

**SIUE 2022 FIELD SCHOOL
INVESTIGATIONS
AT 11MS99**

Interim Report

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ABSTRACT

The SIUE archaeology field school took place on the SIUE campus in the summer of 2022. Our excavations focused on an area at the southern end of 11MS99 where SIUE field school excavations in 2009, 2013, 2014, 2016, and 2018 revealed prehistoric features including pits, posts, and structures. Our primary interest was a cluster of large pit features uncovered by prior excavations in the southeastern portion of the site. Previously, dating of these features has not been possible, and attempts to make firm associations between the contents of the features and specific periods of occupation were unsuccessful because of limited diagnostic artifacts. Some of these features contained possible Late Woodland pottery, which would represent the first Late Woodland features discovered at the site. In 2022, we excavated 18 square meters of previously unexcavated ground and re-excavated 4.5 square meters of the site to investigate features encountered during prior field seasons and to explore whether additional pit features surrounding the cluster of features in this area. The goal was to determine the nature of this section of the site, particularly its temporal affiliations. Features associated with both Mississippian and Woodland occupations were discovered.

ACKNOWLEDGMENTS

This report is dedicated to the Indigenous peoples whose traditional homelands include the Gehring site and the SIUE campus, and from whom the SIUE lands were taken, including the Osage and other Dhegiha Sioux peoples; the Kiikaapoi; The Illinois Confederacy, including the Peoria, Kaskaskia, Michigamea, Cahokia, and Tamaroa; and others.

Thanks to Anthropology Chair Julie Zimmermann for all of her knowledge and expertise about the Gehring site and for her advice on various aspects of the project, and to Julie Huelsing for her valuable support of coordinating logistics for the field school. A major thanks to Carol Colaninno, played a crucial role in prior investigations at the Gehring site and helped coordinate and lead our one-week program for high school students at the site. Adriana Martinez also helped with the high school program, and also took the GIS coordinates of the site. A huge thanks to Melissa Bidinger, who helped walk 15 high school students to the site from campus everyday for a week in the extreme heat and who was critical for helping us coordinate our program with the Upward Bound STEM program from a local high school, along with Desiree Tyus. And of course, we appreciate the 30 high school students who came to the site and excavated with us and were troopers despite the heat. We thank Sheryl Myers, Milo Phillips, and Adriana Martinez for their contributions to the graphics in this report. Corey Ragsdale provided crucial analysis and advice.

And last but not least, thanks to the eight wonderful students who made this field season a success, along with long-term volunteer Michael Hopper, who was a critical part of the project for the first few weeks of the season. These budding archaeologists made this field school productive and fun.

INTRODUCTION

The Anthropology Department of Southern Illinois University Edwardsville (SIUE) conducted an archaeological field school on the SIUE campus in Edwardsville Township, Madison County, Illinois, between May 16 and June 24, 2022. Field school investigations consisted of excavations at the southern end of 11MS99. Susan Kooiman, Assistant Professor of Anthropology, acted as field director and instructor of record. Eight SIUE students (Logan Kuhn, Antonio Louis, Jasmyn Mahnee, Emma Pritchard, Elizabeth Smith, Abigail Spitler, Grace Stephens, and Alexander Stowers) enrolled in the course and comprised the 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 anthropology faculty and to students, who are encouraged to do original research for their senior projects. Perhaps most importantly, the field school provides a means for recording endangered archaeological sites, which are rapidly disappearing due to development in Madison County. 11MS99, for example, has been severely impacted by decades of deep plowing and removal of artifacts by private collectors. The field school provides us with the opportunity to document archaeological resources on campus with the goal of protecting them, or excavating them if determined necessary. Another goal of the field school is community education and outreach, to share what we do with and to inform the public.

The field school achieved all of these goals. All students completed the course successfully and gained excavation experience. In terms of research, the data recovered from 11MS99 provide information about the Middle Woodland and Mississippian occupations at the Gehring site and more generally of the American Bottom. Data and material for several future senior projects was recovered during the field school investigations at Gehring. In terms of the third goal, in 2012 SIUE removed 11MS99 from agricultural production to conserve it, as a result of our field school research. Finally, we hosted approximately 30 visitors from the general public on site this summer (fewer than usual given the lingering effects of Covid-19, which prevented us from inviting as many guests as in previous seasons). Since the summer of 2013, we have given site tours to approximately 500 visitors. Additionally, we hosted 30 high school students from a local high school at the site for a week to introduce them to field-based science careers and give them hands-on experience doing archaeology.

This report summarizes results of the SIUE field school undertaken at 11MS99 on the SIUE campus in the summer of 2022. Our excavations at 11MS99 have focused on an area at the southern end of the site where Middle Woodland and Mississippian features were identified during field schools between 2009 and 2021. Our primary research interest in 2022 was to continue investigations of an area in the southeastern portion of the site. A cluster of large pit features were uncovered by both Zimmermann and Colaninno in the southeastern sector of the site. These features have not yet been subject to radiocarbon dating, and attempts to make firm associations between the contents of the features and specific periods of occupation have not been successful due to the limited amount of diagnostic artifacts, although some contained possible Late Woodland pottery (Lange 2020).

Additionally, a few features were discovered during these prior excavations but not fully excavated and investigated. During Zimmermann's 2018 excavation, an odd soil anomaly was uncovered just to the east of the southeast corner of Feature 257, the southernmost of the Mississippian wall trench structures located on the site. This beak-shaped anomaly was identified at the base of the plowzone in units DU (N407 E403) and DV (N407 E404) towards the end of

the excavation season and not further investigated (Zimmermann 2018). During additional investigations at the site between 2017 and 2019, Colaninno uncovered part of Feature 324 in the south wall of Unit EE (coordinates N407 E407; Colaninno and Zimmermann 2020). In both instances, the features were discovered at the end of the field season and time prevented field crews from excavating them, so they were documented and reburied. These features were uncovered and excavated as part of the 2022 field season.

This report will begin with a description of the project setting and a summary of previous investigations in the area. The bulk of the report will focus on our excavation methods and results. As of this writing, analysis of the artifacts collected is still ongoing. When the analysis of these artifacts is complete, a final report will be written which will compare our findings with data from the greater American Bottom. It is clear that the people who inhabited 11MS99 from the Late Archaic period through the Mississippian period were engaged in the social arena of the greater American Bottom region.

SETTING AND PRIOR RESEARCH

The archaeological record of the American Bottom is rich. Although best known as home to Cahokia, largest archaeological site north of Mexico, thousands of archaeological sites have been recorded in the American Bottom and in the adjacent uplands. In the uplands, these include sites dating from the Paleoindian period through the historic period; in the floodplain, sites date from the Early Archaic through historic periods. The region was attractive to prehistoric and historic settlers alike for its rich resources in both floodplain and uplands, including both forest and prairie habitats (e.g., see White et al. 1984).

The area located around modern Edwardsville, including the SIUE campus, exemplifies the American Bottom in the richness of its natural resources and in the corresponding richness of its archaeological record. The SIUE campus is situated along the bluff edge and bluff base of the northern American Bottom, just south of where Cahokia and Indian Creeks exit the uplands and then merge. Cahokia Creek would have meandered along the base of the bluff on the western edge of campus on its way south to Cahokia, a distance of just ten miles (16 km), and from there on to the Mississippi River beyond. The gentle slope of the bluff here would have given inhabitants easy access to resources of both floodplain and upland. The 1815 GLO map shows that most of what is now the SIUE campus was forested at that time, although prairie was located nearby on both the floodplain and in the uplands (Illinois Secretary of State 2009; see Figure 1). In the early 1800s a backwater lake was located in the American Bottom just 3.5 miles (six km) west of the bluff that crosscuts the campus, and the Mississippi River itself was approximately twice that distance. Through time the exact boundaries of forest and prairie would have shifted, the river and creeks would have meandered, and floodplain lakes would have swelled and shrunk, but local resources would have been abundant regardless of these fluctuations.



Figure 1. 1815 GLO map (Illinois Secretary of State 2009).

The richness of the local natural resources has produced an equally rich archaeological record. Munson and Harn (1971) surveyed portions of the SIUE campus as part of a larger archaeological survey of the American Bottoms and Wood River terrace in 1963. Sites reported on campus by Munson included 11MS94, 11MS95, and 11MS96 on the bluff; and 11MS99 in the floodplain below (Figure 2). Archaic period components were recorded at 11MS96 and (albeit with a question mark) at 11MS95. Middle Woodland components were recorded at 11MS94 and 11MS99. A Late Woodland component was reported at 11MS95, and Mississippian components were recorded at 11MS94 and 11MS99.

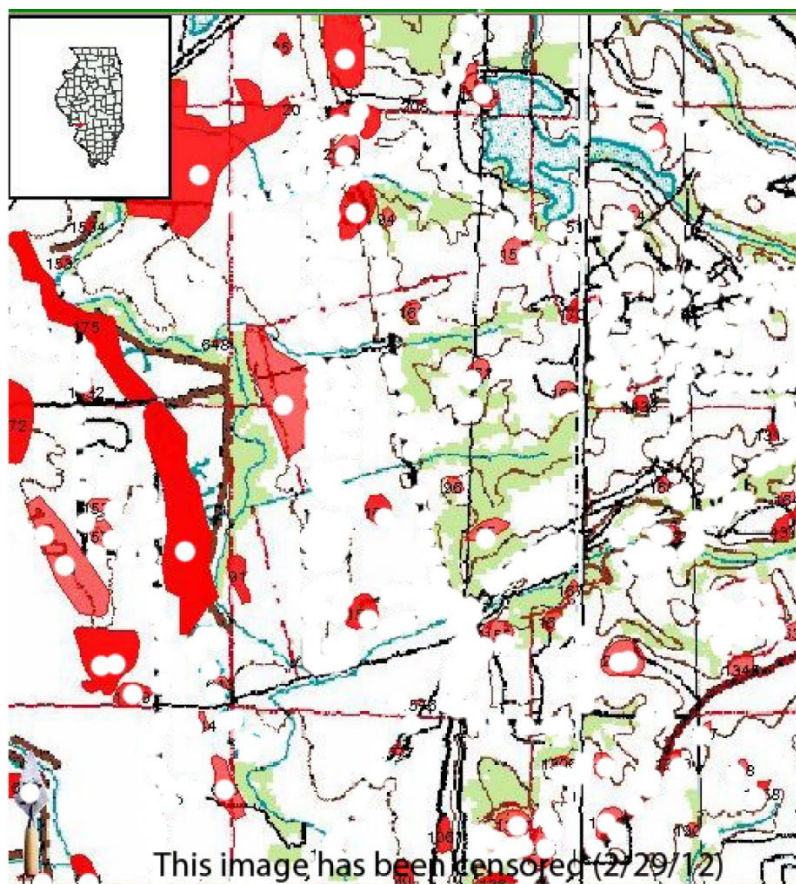


Figure 2. Location of previously recorded sites on the SIUE campus (censored) (<http://arch.museum.state.il.us/archsites/>).

Of these, 11MS99 was clearly the largest site, covering at least forty acres, and it seems to have had the densest concentration of artifacts. The site lies on the floodplain near the base of the bluff, on a terrace just east of Cahokia Creek. Munson named 11MS99 the Gehring site after Wilbur Gehring, then a tenant farmer of SIUE but formerly owner of the site. Munson described 11MS99 as a Havana village (Ms^V266) and mound (Ms^O267) and also a Bluff camp yielding Late Bluff rim sherds (Munson and Harn 1971:7, 13). On the IAS site form Munson also indicates a Mississippian presence at the site; other artifacts he collected included one Marion Thick sherd, and both straight and expanding stemmed points. On the site form Munson further indicates that his surface collection of 11MS99 was “arbitrarily” divided into three parts. The

northern part apparently lay to the north of an old street car trace that is referred to as a levee on a sketch of the site included with the site files. Today this street car trace or “levee” is used as a road to access utilities which have impacted the northern part of the site to an unknown extent (Booth 2014). The central and southern parts of the site lay to the south of the street car trace in a cultivated field. The central part of the site was highest in elevation, a relatively broad terrace closest to Cahokia Creek; the southern part of the site appears on the sketch map as a narrow finger ridge extending to the south. On the site form Munson noted that Middle Woodland artifacts were found on all parts of the site (northern, central, and southern), whereas Late Woodland and Mississippian artifacts were found only in the central part of the site. Munson’s artifact counts indicate that the greatest number of artifacts was collected in the central part of the site, which is not surprising giving that this relatively high and broad part of the site was used repeatedly throughout its history.

Review of Illinois Archaeological Survey (IAS) site files indicates that additional surveys were conducted on campus by Ken Williams and Ernest Evans in 1969. They reported a number of new sites on campus, including 11MS157, 11MS161, 11MS169, and 11MS170 in the uplands; 11MS165 on the bluff edge; 11MS168 on the slope of the bluff; and 11MS159 and 11MS160 on the floodplain. Most of these sites seem to have been small with light artifact densities, except for 11MS159, which was recorded as a possible village dating to the Woodland period. Woodland components were also reported at several other sites (11MS160, 11MS165, 11MS168, and 11MS170). No Archaic or Mississippian components were recorded by Williams and Evans.

In the early 1970s, SIUE professor Sid Denny conducted field school excavations at 11MS99 for two or three seasons. He referred to the site as the Keller Site because it was farmed by Vernon Keller at that time. Apparently no report of Denny’s excavation was ever written. Maher (1996) interviewed Denny in March of 1994 and reports that all of Denny’s excavation notes and maps were lost at that time, although he was able to examine some of Denny’s artifacts. In July of 2003 Julie Zimmermann (then Assistant Professor Julie Zimmermann Holt) transferred nine boxes of artifacts labeled MSV-99 from the SIUE Anthropology Lab to the SIUE University Museum. Presumably, these were artifacts from the Denny excavation. At that time the ISM declined to accept the collection for curation because no field notes could be found to accompany them. More recently, we have received an inventory of documents given by Denny to the SIUE Lovejoy Library Archives. This inventory lists documents from “MS99 Kellar Site.” The documents are excavation forms from the 1970 excavation; these have been copied and are currently on file in the SIUE Anthropology Department. Four sheets of color slides from Denny’s excavations have remained on file in the SIUE Anthropology Department and have been digitally scanned. These slides also appear to be from the 1970 excavation, and show excavation of trenches with a road grader.

Zimmermann (then Zimmermann Holt) interviewed Denny on-site on May 20 of 2009. Denny indicated that in his first field season or two, he excavated test units on 11MS99. In his last field season he excavated two or three trenches with a road grader in the central part of the site. These trenches were perhaps 100 m long running north to south with perhaps 10 m between the trenches; the road grader and trenches were approximately 3 m wide.

In one trench, probably the one located farthest to the west, Denny observed a structure at the base of the plowzone which he described as a “small brush structure” (personal communication, May 2009). The structure was roughly rectangular and approximately 5 x 12 feet in plan view with a basin approximately 2.5 feet deep. (Note that Denny described the trenches in metric measurements and the structure in English; his terminology is used here.) He

said the structure contained no wall trenches, but randomly placed posts were noted, and few artifacts were recovered. At first Denny thought this was a Middle Woodland structure, but he said later discussions with personnel at Cahokia Mounds State Historic Site made him think that the structure dated to the Mississippian period. In the middle trench Denny observed a cluster of three or four pits (personal communication, May 2009). One of these contained Havana artifacts, while the others contained Mississippian artifacts such as Powell Plain and Ramey incised jars (which Denny described as “Fairmount Phase”). The trench farthest to the east contained no features.

The completed forms from Denny’s excavation are difficult to decipher since they don’t include an overall site map. (Although one slide from Denny’s fieldwork shows a student drawing a large map, no site maps were found among his notes.) The notes suggest the presence of one or two living surfaces below the plowzone. For example, one form (labeled 24 in the upper right hand corner) contains the comments, “Plow depth ranged from 25 to 40 cm. Under plow depth black band of undisturbed loamy soil grading into a lighter sandy brown soil. 2 possible occupation levels. Artifacts found in both soil types under plow zone. All pottery identified from both soil types (levels) as Mississippian.” Another sheet (labeled 25 in the upper right hand corner) contains the comments, “Black soil band under plowzone extended through all four pits on the walls. Possible depressed area where people threw refuse, not a midden, span of time used probably short.” It is not clear in these comments if “pits” refers to pit features or excavation units.

Although feature descriptions in these notes are very brief, they might provide some context to the artifacts recovered. It is also possible to identify several of the features in the slides. Feature 11 appears to have been a shallow pit feature, and about 2 m northeast of Feature 11, Feature 9 was labeled as a burnt corn concentration (sheet 15). Feature 8 was a shallow pit (sheets 16 and 62). Feature 4 was a bell-shaped pit (sheet 74). Feature 7 was circular in plan view, and was presumably a pit (sheet 77). Its surface was “covered w/large quantities of shell temp pottery (Cahokia Red shell temp plain and Ramey Incised), 1 reworked proj point drill, burned clay & rock” with “very little charcoal” (sheet 77). A sketch suggests it was found in association with a line of posts.

As part of his dissertation investigating the “Hopewell occupation” of the American Bottom, Maher (1996) examined artifacts from Denny’s excavation and surface collection, but apparently the artifacts were without specific provenience. Maher (1996: Tables D.5 and D.6) provides a list of the Middle Woodland ceramics he identified in Denny’s collection; he suggests that there was an equal number of Mississippian sherds in the assemblage (apparently dating to the late Stirling phase), as well as a “substantial collection of Early Woodland Marion Thick pottery” (1996:640). Maher (1996:640) reports that Denny provided him with photographs from his excavation which “revealed the presence of pottery-filled pits (Figure D.15); a pit with a carbonized corn cob remains (Figure D.15), and midden-filled pits and post molds (Figure D.16) [sic].” Maher’s Figures D.15 and D.16 are included among Denny’s color slides now curated in the SIUE Anthropology Department.

Maher (1996) also conducted limited excavations at 11MS99, focusing on the purported mound. IAS site forms indicate that this “mound” was 80 feet in diameter and 3 feet high, and as Maher notes, the IAS site forms also indicate that previous owner Wilbur (or Wilber) Gehring dug a hole in the landform “many years ago [before 1969], but never found anything.” The IAS site forms indicate that a notched hoe was found near the possible mound, but was not necessarily associated with it. Terry Norris (personal communication, September 2016) reports

that he and Ken Williams found a stone pipe fragment on the possible mound during a general surface collection prior to Denny's first field school on the site in 1970. Norris states that the pipe fragment was approximately 10-12 cm long and 5-6 cm wide, larger and bulkier than a Middle Woodland styled platform pipe and more similar to a Mississippian style pipe. The stone was dark and possibly a fine grained sandstone.

Maier (1996) excavated in the possible mound to determine its cultural affiliation. He notes that at the time of his excavation in 1994, the purported mound was only 50 cm high and difficult to locate due to decades of plowing. Maier placed two transects of "soil probe cores" across the mound, and also excavated three 1 x 2 m units on the mound. All excavated sediments in these units were screened through half-inch mesh. No artifacts were recovered in two of the three units, and artifacts in the third were recovered from the plowzone only and were not culturally diagnostic. Maier reports that the stratigraphy in the excavation units was often disturbed and gave no indication of mound construction techniques (such as basket loading). Flotation samples were taken from supposed mound fill, but produced few plant remains. A hazelnut shell was submitted for radiocarbon dating and produced a date of 2475 ± 45 BP, suggesting a Late Archaic or Early Woodland affiliation (Maier 1996:659). However, Maier concludes that "the mound at Gehring remains an enigma" (1996:659). That is, the near absence of artifacts and lack of definitive evidence for mound construction could indicate that this was not a mound at all, but instead was a natural geomorphological feature, perhaps a remnant of a sand ridge.

The observations and collections of avocational archaeologist Keith Probst are probably as important as those of professional archaeologists in understanding 11MS99. Probst collected 11MS99 and other sites in Madison County between 1967 and 1973, keeping a log of his finds in which he recorded artifact numbers, artifact descriptions, and site locations (Zimmermann 2019). In 2007 and 2008 Probst permitted Julie Zimmermann, Brad Koldehoff, and Ken Farnsworth to examine his collection, photocopy his log, and photograph selected artifacts. In his log, Probst referred to 11MS99 as a "Hopewell" site, and our examination of his collection from 11MS99 confirms that it is predominantly composed of Middle Woodland artifacts. Middle Woodland lithic artifacts he collected include blades, blade cores, Snyders points (several of which were reworked into scrapers), North points, Manker points, a Norton point, celts, and a hoe. Middle Woodland ceramic types identified in the Probst collection include Havana plain, Hopewell rocker stamped, Netler stamped, and Sisters Creek fingernail punctate. A drilled bear canine from the site is also surely Middle Woodland, and a galena fragment and a quartz crystal are probably Middle Woodland. (One Snyders points was also made of quartz; this was found in the northern part of the site.) Early Woodland and Mississippian artifacts were also common. Early Woodland artifacts included 11 Kramer points (one of which was reshaped into a drill), and a probable limestone tube pipe (broken and unfinished) also appears to be Early Woodland. Mississippian artifacts include Cahokia points, Madison points, a Cahokia cordmarked jar rim with a red-slipped interior (Moorehead phase), a celt, and a Cahokia style discoidal. Two marine shell disk beads in the Probst collection are probably also Mississippian. The Probst collection from 11MS99 also includes a Dalton point (turned into a scraper), a variety of Late Archaic point types (Matanzas, Riverton, Adena, Copena, Etley, and Motley), a Late Woodland Mund point, artifacts dating to the Terminal Late Woodland or Emergent Mississippian period (a Late Woodland arrow point and Late Bluff rim sherds), and an historic period ceramic pipe.

While revisiting 11MS99 in 2008, in 2009, and in 2013, Probst pointed out that the majority of Middle Woodland artifacts came to the surface only after the sand ridge in the

southern part of the site was deep plowed for horseradish production. This observation suggests that prior to deep plowing, the site had been stratified. Probst also suggests that as much as five feet of sediment have been removed from this ridge (due to plowing and erosion) since the early 1970s.

There are surely other privately held artifact collections from 11MS99 which would prove informative if they could be located. Probst collected the site for a relatively brief period, and during that period he regularly observed footprints from other artifact collectors. Footprints from a collector were observed in Zimmermann's first visit to the site with Probst in March of 2008. Footprints of collectors were observed on-site every time it rained during the field school in May and June of 2009. Zimmermann observed on June 1 of 2009 that a collector had been digging on-site, at the edge of an erosion gully at the southern end of the site. In addition, in May and June of 2009 a total of approximately 20 people actively surface collecting were observed firsthand by field school faculty and students and reported to SIUE police. One collector reported that she had been told about the site by her employer, a local lawyer, who had collected the site for years with his family. A family caught collecting and stopped by SIUE police in summer of 2009 reported that they had been given permission to collect by Craig Keller (the current tenant farmer); they reported that they had collected the site for years and had seen many other collectors out there. It would be beneficial to examine the collections of these and other individuals, but unfortunately none have been forthcoming as of this writing. During the 2011 SIUE field school, looters damaged a feature that was being excavated, but it is unknown if they stole any artifacts (Vogel et al. 2013). During field school excavations since 2013, we have not observed any collectors, nor have we observed evidence that the site has been visited by collectors. This could be in part a result of the police protection which began in 2009, and the installation in 2009 of IHPA signs forbidding artifact collection on site. Moreover, because the site is no longer plowed (since approximately 2012), it is less attractive to collectors.

Julie Zimmermann (formerly Zimmermann Holt) directed the SIUE Anthropology Department's archaeology field school at 11MS99 in 2009, 2013, 2014, 2016, and 2018 (Zimmermann 2017, 2018; Zimmermann Holt 2013, 2015; Zimmermann Holt and Belknap 2010). In 2009, a surface collection was conducted over the southern and central portions of 11MS99, as well as ca. 85 acres of agricultural field adjacent to the central and southern portions of the site. Based on results of this surface survey, and an interest in the Middle Woodland occupation of the site, excavations directed by Zimmermann have been focused at the southern end of 11MS99. These investigations have revealed artifacts and three pit features suggesting occupation throughout the Middle Woodland period (Zimmermann et al. 2018; Zimmermann 2020). Middle Woodland artifacts recovered suggest participation in the Hopewell Interaction Sphere, perhaps more intense participation than is typically interpreted at Middle Woodlands sites in the American Bottom. Possible "Hopewellian" goods recovered in our excavations included Hopewell pottery, a figurine, mica, obsidian, and copper awl. Several posts ca. 20 cm in diameter are also believed to date to the Middle Woodland period. These posts, along with mud dauber nests, suggest the presence of one or more Middle Woodland structures at the site.

Excavations directed by Zimmermann at the southern end of the site have also revealed Mississippian features, including two wall trench structures and at least four external pits. Features located inside the wall trench structures might be contemporary with the structures, or might predate them (Leslie 2020; Zimmermann Holt 2013, 2015; Zimmermann 2017, 2018). Several other pits excavated in the vicinity of these features might date to the Late Woodland period (Zimmermann 2017).

These possible Late Woodland features extended into the area of the 2016 excavation units. Their excavation was completed by Carol Colaninno of SIUE's STEM Center, who directed her NSF REU field school from 2017 through 2019 at 11MS99 (Colaninno and Zimmermann 2018, 2019, 2020). Colaninno's excavations in this area revealed two additional pit features.

In 2021, Susan Kooiman directed excavations at the Gehring site, targeting the space between the two Mississippian house structures (F212 and F257) excavated by Zimmermann. This space was largely empty besides one verified cultural feature, which contained charcoal AMS radiocarbon dated to the Mississippian Moorehead phase (AD 1200-1300). This feature, F356, was a possible post mold but did not align with any other post molds from previous excavations. Also in 2021, the area surrounding the large Middle Woodland pit features encountered by Zimmermann in 2008 was re-investigated by excavating 10-20cm deeper than the original excavations to explore the potential for buried Mississippian features, but none were encountered. Units and features excavated by Zimmermann, Colaninno, and Kooiman to date are outlined in Figure 3.

Gregory Vogel, then Assistant Professor of Anthropology, directed the SIUE archaeology field school at 11MS99 from 2010 through 2012 (Vogel and Clemons 2011; Vogel et al. 2013). Vogel conducted extensive remote sensing at 11MS99, and his excavations focused on ground-proofing the remote sensing results in the central portion of the site, in an area removed from the area of focus by Zimmermann, Colaninno, and Kooiman. Pit features excavated by Vogel and students in the central part of the site are believed to date to the Middle Woodland, Late Woodland, Emergent Mississippian, and Mississippian periods. Structures excavated probably date to the Mississippian and historic periods. The presumed Mississippian structure was a wall trench structure. A Mississippian burial probably dating to the Moorehead phase was found in the summer of 2012; it contained copper, a shell-tempered ceramic discoidal, and red-slipped, shell-tempered pottery (Vogel 2012). After determining that this feature was a burial, it was immediately reported to the IHPA and reburied without further excavation.

Investigation of the stratigraphy at 11MS99 included excavation of deeper units by Zimmermann (then Zimmermann Holt) and students in the southern portion of the site in 2009 and in the central portion of the site by Vogel and students in subsequent field seasons. Vogel also took sediment cores across the site. His stratigraphic analysis suggests potential for deeply buried cultural deposits at 11MS99. However, based on Vogel's recommendations, our excavations since 2009 have mostly been limited in depth to investigation of features found at the base of the plowzone. If there are more deeply buried cultural deposits at the site, we don't have time to reach them in the course of a typical field school season because our field methods do not include use of heavy machinery. We realize, however, after discovery of the Mississippian wall trench structure Feature 257 in 2016, that there could be culturally buried deposits at the site. That is, Mississippian features superimpose and may have sometimes buried earlier features. Thus, our excavations in 2018 were deeper than those in 2013-16 to make sure we had reached culturally sterile sediments. The shallow depth of Mississippian features demonstrate that Probst was correct: the southern end of the site has lost as much as 5 feet of topsoil (see Zimmermann Holt 2013, 2015; Zimmermann 2017, 2018).

Finally, 11MS99 has been the subject of recent CRM compliance work. Because the road which separates the northern and central portions of the site was scheduled to be improved, in May of 2014 several backhoe trenches were dug cross-cutting the road, and shovel tests were

conducted just north and south of the road (Booth 2014). These investigations found nothing of archaeological significance. The road improvements were completed in summer of 2015.



Figure 3. Gehring site overview map: Excavations from 2009, 2013-2021. Blue features are Mississippian, red features are Middle Woodland.

Based on our recommendations, and because a burial was confirmed in the summer of 2012, SIUE has stopped leasing the southern and central portions of 11MS99 for agriculture. In fall of 2015 we seeded the southern and central portions of the site with a conservation planting. After several years without plowing, the undergrowth on the site by that time was extremely dense, including small trees. Because of this, the site had to be cleared with a construction

grader, which left extreme ridging across parts of the site, particularly the central portion. However, while the disturbance at the surface of the site was extreme, we saw no evidence that clearing caused impact below the level of the existing plowzone. That is, clearing did not appear to pull up artifact concentrations which would have suggested disturbance of intact features. After the site was cleared, we planted an annual crop of winter wheat to hold the soil and discourage weeds, along with a permanent planting of non-native perennial grasses, timothy and redtop. Non-native grasses were chosen because these were cheaper; however, they also have a shallower root system than native grasses, and so might be less destructive to archaeological deposits. We hand-broadcasted native wild flowers (black-eyed Susan, gray-headed coneflower, and partridge pea) the following January after a light snowfall; the purpose of the wild flowers was to provide food for native wildlife. During the summer of 2016, the tenant farmer accidentally plowed about four acres in the central part of the site, unfortunately in the vicinity of the Mississippian burial identified in 2012. The plowed portion of the site was again planted with timothy and redtop that fall, and again native wildflowers black-eyed Susan, gray-headed coneflower, and partridge pea were hand-broadcasted in February of 2017 after a light snowfall. As of this writing, the site is well-stabilized with these plants, preventing further erosion of archaeological deposits. Undesirable weeds are also present at the site, but we don't have the budget to control them. Further regrowth of trees has been prevented by mowing in September, after birds are finished nesting for the year. We will continue to mow the site every September, or possibly burn the grasses periodically.

FIELD METHODS AND RESULTS

Excavations for the 2022 field season began on Tuesday, May 16, and completed on Wednesday, June 22. Our goals in 2022 were to investigate unexcavated areas between Feature 257, the southernmost known Mississippian house on the site, and a cluster of pit features to the east of the house. Additionally, two previously encountered features (F272 and F324) had been found but not excavated, so they were targeted during excavations.

Site datum coordinates for our excavations in the southern portion of the site can be found in Table 1 (see Zimmermann Holt and Belknap 2010; Zimmermann Holt 2013). The easting and northing (X/Y coordinates) of the datums were updated in 2022 using high-accuracy GPS recorded by Adriana Martinez. Please note that our coordinates are on a different grid system than the grid later established by Vogel in the central part of the site (Vogel and Clemons 2011; Vogel et al. 2013). Unit coordinates and sizes for the 2022 excavation can be found in Table 2. Unit coordinates refer to the southwest corner of the unit.

Table 1. Site Datum Coordinates

SIUE grid coordinates	X (easting)	Y (northing)
N419 E396	712997.51	235394.569
N399 E396	712998.09	235374.307

Table 2. Unit Coordinates.

Unit Type	Unit Name	SIUE Grid Coordinates	Unit Size (m)
New Units	GK	N407 E404	1x2
	GL	N407 E405	2x2
	GM	N405 E405	2x2
	GN	N405 E407	2x2
	GO	N405 E409	1x2
	GP	N412 E410	1x2
Previously Opened Units	DU	N405 E403	1x2
	DV	N405 E404	1x2
	EE	N407 E407	1x0.5

Methods

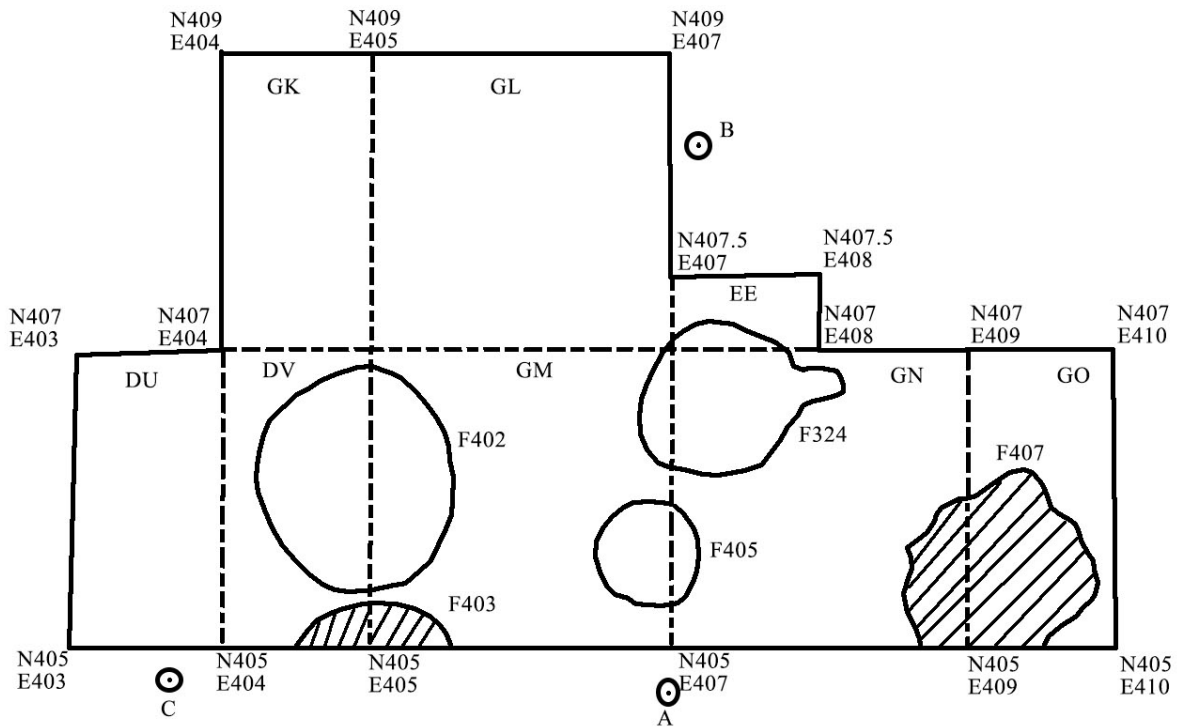
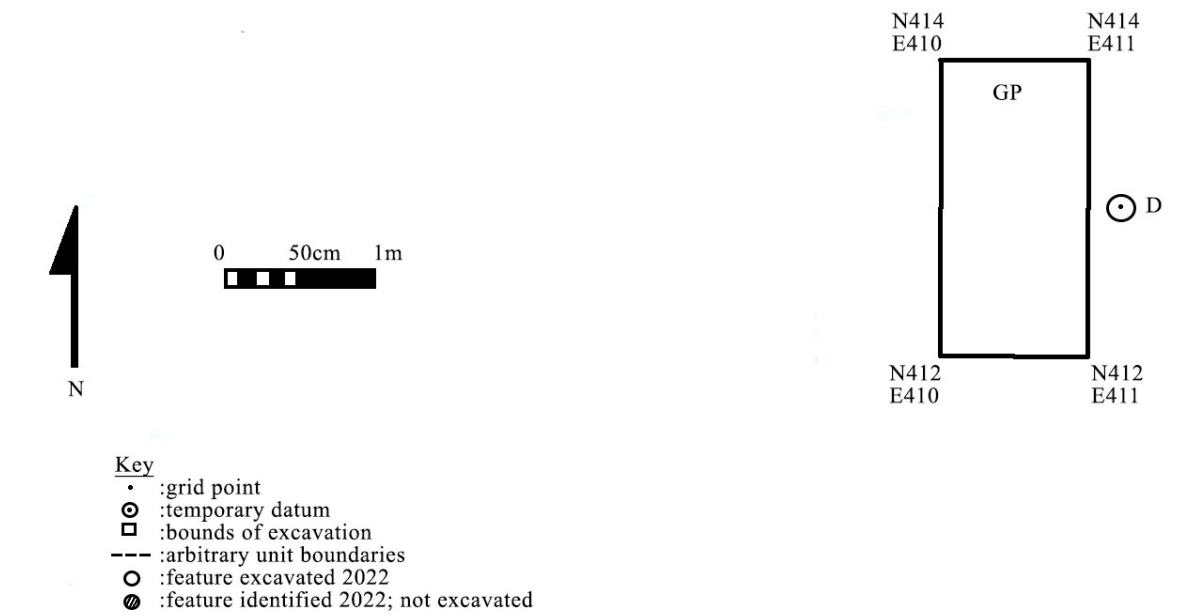
All sediments were removed by hand (using shovel and trowel). The plowzone in all new units (GK-GP) was removed in one natural level, screened through ¼ inch mesh, and described using standard nomenclature (Munsell colors and USDA textures). The plowzone/backfill in previously partially excavated units (DU, DV, and EE) was removed by hand but not screened since it had been previously screened. Sediments below the plowzone in Units GK-GP, DU, DV, and EE were removed in arbitrary 10 cm levels and described using standard nomenclature. All screened soils were screened through ¼ inch mesh.

Possible cultural features identified in all new units were drawn and photographed in plan view, given a feature number (beginning with 400) and then bisected. The first half of each feature was excavated as a single stratum. The profile of the feature was then photographed and drawn. Any distinct strata visible in profile were excavated separately in the second half of the feature, with 10 L flotation samples taken from each. If strata were too small to yield a 10 L sample, smaller samples were taken. All feature sediments not saved for flotation were screened using ¼ inch mesh. Previously excavated units were excavated until known features (F272 and F324) were exposed, which were then recorded and excavated in the same way as newly discovered features.

Results

Unit Summaries

In total, 6 new units were opened in 2022 (GK-GP), while all or parts of an additional three units initially opened in previous field seasons (DU, DV, EE) were reopened (Figure 4). The first excavation units were positioned to try and capture Features 272 and 324, which had been encountered and noted by Zimmermann and Colaninno, respectively, but neither feature had been fully exposed or excavated. Units DU and DV, both 1x2m units, were previously opened by Zimmermann in 2018 but time limitations prevented further exploration of a potential feature identified in them, F272 (Zimmermann 2018; Figure 5). Units DU and DV were reopened at the outset of the 2022 field season to re-examine F272. Units GL, GM, and GN were opened in hopes of capturing the extent of Feature 324, the northern perimeter of which was found by Colaninno in 2019 but not excavated due to time (Colaninno and Zimmermann 2020; Figure 6). Units GL, GM, and GN were 2x2 m in size. The southern quarter of Unit EE was reopened to expose the northernmost extent of F324. Unit GO, a 1x2 unit, was opened to further delineate and define Feature 407, which was first encountered in Unit GN. Unit GK (1x2 m) was opened to determine whether there were any features near the SE corner of House Structure 257. Finally, Unit GP (1x2 m), which was the northernmost unit of the 2022 excavations, was opened to investigate some curious findings from excavations in 2021.



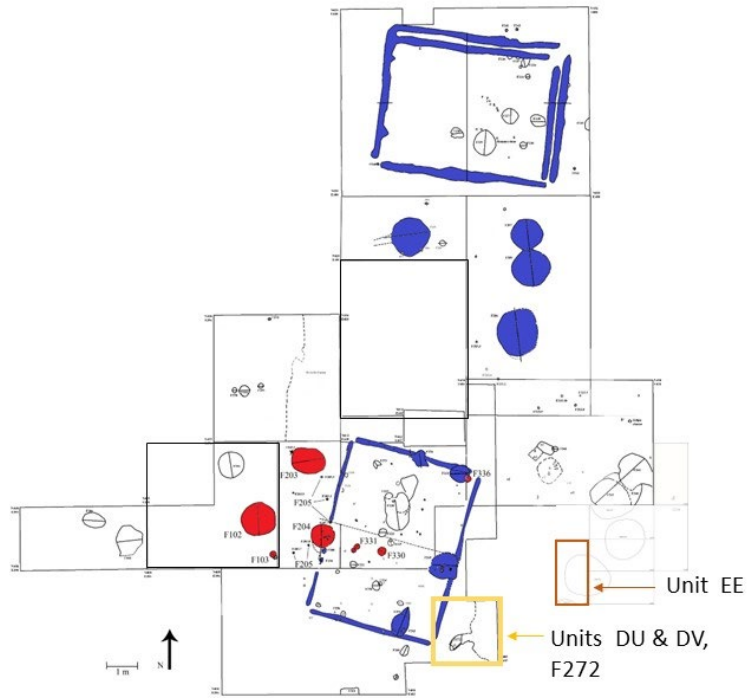


Figure 5. Previously opened units re-excavated in 2022

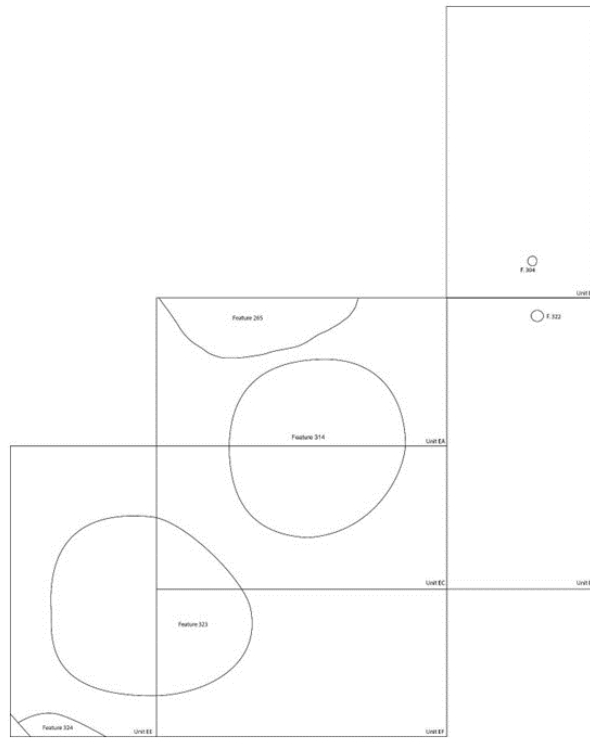


Figure 6. Units and features excavated by Colaninno 2017-2019 (Feature 324 visible on lower left)

Excavations in Units DU and DV revealed the previously-identified Feature 272, which upon excavation was determined to likely be a modern disturbance. Portions of the large pit Features 402 and 403 were exposed at the base of plowzone in Unit DV, while no other features were present underneath F272 in Unit DU (Figures 7 and 8).

Unit GM included a high density of features. Portions of Features 402, 403, and 405 were identified within the unit, as well as Feature 404, which was later determined to be a natural disturbance. The western edge of F324 was also defined within Unit GM (Figure 9).

Unit GN contained most of F324, the easternmost edge of F405, and part of a large feature, F407 (Figure 10). A small dark protrusion in the northeast corner of the unit, F406, was also initially identified but determined not to be a cultural feature; it may be the result of soil disturbance from a previous excavation (Unit EF).

Unit EE was originally opened by Colaninno in 2019 (Colaninno and Zimmermann 2020). Feature 324 was first noted in this unit. The southern fourth of the unit was re-opened to expose the entirety of F324, resulting in a 1x0.5 m unit (Figure 11).



Figure 7. Units DU (left) and DV (right) plan view at base of the plowzone/Level 1, facing north (showing Feature 402, top right)



Figure 8. Units DU and DV plan view at base of the plowzone/Level 1, facing west (showing Features 402[right] and 403 [left])



Figure 9. Unit GM plan view at base of the plowzone/Level 1, facing south (showing Features 402 [bottom right], 403 [top right], 405 [top left], and 324 [bottom left])



Figure 10. Unit GN plan view at base of the plowzone/Level 1, facing south (showing Features 324 [bottom left], 405 [bottom center] and 407 [top right])



Figure 11. Unit EE (top left) and Unit GN plan views at base of the plowzone/Level 1, facing north (showing Features 324 [top left] and 407 [bottom right])

Unit GO was a 1x2m unit opened to follow and determine the extents and natures of F406 and F407 (Figure 12). F406 extended into the northern walls of GN and GO but was diffuse and amorphous and mostly disappeared at the base of the plowzone, so it was not excavated as a feature. F407 was contained mostly within GO, and partially in GN, but it also extended beyond the southern perimeters of these units, and there was not sufficient time to excavate additional units to explore the entirety of this feature during the 2022 field season.



Figure 12. Unit GO plan view at base of the plowzone/Level 1, facing east (showing Feature 407 [right])

The remaining units (GK, GL, and GP) did not contain cultural features (Figures 13-15). Initially Features 400 and 401 were identified in Unit GL. F400 appeared as a large diffuse darkened area at the center of the unit, while F401 was an amorphous dark zone in the northeast corner of the unit. Upon clean scraping the surface of the subsoil, F400 had all but disappeared, and it was clear that F401 was a rodent run. Neither of these features were therefore excavated. Unit GK did not contain any features at the base of the plowzone/top of the intact subsoil.

Unit GP was a bit of an outlier, located 5 meters north of Unit GO, on the far eastern extent of the 2022 excavations. This single 1x2 meter unit was placed here after dark soil and artifacts were encountered along the edge of previously excavated ground that Corey Ragsdale had used for mock burials of plastic skeletons for a biological anthropology field school

conducted in 2021. During excavations, he believed students dug a bit beyond the boundaries of previously excavated soil into unexcavated territory and encountered some artifacts and darker soil he thought might represent a feature. Unit GP was placed along the edge of previously excavated units in which these artifacts were encountered. However, no features and no artifacts resembling those found by Ragsdale were encountered in either of the two levels excavated in Unit GP.



Figure 13. Unit GK plan view at base of the plowzone/Level 1, facing north



Figure 14. Unit GL plan view at base of the plowzone/Level 1, facing north



Figure 15. Unit GP plan view at base of the plowzone/Level 1, facing north

All units were excavated to the base of the plowzone (Stratum A)/top of the subsoil (Stratum B). Only units lacking identified features at the base of Stratum A (GK, GL, and GP) were excavated an additional level, but no features were identified in and very few artifacts were recovered from Level 2/Stratum B.

Among the units excavated, the plowzone ranged between 30 and 45 cm deep, and was typically described as a 10YR 3/2 very dark grayish brown sandy loam. According to the USDA (2009), the soil at 11MS99 is classified as an Onarga sandy loam. The most common artifacts found in the plowzone were lithics (chert) and ceramics (Table 3). The largest concentrations were found in Units GM and GN, the same units with the highest density of features. There were also considerable amounts of burnt clay and FCR, suggesting that a lot of burned material was deposited in the features in this area of the site. A high quantity of bone was also recovered, although much of it was highly fragmented. A small amount of historic material was also found, attesting to the mixed context of the plowzone.

Table 3. Plowzone (Ap) Artifacts from all 2022 excavations units

Unit	Pottery	Lithics (debitage)	Stone Tools	FCR	Burnt clay	Limestone	Bone	Shell	Historic
DU*	5	8	0	0	22	1	5	0	0
DV*	77	99	0	4	23	3	20	0	0
EE*	11	10	0	1	0	0	3	2	0
GK	209	135	0	34	95	0	12	0	0
GL	231	271	2	2	100	3	36	0	0
GM	372	615	2	11	78	12	107	0	2
GN	407	572	2	35	127	24	67	1	3
GO	245	208	4	33	110	42	46	11	0
GP	172	169	0	23	70	8	38	0	0
Total	1729	2087	10	143	625	93	334	14	5

*majority of plowzone from unit not screened since previously partially or fully excavated. Most artifacts derived from clean scraping of features or excavating below previously identified features to level of subsoil

The subsoil immediately beneath the plowzone (Stratum B) was mostly a 10YR 3/6 dark yellowish brown sandy loam or loamy sand. Figures 16 and 17 show the typical stratigraphy of the site, from the plowzone to the intact subsoil. Only Units GK, GL, and GP were excavated a full 5 cm level below the top of the intact subsoil (Figures 18-20). The subsoil excavated in Units GK and GP were completely sterile of cultural material, while Level 2 of Unit GL contained only 9 artifacts, including 2 pieces of pottery, 5 lithic flakes, 1 piece of burnt clay, and 1 piece of bone. The scarcity or lack of features and artifacts in these units demonstrated their cultural sterility and they were not excavated further. Figures 21 and 22 show the typical stratigraphy for units excavated into the subsoil.



Figure 16. Unit GN, south wall profile at base of plowzone (49 cmbd, showing typical site stratigraphy)

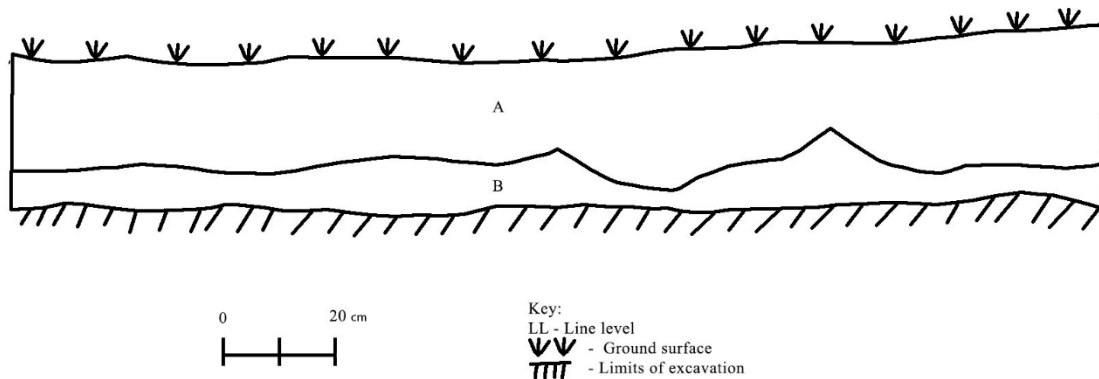


Figure 17. Unit GN, south wall profile at base of plowzone (49 cmbd, showing typical site stratigraphy)

A: 10YR 4/3 brown sandy loam

B: 10YR 3/2 loamy sand

F: 10YR 2/2 very dark brown loamy clay mottled with 10YR3/6 sandy loam (bioturbation)



Figure 18. Unit GK plan view at base of Level 2, facing north



Figure 19. Unit GL plan view at base of Level 2, facing north



Figure 20. Unit GP plan view at base of Level 2, facing north



Figure 21. Unit GL, north wall profile at base of Level 2 (61 cmbd, 46 cm below ground surface), showing typical site stratigraphy

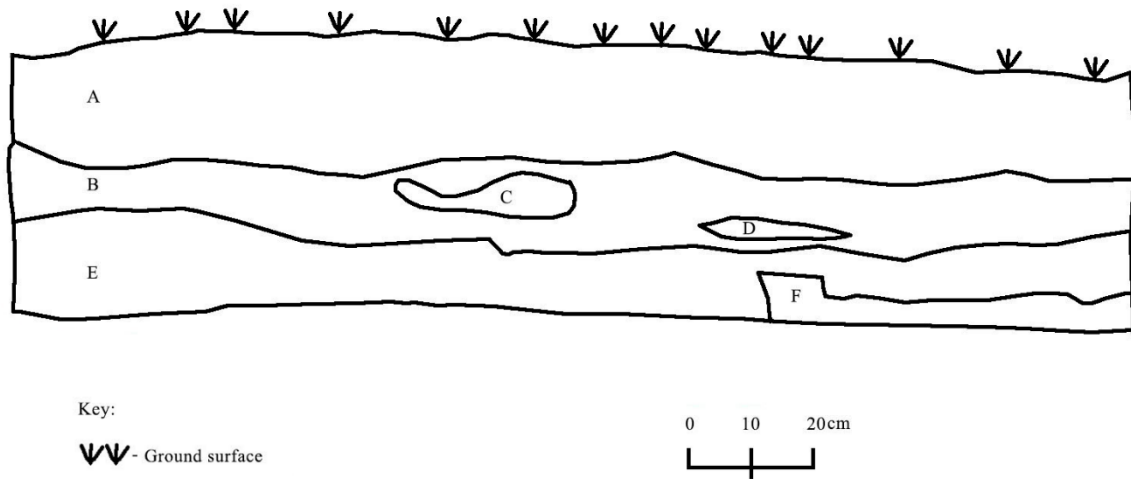


Figure 22. Unit GL, drawn north wall profile at base of Level 2 (61 cmbd, 46 cm below ground surface), showing typical site stratigraphy

- A: 10YR 2/2 very dark brown loamy sand
- B: 10YR 4/4 dark yellowish brown sandy loam
- C: 10YR 3/6 dark yellowish brown sandy clay
- D: 10YR 3/6 dark yellowish brown sandy clay
- E: 10Y 3/4 dark yellowish brown sandy clay (subsoil)

Features

Two previously encountered features (272 and 324) were re-exposed and an additional 8 features initially identified (400-407). Three of these features were determined to be cultural and excavated (324, 402, 405); two features were excavated and determined to be natural or historic disturbances (272, 404); and three potential features were initially noted and numbered but ultimately determined not to be cultural (400, 401, 406) and therefore not excavated. An additional two verified cultural features (403, 407) were discovered but were not excavated in 2022 due to time constraints. Table 4 provides summary data and Table 5 provides artifact data for all features. All features, cultural and noncultural, are discussed below.

Table 4. Feature Characteristics

Feature	Unit(s)	Length (cm)	Width (cm)	Depth (cm)	Plan	Profile	Interpretation
324	EE/GM/GN	105	144	44	circular/ irregular	basin/flat	hearth/storage pit
402	DV/GM	135	130	9.5	circular	basin	storage pit
405	GM/GN	87	82	12	circular	basin	storage pit or hearth
272**	DU	75*	50*	2.5	irregular	irregular	modern disturbance?
400**	GL	NA	NA	NA	NA	NA	bioturbation
401**	GL	NA	NA	NA	NA	NA	bioturbation
404**	GM	8	7.5	9	circular	irregular	bioturbation
406**	GO	NA	NA	NA	NA	NA	bioturbation
403***	DV/GM	NA	NA	NA	NA	NA	NA
407***	GN/GO	NA	NA	NA	NA	NA	NA

Table 5. Artifacts by Feature

Feature	Pottery	Lithic Debitage	FCR	Burnt Clay	Limestone	Burnt Limestone	Bone	Total
272	0	0	0	0	0	0	0	0
324	77	96	0	63	5	0	59	300
402	46	24	2	27	3	9	29	140
403*	0	4	0	0	0	0	1	5
405	31	13	0	21	0	1	33	99
Total	0	137	2	111	8	10	122	544

*not excavated; artifacts collected from clean scrape only

Cultural Features: Excavated

Feature 324 was a circular/irregularly-shaped feature approximately 105 cm in diameter. It was circular but for an arm that extended out from its eastern perimeter (Figure 23). The primary fill was 7.5YR 3/2 dark brown loamy sand, but the feature comprised of multiple zones of fill, both in planview and profile (Figure 24). In profile, the feature appeared to have been constructed in two stages. The upper zone of the feature was basin-shaped and consisted of two primary subzones (A and C on Figure 25). The upper subzone is characterized as feature fill (7.5 YR dark brown sandy loam), while the lower subzone is lighter and highly mottled (7.5 YR 2.5/2 very dark brown sandy loam mottled with 7.5 YR 3/3 dark brown loamy sand). There were also two pocket subzones (B and D on Figure 25) that were grayer and ashy and excavated in the same level (Level 2) as the upper subzone. Overall, this upper portion of the feature extends 25-30 cm below the intact surface of the subsoil.

The upper zone of the feature contained pottery and lithics, along with limestone, burnt clay, bone fragments, and small bits of charcoal, and the wide, basin-like shape suggests that the upper

zone may have been a hearth. This upper portion appears to have been superimposed on the lower portion, which, with its relatively flat bottom, may have functioned as a storage pit. It may also represent a zone of leeching from the upper portion of the feature.

The lower zone of the feature (E on Figure 24) was narrower and flat-bottomed and approximately 50 cm wide with fill characterized as 7.5YR 2.5/2 very dark brown loamy sand (zone E on Figure 25). This portion of the feature extended approximately 40 cm below the surface of subsoil and approximately 15cm below the bottom margin of the upper zone of the feature. This zone contained no artifacts, which is in line with expectations for either a leeching zone or a storage pit.

Feature 324 overall was extended deeper into the subsoil than nearby F402, a likely Mississippian storage pit feature, which suggests it is older, particularly if it is a hearth, which are generally shallower than storage pits. The pottery sherds found in the feature, while highly fragmented, are tempered with grit, grit-and-grog, or sand, suggesting the represented vessels date to the Woodland period. One rim sherd displays cordmarking up to its slightly everted lip, along with a weak node. However, the sherd's interior surface is exfoliated and the original shape of the lip is difficult to determine. The features suggest the vessel may be Havana/Hopewell (Middle Woodland) or Rosewood/Mund (Late Woodland), and without the full thickness of the sherd and shape of the lip, it is difficult to determine its exact temporal association. Additional analysis of the pottery sherds and radiocarbon dating could help determine the temporal affiliation of this feature.



Figure 23. Feature 324, plan view



Figure 24. Feature 324, profile facing north

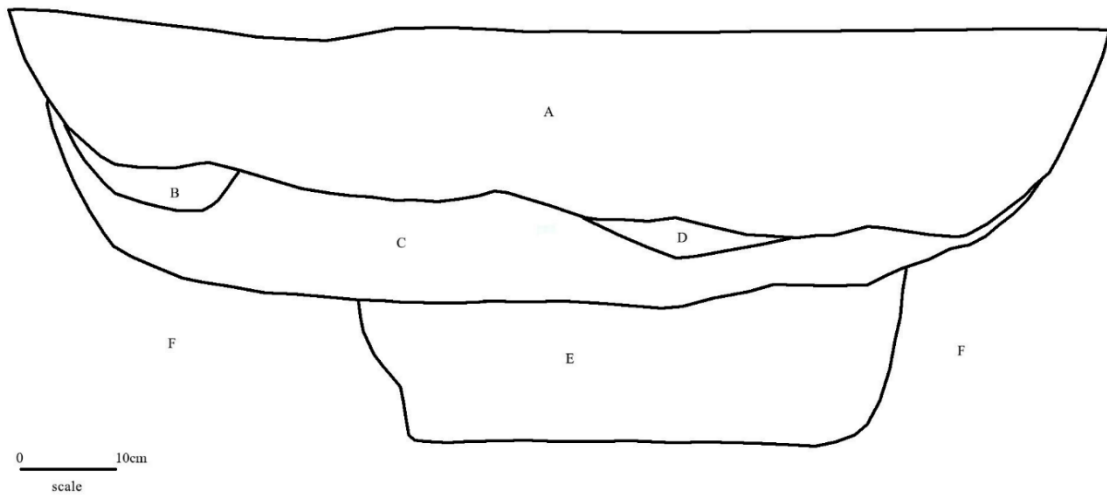


Figure 25. Feature 324, drawn profile facing north

- A = Feature 324 fill (7.5YR 3/2 dark brown sandy loam)
- B = Feature 324 fill (7.5 YR 2.5/2 very dark brown sandy loam)
- C = Feature 324 fill (7.5 YR 2.5/2 very dark brown sandy loam mottled with 10 YR 3/4 dark yellowish brown sandy loam)
- D = Feature 324 fill (7.5YR 2.5/3 very dark brown sandy loam)
- E = Feature 324 fill (7.5 YR 2.5/3 very dark brown sandy loam mottled with 10 YR 3/4 dark yellowish brown loamy sand)
- F = Subsoil (10 YR 3/4 dark yellowish brown loamy sand)

Feature 402 was a circular feature approximately 130 cm in diameter that extended 9.5 cm below the intact subsoil (Figure 26). The fill was characterized as mostly 10YR 3/3 dark brown loamy sand. It was bisected on its east-west axis and the south half excavated as Level 1. Soil samples were taken from the north half of each zone of the feature for flotation. The feature was originally quite large and most likely quite deep, most of its depth destroyed by deep plowing. In profile, the feature was basin shaped with two zones: a dark upper zone underlaid by a mottled zone (Figures 27 and 28). Approximately 140 artifacts were encountered from what remained of the features (both halves), a moderate density of artifacts. This included a decent quantity of burned limestone, and it was noted that there were other burned organics and charcoal in the feature, but most examples not large or intact enough to collect or count. However, only 2 pieces of FCR were present and burned material was not dense, so it was likely not a hearth or earth oven. The shape, size, and original depth of Feature 402 suggest it was a large external storage pit, which seems likely given its proximity to Feature 257, one of the identified Mississippian houses. Like most other Mississippian features at the site, F402 is not as deep as nearby Woodland features since the ground level was higher during the Mississippian occupation. The feature is also located southeast of structure F257, much like the large storage pits located south of the other Mississippian structure, F212 (Zimmermann 2013, 2018). A large piece of a shell-tempered pottery vessel was found *in situ* at the top of the intact portion of Feature 402 (Figure 29), and the feature contained mostly shell-tempered pottery, again suggesting that it is associated with the Mississippian occupation of the site and possibly with the F257 house structure.



Figure 26. Feature 402, plan view



Figure 27. Feature 402, profile facing north

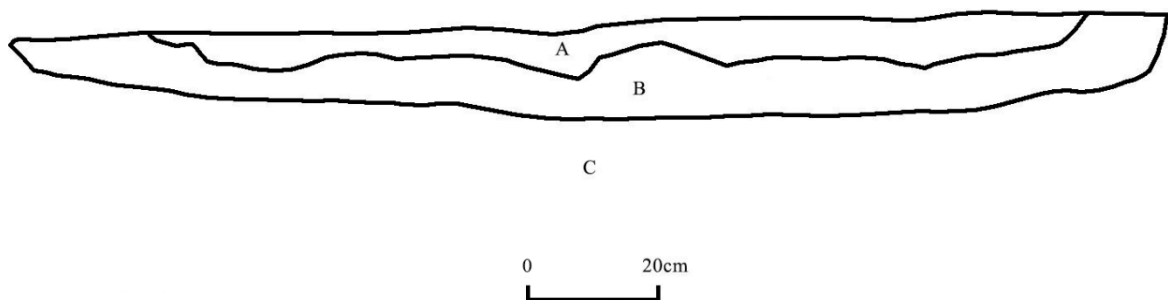


Figure 28. Feature 402, drawn profile facing north

- A = Feature 402 fill (10 YR 3/3 dark brown sandy loam)
- B = Feature 402 fill (10YR 3/3 dark brown sandy loam mottled with 10YR 3/6 dark yellowish brown loamy sand)
- C = subsoil (10YR 3/6 dark yellowish brown loamy sand)



Figure 29. Feature 402, shell-tempered pottery sherd in situ, bottom Level 1

Feature 405 was a circular feature approximately 85 cm in diameter that extended 12 cm below the intact subsoil (Figure 30). The feature was bisected along the east-west axis and the north half excavated first. The base of the feature was basin-shaped, with two zones of fill (Figures 31 and 32). The upper zone was 7.5 YR 2.5/2 very dark brown sandy loam, while the lower zone was 7.5 YR ³/₄ dark brown loamy sand. In the south half of the feature, the two zones were excavated as separate levels and separate soil samples were taken of each level. Both levels contained limited amounts of artifacts but also contained small pieces of charcoal and burned limestone (not collected), burned pottery, and burned bone. The base of the feature is more rounded and irregular than a storage pit, and it is smaller in diameter than other nearby storage pits, but the lack of significant amounts of burned debris or larger chunks of charcoal also does not clearly indicate its function as a hearth; instead, the burned debris may have washed into the feature later. Feature 405 may have been either a storage pit or a hearth. The pottery in the feature was either grit tempered or grit-and-grog tempered, suggesting a Woodland association for the pit. Additional ceramic analysis and/or radiocarbon dating could help distinguish whether Features 324 and 405 constitute an extension of the Middle Woodland occupation, which is concentrated eight to ten meters to the west, or a distinct cluster of Late Woodland features.



Figure 30. Feature 405, plan view



Figure 31. Feature 405, profile facing south

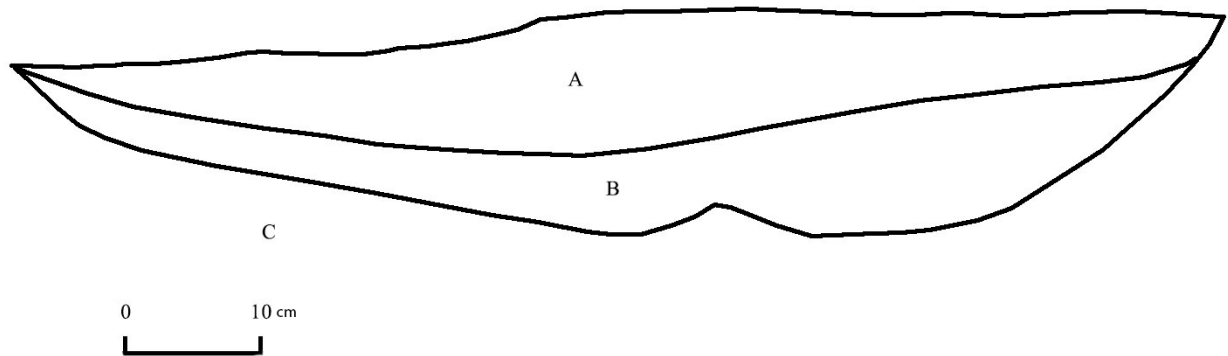


Figure 32. Feature 405, drawn profile facing south

- A = Feature 405 fill (7.5YR 2.5/2 very dark brown sandy loam)
- B = Feature 405 fill (10YR 3/4 dark brown loamy sand)
- C = Subsoil (10YR 3/6 dark yellowish brown loamy sand)

Cultural Features, Not Excavated

Feature 403 was identified along the south walls of Units DV and GM. It is a circular feature of which only the northernmost 50cm was exposed (Figure 33). At the culmination of the excavation, what was visible of the feature was approximately 112 cm across (E-W), so the feature will be relatively large once the full extent is exposed. Given its proximity to F402, it is likely also a Mississippian pit feature, possibly related to the F257 house structure.

Feature 407 was identified in Units GN and GO, extending into the southern boundaries of the unit. It is a large, irregularly-shaped feature, approximately 140 cm at its widest extent (E-W) and 106 cm of its N-S extent was exposed (Figure 34). Only a small portion of the feature lies beyond Units GN and GO, but time did not permit full exposure of the feature. This feature was very interesting in that, just from clean scraping around the feature, it was evident that the feature contained a large amount of bone, shell, limestone, baked clay, and burned material.

Both Features 403 and 407 will be targeted for excavation in the 2024 field season.



Figure 33. Feature 403, plan view facing south (non-cultural F403 also visible on left)



Figure 34. Feature 407, plan view facing south

Non-Cultural Features

Feature 272 was first identified in 2018 by Zimmermann (2018). It was discovered in proximity to house structure F257, which was fully excavated that year. Unit DV was excavated first, and tarp laid down by Zimmermann in 2018 to protect the feature was encountered around 35 cmbd (20 cm below the ground surface). At this point, the “feature” was dark yet very amorphous and undefined. In the attempt to define it further, the surface of the feature was pulled back to try and delineate it more clearly but it continued to retain its amorphous nature. Much of the unit comprised a darkened matrix, so it was not clear if we were into the subsoil or not. We realized that to fully capture the feature we needed to reopen old Unit DU, another 1x2 m unit located directly west of DV. We found that at 31 cmbd (~16 cm below ground surface) in unit DU, we could clearly see the western-most, finger-like extension of F272. It did appear that at this shallow depth, the subsoil had been reached, as the matrix surrounding it was the typical subsoil color and texture. However, we were already underneath this level in adjacent unit DV (approximately 39 cmbd), which still was not clearly at the base of the plowzone (even according to the wall profile), and at this point the feature was still relatively undefined and of no discernible shape. There also appeared no continuity between the dark finger in DU and the diffuse dark, patchy soil in DV at this point (Figure 35).

Further excavation of Unit DU was halted in order to bisect and record what left of “F272.” In planview, the remains of the feature had three distinct zones, the shape of which did not resemble any typical or identifiable cultural feature. The feature was approximately 50cm north-south and at least 75 cm across (but cut off by the arbitrary edge of the unit; Figure 36). The feature was bisected along the north-south axis and the eastern half excavated first. In profile, the feature was shallow, only 5 cm at its deepest, and its base was angled and did not have the shape typical of an ancient cultural feature (Figures 37 and 38). After excavating the feature, much of Unit DU appeared to be into the subsoil, although here the plowzone not as deep and the subsoil intact at a shallower depth than observed in surrounding units. The matrix was also much more clayey and difficult to dig, as can be seen in the photos of the bottom of Level 1, where students struggled to cleanly excavated the unit floor (see Figure 8).

Upon discovering the well-defined Feature 402 in adjacent unit DV beneath the dark soil that was originally thought to be part of F272, the decision was made to dig the rest of Unit DU to the same level. Upon excavating Units DU and DV to the depth of approximately 30 cm below the surface, the stratigraphy of this area remained unclear. In the south wall, the plowzone appears to culminate at the approximate level of where F272 was found, and the upper portion of F403, the partially uncovered feature along the southern boundary of Unit DV, appears visible and intact above the bottom of our Level 1 (Figure 39). Why the plowzone appears shallower in this area than in the rest of the units excavated in 2022 (and other units excavated in previous years) is unclear. Ultimately, F272 did not yield any artifacts and had neither the profile nor planview shape to indicate that it was an ancient cultural feature. It may have been the result of some more modern disturbance or natural phenomena. Some of the dark soil in Unit DV may be the plowed and mixed upper portions of F402, although this does not explain the dark finger in Unit DU.

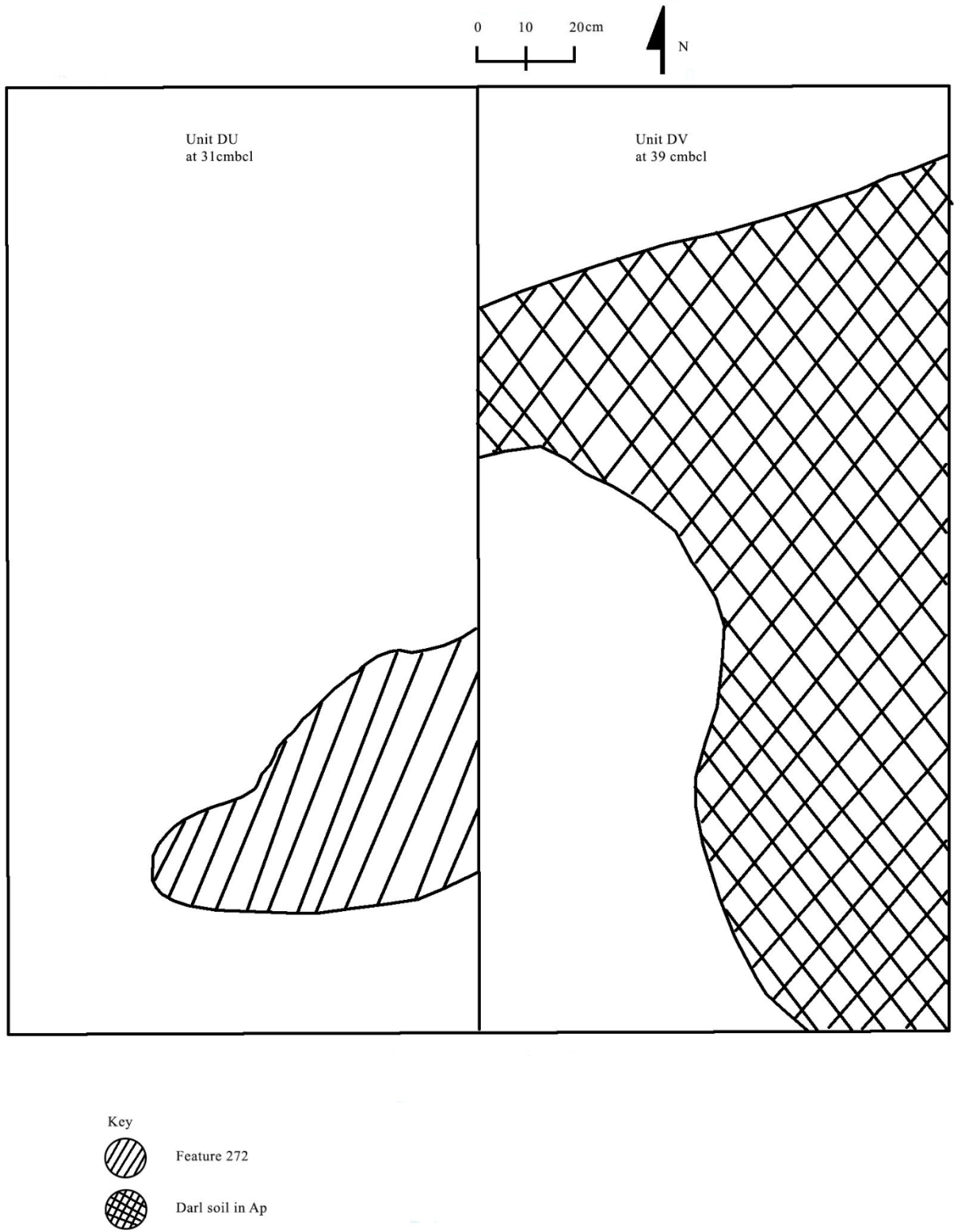


Figure 35. Plan view drawing of Units DU with Feature 272 and Unit DV with dark, irregular matrix



Figure 36. Feature 272 (non-cultural), plan view



Figure 37. Feature 272 (non-cultural) profile, facing west

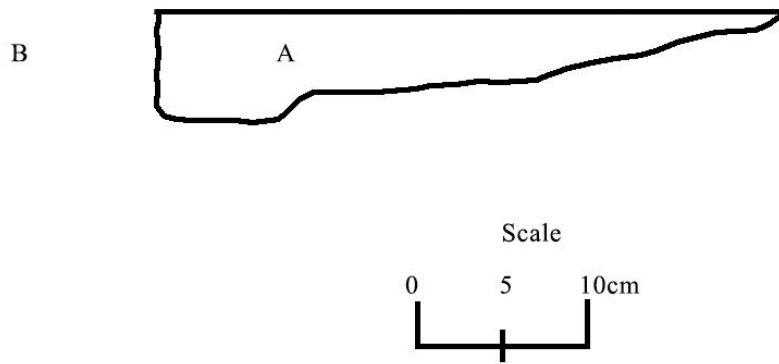


Figure 38. Feature 272 (non-cultural) drawn profile, facing west

A = fill (10YR 4/2 dark grayish brown sandy loam)

B = subsoil (10YR 3/3 dark brown loamy sand)



Figure 39. Units DU and DV south wall profile

Feature 400 was first identified near the base of the plowzone in Unit GL. It was large and generally circular. However, it disappeared once the base of the plowzone was reached and the surface of the intact subsoil clearly clean scraped. It may actually have been the remnants of a pit feature that was completely destroyed by plowing. However, without a portion with integrity preserved in the undisturbed subsoil, this cannot be verified.

Feature 401 was a small irregular darkened zone along the northern perimeter of Unit GL. It was present in some shape throughout much of the plowzone. Upon reaching the subsoil, its shape was irregular and it was clearly a rodent run, not a cultural feature.

Feature 404 was a small circular feature located south of the F402 and immediately adjacent (northeast) to F403. It was approximately 8 cm in diameter and extended only 2 cm below the intact surface of the subsoil (Figure 40). It was investigated to determine whether the feature was a post mold or a taproot/rodent run. F404 was bisected on its southeast/northwest axis, and the northeast half was excavated. The feature was shallow and did not contain any artifacts or charcoal (Figures 41 and 42). The base of the feature was somewhat rounded yet lopsided. The irregular base shape and very narrow width suggested it was the result of bioturbation. The other half of the feature was not excavated, nor was a soil sample collected.

F406 was an irregular darkened zone along the northern perimeter of Unit GO. It was present in some shape throughout much of the plowzone. Upon reaching the subsoil, it appeared very mottled and loose, and it was concluded that it was the result of disturbance from previous excavation of the area just to the north of the unit and not a verifiable ancient feature.



Figure 40. Feature 404 (non-cultural), plan view



Figure 41. Feature 404 (non-cultural), profile facing southwest

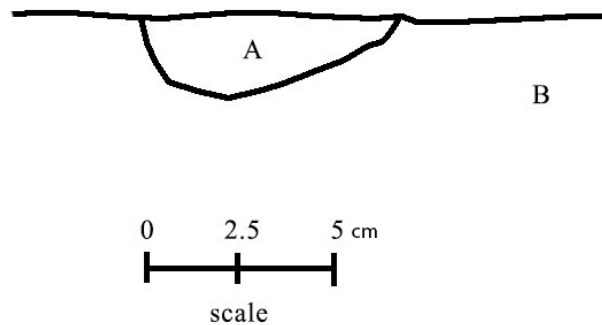


Figure 42. Feature 404 (non-cultural), drawn profile facing southwest

A = 10YR 3/3 dark brown loamy sand
B = 10YR 3/4 dark yellowish brown sandy loam

Human Remains

Human skeletal remains were found during the 2022 excavations at the Gehring site. A total of three teeth from a minimum of one individual were collected. They were found dispersed throughout the plowzone in Units GM and GN. The Madison County Coroner and the HSRPA Coordinator for the state of Illinois were both contacted and notified.

A human canine tooth was first discovered in the plowzone of Unit GM on May 26, 2022. The student excavators were approaching the bottom of the plowzone/top of the subsoil and features were becoming visible when the tooth was found in the artifact screen, but the excavator believed that the tooth came from cutting back the plowzone in the south wall of the unit. Dr. Corey Ragsdale (SIUE Dept. of Anthropology), a biological anthropologist with experience in mortuary archaeology, bioarchaeology, and forensic anthropology, came to the site that day to confirm the tooth was human. All emerging features in the unit (F402, F403, F404, and F405) were investigated and none of them were determined to be burials.

The Madison County Coroner was notified about the discovery and given the case number 20022-01286. Dr. Dawn Cobb, the HSRPA Coordinator for the state of Illinois was also contacted, who provided the HSRPA incidental discovery number 2022-016 for this case. During later lab work, it was discovered that an additional human tooth (a premolar) had been found and bagged during the screening of the sod layer of Unit GM (on May 18, 2022) without its initial identification as a human tooth.

On June 3, 2022, a third and final human tooth (a premolar) was discovered in Unit GN. This was also uncovered in the southern half of the unit, in the plowzone, which was being shoveled, so the exact location could not be recorded. The canine and two premolars appear to have a similar amount of wear and may represent a single individual. Both Dr. Cobb and the Madison County Coroner's Office were notified and updated about the additional teeth. Throughout the excavations, no intact burial features were identified. Dr. Julie Zimmermann of SIUE had also found scattered human remains in this same area of the site lying on the surface of the ground during a previous excavation season. Based on this evidence, it appears that at least one ancient Native American burial was located in this far southern portion of the site and that it was likely highly disturbed or even completely destroyed and scattered through plowing.

The skeletal remains of the individual(s) encountered during the 2022 Gehring site excavations were transferred to Dawn Cobb via the Illinois State Museum in October 2022 for eventual repatriation.

DISCUSSION

The 2022 excavations have revealed additional information about the Woodland and Mississippian components at 11MS99, and with further research can contribute to an even deeper understanding of the complex occupational history of the site.

A reinvestigation of F272, first identified in 2018, revealed a complex stratigraphy and a probable recent disturbance. The most distinctive portion of the feature, located in Unit DU, did not bear the characteristics of an ancient cultural feature in planview or profile, and it did not contain either artifacts or charcoal. The perceived possible eastern extent of the feature, located in Unit DV, was never defined but instead remained amorphous and mixed. F402, a well-defined

pit feature, was located beneath it. The dark matrix above F402 may have been the result of the plowing and mixing of the upper portion of the feature.

Four new cultural pit features were discovered during the course of excavations, two of which were excavated (F402 and F405). Feature 402 is a large Mississippian pit of which little remained due to deep plowing and erosion at the site. This feature contained shell-tempered pottery and extended to a depth similar to that of other confirmed Mississippian pit features at the site. It is also located in close proximity to Feature 257, a Mississippian house structure, located just off of the southeast corner of the house (Figure 43). Feature 257 was identified by Leslie (2020) as a Stirling phase (AD 1100-1200) house. During this phase, people constructed storage pits inside and outside of their houses, as demonstrated at the Range, Julien, and Turner sites (Bareis and Porter 1984; Kelly 1990; Milner 1984). Although Stirling phase houses had a tendency towards more internal storage pits as opposed to communal, exterior pits, the presence of external pit features was not uncommon among Stirling households (Emerson 1997; Mehrer 1995). No external pit features associated with Feature 257 had previously identified in excavations immediately north, west, or south of the house, although two large pit features (F314 and F323) located several meters west of F257 may also be associated with the house, or at least date to the Mississippian period (Colaninno and Zimmermann 2020). Feature 403 is located directly south of F402 (see Figure 4), and although it was not fully uncovered and excavated in 2022, it appears it will have dimensions similar to those of F402 and may represent yet another large Mississippian pit feature. The identification of Feature 402 has resulted in a more complete picture of the overall F257 house complex.

Feature 324 was previously identified but not defined or excavated (Colaninno and Zimmermann 2020). Excavations of this feature in 2022 revealed it to be deeper than nearby Mississippian features. It also contained grit, grit-and-grog, and sand-tempered pottery, suggesting a Woodland association. Only a single rim sherd was present, which displayed cordmarking to the lip and a crude node, characteristics of both Middle Woodland and early Late Woodland pottery styles. Feature 405, a possible hearth or storage pit, was located immediately southwest of F324 (see Figure 4). It was smaller in diameter than either F402 or F324, but was intermediate between them in terms of depth. It also contained grit tempered pottery and is thus also likely associated with the Woodland period, and given its proximity to F324, they may date to the same time period.

Lange (2020) suggested that pottery from nearby Features 264, 265, and 266 was likely manufactured during the Late Woodland period, although sherds with identifiable rims or decoration were scarce and/or extremely fragmented. The thickness and temper size of non-shell tempered sherds in these features, however, was statistically distinct from those derived from verified Middle Woodland features at the site (Lange 2020). This suggests some Late Woodland presence at the site, although the nature and extent of this presence is still unclear. Features 324 and 405 are in closer proximity to these possible Late Woodland features than to the Middle Woodland features identified by Zimmermann-Holt and Belknap (2010). However, they are also separated from Features 264-266 by two large pit features, F314 and F323, excavated by Colaninno and Zimmermann (2018, 2019, 2020), which appear to be Mississippian. Better understanding the temporal affiliations of the features in this cluster, either through in-depth ceramic analysis and/or radiocarbon dating, will aid in better understanding the occupational history of the Gehring site.



Figure 43. Features excavated at Gehring site 2009-2022

The remaining two features identified were only partially uncovered. Feature 403, located directly south of F402, appears as though it will be nearly or just as large and is distinctly circular in shape as F402 and thus likely another pit feature, possibly associated with structure F257. Feature 407 is a large, dark feature that is not as distinctly round as the other nearby features, characterized by irregular edges. Given its distance from F257, it may not be directly

associated with the F257 structure. A high quantity of burned artifacts and bits of bone identified on its surface hint at its function as a large outdoor hearth or maybe even a refuse pit. Both F403 and F407 were covered with tarp and reburied at the end of the 2022 field season and will be the targets of excavations at the site in 2024.

CONCLUSION

In 2022, three 2x2 m units and five 1x2 m units were excavated at the Gehring site targeting previously recorded features and finds. Two previously recorded but unexcavated features were uncovered and investigated. Four new cultural features were identified, two of which were excavated.

One of the excavated features, F402, is a Mississippian pit feature that helps to define the extent of the F257 residential complex. Features 324 and 405 have Woodland associations and can help further illuminate the pre-Mississippian occupational history of the Gehring site. In-depth analyses of pottery and radiocarbon dating of materials from these features can help verify their temporal contexts and provide a deeper understanding of the site and its function and layout through time.

Future excavations will target the two identified features that were not excavated in 2022 (F403 and F407). Further explorations of the far southeastern sector of the site, which appears to be a complex and repeatedly used area over the course of millennia, will hopefully uncover additional features and clues about the ancient Indigenous occupants of the Gehring site.

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