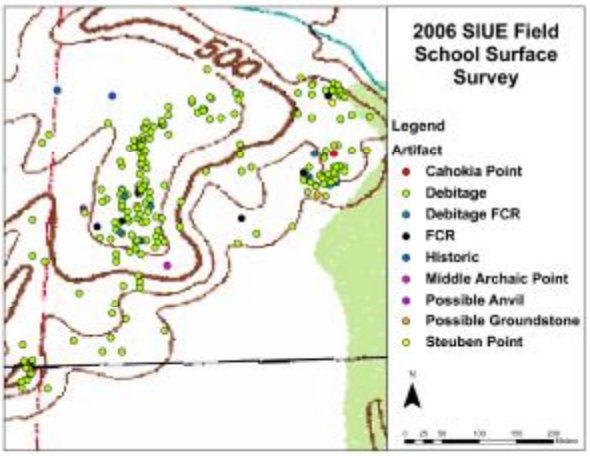

Figure 4. Surface collection results.

Figure 5. USGS map showing revised site boundaries and newly recorded sites.

Thus, our investigations confirm Woods' survey in terms of the time periods represented at 11MS1124, but Klostermeier's collections also indicate a significant Middle Woodland component at the site (Yancey 2005). The site forms we submitted for 11MS1124 redefined the boundaries of the site. Whereas the site boundaries as defined by Woods indicated that the peak elevation to the west should be considered part of

11MS1124, we consider that area to be part of 11MS1127 for several reasons. First, it exists on the same landform as 11MS1127, a ridge running from north to south. Second, our controlled surface surveys clearly show a continuous scatter of artifacts from north to south along this landform, whereas there is an area devoid of artifacts between the high point at the north end of the ridge and 11MS1124 to the east. 11MS1127 as redefined is primarily an Archaic site with evidence of Late Woodland use; 11MS1124 as redefined is primarily a Mississippian site with additional evidence of Archaic, Middle Woodland, and Late Woodland use.

Finally, we should note that Woods and Holley (1991) referred to 11MS1124 as the D. Hitchens site, after the landowner at the time of Woods' survey in the 1980s. When we completed the site form for the new site found in our survey, and site revisit forms for the sites found by Woods, we named the other sites on the property after current and former landowners. Site 11MS1125 was named the M. Hitchins site to honor Don's wife and partner, Martha. Site 11MS1126 was named the John Weaver site after a 19th century landowner. Site 11MS1127 was named the Holt site after the current landowners, who purchased the property from Don and Martha Hitchins in 2003. Site 11MS2337 was named the Franke site after Mr. and Mrs. Louis Franke. Louis Franke bought the farm from Harry and Katie Gunkel in 1924, and Franke's heirs sold it to Don Hitchins in 1958.

SHOVEL TESTING

The finger ridge containing 11MS1125 was shovel tested on May 17-23 (Photo 3). This ridge was shovel tested because the western slope of the landform, which descended into a ravine, was to be the source of fill used to dam the ravine at its southern (lower) end in order to create a small pond. Shovel test pits (STPs) were approximately 40 cm wide and excavated until sterile subsoil was reached. All sediments were screened through quarter-inch mesh and all cultural materials were collected. Profiles showing sediment colors and textures were drawn for all STPs.

Photo 3. Shovel testing at 11MS1125.

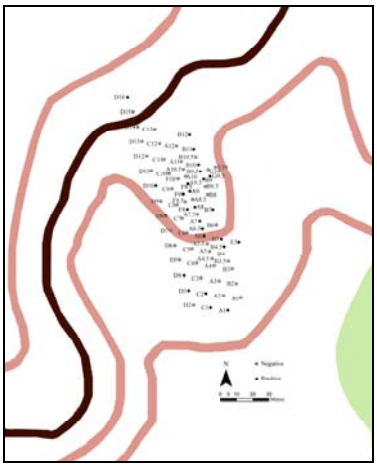

Figure 6. Shovel test results, 11MS1125.

Transect A was laid in first, with STPs A1-A12 set 10 m apart (Figure 6). A1 and A2 were located on the floodplain, A3 was located on the slope, and A4 was located

more or less at the crest of the ridge. A5 through A10 continued to rise gently in elevation. A10 was located just inside the corn field which had already been surface collected, so A10-A12 were not excavated.

Transect B was laid in 10 m east of A but offset by 5 m to the north (Figure 6). STPs B1-B12 were set 10 m apart, with B1 on the floodplain, B2 on the slope, and B3 more or less on the crest of the ridge. The landform continued to rise gently north of B3 but was rolling, so that B5 and B10 were lower in elevation than adjacent STPs. Transect C was laid in 10 m west of B but again offset by 5 m to the north. STPs C1-C13 were set 10 m apart, with C1 and C2 on the floodplain, C3 and C4 on the western side of the ridge, and C5 and C6 on the crest of the ridge. The slope continued to rise gently in elevation north of C6. C6-C13 were located in the corn field which had already been surface collected, but we excavated them since they were close to area that would be borrowed. Transect D was laid in 10 m west of transect C and was offset 5 m to the south so that it was in line with transect A. STP D1 was located in an agricultural drainage ditch so was not excavated. STPs D2-D16 were located in the corn field previously surveyed but were excavated since they were located in the area to be borrowed. D2-D3 were located in the floodplain, while D4-D16 were located on the side of the ravine.

STPs on the top of the ridge generally indicate a plowzone (≈10YR4/3 brown silty clay loam) of varying depth (7-30 cm) over subsoil (≈10YR5/8 yellowish brown silty clay loam). The plowzone of STPs A6-A9, B4-B5, B9-B10, and B11-B12 contained low densities of debitage, ranging from one to five pieces of chert per STP (Table 1). Additional STPs were laid in five m from these positive STPs (A4.5, 5.5, 6.5, 7.5, 8.5, 9.5, and 10.5; B3.5, 4.5, 8.5, 9.5, and 10.5; E5; G9.5 and 10; and F 8, 8.5, 9, 9.5, and 10). The positive STPs located on top of the ridge can be used to define the boundaries of 11MS1125. The site is highly eroded, and no evidence of intact features was found. A biface fragment was recovered from STP B5, but no diagnostic artifacts were recovered. All chert was identified as either Burlington or glacial chert.

STPs located on the steepest slopes of the finger ridge and ravine generally indicate a plowzone (≈10YR4/3 brown clay loam with gravels) of varying depth (15-30 cm) over subsoil (≈10YR5/8 yellowish brown clay loam). The plowzone of several STPs (D4, D10, and D16) on the slope contained one or two possible flakes among glacial gravels. Because the slopes of the ridge are also highly eroded from plowing and colluviation, it is assumed that the few cultural materials found in the plowzone had washed in from above.

STPs located on the floodplain generally indicate a plowzone (≈10YR4/4 dark yellowish brown loam) of considerable depth (40-90 cm) over alluvial soils (≈10YR3/2 very dark grayish brown loam). The plowzone of STPs A1, C1, C2, D2, and D3 contained cultural materials; cultural materials were also found below the plowzone in C2, D2, and D3. It appears that these sediments and cultural materials were deposited relatively recently. Evidence of this is the occurrence of rusty nails in stratum C of STP D2 at approximately 46 cm below ground surface. STP C2 contained possible flakes in strata C and D, along with quantities of gravel. STP D3 contained a small flake in stratum B, which also contained sand lenses. The gravels and sand lenses suggest that sedimentation in this area is caused by a combination of both colluvial and alluvial forces.

Because no evidence of in situ cultural materials was found in the ravine on the west side of the ridge, these clayey sediments were used in the fall of 2006 to build the

dam as planned. The resulting basin filled quickly with water and today contains a small pond.

EXCAVATION METHODS

The excavation on 11MS1124, the D. Hitchins site, took place between May 24 and July 3, 2006. Excavation conditions were generally good, with rain days spent at the SIUE Archaeology Lab washing and sorting artifacts. The last several days of the field school, July 5-7, were also spent in the lab. This provided time to wash and sort the rest of the artifacts, and we were also able to process all flotation samples.

As described above, in April Henry Holt used two survey pins previously set by a professional land surveyor to establish a north-south base line running across 11MS1124 to create the grid used in the geophysical survey. On May 24 we returned to the same two pins and used the same procedure to reestablish the baseline. SIUE field school students supervised by Julie Holt set in a hub 55 meters south of the surveyor's pin. This point sat at the crest of a slope and was named N300 E300 on the SIUE grid. The survey instrument used was a Realist-David White 4.5 inch transit, model TR300. Moving the transit to N300 E300, we then shot in six more hubs moving south across 11MS1124, placing them every 20 m. The placement of these hubs was later double-checked and elevations were taken using a Sokkia SET 6E electronic total station.

Most excavation units were located to investigate geophysical anomalies thought likely to indicate Mississippian period features. As features were found in some of these units, it became necessary to expand them. As new units were opened to expose features in entirety, they were typically given names to show which units they were attached to (e.g., Unit DD was an expansion of Unit D; Unit KA was an expansion of Unit K; Units LA, LB, and LC were an expansion of Unit L; and Units NA, NB, NC, ND, and NE were and expansion of Unit N). Units O, P, Q, and R were opened as extensions to Units LA and LB.

All excavation units were 2 x 2 m except for Unit DD, which was only 1 x 2 m. The plowzone was removed from all units in a single level (stratum A, level 1) using shovels. The base of the plowzone was troweled to look for features. If no features were encountered, excavation was usually discontinued at the base of the plowzone. This is typical archaeological practice in the uplands of the greater American Bottom: since the upland loess was deposited around 12,000 years ago (Neely and Heister 1987), buried sites are not expected in the uplands and so archaeologists ordinarily do not excavate subsoil deposits. However, Van Nest (2002) has shown that Archaic period sites in upland prairie and prairie-forest transition soils can be buried below the plowzone by the activity of earthworms or other small soil fauna. On such sites, Archaic period artifacts will accumulate within a "stone zone" on top of a Bt soil horizon, typically about 40 cm deep in prairie-forest transition soils or somewhat deeper in prairie soils. Although 11MS1124 was forested historically, it is located close to the prairie-forest transition. Because of this, we excavated samples of subsoil in multiple units. All excavated sediments were dry-screened through quarter-inch mesh, except for samples retained for flotation processing.

After features were defined by troweling, they were photographed and drawn in plan view. Photographs were taken in color with a digital camera and in black and white

film with a manual camera, the latter being recommended for archival purposes. Plan views were drawn on 20 lb. metric grid vellum at a scale of 1:10 cm. All features were bisected; bisection lines were also drawn on the plan views during the mapping procedure described above. Generally, the first half of the feature was removed in one level using a trowel and dry-screened through quarter-inch mesh. After the first half of the feature was removed, a 5-10 cm "window" was excavated around the profile edges so that the feature boundaries would be clearly visible against the subsoil when the feature profile was photographed. The feature profiles were photographed, again using a digital cameral for color and a manual camera for black and white film, and then drawn on 20 lb. metric grid vellum at a scale of 1:10 cm.

The second half of each feature was excavated using a trowel, removing each stratum separately. Flotation samples were taken from each stratum encountered in the second half of the feature; typically, samples were taken from the top of the feature and also the bottom of deeper pit features. Flotation samples were usually 10 l; smaller samples were taken when there was not enough sediment for a 10 l sample. All feature sediments not saved for flotation were screened through quarter-inch mesh.

EXCAVATION RESULTS

Units A-I were located in order to expose an electric anomaly that suggested a possible prehistoric structure in size and shape (see Figure 3 and discussion of the geophysical survey above). Together these nine units created an excavation block, the northernmost excavated, that was 6 x 6 m (Table 2; Photo 4). The plowzone in Units A-I was 20-25 cm deep and a 10YR4/2 dark grayish brown silt loam. No evidence of a prehistoric structure was encountered at the base of the plowzone, nor was it clear what had created the electrical anomaly. Plow scars were oriented north-south, while the anomaly was oriented NE-SW and NW-SE. Two circular pit features, Features 1 and 2, were encountered at the base of Units A/B and D. Since Feature 2 extended into the west wall of Unit D, an additional 1 x 2 m unit, Unit DD, was opened to expose Feature 2 in entirety. Features 1 and 2 will be described in greater detail below.

Photo 4. Opening up Units A-I.

FCR and debitage were the most common prehistoric materials recovered from the plowzone in Units A-I. Debitage included two hoe flakes, one of Kaolin chert from Unit B and one of Burlington chert from Unit I. A point fragment reworked into a scraper was also recovered from Unit B. A Terminal Archaic Prairie Lake spear point of Burlington chert was recovered from Unit G, and a point tip of unknown chert type from Unit G also appears to be a Terminal Archaic point. Ceramics were uncommon in Units A-I. Units A and B each produced a single grit-tempered sherd, possibly in association with Feature 1. Eighteen grit-tempered sherds were recovered from Units D and DD in

association with Feature 2. Three of these were cord-marked, one of which was identified as S-twist. The pottery within Feature 2 was identified as early Late Woodland (see discussion of Feature 2 below).

Of Units A-I, subsoil was excavated in one unit, Unit G, to test for the presence of a buried Archaic component (see Van Nest 2002 and discussion above). Unit G was selected for sub-plowzone investigation since two Archaic points were recovered in its plowzone. Below the plowzone, Unit G was excavated as a 1 x 2 m unit in arbitrary 2 cm levels. The subsoil was generally a 10YR5/4 yellowish brown loam, increasingly clayey with depth (see Figure 7). Two Burlington flakes and 222 g of FCR were encountered in the first 2 cm level below the plowzone (Stratum B, Level 2), which still showed evidence of plow disturbance. Small amounts of FCR were encountered in the next two levels. Two small pieces of shattered Burlington chert (perhaps debitage or FCR) were recovered from Stratum B, Level 7. By Stratum B, Level 8 (approximately 14 cm below the base of the plowzone and 34 cm below ground surface), pebbles were no longer encountered. After several more arbitrary levels without pebbles, excavation was discontinued at approximately 20 cm below the base of the plowzone and 40 cm below ground surface. No evidence of a buried "stone zone" (Van Nest 2002) was found. This, along with the occurrence of Archaic artifacts mixed with Woodland artifacts in the plowzone, can be taken as additional evidence that the D. Hitchens site was forested (Van Nest 2002).

Figure 7. Profile facing south, Units G, H, and I.

Unit J was located to investigate a small magnetic anomaly. The plowzone in Unit J was a 10YR4/3 brown silt loam and about 25 cm deep, yielding FCR, debitage, and ceramics. Debitage included two Cobden chert flakes and two Mill Creek chert flakes, one of which was a hoe flake. Ceramics were grit-tempered; some were cord-marked with an S-twist, while a few were Madison County Shale with a plain surface. An anvil was also recovered from Unit J. At the base of the plowzone, plow scars were visible running north to south, but there was no evidence of a feature that would have been the source of the anomaly. After removal of the plowzone, the north wall profile was mapped and excavation was discontinued.

Unit K was located over a white space on the magnetometer map (i.e., there was no evidence of a magnetic anomaly in this location). The plowzone in Unit K was a 10YR3/2 very dark grayish brown silt loam, 20-35 cm deep. Cultural materials recovered included FCR, ceramics, debitage, a Late Woodland arrow point of Burlington chert, and a hammerstone. Ceramics recovered were mostly grit-tempered, some of which were cordmarked and some of which were plain. Cordmarking, when examined, was twice as often found to be S-twist rather than Z-twist. Several shell-tempered sherds were also recovered. The base of the plowzone in Unit K was difficult to define during excavation due to disturbance of the subsoil, so it was first defined when a clear line of transition was noted in the profile. However, we were still finding artifacts and the soil continued to be dark and mottled. Two burnt areas were noted, as well as several linear stains which we hoped might be wall trenches. Given the possibility that we might have been inside a Mississippian house, we called the entire unit Feature 4 at the base of the plowzone and opened up **Unit KA** to the south. During removal of the plowzone in Unit KA, we received visits from archaeologists (Henry Holt and Brad Koldehoff) and the farmer (Jim Heepke). Based on discussions with Holt and Koldehoff, we determined that the linear stains were not wall trenches. Heepke confirmed that they were likely caused by a chisel plow, which goes deeper than an ordinary plow.

Unit KA contained even more artifacts: FCR, debitage, ceramics, a Cahokia point of Burlington chert, and a possible grinding tool. Ceramics were mostly grit-tempered, but again some shell-tempered ceramics were recovered. The base of the plowzone was again difficult to define because the subsoil was disturbed, so we stopped excavation of the plowzone where the line of transition was visible in the profile. We removed ca. 5 cm of disturbed soil below the plowzone as Stratum A/B, Level 2. Artifacts continued to be found to the base of excavation. At the base of excavation in Units K and KA, several possible posts were identified. These were excavated as Features 13 (in Unit KA), 14 (in Units K and KA), 15 (Unit K), and 16 (Unit K). Features 13-16 will be described below. Feature 4 was determined not to be a feature, so it will not be described below. Again, we would note that sterile soil was never reached in Units K and KA: excavation was discontinued because we ran out of time. It is likely that disturbances noted below the plowzone in these units were the result of both cultural (chisel plowing) and natural (bioturbation) factors, which brought prehistoric artifacts deeper into the profile than where they were originally deposited.

Unit L was located in order to expose a magnetic anomaly suggestive of a prehistoric pit. The plowzone in Unit L was a 10YR3/2 very dark grayish brown silt loam, 20-35 cm deep. It contained significant quantities of cultural materials including FCR, debitage, and ceramics. At the base of the plowzone, it was found that the source of the anomaly was indeed a prehistoric pit, Feature 3. Feature 3 was circular in plan view, extending into the northeast corner of the unit. In order to expose the feature in entirety, **Units LA, LB, and LC** were opened (see Table 2). At the base of the plowzone in Unit LA, another circular pit feature was encountered, Feature 8, which appeared to extend into the west wall. Nine post molds forming a neat semicircle (Feature 9) were found at the base of the plowzone in Units LA and LB. In order to expose the rest of Feature 8, **Unit O** was opened west of Unit LA. **Units Q and R** were opened north of LA and LB in order to look for more posts in association with Feature 9. **Unit P** was also

opened at this time, joining the excavation block that began with Unit L with Units K and KA to the west.

At the base of the plowzone in Unit O, it was found that Feature 8 actually ended at the west edge of Unit LA and did not continue into Unit O. A possible pit (Feature 11) and a possible posthole (Feature 12) in Unit O were excavated as features, but these were determined to be natural disturbances by their amorphous boundaries. At the base of the plowzone in Units P and Q, another circular pit feature, Feature 10, was encountered. At the base of the plowzone in Units Q and R, Feature 9 was found to consist of a complete circle of posts; however, the posts in the northern half of the feature (in Units Q and R) were difficult to define and not evenly spaced like the posts in the southern half of the feature.

Units L, LA, LB, LC, O, P, Q, and R, along with adjoining Units K and KA, thus formed the southernmost excavation block (Photo 5). The plowzone in these units contained moderate quantities of FCR, debitage, and ceramics. Three broken spear points of Burlington chert were found in the plowzone of Units L-R. These were identified as a probable Terminal Archaic Prairie Lake point from Unit L, a probable early Middle Archaic Jakie stem point from Unit O, and a Middle-Late Archaic Godar point from Unit Q. A Late Woodland arrow point of Burlington chert was found in Unit LB. Four Mill Creek hoe flakes, a Burlington hoe flake, and a Kaolin hoe flake were recovered from Units L, LB, LC, Q, and P. A mano was found in Unit LA. Ceramics recovered included grit-tempered sherds, some of which were cord-marked. When twist direction was examined, S-twisting was about three times more common than Z-twisting. A few grit-tempered sherds were identified as Madison County shale with a plain surface. Shell-tempered sherds were also present but less common in the plowzone than in features below. This is not surprising since shell-tempered sherds do not preserve well compared to grit-tempered sherds. Red-slipping was visible on a few of the shell-tempered sherds. In sum, these artifacts represent multiple time periods (from Archaic to Mississippian) and various activities (e.g. hunting, farming, and food processing). Features 3, 8, 9, and 10 are believed to date to the early Mississippian period and will be discussed below.

After removal of the features and possible features in the southernmost excavation block, subsoil was excavated in selected units. The eastern halves of Units LC, LB, and R were excavated ca. 10 cm into the subsoil, as were the northern halves of Units P, Q, and R; and the west half of Unit O. Excavation of this arbitrary level (labeled Stratum B Level 2) created deeper profiles for the east, north, and west walls of the excavation block, which were then drawn. It was during this excavation that Feature 18 was recognized at the base of the plowzone in the northeast corner of Unit R. Feature 18 extended into both the north and east walls of Unit R and was not excavated since it was discovered on our last day in the field. After discovery of Feature 18, we did not dig any deeper into the northeast corner of Unit R in order to leave as much of the feature undisturbed as possible. Feature18 is believed to be Mississippian in age and will be discussed below. The subsoil was generally a 10YR5/6 yellowish brown mottled with 10YR4/4 dark yellowish brown loam, increasingly clayey with depth. A small number of artifacts were found in the subsoil, but these presumably descended from the plowzone via natural processes or plowing. Excavation was discontinued ca. 40 cm below ground surface. No evidence of a buried "stone zone" (Van Nest 2002) was found. Along with

the occurrence of Archaic artifacts mixed with Woodland artifacts in the plowzone, this can be taken as additional evidence that the D. Hitchens site was forested (Van Nest 2002).

Unit M was randomly located just outside of the area surveyed with the magnetometer. The plowzone was a 10YR4/3 brown silt loam and 20-25 cm deep, yielding FCR, debitage, and ceramics. The few sherds recovered were all grit-tempered, three of which were cord-marked with an S-twist and one of which was of a Madison County shale with a plain surface. Two Mill Creek hoe flakes were identified among the debitage. After removal of the plowzone, the north wall profile was mapped and excavation was discontinued.

Unit N was located in order to expose a magnetic anomaly suggestive of a prehistoric pit. The plowzone was a 10YR4/4 dark yellowish brown silt loam, 25-30 cm deep and containing debitage, ceramics, and large quantities of FCR. In fact, six file boxes of FCR (over 20,000 g in weight) were recovered, mostly from the northeast quarter of the unit. Some of this FCR was still in situ at the base of the plowzone, including a large cracked boulder, perhaps the size of a cantaloupe (see Photo 6). This broke into pieces as it was removed from the ground. It appeared that this was the base of an FCR-filled pit which had been truncated by plowing. Presumably this concentration of FCR was also the cause of the magnetic anomaly, since no pit similar to Feature 3 (which had a similar magnetic signature) was encountered. The age and purpose of this FCR concentration is not clear. It was not given a feature number since it was mostly contained within the plowzone, but the rocks in situ at the base of the plowzone were bagged separately (see "Unit N-Ap rock" on Table 11).

Photo 6. FCR concentration in Unit N, central excavation block.

The ceramics recovered from the plowzone in Unit N were mostly grit-tempered; S-twist cordmarking was approximately three times more common than Z-twist. However, compared to other units, a relatively high percentage of shell-tempered sherds was also recovered, most of which had a plain surface, but one of which featured a brown slip. Again compared to other units, relatively high numbers of exotic lithic materials were also recovered. These included three Cobden chert flakes, one Mill Creek chert flake, one Ste. Genevieve flake, and a fragment of hematite. Relatively high numbers of cobble tools were also recovered, including three anvils, one possible grinding tool, and two other cobble tools.

At the base of the plowzone in Unit N, a possible pit (labeled Feature 5) was defined extending west from the in situ rock concentration (see Figure 8). The sediment in Feature 5 was pale, only slightly darker than the subsoil (a 10YR 5/6 yellowish brown mottled with 10YR4/3 brown loam). A darker stain containing artifacts in the southeast corner of the unit was labeled Feature 6. Another dark stain in the northeast corner of

Unit N was labeled Feature 7. To further expose Features 6 and 7, **Units NA, NB, and NC** were opened. These were initially 1 x 2 m, 1 x 1 m, and 1 x 2 m, respectively.

Upon excavation, the profile of Feature 5 showed dark patches with no clear feature boundary, indicating that it was likely the result of bioturbation. Removal of the plowzone in Units NA, NB, and NC indicated no clear boundaries for Features 6 and 7. All three units were further expanded until each was a 2 x 2 m unit. Clear boundaries were still not evident for Feature 6, so **Units ND and NE** were opened south of Units NC and NB, with both of these units 2 x 2 m. With the addition of these units, the excavation block that began with Unit N reached its final size of 6 x 4 m. A dark stain in the southeast corner of Unit NE was named Feature 17. Feature 6 was amorphous in plan view and large, covering Unit NB in entirety and extending into all adjacent units (Figure 8). Excavation of Features 6, 7, and 17 showed that they were all amorphous and shallow in profile. It is believed that Feature 6 was a tree throw, and Features 7 and 17 were probably also the result of bioturbation. We would point out that the southern border of Unit NE was just two m north of Unit K. Thus, the bioturbation evident below the plowzone in Units N and NA-NE continued in Units K and KA. Features 5, 6, 7, and 17 will not be described below since they were determined to be natural rather than cultural in origin. Upon completion of excavation in these units, a plan view was drawn (Figure 8) and the west-facing profile of Units N, NC, and ND was also drawn. (The profile is not reproduced here since it simply shows the plowzone over subsoil.)

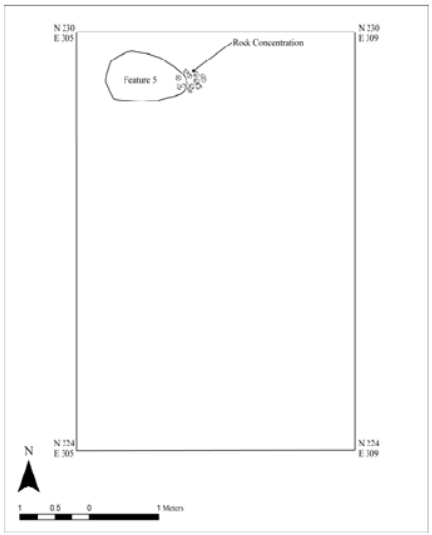

Figure 8. Plan view, central excavation block.

Units NA-NE produced a quantity of artifacts, including some below the plowzone as a result of bioturbation. Artifacts included a relatively large number of projectile points: three Cahokia points, a Late Archaic Etly point, and an Archaic point reworked into a scraper, all made of Burlington chert. Another Cahokia point made of Burlington chert was found on the surface just north of Unit N. A Burlington hoe flake and three Mill Creek hoe flakes were recovered from this excavation block. Other exotic cherts recovered from Units NA-NE included seven Mill Creek flakes (in addition to the three hoe flakes), three Choteau flakes, three Cobden flakes, three Cobden projectile point fragments, one Ste. Genevieve flake, and one flake of Fern Glen. One piece of hematite was also recovered. Ceramics were mostly grit-tempered; of these, only one was identified as Madison County shale with a plain surface. Grit-tempered cordmarked sherds were much more common; of these, S-twisting was slightly more common than Z-twisting. Shell-tempered sherds were also relatively common; these were plain in surface treatment.

FEATURES

Features 1 and 2 were both shallow (8-9 cm below the plowzone), circular pit features encountered in the northernmost excavation block (see Figures 9-10; Table 3). Feature 1 was a 10YR 4/3 brown mottled with 10YR5/3 brown and 10YR5/4 yellow brown loam flecked with charcoal. Few artifacts were recovered from Feature 1 – just two Burlington or glacial chert flakes and two pieces of FCR. However, copious charcoal including charred nut shells was visible in Feature 1 during excavation. Analysis of the floated plant remains indicates that hickory nuts (*Carya* spp.) were most common; other members of the Juglandaceae family identified included black walnut (*Juglans nigra*). Wood charcoal was also common, with oak (*Quercus* sp.) the most common wood identified. No seeds were present.

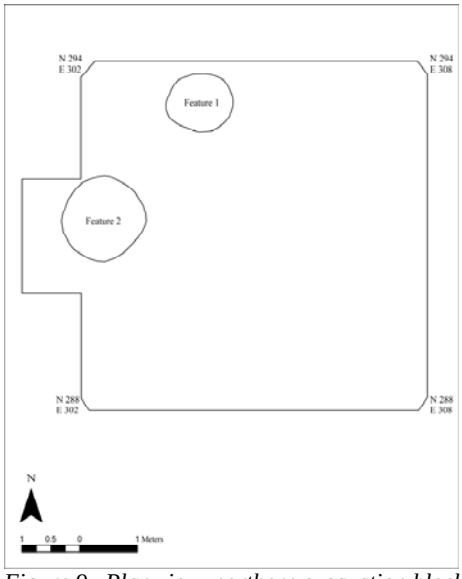

Figure 9. Plan view, northern excavation block.

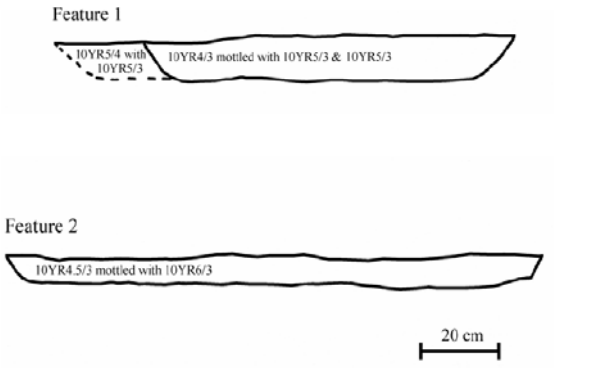

Figure 10. Profiles of Feature 1 (facing north) and Feature 2 (facing south).

We had difficulty defining the western edge of Feature 1. A 20 cm wide strip on the west side of Feature 1 was excavated separately (labeled Stratum B) during excavation of the second half of the feature. This could have been a zone of slumping within the feature, or a disturbance inside or outside of the feature. Screening Stratum B produced no cultural materials larger than ¼ inch. The 10 l flotation sample from Stratum B produced the same types of nuts and wood found in Stratum A, but the density of charcoal from Stratum A was 20 times greater than the density of charcoal from Stratum B.

Feature 2 was a 10YR 4.5/3 brown mottled with 10YR 6/3 pale brown loam flecked with charcoal. A large rim sherd was visible at the feature's surface (see Photo 7); all the sherds present in Feature 2 appear to represent perhaps 25% of a single early Late Woodland jar. This jar was cordmarked with an S-twist, and its lip features interior impressions. Other grit-tempered sherds in the plowzone from Units D and DD presumably came from the same jar. In terms of lithic materials, just three Burlington or glacial chert flakes were recovered from Feature 2. More FCR (27 fragments) was found

in Feature 2 than in Feature 1, but still it was not abundant. The types of plant remains identified in Feature 2 were similar to those identified in Feature 1, but the density of charred plant remains present was considerably lower in Feature 2 than in Feature 1. Again the hickory/walnut family (Juglandaceae) was most common among the nutshell identified. Wood charcoal again included oak (*Quercus* sp.), but walnut or hickory wood (*Juglans* sp./*Carya* sp.) was more common. Again, no seeds were present.

Photo 7. Feature 2; pottery at surface in foreground.

Photo 8. Features 1 and 2, after excavation.

Based on the presence of the ceramics within it, Feature 2 surely dates to the early Late Woodland period. It is reasonable to hypothesize that Feature 1 does also. Evidence of this includes the proximity of the two features: they were 1.6 m apart (see Photo 8). Evidence would also include the similarity of the two features in size and shape. Both features contained low densities of artifacts, and identified plant types were similar in both. In addition, an early Late Woodland Steuben point was found on the surface very close to Feature 1. If funding for further analysis were available, radiocarbon dating of the abundant charred plant remains recovered from Feature 1 could be used to test the hypothesis that it too dates to the early Late Woodland period.

Photo 9. Feature 3, showing shell-tempered sherds in southern situ in the profile and on the floor.

Photo 10. Feature 9 and surrounding features, excavation block.

Feature 3 was the deepest pit excavated at the site, extending ca. 44 cm below the plowzone, which is why it showed up so clearly in the magnetometer survey (see Figures 11-12; Table 3.) One zone of feature fill was identified, a 10YR 3/2 very dark grayish brown silt loam. Grit-tempered sherds were most common in Feature 3. These were frequently cordmarked, with Z-twisting about twice as common as S-twisting. Shell-

tempered sherds were less common, but several red-slipped shell tempered sherds were found at the very base of the feature (see Photo 9). Z-twist cordmarking is typical of Emergent Mississippian ceramics, while shell-tempered pottery is typically Mississippian. The co-occurrence of the sherds in this pit, with shell-tempered sherds present on the floor of the pit, suggests that Feature 3 dates to the beginning of the Mississippian period or the end of the Emergent Mississippian period. Although debitage was less common than pottery in Feature 3, a greater quantity of debitage was recovered from Feature 3 than from any other feature. All debitage from Feature 3 was identified as Burlington or glacial chert. More FCR was also recovered from Feature 3 than from any other feature. Plant remains recovered from Feature 3 included nut shell, maize, seeds of several native cultigens (*Polygonum*, *Chenopodium*, and *Hordeum*), and wood charcoal. The nuts, maize, and native cultigens are all harvested in the fall.

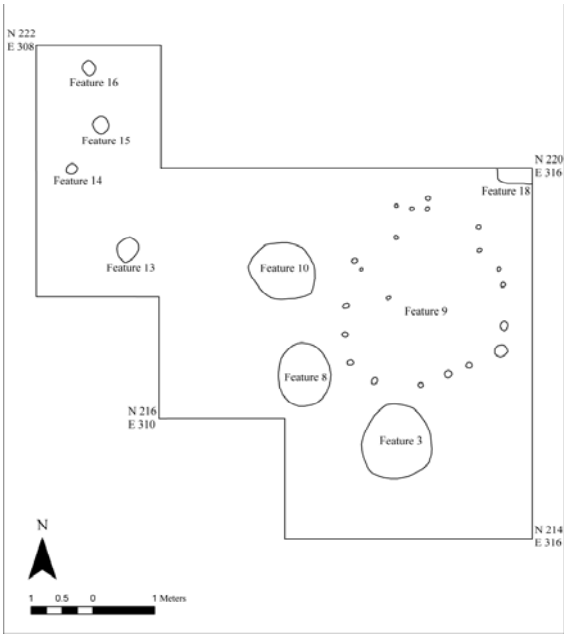

Figure 11. Plan view, southern excavation block.

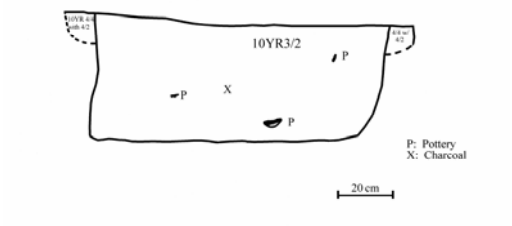

Figure 12. Profile of Feature 3 (facing north).

Feature 8 was a circular pit located northwest of Feature 3 (see Figure 11), but it was not as deep (23 cm; see Figure 13) and the feature fill appeared very different (a 10YR 3/3 dark brown silty loam flecked with charcoal and burnt clay). Few sherds were recovered from Feature 8; these were all grit-tempered and frequently cordmarked, with S-twisting more common than Z-twisting. The few flakes recovered from Feature 8 were all Burlington or glacial chert. A small amount of FCR and burned limestone was also recovered from Feature 8. Plant remains recovered from Feature 8 included nut shell, maize, seeds of native cultigens (*Polygonum* and *Phalaris*), and wood charcoal. The presence of *Phalaris* (maygrass) would suggest a spring harvest; whereas nuts, maize, and *Polygonum* (knotweed) are harvested in the fall.

Feature 9 was a circle of posts located north of Feature 3 and east of Features 8 and 10, approximately 3 m in diameter (see Figure 11, Photo 10). The posts were small, averaging about 7 cm wide and 6 cm deep below the plowzone (see Table 4). The southern half of the structure was uncovered first. Posts in the southern half were much

clearer and easier to identify than those in the north half. This could have been because excavation conditions were different (e.g., soil was drier) by the time we excavated the north half. Alternatively, it could be that the north wall was rebuilt on one or more occasions. The northwestern posts were particularly confused; since this is where winter winds typically come from, it seems likely that these posts were replaced or reinforced. Another possibility is that a seat or shelf could have been built into this corner, although this seems unlikely in such a small structure. In total, there were as many as 22 posts in the structure; these were all profiled (see Figure 14).

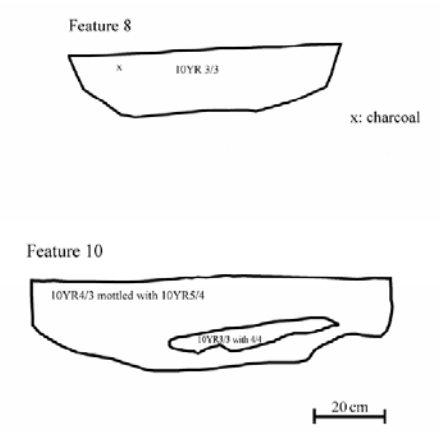

Figure 13. Profiles of Feature 8 and Feature 10 (both facing south).

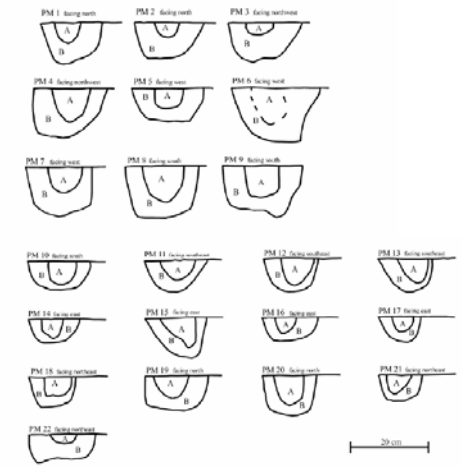

Figure 14. Profiles of post molds in Feature 9. A = post mold (10YR4/2.5 - 10YR4/4); B = subsoil (10YR5/6 mottled with 10YR5/4).

Dating of post structures is difficult since typically few diagnostic artifacts are recovered in clear association with them. In the case of Feature 9, small and crumbly grit-tempered sherds were recovered from several post molds. Their presence suggests that the structure postdates the Archaic period. Circular post structures are typical of the Middle Woodland period in the American Bottom; however, Middle Woodland structures are typically much bigger than 3 m in diameter (e.g., see Fortier 1993). Moreover, although Dave Klostermeier found Middle Woodland artifacts perhaps 20 m south of Feature 9, we recovered no Middle Woodland artifacts from the vicinity of the structure. Early Late Woodland people in the American Bottom built post structures of varying shape, and they were typically small like Feature 9. In fact, a circular post structure excavated at the Cunningham site was even smaller than Feature 9 (see Fortier 1993: Figure 6). Thus, Feature 9 could be early Late Woodland based on its style; however, no artifacts securely dated to the early Late Woodland period were found in the vicinity of Feature 9. A late Late Woodland (Patrick phase) or Mississippian age is more likely given the artifacts we recovered from this area.

Typical domestic structures from the Late Woodland Patrick phase through the Mississippian period feature semi-subterranean basins and are square or rectangular in shape (see Fortier 1993). Clearly, Feature 9 is not a typical late prehistoric domicile. However, circular structures are also found on Mississippian sites. Circular structures with hearths are typically interpreted as sweat lodges whereas circular structures without hearths are typically interpreted as storage facilities (see Fortier 2007). Given the

proximity of Feature 9 to pit Features 3, 8, 10, and 18 – which appear to encircle Feature 9 – it is believed that these features are contemporary in age. Ceramics from Features 3 and 10 suggest an early Mississippian or late Emergent Mississippian age. Similar Mississippian structures excavated at the East St. Louis site have been interpreted as small storage huts (Fortier 2007; Pauketat 2005). We will argue below that Feature 9 is most likely an early Mississippian structure for sheltering food procurement and processing activities.

Feature 10 was located just north of Feature 8, and it was essentially identical in size and shape to Feature 8 (see Figure 13). At its surface, the fill in Feature 10 also looked very similar to the fill in Feature 8 (see Photo 11); their fill was notably lighter and less homogenous than the fill in Feature 3. The fill in Feature 10 was mostly a 10YR4/3 brown mottled with 10YR5/4 yellowish brown loam; however, there was a darker lens (labeled Stratum B) toward the bottom of the feature described as a 10YR3/3 dark brown mottled with a 10YR4/4 dark yellowish brown loam flecked with charcoal and ochre. This lens was floated in its entirety and turned out to have the greatest density of charcoal relative to all other flotation samples. It contained nut shell, seeds of native cultigens (*Polygonum*, *Phalaris*, *Helianthus*, and *Iva annua*), and wood charcoal; but most of all, it was packed with maize. Fewer seeds were present in the other flotation samples from Feature 10, but otherwise taxonomic representation was similar. The presence of *Phalaris* (maygrass) would suggest a spring harvest; whereas other native cultigens, nuts, and maize are harvested in the fall.

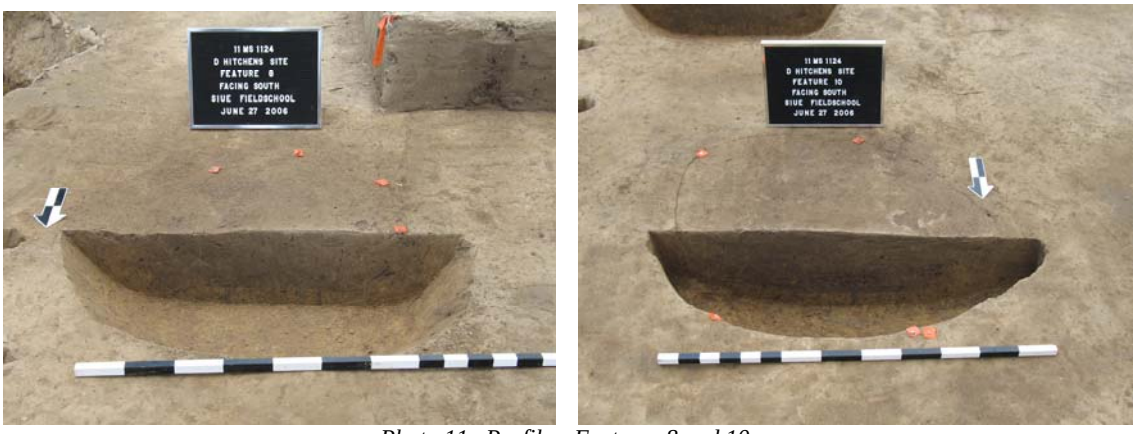

Photo 11. Profiles, Features 8 and 10.

Ceramics were mostly grit-tempered, including both cordmarked and plain surfaces. Two grit-tempered sherds were identified as having an S-twist cordmark, while one was a Z-twisted rim sherd, cordmarked to the lip. Three shell-tempered sherds were also recovered. The Z-twist rim sherd and shell-tempered sherds were much larger than most sherds, which were small and crumbly. The co-occurrence of these sherds suggests that Feature 10 like Feature 3 dates to the beginning of the Mississippian period or the end of the Emergent Mississippian period. Other materials recovered from Feature 10 were FCR, Burlington or glacial chert flakes, and burnt clay.

A sample of maize from the very bottom of Feature 10 was submitted to the ISGS for radiocarbon dating. The age returned was 1750 ± 110 radiocarbon years BP (ISGS-

6040). This would suggest that Feature 10 dates to the Middle Woodland period, which is impossible. First, maize on Middle Woodland sites is rare. Second, the ceramics recovered from Feature 10 indicate that the pit dates to the early Mississippian or late Emergent Mississippian period, which is consistent with the abundance of maize present in the pit. No Middle Woodland artifacts were recovered in the vicinity of Feature 10.

Because of the problems with the age obtained on the first sample, a second sample of maize from Feature 10 was submitted to the ISGS, this time for AMS dating. The second sample came from the center of the feature. The age returned was 905 ± 20 radiocarbon years BP (ISGS A1263). This age is consistent with the early Mississippian or late Emergent Mississippian ceramics recovered from the pit.

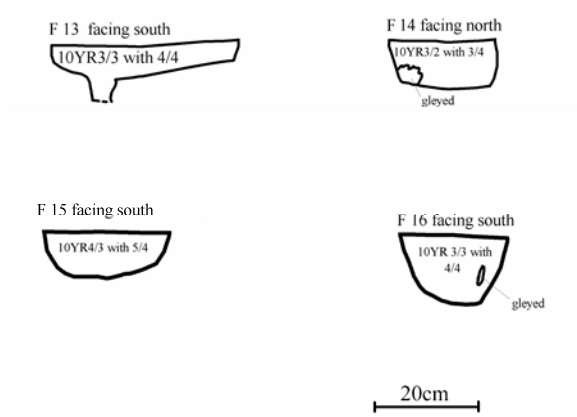

Figure 15. Profiles of Features 13, 14, 15, and 16.

Photo 12. Feature 18.

Features 13, 14, 15, and 16 were identified in Units K and KA (see Figure 11). They ranged between 20 and 40 cm in diameter, and typically extended about 10 cm in depth below the plowzone. Although they produced few cultural materials, their profiles suggest they were cultural features, even though Feature 13 appeared to have a root or rodent hole descending from the east end of its base (see Figure 15). Features 14-16 each produced one or two small grit-tempered sherds, suggesting that they post-date the Archaic period. Feature 15 produced one flake of Burlington or glacial chert. Features 15-16 also produced small amounts of FCR. Flotation samples were taken, but they have not been submitted for paleoethnobotanical analysis. The function of these features is unknown; perhaps they were post holes.

Feature 18 was identified northeast of Feature 9 (see Figure 11). Since it was discovered on the last day of the excavation, it was not excavated (see discussion of Unit R above). It extended into the north and east walls of Unit R, so its shape in plan view is unknown. However, the fill in Feature 18 appeared very similar to the fill in Features 8 and 10, which lay on the other side of Feature 9 (Photo 12). (The fill in Feature 18 was described as a 10YR 3/3 dark brown loam flecked with charcoal and red ochre.) Re-examination of the map produced by magnetometer survey (see Figure 3) shows that all three features produced a faint magnetic signature. It is therefore speculated that this is another pit like Features 8 and 10, which along with Feature 3 encircled the circular post structure, Feature 9.

CERAMICS

Ceramics were identified by Miranda Yancey with assistance from John Kelly and Julie Holt. Inspection of sherds was macroscopic, using a 10x lens. Temper type and surface treatment were recorded whenever possible for all body and rim sherds; additional observations regarding lip treatment, profile, paste, diameter, and chronological phase or period were also made for rim sherds. All cordmarked sherds were examined to determine twist direction. The method for examining twist direction was to press white Sculpey clay into the sherd; then the impressions in the clay were examined (after Drooker 1992).

A total of 3711 sherds weighing 4426.11 g were collected (see Tables 5 and 6). The vast majority of these were highly fragmented sherds recovered from the plowzone. In fact, the only sherds of any size were recovered from Feature 2 and from the base of the plowzone in Unit N and adjacent units. In the case of Unit N and the adjacent area, it would appear that the FCR concentration protected sherds found in disturbed soil at the base of the plowzone by deflecting the plow as it passed. The rim sherd from Feature 2 and a rim sherd from Feature 10 were the only rim sherds recovered. Given the area excavated, this is an extremely small ceramic sample and illustrates continuity in site function over time: multiple lines of evidence suggest that occupation at D. Hitchins during all periods was short-term and probably seasonal. Apparently, a complete set of dishes (pots, pans, etc.) was not needed.

Given that most ceramics were recovered from the plowzone, there are few published sites in the area for valid comparison since most American Bottom archaeologists do not screen the plowzone. We screened the plowzone in the 2002 SIUE field school excavation at AE Harmon (Holt et al. 2005). At that site we excavated some 44 square meters, uncovering three Late Woodland pits, a structure with a basin, and a ceramic sample of 4215 body sherds and 95 rim sherds. At D. Hitchins we excavated some 108 square meters but recovered fewer features and fewer sherds. Unfortunately, we did not record the weight of the ceramics from AE Harmon, but given that sherds from AE Harmon were generally larger, particularly those recovered from features, the weight of that sample would have been substantially greater than the sample from D. Hitchins.

Grit-tempered sherds were by far most common in the ceramic sample. Grit-tempered pottery was more commonly cordmarked than plain, and S-twisting was more common than Z-twisting. The only substantially complete vessel found at the site was a grit-tempered, early Late Woodland jar recovered from Feature 2; perhaps 25% of the jar was recovered (see Photos 7, 13). This jar featured S-twist cordmarking up to the lip, which is rounded and has interior lip impressions apparently made with a plain dowel (see Koldehoff and Galloy 2006). The diameter of the jar's opening was approximately 20 cm. It appears most like Jar Type 1, again using nomenclature from Koldehoff and Galloy (2006), which is to say that it has an inslanting-outcurved profile (also see Jackson 2007). It is clear from Jackson's discussion that we should not attempt to assign a single jar such as this to a phase given similarities in ceramics during the early Late Woodland Rosewood, Mund, and Cunningham phases.

Photo 13. Early Late Woodland rim sherd, Feature 2.

Photo 14. Emergent Mississippian rim sherd, Feature 10.

The only other rim sherd recovered from the site was also grit-tempered and cordmarked to the lip, but this was a Z-twisted sherd from Feature 10 (see Photo 14). Its lip was squared with no visible decorations. The sherd was from a jar with an inslanting profile, but the section of rim present was too small to determine the jar's diameter. The presence of Z-twisting suggests that the sherd is Emergent Mississippian, although determining phase is again problematic. Only a few other sherds from Feature 10 appear to be from the same jar, and none exhibit features diagnostic to phase. Two S-twisted cordmarked sherds were also found in Feature 10 as were several shell-tempered sherds. Given the small size of these sherds and incompleteness of the several vessels that they represent, they appear to be sheet refuse that was swept into or washed into the pit. The same could be said of the ceramics found in Features 3 and 8.

Shell-tempered sherds were found in Features 3 and 10. Shell-tempered sherds were also relatively abundant in Units N and NC, in the vicinity of and south of the FCR concentration (note that Features 5 and 6 in Table 5 were actually determined to be natural disturbances; they were located within Units N and NC). Red-slip was visible on a number of shell-tempered sherds, while brown-slip was positively identified on only one sherd. The presence of shell temper suggests that these sherds are Mississippian or perhaps late Emergent Mississippian, although determination of phase is again problematic given that no shell-tempered rims were recovered.

A small quantity of burned clay was found in Feature 10. In total, 72 fragments weighing 50.36 g were recovered. It seems doubtful that these fragments represent the manufacture of ceramics given the small quantity of burned clay recovered.

CHERT ARTIFACTS

Chert debitage and tools were analyzed by Erin Marks with guidance from Brad Koldehoff. Visual inspection of chert artifacts was macroscopic. All chert artifacts were identified to raw material when possible, examined for use wear, and finally counted and weighed.

Some 5140 chert artifacts weighing 4194.21 g were collected (see Tables 7-9). The most common chert types recovered were, not surprisingly, locally available (see Table 7). "Local" types include Burlington chert, even though the closest outcrops of

Burlington are probably some miles distant along the Mississippi River bluffs. Glacial chert is truly local, its source being chert cobbles found in locally exposed glacial till. Given difficulties in macroscopically distinguishing between some Burlington chert and local glacial charts (see Koldehoff 2006), we did not attempt to separate out debitage of one type vs. the other. For making tools, however, Burlington was clearly preferred (see Tables 7-9). As Koldehoff (2006) notes, glacial charts are of "limited utility." They were apparently not used to make formal tools at D. Hitchins.

By far the most common extra-local chert identified, according to weight, was Salem chert (see Table 8). The closest known outcroppings of Salem chert are found in southwest St. Clair County (Koldehoff 2006), but Ray indicates that "potential" deposits might be found even closer, in northwest Madison County (see Ray 2007: Figure 8.49). In terms of number, the most common exotic chert was Mill Creek chert, which comes from southern Illinois. Mill Creek chert was commonly used to make hoes in the Mississippian period, and in fact nearly half of the Mill Creek chert identified at D. Hitchins consists of hoe flakes. Cobden (Dongola) chert was also relatively common; this chert is also from southern Illinois. Several Cobden point fragments were found, as was a nearly complete Steuben point made of Cobden.

Other extra-local cherts identified were Choteau, Ste. Genevieve, Kaolin, and Fern Glen (Table 8). Outcrops of Chouteau chert are common in the lower Illinois River Valley, and Fern Glen is also exposed near Grafton (Koldehoff 2006). The closest known outcroppings of Ste. Genevieve chert are found in southwest St. Clair County (Koldehoff 2006), but as with Salem chert, Ray indicates that "potential" deposits might be found even closer, in northwest Madison County (see Ray 2007: Figure 8.51). Kaolin chert, like Mill Creek and Cobden chert, comes from Union County in southern Illinois (Ray 2007).

Photo 15. Projectile points. SUR-1 was collected from 11MS1127; all other points were collected from 11MS1124.

In sum, most cherts used at D. Hitchins were derived from sources close by. Notably, all but one of the spear and arrow points found at D. Hitchins were made of Burlington chert. Other sources of chert were the lower Illinois River Valley, southwest St. Clair County, and southern Illinois (Union County). Surely the trade systems (routes, negotiations, etc.) by which these "exotic" cherts were obtained varied through time. It is likely, for example, that Cahokia played some role in the procurement and distribution of Mill Creek hoes during the Mississippian period (e.g., see Brown et al. 1990). Perhaps similarly formal systems of exchange existed for Cobden chert during the Middle Woodland period. Cherts from closer sources in the lower Illinois Valley might have been obtained directly by quarrying expeditions.

All projectile points were recovered from the surface or from the plowzone (Table 9; Photo 15). Two or more Archaic points were found in all large excavation blocks. A Steuben point was recovered adjacent to the northern excavation block; this was most likely contemporaneous with the early Late Woodland pottery found nearby in Feature 2. Two Late Woodland or Emergent Mississippian arrow points were found in the southern

excavation block. Three Mississippian Cahokia points were found in or next to the central excavation block, and one was found in the southern excavation block. Thus, Archaic points were found across the site, early Late Woodland points were found at the north end of the site, Late Woodland-Emergent Mississippian points were found at the south end of the site, while Mississippian points were found in the central and south part of the site.

Other evidence of flaked tools includes hoe flakes, which are produced when sharpening stone hoes. Most hoe flakes were of Mill Creek chert and most likely date to the Mississippian period. Like the Cahokia points, these were also found in the central and southern excavation blocks. Several hoe flakes of Burlington chert were also found; one was found in each excavation block (north, central, and south). A number of utilized Burlington flakes (flake tools) were recovered from the central and southern excavation blocks, and two Mill Creek flake tools were recovered from the southern excavation block.

It is noteworthy that none of the "exotic" cherts at D. Hitchins were found in features, nor were any of the spear points, arrow points, or even flake tools. It seems that these objects were not intentionally discarded by disposing of them in pits with other garbage; they were more likely lost on the surface of the site. The same pattern was noted in SIUE excavations at the AE Harmon site (see Holt et al. 2005).

OTHER LITHIC ARTIFACTS

Other lithic artifacts were also analyzed by Erin Marks with guidance from Julie Holt and Brad Koldehoff. Visual inspection of lithic artifacts was macroscopic. All lithic artifacts were identified to raw material when possible, examined for use wear, and finally counted and weighed.

Cobble tools were recovered from the plowzone in the central excavation block and the southern excavation block (where Emergent Mississippian or Mississippian features were encountered), but none were recovered from the northern excavation block (where early Late Woodland features were located). Cobble tools identified included a mano, other possible grinding tools, anvils, a burnt sandstone abrader, and a hammerstone (Table 10). A fragment of a cobble tool – a possible mano – was found in a postmold of Feature 9, which is believed to be late Emergent Mississippian or early Mississippian in age.

FCR (fire-cracked rock) was by far the most common artifact recovered from the plowzone, from features, and also from disturbances determined to be natural rather than cultural in origin (features in quotation marks on Table 11). The category "chert/FCR" is chert that also appears to have been used as FCR (Table 11). The FCR concentration in the northeast quarter of Unit N stands out: over 21,000 g of FCR was recovered from Unit N, with roughly half of that bagged separately at the very base of the plowzone when the concentration became obvious ("Unit N-Ap rock" on Table 11). Included in the cluster still *in situ* at the base of the plowzone was a cracked boulder about the size of a cantaloupe (see Photo 6). Adjacent units (Units NA, NB, etc.) also contained relatively large quantities of FCR; presumably some of this came from the FCR cluster in Unit N.

The limestone recovered was all burned (Table 11), possibly in processing food such as maize. The quantity was extremely small, which is not surprising given that the

closest source of limestone was probably the Mississippi river bluffs. The greatest concentration was recovered from Feature 8, which contained just three pieces (34 g) of burnt limestone.

Minerals recovered included small quantities of limonite and hematite (Table 11). Limonite and hematite are minerals that were used by people during several periods in Illinois prehistory; those recovered from D. Hitchens were all found in the plowzone, leaving us unable to date them with any certainty. These could have been used in pigment production (e.g., see Koldehoff and Galloy 2006), or they may not have been used by site inhabitants at all.

PLANT REMAINS

Plant remains are present in charcoal samples opportunistically collected during excavation at D. Hitchins, but these have not been examined. Instead, all plant remains discussed here were recovered from features through flotation processing. Flotation samples were taken from each stratum encountered in the second half of the feature excavated; typically, samples were taken from the top of the feature and also from the bottom of deeper pit features. Flotation samples were usually 10 l; smaller samples were taken when there was not enough sediment for a 10 l sample. Flotation samples were processed by field school students at SIUE's Anthropology Lab. The volume of each sample was measured and recorded before processing. The samples were then separated into light and heavy size fractions using a Flote Tech water flotation machine.

Paleoethnobotanical samples from Features 1, 2, 3, 8, and 10 were identified by Marge Schroeder using comparative collections at the Illinois State Museum. Light fractions were separated using 2 mm, 1 mm, and .5 mm geologic sieves. For these samples the > 1 mm, > .5mm and < .5mm size fraction were carefully scanned for seeds and remains such as cucurbit rinds, bark, modern seeds, and wild beans at 10-30x magnification. The >2 mm light fraction was separated into the categories of wood and nutshell under low magnification (10-30X). Both categories were weighed, counted, and identified to the lowest possible taxonomic level.

Features 1 and 2, both believed to date to the early Late Woodland period (see above), contained nutshell and wood charcoal (Table 12). Seeds were noticeably absent from these samples (Table 13), suggesting that early Late Woodland people were in this wooded area specifically to collect and process nuts. The sample from the main zone (Stratum A) in Feature 1 was especially dense, containing quantities of both nutshell and wood. Among the nutshell, *Carya* spp. (hickory nut) was common, and *Juglans nigra* (black walnut) was also present. Hickory was not specifically identified in Feature 2, although most nutshells here too belonged to Juglandaceae (the hickory/walnut family) and black walnut was again present. Notably, early Late Woodland people at D. Hitchins were *not* selecting acorns to eat, although these would have been most abundant in the area.

The most common wood identified in Feature 1 was *Quercus* (oak), while the most common wood identified in Feature 2 was *Juglans* sp. (walnut) or *Carya* sp. (hickory). This is what we would expect in the oak/hickory forest that typifies the uplands above the American Bottom (cf. Johannessen 1984). Wood of the Ulmaceae (the elm/hackberry family) was also identified in Feature 1.

Features 3, 8, and 10 are believed to date to the end of the Emergent Mississippian period or the beginning of the Mississippian period; they all contained nutshell, wood charcoal, maize, and seeds. These features contained a very different floral assemblage compared to Features 1 and 2, most notably in the diversity of wood taxa used and in the presence of domesticated plants as well as "weeds." Feature 10 stands out among the three Mississippian features for having the greatest density of charcoal, particularly from the small lens at the center of the feature (Stratum B).

One clear avenue of continuity in plant exploitation from the early Late Woodland occupation to the early Mississippian occupation was in the selection of nut resources. Hickory nuts and black walnuts were common in Features 3, 8, and 10, suggesting a similar pattern of nut exploitation compared to the early Late Woodland samples. Again, no acorns were identified, although they would have been common in the area.

People continued to select wood of oak, walnut, and hickory trees around the beginning of the Mississippian period. However, besides these trees, a much greater diversity of woody taxa suggests an opening up of the forest at this time. In fact, wood of the elm/hackberry family is actually more common in Mississippian samples than oak-hickory. Other taxa identified are *Prunus* sp. (cf. wild black cherry), *Platanus occidentalis* (sycamore), and *Acer* sp. (maple/boxelder). Wood of *Vitis* sp. (grape vine) was also identified in Feature 10; grape vine commonly grows on trees in the area. The presence of grass stems and seeds, as well as seeds of *Solanum ptycanthum* (nightshade) and *Euphorbia maculata* (spurge), also indicate forest clearance.

The reason why the woods were more open at this time is evident in the presence of maize and seeds of indigenous cultigens. That is, the woods were cleared for farming, most likely using slash and burn techniques (e.g., see Koldehoff and Galloy 2006). *Zea mays* (maize) kernels and cupules were most common, especially in Feature 10; glumes were also common. Only two maize embryos and one cob section were recovered; these were all from Feature 10. The abundance of maize and variety of maize parts is strong evidence that inhabitants of the D. Hitchins site were growing and processing maize at the site.

Indigenous cultigens were generally less common than maize in the flotation samples; however, a variety of species was present. Seeds of *Polygonum erectum* (erect knotweed) were by far the most common among the native cultigens. Other native cultigens identified (see Table 13) were *Chenopodium* (chenopod, or lamb's quarters), *Phalaris caroliniana* (maygrass), *Helianthus annuus* (sunflower), *Hordeum pusillum* (little barley), and *Iva annua* (marsh elder). The rind of a cucurbit (squash) was also identified, although these preserve poorly (see Table 12). While these seeds and the squash rind were not specifically measured to determine domestication, these taxa are commonly assumed to be cultivated at this time based on multiple lines of evidence. Some, such as *Chenopodium*, show morphological evidence such as thinner seed coats; some, such as maygrass, become abundant outside their natural ranges; and others are simply more abundant in the archaeological record than they are expected to be in nature. At the very least, the presence of these weedy species also indicates forest clearance, and we can safely assume that humans were intentionally selecting and most likely cultivating these plants. In the American Bottom, people continued to rely on these native cultigens even after maize was introduced to the area and became a staple (e.g., see Johannessen 1984).

In sum, the floral evidence suggests that early Late Woodland people at D. Hitchins had a fairly narrow purpose in mind: to collect and process hickory nuts and walnuts in the fall. In contrast, early Mississippian people continued to collect hickory nuts and walnuts, but they also cleared the forest to grow maize and a variety of native plants. This is not to suggest that the early Mississippian diet was necessarily more diverse than the early Late Woodland diet. For early Late Woodland people, the D. Hitchins site was surely just one stop in a seasonal round, and they probably had gardens elsewhere. Early Mississippian activities took place at D. Hitchins during multiple seasons: seeds were planted in the spring, crops were tended in the summer, and crops and nuts were harvested in the fall. Maygrass would be an exception to these generalizations: it would presumably be planted in the fall for spring harvest. Some maize may have also been harvested green in the summer, but this would leave little trace in the archaeological record.

ANIMAL REMAINS

Animal remains were identified by Julie Holt using her comparative collection at SIUE. Bone preservation was extremely poor due to the acidity of the forest soils at D. Hitchins. Four mole humeri, one mole radius, and the distal tibia of a cottontail rabbit were recovered from the plowzone. The excellent condition of these bones indicates that they are modern. Less than one gram of calcined bone was recovered from Feature 3. Unfortunately, this bone could not be identified to taxa, giving us no direct evidence of prehistoric animal exploitation at the site.

HISTORIC ARTIFACTS

A small number of historic artifacts recovered from the plowzone during our excavation at the D. Hitchins site attest to 20th and possibly 19th century activities at the site. In the northern excavation block, a small piece of rusted iron and a small piece of white ceramic were recovered from Unit A, and four brick fragments (weighing 52 g) were recovered from Unit I. In the southern excavation block, a lead bullet was recovered from Unit K and another rusted object (a bolt?) was recovered from Unit P. There is no indication based on historic maps or considering these artifacts that a historic structure ever existed in the area.

SUMMARY AND DISCUSSION

During our surface surveys in 2006, we revisited sites 11MS1124 (the D. Hithcens site), 11MS1125, 11MS1126, and 11MS1127; and also recorded a new site, 11MS2337, in the southwest corner of the project area. Site forms were completed and submitted to the IAS for all of these sites. Notably, our surface collections led us to redefine the boundaries of 11MS1124 and 11MS1127. In addition, we were able to show an Archaic presence at 11MS1127, which previously was reported to be Late Woodland in age.

Archaic use of the project area was extensive. Archaic peoples definitely made use of 11MS1124 and 11MS1127, as demonstrated by the presence of Archaic period

spear points collected during surface collection of 11MS1127 and excavation of 11MS1124. In addition, it is reasonable to suggest that the lithic scatters at 11MS1125, 11MS1126, and 11MS2337 could also date to the Archaic period, given the lack of ceramics noted at those sites. Of course, hunting parties probably visited those locations during all time periods, given that the Klostermeier collection has yielded projectile points from the Paleoindian period to the Mississippian period, with only Early Woodland period projectile points possibly absent.

It is less clear how intensive Archaic use was of the project area. There was no indication of Archaic features in our shovel testing of 11MS1125, nor was there any indication of Archaic features in our excavations at 11MS1124. However, if shallow features had been present at either site, they could have been obliterated by plowing. In addition, 11MS1125 appears to be heavily eroded. Dave Klostermeier (personal communication, 2005) has also suggested that there probably were once Archaic features at the highest point in elevation, the north end of the lithic scatter that we have redefined as 11MS1127. If so, they also would have been plowed and eroded away.

Our excavations on 11MS1124, the D. Hitchins sites, were undertaken with particular interest in Mississippian use of the site. However, in addition to finding Archaic points across the site, we also found what are probably two early Late Woodland features, both shallow pits, in the northern excavation block. One of these features (Feature 2) yielded a single early Late Woodland jar, while the second feature (Feature 1) yielded no diagnostic artifacts. A Steuben point was found on the surface close to Feature 1, supporting the assertion that it too is early Late Woodland in age. In addition, the two features were close to each other, similar in size and shape, and contained a similar suite of plant remains. These plant remains suggest early Late Woodland people were in this area to collect and process hickory nuts and walnuts during the fall. Logic and the spear point suggest that they also would have taken the opportunity to hunt while they were here. The wood taxa present suggest the area was then an oak-hickory forest, as would be expected. Presumably this was just one stop in a seasonal round for early Late Woodland people, who likely grew native cultigens elsewhere. Although the small number of flakes in Features 1 and 2 were all Burlington chert, the use of Cobden chert to make the Steuben point shows that these people were involved in a larger social arena.

These features are apparently the first early Late Woodland features to be excavated in the uplands of Cahokia Creek, and in the uplands of the northern American Bottom. The closest excavated early Late Woodland sites are the Cunningham site (Meinkoth et al. 2001), which is a bluff base site some 15 km from the D. Hitchins site, and the Widman site, a bluff top site some 20 km distant (see McElrath and Fortier 2000). The Cunningham site is notable for being one of the larger early Late Woodland sites excavated in the American Bottom; it was interpreted as a "single-component horticultural hamlet" (Meinkoth et al. 2001:185). It is also notable that it could not clearly be assigned to either the Rosewood or Mund phase. That is, its ceramics bear traits that could fit into either phase, but radiocarbon dates mostly place the Cunningham site within the Mund phase. Jackson (2007) summarizes recent efforts by the Illinois Transportation Archaeological Research Program (ITARP) to redefine these phases. He proposes that Cunningham be considered a separate phase contemporary with Mund, at least until additional data are recovered which might better clarify relationships between Rosewood, Mund, and Cunningham. In any case, it is clear from Jackson's discussion

that it would be imprudent to assign D. Hitchins to a phase, given that only one jar was recovered from the site and given continuity in ceramic traits throughout the early Late Woodland period.

The Widman site was a small site, with only 11 features excavated, whereas some 124 features including four structures and a single burial were excavated at the Cunningham site (McElrath and Fortier 2000). McElrath and Fortier (2000:114) suggest, "The smaller residential camps… which are ubiquitous in bluff-top and upland environments, were no doubt tied to larger communities such as Mund or Cunningham." The D. Hitchins site was probably one such small camp. It could have been tied to the Cunningham site itself, but we have no direct evidence for this: first, we cannot be sure the two sites are contemporary, given our inability to assign D. Hitchins to a phase, and second, surely there were areas equally rich in nuts and game closer to Cunningham than D. Hitchins. McElrath and Fortier suggest that upland areas were probably used primarily as hunting territories in the Middle Woodland period, but "became a focus of horticultural production" during the early Late Woodland period (2000:115). In the case of D. Hitchins, horticultural production took place elsewhere. There is no evidence of gardening or forest clearing at the site during the early Late Woodland period.

In contrast, there is rich evidence of forest clearance and crop production at D. Hitchins during the early Mississippian period. Paleoethnobotanical remains indicate a greater diversity of trees in the area, as well as grasses and other plants that would be expected in cleared areas. Among the crops grown, maize was most abundant, but knotweed and other native cultigens were also grown. Hoe flakes, most commonly of Mill Creek chert, provide additional evidence of Mississippian agriculture. Woods (1986) suggests Mississippians chose this area because floodplain (Wakeland) soils below the site were well suited to Mississippian agriculture, but we would add that the upland soils in the area are also suitable for farming (see Yancey 2007 for a formal site catchment analysis with respect to soils). Whereas the fertility of the floodplain soils would have been replenished by annual floods, the fertility of upland forest soils would have been dependent on the type of fallowing system typical of slash-and-burn agriculture. The upland prairie soils a short distance from the site probably would not have required fallow periods, or certainly much shorter fallow periods, but they would have been more difficult to cultivate with stone hoes. While we did not find any celts during our excavation, several broken celts in the Klostermeier collection probably date to the Mississippian period and provide additional evidence of forest clearance (see Yancey 2005).

Other evidence shows that early Mississippian people at D. Hitchins did more than just farm. Like their early Late Woodland predecessors, they continued to collect hickory nuts and walnuts. We would point out that neither group collected acorns, although they would have been most abundant in the area. The presence of Cahokia points indicates Mississippian people also hunted, probably targeting animals that preyed upon their cultivated crops and nut crops as well. The bones of any animals they hunted were not recovered during our excavations, at least in part because of the poor preservation that results from acidic soils. However, we would point out that less than a gram of calcined bone was recovered from a Mississippian feature. If Mississippian hunters had consumed their game here, it seems likely that more calcined bone would

have been recovered. Abundant charred plant remains were recovered. Perhaps any game they killed was consumed elsewhere.

The small amount of ceramics recovered from Mississippian features suggests that Mississippian people did not live at the site. As suggested above, they did not need a full set of dishes, pots, or pans. The lithic assemblage also indicates limited activities beyond farming, hunting, food processing, and maintenance of tools needed for those activities. We did not uncover any evidence of Mississippian style housing – that is, we found no wall trench structures – to suggest that people were actually living here during the Mississippian period. We excavated only a small portion of the D. Hitchins site – less than 5% of it – and it is certainly possible that wall trench structures are present in unexcavated portions of the site. Nevertheless, strong corroborating evidence that there was no intensive long-term Mississippian occupation at D. Hitchins was provided by the SIUE survey of the early 1980s (see Woods 1986). In comparison with 11MS341, the Kruckeberg No. 1 site, D. Hitchins produced significantly fewer Mississippian materials. As a result, Woods (see Woods 1986 and Woods and Holley 1991) identified 11MS341 as a village and 11MS1124 as a farmstead. Based on his years of collecting both sites, Dave Klostermeier (personal communication, 2005) agrees with the hypothesis that 11MS341 was a Mississippian village and 11MS1124 saw much lighter use by Mississippians. However, Klostermeier thought that D. Hitchins could have been a ritual site, perhaps a burial site. We will consider this idea below.

Woods and Holley (1991) suggest that both 11MS341 and 11MS1124 (the D. Hitchins site) date to the Moorehead phase. However, the Mississippian features excavated by the SIUE field school at 11MS1124 more likely date to the Lohmann phase (early Mississippian period) than the Moorehead phase (mid-late Mississippian period). A single rim sherd from Feature 10 was grit-tempered and cordmarked to the (squared) lip with Z-twist cordage. However, shell-tempered sherds were also found in Feature 10, and red-slipped shell-tempered sherds were found on the floor of Feature 3. Thus, the small sample of ceramics we recovered from features in the southern excavation block included both grit-tempered sherds and shell-tempered sherds, most of which were small and appeared to be sheet refuse either swept or washed into the features. John Kelly (personal communication, 2006) suggests that the assemblage of sherds from Features 3 and 10 could be considered either terminal Emergent Mississippian or early Mississippian. Kelly also points out that assigning the assemblage to a phase is difficult given the lack of comparative excavation data from the area.

Although two Late Woodland (Emergent Mississippian) arrow points were found in the southern excavation block, a Cahokia point was also found in the southern excavation block, and four more were found nearby in the central excavation block. Seven Mill Creek hoe flakes were recovered from the southern part of the site, and three more were recovered from the central excavation block. These data confirm Mississippian use of the area. Moreover, an AMS date from Feature 10 indicates that the pit, and presumably associated features, dates to approximately 905 radiocarbon years BP (see above).

The features found in the southern excavation block consist of a small circular post structure encircled by four pits, three of which were excavated. One of these, Feature 3, was a relatively deep pit best suited for storage. The other two excavated pits, Features 8 and 10, were more shallow and better suited for food processing. Given the

abundance of charred maize, especially in Feature 10, it is easy to imagine that these pits were used to dry maize for storage. The presence of charred seeds of native cultigens and nuts suggests that these features were also used to dry other plant foods as well. Feature 3 could have been used to store food, or it could have been used to store seed for next year's planting. The latter explanation seems more likely, given that we found no direct evidence that Mississippian people actually lived at this site.

The circular post structure, Feature 9, is not a typical Mississippian house, which would be a wall trench structure with a basin. Circular structures on Mississippian sites are usually interpreted as either ritual structures (e.g., sweat lodges) or storage facilities (e.g, see Fortier 2007). As mentioned above, Klostermeier believed that D. Hitchens was a ritual site because of several unusual Mississippian objects he found at the site. These included a Cahokia-style discoidal (chunkey stone) crudely engraved with a weeping eye on one side and sunburst on the other, a very small washer-like discoidal (ca. 4 cm in diameter) with a hole ground through its center, and a flared celt (Yancey 2005). While the lack of an internal hearth could be taken as evidence that Feature 9 was not a sweat lodge, a shallow hearth could have been obliterated by plowing, and significant quantities of FCR were found nearby in the central excavation block. However, the most convincing evidence that Feature 9 was *not* a ritual structure is its association with food processing and storage pits. We would not expect such activities to take place outside a sweat lodge, menstrual hut, or other ritual structure.

The alternative interpretation, that Feature 9 was a storage facility, also seems unlikely. A storage facility would seem likely at a Mississippian village, but not at a site like D. Hitchins without evidence of a residential population of any size. Plant remains indicate the site was in use or at least visited throughout the spring, summer, and fall, but there is no evidence of winter occupation. Above ground storage is vulnerable to theft and would not make sense unless a site was occupied by a sizable group of people year round to defend it. Below ground storage in pits like Feature 3 makes more sense at a site that might be abandoned seasonally. We believe that Feature 3 may have been used to store seed over winter that would have been planted at the site in the spring.

Rather than ritual or storage, then, we believe that Feature 9 was a temporary shelter for the activities that took place at D. Hitchins during the early Mississippian period. The most important of these activities was probably farming. Still, we don't feel the term "farmstead" is appropriate to describe D. Hitchins unless and until a residential structure (i.e., a wall trench structure) is found at the site. "Field house," a term suggested by Finney 1993 for ephemeral, isolated Mississippian structures, might seem more appropriate. The field houses identified by Finney (1993) were similar to Mississippian residential structures. Some exhibited posts rather than wall trenches, but they typically featured rectangular basins. In fact, Finney (1993) questions why the effort would have been made to dig a basin for a temporary shelter for farmers. In the case of Feature 9 at D. Hitchins, it better fits our expectations of a field house since it did not feature a basin. It otherwise is similar to the field houses identified by Finney: its associated features yielded few cultural remains and animal remains were essentially non-existent.

However, we would reiterate that agricultural activities were not the only activities to take place at D. Hitchins during the early Mississippian period. Nuts were also gathered here, and the area was probably a good spot for hunting. It would appear

that some processing of crops, both cultivated and nuts, also took place here. In short, we believe that Feature 9 was a temporary shelter for farmers, hunters, and gatherers. The term "field house" still seems most appropriate, though, given that farming would have been the most important of these activities in terms of its economic contribution.

The low density and low diversity of artifacts suggest that people were not living at D. Hitchins. This would imply that the crops and possibly meat produced here were consumed elsewhere. The closest Mississippian village, the Kruckeberg No. 1 site (11MS341), is believed to date to the Moorehead phase (Woods and Holley 1991). The Moorehead phase falls later in the Mississippian period, so early Mississippian produce from D. Hitchins must have been sent somewhere else. It is likely that D. Hitchins was also farmed during the Moorehead phase (Woods and Holley 1991), so its fields probably produced food for the village at Kruckeberg at that time.

Other than Kruckeberg, there are no known Mississippian villages in the uplands of Cahokia Creek (Woods and Holley 1991). The John Fox site (11MS1108), located about 1200 m west-northwest of the D. Hitchins site, is believed to date to the "Lohmann/Stirling time span" (Woods and Holley 1991:53), which might make it contemporary with the early Mississippian component at D. Hitchins. However, Yancey's (2007) site catchment analysis shows that the soils at John Fox had even higher agricultural productivity than soils at D. Hitchins. With no apparent access to running water, Yancey suggests that John Fox was probably also a "temporary farming base" rather than a habitation site (2007:82). That is, people at the John Fox site, like those at D. Hitchins, were probably growing food for consumption elsewhere.

A Mississippian village was present at AE Harmon (11MS136), which was situated on the bluff edge above Cahokia Creek some 20 km south of the D. Hitchins site (see Holt et al. 2005). However, there's no reason to think that people living at AE Harmon would have needed to bring in food from elsewhere, given the size of the settlement and productivity of local soils. A more likely destination for crops grown at both D. Hitchins and John Fox would therefore be Cahokia (Marks 2006). Many archaeologists have suggested that upland sites helped feed Cahokia. For example, Pauketat (e.g., 2003) suggests that the need to feed Cahokia was probably one of many factors that led to the development of farming villages he terms "the Richland Complex" in the uplands west of Cahokia during the early Mississippian period.

Thus, we consider Features 3, 8, 9, 10, and 18 at D. Hitchins early Mississippian rather than late Emergent Mississippian because we believe farmers, hunters, and gatherers here were likely producing food for Cahokia. As is the case with the Richland Complex, we hypothesize that this occurred around the time of the "Big Bang" that made Cahokia the dominant center of the American Bottom and beyond. In this scenario, we are left with several possible explanations for why the ceramics at D. Hitchins show both Mississippian traits and "old-fashioned" Emergent Mississippian traits. Pauketat suggests the reason may have been "resistance" to new trends emanating from Cahokia by "Mississippian farmers [who] had agency" (2003:56). The problem with this explanation is that it seems inconsistent with the idea that farmers built villages in the uplands in part to feed Cahokia. If they were resistant to Cahokia, why feed Cahokia? The alternative suggestion is usually that upland folks out in the hinterlands were a little slow to pick up on the latest styles coming out of Cahokia. Comparing urban and rural fashion trends today, that seems a more likely explanation. In the case of D. Hitchens,

however, the explanation may even be simpler: why take your newest dishes out to the field house? People heading out to work some distance from their home village would be more likely to take their old dishes along rather than their new ones.

We are not suggesting that rituals did not take place at D. Hitchins. It seems likely that Mississippian farmers prayed for (and against) rain just as farmers do today. However, the rituals suggested by the Klostermeier collection probably took place during the Moorehead phase. Klostermeier and Woods (1986) found Moorehead phase ceramics at both D. Hitchins site and 11MS341. As viewshed analysis by Yancey (2007) demonstrates, villagers at 11MS341 would have been able to look down upon the D. Hitchins site, as well as several other Mississippian sites in the area. Some of these sites could have been simple hunting and farming locales, as it appears D. Hitchins was at the beginning of the Mississippian period. D. Hitchins itself could have become a burial ground during the Moorehead phase as Klostermeier has speculated, although we found no evidence for it.

Finally, we are left wondering about the purpose of the big pile of FCR in the central excavation block. While the rock cannot be dated, the high percentage of shell-tempered pottery at the base of the plowzone in proximity to the FCR concentration, and the Cahokia points and Mill Creek chert found in the plowzone, suggest that it might date to the Mississippian period. If it dates to the early Mississippian period, we would assume the FCR was used to dry crops. If it dates to the Moorehead phase occupation, perhaps it was used in food processing, or perhaps it was used in a sweat lodge or other ritual context. Either scenario must remain speculative given the poor context of the feature. Still, a Mississippian age seems most likely. Archaic points were also found in the plowzone in this area, but we can't imagine why Archaic hunters would have stockpiled such an enormous amount of FCR.

CONCLUSION

The SIUE field school achieved its primary goal of providing archaeological training to students of anthropology. In addition, it provided the opportunity to record new information about an area in the uplands north of the American Bottom that is poorly known to professional archaeologists. The data we uncovered provided research opportunities for both students and faculty (see Guntren 2008; Marks 2007; Yancey 2007). Thus, all of our goals were achieved.

Photo 16. The D. Hitchens site (11MS1124) planted with native prairie grasses, wildflowers, and shrubs.

Today the project area has been taken out of agricultural production and planted with native grasses, flowers, shrubs, and trees (Photo 16). The sites in the project area are protected to the extent that they are no longer reduced by

plowing, and prairie grasses provide excellent erosion control. The roots of shrubs and trees that have been planted could cause some damage if additional intact archaeological features are present at D. Hitchins. However, and most importantly, the project area is protected from development by the current landowners. While the sites it contains have effectively become invisible beneath this prairie/savannah reconstruction, they are arguably among the best protected sites in this part of the rapidly developing American Bottom.

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LIST OF TABLES

Table 1. Cultural materials recovered from shovel test pits. Weight (wt) is in grams.

STP	Debitage #	Debitage wt	FCR #	Historic #
A1	2	3.56		
A6	2	0.30		
A6.5	3	0.79		
A7	4	1.16		
A8	1	0.29		
A9	1	0.58		
A9.5	2	0.89	1	
B4	2	3.81		
B4.5	2	0.61		
B5	5	15.84		
B7	1	0.29		
B9	1	0.22		
B9.5	1	0.55		
B10	1	1.41		
B11	1	0.19		
B12	3	3.36		
C1	1	0.44		
C2	1	0.19		
C2 – Stratum C	3	2.59		
C2 – Stratum D	2	0.71		
D2				1
D2 – Stratum C				3
D3	1	0.18		
D3 – Stratum B	1	0.10		
D4	2	4.08		
D10	1	0.19		
D16	1	0.23	1	
E5	3	1.08		
F8	1	0.14		
F9	1	0.41		
G9.5	1	0.10		

Note: Cultural materials were recovered from the plowzone unless otherwise indicated.

Table 2. Unit coordinates and sizes.

Unit	SW Coordinate	Unit Size (m)
A	N292 E302	2 x 2
B	N292 E304	2 x 2
C	N292 E306	2 x 2
D	N290 E302	2 x 2
DD	N290 E301	1 x 2
E	N290 E304	2 x 2
F	N290 E306	2 x 2
G	N288 E302	2 x 2
H	N288 E304	2 x 2
I	N288 E306	2 x 2
J	N218 E300	2 x 2
K	N220 E308	2 x 2
KA	N218 E308	2 x 2
L	N214 E312	2 x 2
LA	N216 E312	2 x 2
LB	N216 E314	2 x 2
LC	N214 E314	2 x 2
M	N214 E298	2 x 2
N	N228 E305	2 x 2
NA	N228 E307	2 x 2
NB	N226 E307	2 x 2
NC	N226 E305	2 x 2
ND	N224 E305	2 x 2
NE	N224 E307	2 x 2
O	N216 E310	2 x 2
P	N218 E310	2 x 2
Q	N218 E312	2 x 2
R	N218 E314	2 x 2

Table 3. Feature data. Volume is in liters; other measurements are in meters.

Feature	Length (m)	Width (m)	Depth (m)	Volume (l)	Plan	Profile	Function	Age
1	1	1.17	0.085	37.8	circular	inslanting	nut processing	early Late Woodland
2	1.42	1.38	0.075	55.6	circular	inslanting	nut processing	early Late Woodland
3	1.24	1.08	0.435	387.1	circular	belled/inslanting	storage	early Mississippian
8	1	0.85	0.23	79.7	circular	inslanting	food processing	early Mississippian
9	3.08	2.78	0	NA	circular	NA	shelter	early Mississippian
10	0.9	1.12	0.23	159.1	circular	vertical/inslanting	food processing	early Mississippian
13	0.4	0.36	0.1	11.3	circular	vertical	post hole?	unknown
14	0.16	0.2	0.09	2.3	circular	vertical	post hole?	unknown
15	0.27	0.265	0.1	3.1	circular	inslanting	post hole?	unknown
16	0.27	0.33	0.145	6.4	circular	inslanting	post hole?	unknown
18	unknown	unknown	unknown	unknown	unknown	unknown	food processing?	early Mississippian?

Note: Data obtained from feature summary forms. Volumes calculated using formulae from Fortier et al. 1984: Figure 22.

Table 4. Postmold data (obtained from profiles).

Postmold	Diameter (cm)	Depth (cm)
1	6	5
2	6	4
3	7	3
4	9	8
5	7	5
6	8	9
7	8	6
8	10	9
9	8	8
10	7	6
11	9	5
12	8	7
13	8	6
14	5	5
15	9	8
16	5	4
17	5	4
18	7	5
19	9	6
20	8	8
21	6	5
22	6	2
average	7	6

Table 5. Ceramic data, non-features. Weight (wt) is in grams.

Unit-Stratum	Grit/Unknown		Grit/ Plain		Grit/Plain MCS		Grit/CM		Grit/S-twist		Grit/Z-twist		Shell/ Unknown		Shell/Plain		Shell/Red		Shell/Brown		ShGt/Plain		Grog/Plain		Unidentified	
	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt
A-Ap	1	0.46																								
B-Ap	1	1.09																								
D-Ap	11	17.68					2	7.01	1	5.78																
DD-Ap	4	2.59																								
G-Ap	3	0.98																								
H-Ap	5	4.3																								
I-Ap	7	7.71																								
J-Ap	106	76.34	2	2.85	4	7.6	7	8.14	5	9.51																
K-Ap	153	142.78	4	7.8			5	10.84	4	4.63	2	1.29			3	1.62										
KA-Ap	243	167.02			3	5.61	12	18.76			1	1.37			10	7.89							1	1.29	6	0.8
KA-A/B	39	20.99					3	11.2	1	5.65																
L-Ap	120	117.23	7	18.2			11	14.93	7	10.88	1	2.44			6	3.06										
LA-Ap	110	91.6	1	1.67	2	1.52	27	75.06	5	13.11			17	7. 08			1	1.05								
LB-Ap	38	25.29					2	1.8	2	6.59			2	0.49			2	0.49								
LB-B	5	7.53					5	9.4																		
LC-Ap	295	148.37	1	1.87			24	31.41	5	7.37	3	5.48	37	14.64	1	1.28	2	0.36								
LC-A/B	18	9.32					3	4.71																		
M-Ap	11	13.87			1	2.29			3	4.23																
N-Ap	54	59.89	9	20.69			13	24.62	10	41.3	3	19.1	9	5.67	13	51.56			1	21.24					3	4.38
N-B	9	5.42					2	2.85	1	1.08																
NA-Ap	128	140.22	6	14.35	1	0.59	13	26.93	8	18.18			18	8.54	4	7.32									2	0.56
NA-B	11	10.34							3	7.55																

NB-Ap	130	107.66	22	19.91			10	22.31	7	15.74					2	2.63									5	5.22
NB-B	18	11.63					3	9.91	1	1.75	2	21.91														
NC-Ap	81	69.74	16	39.07			2	5.14	2	4.29	7	17.02	2	0.84	18	71.29					2	7.19			3	2.34
ND-Ap	179	138.43	6	10.34			11	21.02	4	6.68	3	8.29			7	8.09										
ND-B	18	14.23																								
NE-Ap	127	95.77	1	0.79			16	33.58	2	1.38	8	10.86	5	4.47	4	4.44									1	0.37
NE-B	28	14.26							1	11.29																
O-Ap	74	82.65					4	3.45	5	20.52	5	15.81	2	0.68												
P-Ap	277	200.56	3	2.95			23	33.81	3	10.92			20	8.14											16	10.54
P-B	5	2.13	1	3.4			2	1.02																		
Q-Ap	227	154.32	6	5.79			5	10.05	2	11.79			32	16.85											3	7.1
Q-B	7	11.35					1	0.66	1	3.33																
R-Ap	52	63.96					5	7.87	1	8.47					4	9	1	3					1	2.4		
R-B	3	11.85					3	12.62																		
Total	2598	2049.56	85	149.68	11	17.61	214	409.1	84	232.02	35	103.57	144	60.32	72	168.18	6	4.9	1	21.24	2	7.19	2	3.69	39	31.31

Brown = brown-slipped surface
CM = cordmarked, twist direction undetermined
MCS = Madison County shale
Red = red-slipped surface
ShGt = shell and grit temper

Table 6. Ceramic data, features. Weight (wt) is in grams.

Feature	Grit/Unknown		Grit /Plain		Grit/CM		Grit/S-twist		Grit/Z-twist		Shell/ Unknown		Shell/Plain		Shell/Red		Unidentified	
	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt
2	43	126.98			29	278.91	5	156.23										
3	147	101.68	1	3.55	19	31.46	4	17.39	7	40.8			5	14.18	8	77.43	1	0.99
“5”	4	2.72					4	33.84	1	1.42	2	1.39	1	3.83				
“6”	11	19.9	4	18.85	18	65.25			2	16								
8	2	6.52			3	2.49	12	46.02	4	10.36								
9	6	1.24																
10	46	49.98	3	4.4	7	9.53	2	2	1	8.89	1	0.18	2	6.89				
“11”	4	1.56					1	0.83									1	0.09
14	1	0.2																
15	2	0.73																
16	3	1.49					1	1.54										
Total	269	313	8	26.8	76	387.64	29	257.85	15	77.47	3	1.57	8	24.9	8	77.43	2	1.08

CM = cordmarked, twist direction undetermined Red = red-slipped surface
Note: Features in quotation marks were ultimately determined *not* to be cultural features.

Table 7. Local cherts. Weight (wt) is in grams.

Provenience	Burlington/Glacial Debitage		Burlington Core		Burlington Flake Tool		Burlington Reworked Flake		Burlington Hoe Flake		Burlington Scraper		Burlington Biface		Burlington Point Fragment		Unknown Chert Biface		Unknown Chert Point Fragment	
	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt
Feature 1	2	0.47																		
Feature 2	3	6.17																		
Feature 3	91	50.37																		
“Feature 5”	5	3.97																		
Feature 8	11	4.76																		
Feature 10	28	10.01																		
“Feature 11”	2	1.42																		
Feature 15	1	0.16																		
Unit A-Ap	75	213																		
Unit B-Ap	72	59.77									1	3.73								
Unit C-Ap	129	54.5																		
Unit D-Ap	99	54.79																		
Unit DD-Ap	30	12.64																		
Unit E-Ap	90	47.4					3	4.52												
Unit F-Ap	112	74.06																		
Unit G-Ap	78	29.8					2	4.26												
Unit G-B2	2	0.55																		
Unit G-B7	2	0.82																		
Unit H-Ap	68	49.19	1	21.86																
Unit I-Ap	82	52.37	2	20.49					1	0.92										
Unit J-Ap	171	81.23															3	9.76		
Unit K-Ap	253	199.63			1	1.96									1	6.73				
Unit KA-Ap	294	164.44			2	18.02													1	3.03
Unit KA-A/B	29	12.17	1	19.3																
Unit L-Ap	220	138	1	12.58	2	12.55									1	1.03				
Unit LA-Ap	227	164.71	1	25.18																

Unit LB-Ap	124	86.99											1	14.91						
Unit LB-B	8	4.07																		
Unit LC-Ap	158	72.5			1	9.34									1	0.82				
Unit LC-A/B	6	0.74																		
Unit M-Ap	97	84.81	2	17.14																
Unit N-Ap	337	175.62	1	14.49	1	3.78							1	4.53						
Unit N-B	17	16.95																		
Unit NA-Ap	314	247.55	2	35.66			1	1.14												
Unit NA-B	31	19.15																		
Unit NB-Ap	256	115.76	2	64.91	2	10.61									2	3.52				
Unit NB-B	28	19.72																		
Unit NC-Ap	207	143.99	1	18.72	1	5.79	1	4.09	1	3.1										
Unit ND-Ap	230	304.57			1	1.92														
Unit ND-B	14	21.5					1	1.39												
Unit NE-Ap	236	109.6	2	32																
Unit NE-B	40	34.94																		
Unit O-Ap	191	135.08																		
Unit O-B	10	10.87																		
Unit P-Ap	258	166	1	27.74					1	1.07										
Unit P-B	6	2.17																		
Unit Q-Ap	116	133.46																		
Unit Q-B	2	5.27																		
Unit R-Ap	145	88.89																		
Unit R-B	6	2.62	1	23.01																
Total	5013	3489.22	18	320.5	11	63.97	8	15.4	3	5.09	1	3.73	2	19.44	5	12.1	3	9.76	1	3.03

Note: Features in quotation marks were ultimately determined *not* to be cultural features.

Table 8. Extra-local cherts. Weight (wt) is in grams.

Unit-Stratum	Salem		Salem core		Mill Creek		Mill Creek Flake Tool		Mill Creek Hoe Flake		Cobden Flake		Cobden Point Fragment		Choteau		Ste. Genevieve		Kaolin Hoe Flake		Fern Glen	
	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt
Unit B-Ap			1	42.08															1	0.54		
Unit DD-Ap																	1	0.26				
Unit J-Ap					1	1.17			1	0.3	2	0.5										
Unit L-Ap	4	13.08							1	0.81			1	2.05					1	0.31		
Unit LA-Ap																	1	0.71				
Unit LB-Ap									1	2.59	1	0.32										
Unit LC-Ap	1	2.71							1	0.3	1	0.68										
Unit M-Ap									2	0.98												
Unit N-Ap					1	0.35					3	0.91					1	0.12				
Unit NA-Ap					3	5							1	0.24			1	0.42			1	1.18
Unit NC-Ap									2	5.66			1	0.83								
Unit ND-Ap					2	3.06					1	0.36										
Unit NE-Ap					2	1.95			1	0.2	2	0.62			3	3.55						
Unit O-Ap	1	20.56											1	1.01	1	0.44						
Unit P-Ap	2	8.92			1	1					1	0.34										
Unit Q-Ap									1	4.95	1	0.37										
Unit Q-B	1	1.99																				
Unit R-Ap			1	26.37			2	9.47														
Total	9	47.26	2	68.45	10	12.53	2	9.47	10	15.79	12	4.1	4	4.13	4	3.99	4	1.51	2	0.85	1	1.18

Table 9. Projectile points from 11MS1124. Weight is in grams; other measurements are in millimeters.

Unit-Stratum	Time Period	Chert Type	Weight	Maximum Width	Maximum Length	Maximum Depth
SUR 2	Mid-Late Woodland (Steuben)	Cobden	4.96	17.96	39.54	6.45
SUR 3	Mississippian (Cahokia)	Burlington	1.11	broken	29.43	3.85
G-Ap	Terminal Archaic (Prairie Lake)	Burlington	8.15	28.70	41.91	8.09
G-Ap	Terminal Archaic?	unidentified	3.88	broken	broken	6.81
K-Ap	Late Woodland (arrow)	Burlington	1.35	12.79	28.05	4.30
KA-Ap	Mississippian (Cahokia)	Burlington	1.54	16.34	25.38	5.48
L-Ap	Terminal Archaic? (Prairie Lake?)	Burlington	6.39	29.21	broken	8.86
LB-Ap	Late Woodland (arrow)	Burlington	4.21	broken	36.11	7.12
NA-Ap	Mississippian (Cahokia)	Burlington	0.63	broken	broken	3.41
NC-Ap	Mississippian (Cahokia)	Burlington	0.30	12.12	17.75	1.78
NC-Ap	Late Archaic (Etly)	Burlington	28.55	40.19	broken	11.20
NC-Ap	Mississippian (Cahokia)	Burlington	3.46	broken	broken	6.09
ND-B	Archaic	Burlington?	5.29	25.92	reworked into a scraper	8.80
O-Ap	early Middle Archaic (Jakie stem?)	Burlington	10.32	22.72	61.42	7.25
Q-Ap	Middle-Late Archaic (Godar)	Burlington	2.57	broken	broken	7.25

SUR 2 = Surface near Unit A
SUR 3 = Surface near Unit N

Table 10. Cobble tools. Weight (wt) is in grams.

Provenience	Mano		Anvil		Possible grinding tool		Sandstone abrader		Hammerstone		Cobble tool	
	#	wt	#	wt	#	wt	#	wt	#	wt	#	wt
Feature 9											1	126
Unit J-Ap			1	328								
Unit K-Ap									1	132		
Unit KA-Ap					1	1060						
Unit L-Ap												
Unit LA-Ap	1	516										
Unit LB-Ap							1	472				
Unit N-Ap			3	1206	1	444					2	1272
Unit NE-Ap												
Unit R-Ap												
Total	1	516	4	1534	2	1504	1	472	1	132	3	1398

Table 11. FCR and other lithic artifacts. Weight (wt) is in grams.

Provenience	FCR		Chert/FCR		Burned Limestone		Limonite		Hematite	
	#	wt	#	wt	#	wt	#	wt	#	wt
Feature 1	1	22	1	1						
Feature 2	14	200	13	65						
Feature 3	248	1300	58	68						
"Feature 5"	29	1706								
"Feature 6"	97	2146								
Feature 8	29	632			3	34				
Feature 10	74	558	12	10						
"Feature 11"	12	136								
Feature 15	3	2	12	13						
Feature 16	2	2								
Unit A-Ap	132	802	18	113						
Unit B-Ap	144	1036	92	93						
Unit C-Ap	587	1578	49	208						
Unit D-Ap	702	4444	15	19						
Unit DD-Ap	28	576	4	22						
Unit E-Ap	90	1414	133	172						
Unit F-Ap	195	1330	73	111						
Unit G-Ap	71	736	5	2						
Unit G-B2	22	222	2	1						
Unit G-B3	1	6								

Unit G-B4	4	76									
Unit H-Ap	191	1662	62	178							
Unit I-Ap	122	1276	133	318							
Unit J-Ap	322	3638	70	169							
Unit K-Ap	440	5438	216	217							
Unit K-B	2	5									
Unit KA-Ap	365	5924	19	25			1	0.63			
Unit KA-A/B	137	660	166	228							
Unit L-Ap	568	4980	176	360							
Unit LA-Ap	313	4266	129	307							
Unit LB-Ap	162	2234									
Unit LB-B	28	128	190	218							
Unit LC-Ap	1366	3450	3	3							
Unit LC-A/B	18	260	67	222							
Unit M-Ap	343	2614	106	248							
Unit N-Ap	629	10764	11	49					1	4.57	
Unit N-Ap rock	49	10330									
Unit N-B	36	390	2612	318							
Unit NA-Ap	512	6242	442	300			1	2.9			
Unit NA-B	42	572	34	59							
Unit NB-Ap	616	7688	141	371					1	0.04	
Unit NB-B	30	638	28	83							
Unit NC-Ap	422	2865	224	518							
Unit ND-Ap	323	4786	3	18			1	0.92			
Unit ND-B	45	294	259	412							
Unit NE-Ap	743	5072	6	3							
Unit NE-B	87	544	57	158							
Unit O-Ap	284	4304	1	1							
Unit O-B			168	254							
Unit P-Ap	80	2912	2	1							
Unit P-B	11	104	280	559							
Unit Q-Ap	928	4558	2	3							
Unit Q-B	10	152	62	150							
Unit R-Ap	232	2568	3	3	1	24					
Unit R-B	9	84					3	4.45			
Total	11950	120326	6159	6651	4	58	6	8.9	2	4.61	

Note: "Unit N-Ap rock" consists of rock from the FCR cluster at the base of the plowzone in Unit N. Rock from "Feature 5" was also in association with this FCR cluster. Features in quotation marks were ultimately determined *not* to be cultural features.

Table 12. Paleoethnobotanical raw data. Counts of >2 mm specimens; all samples were 10 liters.

Feature	1	1	2	3	3	8	8	10	10	10			nut taxon % (after	%ubiquity
Sample location	Strat A top	Strat B top	top	top	bottom	top	bottom	Strat A top	"Strat B"	Strat A bottom	Totals	category %	allocations)	(n=10)
Charcoal wt.	6.873	0.386	0.837	1.101	1.479	1.684	1.506	1.488	8.556	3.183	27.093			
Charcoal density (g/10 l)	6.873	0.386	0.837	1.101	1.479	1.684	1.506	1.488	8.556	3.183	27.093			
Raw ct. or est., >2mm fraction	224	16	27	38	62	79	46	101	534	188	1315			
Count per 10 l	224	16	27	38	62	79	46	101	534	188	1315			
Hickory nuts (*Carya* spp.)	56	4	0	1	2	2	7	10	10	8	100		52.63	90
Juglandaceae (hickory/walnut)	42	5	7	4	9	4	6	7	19	9	112			100
Black walnuts (*Juglans nigra*)	P	P	1	12	16	24	8	13	19	9	102		47.37	100
Total nuts	98	9	8	17	27	30	21	30	48	26	314	23.88		100
Wood	119	6	19	11	19	34	19	24	63	10	324	24.64		100
Bark	7			2	1	2	1		3		16	1.22		60
Grass stems					4			2	2	P	8	0.61		30
Corn kernels				6	9	10	4	35	240	100	404	30.72		70
Corn cob sections									1		1	0.08		10
Corn cupules				1	1	1	1	10	101	35	150	11.41		70
Corn glumes					1	2		P	44	5	52	3.95		60
Corn embryos									1	1	2	0.15		20
Cucurbitaceae rind (squash/gourd rind)								P			0	0.00		10
Galls									3		3	0.23		10
Other seeds >2mm									20	2	22	1.67		20
Unknown		1		1		P			8	9	19	1.44		50
Nutshell allocations:														
Juglandaceae to hickory	42	5		0.308	1	0.308	2.8	3.043	6.552	4.235	65.246			
Juglandaceae to black walnut			7	3.692	8	3.692	3.2	3.957	12.45	4.765	46.754			

P = presence only among charcoal <2mm.

Table 13. Carbonized seeds. Counts of specimens >0.5-mm; all samples were 10 liters.

Feature	1	1	2	3	3	8	8	10	10	10			
Sample location	Strat A top	Strat B top	top	top	bottom	top	bottom	Strat A top	"Strat B"	Strat A bottom	Totals	% taxon ids	%ubiquity (n=10)
Charcoal wt. (>0.5mm)	6.873	0.386	0.837	1.101	1.479	1.68	1.506	1.488	8.556	3.183	27.093		
All Seeds 2 to 0.5 mm (raw counts)	0	0	0	2	20	1	7	22	171	62	285		
Chenopodium sp. (chenopod)					3			4	20	5	32	13.68	40.0
cf *Elymus* sp. (wild rye grass)										1	1	0.43	10.0
Euphorbia maculata (spurge)									3		3	1.28	10.0
Helianthus annuus (sunflower)									2	1	3	1.28	20.0
Helianthus/Iva (sunflower or marsh elder)									3		3	1.28	10.0
Hordeum pusillum (little barley)					2						2	0.85	10.0
Iva annua (marsh elder)									3		3	1.28	10.0
Panicum sp. (panic grass)								1		5	6	2.56	20.0
Phalaris caroliniana (maygrass)							2	2	9	3	16	6.84	40.0
Poaceae (grass family cf *Panicum*?)									5		5	2.14	10.0
Polygonum erectum (erect knotweed)					11		5	4	94	20	134	57.26	50.0
Polygonum or *Chenopodium* (endosperm frag.)								2			2	0.85	10.0
Scirpus? (sedge)										1	1	0.43	10.0
Solanum ptycanthum (nightshade)								5	16	2	23	9.83	30.0
unidentifiable fragments				2	4	1		4	16	24	51		
Total seed taxa identifications		0	0	0	16	0	7	18	155	38	234		
Seed count per gram charcoal >0.5mm/10 liters	0	0	0	0	10.818	0	4.648	12.097	18.116	11.938	5.762		

Table 14. Wood charcoal subsampling. All samples were 10 liters.

Feature	1	1	2	3	3	8	8	10	10	10		% taxon	%ubiquity
Sample location	Strat A top	Strat B top	top	top	bottom	top	bottom	Strat A top	"Strat B"	Strat A bottom	Totals	ids	(n=10)
Wood >2 mm, subsample to id	22	6	20	11	19	24	17	22	23	10	174		
Acer sp. (maple/boxelder)								1			1	0.8	10.0
Carya sp. (hickory)						3					3	2.5	10.0
Juglans spp. (blk walnut/butternut)	1							2	3	3	9	7.5	40.0
Juglans sp./*Carya* sp.(walnut or hickory)			7								7	5.8	10.0
Platanus occidentalis (sycamore)					2						2	1.7	10.0
Prunus sp. (cf. wild black cherry)			1						4	1	6	5.0	30.0
Quercus (general oaks)		4									4	3.3	10.0
Quercus, red oaks group	11		3		6		1			2	23	19.2	50.0
Quercus, white oaks group	5										5	4.2	10.0
Ulmaceae (elm/hackberry family)	3			8	3	10	10	4		1	39	32.5	70.0
Ulmus americana (Am. Elm)						7	1				8	6.7	20.0
Vitis sp. (grape vine)									13		13	10.8	10.0
ring porous (type indeterminate)	1	2	2	2	3	3	5	1		2	21		
diffuse porous (type indeterminate)	1				2			14	3	1	21		
unidentifiable type wood			7	1	3	1					12		
Wood taxa ids.	20	4	11	8	11	20	12	7	20	7	120		

LIST OF FIGURES

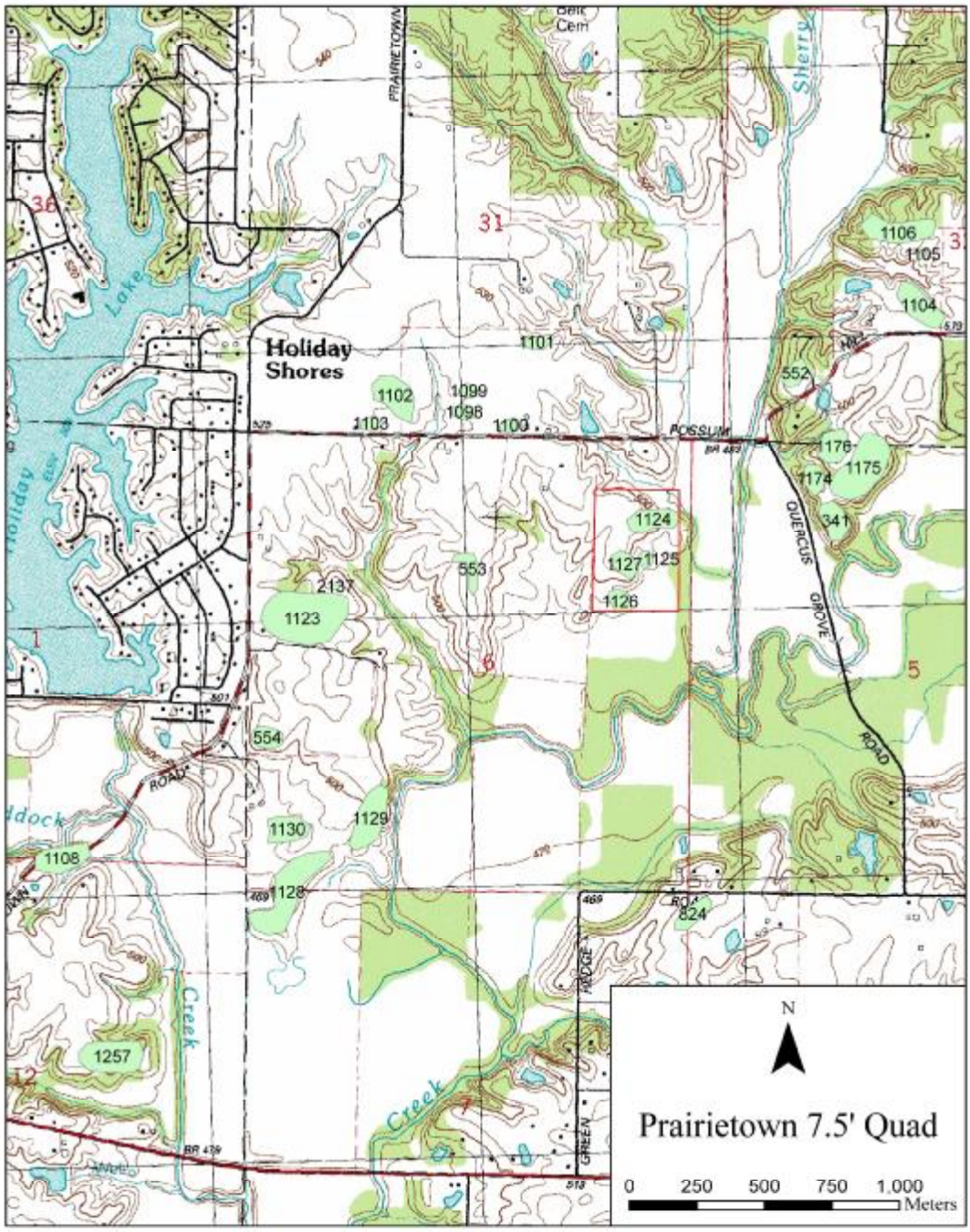


Figure 1. USGS map showing project area and previously recorded sites.

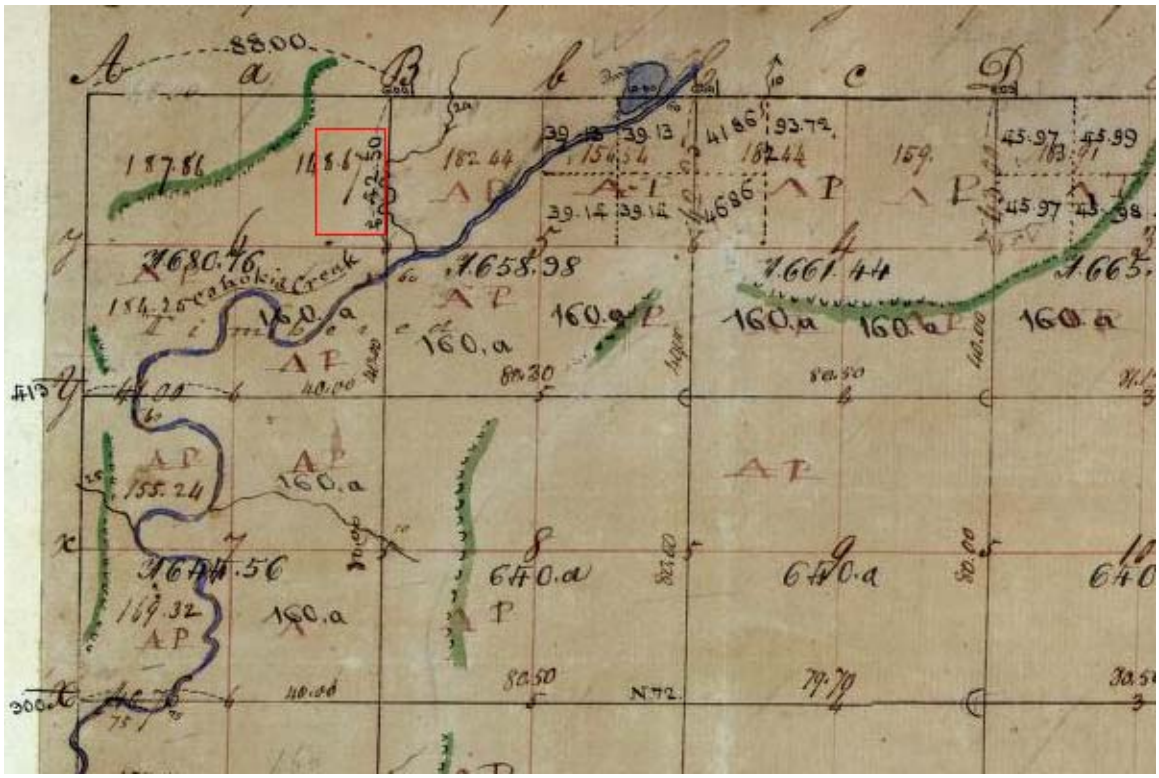


Figure 2. 1814 GLO map. Hamel township.

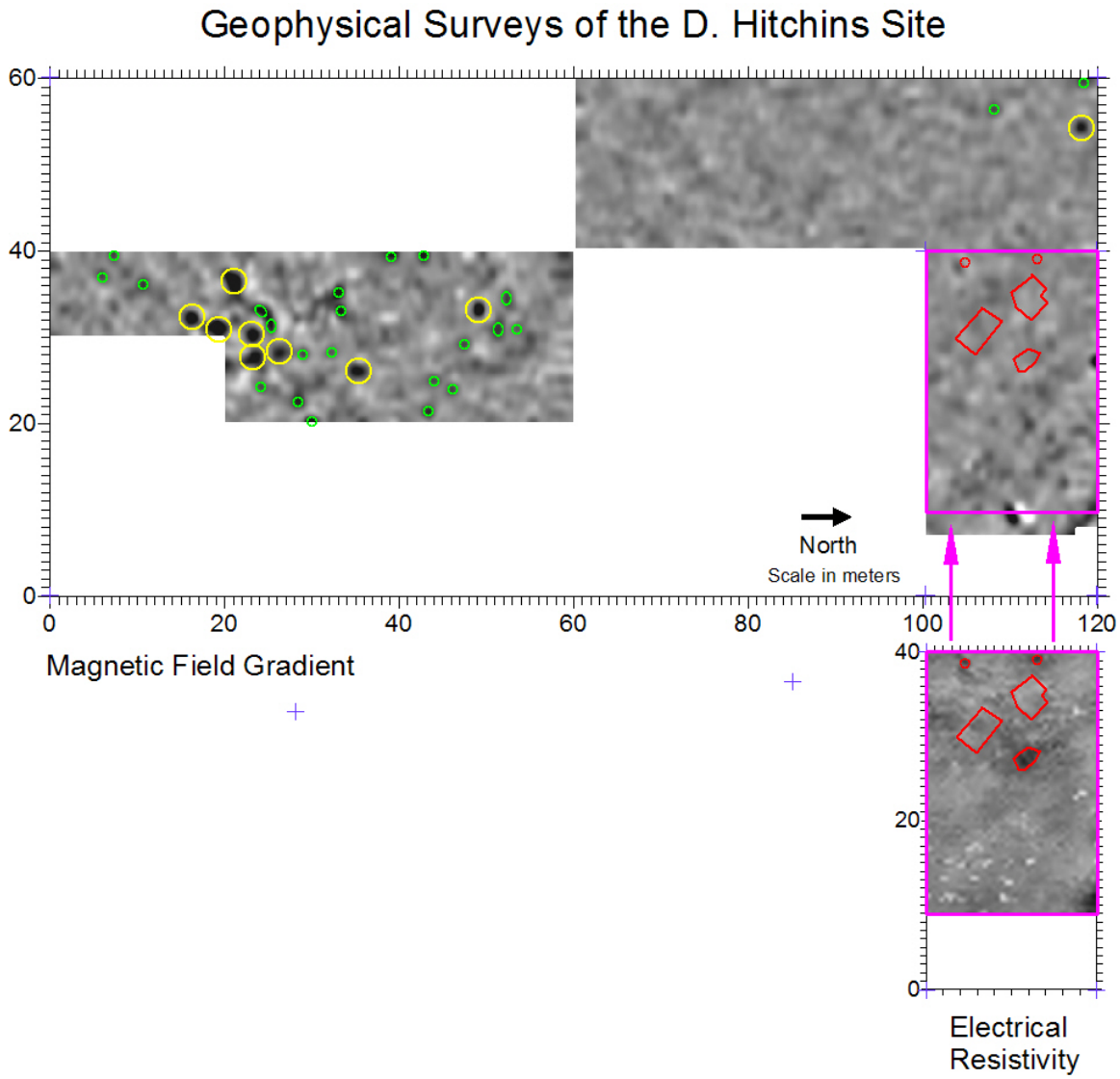


Figure 3. Locations of magnetic and resistance anomalies at 11MS1124 recommended for ground truthing. Map by Dr. Michael Hargrave of ERDC/CERL. Hargrave's N120 W40 = SIUE's N300 E300.

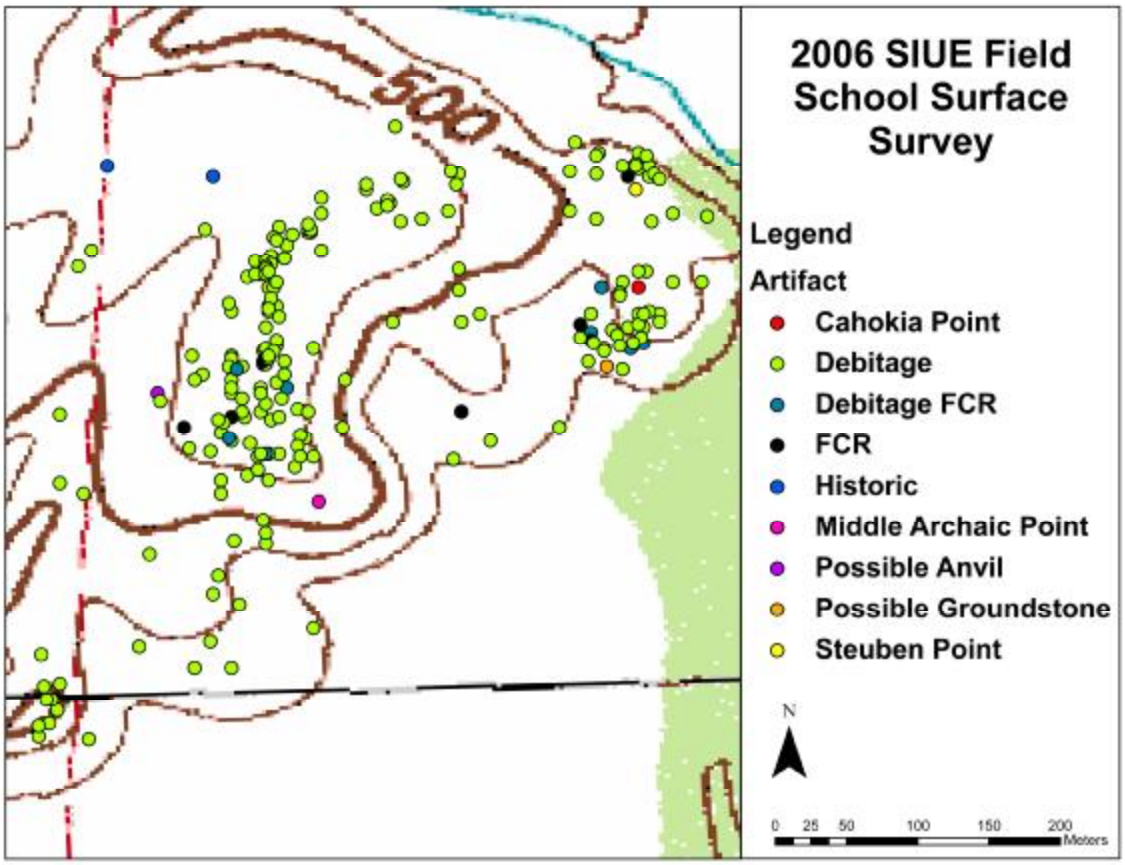


Figure 4. Surface collection results.

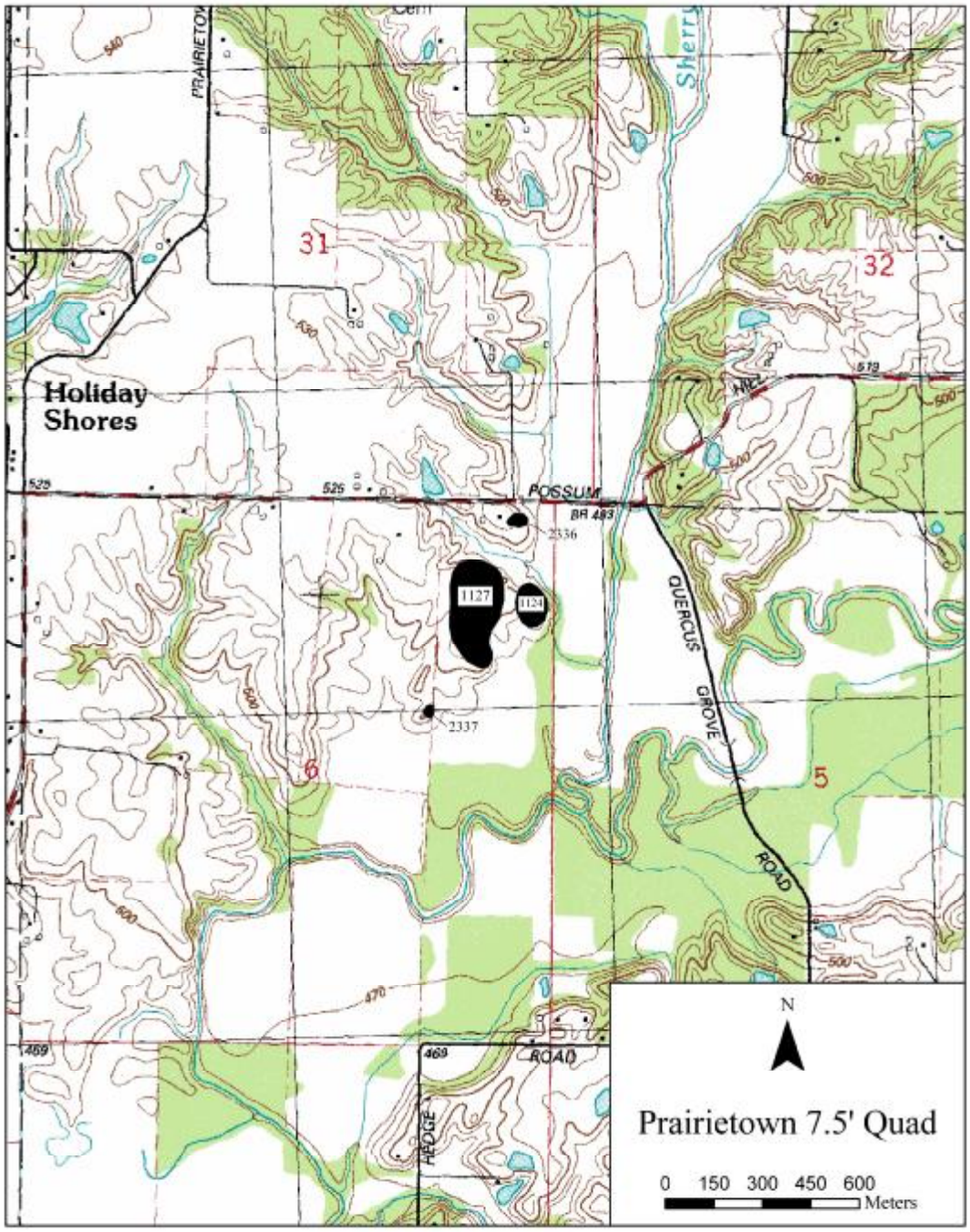


Figure 5. USGS map showing revised site boundaries and newly recorded sites.

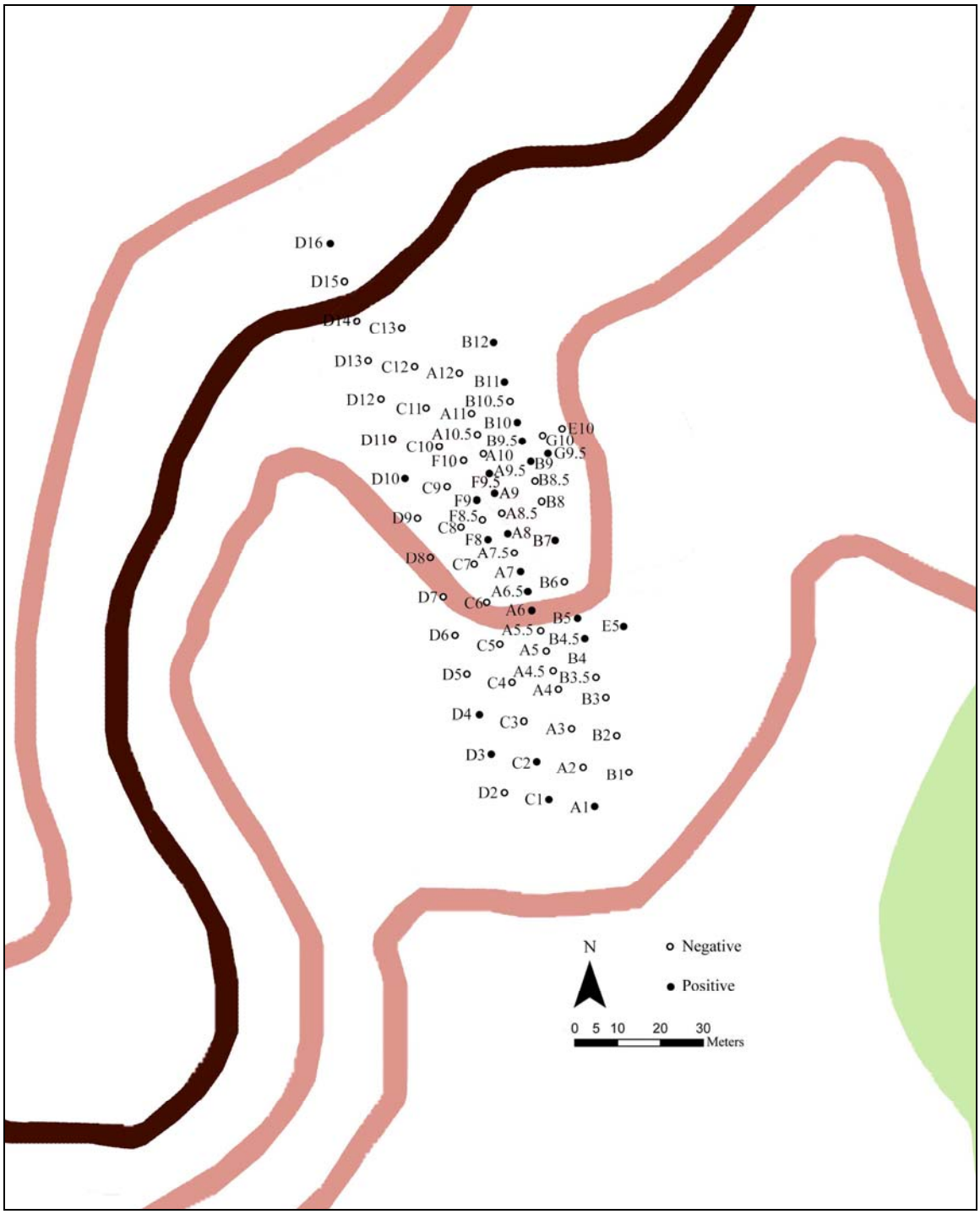


Figure 6. Shovel test results, 11MS1125.

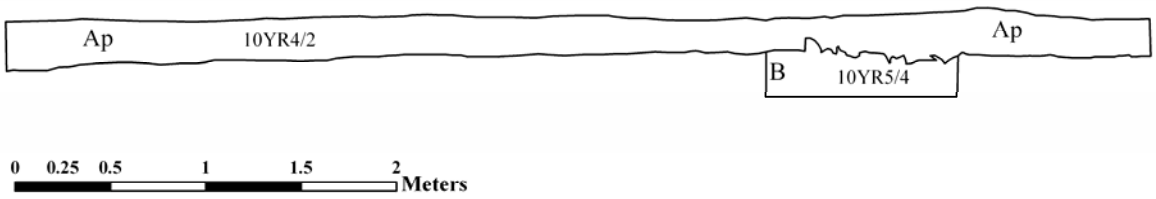


Figure 7. Profile facing south, Units G, H, and I.

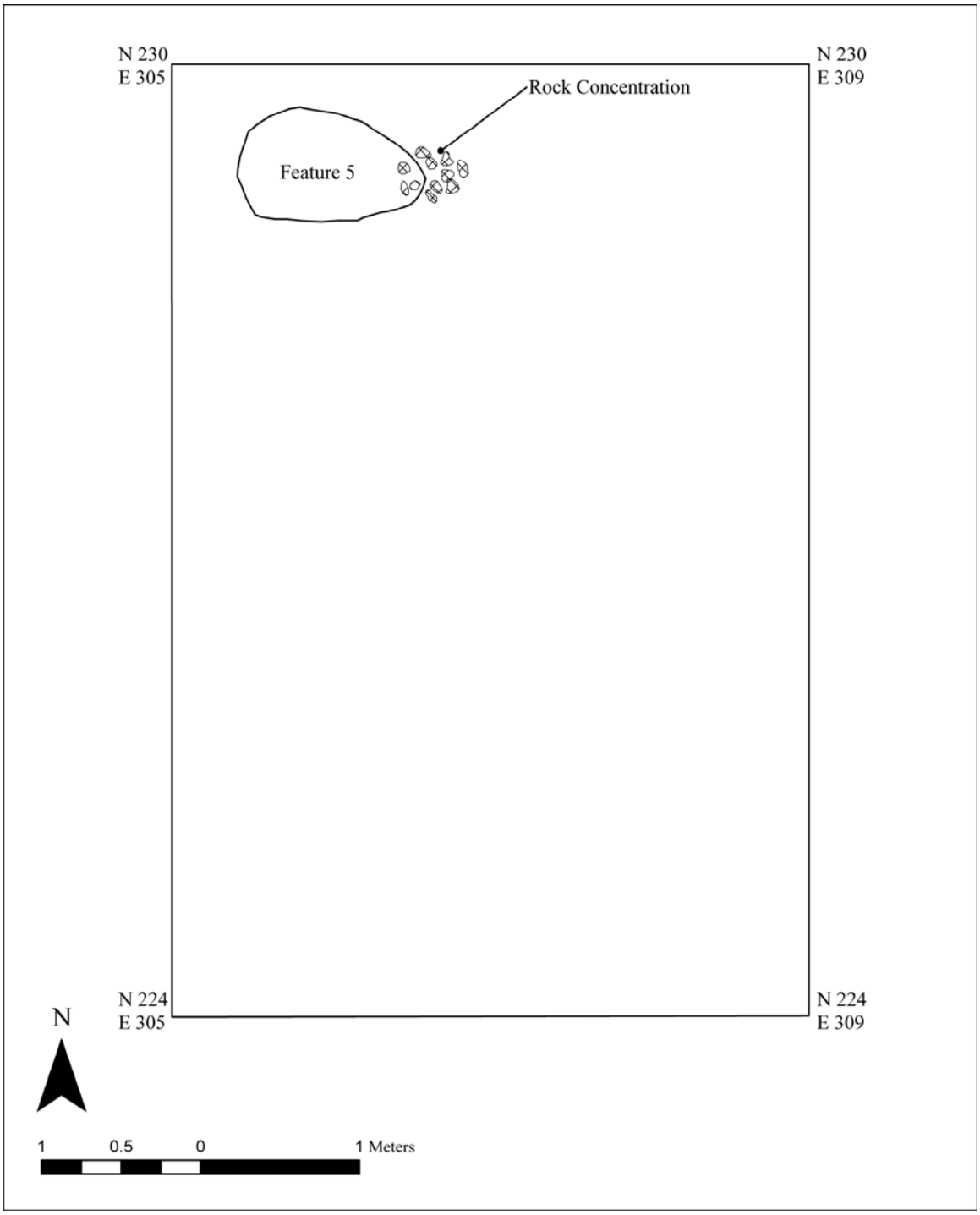


Figure 8. Plan view, central excavation block.

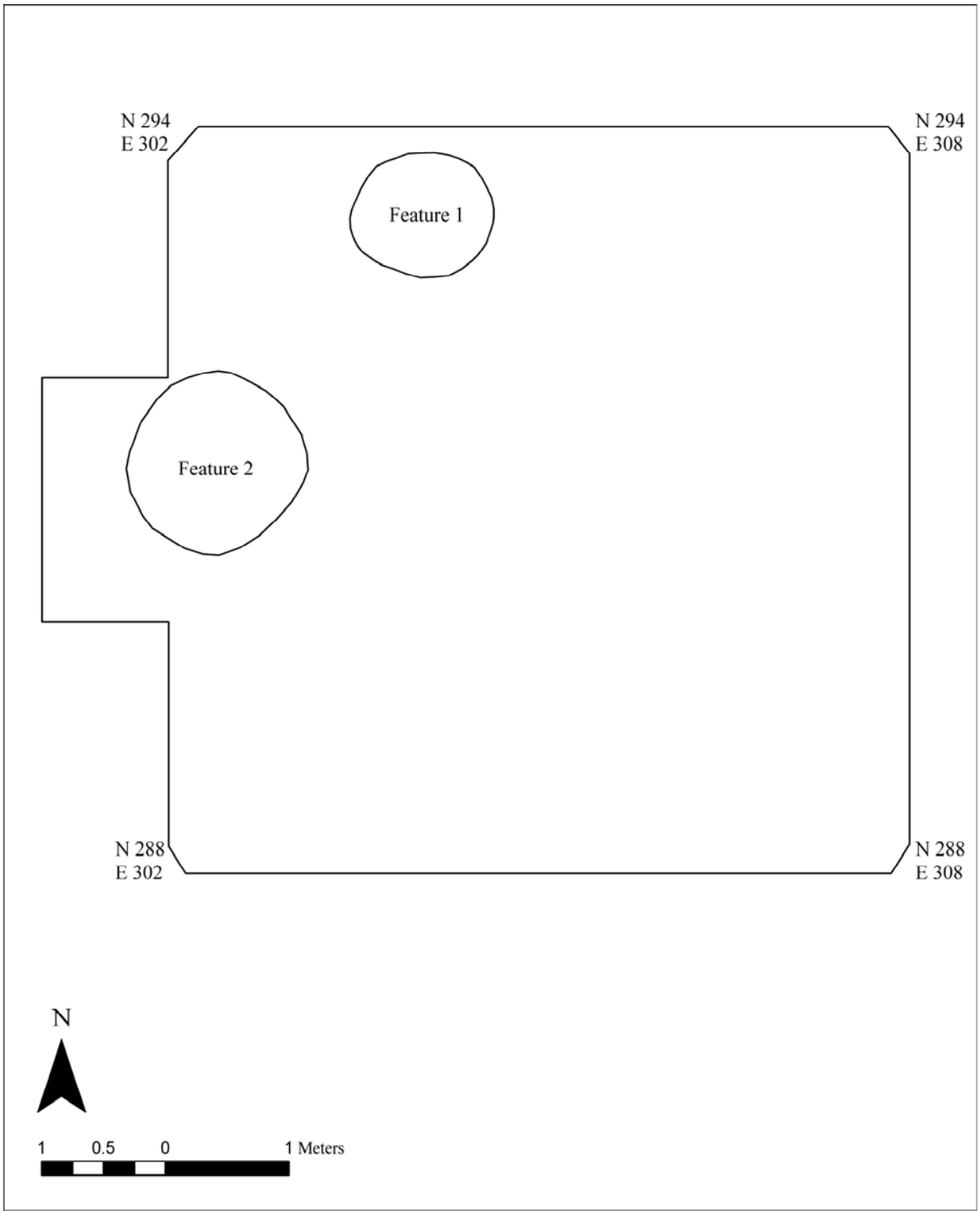


Figure 9. Plan view, northern excavation block.

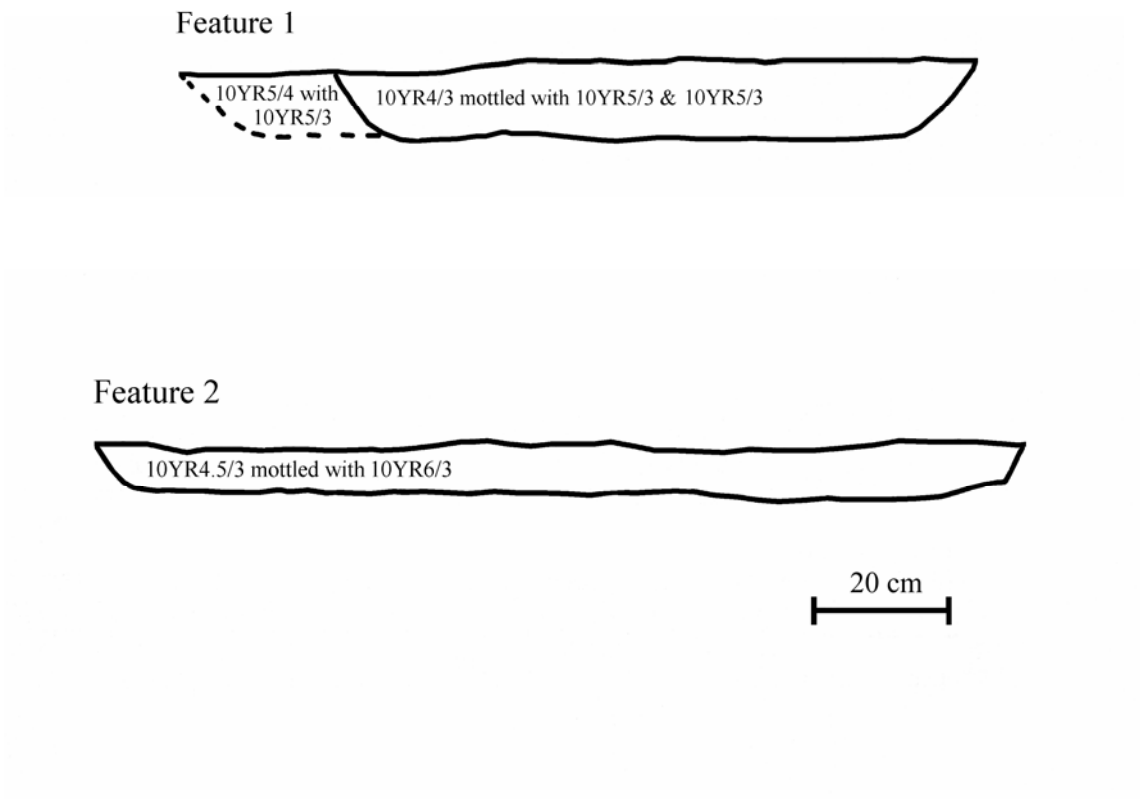


Figure 10. Profiles of Feature 1 (facing north) and Feature 2 (facing south).

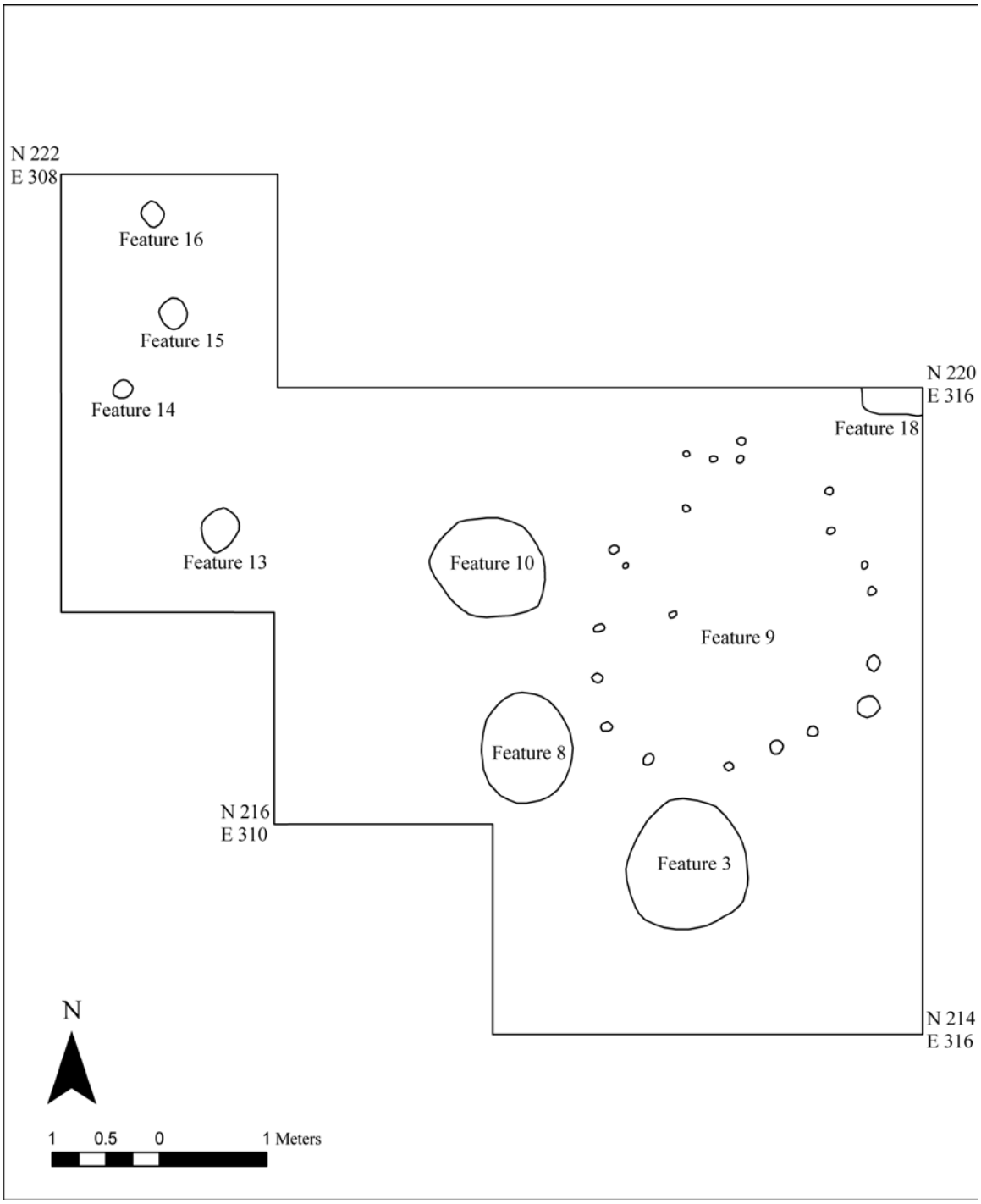


Figure 11. Plan view, southern excavation block.

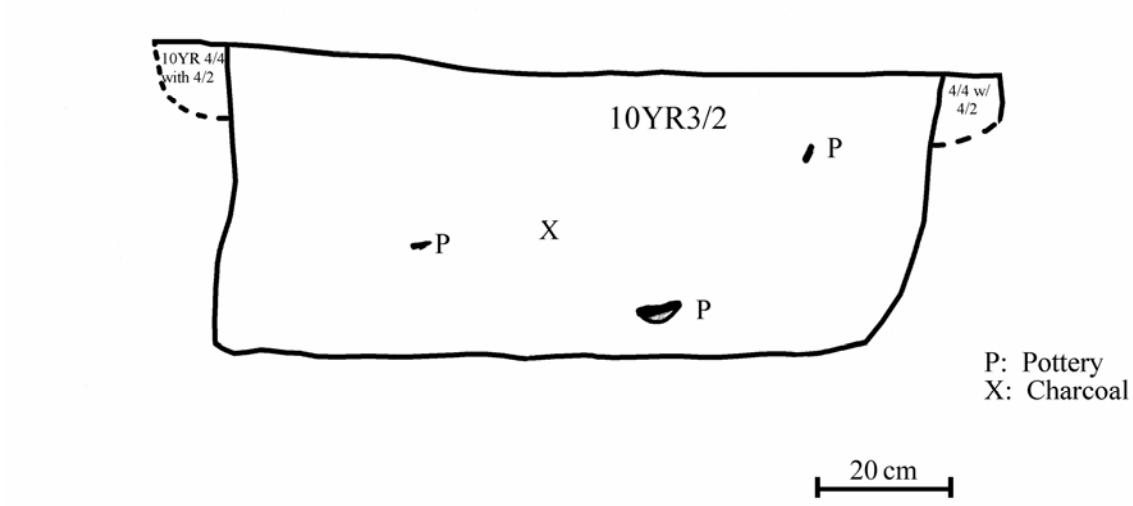


Figure 12. Profile of Feature 3 (facing north).

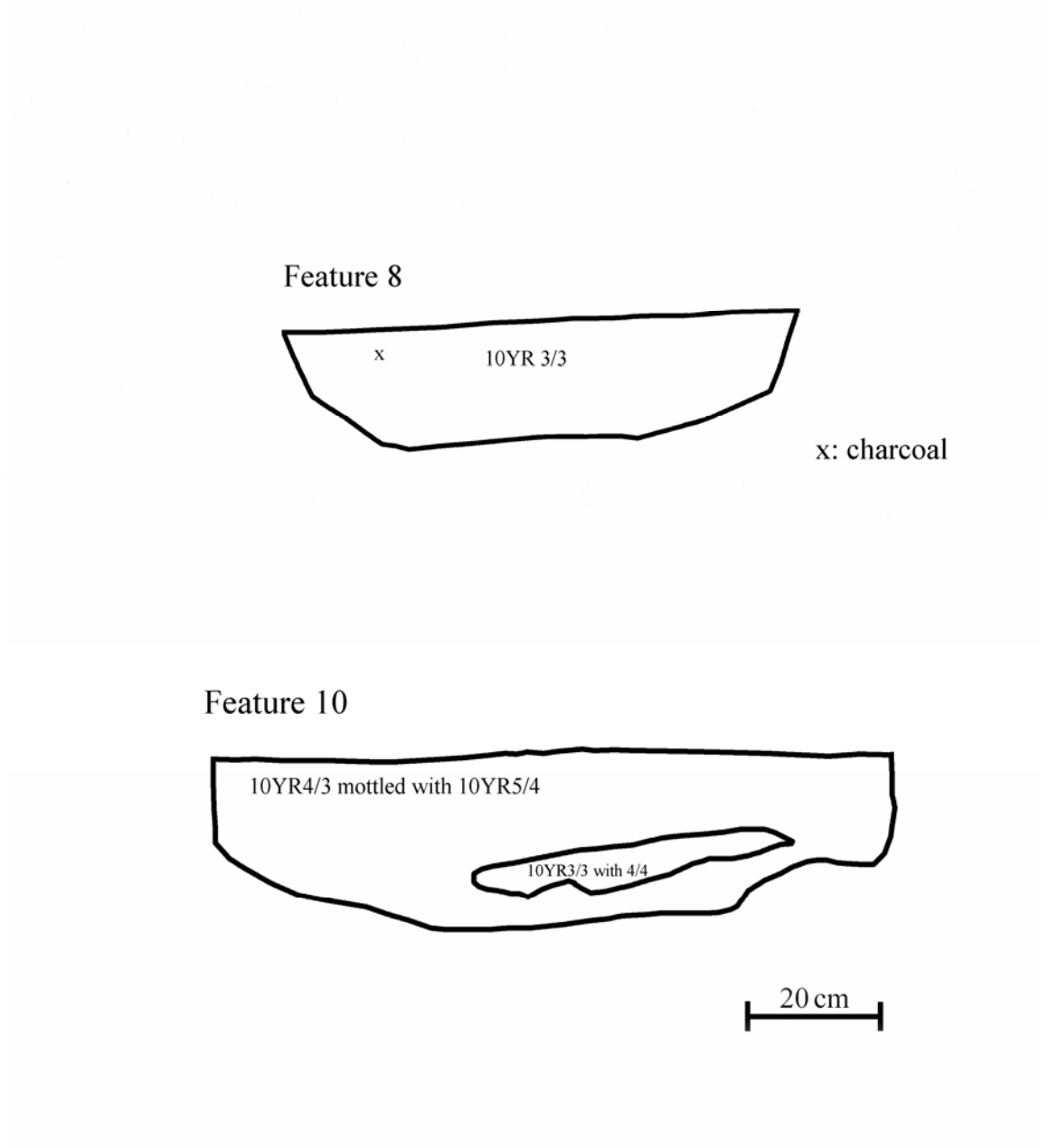


Figure 13. Profiles of Feature 8 and Feature 10 (both facing south).

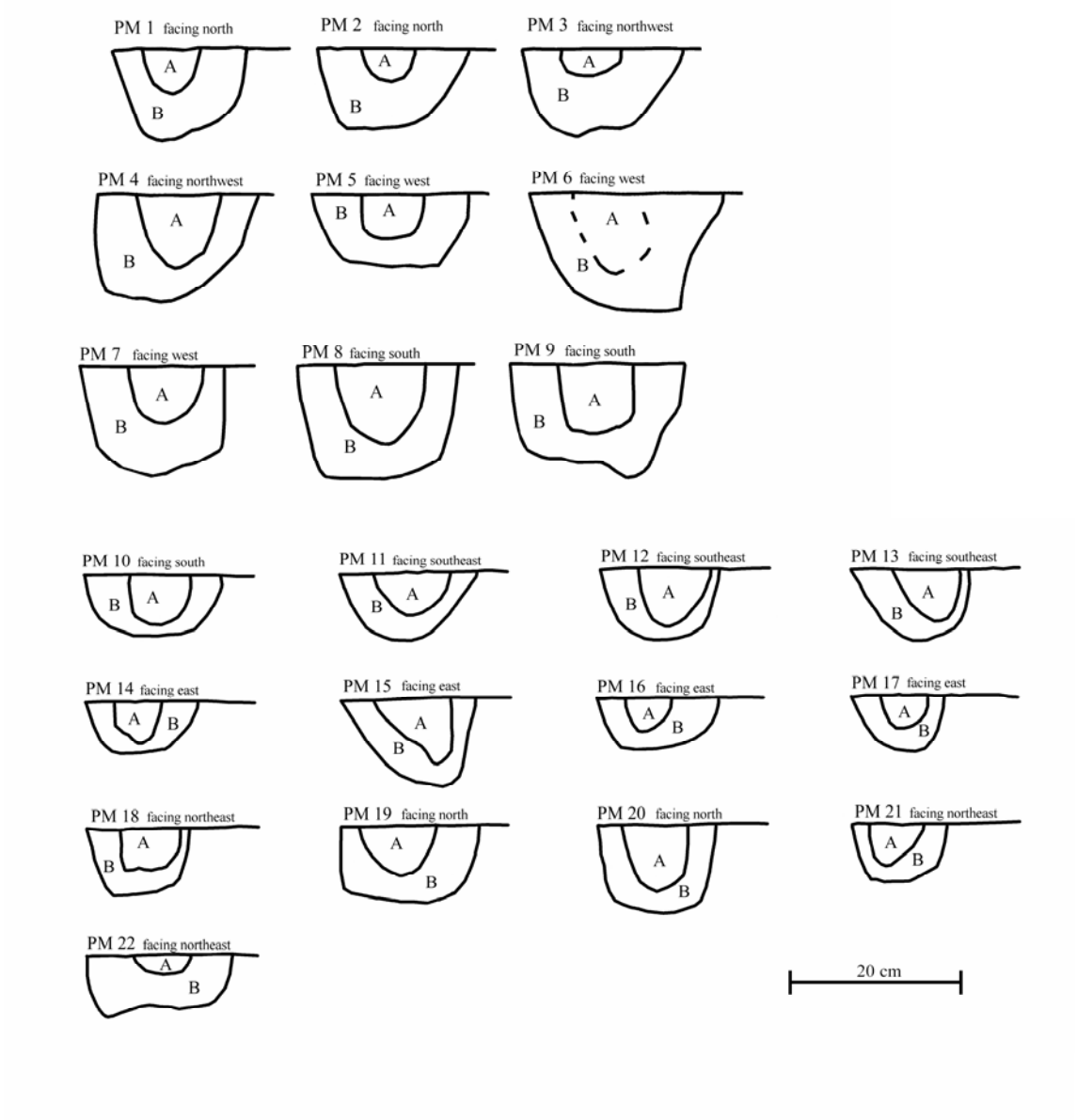
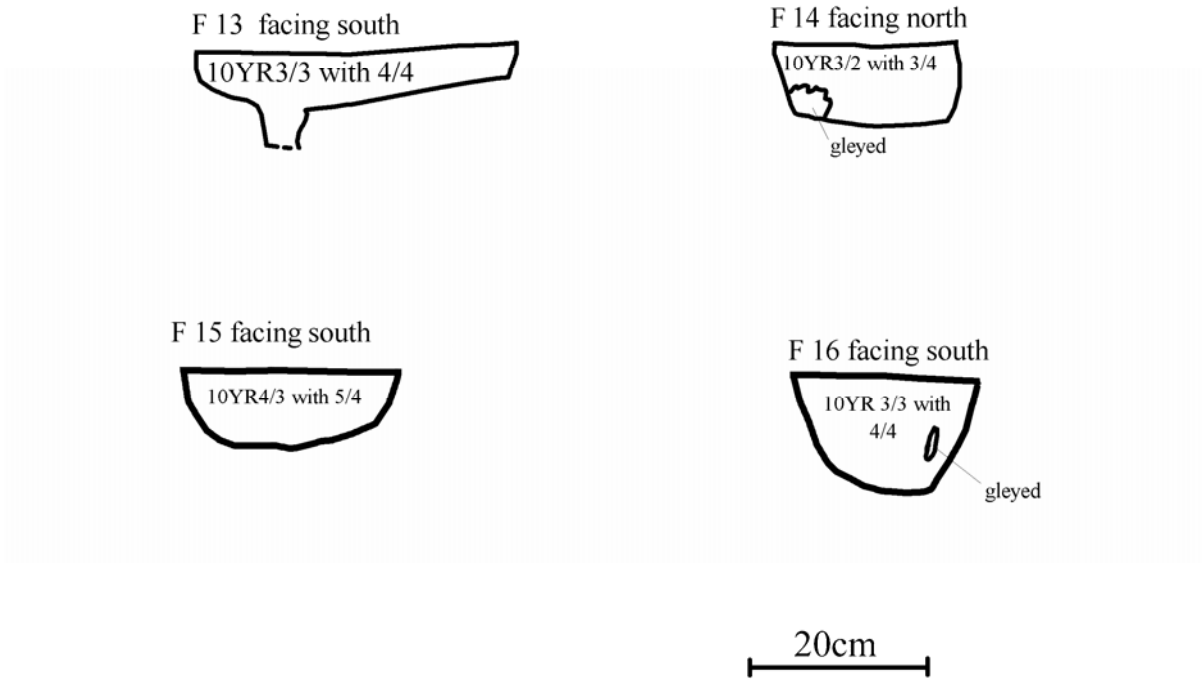


Figure 14. Profiles of post molds in Feature 9. A = post mold (10YR4/2.5 - 10YR4/4); B = subsoil (10YR5/6 mottled with 10YR5/4).



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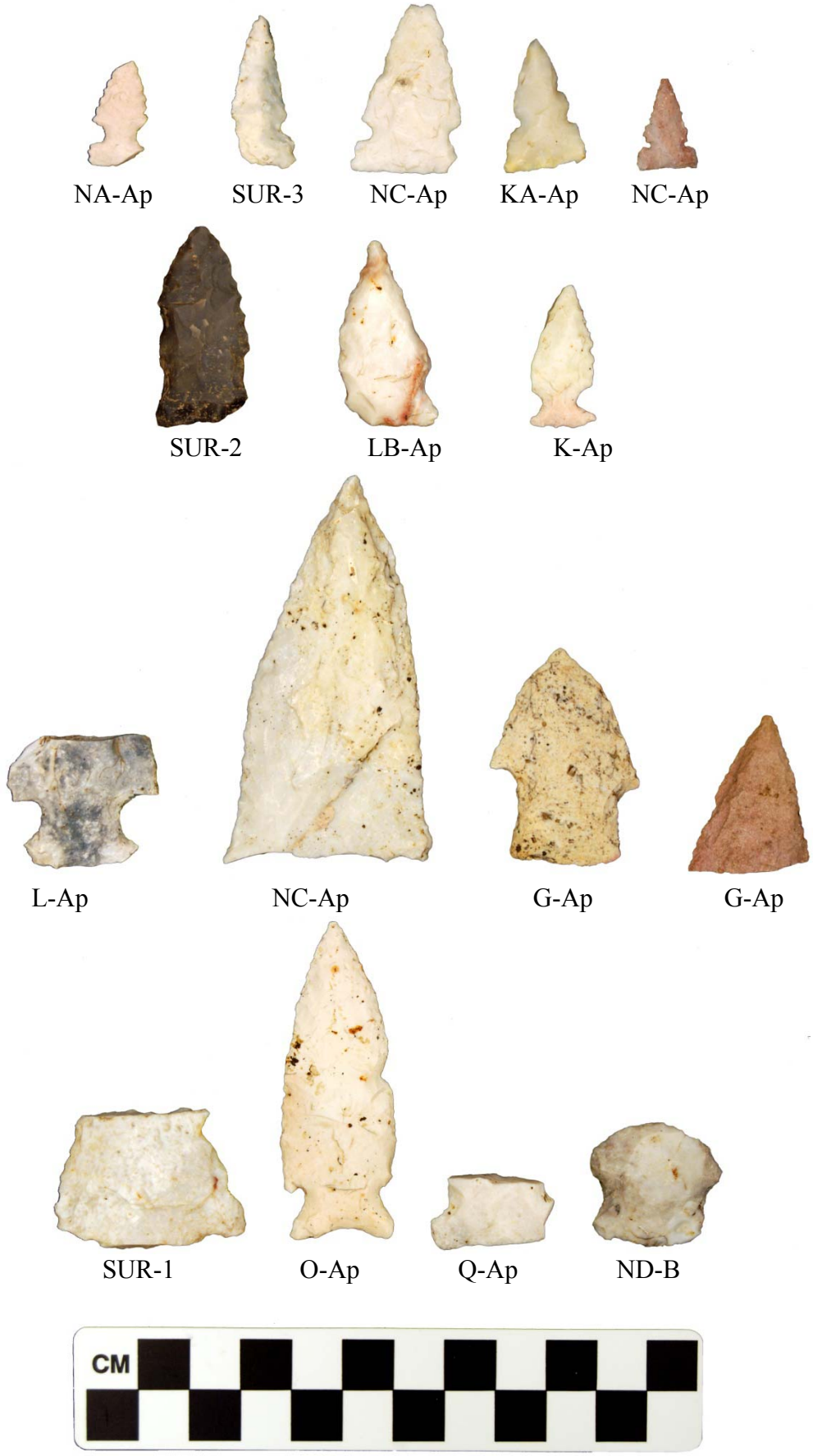

Photo 15. Projectile points. SUR-1 was collected from 11MS1127; all other points were collected from 11MS1124.