

# Investigating Ohio Hopewell Settlement Patterns in Central Ohio: A Preliminary Report of Archaeology at Brown's Bottom #1 (33Ro21)

by

Paul J. Pacheco, SUNY Geneseo  
Jarrod Burks, Ohio Valley Archaeological Consultants,  
& Dee Anne Wymer, Bloomsburg University

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This project is a collaborative effort between SUNY Geneseo, Bloomsburg University, and Ohio Valley Archaeological Consultants. Our ultimate purpose is to secure National Science Foundation (NSF) funding to pursue further settlement research in Central Ohio. Our Brown's Bottom excavations in 2005 serve as a pilot study of the research design for our long-term project. Based on information and insights gained through our Licking Valley Hopewell research, we plan to apply similar research strategies in an effort to integrate settlement data into a broader understanding of the Scioto Valley Hopewell.

Brown's Bottom #1 is the 21<sup>st</sup> site that Prufer designated when he began applying the trinomial numbering system to his Scioto Survey sites (Prufer 1967). The site is located in Liberty Twp, Ross County, Ohio approximately 11 km south of Chillicothe and about 1.2 km northwest of the smaller circle of the Liberty Earthworks (Figure 1). Brown's Bottom #1 is approximately 1.3 km east of the Scioto River on the active floodplain and, in fact, this year was flooded. The site occupies a slight rise on the bottom lands, south of Dry Run—today an intermittent stream that dries up during the hottest months of summer. It is situated within the middle field of Brown's Bottom, a strip of bottomland that once consisted of three fields totaling about 180 acres, but is now one big field. Prufer named it Brown's Bottom because Russell Brown was the tenant farmer when he was given permission from Bob Harness to investigate the site in 1963 as part of his NSF Scioto Survey project. In 1963 Prufer conducted a surface survey of Brown's Bottom in the spring, followed in June by a short-lived excavation at the first of three clusters containing what he felt to be domestic Hopewell debris. His crew, supervised by Elisabeth Baldwin, excavated four 10x10 foot squares in this first, easternmost cluster. They soon ceased the operations because he "was deeply disappointed by the shallowness of the deposits" and the lure of Alva McGraw's promise that he had a good candidate for the type of Hopewell site Prufer wanted to examine with his NSF grant (Olaf Prufer, personal communication). John Blank wrote up the site report of the 1963 Brown's Bottom work as a training exercise (Blank 1965).

Our first problem for the 2005 field season was relocating the spot where Prufer had found his artifact clusters and conducted his excavations in 1963. Knowing that the site was located somewhere within the middle field of Brown's Bottom, Burks used a small crew of volunteers to conduct a surface survey (transect survey, 5-meter transect spacing). A Trimble GEO XT GPS was used to piece plot all objects encountered in these transects across the 50-acre field in early April, 2005. Approximately 3000 cultural objects were mapped during this survey. On the eastern edge of the field, paralleling a slight topographic rise is a concentration of artifacts and FCR. Three bladelets, a Middle Woodland projectile point, several small grit-tempered/cord-marked sherds, a celt fragment, and a fragment of worked slate were recovered in this cluster. Since this matched the general description of Prufer's site location, Burks conducted a magnetic gradient survey in a 60m x 40m block over the artifact cluster. Forty-four potential cultural anomalies were identified in the magnetic data and ground-truthed using a 2.5 cm diameter Oakfield soil probe. The Oakfield coring results, which included information on feature depth and content, were compiled into a table and used as the basis for our decision making strategy during the excavation. Using the presence of cultural materials

like dark feature fill, bone, ceramics, and charcoal from the probes, Burks created a map (Figure 2) showing the distribution of features (those detected by the magnetometer). His technique predicted, based on magnetic intensity and findings in the probes, that the series of large anomalies along the southeast edge of the cluster are earth ovens filled with secondary refuse. The hatched area to the east denotes an area of fine-grained sediments deposited in a low-energy setting that seem to include prehistoric refuse, based on the probing results. The orange squares may be two of Prufer's excavation units, given their size and shape.

When we arrived at the site in May, we were a bit awed by the immensity of the classic, giant open soybean field that so many archaeologists have faced in Ohio. After reestablishing the corners of the magnetometry grid with a total station, we placed 2 x 2 m excavation units using 50 m cloth tapes over potential feature locations as indicated on our magnetic anomaly planning map (Figure 2). Features containing bone, as shown in the probing, were chosen for excavation first because of their potential to yield Hopewell subsistence data relevant to prevailing settlement pattern issues (e.g., Cowan 2006; Dancey and Pacheco 1997; Kozarek 1997; Pacheco and Dancey 2006; Yerkes 1994, 2002, 2005).

As soon as the plowzone was removed from over the magnetic anomalies, features appeared. As predicted, the large anomalies along the southeastern edge of the cluster are the remains of refuse-filled earth ovens. Three of these ovens were excavated (Features 35, 38, & 39), and all were found to contain evidence of in situ burning and secondary refuse disposal. We also excavated three other features (Features 12, 29, & 33) that at first we thought might be deconstructed earth ovens, but upon further examination are better characterized as elliptical basins containing no evidence of in situ burning. The prehistoric function of these pit features is uncertain, although they may have served as processing pits. Bone preservation in all features at Brown's Bottom is excellent, just as at the McGraw site (Parmalee 1965; Prufer 1965). The presence of limestone cobbles and ubiquitous fresh water shellfish in the features no doubt has contributed to the degree of preservation. The bone samples from within the earth ovens contain a potential wealth of primary subsistence data. These samples have yet to be systematically examined, but field and lab perusal indicates that there are abundant deer bones present, including perhaps the elusive eight months old baby deer jaw—which is conclusive evidence for winter habitation.

Two unique bone discoveries were made at the site this summer. The first is the presence of what are likely domesticated Hopewell dogs (Figure 3). At least three dogs were recovered (one from F35 and two from F38) inside the earth ovens amongst the secondary refuse. Preliminary examination of the dog bones shows no evidence of butchering. The second unexpected discovery is the presence of two human burials from non-mound contexts. Burial One is a male, age 30-40 at time of death (Scuilli 2005). He was discovered at the bottom of Feature 33; one of the elliptical basins. This individual is well preserved and almost complete and is estimated to have been 168.2 cm (5 feet 6 inches) tall, weighing 69 kg (152 lbs.). Principal component analysis places this individual near the center of the distribution of documented Hopewell individuals. Burial

Two is a flexed burial of a woman who was approximately 45 year old at time of death (Scuilli 2005). She was recovered beneath the fine-grained sediment (i.e., potential midden) deposit along the east edge of the site. This individual is more fragmentary than Burial One. Her height is estimated at 152 cm (5 feet) tall, with a weight of 50 kg (110 lbs). Principal component analysis places this individual near the edge of the distribution of documented Hopewell individuals, but still within the defined limits of the distribution. Burial Two had large osteophytes on the lumbar vertebrae and severe degenerative joint disease of the left scaphoid of the hand. Both individuals have heavily worn teeth, but only two dental carries were identified in Burial Two and none for Burial One. However, both individuals had lost teeth ante-mortem and had at least two abscesses. Overall, the dental analysis for both burials indicates a non-maize diet, consistent with eating native Woodland foods. This interpretation is supported by the Burial One carbon isotope ratio of -20.6—well below the ratio expected for an individual who regularly ate corn. Neither burial contained any artifacts or burial goods in direct association with the remains, although both have FCR placed over their joints. Based on the radiocarbon dating of Burial One, which we present later, and the metric data collected by Scuilli (2005), these are legitimate domestic Hopewell burials. No other documented Hopewell burials are known from domestic sites in Ross County.

Wymer's paleoethnobotanical analysis is underway and already there is evidence for domesticated plants. Several fragments of squash rind showing the unique cell structure of the domesticated variety *Cucurbita pepo* var. *ovifera* have been identified. Other Eastern Agricultural Complex plants include goosefoot (a thin testa domesticate of *Chenopodium berlandieri* ssp. *jonesianum* has been confirmed), and potentially maygrass and knotweed (Gremillion 2003; Fritz and Smith 1988; Smith 1985, 1989, 1992; Smith and Cowan 1987; Wymer 1987, 1993, 1997). Other identified specimens include a tuber, potentially a wild onion, which may confirm spring habitation, and abundant walnut and hickory nutshell indicative of fall habitation. Wymer has also identified fish spine in the flotation samples.

The lithic assemblage includes 72 Ohio Hopewell bladelets, 22 (30.5%) of which are whole (69 are Ridge, 3 are Upper Mercer). The total lithic assemblage is small, with only 541 specimens larger than ¼" from the excavations, though relatively little plowzone was screened during the excavation. Approximately 44 objects (ca. 20% sample, 50% surface visibility), including the Middle Woodland diagnostics mentioned above, were found on the surface in the immediate area of the geophysical survey during the surface collection. Wymer also reports numerous small retouch flakes in the flotation samples that may reflect a truer read on the type of lithic activities going on at the site. In other words, at least some kind of lithic reduction, probably biface maintenance and reworking, took place at the site, with the resultant debris ending up in the pit features. Three Middle Woodland projectile points and two bifacial blades were recovered in both the plowzone and feature contexts.

The ceramic assemblage is larger, with 2877 total specimens weighing 10.8 kg. We have a minimum of 47 vessels represented in the sample based on the presence of 42 unique rims and 5 unique body sherds (31 rims are plain, 4 have plain rims and necks and

show cord marking below the neck zone, and 5 are cord marked to the lip). We assume that most of the plain rims had cord marked bodies based on the preponderance of this surface treatment in the assemblage (i.e., these are primarily McGraw cord-marked vessels). Decorated sherds are rare. We have two unique incised body sherds (one of which may come from a Hopewell series vessel), a simple-stamped sand-tempered sherd, and one unique embossed rim (Figure 4). The embossed rim vessel has a diamond check stamped design on the body and likely fits into the Southeastern series (Prufer 1968). The most unique decoration is a body sherd with a series of three punctates with incised lines extending away from them. These decorations, which look like 'lollipops,' probably come from an area near the shoulder of the vessel.

While the excavations of the earth ovens were underway, Pacheco and Burks examined the geophysical data and surface artifact distribution map to look for areas that might contain evidence of structures. The anomaly map (see Figure 2) has an area north of the earth ovens without any apparent features. Just to the east of this area is the surface scatter of fire-cracked rock—a possible secondary refuse dump. We felt this area, lacking large magnetic anomalies and surface refuse, was a good place to look for the remains of a dwelling based on our current model of the structure of Hopewell settlements (Burks 2004; Dancy and Pacheco 1997; Pacheco 1996; Smith 1992). Consequently, we excavated a 1 x 20-meter trench across this blank area. Two groups of potential postholes were discovered in two places in the trench, six meters apart. Exposing the profiles of these soil anomalies through excavation revealed them to be rock-filled postholes (Figure 5). The rocks are either chinking or the posts were pulled, perhaps so that the wood could be re-used, and the postholes intentionally backfilled with gravel from nearby Dry Run. Trenches placed perpendicular to the main trench showed that the posts continued in lines in both directions out from our original trench. Continued excavation revealed that the two lines of posts did not connect and that we in fact had found the remains of two structures. We decided to concentrate on the northern most line, and continued to find robust, rock-filled postholes. When it was clear that we were going to get a relatively complete structure, we arranged a helicopter fly-over of the site to get some aerial views of the excavations (Figure 6). The structure is 13.7 m x 13.7 m square, providing 187.6 square meters of living space. Unfortunately the helicopter came the day before our last day of excavation and the overhead view is not quite complete. The excavation map shows the location of all units and features, plus features detected in the geophysics/probing but not excavated (Figure 7). The topographic view of the site shows it to be situated on a low rise west of what is possibly an ancient oxbow that is definitely still a seasonally wet depression (Figure 8). The contour interval for this feature is 10cm.

The structure includes three sets of paired thermal features (F13, F135, F16, F91, F155, & F167) along each wall but the southeast wall, which includes the probable doorway. The features contain FCR and cultural debris but no evidence of in situ burning. The magnetometer identified all but one of these features (F91) located inside the surveyed block. There is a screened off area, with small internal posts, located along the northeast wall of the structure. These posts screen a large pit, 1.1 meter in diameter (F15) that extends to 90 cmbpz. This pit has a flat bottom, is relatively empty of cultural

debris, and likely represents an internal storage feature. We also identified the bottom of a likely hearth (F14), based on reddened earth, but unfortunately, it, like the house floor, seem to originate at a more shallow depth that is now part of the plowzone. There is a small elliptical basin (F144) located along the southwest wall of the structure. One of the internal thermal features (F155) contained abundant ceramic material, including the embossed rim shown in Figure 3. Another feature (F16) first appeared as a circular pattern of FCR just below the plowzone. Excavation of Feature 16 revealed a large piece of mica sitting on the bottom of the feature. The mica was lying horizontally in the feature fill and was somewhat broken and contorted, perhaps from a large rock found on top of it. Because of its fragile and fragmented condition, we decided to take it back to the lab in a column of feature fill. Excavation in the lab revealed the mica to be a large cut piece (cut on all edges) that may have been intended as an effigy figure (Figure 9).

One of the projects currently underway by Ryan Murray, a Geneseo undergraduate student, is aimed at understanding the design of the structure. He is calculating the stress index values for the posts using a formula proposed by Marshall (1969) for the Pike House in Illinois. The average size of the 48 external wall posts is large at 22.25 cm in diameter by 34 cmbpz deep. The stress values for the Brown's Bottom posts fits into Marshall's top category; they are posts capable of withstanding strong horizontal stress without need for significant horizontal support. Interestingly, the largest posts are situated along the midpoints of each wall. There is also a large center post in the middle of the structure, which is 26.9 cm in diameter and 33.1 cmbpz deep. These posts were substantial enough to support a roof for this large structure. A preliminary analysis suggests that the structure may have used a pyramidal hip roof design.

We have two radiocarbon dates so far for this site and a third (for F135 from within structure 1) has just been sent to the lab. The first assay (Beta 206205: 1750  $\pm$  60 B.P.) is on wood charcoal from Feature 38, one of the earth ovens, and gives a 2-sigma calibrated range from A.D. 130 – 420 with an intercept at A.D. 260. The second assay (Beta 206784: 1540  $\pm$  40 B.P.), is an AMS date of bone collagen taken from Burial One, and it provides a 2-sigma calibrated range of A.D. 380 to 540 with an intercept at A.D. 430. The two dates may be associated with a single occupation around A.D. 380, where they overlap, or there may have been two periods of occupation (one in the late third century and another in the late fifth century). However, no feature overlap has been documented at this time, and no artifactual evidence exists to support multiple occupations of the site.

In conclusion, we interpret the remains at Brown's Bottom #1 as conforming well to the pattern of dispersed sedentary Ohio Hopewell households engaging in low level food production (Smith 2001) that we have posited in our general model of Hopewell settlement (Pacheco 1996; Pacheco and Dancey 2006; Wymer 1996). This site specifically includes evidence of substantial structures, domesticated plants, deep features – including a deep storage pit, and a probable midden. This is all evidence that some (Yerkes 1994; 2002, 2005) claim to be lacking for Ohio Hopewell domestic sites. The problem may be that archaeologists since Prufer haven't been systematically looking for

this evidence (Griffin 1996), preferring instead to continue to focus their efforts on the mounds and earthworks. In the coming field seasons, we plan to continue to focus on domestic settlements within a 10km diameter research universe centered on the Liberty Earthworks. Our plan next field season is to complete excavation of the interior of structure one, follow the second line of postholes that may be a second structure, and examine the flat area to the south of last field season's 60 x 40-meter magnetics block in addition to examining what will hopefully turn out to be other domestic settlements located on the Harness farm. Our end product should contribute substantially to a community focused approach to the Ohio Hopewell settlement problem (see Ruby, Charles, and Carr 2005; Dancey and Pacheco 1997).

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Figure 9. Large mica artifact recovered from Feature 16. Scale is in centimeters.

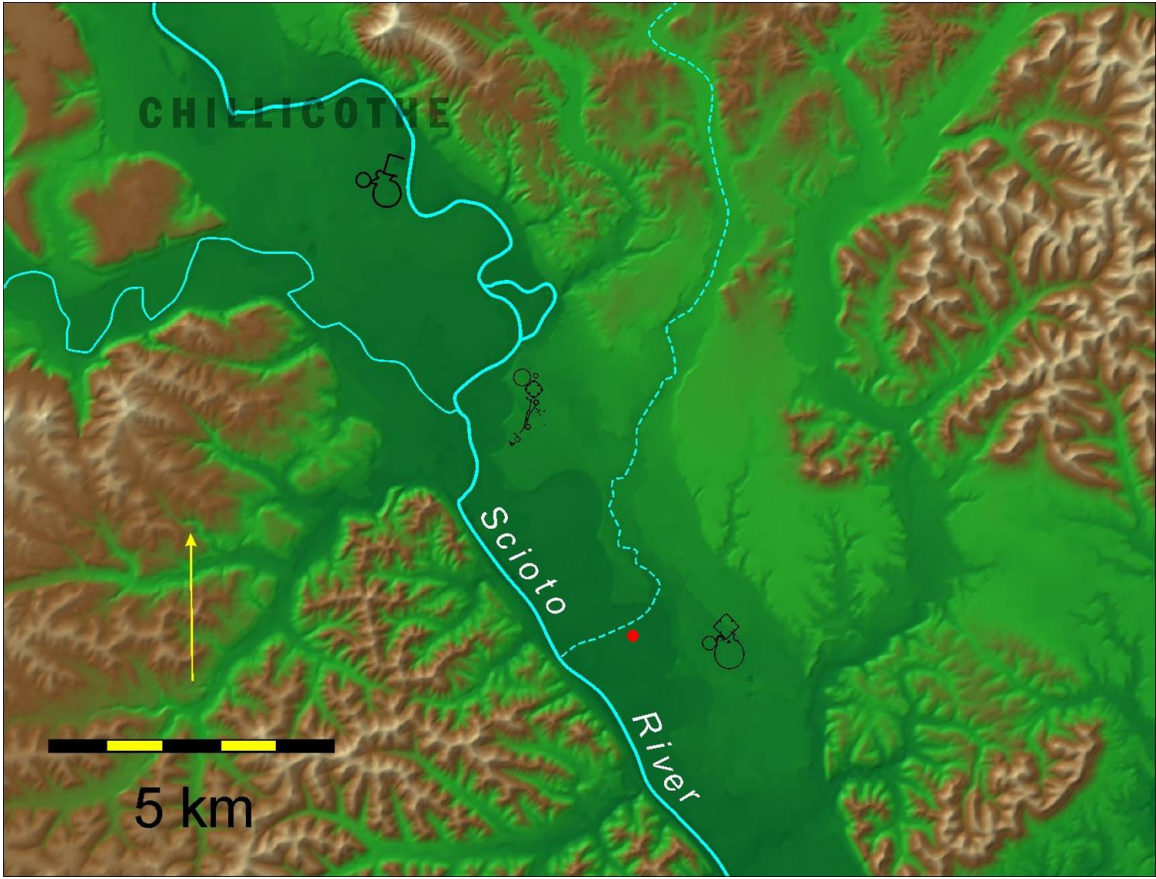


Figure 1.

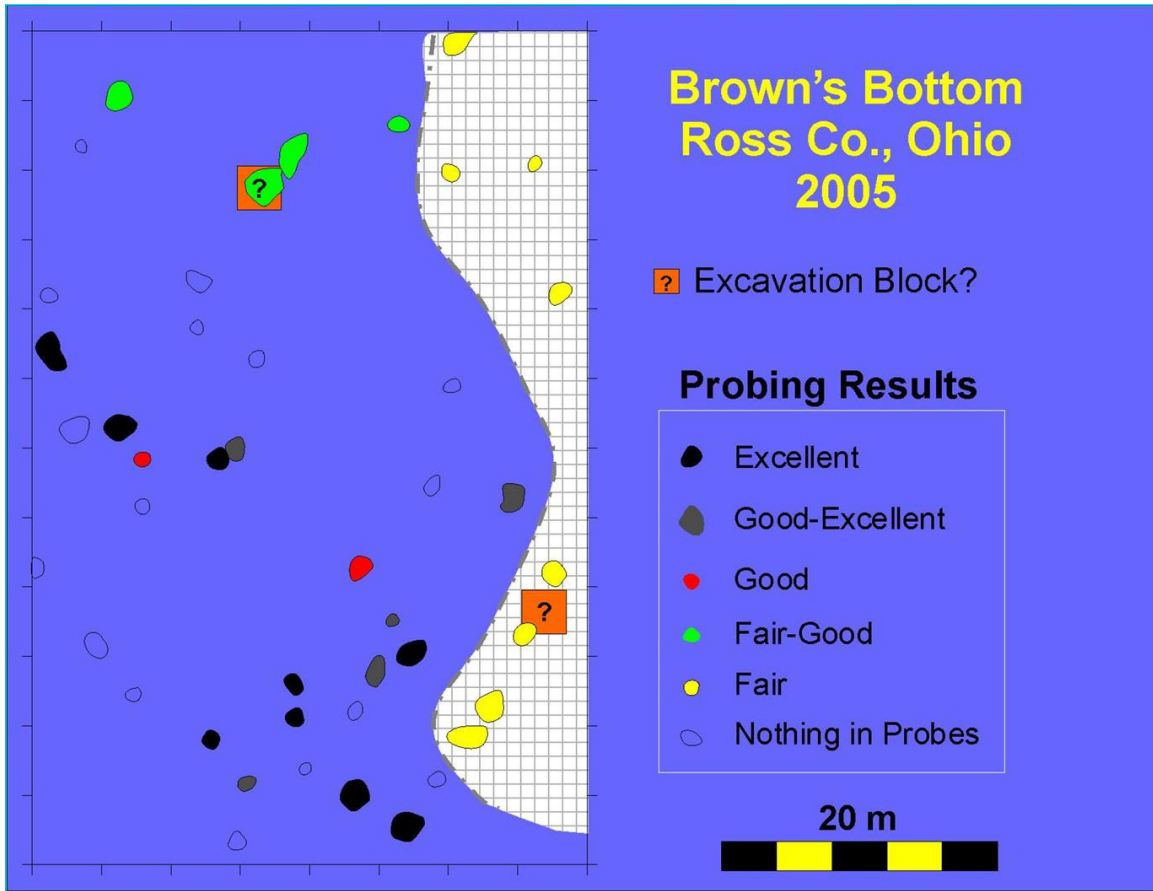


Figure 2.



Figure 3.





Figure 4.



Figure 5.





Figure 6.

**Brown's Bottom #1 (33Ro21)  
2005 Field School**

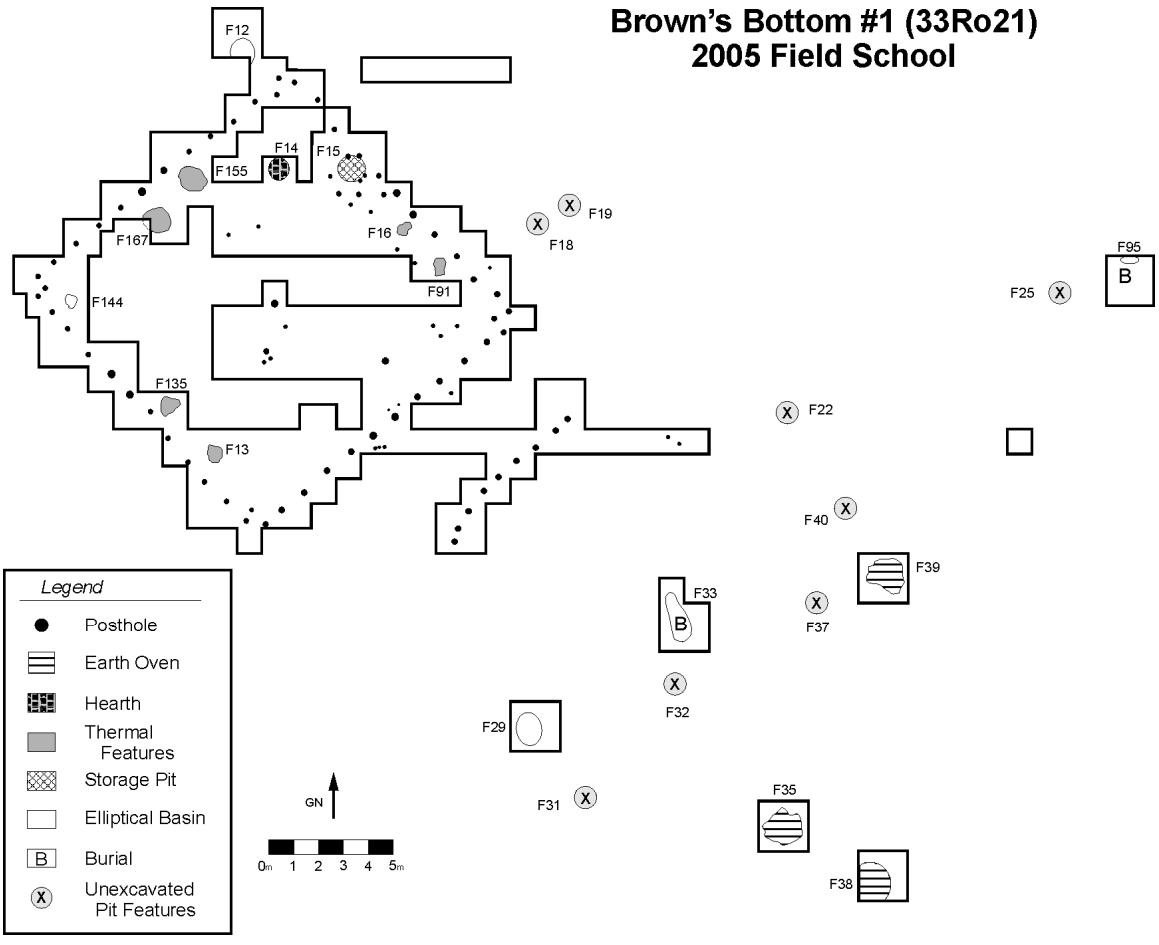


Figure 7.

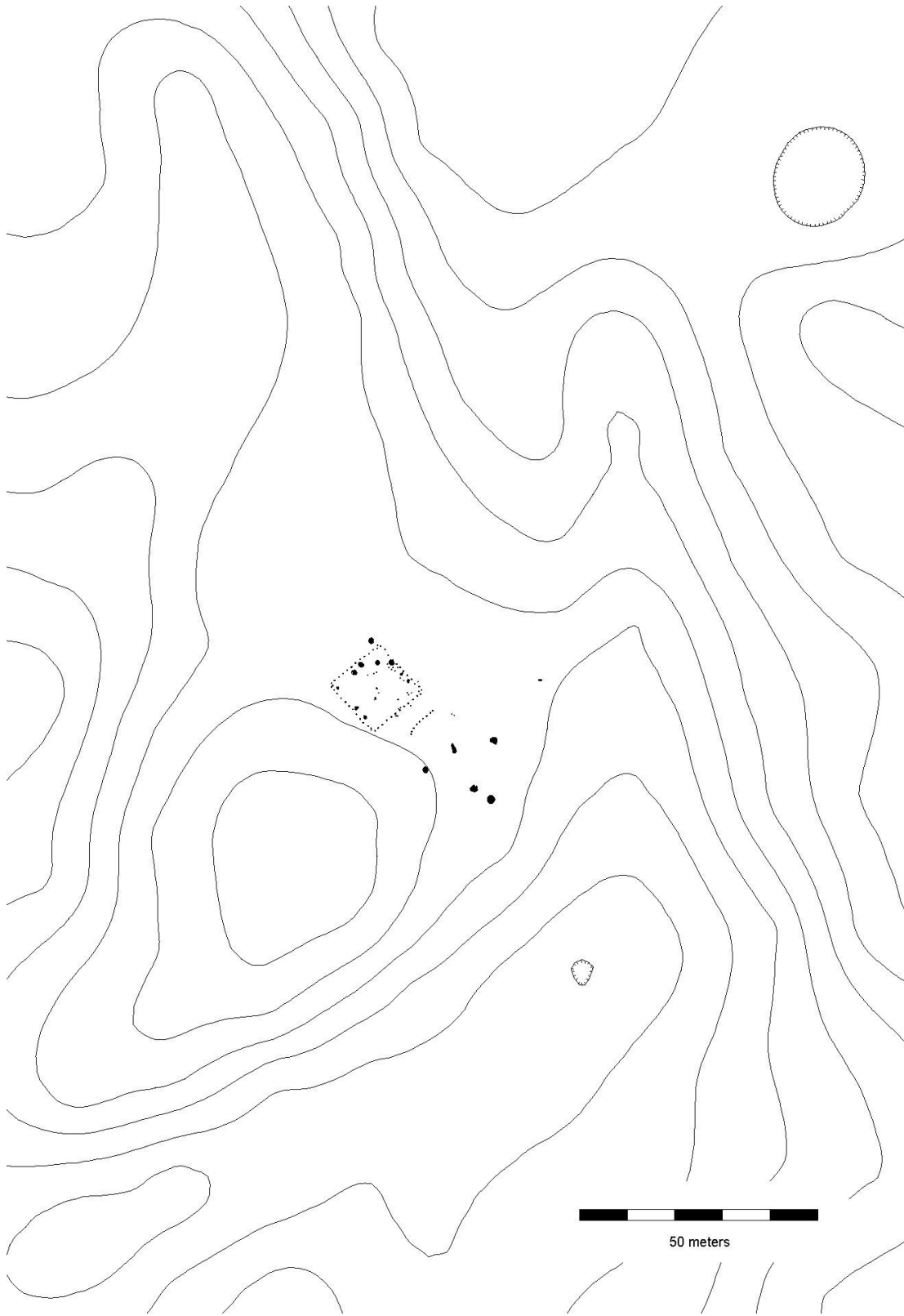


Figure 8.



Figure 9.