AN EARLY MISSISSIPPIAN SETTLEMENT HISTORY OF OCMULGEE

by

DANIEL PHILIP BIGMAN

(Under the direction of Stephen A. Kowalewski)

ABSTRACT

The goal of this research is to construct a settlement history of Ocmulgee National Monument during the Early Mississippian (ca. A.D 900-1200) and infer changing patterns of social inequality and power relationships. To address the research problem I surveyed over 15 ha of Ocmulgee with multiple non-invasive geophysical prospection techniques including. This work was supplemented with 30 posthole tests in a forested area. I analyzed ceramics from previous investigations to refine the site chronology and plotted the distribution of diagnostic indicators to assess settlement size. I argue that Ocmulgee began as a small site on the southern portion of the main bluff and expanded north over time to accommodate increasing settlement population, with little space between household groups. Outlying bluffs became inhabited later in the sequence and likely coincided with population reduction on the main bluff. Open space separated neighborhoods on each bluff. My results suggest Ocmulgee was occupied longer than previously believed, and contained a complicated social landscape where social inequality and political dominance evolved over time.

INDEX WORDS: Settlement History, Shallow Geophysics, Social Inequality, Communities, Landscape Archaeology, Built Environment, Mississippian Period

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DEDICATION

For Cathie, my loving, supportive, and patient wife

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CHAPTER 1

INTRODUCTION

Ocmulgee (9Bi1), often referred to as Macon Plateau, is possibly the largest mound site by area in Georgia and one of the largest Mississippian site in the eastern United States (Hally and Williams 1994). The site is located in Bibb County, Georgia (Figure 1.1) and is typically referred to as having eight mounds (Figure 1.2). The largest mound (Mound A) is located at the southern tip of the main bluff and is approximately 15 m tall and 91 m square at its base. Significant space separates the smaller mounds (C, D, E, X, Dunlap, and McDougal) from Mound A, except Mound B which is located 90 m to the north. Mound C, Dunlap, and McDougal Mounds are located on adjacent bluffs to the west, northwest, and north east (See Figure 1.3 for names and locations of areas referred to in this text). However, there may be additional mounds associated with Ocmulgee. The famed earth lodge located adjacent to Mound D (Cornfield Mound) may have been converted into a platform mound following its termination as a council chamber (Hally and Williams 1994). A survey in 1806 conducted by the United States Government identified three mounds on the Fort Hawkins bluff located approximately 400 m from McDougal Mound. The Fort Hawkins Mounds are approximately the same distance from McDougal Mound as Dunlap Mound is from McDougal Mound. The Fort Hawkins mounds have never been adequately dated, but Elliott (2007) recovered some Early Mississippian ceramics during his investigations of Fort Hawkins. This brings the total possible number of mounds at

Ocmulgee to 12. Hally and Williams (1994:94) estimated the size of Ocmulgee to be 70 ha not including Fort Hawkins.

There is evidence of human occupation dating from the Paleo-Indian Period (Kelly 1938) to post-American Civil War times. Ceramic evidence indicates Native Americans reoccupied Ocmulgee during the Late Archaic and Woodland periods several times. The largest settlement appeared during the Early Mississippian and every mound dates to this occupation. This is when Ocmulgee's mounds were constructed. A historic town developed at Ocmulgee after the Creek began migrating from the Chattahoochee River to the middle Ocmulgee and Oconee rivers (Waselkov 1994). The Creek attempted to detach themselves from a Spanish trading monopoly in Florida and take advantage of English trading opportunities further north (Waselkov 1994:191). The town surrounded a Carolinian trading house (2005 Mason) that Kelly (1938) discovered in the 1930s. The Creek abandoned the town sometime soon after the Yamasee War of 1715 (McNeil 2006a:28; Mason 2005; Waselkov 1994).

Archaeologists working in northwestern Georgia produced a well document ceramic sequence ranging from AD 500-1600 (Hally and Langford 1988; Hally and Rudolph 1986; King 1997; Smith 1983; Williams 2005; Wood and Bowen 1995). Here I present a brief overview of the sequence from AD 500-1200. Swift Creek, a sand tempered complicated stamped pottery style, is the primary diagnostic ware at most sites in northwestern Georgia by AD 500. By AD 750-800, Napier Complicated Stamped and Woodstock Complicated Stamped appear in large quantities while production of Swift Creek ceased. The latest radio-carbon date for Woodstock is AD 1020. The earliest examples of Etowah Complicated Stamped appear around AD 1000. Early Etowah is recognized by the ladder base diamond and line block stamp motifs. Etowah stamp motifs change over time and Later Etowah styles include two bar diamond, filfot cross, and three bar diamond. Etowah Complicated Stamped disappears around AD 1200 and is replaced by Savannah Complicated Stamped, which is recognized as concentric circles. Much of the pottery found in northern Georgia dating between the Middle Woodland and Middle Mississippian in sand-grit tempered. The northwestern Georgia sequence exhibits continuity in the complicated stamped pottery making tradition for approximately 1000 years.

The ceramic sequence in central Georgia is similar to northwestern Georgia (Hally and Rudolph 1986; Williams 2005; Wood and Bowen 1995) except for two notable exceptions during the Early Mississippian Period (Elliott and Wynn 1991; Meyers et al. 1999; Pluckhahn 1997; Williams 2005). First, Vining Simple Stamped, a quartz tempered ware with linear impressions, exhibits a break from the complicated stamped tradition of northern Georgia. Second, Bibb Plain, a shell tempered plain ware has a limited distribution within approximately 10 km from the Ocmulgee site.

My study focuses on Ocmulgee's Early Mississippian occupation. I refer to the Early Mississippian throughout the text, but not as a suite of characteristics that includes mounds, palisades, plazas, shell tempered pottery, corn agriculture, and square houses with wall trenches. I use the term Early Mississippian as a unit of time (Anderson and Sassaman (2012) recently articulated a similar approach in their overview of the Mississippian period). At Ocmulgee this unit dates from AD 900-1200. Unfortunately, there are only two radiocarbon dates from Ocmulgee; both have large standard deviations. My proposed dates are based on ceramics and radiocarbon dates from sites near Ocmulgee. The earliest ceramic type attributable to these dates is Vining Simple Stamped. Vining Simple Stamped may occur as early as AD 800 (Elliott and Wynn 1991). The most recent ceramic type occurring before the Ocmulgee's Creek occupation is Etowah Complicated Stamped, which dates to approximately AD 1200 (King 2003). I do not suggest the Early Mississippian occupation spans 400 years. I believe it falls between AD 800-1200, but radio-carbon dates from a Vining context at the Tarver site (Pluckhahn 1997) indicate that the Early Mississippian occupation at Ocmulgee likely did not begin until approximately AD 900. As I refer to "Ocmulgee" throughout the text it should be implied that I am referring to the Early Mississippian time period unless otherwise explicitly noted.

In this introduction I will begin by briefly reviewing Kelly's work during the 1930s and point out Kelly's limits in addressing anthropological questions. Next I will present the "sub-community hypothesis" developed by Hally and Williams based primarily on Kelly's excavations during the 1930s and the distribution of mounds. I then present the types of data I collected to test the sub-community hypothesis and see if it holds up throughout the occupation. Finally, I present in this chapter an overview of Ocmulgee's ecological context and the structure of this dissertation.

Kelly's Excavations and Limits on Data Recovery

More excavations occurred at Ocmulgee in the 1930s than any other archaeological site in Georgia. These investigations represent most of the work ever conducted at Ocmulgee. Investigations sponsored by the Civil Works Administration (CWA) began in December 1933 under the direction of Arthur Kelly (Walker 1994:17). By mid-January 1934, the CWA investigations at Ocmulgee employed 274 workers. Funding by the CWA ended on March 31, 1934, but new funding began under the Federal Emergency Relief Administration (FERA) (Walker 1994:19). In July 1935 the federal relief program employed approximately 700 workers in the Macon area (Walker 1994:20). Despite frequent visits from notable archaeologists such as William S. Webb and T. M. N. Lewis, Kelly still did not have professionally trained assistants by this point (Walker 1994:20). It wasn't until late June 1936 that Kelly's six graduate assistants arrived in Macon (Walker 1994:21). James A. Ford, a 22 year old undergraduate student at the time, was Kelly's only assistant until June 1936. Kelly continued to direct excavations at Ocmulgee until August 1938, at which time he departed Macon to work at Chaco Canyon (Walker 1994:25). Even though Ocmulgee received significant investigation, much remains unexcavated.

The scope of the federal relief project and lack of support between 1933 and 1936 resulted in poor recording (Smith 1973). Kelly's excavations remain underreported and many artifacts recovered in the 1930s remain unanalyzed. Kelly published his only report regarding Ocmulgee in 1938. He hoped to return to Macon and prepare additional reports of the investigations, but remained at Chaco Canyon for six years (Walker 1994:25). Charles Fairbanks published a paper on the earthlodges in 1945 and a report of the 1930s investigations approximately 20 years after Kelly departed. Fairbanks' (1956) report focused on the Mound C collection he analyzed after replacing Gordon Willey as the CCC senior foreman archaeologist in September 1938. It wasn't until the 1960s that the National Park Service (NPS) arranged reports on the federal relief excavations (Ingmanson 1964a, 1964b, 1965; Prokopetz 1974; Smith 1973; Williams and Henderson 1974).

The Sub-Community Hypothesis

Despite the scale of excavations, little is known about Ocmulgee's settlement layout. Kelly identified few domestic structures (Hally and Williams 1994:90) which leaves a void in our understanding of settlement layout and the built environment. The limited data on domestic architecture presents the most significant problem in reconstructing Ocmulgee's settlement layout, community organization, and relationships between social groups. Currently there is insufficient understanding of the distribution of residential structures, density of residences, space between residences, structure sizes, and associations between residences and public architecture. The heavy trenching of the federal relief program may suggest that Kelly identified most of the residential structures, but there are three problems with this argument. First, the unsupervised laborers could have easily overlooked evidence of structures including post holes or baked clay floors. Second, trenches may have been spaced too far apart (60 m in some cases) and left large enough gaps to have completely missed structures. Third, the density of trenching in the central area of the site may have left outlying residential space unexcavated such as areas between the main bluff and Mound C, between pre-historic ditches on the middle plateau and Mound E, and areas surrounding Mound X, McDougal Mound, and Dunlap Mound.

Hally and Williams (1994) provide the only site wide synthesis of Ocmulgee's settlement pattern. The goal of what they termed a "comprehensive review" of mound and non-mound construction features was to "summarize the architectural characteristics of these features, attempt to determine their temporal position within the Macon Plateau phase, investigate their spatial relationships, and speculate about their functions" (Hally and Williams 1994:84). Hally and Williams based their review solely on preexisting literature and did not include new research. They developed the most comprehensive map for Ocmulgee, but recognized that it “does not show all excavation units and may not be totally accurate with respect to those it does show. It does not show the excavations that were conducted in and around Mound E and the Dunlap Mound and south of Mound C, and it may contain some errors in its depiction of excavation units on the North Plateau. For the most part, these shortcomings are the result of incomplete or missing field records” (Hally and Williams 1994:85).

Hally and Williams observed that “mounds at Macon Plateau are separated from their nearest neighbor by 250 m or more and in many cases by small stream valleys except for Mound A and Mound B. This situation differs from Moundville and Toltec, [two other large Early Mississippian mound centers in Alabama and Arkansas respectively] where nearest neighbors are separated by at most 205 m and 120 m respectively” (Hally and Williams 1994:94). Hally and Williams conclude that Ocmulgee consisted of sub-communities similar to what Fowler (1978) identified at Cahokia. They suggest that “the site was not integrated around a single plaza or group of adjacent plazas as is the case at most Mississippian sites with multiple mounds. Instead, each mound, along with a plaza, may have formed the ceremonial nucleus for a separate residential group” (Hally and Williams 1994:94).

The implication of the sub-community hypothesis is that there is redundancy of residential groupings. Each would have access to public architecture (mounds) and separate mound-plaza groups may have been integrated into a single larger political unit. Muller (1997) suggested that council chambers such as those found at Ocmulgee functioned as political meeting places where ranked members of society could wield influence and chiefs functioned as figureheads with limited power. These types of meeting places would bring together members from different sub-groups to engage in collective decision making. Others (for example Hudson 1976) have argued that council chambers represent space where powerful chiefs sought advice and culled favor, support, and loyalty from their most influential constituents.

Broad generalized claims such as these minimize the evolving nature of settlements, societies, and political systems. Leach (1970 [1954]) and Firth (1956; 1970 [1936]) provided ethnographic accounts of oscillation over time between powerful and limited leadership roles in middle range societies. Archaeologists (Blanton et al 1996; McIntosh 1999a; Mills 2000; Redmond 1998a, 1998b) have also recognized alternative evolutionary pathways that middle range societies take which lead to various structural differences. The changing sociopolitical dynamic of Mississippian societies has recently been traced at several large Early Mississippian mound centers (King 2003; Trubitt 2000; Wilson 2008) and some (King 2001; Knight 1997) have begun to compare the historical trajectories of large Mississippian political systems. Comparing trajectories is the first step in explaining organizational differences and identifying various evolutionary inputs that motivate change.

Hally and Williams (1994:93) recognized “stratigraphic and distributional evidence indicating that [Ocmulgee] persisted long enough for some change to take place in ceramics and in site configuration.” They looked towards Ingmanson’s (1964a) work which suggested the frequency of shell temper decreased over time throughout the Early Mississippian period. Hally and Williams (1994:93-94) plotted the construction episodes of mound stages and concluded that “Mounds A and B were probably constructed first. Subsequently, together with Mound D, Mound D-1 Lodge, and some residential areas, they were enclosed by the defensive ditches. Sometime during the latter half of the phase, the later of the two ditches was filled-in and Mounds A, B, and D ceased functioning as substructures for elite residences and temples.

Mounds C, E, X, Dunlap, and McDougal received most, if not all, of their construction and use in the latter half of the phase" (Hally and Williams 1994:95). Hally and Williams' (1994) initial assessment indicates that Ocmulgee has the potential to be a good comparative case study for Mississippian settlement, community, and political development.

Settlement Archaeology and Research Design

Several recent studies at large Woodland and Mississippian sites (for example Pluckhahn 2003; Walker 2009; Wilson 2008) produced reconfigured settlement histories that significantly altered the understanding of town form and social relationships through time. While each of these studies differed in theoretical orientation, they all addressed the shifting relationship between population, built environment, and the use of space. My research is similarly framed and aims to answer two basic questions about Ocmulgee: where did people live and when did they live there? Or in other words, did Ocmulgee consist of "sub-communities" and how did the settlement layout change over time? To answer these questions I build a framework based on settlement archaeology and hope to gain an understanding of social inequality and power relationships. The "settlement pattern" is the accessible remains of these more abstract theoretical concepts (Chang 1967). Chang (1967:3) defined settlement as "the local context wherein the community is presumed to have resided and to have gone about its daily business," or the "locale or cluster of locales where the members of a community lived, engaged in activities of subsistence, and carried out social interactions, at one and the same period" (Chang

1968). In these definitions, Chang implicitly makes the distinction between the physical or material (settlement) and the social or ideational (community).

Winters (1969) further distinguished between settlement patterns and settlement systems. He suggested that settlement patterns refer to the relationship between sites and their geography and physiography and settlement systems are concerned with the function of each site within the whole. Winters' (1969) explicitly relied on a functional approach to define activity areas in sites or differential functions between sites within the same settlement system, but Winters does not address settlement layout or what settlement layouts can tell the archaeologist about social relationships.

Ritchie and Funk (1973) move past a strictly ecological view of settlement patterns and distinguished between microsettlements and macrosettlements. Microsettlement patterns consist of a village, community, or small locus of residences and are linked with socio-cultural contexts (Ritchie and Funk 1973:1). Macrosettlement patterns refer to the widespread regional distribution of settlements over the landscape and are linked with environmental or ecological factors (Ritchie and Funk 1973:2). Ritchie and Funk suggest that family and kinship relations, wealth, status, sexual division of labor, government, and religion are reflected in a microsettlement's site plan. Site plans are made up of architecture, features, artifacts and depositional contexts (Chang 1967:41). These variables and their spatial relationships are the data archaeologists should use to interpret social interactions at the microsettlement scale. Put more simply, the way "people distribute their residences over the ground surface is a sensitive indicator of how they interact with their natural environment and with other human beings" (Sanders et al. 1979:15).

I use a variety of survey methods to map Ocmulgee's settlement pattern. Geophysical survey equipment maps variation in the physical properties of the subsurface. The products of human settlement and activity such as architecture, garbage pits, burials, hearths, artifacts, and depositional contexts alter the properties of the soil below the ground surface and I use plan view maps of these measurements to infer Ocmulgee's settlement pattern and site layout.

Developments in data acquisition and processing speeds in near surface geophysical prospection surveys over the last 25 years allow the production of high resolution images of the subsurface for entire sites or landscapes (Kvamme 2003). Following Barba (1984) I apply the simplest most efficient techniques over the largest amount of space in a brief time and follow up with less efficient techniques to characterize anomalies. I digitize anomalies using GIS and integrate architectural data recovered through excavations by federal relief and NPS archaeologists. This gives me a large, comprehensive data set to reconstruct site layout and infer spatial relationships.

A second strategy I use to assess spatial relationships is through ceramic analysis. I classified ceramics curated at the Southeast Archeological Center in Tallahassee, Florida recovered by Kelly in the 1930s and more recently through compliance projects carried out by the NPS. Each area of Ocmulgee had a master map created during the WPA excavations. These maps labeled each trench with its corresponding trench number. The artifacts from each trench could be located by searching through the WPA cards. I sampled a variety of contexts to maximize spatial distribution. The goals of my ceramic analysis are to identify: site limits, the spatial distribution of various ceramic types or forms, and the presence or absence of occupation across the site. I also reviewed NPS reports to identify shovel testing programs that did not recover Early Mississippian artifacts. This helped me reconstruct site boundaries. I detail my survey methods in Chapter 2 and my methods for ceramic analysis in Chapter 9. In the following section I move past the basic principles developed for settlement archaeology and link the physical distribution of architecture, features, and artifacts to propositions for interpreting social and political relationships.

Interpreting Ocmulgee: Propositions of Power and Inequality

In the Southeast, it is generally accepted that virtually all Mississippian polities exhibit two characteristics: regional integration of multiple settlements and institutionalized leadership positions (Blitz 1999; Knight 1990). Despite these universal characteristics, Mississippian polities vary in origin, structure, layout, size, level of integration, and other features. The amount of control leaders had and the degree of political centralization is debated and may have varied across space and time. Some have suggested that the influence of leaders and degree of social inequality in Mississippian societies waxed and waned throughout the life of the political system (King 2001, 2003; Trubitt 2000). I propose two sets of propositions regarding leadership and social inequality that can be tested against my survey and ceramic data. The hope is to identify changing relationships between residential groups through time.

The first set of propositions identifies times when leaders maintained considerable power and influence over the town and there was an emphasis on ranking or social inequality. This type of organization reflects the traditional chiefdom model with centrality of decision making and social stratification. Towns organized this way contain monumental construction and the organization of large scale labor may be reflected in a high degree of community planning (Earle

2002). Symbolic markers, precious items, or exotics that reflect high individual rank or group affiliation are found in limited contexts (Carballo 2009; Wasson 1994). Differential energy investment in residential housing indicates differences in influence or social capital (Carballo 2009; Earle 2002) and differences in health may suggest differential access to resources (Earle 2002).

Two propositions for recognizing social inequality and powerful leaders at Ocmulgee are: (1) if households were ranked, then they should vary in size, layout, and association with exotic or precious items; and (2) if the society had asymmetrical power relationships, then the households of political leaders should be located closer to public architecture (such as mounds or council chambers) and households of commoners should be located further away.

The second set of propositions identifies times when households engaged in collective politics and social inequality was minimized. A collective organization consists of relatively equivalent social units that are parallel to each other rather than on top of one another (McIntosh 1999b:9). Each of the constituent units may have their own internal ranking or decision making hierarchy and each is functionally similar (i.e. performs a redundant set of activities related to subsistence, politics, trade, production, and ceremony) (Webster et al. 2007). Examples of equivalent units may be households, lineages, clans, villages, or regional polities and this form of organization has been observed ethnographically throughout the world (such as the northeastern United States (Morgan 1995; Tooker 1978), the American Southwest (Eggan 1950), the Amazon (Levi-Strauss 1978; Zarur 1989), and highland New Guinea (Tuzin 2001).

In a context like Ocmulgee, two propositions for recognizing the collective form of organization are: (1) if ranking of groups was limited, then households should be relatively similar in size, separated by open space to delineate group boundaries, and have similar frequencies of fine wares or exotic goods; and (2) if the society maintained power sharing relationships, then each household should be located at similar distances from public architecture.

Wilk and Rathje (1984:2) argued that households are the most basic unit of consumption, production, distribution, transmission, reproduction, and coresidence in human society. Steere pointed out that this definition focuses on what household members "do" and he recognized that "economic activities performed by households and the composition of households affect the size, shape, and interior layout of houses and their spatial arrangement in communities" (Steere 2011:12). Archaeologists can compare the size, shape, and arrangement of domestic architecture to infer social and political forms.

Hally (2008; Hally and Kelly 1998) built on the definition of the household and identified household clusters at the King site in northwestern Georgia. He defined household clusters as two or three square domestic structures and rectangular storage facilities around a small open space. I use the term household clusters to refer to similar arrangements of architecture. I reserve the term residential group for larger, formal clusters that may represent the remains of one or multiple households.

Ecological Setting

Ocmulgee is located approximately 400 m northeast of the Ocmulgee River at the Fall Line where the river leaves the Piedmont and enters the Coastal Plain (Figure 1.4). The Ocmulgee River meanders south from the site and turns east toward the Atlantic Ocean south of

Telfair County. East of Telfair County it joins the Oconee and Ohoopee rivers to form the Altamaha.

Ocmulgee is in present day Bibb County, which is situated in three major physiographic areas: the Southern Piedmont, the Carolina and Georgia Sand Hills, and the Southern Coastal Plain. The northern and western parts are in the Southern Piedmont, which consists of ridge tops and long irregularly shaped hillsides cut by small winding drainage ways. Slopes vary from gently sloping to steeply sloping, but nearly level flood plains run adjacent to the Ocmulgee River and many of its tributaries. The middle of the county lies in the Sand Hills which generally has smoother, broader hilltops. The rolling landscape is cut by narrow valleys and drainages. The southern and southeastern parts of the county are in the Coastal Plain which consists of broad, gently sloping ridges. Small drainage ways in the area are not as steep as those of the other zones and the flood plains along the Ocmulgee River are much wider (Woods 1979:1-2).

There are diverse soils in Bibb County (Figure 1.5). The parent material for soil in the northern part consists of saprolite of igneous and metamorphic rocks such as biotite gneiss, granite gneiss, and granites. There is evidence of some small diorite injection gneiss and a narrow band of schist. The parent material in the southern part mainly consists of sedimentary rock. It was likely transported from other areas by water and deposited over the remaining igneous and metamorphic rock. The thickness of this sedimentary deposit ranges up to 500 feet at the southern boundary of Bibb County. The parent material of flood plain soils consist of alluvium of fine sediment carried in suspension and deposited by high floodwaters (Woods 1979:43).

Hally and Williams (1994:84) believe that Ocmulgee's location "is apparently a preferred one for Mississippian mound centers in the southern Piedmont, as one or more are situated at the Fall Line on almost every major river in Georgia, South Carolina, and North Carolina that flows into the South Atlantic." They emphasize the diversity of resources accessible from Ocmulgee's location on the Fall Line such as rich floodplain soils immediately south of Ocmulgee could be used for agriculture and shoals just north provided rich fisheries. Also, varying natural resources from both the Piedmont and Coastal Plain are readily accessible from Ocmulgee. Hally (1996) has pointed out the influence of the Fall Line ecotone in northern Georgia Mississippian settlement patterns and the results of several studies (Bigman and Wang 2012; Meyers 2004; Smith and Kowalewski 1980) support Hally's claim that access to a diverse set of resources was an important determinant of Mississippian settlement location.

Soils within the park boundaries are diverse. Bluffs consist of 3 to 6 ft of red sandy soil overlaying sandy clay (NPS 1982:14). The floodplain of the Ocmulgee River consists of roughly 20 ft of sandy sediments mixed with silt and clay dating to the Holocene. Approximately 10 ft of new deposits have been laid on top of the mixed sand/silt/clay since the eighteenth century as a result of upstream erosion. This erosion was probably caused by modern agricultural practices (Cosner 1973).

Major vegetation types found at Ocmulgee include mixed pine/hardwoods, upland hardwoods, bottomland hardwoods, Loblolly-Shortleaf pine forests, and mowed grass areas (Froeschauer 1989:10). Bottomland hardwoods are extensive in the southwestern area of the park bordering the Ocmulgee River and to the east of Walnut Creek. Mixed pine/hardwood cover is generally located to the north of the northern most railroad cut. Smaller patches of upland hardwood, open/grassy areas, and pine are dispersed between the mixed pine/hardwood cover.

Straight pine is relatively restricted to the museum's immediate north and east and may be the product of secondary succession following the destruction of primary forest (Froeschauer 1989:10-11).

Bibb County has a moist, temperate climate today (Woods 1979:44) and likely had a similar climate during the Early Mississippian period. Temperatures average 49º F in the winter and 80º F in the summer. The average growing season is 229 days with an average annual rainfall of approximately 45 inches per year (Froeschauer 1989:6; Woods 1979:58). Rainfall is well distributed throughout the year with the heaviest rainfall in March and the lightest in October.

The Structure of the Dissertation

This is a settlement pattern study that integrates spatial data from previously excavated materials and multiple geophysical prospection techniques. I provide temporal context for the survey data by analyzing ceramics from stratified deposits and mapping the distribution of types, temper, and lip modes. I synthesize the spatial and temporal data to create a comprehensive settlement history that can be compared to other Mississippian centers. This dissertation is organized by presenting the results of my survey first, then my ceramic analysis, and finally a narrative of Ocmulgee's settlement history.

I begin by detailing my survey methods in Chapter 2. I developed a multi-scalar survey strategy and applied the simplest and quickest techniques over large areas in rapid collection mode (GPS, magnetometer, and conductivity) while reserving the more time consuming techniques to smaller areas for more detailed information (GPR, resistivity, shovel tests, magnetic susceptibility). I review the basic principles, geophysical expectations, survey procedures, and data processing steps in Chapter 2.

In Chapters 3 through 8 I address each survey area. I present descriptions of survey locations, sources of disturbance, history of previous investigations, and results of my survey. I then provide a brief synthesis of previous investigations and my own data to provide an assessment of settlement patterning and function of each area. Survey areas are separated from each other by railroad cuts, steep topography, streams, or large manmade features. The areas I surveyed include South Plateau (Chapter 3), Middle and Southeast Plateaus (Chapter 4), North Plateau (Chapter 5), Mound C Bluff (Chapter 6), Mound X and Northern Lowlands (Chapter 7), and Dunlap Hill (Chapter 8).

In Chapter 9 I present the results of my ceramic study. My goal was to refine the Early Mississippian ceramic chronology. I begin the chapter by presenting the history of Ocmulgee ceramic studies and our present understanding of Ocmulgee's chronology. I describe my methods and criteria for sorting and provide a re-classified typology based on associations of surface treatment and temper material. I categorized ceramics from eight separate areas. Three of these contexts contained stratified deposits. I analyzed the frequencies of types, Bibb Plain temper, and lip modes in these three deposits and construct a revised chronology.

I present a new settlement history of Ocmulgee in Chapter 10. I begin by analyzing spatial patterns of types, temper, and lip modes. I then suggest five settlement stages of Ocmulgee. These take into account changing settlement size, relationships between households and residences, and the construction of public architecture. The settlement pattern changes shape and location over time. I address social inequality and political dynamics in light of these changes.

Finally, I compare Ocmulgee's settlement history to other large Early Mississippian mound centers and review changes in site distribution within 50 km of Ocmulgee in Chapter 11. While differences in beginnings, rates of social change, length of occupation, organization of settlement, and processes of abandonment are apparent, my comparison places Ocmulgee into the larger realm of the Mississippian world and opens up new questions for future inquiries. I argue that Ocmulgee is not a "mystery" or something odd and different, but a comparable case study for understanding the interactions between Mississippian polities and the development of social inequality, leadership roles, and the struggle for power in middle range societies.

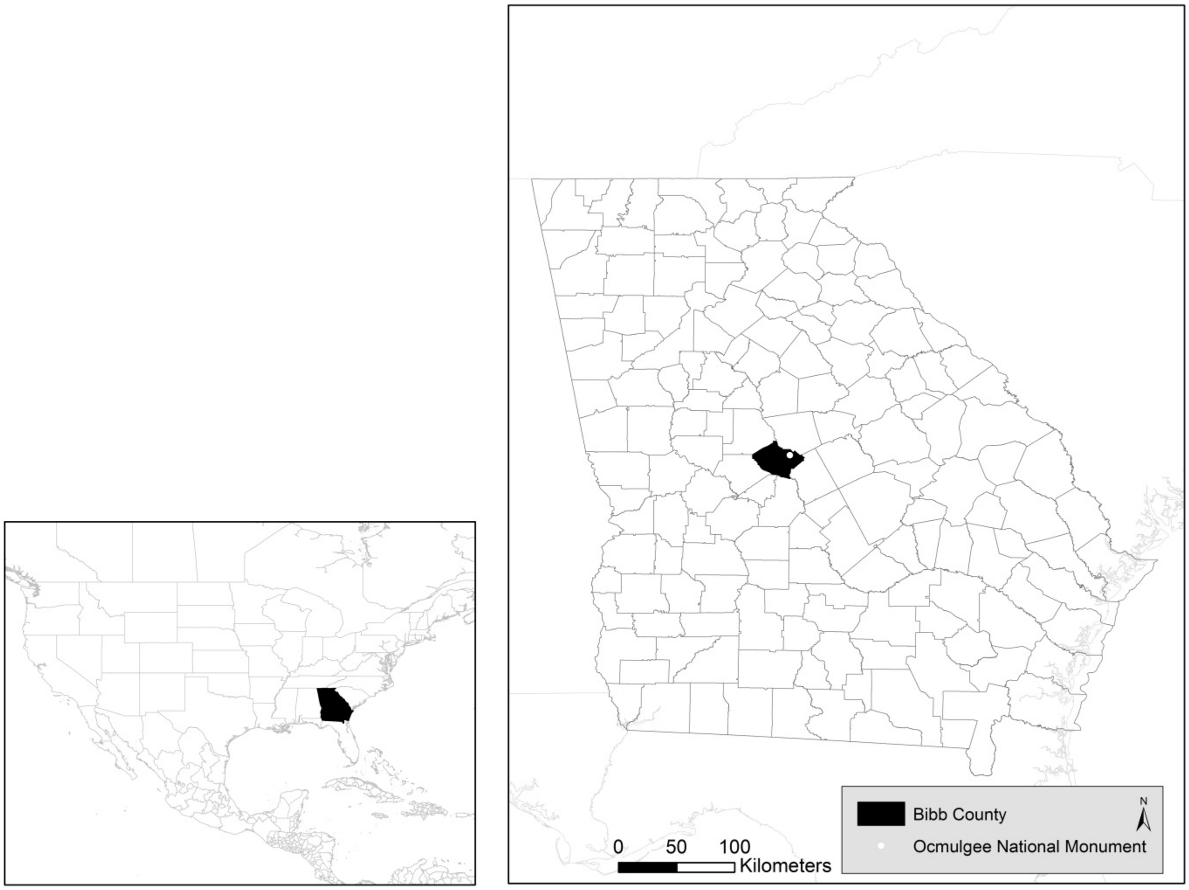

Figure 1.1. Location of Ocmulgee.

Figure 1.2. Distribution of mounds at Ocmulgee (2010 Bing Maps image).

Figure 1.3. Geographic areas of Ocmulgee discussed in text (2010 Bing Maps image).

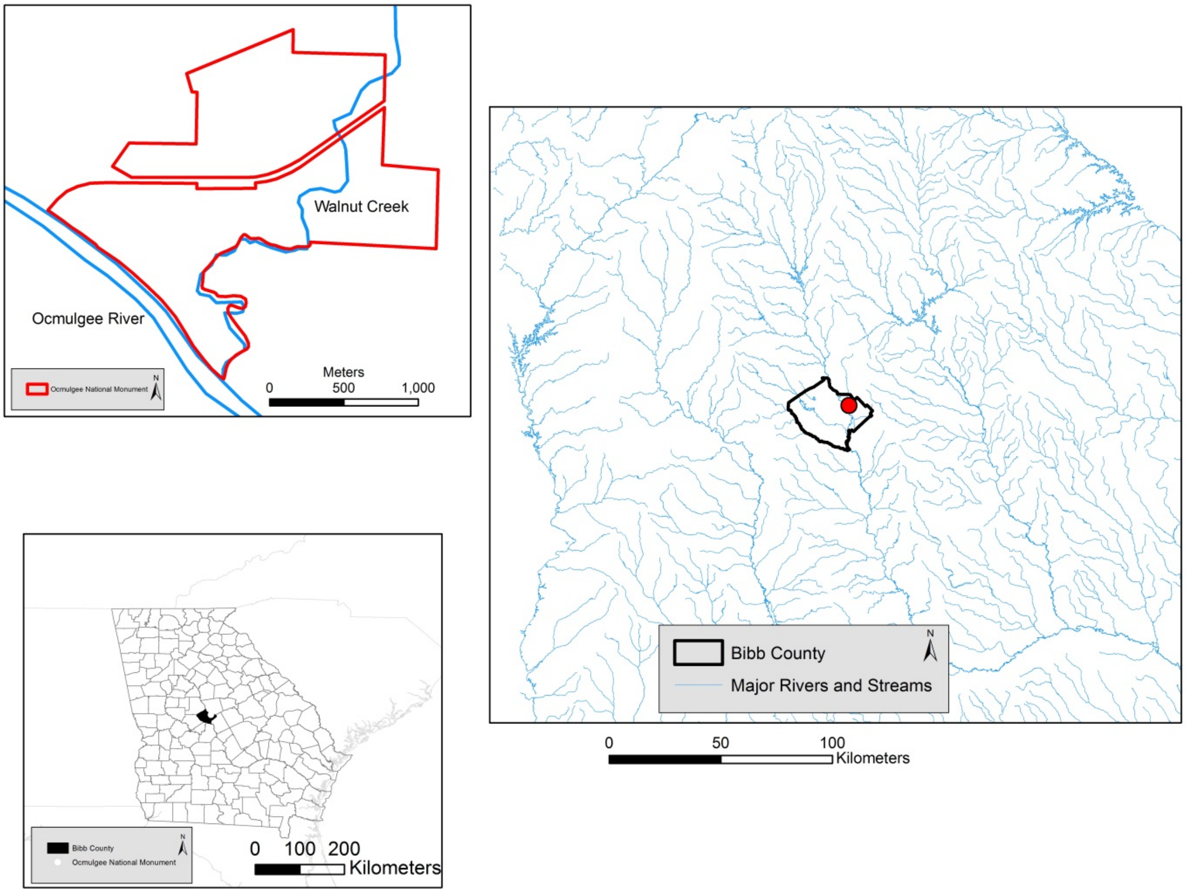

Figure 1.4. Major streams and rivers in Georgia and close up of Ocmulgee National Monument in relation to Ocmulgee River and Walnut Creek (shape file downloaded from Georgia Data Clearing House).

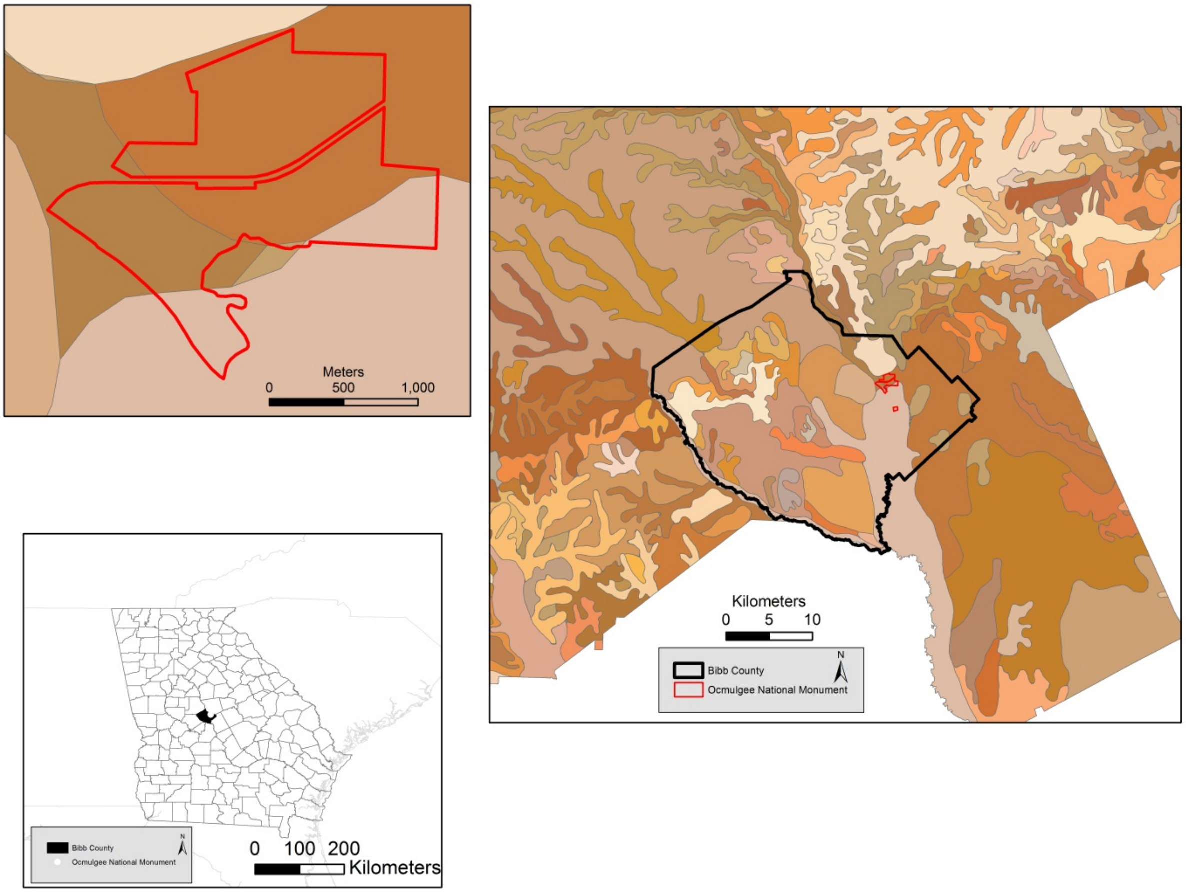

Figure 1.5. Distribution of soil classes in central Georgia and close up of soil distribution in Ocmulgee National Monument (shape file downloaded from Georgia Data Clearing House).

CHAPTER 2

SURVEY METHODS

This chapter presents the survey design, techniques, and methods I used to map Ocmulgee. I carried out a multi-method, multi-scalar survey to circumvent some of the difficulties associated with Ocmulgee's discontinuous landscape, varying topography and ground cover, and historic and modern disturbance. Each geophysical instrument respond[s] primarily to one physical property of the earth and together they provide complementary information that allows archaeologists to more precisely characterize the subsurface. In general, surveys with multiple methods offer greater insight because "buried cultural features not revealed by one may be made visible by another" (Kvamme 2003:439). For example, resistivity or ground-penetrating radar may be more effective in identifying a filled-in ditch than a magnetometer. Electromagnetic induction may be useful in locating possible burials while ground penetrating radar may provide information on depth.

Following Barba (1984) I developed a multi-scalar survey strategy and applied the simplest and quickest techniques over large areas in rapid collection mode (GPS, magnetometer, and conductivity) while reserving the more time consuming techniques to smaller areas for more detailed information (GPR, resistivity, shovel tests, magnetic susceptibility). The remainder of the chapter presents each technique in more detail. I focus on survey location, basic concepts, basic field methods, data processing, and the geophysical expectations of archaeological remains.

GPS Topographic Survey

I used a Trimble ProXRT GPS unit with OmniStar high-precision satellite service to collect a total of 28,998 topographic points over 2 1/2 days (Figure 2.1). The GPS antenna was attached to a pole on a specialized Trimble backpack and collected data points continuously every two seconds.

OmniStar provided real-time differential corrections to GPS data points when service was available. Service availability depended on the movements of satellites, survey direction, and tree cover. Differential correction uses a point on the earth with a known UTM coordinate and tracks the inconsistencies in GPS readings from that point. OmniStar uses automatic mathematical algorithms to correct these inconsistencies and place each reading back to the known UTM. Corrections of these differences are then applied to other GPS units collecting data from around the globe to derive more accurate positioning. I post-processed all data points because OmniStar service faded in and out during data collection.

The goal of the topographic survey was to map the landscape and prominent archaeological features (such as mounds, ditches, etc…), not to map small variations in hopes to locate buried structures. Not all GPS data points I collected had an accuracy that archaeology is comfortable with. Some ranged up to 6 m in confidence level, but most were less than 2 m in confidence. I filtered the data in ArcGIS 10 to remove all points that had an accuracy of 0.5 m or greater. This level is appropriate for mapping landscapes, especially at Ocmulgee where steep slopes and dramatic topographic rises and falls are prevalent. The accuracy filter reduced the total number of usable GPS points down to 17,857, or 61.5 percent of the total point collected (Figure 2.1). I used ArcGIS to create a 3D model and contour map (Figure 2.2).

Magnetometry

Pre-historic native cultural features such as hearths, pits, and post-holes produce short-wavelength magnetic anomalies. The most pronounced anomalies come from ferro-magnetic materials. Ferro-magnets are materials that have all of the magnetic dipoles pointing in the same direction, which creates a strong localized magnetic field strength. When wood or rock is heated in a hearth, the dipoles all align according to the magnetic field they are in (the Earth's). When the material re-cools below the Curie temperature (575ºC) these dipoles become locked with a "permanent intensity of magnetization in a given direction" (Aspinall et al. 2008:14). As the Earth's magnetic field changes direction due to precession (wobbling) about its axis, these thermo-remnant dipoles point in a different direction relative to the Earth. The field strength at the localized level contrasts with that of the Earth's, producing an anomaly.

It is important to define magnetic signatures of archaeological targets to separate them from noise. Ferro-magnets such as iron artifacts, fences, rebar, and other metal materials have a high amplitude di-polar signature that produces unwanted noise in magnetic data. Isolated metallic di-polar anomalies can easily be distinguished from native features of interest, which often generate a lower amplitude di-polar anomaly that emphasizes the positive magnetic pole (sometimes referred to as mono-polar) (Aspinall et al. 2008). Hearths and pits create small circular magnetically positive anomalies and unburned structures/post-hole alignments create patterned positive magnetic anomalies. Burned native structures generate more complicated anomaly clusters of both positive and negative values. These may be the size of the structure and patterned in the general shape of a building. Burned native structures often have lower absolute amplitude of magnetic values compared with strong metal sources.

I collected over 2000 magnetic traces covering a total area over 15 ha (Figure 2.3) using two G-858 cesium vapor magnetometers manufactured by Geometrics. These sensors were attached to a non-magnetic pull cart, separated horizontally by 1 m and oriented 0.25 m from the ground surface. I controlled both sensors with a data console integrated into a Trimble GPS antenna with real time differential corrections broadcast by OmniStar. The magnetometer recorded readings every 1/10 of a second and sampling density ranged from five to 10 readings per m. Transect spacing ranged from 0.5 m to 2 m and I used non-magnetic street cones as markers.

I minimally processed the data to maintain integrity of the data set. Following Kvamme (2006), the data were carefully reviewed after each processing step to ensure that quality remained high, anomalies of interest were not removed, and artificial anomalies were not introduced. I uploaded the profiles and removed inaccurate GPS outlier readings with Magmap 2000. The magnetometer recorded readings at a quicker pace than the GPS. Magmap 2000 interpolated the locations of magnetic readings taken between GPS coordinates. I processed all magnetic data in MagPick. I plotted the data to 0.25 m x 0.25 m and applied a rolling zero-median traverse (ZMT) filter to each profile using a 10 m filtering window. This filter subtracts the smoothed values from the original values to create a new grid. The ZMT filter corrected for diurnal drift and removed variation in geological background and soil susceptibility. Short-wavelength anomalies representing cultural features and modern disturbance remained. I clipped the data to +- 10 nT because +- 5 nT created to much variation in grayscale plots and +- 20 nT made it difficult to identify low amplitude anomalies of interest.

Electromagnetic Induction (Conductivity)

The electromagnetic conductivity method measures how easily an electrical current can be induced in the subsurface. Factors influencing conductivity measurements include the material properties, size, shape, orientation, porosity, and compaction of a conducting object (Bevan 1991:1310; Witten 2006:157). The content and consistency of the feature must be compared to the soil matrix to determine expected conductivity signatures. Archaeological features filled with organic materials (such as post holes and hearths) should yield a higher conductivity value because of greater water retention. Features filled in with the same material as the background soil (such as grave shafts and ditches) should yield a lower conductivity value than the matrix because the feature contains less compact fill, has higher porosity, and drains water quicker (a more in-depth discussion of burial signatures is provided in Chapter 6).

An electrical current is more easily induced in some conductive materials than in others. Current is almost immediately induced in some metals, but it takes a little more time to induce a current in a pit of charred wood or decayed organic material (such as a cooking hearth or wooden posthole) (Witten 2006:166-170). Conductivity meters measure both types of materials by applying a time-varying current to the transmitting coil. The Ocmulgee survey was designed to locate pre-historic hearths, decayed wooden postholes, burials, and pits. The phase shifted values are most important for locating these targets.

I surveyed twenty-one different blocks over a total area of 8 ha using a GEM-300 conductivity meter manufactured by GSSI, Inc. at a frequency of 12150 Hz (Figure 2.4). The selection of these blocks was based on survey feasibility. The goal was to survey open area within the park boundaries. Many of the areas selected were bounded by forests, steep slopes, railroad cuts, or roads. I used a compass and tapes to establish X and Y base lines set at 90 degree right angles and located grid corners with a total station. The orientation of each survey block varied according to special limits, landscape, and topography.

The surveyor collected data in a “snake line,” traversing neighboring transects in alternating directions. The instrument collected data readings continuously every 1/8 of a second and the surveyor attempted to walk at a constant pace of one m per second. The sampling interval ranged from six to nine readings per m with a transect interval of 1 m. Initially, I collected transects in rows and limited transects to 20 m in length, but midway through the project I began to collect data at full transect lengths using 20 m fiduciary markers. This change increased collection speed, minimized the effects of temperature change and changes in soil conditions, and reduced processing steps.

Each survey block was processed individually for several reasons. Survey blocks were distant from each other. In some cases this distance was over a kilometer. The underlying geology varied between survey blocks. The directional orientation of each block varied. Each survey block was subjected to varying sources of historical noise. Finally, blocks were subject to varying sources of environmental influence (for example, some survey blocks were subject to more thermal drifting than others).

Processing procedures generally followed Gaffney and Gator (2003) and Kvamme (2006), where all data were filtered first and enhanced second. I plotted the data at 0.5 m x 0.5 m using a kriging algorithm. The data points closest to the center of each raster cell carried more weight than those on the raster cell's periphery. This helped smooth the data. Data were despiked to remove noise and destriped, when relevant, to account for drift, horizontal striping, or unintended variations in instrument height. I applied a high pass filter to remove geological variation. I applied localized contrast enhancements to bring out subtle variation in portions of some survey blocks and clipped the data to two standard deviations.

Ground Penetrating Radar

Ground penetrating radar (GPR) sends electromagnetic radio waves through the subsurface. The speed the wave can travel depends on the ability of a given medium to transfer energy (its dielectric constant). Some of the wave front's energy is reflected back to the surface when it encounters discontinuities in the dielectric constant (Koppenjan 2009). The two-way travel time (usually recorded in nanoseconds) and the amplitude of the reflection are recorded at the surface by a receiver antenna. Each traverse with the GPR provides a two-dimensional profile of the subsurface that can be combined to create horizontal reflection maps (time-slices) or 3D images.

I collected five GPR survey blocks ranging in size from 20 m x 20 m to 30 m x 40 m and two additional transects (each approximately 45 m in length) (Figure 2.5). These blocks and transects were strategically placed to investigate a variety of settings and directly test several hypotheses about Ocmulgee’s physical structure. All GPR survey was carried out using a SIR-2000 console and 500 mHz antenna manufactured by GSSI, Inc. All but one block was surveyed using a survey wheel. The other (North Plateau block) was surveyed using 1 m fiduciary markers. I collected approximately half a hectare of GPR reflection data.

I processed each block individually and determined processing steps on a case by case basis. I used a background filter on all transects to remove horizontal banding from 2D reflections profiles resulting from “ringing” or reflections from surface objects that were the same distance away from the antennae during acquisition (Conyers 2004:123). In some cases I applied a bandpass to filter out certain reflection amplitudes or a deconvolution filter to remove multiple reflections. In many cases however, I left reflections from metal sources in the 2D reflection profiles to illustrate differences between historic/modern noise and anomalies of interest.

Time windows varied depending on context. The damp, clay-rich subsurface may cause rapid signal attenuation. However, much of what the WPA found on the plateau was close to the surface. This allowed a small window to capture appropriate depths (60-80 ns). Mound A on the other hand consists of mound fill and clay caps. The mound fill is probably more loosely packed than the clay subsurface of the plateau, and the baked clay caps should yield strong reflections. The GPR should be able to prospect deeper in this case so I used a longer time window (100 ns).

Electrical Resistivity

The electrical resistivity technique uses probes to introduce an electrical current into the subsurface. Current flow lines will take the path of least resistance; so if the subsurface is generally resistive, then the current flow lines will be pushed toward the ground surface. If the subsurface is generally conductive, then the current flow lines will travel deeper into the subsurface. The current density at or just below the ground surface is measured with a volt-meter. The more resistive the sub-surface is, the greater the current density just below the ground surface and the higher the voltage reading between these two potential probes (Burger 1992). The more conductive the sub-surface is, the lesser the current density will be just below the ground surface and the lower the voltage reading (Burger 1992). Porosity, compaction, and water saturation are the most important physical characteristics effecting current flow.

Resistivity electrodes may be configured in different ways. This project used the Wenner array for several reasons. It is the most basic configuration; each electrode is spaced equidistant in a linear direction. The two current probes are on the outside and the two potential probes are on the inside. This allows ohms per m to be calculated using simple mathematics. Also, the plotting of two-dimensional profiles (pseudo-sections) can be accomplished using simple plotting methods agreed upon in the applied geophysics community.

I restricted the use of electrical resistivity to Ocmulgee's ditches (Figure 2.6). Two pseudo-sections were collected on the in-filled portions of the inside ditch, and one pseudo-section was collected just west of where the ditch was believed to have ended. Each pseudo-section consisted of two transects collected over the same line at two different electrode spacings

(1 m and 2 m). The idea is that the further apart the probes are, the deeper the technique investigates. Each of the two transects can be plotted using the mid-point of the Wenner array as its X point of reference. There is some debate as to how deep various electrode spacings will prospect, but there are as many answers to this as there are heterogeneous sub-surfaces (Barker 1985). I used the distance between each probe as a proxy for depth since the fall off of resistive values over the in-filled ditch began to occur at two m spacing (which happens to be the approximate depth of the ditch).

The high resistivity signature over the in-filled portions of the ditch served as a model of expectation for the other pseudo-section and the four individual transects collected to the west of the outer ditch edge. Variation in resistivity values could not be recorded at 0.5 m or 1 m spacing to the west of the outer ditch, which is possibly a result of low ground water saturation or high compactness of the subsurface. The resistivity meter was able to record variation at 2 m spacing so I collected only a single trace over each transect. I plotted the four outer ditch resistivity transects as a two-dimensional horizontal plan view map. I applied a Zero Median Traverse filter to each resistivity transect to remove horizontal geological variation in the plan view map and vertical geological variation in the pseudo-sections. Artificially high resistive values from observable tree roots were replaced with that transect's median value.

Posthole Tests and Magnetic Susceptibility

Magnetic susceptibility quantifies the induced magnetization of a sample in a weak magnetic field (i.e. it measures the degree to which a substance can be magnetized) and is defined by the ratio of induced magnetization in a sample compared to the magnetizing field (Dalan 2008:3). If magnetization can be induced in more of the sample, or if the direction of more of the magnetic moments in each particle of the sample conform to the direction of the inducing field, then it is considered more susceptible.

Susceptibility values depend on the concentration of magnetic grains, composition of grains (e.g. minerals), and grain size. Experiments using laboratory soil magnetic techniques suggest that there are differences in the magnetic signatures of natural soils and culturally modified soil. Cultural soils tend to show increases in the amount of superparamagnetic grains, in overall grain size, and in the correlation of these two properties (Dalan 2006:185). Nodules of burnt clay, a superparamagnetic coarse grain, would be more ubiquitous in archaeological soils than artifacts and allow for the mapping of site size, activity areas, or buried landforms. I supplemented the post hole test program with magnetic susceptibility tests to map site boundaries.

I excavated 30 posthole tests (Figure 2.7), each with an approximate diameter of 15 cm, and screened all dirt through a fourth/inch mesh. The location of each test was recorded using a Trimble GeoXT GPS unit and excavated in approximately 30 m intervals. I recorded magnetic susceptibility readings at the plowzone (approximately 10 to 20 cm) in every posthole test. The churned-up soil should yield relative differences in susceptibility when comparing cultural soils to non-cultural soils. My results suggest that plow zone susceptibility readings are an effective way to map archaeological site boundaries and activity areas.

Posthole tests and magnetic susceptibility readings were mostly recorded from a forested context where other geophysical equipment would have difficulty prospecting. Maneuverability, ground cover, and noise would create problems for other techniques in this context. The KT-10 magnetic susceptibility meter from Terraplus only prospects a few centimeters and thus provides a localized reading. The only drawback is that the humus must be removed to eliminate influence from modern buildup. Once the humus has been removed, the susceptibility meter is free to measure induced magnetism of paleo-soils.

The grid began on the Mound X bluff, an area of suspected Mississippian occupation (Williams and Henderson 1974), and continued north into the forest. Values collected near Mound X served as a base line to compare susceptibility values from areas believed to be devoid of occupation. The 30 m posthole test interval was shortened in some cases to excavate as many tests on the ridge top as possible. The area tested with posthole tests and magnetic susceptibility readings lay between Mound X, Dunlap Mound, McDougal Mound.

Chapter Summary

Modern day geophysical survey is an appropriate way to map archaeological features and analyze spatial relationships. I carried out a multi-method, multi-scalar archaeological and geophysical survey. The simplest, most rapid techniques (such as magnetometry, conductivity, and GPS topographic mapping) were used to cover large areas in a brief time. More precise and time consuming techniques (such as resistivity, GPR, magnetic susceptibility, and posthole testing) were devoted to smaller areas and areas with dense tree cover. Several areas were subjected to multiple techniques to provide greater clarity of the subsurface and more accurate characterization of archaeological features (for an example see Figure 2.8).

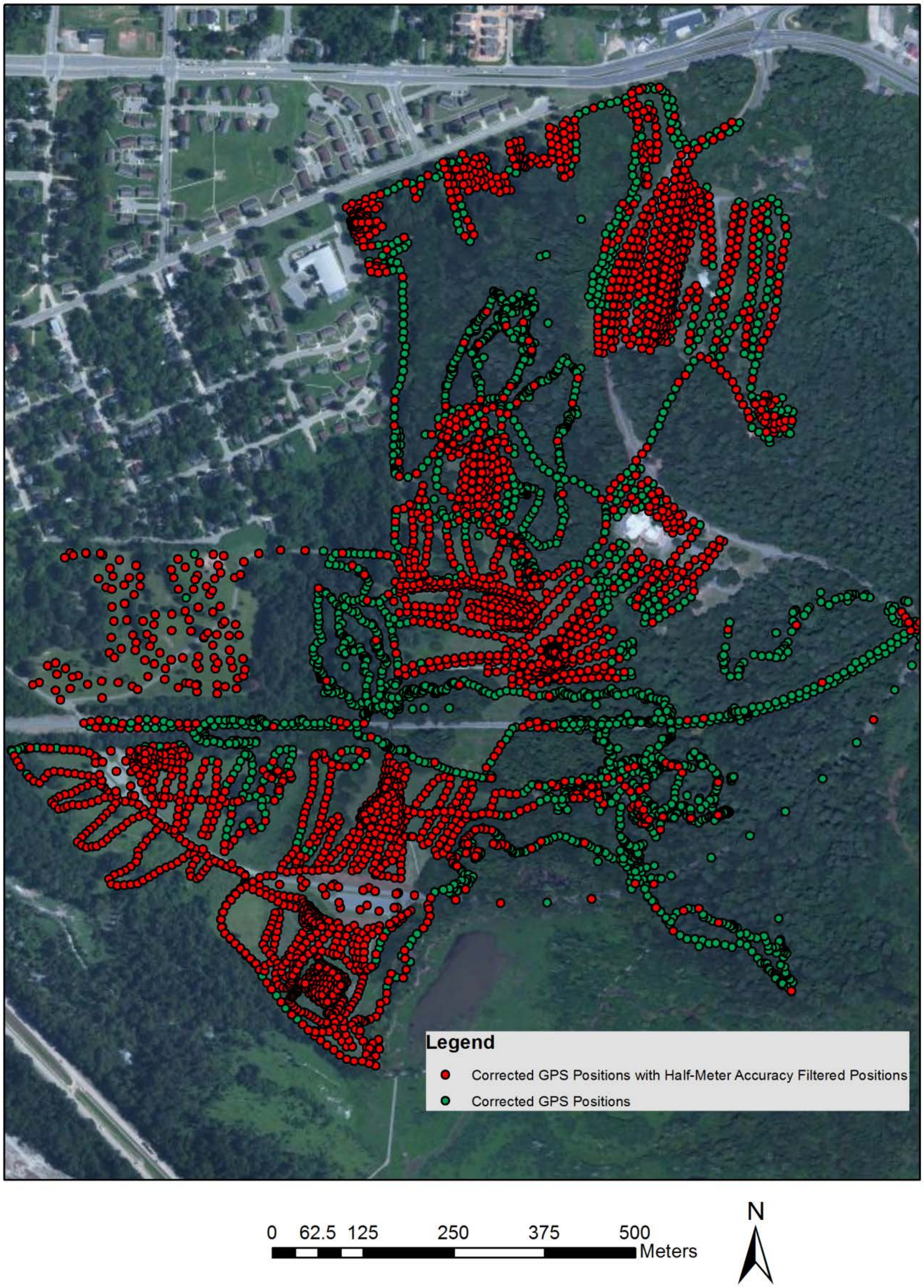

Figure 2.1. Locations of differentially corrected GPS positions and the remaining positions after a half-meter vertical and horizontal accuracy filter (2010 Bing Maps image).

Figure 2.2. New contour map based on GPS data indicating areas with highest and lowest elevations.

Figure 2.3. Locations of traces I collected with a GPS guided cesium vapor magnetometer (2010 Bing Maps image).

Figure 2.4. Locations of survey blocks I collected with a GEM-300 conductivity meter at 12150 Hz (2010 Bing Maps image).

Figure 2.5. Locations of blocks and transects I collected with a SIR-2000 GPR and 500 mHz antennae (2010 Bing Maps image).

Figure 2.6. Locations transects and block I collected with an electrical resistivity meter (2010 Bing Maps image).

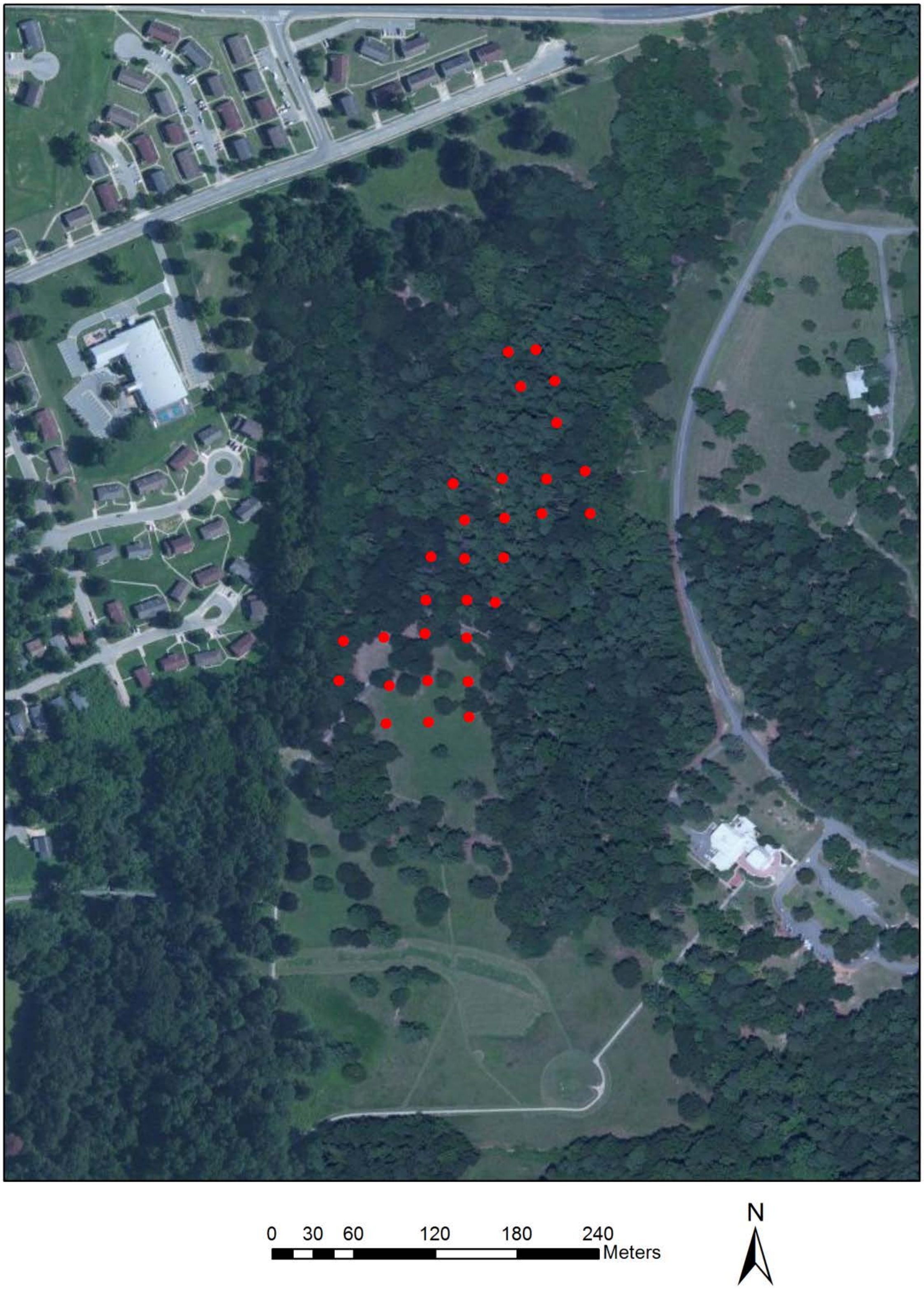

Figure 2.7. Locations of posthole and magnetic susceptibility tests I collected on Mound X Ridge and the Northern Lowlands (2010 Bing Maps image).

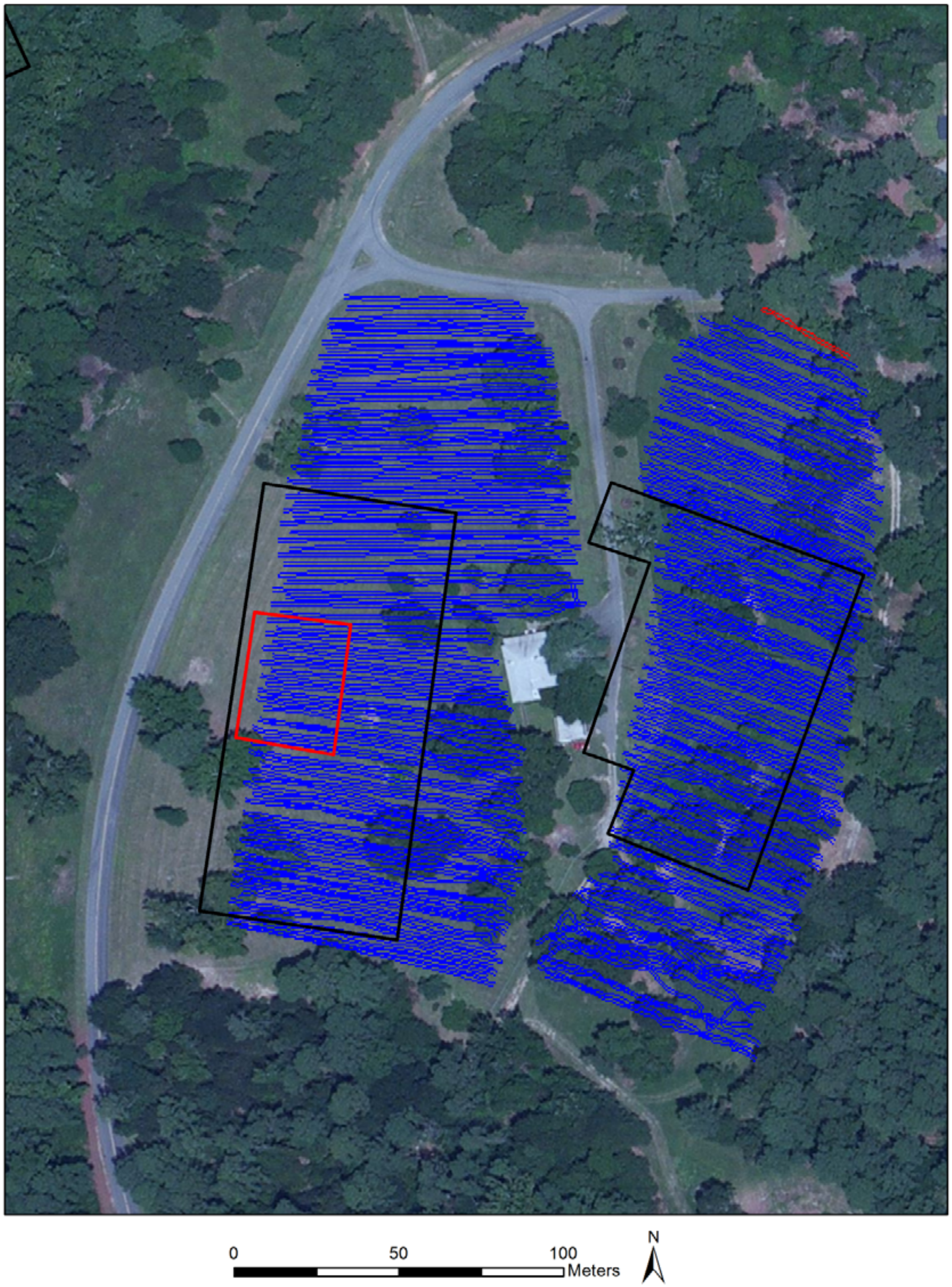

Figure 2.8. Example of multi-scaled, integrated geophysical survey on Dunlap Hill. Blue lines represent magnetometer traces, black polygons represent boundaries of electromagnetic conductivity survey blocks, and the red rectangle represents the boundary of the GPR survey (2010 Bing Maps image).

CHAPTER 3

SOUTH PLATEAU

The South Plateau is situated south of both railroad cuts that intersect the monument (Figure 3.1). This portion of the plateau contains two mounds (Mounds A and B) that are spatially closer to each other than any other pair (90 m apart). The South Plateau is bounded on the south by the southern face of Mound A. Mound A is the largest mound and measures almost 100 m on a side and is approximately 15 m tall. The South Plateau is bounded on its eastern edge by a steep gradient leading to a large wetland. The western edge of the bluff gently slopes to a lower elevation.

The South Plateau and the area to its west have been heavily disturbed (Figure 3.2). WPA drawings of two houses located to the west of Mound B (Stoudamire 1983) indicate that the South Plateau was occupied during the depression era. Froeschauer (1989:69, 71) has suggested that a brick factory was located just off the western side. Magnetic data from this area show several strong signatures relating to these historic features (Figure 3.2). A railroad was cut in 1843 that destroyed most of Mound B (Froeschauer 1989:32). No details of mound stratigraphy, size, or shape were recorded by the railroad company. Excavations on the eastern side of the South Plateau encountered historic artifacts and disturbed soils possibly deposited during the construction of the railroad (Kidd et al. 2004). Mound A, however, was generally left intact.

Previous Investigations

The earliest drawing of the South Plateau comes from C.C. Jones (1999 [1873]). In this drawing, the corners and the northern face ramp of Mound A are equally long with a perceived equal slope. The drawing in Jones' book may not accurately reflect his original sketch. Differences between lithographic reproductions and Jones' original drawings have been noticed by others in similar contexts (Williams 1992:6). However, this drawing may have prompted Walker (1969) to investigate the corners of Mound A.

Kelly excavated ten Control Trenches on the South Plateau between 1934 and 1938 (Stoudamire 1983:12) (Figure 3.3). This area received proportionally more excavation as a function of total area compared to other main bluff segments or outlying bluffs. Kelly's control trenches were oriented east/west (except Control Trenches 2 and 4 which were oriented 20 degrees north of west) (Stoudamire 1983:7, 10). Control Trench 2 was the only excavation unit to cut into Mound B.

The deepest cultural deposits come from the South Plateau. Excavations in some trench units reached almost 3 m. The stratigraphy on the South Plateau was more complicated than anywhere else. Profile drawings on file at SEAC show multiple occupational levels and a probable artificial expansion of the bluff edge to the west. Kelly excavated a large block that connected Control Trenches 6, 8, and 10 after he identified architectural remains.

The WPA uncovered a variety of architectural features on the South Plateau (Figure 3.4). Kelly excavated two earth lodges/council chambers. One appeared to be rebuilt at least three times, both were circular with a fire pit in the center, and both were erected with a wall trench

(Ingmanson 1964a). There was also evidence of an earth embankment surrounding these structures. Kelly uncovered three circular structures built in the single set post tradition with the fire pit located off-center to the northeast. These are distinctly different and may well represent the remains of residential structures. A mix of Vining Simple Stamped and Bibb Plain pottery was collected from the "floors" of these structures, however intact clay floors were not found and excavators determined the floor level based on the posthole pattern. The largest rectangular structure (House A) Kelly excavated was located just inside the western edge of the excavation block. This building contained a fire pit in its center and workers recovered several whole pots from the floor (mostly Bibb Plain jars). Finally, a small circular structure (known as House B) was identified to the east of House A. This structure did not have an entranceway and may have been used as a granary, sweat house, or for some other specialized function.

Excavations began on the summit of Mound A in 1934, but details about the excavations were not written up until 30 years later (Ingmanson 1964a). Ingmanson (1964:9) reported that a 10 ft x 15 ft pit was excavated down to approximately 30 ft, but the investigation had to be terminated for fear of a cave in. In 1937 excavations continued with two parallel trenches being cut approximately along the northern and southern edges of the summit. The sod located between these trenches was stripped upon completion of the trench excavations in hopes of discovering postholes, pits, or other features related to architecture or summit occupation (Ingmanson 1964a:10). Excavations did not cover the entire mound summit.

There is no conclusive evidence suggesting Native Americans had a structure on the most recent Mound A summit. Kelly encountered a clay cap 5 in to 7 in below the surface and slightly below the cap was a small, 2 ft area of burned clay that may have been used as a fire pit (Ingmanson 1964a:10-11). An upside down pot was embedded in the clay cap and Ingmanson

(1964a:11) suggested that this may have been a ceremonial act. The placement of the pot appears to be intentional and the paucity of evidence suggestive of occupation may support a "ceremonial" interpretation.

Kelly encountered a 2 in hard band of clay approximately 2 ft below the surface. The extent of this thin clay layer was over 8 ft in diameter and may represent the remains of an earlier clay cap or less likely a house floor (Ingmanson 1964a:10). Below this, Kelly encountered several other features. Two hearths were uncovered 8 ft below the surface, and several hearths and two "crematory pits" were encountered 11 ft below the surface (Ingmanson 1964a:10). This suggests that an earlier construction/use layer may have served as an occupational floor. According to Ingmanson, WPA workers did not discover postholes. There is further evidence from the WPA investigations that suggests multiple mound stages. The ends of two excavation trenches completed in 1937 encountered the eastern edge of the mound base. These trenches revealed a clay cover overlaying a layer of "basket load[ed]" sand. Below the sand was a layer of sod that covered a deeper clay layer (possibly another cap) (Ingmanson 1964a:11-12).

Walker investigated the South Plateau in 1967 while working as a NPS archaeologist. The goal of his six months of test excavations was to "trace the final stages of construction so that reconstruction could be carried out" (Walker 1969). This included investigations of the internal structure of the mound, an understanding of construction techniques, and testing for the presence or absence of stepped ramps. Walker returned in 1978 and carried out limited testing on Mound A (Stoutamire 1983:12), but the scale, scope, and results of this work have never been published.

No adequate account of Walker's 1967 or 1978 investigations, sequence of testing, nor excavation methods has been written. Much has to be inferred from a plan view map that has been modified and reused several times (Kidd et al. 2004:Figure 17, Figure 18; Stoutamire 1983:Figure 2; Stoutamire and Walker n.d.:Figure 1). Walker concentrated investigations on the north, east, and south faces of Mound A (Figure 3.3). He excavated long trenches beginning at the plateau level and ending on the mound summit and a smaller trench at the northeastern corner of the mound to test C.C. Jones' (1999 [1873]) observations about a ramp. Some additional testing was conducted on the eastern face and mound summit to test for structures or features. Walker suggests that he "strip[ed] the top of the mound" (Walker 1969), but there is no other reference describing a horizontally broad excavation on the summit other than the WPA investigations. It is unclear if Walker is referring to the small test units he sank into the summit in 1967.

Despite problems of clarity in excavation methods, Walker pointedly reports his results regarding mound integrity and structure. He concluded that "erosion was all but imperceptible except where gulleys had been worn by motorcycles; there had been a stepped rampway down the northern and eastern sides of the mound during the next to last construction stage; and a curb, similar to that on Mound C, had encircled the top of the mound" (Walker 1994:33). The two corner ramps initially "observed" by C.C. Jones do not appear to have existed (Stoutamire and Walker n.d.:3). Furthermore, Walker (1969:30) encountered a fire pit on the mound summit that "lined up with the ramp" and evidence of a few post molds, but "nothing that would tell us what size or shape the buildings might have been."

The most recent work on the South Plateau and Mound A was carried out in 2000 by the NPS to assess the potential impact of a new sidewalk and set of steps (Halchin 2000; Kidd et al.

2004). The investigations consisted of 78 50 cm x 50 cm shovel tests on the eastern side of the mound and three 2 m x 1 m test units laid out in a linear fashion on the eastern edge of the South Plateau (Figure 3.3). NPS archaeologists placed the shovel tests in the locations of the proposed concrete stair pillars and the test units in the location of the proposed sidewalk (Kidd et al. 2004:17).

The three sidewalk units exhibited signs of heavy disturbance. Barbed wire, window glass, container glass, plastic and brick fragments, and nails were recovered from the same levels as Early Mississippian pottery and points. There was tremendous diversity of soil color at the base of the unit (six different Munsell designations), and horizontal variation in soil texture and compactness suggests that some of the units overlapped the edge of previous excavation trenches (Kidd et al. 2004:17-19).

Twenty-six out of 78 shovel tests contained either historic artifacts or evidence of previous excavation trenches. These can be classified as disturbed and add little to our understanding of the mound. The other 52 tests contained only pre-historic artifacts below the first few centimeters and show signs of intact stratigraphy (Kidd et al. 2004:19). These tests make an important contribution to our understanding of the mound’s structure. The stratigraphy shows three distinct strata: dark yellowish brown sandy loam (most shallow), yellowish brown sandy clay loam (intermediate), and grayish brown clay (deepest). The intermediate stratum contained the most aboriginal ceramic material and the deepest clay layer probably represents a clay cap (Kidd et al. 2004:21). Multiple clay caps have been identified during previous investigations, but the descriptions of work are sometimes unclear and profile drawings are sometimes non-existent. Detailed recording and adequate reporting of mound stratigraphy by the NPS lends support to observations made by previous researchers.

This review of previous research has illuminated several important questions about Mound A's form, function, and construction history. Jones observed ramps on the northern mound face corners, but Walker confirmed that there were no steps. The lack of modern topographic mapping makes it difficult to assess the prospect of non-stepped ramps on the corners. Another problem emerges in the contrasting accounts of mound top architecture between the WPA data and Walker's observations. Kelly identified a single feature on the mound summit in the 1930s, but Walker identified a fire pit and a several post molds. It is unclear whether these two varying observations came from the same layer or if Walker's observations were made below that of the 1930s. The fragmentary evidence from the summit of Mound A may also be a product of destructive plowing. All three projects (WPA, Walker, and NPS compliance) observed a clay cap on the mound, but only the WPA investigations encountered multiple clay caps. Walker's work on the eastern face of the mound suggests that the stepped ramp led to the top of a lower/earlier mound stage probably just prior to the final use episode. None of the investigations made observations about a possible expansion of the mound.

Survey Results and Discussion

My project used high-precision GPS and total field magnetometry to survey the South Plateau, west of the plateau (off-plateau), and the summits of Mounds A and B. The project used EM conductivity to collect data on Mound A's summit and west of the plateau. GPR was only collected on the summit of Mound A.

I created a new topographic map and 3D model of Mound A to evaluate its shape in finer detail (Figure 3.5). Walker did not find steps on the mound's northeastern or northwestern corners. The steep slopes indicated in my 3D model make it difficult to believe that they could have been used for processions or dragging large objects to the mound summit. The GPS topographic data contradicts the drawing of the mound found in Jones (1999 [1873]). Despite the possibility that the northern corners were intentionally shaped they likely were not used ramps.

I surveyed the mound summit with a magnetometer, a conductivity meter, and a GPR to investigate the possibility of summit architecture. The magnetometer recorded several mono-polar positive magnetic anomalies on the western side of the mound top (Figure 3.6). These anomalies reflect the expected signatures of cultural features. Noise was also prevalent in the magnetic data. Influence from the stairs on the eastern edge of the mound impacts the ability to make clear interpretations. There also appears to be influence on the western edge of the mound from a metallic source (note the alternating highs and lows). According to NPS personnel, there may be from piping used to drag a plow or heavy duty lawn mower up the side of the mound.

There is substantial variation in apparent conductivity values on the summit of Mound A (Figure 3.7). A random distribution of high and low conductivity values may be the result of various excavations units, looters pits, influence from trash, and archaeological features of interest. Several anomalies of higher conductivity are observable in the northeastern corner of the survey block. Water retained in pit features, post holes, and hearths filled with organic material should make it easier to induce an electric current in the subsurface. These isolated incidents of high conductivity suggest that there may have been some previously unrecorded features.

The absence of patterned anomalies (rectilinear or circular) in the magnetic and conductivity data supports the idea that there was no summit architecture on Mound A following the final capping episode. The randomly distributed low density of anomalies is in line with previous observations on the mound's summit. There is a possibility that plowing destroyed the remains of summit architecture, but anomalies representing architecture have been recorded in other parts of Ocmulgee subjected to plowing. Both the magnetometer and the conductivity meter prospect to shallow depths, suggesting the anomalies come from just below the modern ground surface. The anomalies of higher apparent conductivity in the northeastern corner may be outside of the 1937 excavation block limits.

I used GPR to investigate the mound summit, construction stages, and possible expansion of the mound. The shallowest time slices also helped address a discrepancy between two reconstructions of the WPA summit excavations. These reconstructions differ in location, size, and shape of the excavation units. According to Ingmanson (1964), the WPA test unit was rectangular and the broad, shallow excavations reached to the western edge of the mound with a jagged northwestern block corner. Stoudamire (1983) suggested a square test unit and a square block that did not reach the western mound edge and was centrally located on the mound summit. The GPR delineated the excavated area from the unexcavated area (4-10 ns two way travel time) (Figure 3.8). A two-dimensional profile view shows higher amplitude reflections at the ground surface in the northeastern corner compared to lower amplitude ground reflections in the southeastern corner (Figure 3.9). These variations in reflection amplitude result from variation in composition and compactness and likely reflect the difference between excavation fill and an unexcavated clay cap. There are also reflections representative of an unexcavated portion of the final clay cap on the western side of the survey block (Figure 3.8). This implies that the broad, shallow excavation during 1937 did not reach the edge of the mound summit. The area of minimal reflection amplitude in the shallowest time slice approximates the shape and placement of Stoutamire’s (1983) reconstruction.

Evidence between 13 and 19 nanoseconds suggests that the 1934 test unit was square and centrally located (Figure 3.8). A square area devoid of reflections is located in the center of the mound. High amplitude reflections surrounding this area probably represent the remains of a clay cap encountered two feet below the surface in 1934. High amplitude reflections reach to the western edge indicating the horizontal spatial limits of the mound summit had been reached by this phase of mound construction.

There are very few reflections between the clay cap identified at 13 ns and approximately 45 ns (Figure 3.10). The deep blue background probably represents homogeneous mound fill. Mass reflections (unbroken) occur between 45 and 51 ns (Figure 3.10). This portrays a sharp break in the nature and character of subsurface materials. The complete coverage of high amplitude reflections across this depth implies a homogeneous clay cap layer. A two-dimensional GPR profile view illustrates the difference between this unbroken layer and the previous construction episode excavated by the WPA (Figure 3.11). The large two-way travel time interval (19 ns to 45 ns) between episodes of mass reflections suggests that a large vertical addition was made to the mound before its second to last cap. Furthermore, the unbroken reflections at this depth contradict Ingmanson’s (1964a) claim that the test unit was excavated down to 30 ft.

Slightly below this depth (from 54-60 ns) some reflected patterns emerge (Figure 3.10). There is a circular pattern in the center of the survey block and two parallel linear reflections to the south. The circular pattern appears to represent the remains of a structure, but the high amplitude linear reflections are more difficult to interpret. The orientation of these anomalies does not suggest that the circle and linear pair of reflections represent a paired structure seen atop mound summits in other contexts. The linear band on the western edge of the survey block suggests that the waves are traveling at slightly slower speeds in this area. These reflections cover an area that is free of reflections between 45 and 51 ns and probably represent the remains of a clay cap from the same layer. This also suggests that the cap extended the full width of the mound at the third to last capping episode.

Another episode of mass reflections occurs between 77 and 82 nanoseconds, but the total coverage area is smaller (Figure 3.12). Unbroken high amplitude reflections only cover an area from approximately 10 m to 40 m in the survey block. This may suggest that the clay cap at this depth was smaller, and by inference so was the mound. If these reflections represent an earlier stage that was smaller, and the reflections observed between 45 to 51 ns covered the entire width of the mound, then it seems apparent that the mound expanded westward. Stratigraphic profiles indicate that the South Plateau was enlarged in this direction and it has been suggested that the enlargement was to accommodate an expanding mound (Kidd et al. 2004; Walker 1994). There is well documented evidence of mound expansion from the excavations carried out on Mound C. The magnetic data suggests that the expanded plateau also served as a foundation for additional structures (Figure 3.6).

Finally, below this highly reflective layer there are two patterned anomalies between 81 and 87 ns in the northern and northeastern section of the survey block (Figure 3.12). These reflected changes in soil content appear to represent structures. This also represents the first plausible case for paired structures on the Mound A summit. The two anomalies are distinct, but do articulate. The western side of the block is generally quiet and absent of reflections. This is expected if no mound existed in that space at this point in time. The absence likely represents later additions of mound fill. The anomalies fall within the delineated area of mass reflections observed just above this depth and the location, orientation, and possibly shape of these anomalies differs from those found at 54 ns.

My survey of the South Plateau and Mound A summit clarifies issues tentatively addressed by previous investigators. The 1934 test excavation unit on the summit of Mound A may have been larger in size and penetrated to a shallower depth than reported by Ingmanson (1964a). Mound A had at least 4 construction episodes and it expanded to the west during its third to last construction episode. There is evidence that the South Plateau itself was expanded west to accommodate the enlargement of the mound. The final construction episode had little evidence suggestive of summit architecture, but archaeological features and geophysical anomalies representing probable features were identified at this level. Plowing may have destroyed some remains on final layer. Earlier construction stages show signs of summit architecture seen in GPR time slices. The orientation, size, style, and possibly functions of this architecture changed over time.

The expansion of the plateau also provided additional space for people to build structures. Magnetic data collected on the western edge of the South Plateau revealed several anomalies that possibly represent previously unidentified structures (Figure 3.6). These are located directly next to excavated posthole patterns to the east. The combination of structures may represent the remains of a residential group living between Mounds A and B. The rectangular structure (House A) uncovered by the WPA on the South Plateau is one of the largest excavated at Ocmulgee. The size of the structure and close proximity to mounds and council chambers suggests that this residential group may have held a high status, rank, position, or office.

Chapter Summary

The South Plateau is located south of both railroad cuts that bisect the plateau and contains two mounds. The South Plateau has been subjected to historical disturbance including historic houses and a brick factory. It was the subject of much excavation during the WPA period and yielded evidence for a wide variety of native architecture. Mound A was also investigated during the 1930s and was revisited by the NPS three times. Previous work conducted on Mound A suggested that there was no summit architecture on the final capping episode of the mound and that the mound was subjected to multiple construction episodes through its occupation history.

The magnetometry data from the South Plateau provide little for our understanding of the Mississippian period. Historic sources of noise impaired the data, but there are anomalies representative of possible native architecture. I used magnetometry, conductivity, and GPR to survey the mound summit and make inferences about its construction. None of the techniques found evidence of structures on the final cap of Mound A. Two-dimensional GPR profile views and time slices indicate that the mound had at least four clay caps and the mound expanded to the west, taking its full horizontal footprint, during the third to last stage. Patterned reflections directly below the third and fourth to last clay caps suggests that earlier mound stages did have summit architecture. The size, location, orientation, style of these anomalies changes through time. These changes of structural elements combined with an understanding that the final use episode was absent of structures suggests that the function of Mound A varied through time.

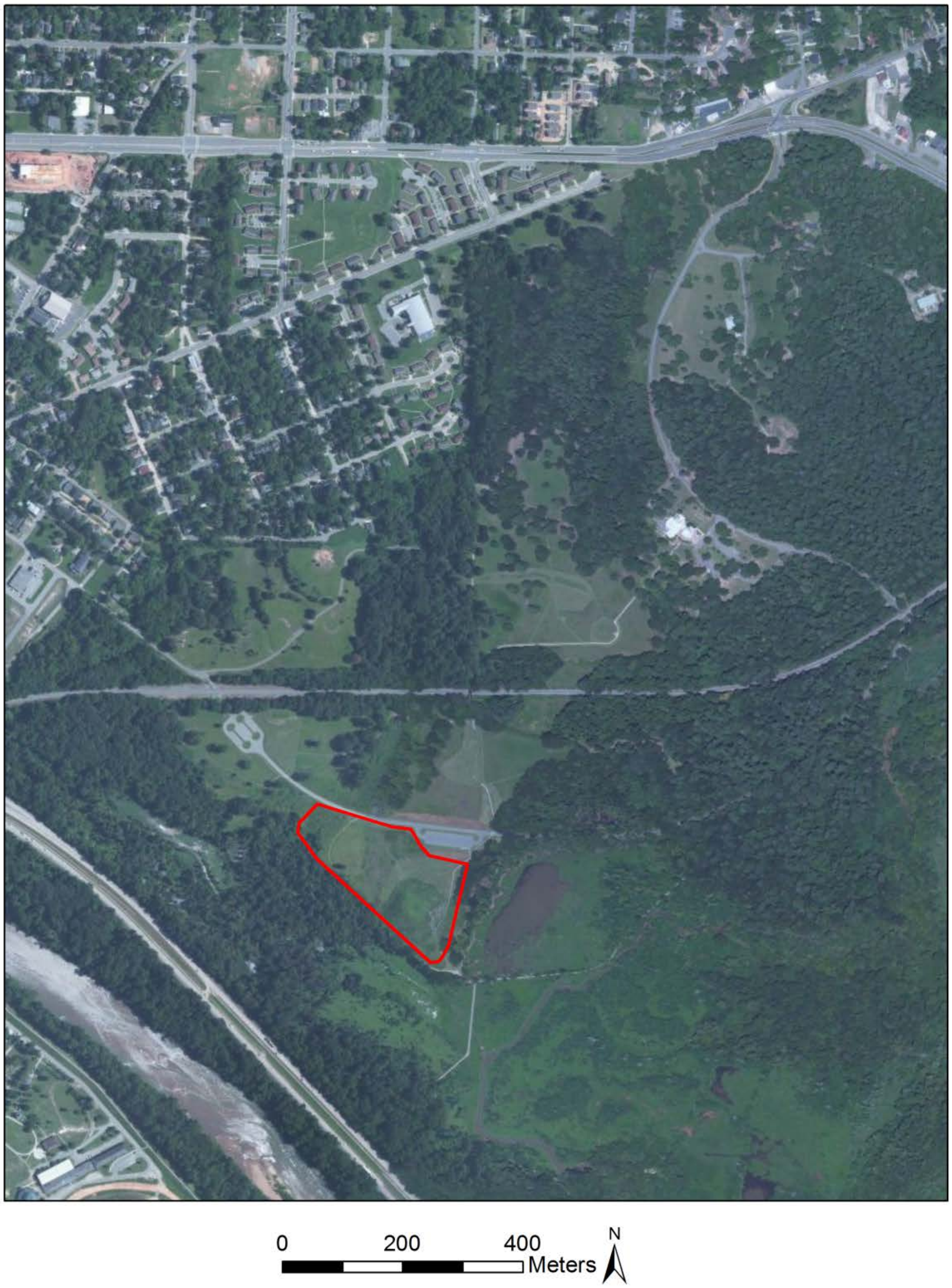

Figure 3.1. Boundary of South Plateau sector (2010 Bing Maps Image).

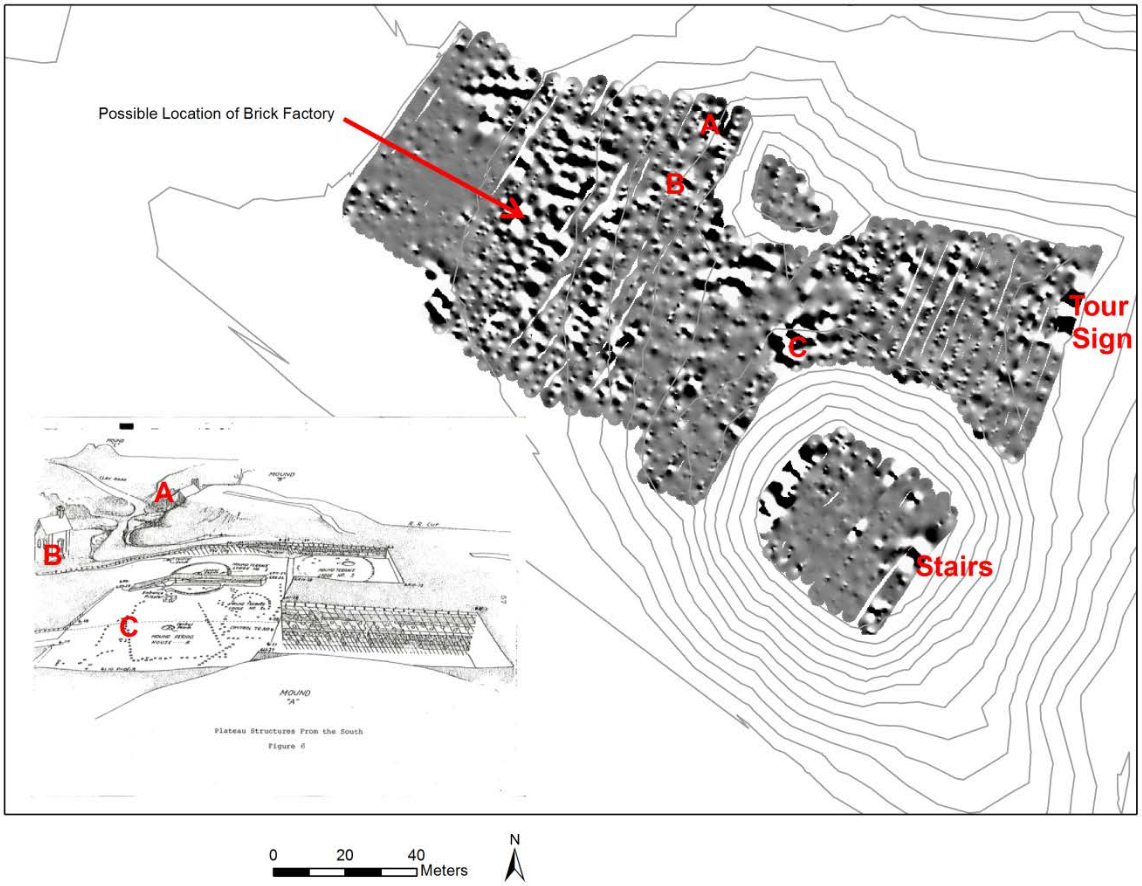

Figure 3.2. Sources of disturbance on the South Plateau including brick factory, historic homes, modern signs, stairs, and excavations.

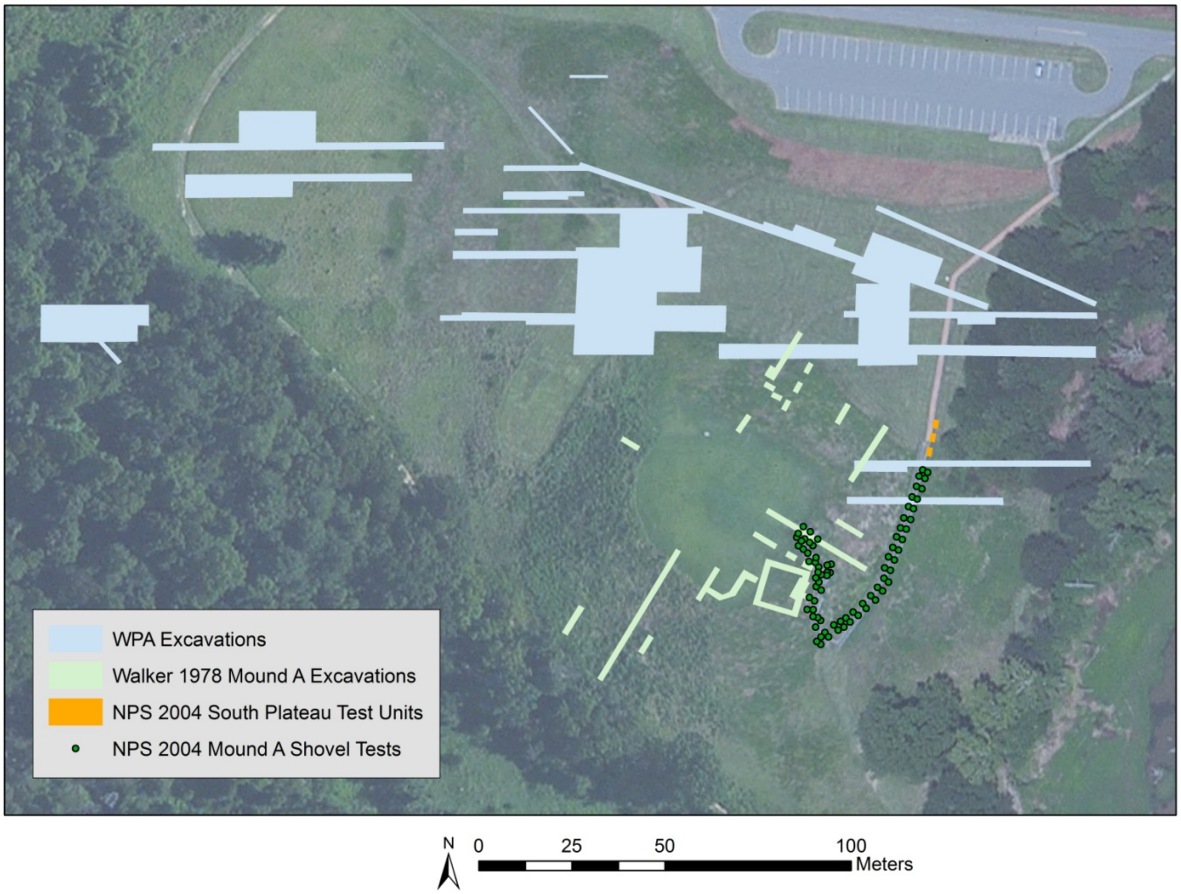

Figure 3.3. Locations of excavations on the South Plateau. Federal relief excavations from the summit of Mound A are intentionally left off of this map since there is some discrepancy between Ingmanson (1964a) and Stoutamire (1983). I resolve this issue in my discussion of GPR data I collected from the summit of Mound A (2010 Bing Maps image).

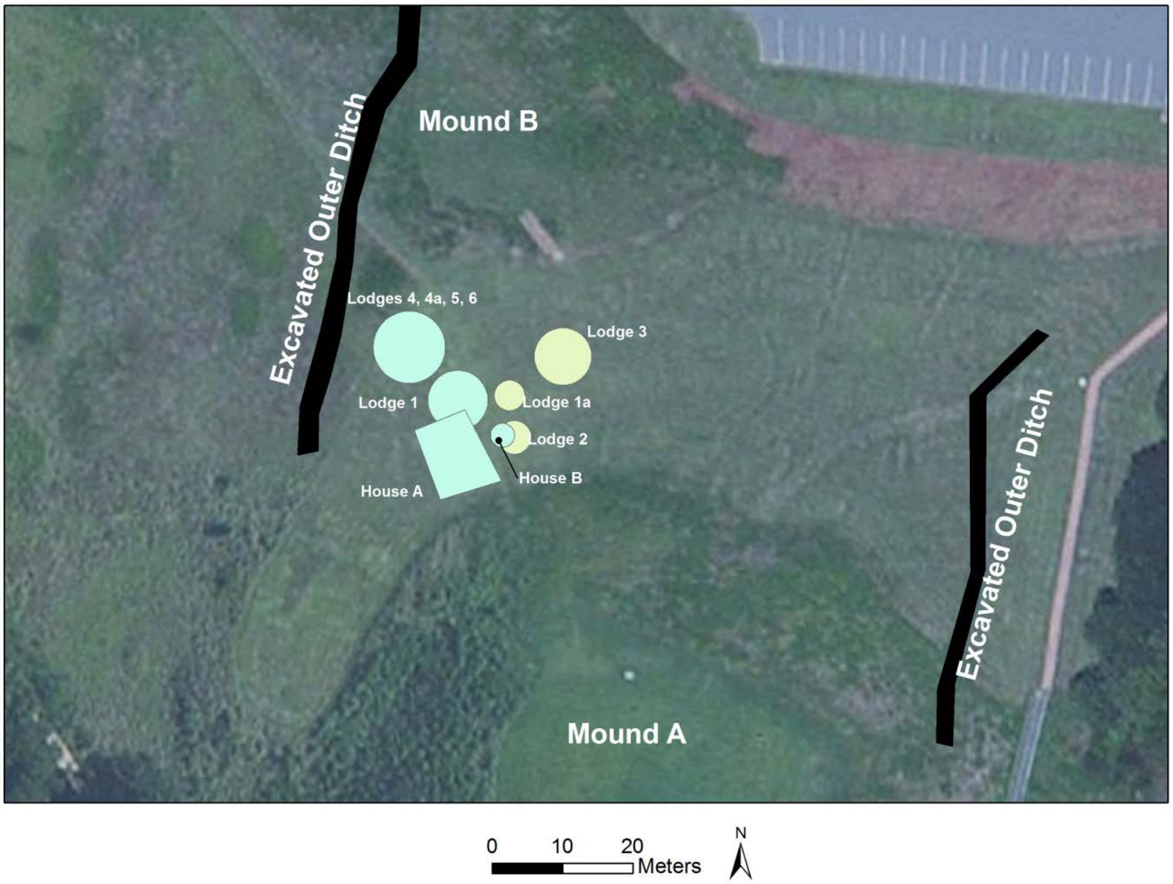

Figure 3.4.Locations of structures excavated by WPA on the South Plateau (2010 Bing Maps).

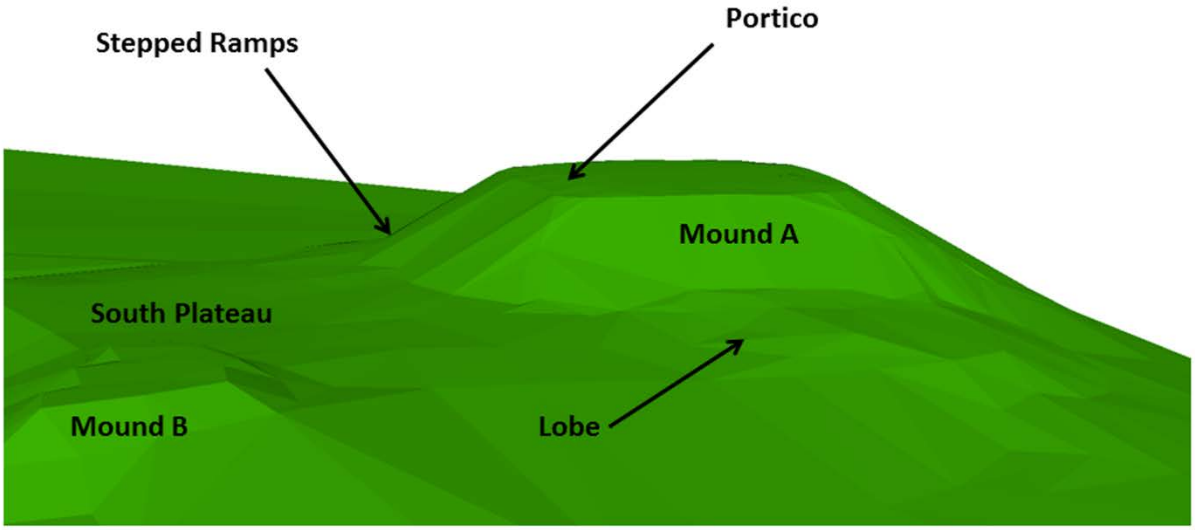

Figure 3.5. Topographic map of South Plateau illustrating features of Mound A.

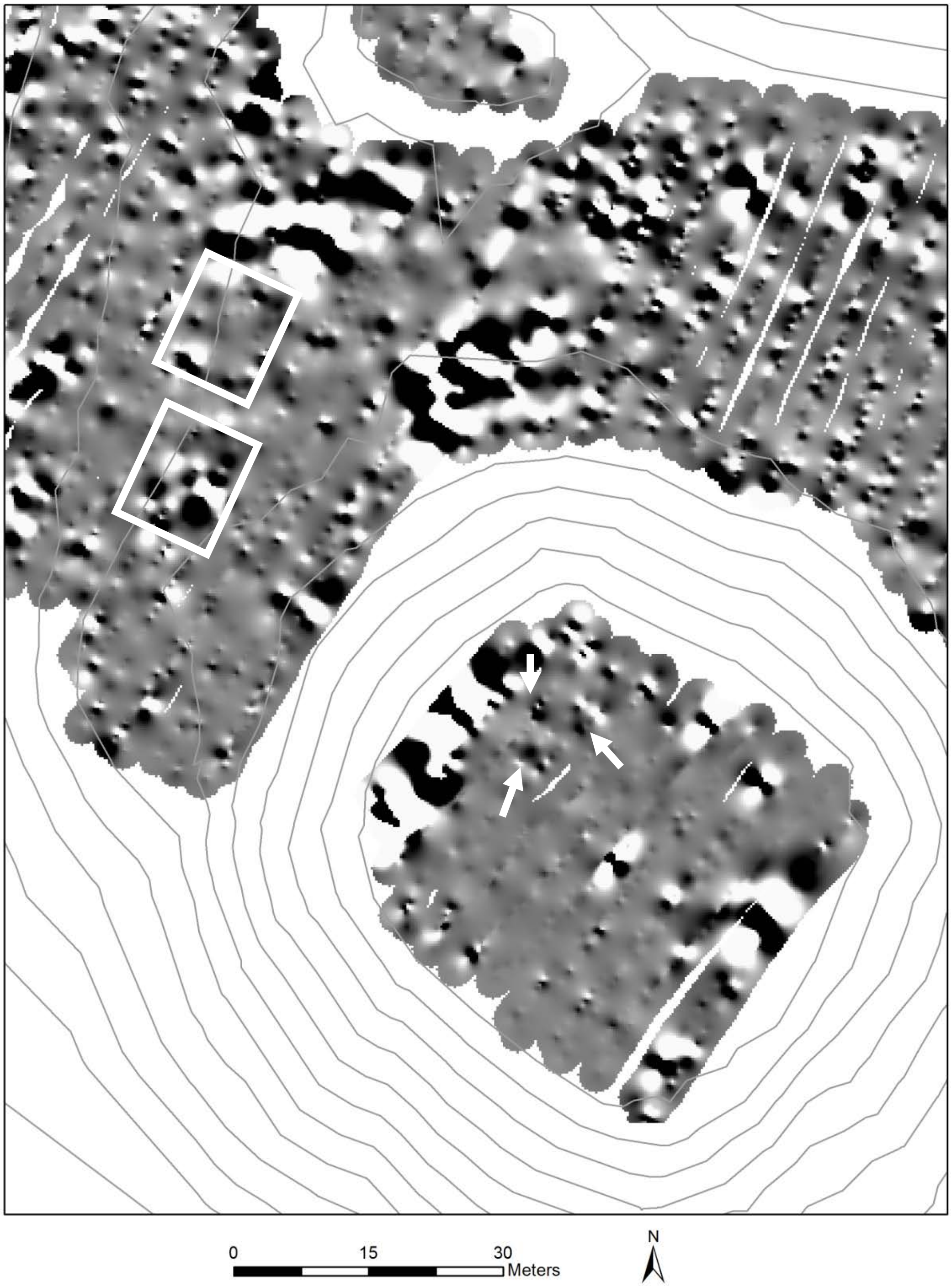

Figure 3.6. Magnetometer data from South Plateau and Mound A summit plotted in grey scale at a range of +- 10nT (black is positive, white is negative). Arrows indicate magnetic anomalies on mound A summit. Rectangles indicate possible structures on expanded bluff top edge.

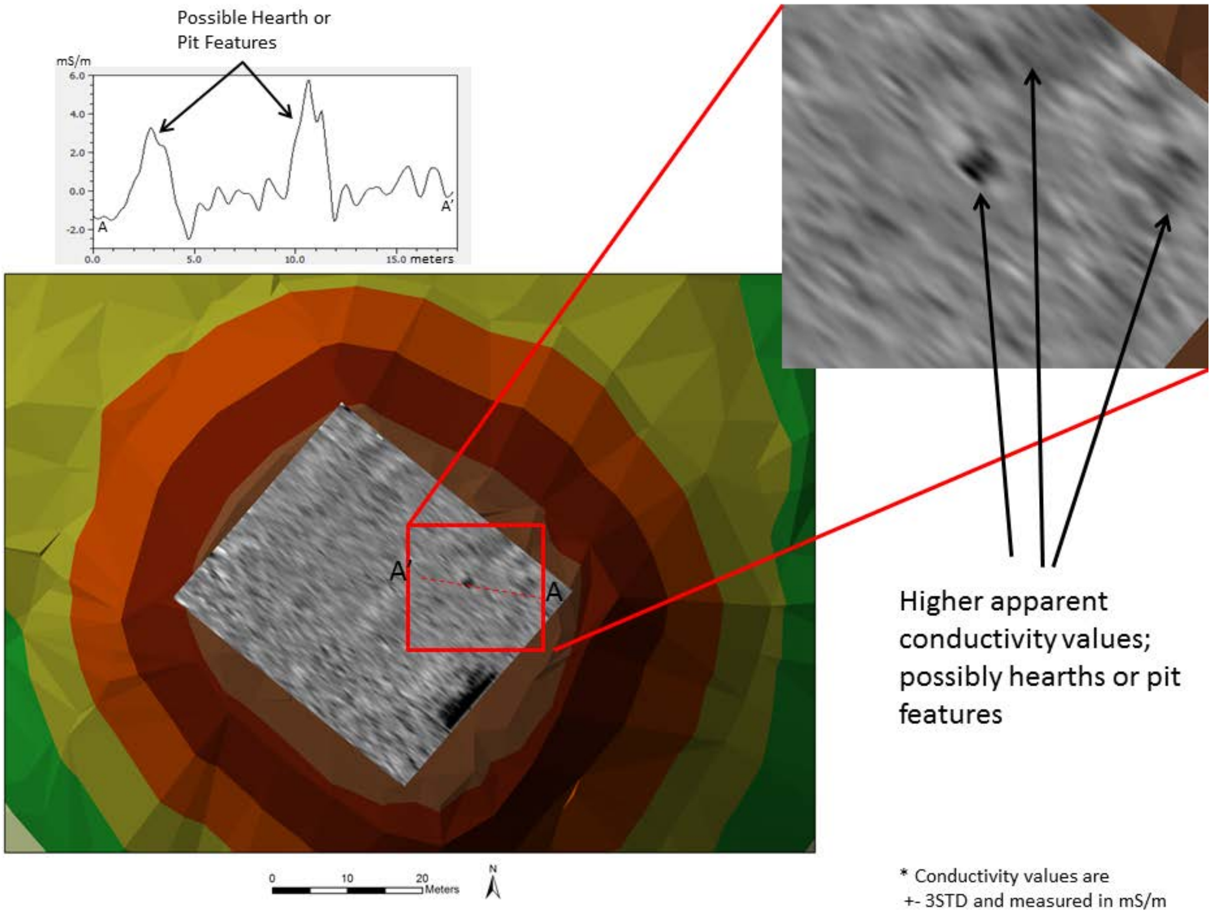

Figure 3.7. EM conductivity data collected on Mound A summit. Higher apparent conductivity anomalies indicate possible hearths or pits.

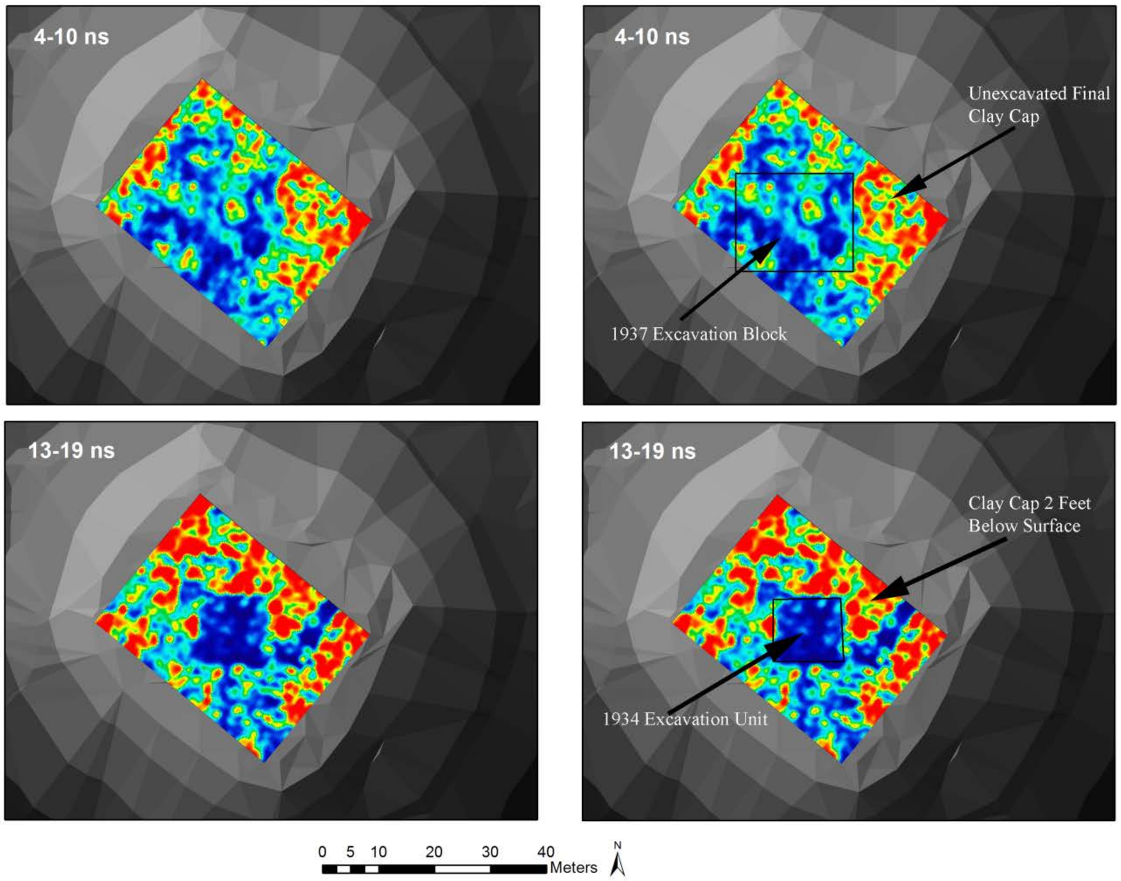

Figure 3.8. GPR time-slices (4-10ns; 13-19ns) from Mound A summit with interpretations.

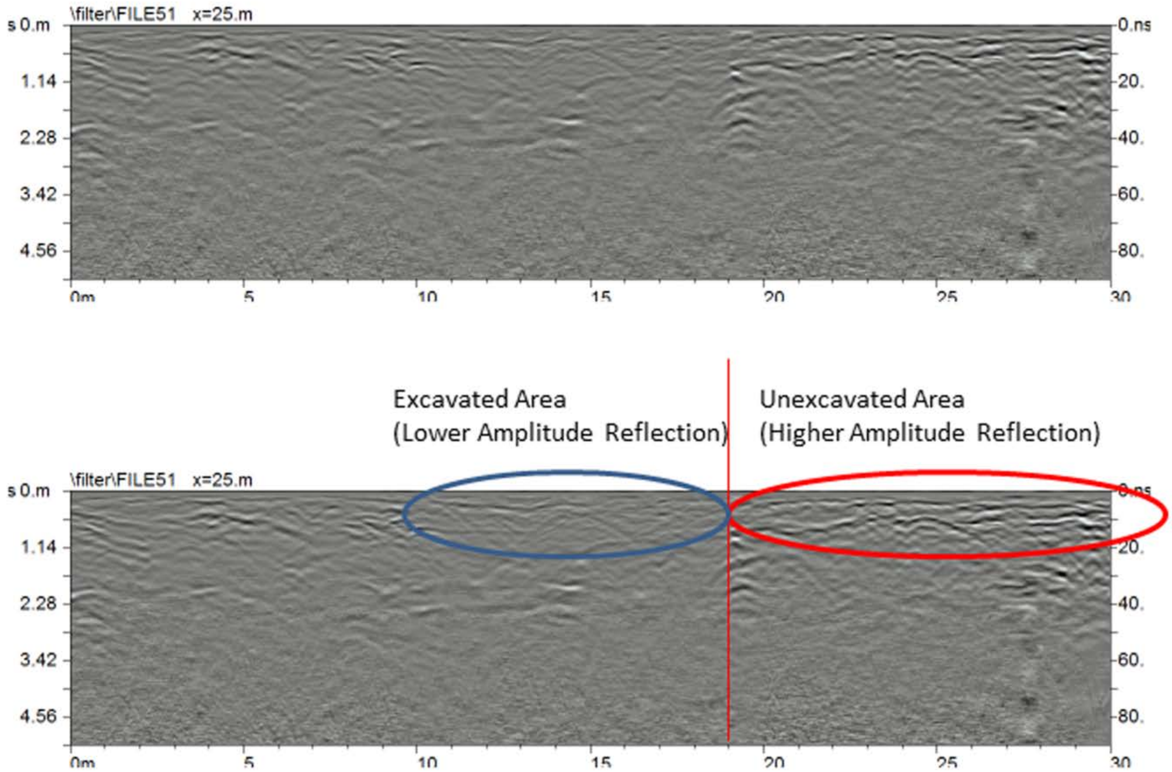

Figure 3.9. 2D radargram from Mound A summit showing difference between amplitude of ground reflection over excavated and non-excavated areas.

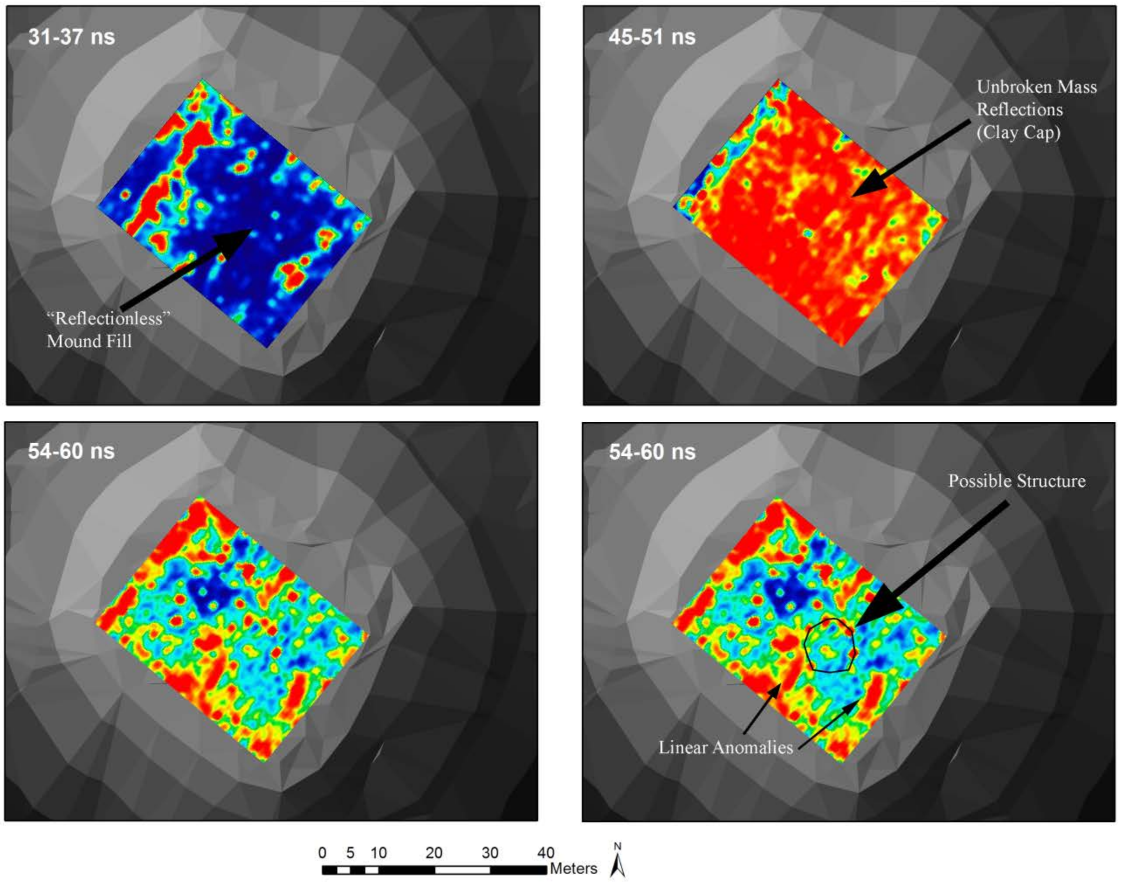

Figure 3.10. GPR time-slices with (31-37ns; 45-51ns; and 54-60ns) and without (54-60ns) interpretations from Mound A summit.

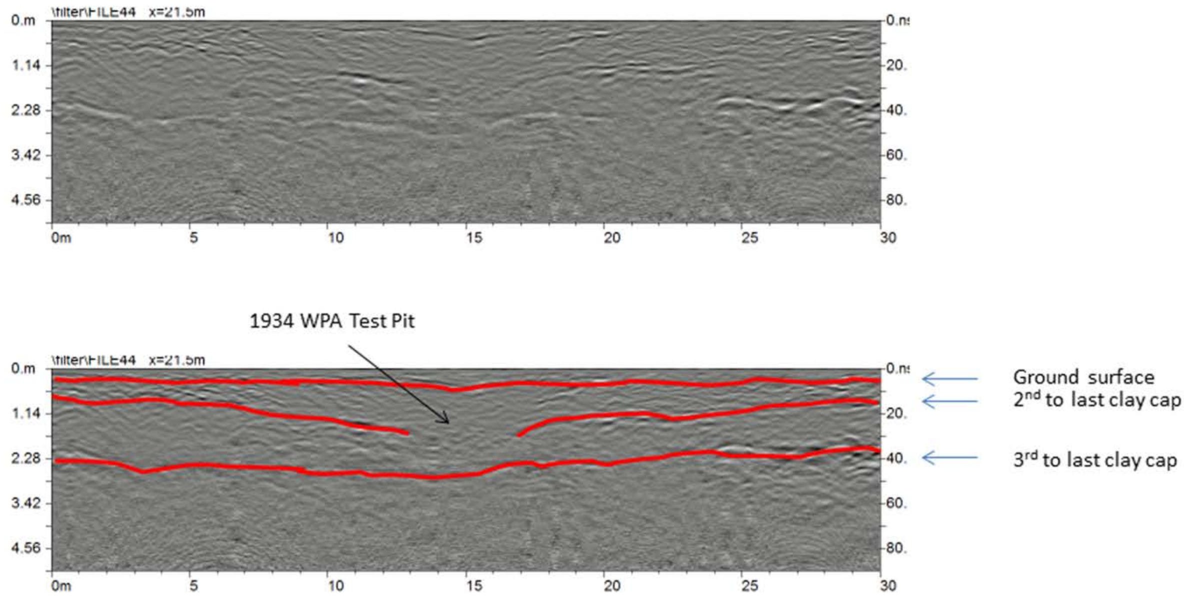

Figure 3.11. 2D radargram from Mound A summit with interpretation of ground surface, second to last clay cap, third to last clay cap, and WPA excavation unit.

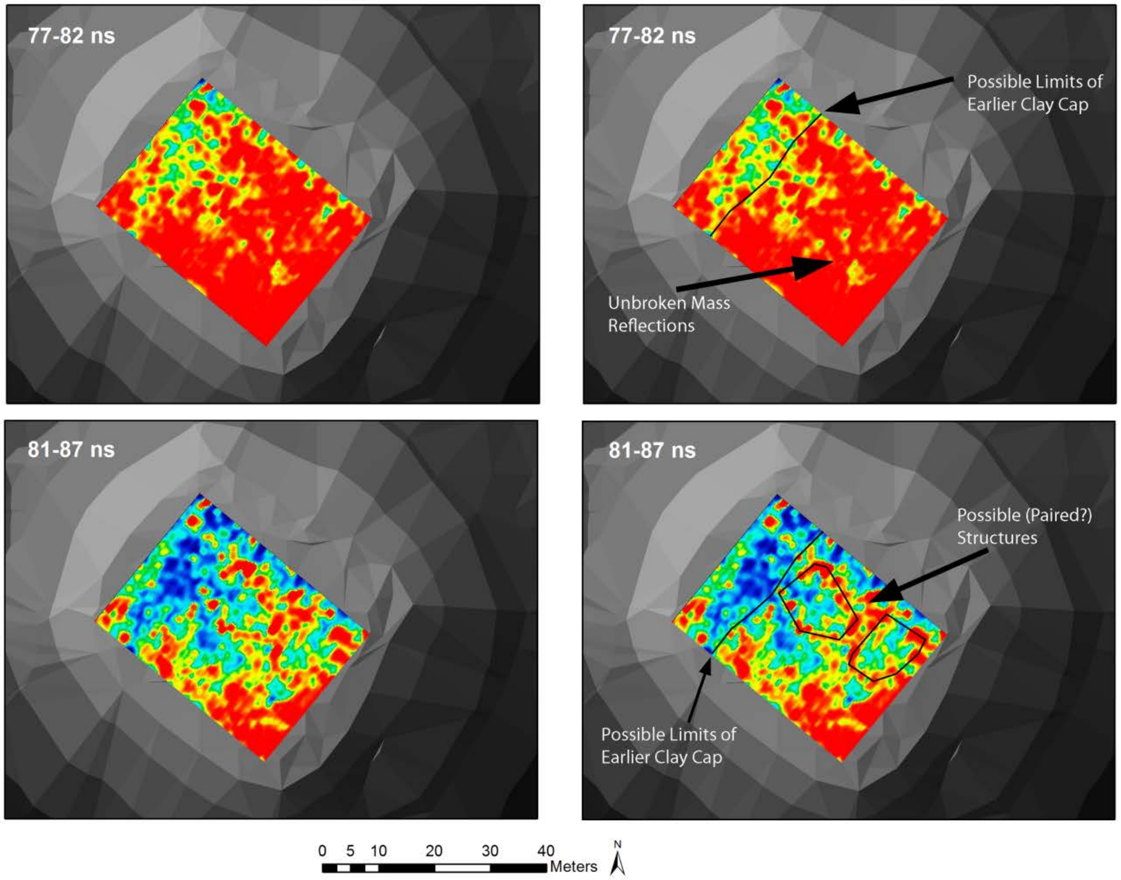

Figure 3.12. GPR time-slices (77-82ns; 81-87ns) from Mound A summit with and without interpretations.

CHAPTER 4

MIDDLE PLATEAU AND SOUTHEAST PLATEAU

The Middle Plateau is located between the South and North Plateaus and is separated from each by railroad cuts (Figure 4.1). The southern railroad was constructed in 1843 for the Macon, Dublin, and Savannah Railroad and the northern railroad was constructed between 1871 and 1872 for the Central of Georgia Railroad. The southern bed is currently covered with concrete and used as a tour road to access the Southern Plateau and the Funeral Mound (Smith 1973:2). The western boundary is defined by a marshy swamp of low elevation that separates the Mound C (Funeral Mound) bluff from the Middle Plateau. There is an eastern extension of the Middle Plateau (Figure 4.1, Figure 4.2) which has been referred to as the Southeast Plateau (for example Ingmanson 1964c). It is also located between the two railroad cuts and I combine the data from this area with the Middle Plateau because of their contiguity. The Southeast Plateau consists of two consecutive spurs separated from each other by a large erosion gully. Both spurs are bisected by the southern railroad/tour road. Mound E is located on the Southeast Plateau and portions of two separate ditches are located on both the Middle and Southeast Plateaus. The eastern boundary of the study area is defined by the plateau edge which rapidly grades into terraces.

Modern disturbance on the Middle Plateau consists of an expanded bridge connecting the Middle and North Plateaus, a short, narrow sidewalk running from the Trading Post to the parking lot between the Middle and South Plateaus, and plowing. There are also the remains of a historic Creek town surrounding the Trading Post dating to approximately AD 1680. The remains of the Creek town make it difficult to date anomalies identified through geophysical survey. Ocmulgee National Monument left the Trading Post, its surrounding ditch, and portions of the two Mississippian ditches exposed.

Previous Investigations

Kelly (Smith 1973) excavated on the Middle Plateau between 1935 and 1940 (Figure 4.2). He excavated four main control trenches beginning on the western side running east (Smith 1973). Control Trench 1 was 1900 ft long. Control Trench 2 was 800 ft long and 100 ft south of Control Trench 1. Control Trench 3 was 220 ft long and 100 ft below Control Trench 2. Control Trench 4 was 420 ft long and 90 ft below control trench 3. I relocated Control Trenches 1, 2, and 4 with the magnetometer (Figure 4.3). Kelly opened secondary trenches parallel (both north and south) of main control trenches. WPA excavators opened lager blocks when they encountered features or structures (Prokopetz 1974). Kelly also prospected for continuations of ditches encountered on the North and South Plateaus. These trenches did not always follow the excavation grid (Ingmanson 1965) (Figure 4.2).

The WPA investigations on the Middle Plateau located up to ten possible structures (Figure 4.4). After Kelly identified a possible structure, the excavators defined its perimeter and cleared the structure to its “occupational floor” before additional excavation (Prokopetz 1974:32). Posthole patterns were drawn from the completely exposed “floors” and workers often only excavated to the next lower stratigraphic level (Prokopetz 1974:35). During my research at the Southeast Archeological Center I located profiles of excavation trenches from this area. Typical depths of WPA trenches did not exceed 2 ft. The structures uncovered on the Middle Plateau were found between 9 in and 18 in (Prokopetz 1974:66).

Adequate information is only available for five structures from the Middle Plateau and all are located south of the Trading Post (Figure 4.4; see Appendix A for structure sizes). There is some debate regarding the dates of these structures. Mason (1963) analyzed four of the well documented structures and concluded that they dated to the Trading Post occupation. She based this conclusion on the shallow depth below surface and level of occupation. In contrast, Prokopetz's (1974) ceramic analysis of the stratigraphy of all five well documented structures suggests that they are pre-historic in origin. Four of the five structures (House 1, 2, 5, and 8) are square or rectangular and appear to be Early Mississippian in date. One (House 8a) is circular (approximately 9 m in diameter), located directly beneath House 8, and had a combination of Vining Simple Stamped pottery and shell tempered plain pottery at the post hole level. Prokopetz (1974:66-67) addressed Mason's argument in two ways. First, he argued that depth below surface is not an accurate indicator of chronological association in a heavily plowed area. Prokopetz expected that Creek structures built on top of Mississippian structures would be the first to be destroyed, leaving Mississippian structures just below the surface. Mason pointed out that the Trading Post was still intact, but Prokopetz suggested that differential destruction rates are expected in a varied landscape such as Ocmulgee.

Prokopetz's analysis of associated ceramics is compelling enough to infer an Early Mississippian date. One problem with Prokopetz's reconstruction is his use of the term "floor." No WPA excavations identified packed clay floors or other elements of a prepared floor which suggests Prokopetz's ceramics came from a use level. The "occupational floors" Prokopetz refers to are the exposed strata inside the post hole pattern limits cleared and leveled by the WPA. This does not invalidate Prokopetz's results, but it is important to mention the stratigraphic difficulties encountered by WPA excavators on the Middle Plateau south of the Trading Post. The other five possible structures excavated by Kelly were damaged or were inadequately recorded (Figure 4.4). Available information on these houses does not indicate shape, size, or date (Prokopetz 1974).

The NPS identified two other possible structures through excavation during a compliance project in 2000 and 2001 (McNeil 2006a) in response to the expansion of a bridge connecting the Middle and North Plateaus (Figure 4.2). One of the structures dates to the historic Creek occupation and the other dates to the Mississippian occupation. The historic Creek remains consist of numerous pits and post holes in a generally rectangular pattern. The Mississippian remains consist of a large pit and several post holes (Figure 4.4). No definite shape or size of the Mississippian structure can be delineated, but I infer a square shape. The sparse distribution of post holes for both occupations suggests that the area was disturbed by plowing.

Important insights into Ocmulgee's Early Mississippian community structure emerge from the excavation data. First, Prokopetz's identification of a possible Early Mississippian round structure south of the Trading Post suggests a possible Early Mississippian settlement extended from the South Plateau, across the modern parking lot, and onto the southern portion of the Middle Plateau (Figure 4.5). According to Prokopetz, the WPA only identified one circular structure associated with Vining Simple Stamped pottery and shell tempered plain pottery on the Middle Plateau and the spatial organization and limits of this architectural type remain unknown.

Second, the WPA and the NPS uncovered Early Mississippian features both north and south of the Trading Post (Figure 4.4). This suggests that the Early Mississippian occupation spanned the Middle Plateau and the space between the North and South Plateaus was filled in with households. The spatial relationship between structures appears to resemble a residential courtyard group. The information is incomplete because the identification of some structures is tenuous and the dates of five of the possible structures excavated by the WPA are unknown. But, House 1/House 2, House 5 and House 8 (all date to the Early Mississippian) are positioned in such a way to suggest the possibility that they may have shared common open space. Furthermore, only one of these structures contained a hearth. The variation in internal organization and contents suggests that these structures served different functions. This lends some additional support that these structures were arranged as a possible courtyard group.

Willey excavated four trenches on the Southeast Plateau in 1937 and 1938 as part of his Stratified Survey (Figure 4.2). He expanded two of these trenches into excavation blocks after uncovering trash pits, but he did not identify structures. The ceramic data from Willey's excavations suggest the Southeast Plateau was occupied as far back as the Late Archaic and was re-occupied several times throughout the Woodland and Mississippian. The Woodland occupations may have disturbed stratigraphic levels of earlier occupations (Ingmanson 1965:23).

Ingmanson (1965) published Willey's ceramic tables from the Southeast Plateau Stratified Survey (my reanalysis of part of these collections can be found in Chapter 9). High frequencies of Early Mississippian ceramics recovered from trenches one and two of Spur 2 suggest that Mississippian habitation extended east beyond Mound E (Figure 4.2). The low frequencies of Early Mississippian ceramics recovered from trenches one and two of Spur 1 indicate that the boundary of the Early Mississippian occupation was between Spur 1 and Spur 2

(Figure 4.2). WPA excavations west of Mound E and east of the ditches did not reveal structures. It is unknown if the occupational area east of Mound E was separated from the main town by open space or if there was a continuous habitation zone connecting them.

I surveyed the Middle Plateau with a conductivity meter and a magnetometer, and the Southeast Plateau with a conductivity meter. My survey objective on the Middle Plateau was to measure the general density of occupation and map the distribution of square and round structures. My survey objective on the Southeast Plateau was to identify possible structures or features between the outer ditch and Mound E.

Survey Results and Discussion

Results from magnetometer and conductivity survey on the Middle Plateau indicate a dense occupation, but no anomalies can confidently be interpreted as square structures indicative of Mississippian architecture. Mono-polar magnetic anomalies representing archaeological features are found in high frequency (Figure 4.6: Blue arrows point to mono-polar positive magnetic anomalies). These may date to the Early Mississippian or Creek occupations. Plowing and erosion may have differentially preserved Early Mississippian features since there is evidence that they were located below features dating to the historic Creek (McNeil 2006a). It is probable that at least a portion of the magnetic anomalies date to the Early Mississippian and that this area would have been part of a continuous habitation zone spanning from the South Plateau to the North Plateau.

There is a high degree of variability in the conductivity data from the Middle Plateau (Figure 4.7). Degree of variability in apparent conductivity values can be used as a proxy for length of occupation, relative amount of re-occupation, and density of occupation (Bigman 2011). Longer and denser occupations in a given area should lead to more cultural modification of the landscape. This transforms a homogenous landscape into a more heterogeneous landscape with minute and abrupt variations in soil density and content. Individual features or structures may not be identifiable in a re-occupied area with high density of occupation because structure overlap, feature overlap, and rebuilding produce large amounts of variation in sub-surface apparent conductivity values. These "messy" data are important and can inform the archaeologist regarding larger landscape use patterns. My conductivity data from the Middle Plateau support the idea that the Middle Plateau was part of a continuous habitation zone during the Early Mississippian period.

There is some indication in the geophysical data that other round structures existed on the Middle Plateau. I recorded a strong magnetic anomaly in the northern portion of the Middle Plateau (Figure 4.6: Red circle). The shape of this anomaly cannot be elucidated from the total field magnetic data, but a fluxgate magnetometer survey on the Middle Plateau carried out during 2009 identified the same anomaly as a series of mono-polar positive magnetic anomalies in a circular pattern (King and Walker 2009). The strong signature from the total field magnetic survey suggests the possible structure may have been burned. Other possible circular anomalies and several "arcs" were also identified with the fluxgate gradiometer (King and Walker 2009), but these were not recorded with the total field magnetometer.

I also identified two circular anomalies in the conductivity data (Figure 4.7) that may represent structures dating to the Early Mississippian occupation. One is an oval shaped anomaly with a conductive high located in the northeastern corner. The isolated anomaly of higher conductivity may represent a hearth or fire pit. Kelly uncovered three circular structures on the South Plateau that had a mix of Vining Simple Stamped and shell tempered plain pottery at the occupational level. Two of these structures contained a fire pit in their northeastern portion (Ingmanson 1964a). The second conductivity anomaly is circular and does not have an internal anomaly representing a hearth or fire pit. The circular structure uncovered by Kelly on the Middle Plateau did not contain a hearth (Prokopetz 1974). Other circular anomalies can be interpreted from the conductivity data, but the data should be interpreted with caution. The range of values and the degree of variation make it difficult to identify particular features and structures. The general conclusion is that there may have been additional circular structures on the Middle Plateau beyond what Kelly uncovered and what my survey revealed.

The excavation, conductivity, and magnetic data suggest that an Early Mississippian occupation extended from the South Plateau, across the Middle Plateau, to the North Plateau (Figure 4.6, Figure 4.7, Figure 4.8). This new evidence challenges the sub-community hypothesis on the main bluff and indicates that this area was a continuous habitation zone.

Conductivity data from the Southeast Plateau (Figure 4.9) contained more variability than the data from the Middle Plateau. This outcome is expected based on the variety of ceramics recovered by Willey (Ingmanson 1965) during the Stratified Survey. The Southeast Plateau appears to have been re-occupied over and over for approximately 4,000 years (from Late Archaic to Early Mississippian). There was also a heavy Woodland occupation during the Middle to Late Woodland (Swift Creek phase). The re-occupation of the Southeast Plateau would have caused significant modification, creating micro contrasts in sub-surface soil content. The conductivity background clearly indicates numerous occupations, but the occupations extend much further back in time than those on the Middle Plateau. The variation in apparent conductivity values on the Southeast Plateau cannot be interpreted as having a primarily Mississippian origin. The possibilities that the Mound E neighborhood was attached to the main town or was segregated by space cannot be determined from the current data.

Chapter Summary

The Middle Plateau is located between the South and North Plateaus and is separated from each by railroad cuts. There is an eastern extension of the Middle Plateau referred to as the Southeast Plateau which consists of two spurs separated from each other by a large erosion gully. Kelly began excavations on the Middle Plateau in 1935 and Willey conducted excavations on the Southeast Plateau during 1937 and 1938. Kelly identified extensions of both ditches and up to ten possible structures. Structures on the Middle Plateau extend from the southern boundary to the northern boundary. Willey uncovered several pits east of Mound E, but no structures. Willey's results do suggest that the eastern boundary of the Mississippian occupation was between the two spurs on the Southeast Plateau. However, the presence or absence of structures between the outer ditch and Mound E is unknown.

Results from my magnetometer and conductivity survey indicate dense occupation on the Middle Plateau. There is a high frequency of mono-polar positive magnetic anomalies and a high degree of variation in apparent conductivity values reflective of a continuous habitation zone between the South and North Plateaus. No square structures could be identified in the geophysical data, but several circular anomalies could be interpreted from magnetometry and conductivity. This suggests that there may have been additional circular structures that may have been contemporary with the excavated circular structures. Finally, the conductivity data from the Southeast Plateau is too difficult to interpret. The high degree of variation reflects the long history of re-occupation, but the variation cannot be attributed to the Early Mississippian period and no anomalies can definitively be interpreted as structures.

Figure 4.1. Boundary of Middle Plateau and Southeast Plateau sector (2010 Bing Maps image).

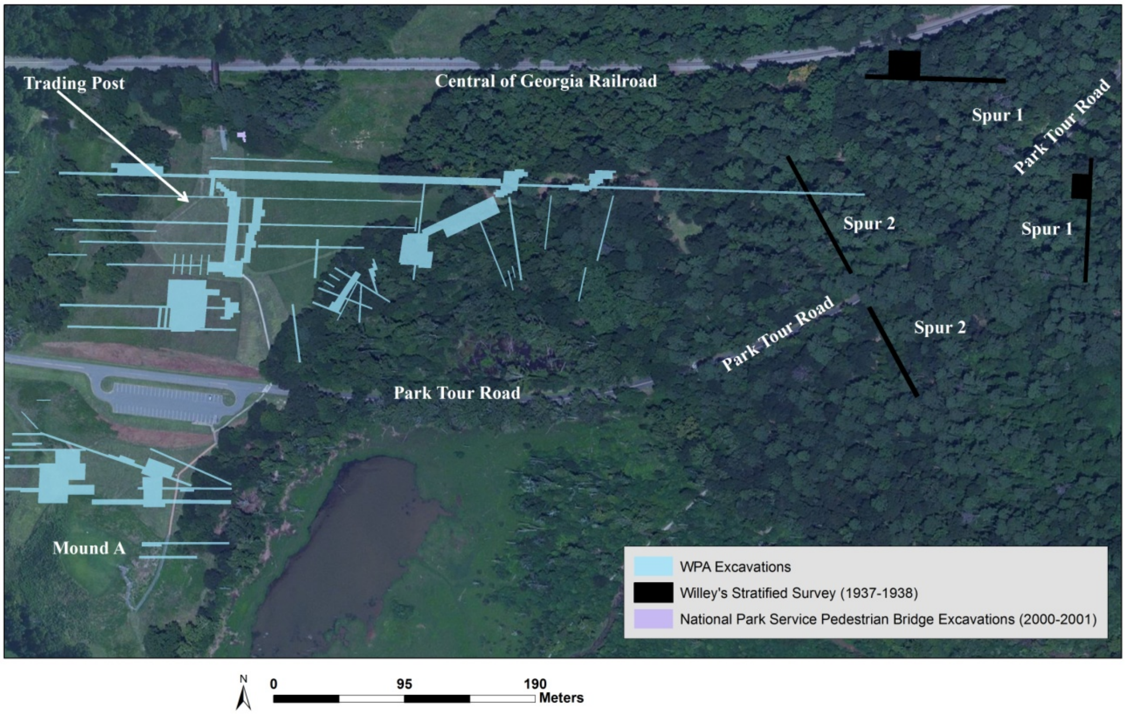

Figure 4.2. Excavations on the Middle Plateau and Southeast Plateau (2010 Bing Maps image).

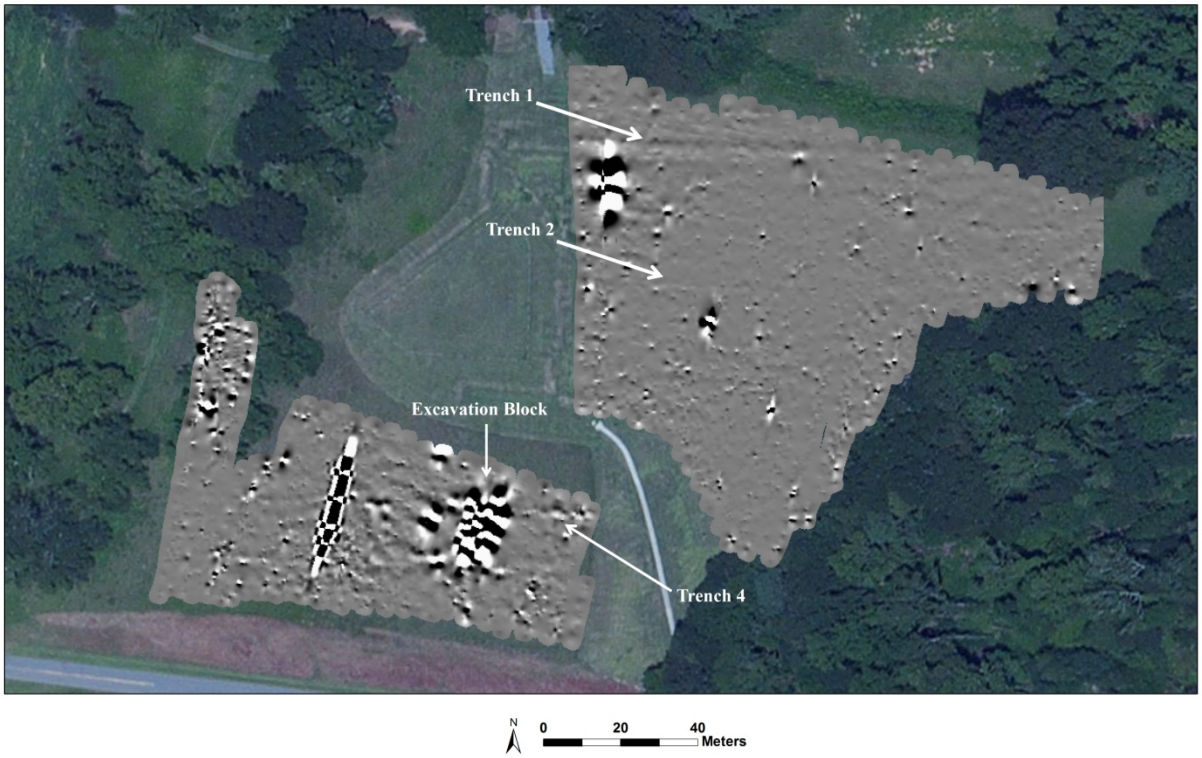

Figure 4.3. Magnetometer data from Middle Plateau showing a linear negative magnetic signature of WPA control trenches 1, 2, and 4 (2010 Bing Maps image).

Figure 4.4. Locations of structures excavated by WPA and NPS (2010 Bing Maps image).

Figure 4.5. Distribution of round structures excavated by WPA with Vining Simple Stamped recovered from floor in association with Bibb Plain (2010 Bing Maps image).

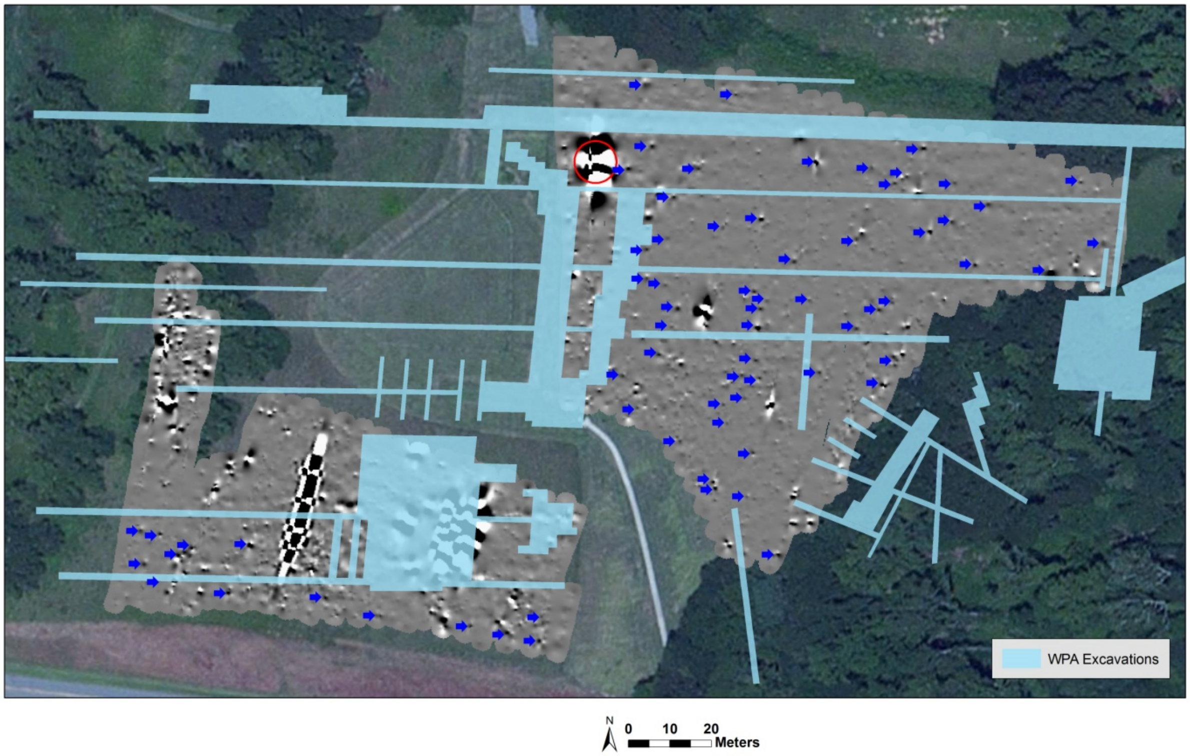

Figure 4.6. Magnetometer data from Middle Plateau. Blue arrows indicate locations of positive magnetic anomalies representing possible pits or hearths. Red circle indicates circular magnetic anomaly identified by King and Walker (2008) (2010 Bing Maps image).

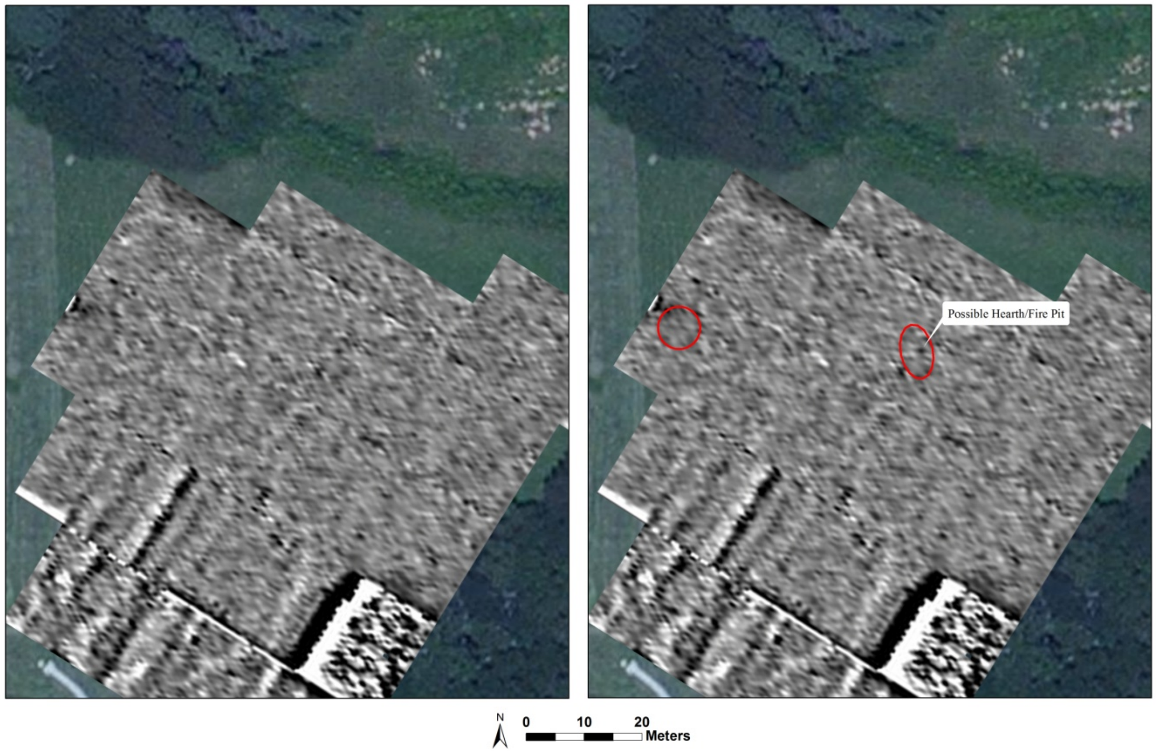

Figure 4.7. Processed EM conductivity data and interpretations of possible structures from Middle Plateau. Red circles indicate locations of circular anomalies of high apparent conductivity (2010 Bing Maps image).

Figure 4.8. Locations of excavated structures and geophysical anomalies interpreted as structures on the Middle Plateau (2010 Bing Maps image).

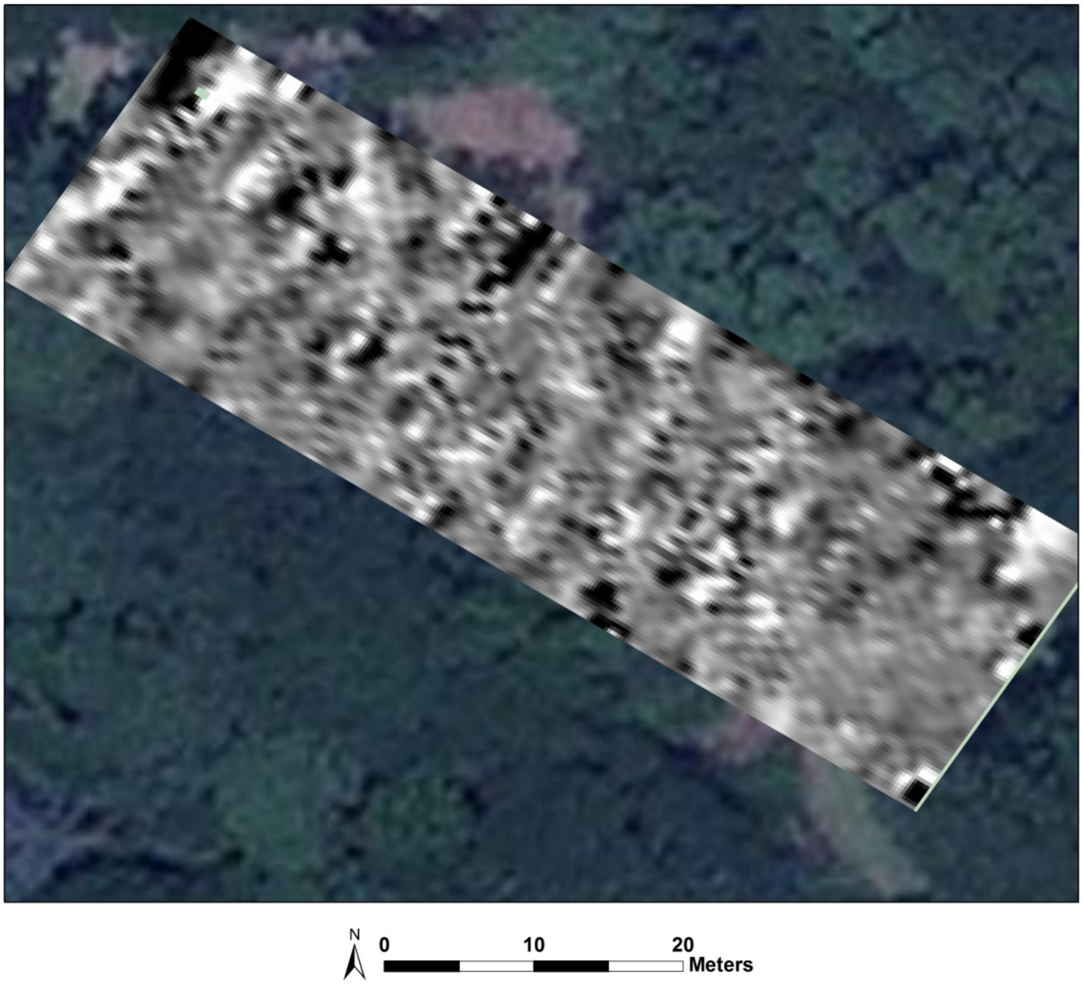

Figure 4.9. EM conductivity data from Southeast Plateau showing variation in apparent conductivity values (2010 Bing Maps image).

CHAPTER 5

NORTH PLATEAU

The North Plateau is the upland area north of both railroad cuts (Figure 5.1). It is bounded to the west and northwest by the Plateau edge, to the northeast by a stream that feeds into Walnut Creek, and to the east by Walnut Creek itself. The North Plateau study area for the purposes of this project is limited on the north by the outer ditch. The North Plateau is relatively flat between the railroad cut and the ditches on the northern portion of the North Plateau. The landscape becomes increasingly steep on the west of the bluff. Investigations of the ditches are reported in this chapter. Although the area of Mound X to the north of the outer ditch was considered part of the North Plateau by the CWA and WPA, I treat it in a separate chapter (Chapter 7). The most famous features from the North Plateau are the Mound D-1 earth lodge and the Cornfield Mound (Mound D). Kelly (Kelly 2010) excavated numerous structures, irregular posthole patterns, prepared clay floors, burials, and pits on the North Plateau.

The North Plateau has some historic and modern disturbance, but less than most other areas of Ocmulgee. Evidence of the historic disturbance includes a brick floor, several slave burials, a modern sidewalk, and extensive agricultural plowing. Kelly (Williams and Henderson 1974) uncovered a brick floor, but the function or time period is unclear. It may have been the Halstead Factory, slave quarters, or a meat drying structure (personal communication, Lonnie Davis, NPS Park Ranger, Ocmulgee National Monument). The WPA project uncovered several slave burials on the North Plateau. A sidewalk leads to the reconstructed earth lodge, circles it for 180 degrees, continues west across the North Plateau, and terminates at a bridge that connects the North Plateau with the Middle Plateau. The most significant disturbance is from plowing.

Previous Investigations

More excavation was undertaken on the North Plateau by Kelly during the 1930s than any other area of Ocmulgee (Williams and Henderson 1974:1) (Figure 5.2). Williams and Henderson (1974:4-7) reconstructed Kelly's complicated excavation strategy on the North Plateau. The North Plateau was broken up into three separate grids (Williams and Henderson 1974:4): Mound D, the western portion of the North Plateau, and the eastern portion of the North Plateau. Kelly excavated Mound D in five ft squares totaling a size of 200 ft x 210 ft (Nelson et al. 1974:4). Ten control trenches extended west from the central dividing line. These constituted the main portion of the western grid. The WPA workmen excavated additional trenches at 90 degree angles off the main trenches, but some were arbitrarily placed and did not follow the grid (Williams and Henderson 1974:5). Kelly set up 12 control trenches on the eastern side of the central dividing line. All of these trenches ran east-west except for Trench 1 which ran southeast away from the Mound D-1 Council Chamber entrance (Williams and Henderson 1974:6). Kelly opened larger blocks as archaeological features were exposed through trenching (Williams and Henderson 1974:6-7). These features included two earth lodges (Fairbanks 1946; Kelly 2010; Nelson et al. 1974; Williams and Henderson 1974), two ditches (Kelly 1938, 2010; Williams and Henderson 1974), remains of post holes and baked clay floors of up to eight possible structures (Kelly 2010; Nelson et al. 1974; Williams and Henderson 1974), a pre-historic "agricultural field" (Kelly 2010; Reid 1998, 1999; Nelson et al. 1974), 38 burials (Williams and Henderson 1974), and over 220 pits (Williams and Henderson 1974) (see Figure 5.3 for the locations of some of these features).

Kelly began excavations on the Mound D complex in 1933 under the auspices of the CWA. He uncovered a hard clay cap, four inches thick, on top of Mound D (Nelson et al. 1974:10). A series of post holes roughly circular in shape were identified by Kelly on top of the mound and may represent a late circular structure (Nelson et al. 1974:10). Immediately below the clay cap was a rectangular shaped hard blue clay floor with a rectangular shaped post hole pattern. The excavators only identified three lines of post holes enclosing the blue clay floor (Nelson et al. 1974:12). This suggests that the structure was rectangular and Kelly called it the "Granary." Kelly drew this structure with a semi-circular side where the blue clay floor ended, but the Nelson et al. (1974:13) suggested that there was little basis for this interpretation and that the roughly semi-circular post hole pattern may have been to an earlier or later structure. There is also little evidence to suggest it functioned as a granary.

The WPA began excavations of the "Terrace House" in 1935. This structure was located in the southwestern quadrant of Mound D, below mound fill. It would have been a free standing structure dating to an earlier episode of mound construction, but was buried as the mound expanded in size. The "Terrace House" sat on a three-foot high platform (Nelson et al. 1974:17) and was fully rebuilt once. The more recent of the two structures was constructed with wall trenches (Kelly 2010; Nelson et al. 1974). The earlier structure was built using single set posts.

Kelly uncovered another structure at the ground level below Mound D and designated it "Sub-mound Structure." It was rectangular and constructed in the single set post style.

Excavators uncovered a series of small raised earthen rows between the Sub-mound Structure and the Terrace House. Kelly (1938; 2010) called this layer the “cornfield,” but no evidence suggests it was cultivated for corn (Reid 1998, 1999). Nelson et al. (1974) suggest the rows were used in agricultural practices and the “appearance of paths running through the rows, suggest[s] that the field had been divided into plots.” The rows were oriented northwest-southeast, which is the same direction as the Terrace House. A study of sediment particles, soil chemistry, stable isotopes, and phytoliths supports the idea that Mound D was built on an earlier agricultural field (Reid 1998, 1999).

The CWA and WPA excavations uncovered several other possible single set post structures on the North Plateau. In early 1934, Kelly excavated an irregularly shaped, hard clay floor and incomplete posthole pattern half-way between Mound D and the Mound D-1 earth lodge. He named it the “Halfway House” (Williams and Henderson 1974:17). A series of stratigraphically superimposed post holes known as the “Stratified Village Site” was recorded southwest of the Mound D complex by Kelly during the summer of 1935. The Stratified Village Site contained an incomplete set of post holes, but Williams and Henderson (1974:28-29, Figure 4) allude to the possibility of three separate structures. The corners of two possible structures run parallel on both walls. The corner of a third structure is located to the northeast. Williams and Henderson (1974:29) admit that this is a “loose interpretation at best” since the scatter of posts holes in this area is “confusing.” Kelly identified numerous pits in the Stratified Village Site, but many may be intrusive (Williams and Henderson 1974:29). Finally, in April 1935 Kelly revealed the remains of an “L” shaped structure below the earthen embankment of the Mound D-2 Earth Lodge. Following more careful excavations, Kelly interpreted it as two separate structures. Both structures contained complicated interior partitions and neither had a packed clay floor (Williams and Henderson 1974:23).

Despite the amount of architecture identified during the CWA and WPA work, much of the trenching was widely spaced, and a large area was left uninvestigated immediately south and west of Mound D. Filling this data void is critical for understanding the North Plateau's relationship to the rest of the site and testing the sub-community hypothesis. Based on Kelly's work we do not know if habitation extended to the railroad cut. As I addressed in Chapter 4, evidence of native features extended to the northern limits of the Middle Plateau (just south of the railroad cut). If evidence of habitation does extend south of Mound D on the North Plateau, then it can be presumed that there was a contiguous habitation zone on the main bluff that spanned from Mound A to Mound D. If there is no additional evidence, then the data would suggest that the Mound D complex and associated structures were segregated from the structures located on the South and Middle Plateaus.

Kelly (1935, 1938, 2010) also spent a significant amount of time investigating two series of "pre-historic dugouts" (Kelly 1935, 1938, 2010) or "trenches" (Williams and Henderson 1974:32) on the North Plateau that continued to the Middle and South Plateaus. These trenches consisted of interconnected pits 3 ft to 9 ft deep (Williams and Henderson 1974:32). Kelly (1938:12-14, 2010:145) observed clay partitions between the undulations of pits that varied in height and thickness, but others (Hally and Williams 1994; Williams and Henderson 1974:32) have suggested that these undulations form two continuous ditches. The ditches on the North Plateau assume the shape of two parallel arcs; the outer ditch measured 1200 ft in length and averaged 25 ft in width, and the inner ditch measured 1100 ft in length and 15 ft in width (Williams and Henderson 1974:32). Excavations of the western extensions of the ditches terminated when it became “difficult for the archaeologist to discern” (Williams and Henderson 1974:32) if the ditches continued westward.

Kelly (1938:12-14) theorized three possible functions for the ditches. First, the ditches were the results of quarrying for soils used to build mounds and house floors. Second, they were used as semi-subterranean pithouses. Or, the ditches were defensive features used to protect the bluff top position. The pithouse theory has been rejected by Williams and Henderson (1974:35). They propose that the ditches were part of a master defensive plan, but were explicitly multi-functional in nature. The soil and clay removed from the ditches may have been used to construct mounds and houses, and subsequently as a trash dump. The ditches could also have been constructed to separate space, restrict access, and control foot traffic. A similar pattern of multi-functional ditch and wall enclosures has been observed at Etowah during its Late Wilbanks phase occupation (Bigman et al. 2011).

In 1974, Williams and Henderson could not adequately reconstruct the chronology of the ditches. The position was modified in 1994 when Hally and Williams re-examined the ceramic counts from a sample of “dugouts” and observed that a higher frequency of shell-tempered Bibb Plain pottery was recovered from the outer ditch. Based on the higher frequency of shell tempered Bibb Plain pottery, they (Hally and Williams 1994) concluded that the outer ditch was constructed first. Further investigation must be conducted on the ditches to determine if they terminated in the northwestern portion of the plateau, or if they continued on.

In summary, Kelly uncovered several structures on the North Plateau that may have been used as residences. Most of these structures were single set post constructions, but at least one episode of the Terrace House was built using wall trenches. Due to wide spacing between trenches and a large uninvestigated area south of Mound D, it was unknown if habitation continued south to the Middle Plateau or if the Early Mississippian occupants built between the two ditches. The presumed termination of the two ditches in the northwest is also unsubstantiated. A possibility is that there was a break in the ditch marking an entrance. Kelly excavated additional trenches to the west of the presumed ditch termination and he did not observe its continuation. I surveyed the North Plateau with a magnetometer, conductivity meter, and GPR to identify habitation zones and west of the ditches with electrical resistivity and GPR to address their termination or possible continuation to the bluff edge.

Survey Results and Discussion

My survey points to three important findings in the North Plateau. First, my conductivity and magnetic surveys identified evidence of habitation west and south of the Mound D complex. Second, I recorded minimal evidence of occupation with the total field magnetometer between the two ditches. Finally, results from my investigations near the western edges of the ditches suggest the ditches continued beyond the WPA excavation limits. This suggests that people occupied the entire main bluff during the Early Mississippian and that the main bluff was enclosed by the ditch.

Conductivity survey immediately south and west of the Mound D complex recorded four anomalies that I interpret as possible structures (Figure 5.4; see Appendix A for estimated structure sizes). These are located around generally open space with a single small circular anomaly between them. The spatial relationship between these possible structures suggests that they may be part of a household cluster or residential courtyard group. Similar arrangements of houses have been documented at other Early Mississippian sites such as Etowah (Walker 2009) and Moundville (Wilson 2008). The Terrace House uncovered by Kelly in the 1930s may be part of this residential plaza group.

The conductivity anomalies I recorded south of Mound D vary in size, amplitude, and conductive signature. This variation may reflect differences in construction technique, length of use, and function. For example, one anomaly (Figure 5.4a) has a large conductive low surrounded by higher conductive values. The low may be a large central feature such as a packed clay pit. Another anomaly (Figure 5.4b) does not have evidence of such a large central feature, but does have much variation in conductive values. These clustered highs and lows may reflect internal storage pits or possibly disturbance from plowing. It is likely that the anomaly is reflective of both. However, the pits may be contemporary with the structure, later intrusions, or both. The Stratified Village Site located to the west of this anomaly also contained numerous pits (Williams and Henderson 1974). Finally, a third anomaly (Figure 5.4c) interpreted as a structure shows a slight conductive low surrounded by a slight conductive high. This may reflect a packed clay floor surrounded by organic posts with no internal features. The variety of possible structures is similar to a pattern found on the Middle Plateau (Prokopetz 1974). In that case, shapes and sizes of structures varied and not all structures had internal storage or fire pits.

The total field magnetic data also indicate that there may have been a higher density of habitation on the North Plateau than the WPA excavations have suggested. The recording of mono-polar high magnetic anomalies suggest that there are additional features filled with decayed organic materials, ash, or burned contents (Figure 5.5: Blue arrows). The magnetometer also recorded anomalies that may reflect two possible structures to the south of the Mound D complex (Figure 5.5: Red arrows). These combined with the Halfway House may represent another residential courtyard group associated with Mound D and the Mound D-1 Earth Lodge. I also identified a long linear magnetic anomaly in the western half of the North Plateau (Figure 5.5: Orange arrows). This is difficult to interpret since there is no other precedence for such a feature at Ocmulgee. Researchers (Bigman et al. 2011; Butler et al. 2011) have interpreted similar anomalies from other large Mississippian mound sites as walls. The magnetometer also identified numerous excavation trenches and the edges of some excavation blocks (Figure 5.5: Green arrows).

My geophysical survey does not indicate dense habitation between the two ditches. The magnetometer recorded a small number of anomalies between the two ditches. Many of these are di-polar anomalies from metal sources. Positive magnetic anomalies occur in low frequency between the ditches (Figure 5.5).

The conductivity and magnetic data suggest that habitation was present on the southern portion of the North Plateau (Figure 5.6) and may have continued into the space destroyed by the Central of Georgia Railroad. It also suggests that habitation continued west on the North Plateau and filled in space between the Mound D complex and the western edge of the main bluff and the Mound D-2 Earth Lodge, House A, and the Stratified Village Site. These findings challenge the sub-community hypothesis on the main bluff and support the alternative possibility that the main bluff was a more continuous habitation zone.

I surveyed two pseudo-sections over parts of the inner ditch that were left unexcavated during the WPA work (Figure 5.7: Transect 1 and Transect 2) and an additional pseudo-section to the west of the observable edge of the inner ditch (Figure 5.7: Transect 3). The two pseudo-sections collected over filled-in portions yielded high resistance anomalies (Figure 5.7: Transect 1 and Transect 2). Other researchers (Maillol et al. 2004; Murdie et al. 2003) also observed similar signatures in electrical resistivity surveys over filled-in ditches. The form and shape of the high resistance anomaly seen in Transect 1 and Transect 2 mimics the general shape of the ditch.

Transect 3 also yielded a high resistance anomaly that I interpret as the western extension of the inner ditch (Figure 5.7: Transect 3). The shape of the high resistance anomaly in Transect 3 varies from the expected shape derived from Transects 1 and 2. A likely explanation for this difference is that Transect 1 and 2 were surveyed at a 90 degree angle to the ditch because the location was known. Transect 3 may have crossed the ditch as a different angle. The location of the anomaly in Transect 3 is slightly more to the south than the anomaly in Transect 2 which suggests that the ditch was turning. I surveyed transect three at the same orientation as Transect 2, but more of the Transect 3 survey line may have been in contact with the ditch.

I surveyed four resistivity transects west of the outer ditch that also yielded a pattern of high resistance anomalies (Figure 5.8). The high resistance values extend from the observable edge of the outer ditch to the southwest. The high resistance anomaly is not a linear shape, but meanders. This mimics the excavated portion of the outer ditch. The outer ditch is less organized and less standard in width and depth compared to the inner ditch. The high resistance anomaly next to the outer ditch exhibits a similar pattern.

A GPR transect west of the outer ditch revealed an anomaly that I interpret as a filled-in ditch (Figure 5.8). The anomaly is 7 m long and shows a series of jumbled reflections of varying amplitudes beginning between 8 ns and 12 ns below the surface (Figure 5.8: Red lines indicate limits of anomaly). Similar patterns have been observed in recent GPR surveys over filled-in paleo-channels (Lanzarone 2011). The heterogeneity of fill density, compactness, porosity, material, and content, through a variety of processes including garbage disposal, runoff deposition, and active filling creates a complicated subsurface where radio waves reflect, re-reflect, and bounce between discontinuities. The complicated sub-surface constantly reflects energy back to the ground surface in varying quantities and amplitudes. This results in an abundance of reflections through time for any given trace. The GPR profile west of the outer ditch's edge resembles this pattern.

The geophysical investigations I conducted west of the two ditches do not support the idea that the ditches terminated in the northwestern part of the North Plateau. High resistance anomalies west of both ditches are the expected signature of an excavated ditch that was refilled with similar parent material and therefore more loosely packed than the background soil. This would lead to higher proportions of air in the fill soil and lower retention of water, which makes the fill more resistive to an electric current. The GPR transect I surveyed west of the outer ditch also conforms to the expected results for a filled-in ditch. I infer from the geophysical survey that the ditches continued to the west, possibly as far as the bluff edge. Their functions and importance in Ocmulgee's history must be reassessed chronologically at the community scale.

Chapter Summary

The North Plateau is the uplands north of both railroad cuts on the main bluff. WPA excavators uncovered numerous features including two earth lodges, two ditches, remains of post holes and baked clay floors of up to eight possible structures, a pre-historic agricultural field, 38 burials, and over 220 pits. Despite the size of the WPA excavations, the distribution of habitation areas and the possible extension of the ditches remained unknown.

My conductivity and magnetic surveys identified evidence of habitation west and south of the Mound D complex. I recorded minimal evidence of occupation between the two ditches with the total field magnetometer. Results from my resistivity and GPR investigations near the western edges of the ditches suggest the ditches continued beyond the WPA excavation limits. These findings challenge the sub-community hypothesis for the main bluff at Ocmulgee and support the alternative possibility that the main bluff was a continuous habitation zone.

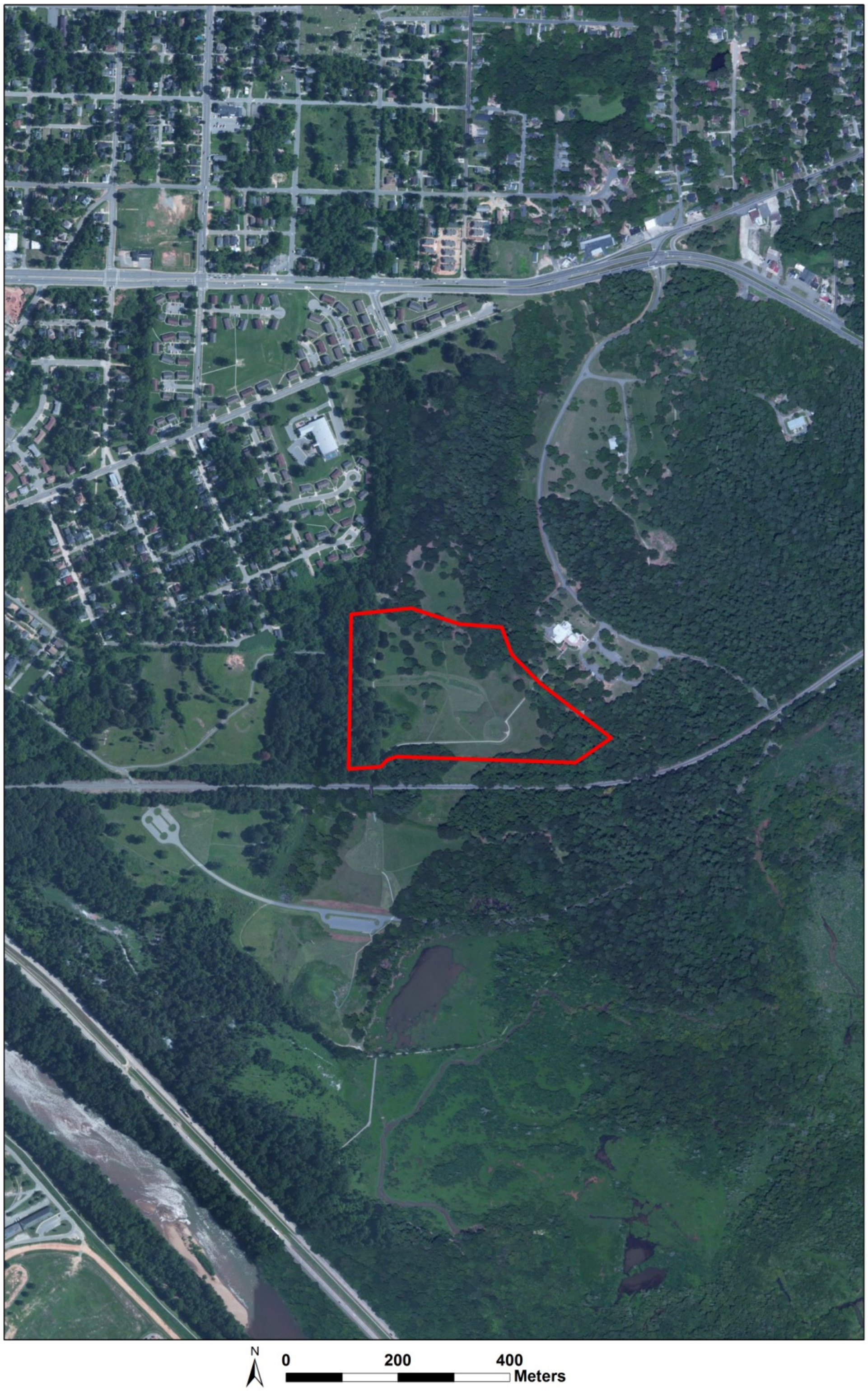

Figure 5.1. Boundary of North Plateau sector (2010 Bing Maps image).

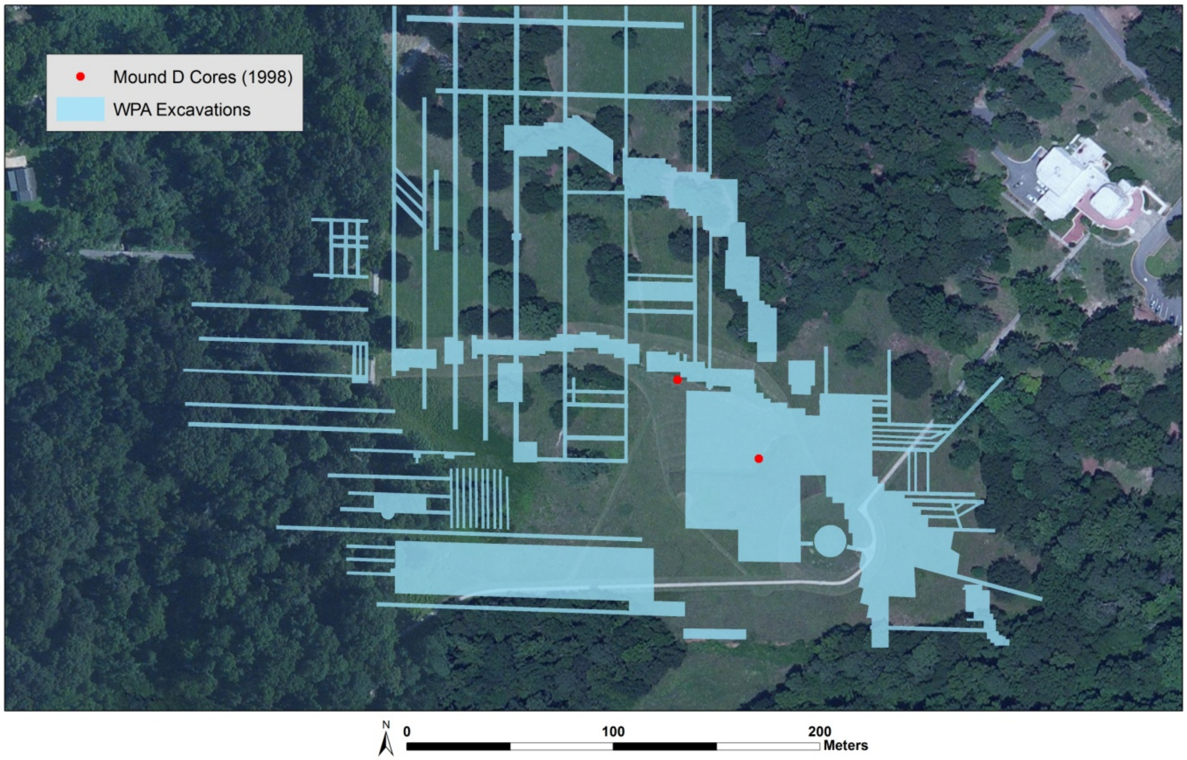

Figure 5.2. Locations of excavations on North Plateau (2010 Bing Maps image).

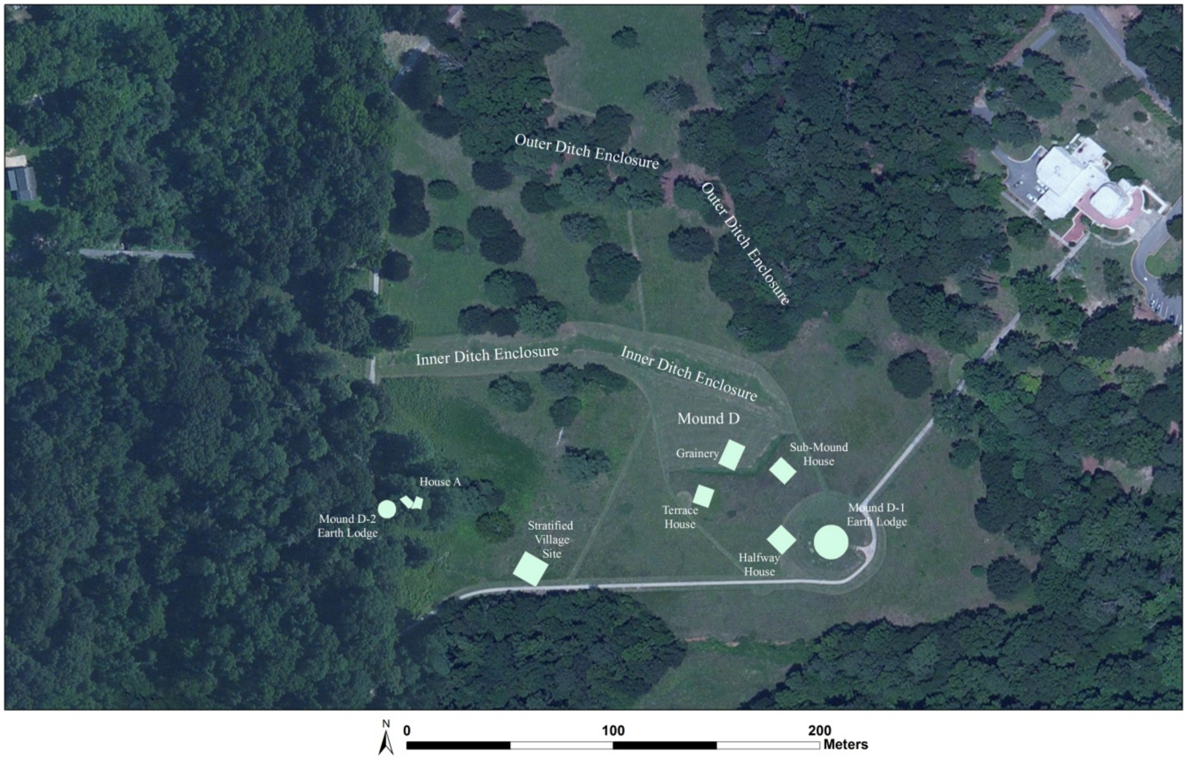

Figure 5.3. Excavated structures and ditches on the North Plateau (2010 Bing Maps image).

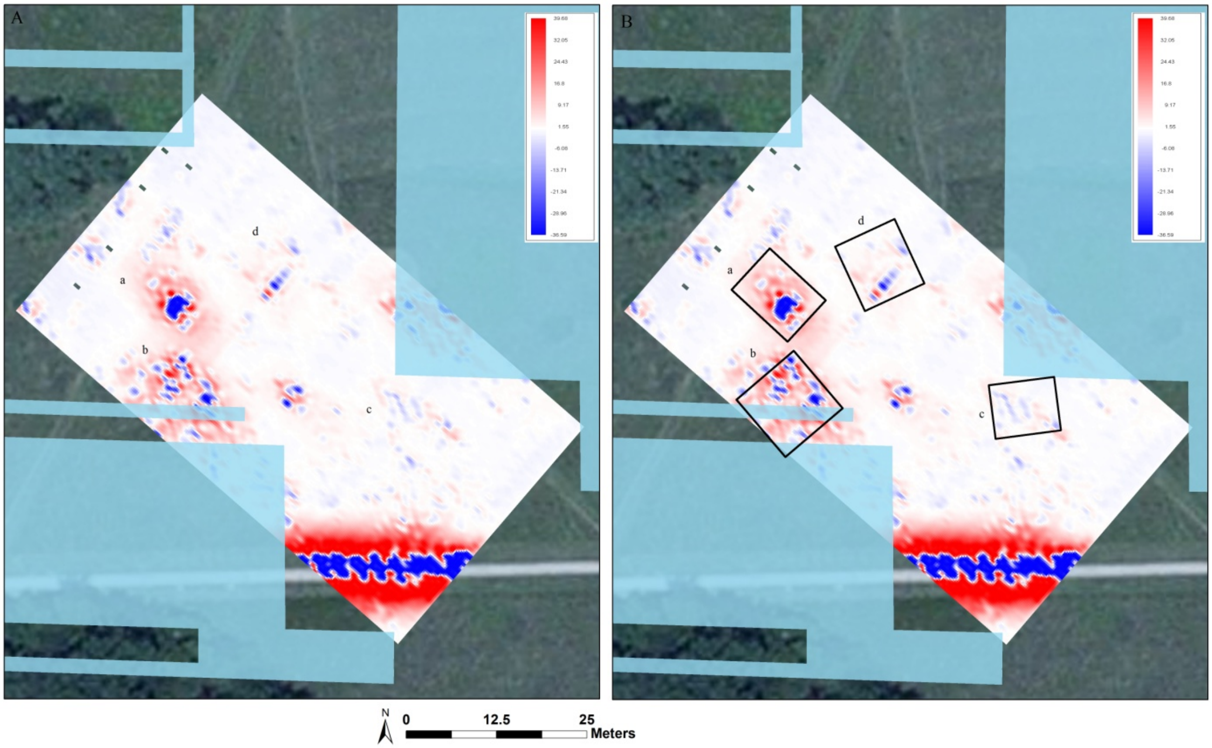

Figure 5.4. (A) Processed EM conductivity data and (B) interpretation of four structures from North Plateau (2010 Bing Maps image).

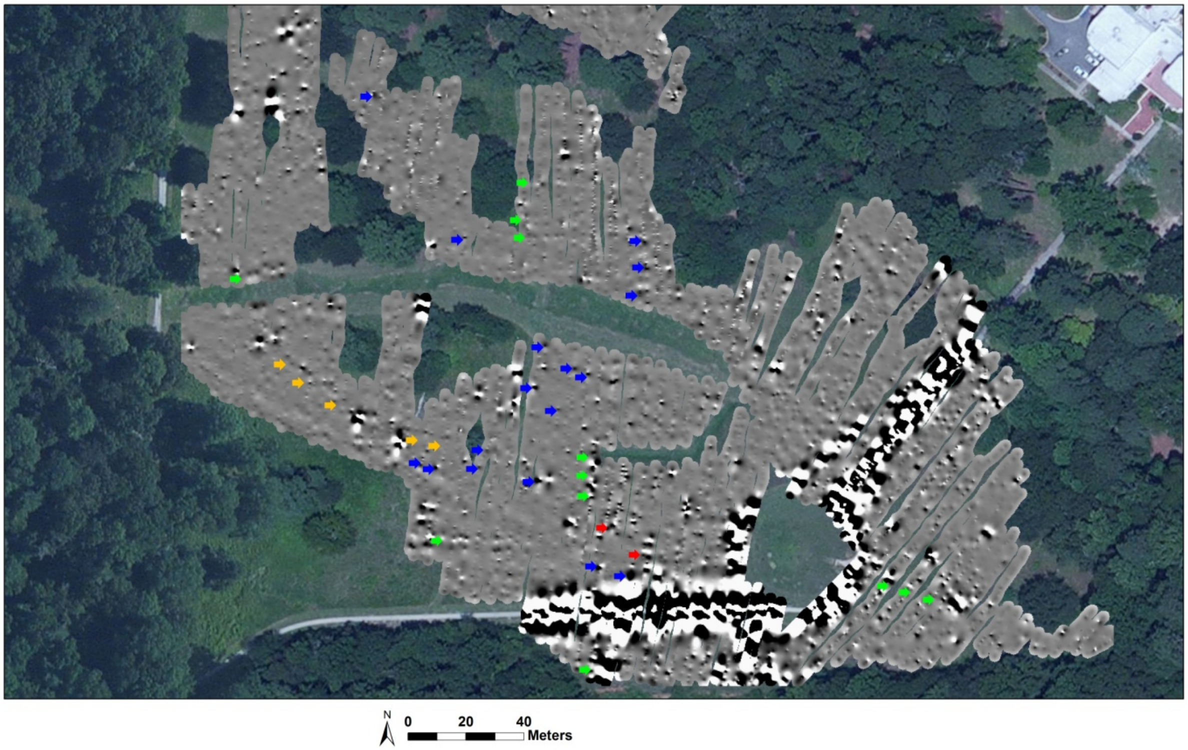

Figure 5.5. Magnetometer data from North Plateau. Blue arrows indicate positive magnetic anomalies reflecting possible features, red arrows indicate possible structures, orange arrows indicate a linear magnetic anomaly, and green arrows indicate anomalies reflecting WPA excavation trenches (2010 Bing Maps image).

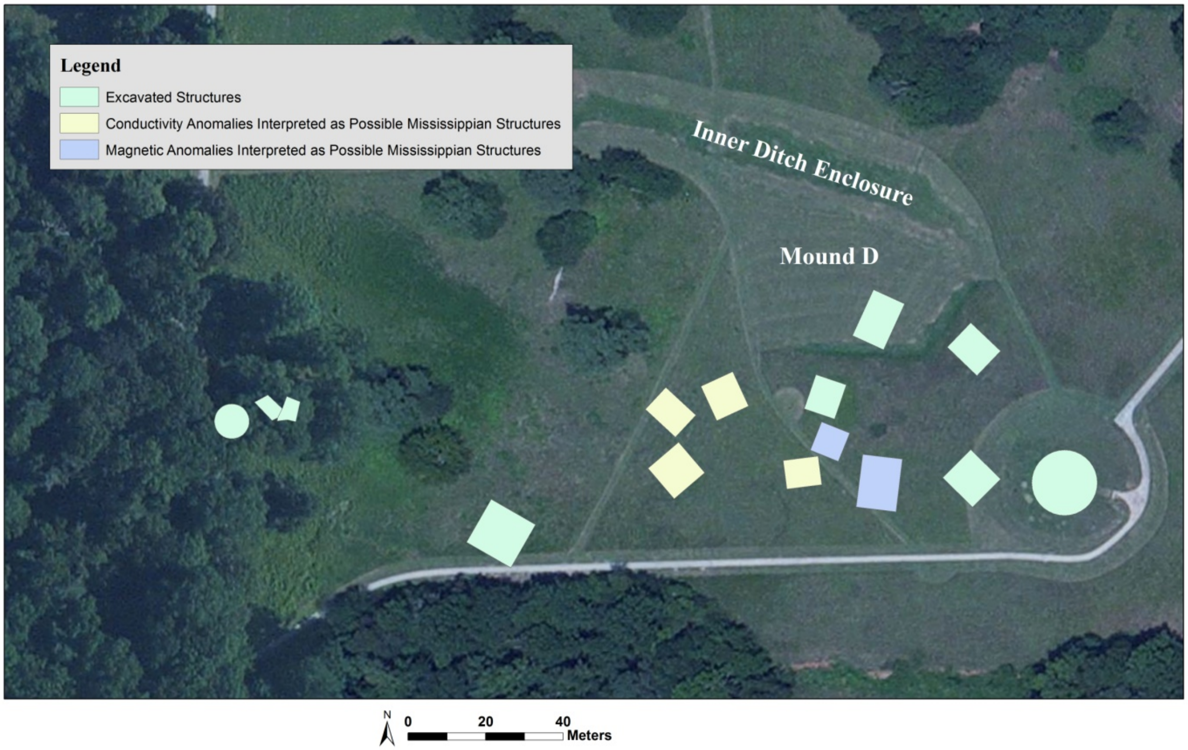

Figure 5.6. Locations of excavated structures and geophysical anomalies interpreted as structures on the North Plateau (2010 Bing Maps image).

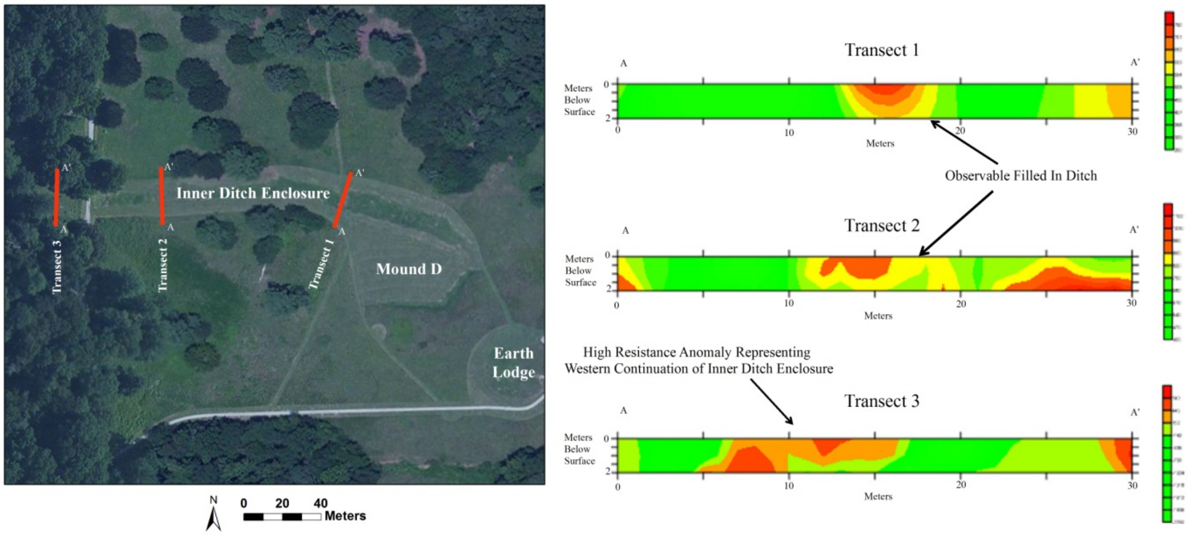

Figure 5.7. Electrical resistivity data collected from the inner ditch on the North Plateau. Data is presented as 2D profiles (pseudo-sections) (2010 Bing Maps image).

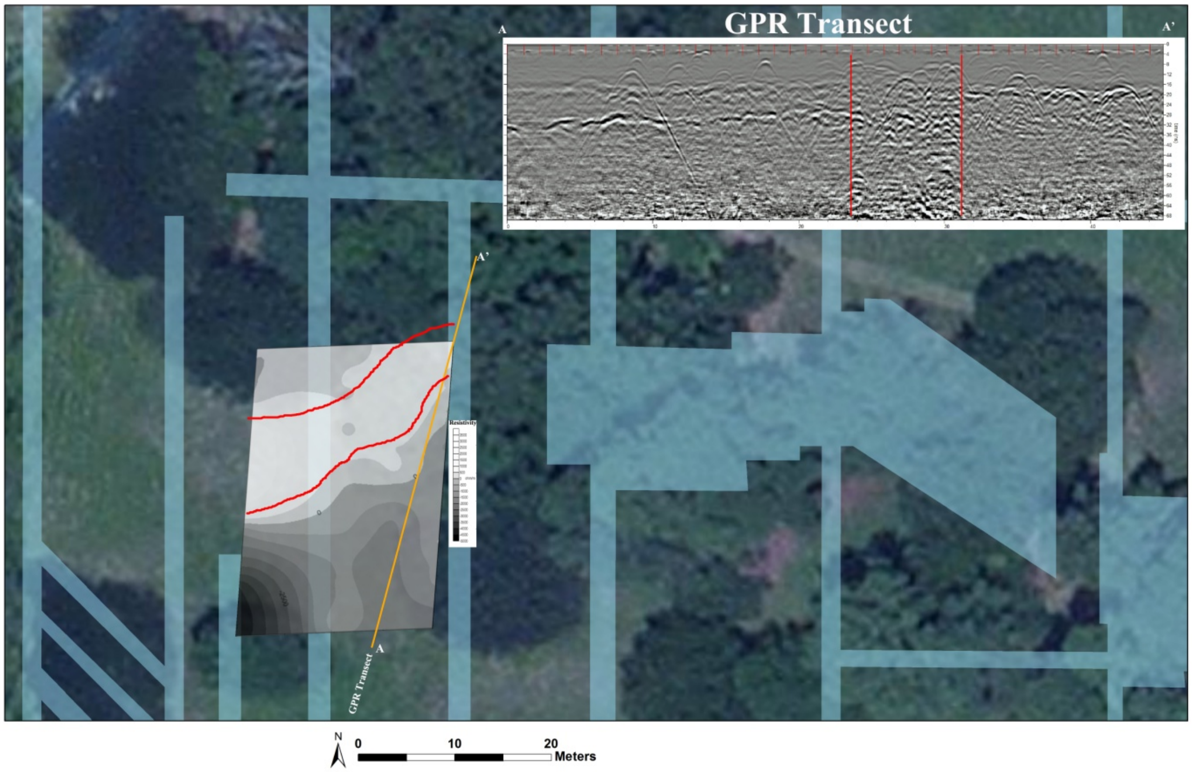

Figure 5.8. Electrical resistivity data from the outer ditch on North Plateau with 2D radargram indicating western extension of outer ditch (2010 Bing Maps image).

CHAPTER 6

MOUND C BLUFF

The Funeral Mound (Mound C) is on a bluff in the southwestern corner of Ocmulgee. The mound got its name from the abundance of burials in the mound and surrounding areas. The Mound C bluff (Figure 6.1) is bounded on the south and west by a park tour road that terminates in a parking lot designed for viewing Mound C. The bluff is separated from the Middle Plateau to the east by a marshy area. The bluff continues north of Mound C into Drake's Field. Drake's Field, donated to the park in 1991, is approximately four ha in size and was once a series of little league baseball fields. This plot is bounded by a steep gradient on the east and a fence to the north and west.

Drake's Field has been subjected to much historical disturbance. Its southern extreme was damaged during the construction of the Central of Georgia Railroad. The railroad now separates Drake's Field from Mound C and destroyed a large portion of the northern side of the mound. Other artificially moved earth can be observed. There are several examples of retaining walls holding up steep embankments that are flat on top and likely supported historic houses.

There are also historic and modern infrastructural modifications to the Mound C landscape. Anomalies representing utility lines or water mains show up clearly in the magnetic data (Figure 6.2). There is also a linear pile of earth cutting across Drake's Field resulting from the burial of the water main. The dirt build-up is not directly over the features and as a result adds additional disturbance.

A road now meanders through Drake’s Field but it may have been used during the early 20th century. This road, along with several houses, appears in aerial photographs taken during the 1930s. The Georgia Department of Transportation identified another historic road during a GPR survey immediately south of Mound C (Gail 2006). My magnetic survey also identified the same anomaly, which appears to be a linear feature running approximately northwest to southeast (Figure 6.2).

Previous Investigations

The earliest archaeological observations in this area were made by Jones in 1873 (1999). In *Antiquities of the Southern Indians, Particularly of the Georgia Tribes*, Jones recounted:

> …in excavating for the new track of the Central Railway, the workman a short time since unearthed, a few feet below the surface, several skeletons, in connection with which were found beads of shell and porcelain, a part of a discoidal stone, several arrow and spear points, two stone celts, a clay pipe, an earthen pot, and other matters of a primitive character fashioned for use or ornament.

> This excavation for the line of the railway necessitated the removal of considerable portion of the northern side of the central [funeral] mound. In the conduct of this work, the laborers, while cutting through the slope of the mound, and at a depth of perhaps three feet below the superior surface, exhumed several skulls, regular in outline and possessing the ordinary characteristics of American crania. Associated with these skeletons were stone implements…and Venetian beads and copper hawkbells acquired through commercial intercourse with the early traders and voyagers. The fact was patent that at least some of these inhumations had occurred subsequent to the period of primal contact between the European and the Indians.
>
> Passing below these interments-which were evidently secondary in their character-and arriving at the bottom of the mound, a skull was obtained which differed most essentially from those we have described as belonging to a later inhumation. It was vastly older than those of the secondary interments… [Jones 1999:159-160].

The observations made by Jones suggest that at least several skeletons were located just beyond the northern periphery of the Funeral Mound and that several skulls, dating to both the Early Mississippian and historic Creek occupations, were placed within the northern limits of the mound.

The mound began to erode and was subject to looting over the subsequent 60 years. Professional excavations began in the 1930s under the direction of Kelly as part of the CWA and WPA initiatives (Figure 6.3). These investigations focused on what remained of the mound and considerable portions were removed from its northern and southern sides. Kelly also carried out limited testing in the ground level surrounding the mound (Fairbanks 2003 [1956]; Kelly 1938). Ninety-four burials (114 individuals) were exhumed from the mound and its vicinity to the south, east, and west (Powell 1994:116).Sixteen of these burials were located at the ground level (Fairbanks 2003 [1956]:34-35).

Kelly (Fairbanks 2003 [1956]:34-35) excavated east-west trenches beginning 35 ft south of the mound and continued excavating parallel trenches north until he located the mound base (Figure 6.3). He also excavated a single long trench extending across the Mound C bluff towards the Middle Plateau. An additional 45 test pits measuring 10 ft by 20 ft were excavated at the ground level to the east and southeast of the Mound, but I could not identify the locations of these pits.

Unfortunately there is little to no stratigraphic provenience for the WPA excavations in the Mound C vicinity. Artifacts from the mound are separated into “sub-mound” and “mound” proveniences despite the high quality profile drawing of the mound construction episodes. The large trench cut across the bluff, east of Mound C, has horizontal proveniences in only some cases, but lacks vertical control. The pits excavated by Kelly cannot be located in greater detail other than being on the western side of the marsh that separates the Mound C bluff from the Middle Plateau.

WPA excavators identified a few other archaeological features of significance (in addition to burials) at the ground level. A series of “connected pits” was found to the west of Mound C (Fairbanks 1954:83). These pits were “filled with brown soil and contained Bibb Plain and Hawkins Fabric Marked sherds, good Macon Plateau types. They evidently represent the bases of [a] fortification [trench]" (Fairbanks 1954:83). However, the WPA only encountered this segment in one excavation trench and there is a possibility that it may have been misinterpreted (Hally and Williams 1994:91-92).

Kelly also uncovered "a few small refuse pits and one rather extensive area of burned clay" (Fairbanks 2003 [1954]:82). Fairbanks suggested that "the burned clay area was the remnant of a house floor, but no postmold pattern was discovered, and there was no fire basin" (Fairbanks 1954:82). The function and date of this irregularly shaped burned clay remains unknown.

The refuse pits, measuring 2 ft by 1 ft in span and 2.5 ft deep, were similar to those found in Mound C. Kelly recovered a highly polished green slate bilobate spud measuring 518 mm long from one of these pits. Fairbanks suggested that "the stone is an extremely soft green slate that seems too fragile for any utilitarian purpose" and although "no burial was found with this spud, it seems certain that it belongs with the Macon Plateau complex" (Fairbanks 2003 [1954]:82-83).

Gordon Willey returned to the area in 1937 and excavated 15 test pits to the west of the mound as part of his Stratified Survey. This area was labeled the West Village and Kelly's excavations became identified as the East Village. Most of the artifacts recovered from Willey's stratified excavations consisted of proto-historic (Lamar) and historic Creek (Ocmulgee Fields and Walnut Roughened) ceramics (Fairbanks 2003 [1956]:36). This may suggest that Mound C delimits the western boundary of the Early Mississippian occupation at Ocmulgee.

No fieldwork was carried out in this area for over 50 years after Willey's investigations. The area north of the railroad was eventually tested after a land grant in the early 1990s

(Cornelison 1993) (Figure 6.3). The NPS excavated fifty shovel tests measuring 40 cm in diameter along the outer edge of Drake's Field to an average depth of 57 cm. Forty-seven of these were positive. Historic Creek artifacts were abundant while only one artifact dating to the Mississippian period was recovered. The NPS placed two small test units (1 m x 1 m and 50 cm x 50 cm) at the southern edge of the plot, just north of the railroad cut and probably close to the area of observations made by Jones. These were excavated to a depth of 67 cm and 55 cm below the surface. No evidence of burials was obtained during the testing, which may suggest that Jones identified the northern limit of the cemetery. However, the minimum depth of any burial excavated by the WPA was 90 cm and the depth ranged up to 3.7 m (Fairbanks 2003 [1956]:Table IV). The shovel testing was designed to assess rapidly the extent of occupation in the plot.

The NPS carried out more fieldwork in 1992 to the west of the Funeral Mound (Cornelison 1992) in response to the construction of a new parking lot curb (Figure 6.3). NPS archaeologists excavated five shovel tests; all contained historic Creek pottery and none contained burial remains. Halchin (2004) set three additional shovel tests on the eastern limit of the parking lot in 2004 while the NPS removed pedestrian steps from Mound C (Figure 6.3). Only three were positive. The archaeologists recognized heavy disturbance from the railroad cut during both projects.

Several working hypotheses can be derived from previous archaeological work conducted around Mound C. Based on Willey's Stratified Survey and recent park service compliance work it appears that the limits of the Early Mississippian community can be defined to the west and north of Mound C. The spatial extent and density of burials at the ground level however, remains unknown. Only one possible structural floor was identified and could not be accurately dated. A small number of refuse pits were uncovered, but some artifacts found in them suggest that they were not necessarily associated with a residence. Based on previous work it does not seem likely that the area surrounding Mound C served as an Early Mississippian residential area. However, the idea that this area was functionally specialized for ritual purposes or served as a cemetery for a limited segment of society has been challenged (Williams 2003). I carried out conductivity, magnetometry, and GPR investigations around Mound C and in Drake's Field to test these possibilities.

Survey Results and Discussion

Survey results indicate that the cemetery is denser and larger than previously believed. The cemetery appears to have extended to the north beyond the railroad cut into Drake's Field. There is a falloff in the density of conductivity anomalies to the southeast and northeast. Few isolated anomalies of lower conductivity appear in the margins of the survey block, suggesting the survey located the general boundaries of the cemetery.

Before I present my data, I will review case studies in archaeology and forensics to provide geophysical expectations of burials. In a survey conducted by Bevan (1991) at Kettering Shaker cemetery, two distinct anomalies were identified as possible graves. Both provided a lower apparent conductivity compared to the surrounding soil matrix. Bevan suggested that "the most distinctive feature of a grave may be the disturbed soil in the filled excavation. Through the l-2 m depth of a grave shaft, the soil may change markedly" (Bevan 1991:1310). Mixing of topsoil with sub-soil, differences in compaction, and air cavities in fill dirt may also contribute to variation in apparent conductivity.

More recently, a forensic simulation was conducted on pig cadavers at several test sites in Great Britain using electrical resistivity (Juerges et al. 2010). They found that those pigs left exposed to the geochemical processes in the soil were less resistive (more conductive) than the surrounding soil while pigs wrapped in plastic were more resistive (less conductive) than the surrounding soil. The limited exposure of the wrapped pigs to geochemical processes may limit decay and ultimately the effect of organic material on the soil. This suggests that secondary burials, which refer to a mortuary practice where bodies are initially buried elsewhere and then reburied after the flesh has decayed, should be more resistive/less conductive. Excavations at Ocmulgee documented secondary burials.

Early Mississippian and historic Creek burials should also yield low conductivity values (see Figure 6.4 for conductivity data traces with interpretation of burial anomalies). Soils in Ocmulgee consist of 1 m to 2 m of red sandy soil overlaying red clay (NPS 1982:14). Clay is generally a conductive material with minimal porosity and high water retention. Burials interred in this clay layer should have greater porosity. These pores are filled with air, a highly resistive material. Despite the impermeability of clay, rainfall should drain quickly through the excavated and re-deposited soil of a pit or burial. Similar findings were confirmed at Cahokia in Illinois. Dalan (1989, 1991) investigated the palisade wall surrounding the main plaza. The post holes were interred into a wall trench, an excavated trench refilled with the same soil. These trenches produced lower apparent conductivity readings which Dalan (1989, 1991) suggests are the result of quick drainage and air-filled pores.

In addition to variation in soil compaction and porosity, the contents of pre-historic and historic graves at Ocmulgee consisted of generally non-conductive materials such as bone, ceramic vessels, caches of shell, caches of glass beads, large ground stone, and in rare cases preserved logs. Although “individual bones may not be directly detectable” (Bevan 1991:1310), their association with abundant grave goods may increase the contribution to lower apparent conductivity values. Shell is known to be highly resistive (Thompson et al. 2004), and in some cases thousands of shell beads were located in a single Ocmulgee burial. Eleven of the 94 burials were multiple burials (Powell 1994:Table11.1). The agglomeration of more bone should also be more resistive and make it easier for the soil conductivity meter to differentiate between burials and the surrounding soil matrix.

Over 60 anomalies of lower conductivity the size and shape of Native American burial units can be observed in the conductivity data (Figure 6.5, Figure 6.6). The conductivity meter was unlikely to identify all of the possible burials surrounding the Funeral Mound. Many of the excavated burials were single skulls or as in one case, only teeth. The conductivity meter is not sensitive enough to distinguish between these and the soil matrix, but if these represent the only remains of a decayed burial that was interred in a pit, then it could be recognized. Some of the burial anomalies may actually be pits without burials. Several of these were recovered from the Funeral Mound and area surrounding it, but burials outweighed non-burial pits ten to one and these pits may have originally contained a burial that is fully decayed.

It is also possible that some or many of the burial anomalies reflect graves that date to the historic Creek occupation. Evidence of Creek burials has been identified by Jones (1999) and Fairbanks (2003 [1956]) and almost all of the artifacts recovered north of the railroad track in recent work (Cornelison 1993) date to the Trading Post occupation. Ground penetrating radar survey in Drakes Field supports the idea that some burial anomalies are Creek in origin.

Several buried hyperbolic reflection can be seen in two-dimensional profile view of a GPR transect collected north of Mound C (Figure 6.7). Several of these show reverberation of the reflection which is the result of a radio wave coming into contact with a metal object (Conyers 2006). Excavations around Mound C and on the Middle Plateau revealed Creek burials with associated metal grave objects. The buried anomalies in the GPR profile may be such features or buried metal objects dating to a period before extensive plowing. Another hyperbolic reflection can be seen without reverberation. This may reflect a pit or burial without associated metal. This reflection is located deeper than the reverberated anomalies and may represent a feature that dates to the Early Mississippian occupation. Its depth is approximately equivalent to a stratigraphic layer that may be the Early Mississippian living surface or the top of a layer undisturbed by plowing. There are also reverberated anomalies of lower amplitude at the ground surface. These represent modern metal debris which was most likely deposited after plowing ceased.

A comparison of time slices from a shallow depth and from this layer of stratigraphic change shows a difference in anomaly density (Figure 6.8). The density of anomalies closer to the surface (51 ns) may reflect Creek features or artifacts and modern metallic debris. Further down there are fewer reflections of high amplitude embedded in a generally homogeneous higher amplitude background matrix. The lighter surrounding represents the change in stratigraphy. The higher amplitude reflections in this deeper time slice possibly represent burials or features dating to the Early Mississippian or Creek periods. The anomalies in this lower time slice are more irregularly shaped, suggesting a pit as opposed to a metal object that produces a regularly shaped circular reflection.

Anomalies interpretable as Native American structures are also observable. Square/rectangular clustering of low and high conductivity values can be seen north and east of Mound C (Figures 6.5 and 6.6) and a slight basin can be seen in GPR profiles collected north of Mound C (Figure 6.7). The high variation of conductivity values may be caused by high frequencies of pits or metal objects. The dipolar magnetic anomalies north of Mound C may suggest that these structures or pits contained metal, however, there is influence and noise in the magnetic data from underground public works which makes it difficult to interpret the data (Figure 6.2) and some of the dipolar anomalies may be from surface debris (Figure 6.7). The high frequency of Creek artifacts surrounding Mound C suggests that these were Creek structures. An aerial photograph taken in the 1930s shows a historic house or shed in Drake's Field, but this is on the other side of the road (Figure 6.9). This structure also appears in the magnetic data and can be distinguished from the probable Creek structures.

NPS archaeologists uncovered a Creek structure on the Middle Plateau (McNeil 2006a). This structure was superimposed on a hearth and postholes dating to the Early Mississippian period. While these features were not fully intact they still aid in interpretation because they were adequately reported, accurately dated, and show some differences between Early Mississippian and Creek houses. The most apparent difference is the frequency of basins and pits. The Creek structure had a higher frequency of features. This pattern is comparable to the anomaly clusters found in the conductivity data.

No anomalies representing structures can convincingly be dated to the Mississippian period. There appear to be no Mississippian residential structures associated with Mound C. The Mound C bluff had a specialized function, probably for ritual purpose. The structure on top of Mound C (Fairbanks 2003 [1954]) may be the remains of a temple rather than the residence of a chief. The area surrounding Mound C was used as a cemetery during the Early Mississippian occupation. The elaborate grave goods interred with some individuals suggest that this cemetery was reserved for wealthy or powerful people.

Chapter Summary

The Mound C Bluff is located in the southwestern corner of Ocmulgee. This area has been subjected to historical and modern disturbance that affected the quality of some geophysical data, especially magnetometry. Kelly investigated in the mid-1930s and focused his excavations on the mound but excavated a linear trench stretching from the eastern side of the mound east toward the Middle Plateau and a few small test pits. The NPS returned to the area to carry out compliance archaeology west and north of the mound and recovered Creek period artifacts almost exclusively.

Mound C marks the approximate western boundary of the Early Mississippian community. Geophysical survey supports the idea that the area surrounding the mound was used as a cemetery and did not have a residential area during the Early Mississippian period. I identified possible structures during the geophysical survey, but they probably date to a later, historic Creek occupation. Conductivity and ground penetrating radar data suggest that the cemetery itself extends north, east and southeast of the mound, but many of these burials may be Creek. The generally low number of burials that can be attributed to the Early Mississippian in comparison to the probable size of the Early Mississippian community suggests that only a selective group of individuals would have had the right to be buried around Mound C. The fact that log tombs were found below Mound C during the WPA excavations (Fairbanks 2003 [1954]), but none were identified on the Middle Plateau (Powell 1994) or the North Plateau (Williams and Henderson 1974) (both of which had numerous burials) reinforces this interpretation.

Figure 6.1. Boundaries of Mound C bluff top and Drake's Field sector (2010 Bing Maps image).

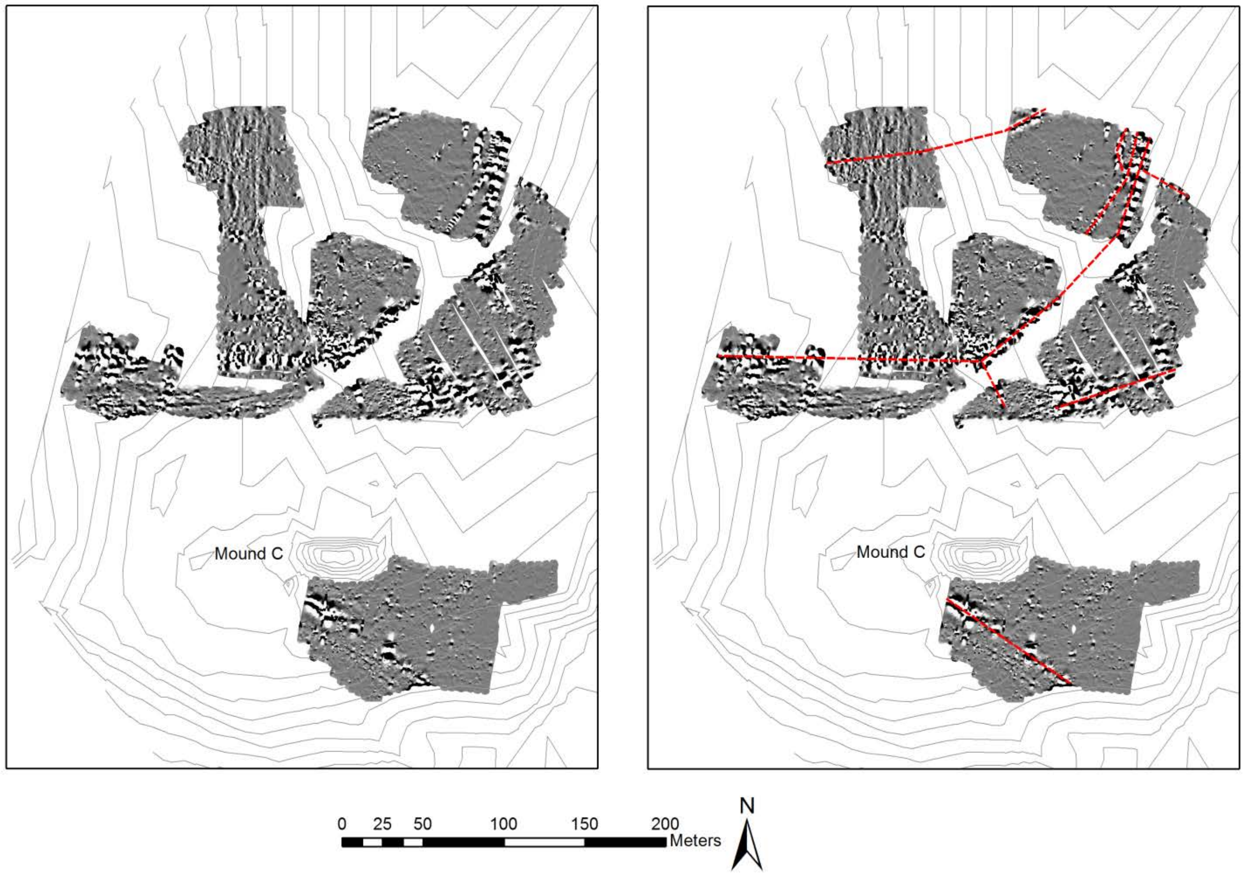

Figure 6.2. Magnetic data from Mound C bluff top and Drake's Field (left) showing sources of disturbance (right) (Bigman et al. 2012).

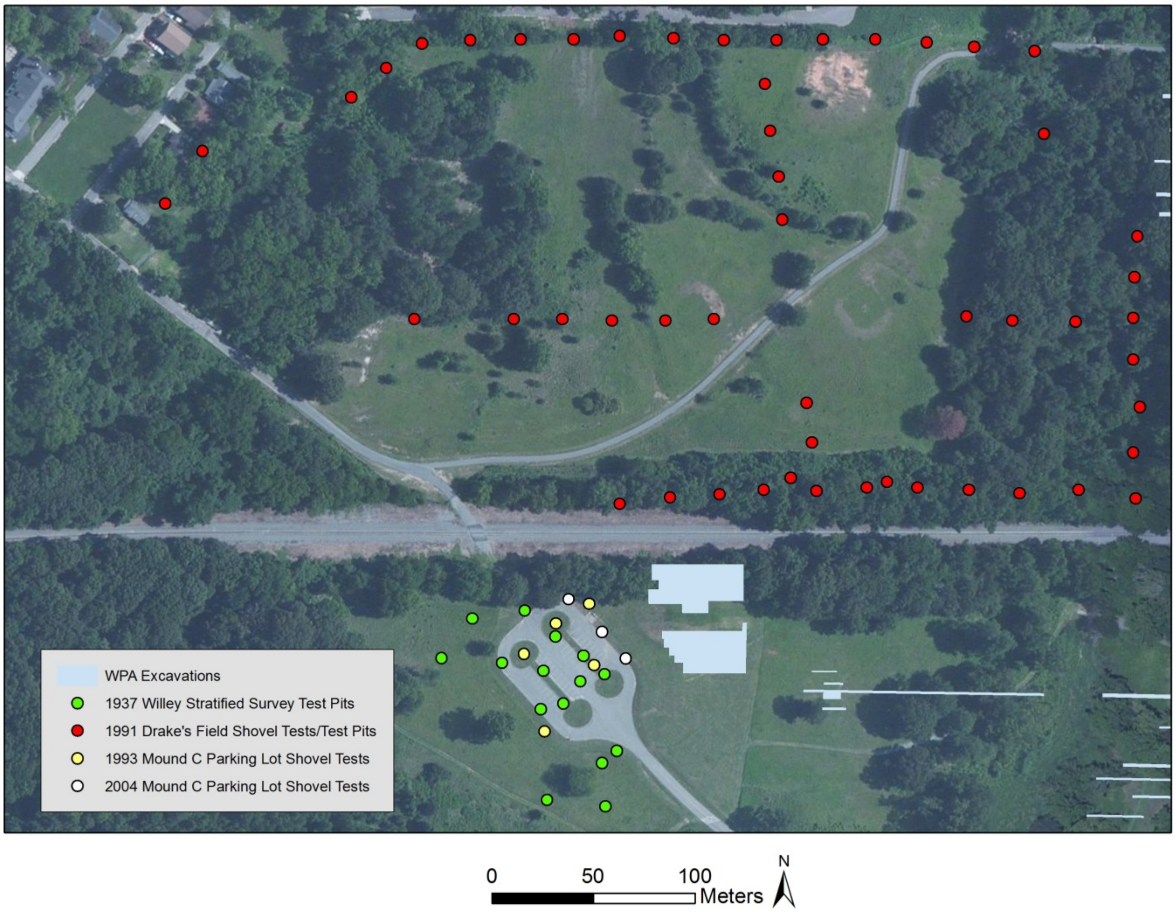

Figure 6.3. Locations of excavations on Mound C bluff top and Drake's Field (2010 Bing Maps image).

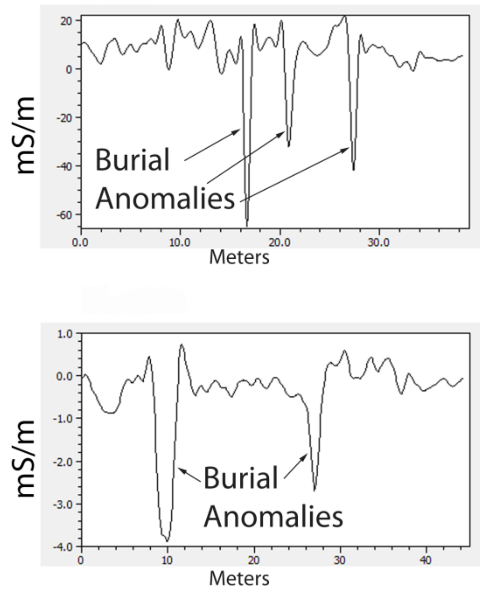

Figure 6.4. Apparent conductivity traces indicating burial anomalies of low apparent conductivity (Bigman 2012).

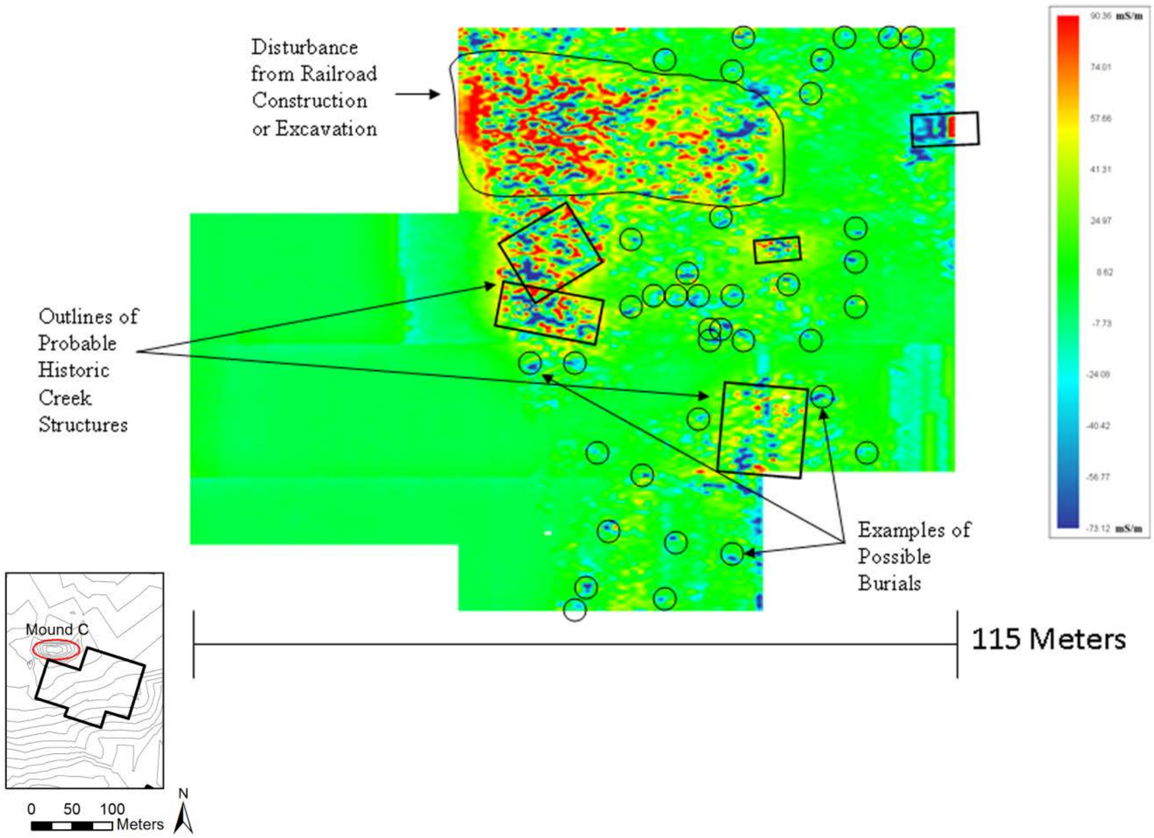

Figure 6.5. Plan view map of conductivity data I collected south of Mound C (Bigman 2012).

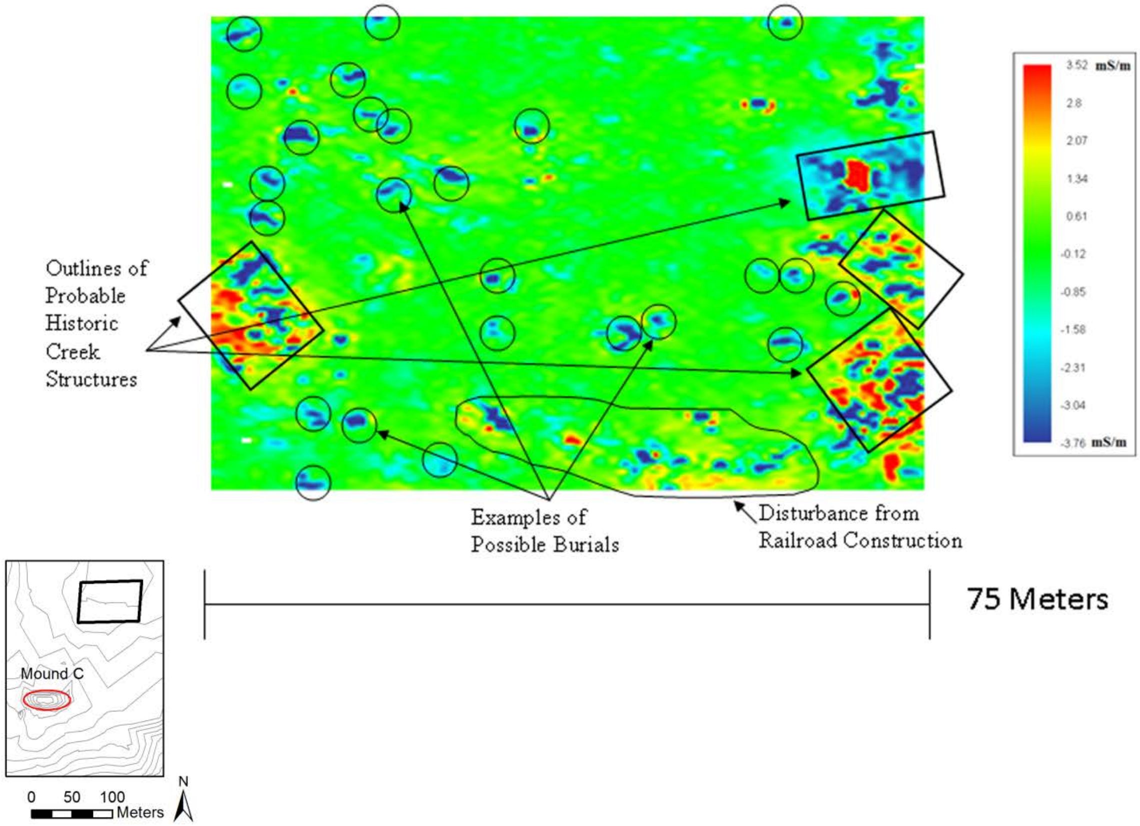

Figure 6.6. Plan view map of conductivity data I collected north of Mound C in Drake's Field (Bigman 2012).

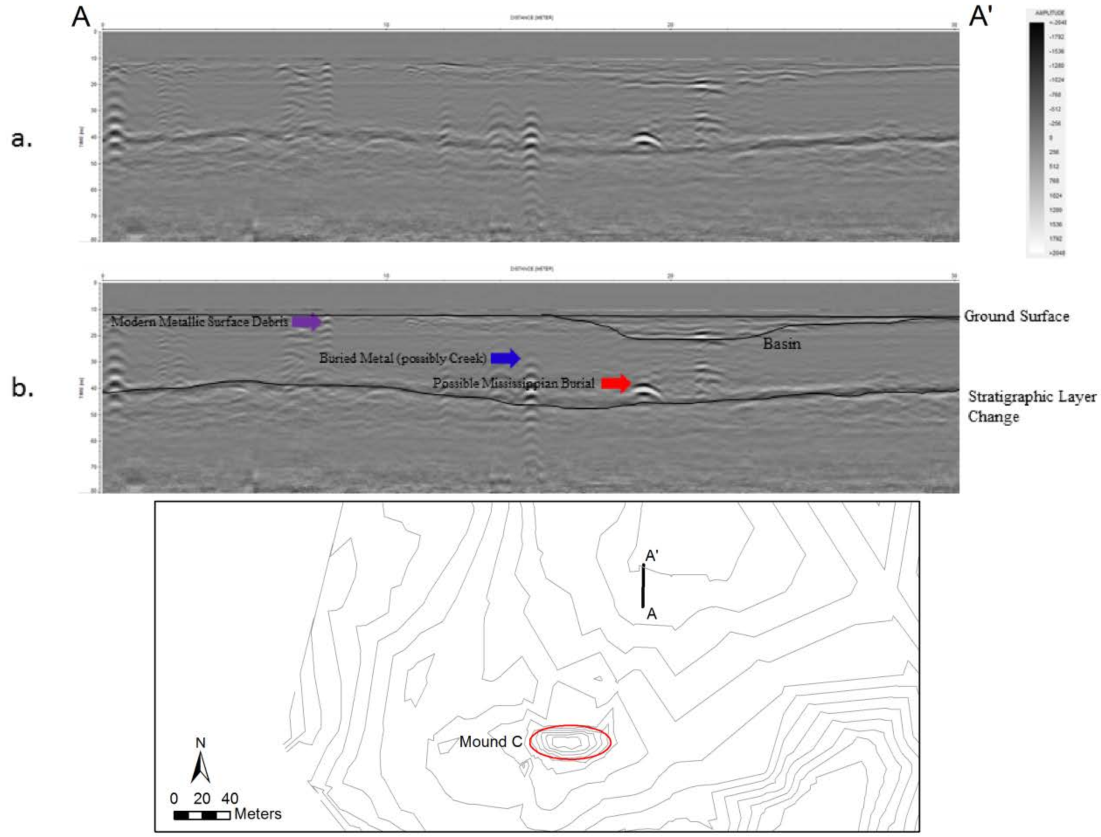

Figure 6.7. GPR profile I collected north of Mound C showing (a) processed data and (b) interpretation of various hyperbolic reflections.

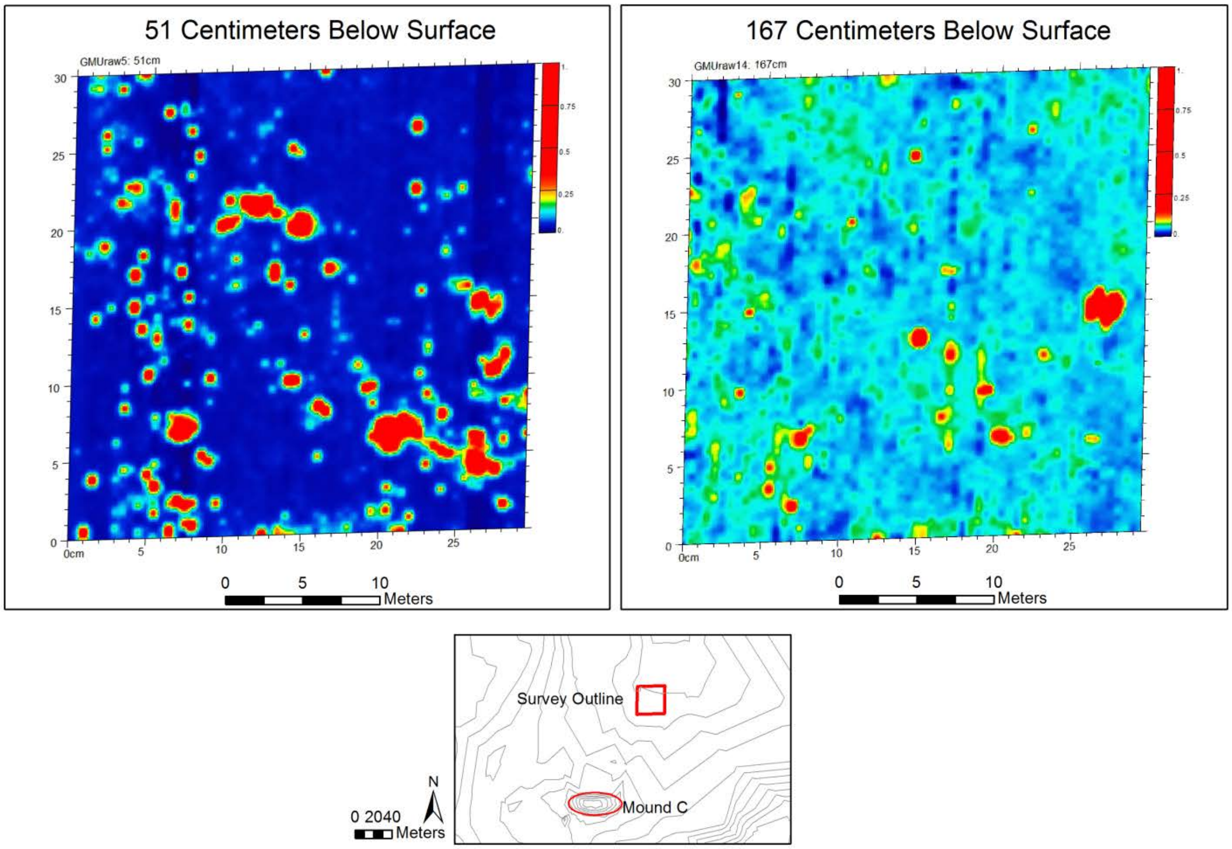

Figure 6.8. GPR time-slices showing differences in anomaly density at 51 ns and 167 ns in two-way travel time.

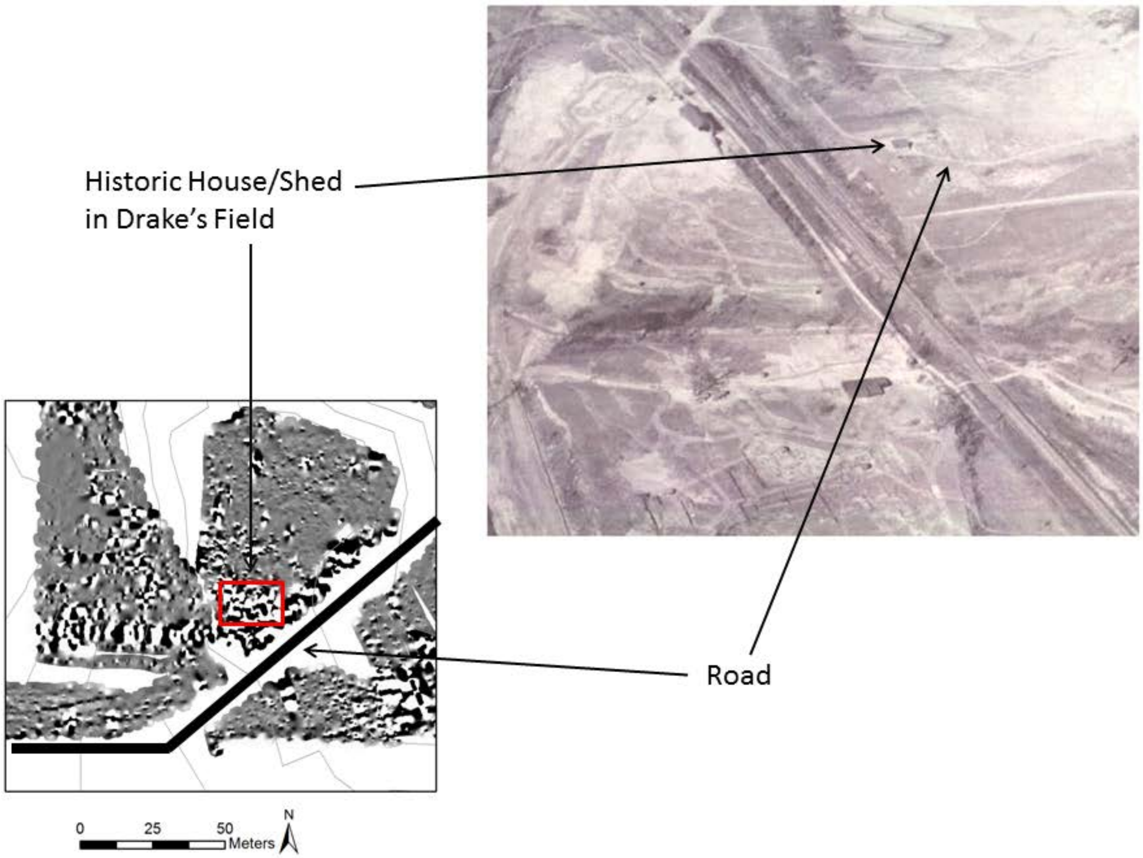

Figure 6.9. Magnetic data and aerial photograph showing historic house and road in Drake's Field.

CHAPTER 7

MOUND X RIDGE AND NORTHERN LOWLANDS

The Mound X ridge is located north of the outer ditch and is contiguous with the North Plateau (Figure 7.1). The Northern Lowlands is a large plot of land located north of the Mound X ridge and is situated between Mound X, Dunlap Mound, and McDougal Mound (Figure 7.1). It is bounded on the north and east by housing units and on the west by a small creek. This study area has an irregular topography. The Mound X ridge top extends north into a wooded area and expands into a T shape approximately 150 m north of Mound X (Figure 7.1). A gentle slope extends east from the T shaped ridge top until it reaches a small creek. A steep gradient extends west from the ridge top, leading into a relatively flat lowland expanse. The flat lowland is disrupted in the northwest by a steep hill. McDougal Mound is located on top of this hill.

There is historic and modern disturbance in the Mound X ridge and Northern Lowlands study area. There are man-made terraces at the southern edge of the forest. The use of these terraces is unclear, but metal and glass artifacts recovered during my posthole testing program suggests the terraces were manufactured during the historic period. A park road runs west from the Visitor Center between the southern limits of the forest and Mound X. There is debris and discarded concrete from road construction and I identified “slag” in one posthole test. A drainage ditch of recent origin meanders along the western side of the lowlands. The drainage ditch and its surrounding area are littered with modern trash. There is a park trail on the T shaped ridge which runs north into the lowlands leading to McDougal Mound. There is less trash on the ridge top and the area to its east compared to the west. This is probably influenced by the close proximity to housing units on the west.

Previous Investigations

Kelly excavated trenches on Mound X ridge during the 1930s, but paid less attention to this area compared to other parts of the main bluff (Figure 7.2). He did not open excavation blocks. Some trenches intersected Mound X, but the mound was not identified by Kelly. It wasn't until 1974 that the mound was recognized by Williams and Henderson from a profile drawing. Williams and Henderson (1974:38) point out two additional sources of information that suggest the existence of the mound: a reference to a "small mounded area" in the WPA field notes (Book 144:23, cf. Williams and Henderson 1974:39) and an 1806 survey map showing locations of all known mounds in the area at that time including Mound X. The feature was designated "Mound X" because of the "tentative nature of its existence" (Williams and Henderson 1974:39).

Mound X and the area surrounding it have never been accurately dated. Kelly recovered artifacts, but these could not be relocated by Williams and Henderson in 1974. I faced the same difficulties during my research visits to the Southeast Archaeological Center in Tallahassee, Florida. Unfortunately, the map for the North Plateau does not have trench numbers labeled. It only has labels for burials and "dugouts." The WPA considered Mound X ridge part of the North Plateau. The use, date, and spatial extent of a Mound X occupation remain unknown.

The Northern Lowlands have only been investigated once. In 1978, Walker visited the site to "inventory the cultural resources of Ocmulgee National Monument…and test park areas that had not been previously tested" (Walker 1978b:1). The NPS proposed three areas for testing, including the "area above 295 feet in elevation…north of the Southern Railroad" (Walker 1978b:1). Walker's test area included the Northern Lowlands and Dunlap Hill.

Walker established a new site grid oriented in the cardinal directions (Figure 7.2). He divided the grid into 100 m square blocks and divided each square block into four quadrants. The total area measured 133.4 ac (Walker 1978b:1). Walker randomly selected 53 quadrants from the newly designated grid blocks for testing, and excavated 24 arbitrarily placed tests concentrated near the Visitor Center, Maintenance Shed, and Civil War Earthwork (Figure 7.2). However, the map Walker published (1978b, 1978c) of the investigations identified more than 53 quadrants as random tests, and I could not identify the locations of all 24 arbitrary tests excavated by Walker.

Walker excavated six randomly placed test units in the Northern Lowlands; three tests were negative and three were positive. Walker dated two of the positive tests to "earlier" than the Early Mississippian based on fabric-marked, grit-tempered pottery, "but precise identification" could not be made (Walker 1978b:2). These were most likely Dunlap Fabric Marked sherds and date to the Early Woodland. The other test located at the northern park boundary contained historic Creek artifacts. None of Walker's tests yielded artifacts diagnostic of the Early Mississippian. Walker's findings suggest the absence of an Early Mississippian occupation in the Northern Lowlands and his results conform to the sub-community hypothesis proposed by Hally and Williams (1994). Unfortunately, Walker minimally tested the Northern Lowlands.

Several unanswered questions about this study area remain. Was there a neighborhood surrounding Mound X? If so, when does it date to? Is there evidence of Early Mississippian occupation between Mound X, Dunlap Mound, and McDougal Mound? My project utilized posthole testing and magnetic susceptibility to answer these questions.

Survey Results and Discussion

I excavated thirty posthole tests, approximately 15 cm in diameter and 30 m apart (Figure 7.3). I chose to use a smaller test size to minimize the impact on the archaeological record while maintaining the ability to recover artifacts. Posthole digger testing programs have been successful in defining site boundaries for other recent archaeological projects in Georgia (for example see Williams 2008). My grid began on the northern boundary of the North Plateau (Mound X Ridge) in an area of suspected Early Mississippian occupation (Williams and Henderson 1974) and continued north into the forest (Figure 7.3). I recovered artifacts from 10 posthole tests (Table 7.1, Figure 7.3); seven yielded pre-historic native artifacts and three yielded historic/modern artifacts (Figure 7.4).

The project recovered eight ceramic sherds from six separate posthole tests (Figure 7.5). Five of these tests were located next to Mound X and one was located just west of the park trail almost 90 m north of Mound X. Three sherds are plain and contained some evidence of possible shell tempering. These sherds most likely date to the Early Mississippian and were all located in close proximity to Mound X. One of the shell tempered sherds exhibited more shell than the other two and can be classified as mixed shell-grit tempered Bibb Plain. The other two have minimal evidence of possible shell and are classified as grit tempered Bibb Plain. The remaining five sherds are grit tempered plain sherds and are not diagnostic of any chronological period. I classify these as Indeterminate Grit Plain.

I recovered five chert flakes from three separate posthole tests (Figure 7.6). Two were located next to Mound X and one just west of the park trail almost 90 m north of Mound X. All five flakes are creamy white in color and most likely came from Coastal Plain chert sources. None of the flakes exhibited heat treatment. The largest flake showed signs of use ware on its side edge and long edge. I recovered this flake from a test excavated immediately north of Mound X. The other four flakes are much smaller in size and may indicate retouching/curation of a tool. No chert specimens I collected had cortex which may also suggest retouching or later tool production stages as opposed to initial stages of tool production. Some posthole tests produced quartz shatter, but none of these pieces can definitively be identified as cultural. It is important to note that no tests produced Piedmont quartz flakes.

Other prehistoric native artifacts I recovered during testing include two pieces of red ochre (Figure 7.7), a fragment of ground stone with red pigment (Figure 7.8), and a small piece of fired clay. The ground stone fragment was identified near Mound X and the two pieces of ochre were recovered approximately 90 m north of Mound X. I also recovered some historic and modern artifacts including metal, glass, and slag. No posthole test had a mixture of both pre-historic and historic/modern artifacts.

I measured magnetic susceptibility readings in the plow zone of every posthole test at depths ranging from 10 to 20 cm below the surface (Table 7.2, Figure 7.9). The churned up soil should yield relative differences in susceptibility values when comparing cultural soils to non-cultural soils. I also recorded magnetic susceptibility readings from below the plow zone for comparative purposes. The sub-plow zone susceptibility tests proved un-useful for mapping site boundaries.

Results from the plow zone susceptibility tests suggest a vacant Early Mississippian Northern Lowlands. Soils that have been subject to domestic activity should yield higher magnetic susceptibility values compared to the natural background (Dalan 2006, 2008). Ten posthole tests I excavated contained cultural materials; seven with pre-historic artifacts and three with historic or modern artifacts (glass and metal). These 10 posthole tests generally yielded higher magnetic susceptibility values (Figure 7.10; positive posthole tests are represented in red, negative posthole tests are represented in blue). Nine out of 10 positive posthole tests measured susceptibility values above the median (0.087). Sixteen out of 20 negative tests measured susceptibility values at or below the median. I conducted an independent-samples t-test using SPSS to compare the magnetic susceptibility values taken from positive and negative posthole tests. There is a statistically significant difference between the mean susceptibility values for positive (M = .1533, STD = .044106) and negative (M = .08085, STD = .01282) posthole tests; t (30) = 5.088, p = .001 (two –tailed). This indicates that plow zone susceptibility testing in shallow or disturbed archaeological sites is a good indicator of activity areas and site boundaries.

A box plot and scatter plot comparison of positive posthole test and negative posthole test susceptibility values (Figures 7.11 and 7.12) shows greater dispersion in both the full range and interquartile range (IQR) for positive posthole tests. I attribute this difference in dispersion between positive and negative posthole tests to differences in the amount of magnetically enhanced micro-particles in each sample. The lack of magnetically enhanced micro-particles in negative posthole tests should cause the experiment to yield similar values regardless of where the values are recorded. Variation in the amount of magnetically enhanced micro-particles in each positive posthole test should account for greater dispersion. Variation in percent of magnetically enhanced micro-particles may be the result of differences in land use or the mixture of soils due to prolonged plowing. There also does not appear to be a correlation between susceptibility values and historic vs. pre-historic date of a positive posthole test (Figure 7.13). However, the sample of positive posthole tests (three historic and seven pre-historic) is small and this conclusion should be taken with caution.

Magnetic susceptibility testing helped me identify the northern boundary of the Mound X activity area. The geographic distribution of high susceptibility values is clustered around Mound X, the western portion of the man-made terraces, and at the isolated positive posthole test in the forest (Figure 7.9). The rest of the area between Mound X, Dunlap Mound, and McDougal Mound yield lower susceptibility values (Figure 7.9). The only high susceptibility area that yielded artifacts diagnostic of the Early Mississippian is around Mound X.

The magnetometer survey recorded anomalies representing possible structures surrounding Mound X (Figure 7.14: Red arrows). The character, shape, and amplitude of these anomalies can be distinguished from other strong magnetic anomalies around Mound X that probably represent metal objects (Figure 7.14: Green arrows). The magnetometer recorded positive magnetic anomalies representing hearths, pits, clusters of artifacts, or other features (Figure 7.14: Blue arrows). There is a low density of anomalies representing hearths, pits, and other features indicative of living space compared to other areas. Some magnetic anomalies occur near the outer ditch, but most occur closer to Mound X. This may suggest that the Mound X neighborhood was slightly detached from the North Plateau and does represent its own sub-community with Mound X at its center.

I excavated two posthole tests located on or next to magnetic anomalies. Both of these posthole tests contained Early Mississippian ceramics, Indeterminate Grit Plain ceramics, and chert flakes. I did not encounter midden in either posthole test. Both are located on high ground and did not contain a humus layer. One (located to the northeast of Mound X) consisted of a plow zone overlaying a dark loam. The other (located to the west of Mound X) consisted of a plow zone overlaying a red, brown, sandy clay loam. The plow zone was between the ground surface and 15 to 20 cm. Both reached red clay at approximately 90 cm. No stratigraphic evidence sheds light on the possibility that the magnetic anomalies are structures or features, but they do suggest that the anomalies date to the Early Mississippian.

Chapter Summary

The Mound X ridge is located north of the outer ditch and is contiguous with the North Plateau. The Northern Lowlands are a large plot of land located north of the Mound X ridge and are situated between Mound X, Dunlap Mound, and McDougal Mound. Kelly excavated trenches on Mound X ridge during the 1930s and Walker excavated six test units on the Northern Lowlands in 1978. I recovered datable artifacts from Mound X ridge through posthole testing. While most artifacts recovered near Mound X are not diagnostic of any time period, three of the eight recovered sherds likely date to the Early Mississippian. I recovered almost no artifacts north of the park road that separates Mound X from the Northern Lowlands. Falloff in magnetic susceptibility values north of the park road reinforces the location of the northern boundary. The posthole test and susceptibility data supports the sub-community hypothesis in the northern portion of the site. Magnetometer data suggests that possible structures and features encircled Mound X and that Mound X was the center of a small neighborhood. This pattern is similar to Dunlap Hill (Chapter 8 this volume).

Table 7.1. Artifacts recovered from 2011 posthole tests.

PT #	Pos/ Neg	Chert Flakes		Quartz Shatter		Ground Stone		Bibb Shell/Grit		Bibb Grit		UID Plain Grit		Ochre		Fired Clay		Charred Wood		Glass		Metal		Slag	
1	+	1	3.0g	1	1.9g					1	2.4g	1	0.8g												
2	+			1	55.9g													2	0.1g	2	3.3g				
3	+											1	0.5g					1	0.1g						
4	+																					5	1.8g	2	1.0g
5	+											1	10.5g			1	0.6g	1	0.1g						
6	+			2	0.4g					1	1.4g							1	0.5g						
7	+	2	0.4g					1	2.4g			1	0.7g												
8	+			1	4.5g	1	42.3g																		
9	-																								
10	-																								
11	+																			1	2.9g				
12	-																								
13	+	2	0.6g									1	0.9g	2	2.3g										
14	-																								
15	-																								
16	-																								
17	-																								
18	-																								
19	-																								
20	-																								
21	-																								
22	-																	1	1.2g						
23	-																								
24	-			1	25.3g																				
25	-																								
26	-																								
27	-																								
28	-																								
29	-																								
30	-																								
Totals		5	4.0g	6	88.0g	1	42.3g	1	2.4g	2	3.8g	5	13.4g	2	2.3g	1	0.6g	6	2.0g	3	6.2g	5	1.8g	2	1.0g

Table 7.2. UTM coordinates and magnetic susceptibility readings from 2011 posthole tests.

PT #	Northing	Easting	Magnetic Susceptibility (SI x 10^{-3})
1	3636965.27	256096.51	0.138
2	3636965.67	256066.98	0.208
3	3636962.04	256038.66	0.078
4	3636965.70	256001.48	0.102
5	3636935.25	256067.48	0.198
6	3636938.96	256097.45	0.173
7	3636934.39	256036.48	0.123
8	3636997.36	256095.53	0.187
9	3637000.31	256064.82	0.087
10	3636997.60	256034.73	0.112
11	3636995.04	256004.91	0.189
12	3637023.57	256116.52	0.097
13	3637056.21	256122.72	0.137
14	3637025.27	256095.52	0.087
15	3637055.50	256093.92	0.080
16	3637025.15	256065.40	0.068
17	3637056.97	256069.08	0.091
18	3637088.89	256151.00	0.082
19	3637114.09	256154.19	0.070
20	3637085.35	256123.59	0.083
21	3637114.65	256121.62	0.070
22	3637084.18	256094.08	0.068
23	3637110.76	256085.52	0.068
24	3637088.78	256186.50	0.087
25	3637119.80	256182.62	0.085
26	3637186.35	256160.25	0.072
27	3637182.14	256135.14	0.096
28	3637209.25	256146.56	0.085
29	3637207.65	256126.04	0.059
30	3637155.66	256161.70	0.070

Figure 7.1. Boundaries of Mound X Ridge and Northern Lowlands sector (2010 Bing Maps image). Insert shows topographic variation.

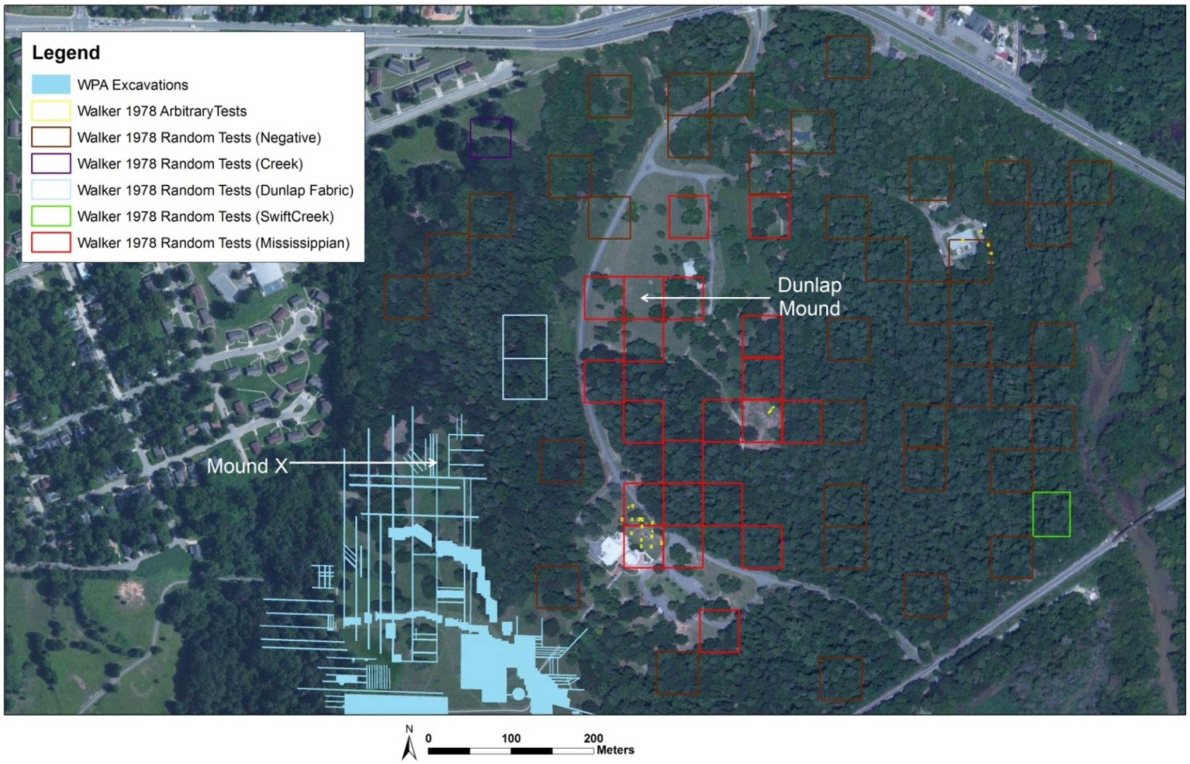

Figure 7.2. Locations of excavations on Mound X Ridge and Northern Lowlands (2010 Bing Maps image).

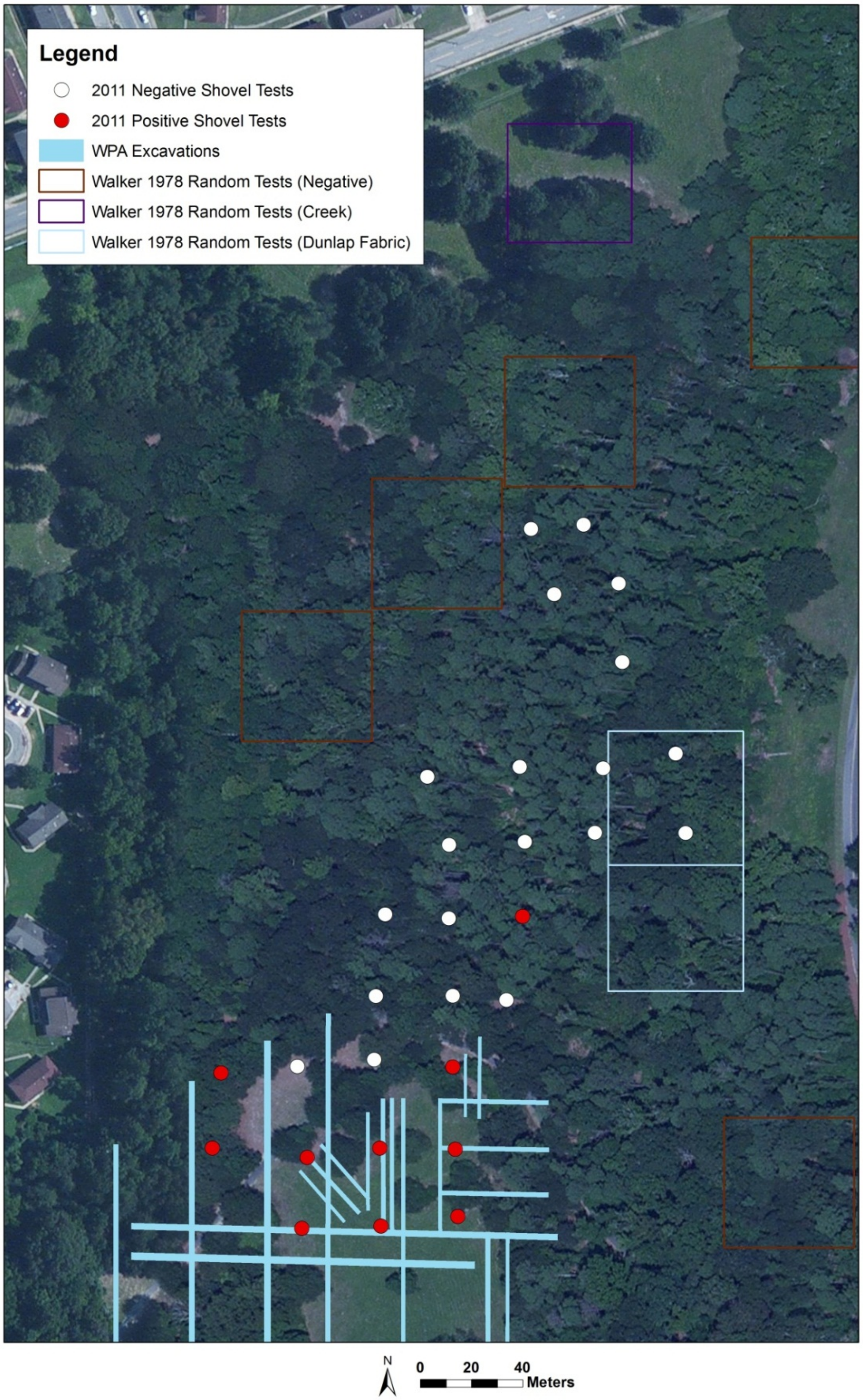

Figure 7.3. Locations of positive and negative posthole tests on Mound X Ridge and Northern Lowlands (2010 Bing Maps image).

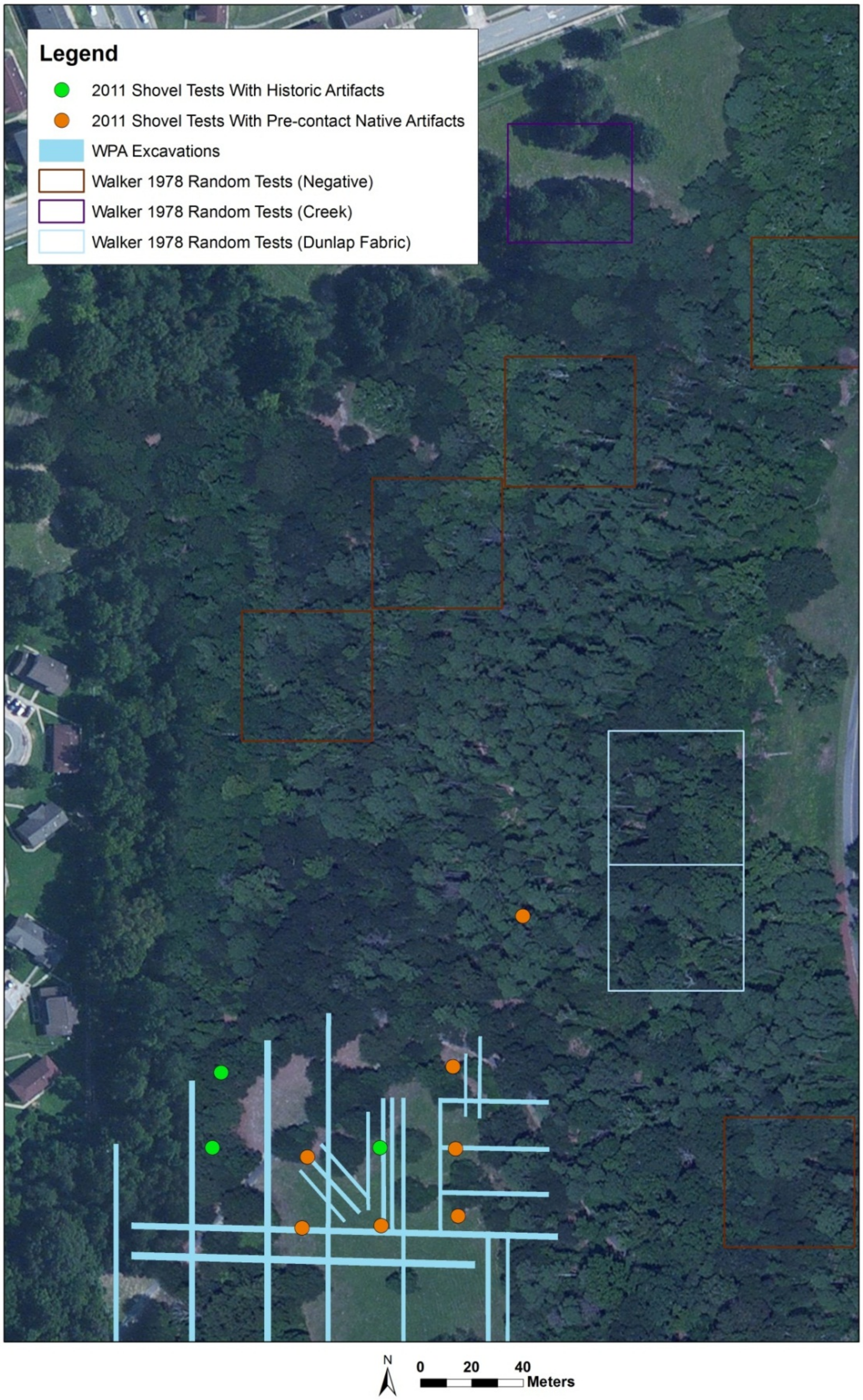

Figure 7.4. Locations of posthole tests with historic artifacts and pre-historic artifacts (2010 Bing Maps image).

Figure 7.5. Ceramics from 2011 posthole testing. A, B, and C are plain sherds with evidence of possible shell temper. D, E, F, G, and H are indeterminate grit tempered plain sherds.

Figure 7.6. Chert flakes from 2011 posthole testing.

Figure 7.7. Ochre from 2011 posthole testing.

Figure 7.8. Ground stone fragment with red pigment from 2011 posthole testing.

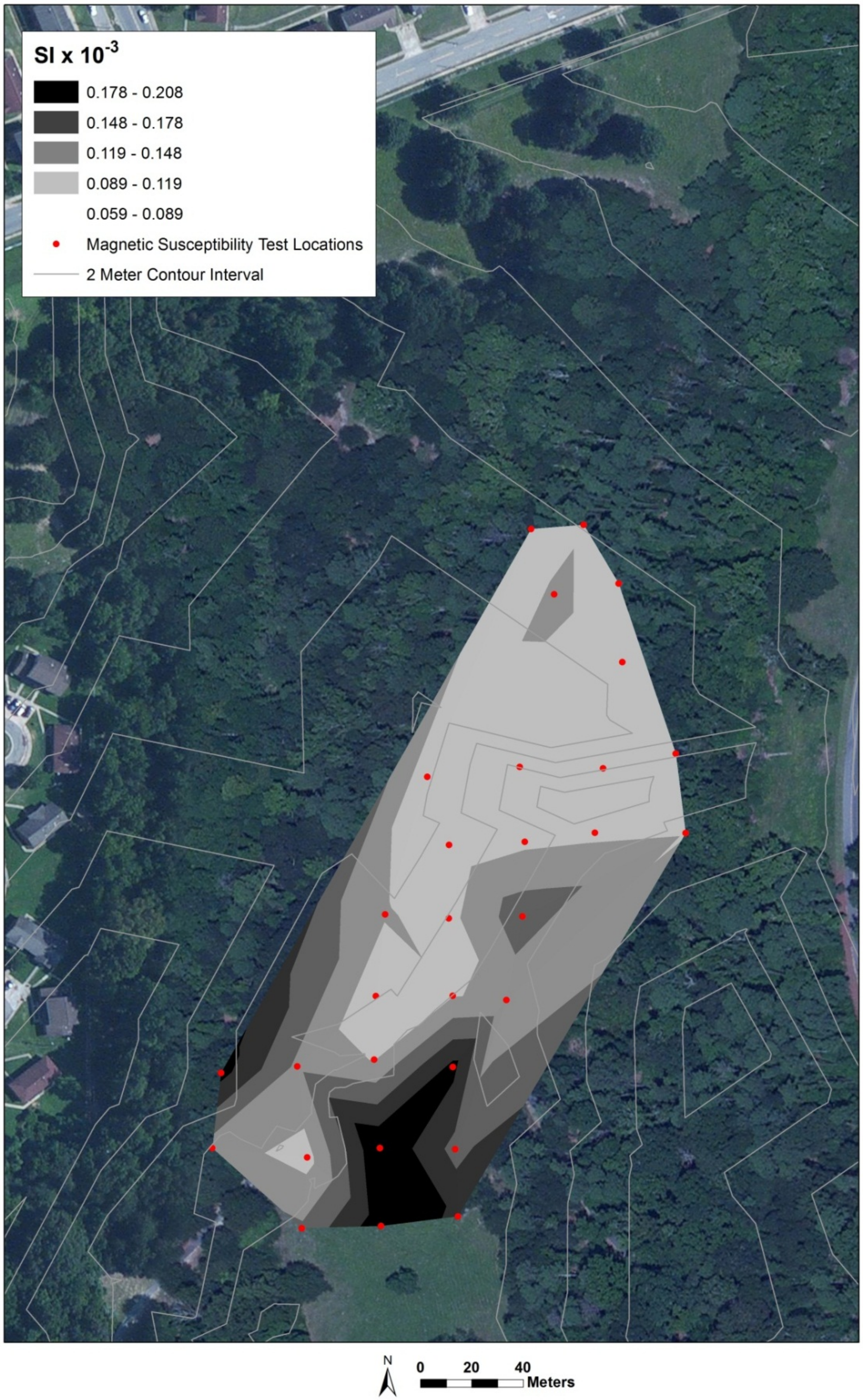

Figure 7.9. Magnetic susceptibility test locations and grey scale plot of plow zone magnetic susceptibility values (2010 Bing Maps image).

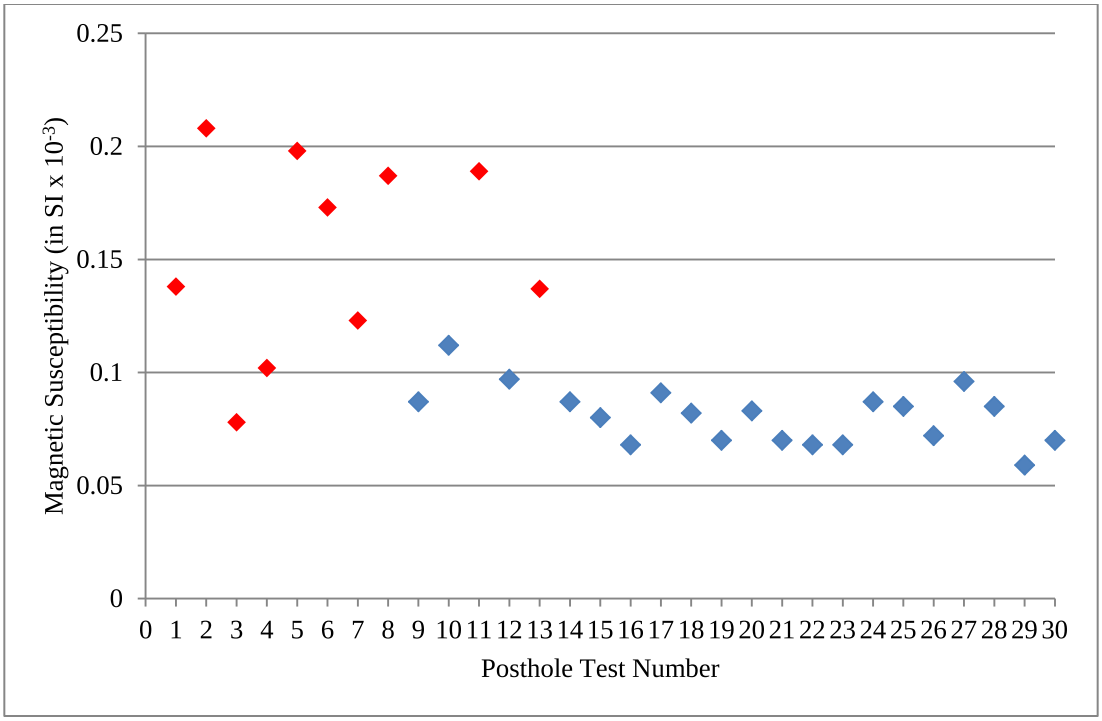

Figure 7.10. Scatterplot of magnetic susceptibility values by posthole test number (positive tests are in red; negative tests are in blue).

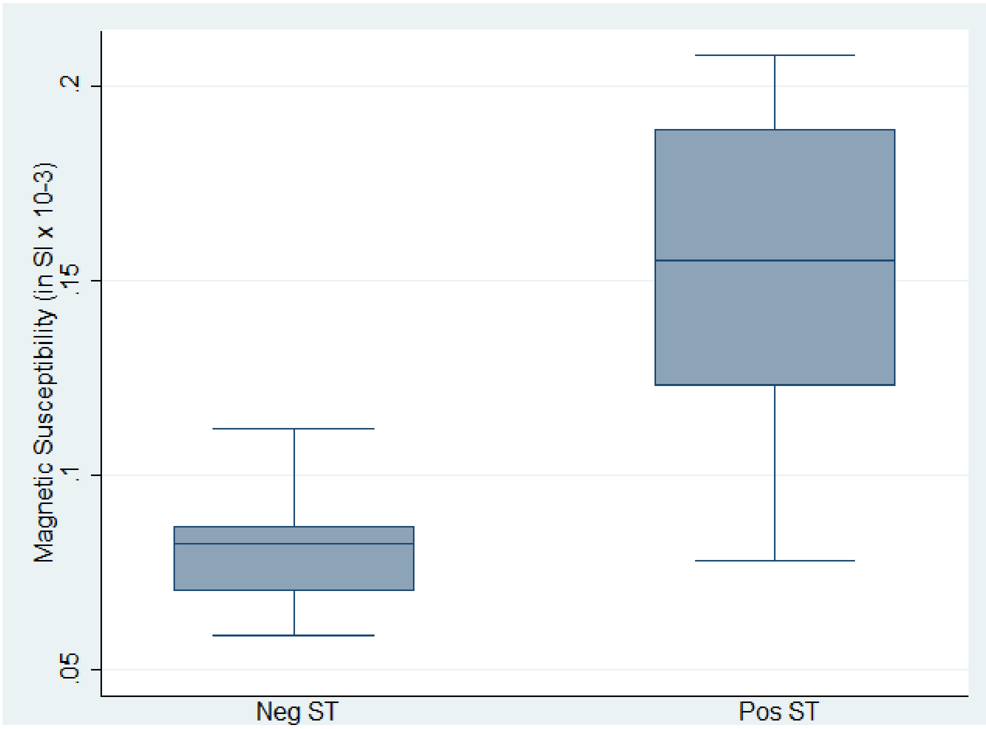

Figure 7.11. Box-plot comparing dispersion of positive posthole test and negative posthole test magnetic susceptibility values.

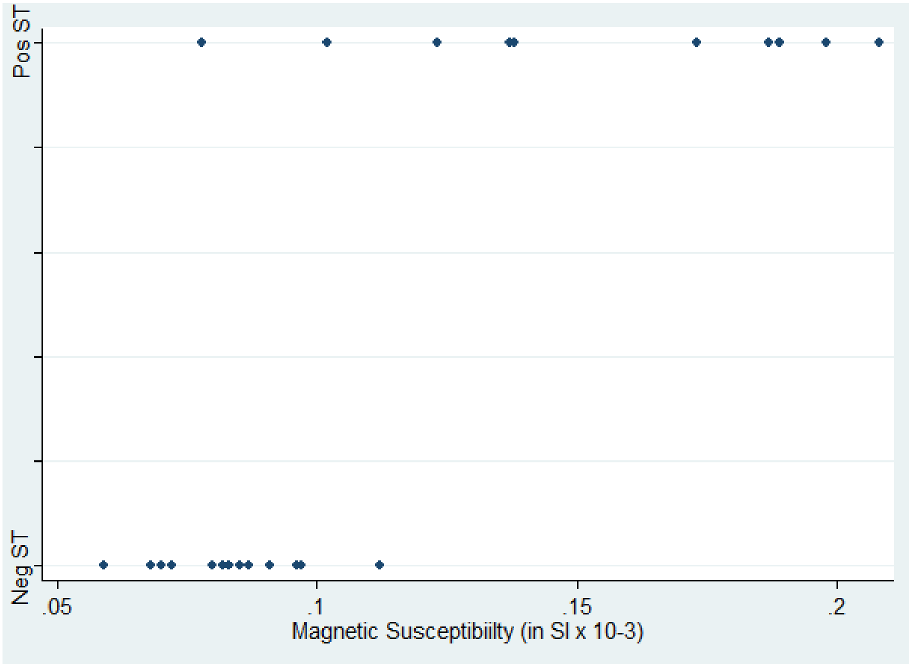

Figure 7.12. Scatterplot comparing dispersion of positive posthole test and negative posthole test magnetic susceptibility values.

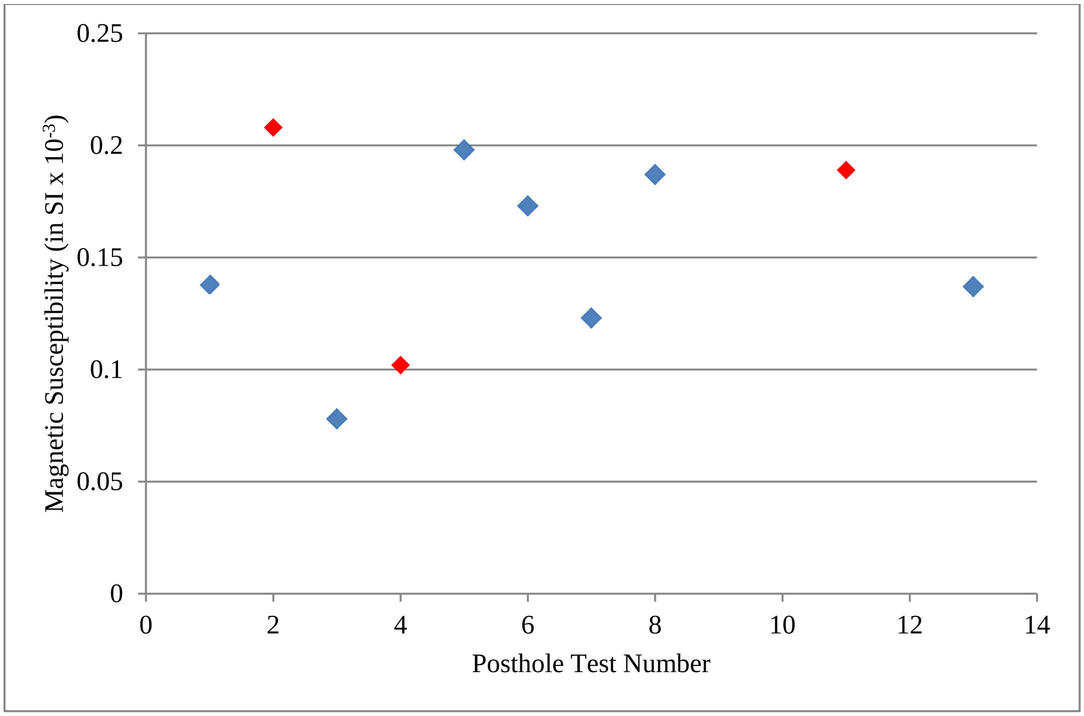

Figure 7.13. Scatterplot comparing magnetic susceptibility values of posthole tests with historic artifacts and Native American artifacts (historic posthole tests are in red, pre-historic Native American posthole tests are in blue).

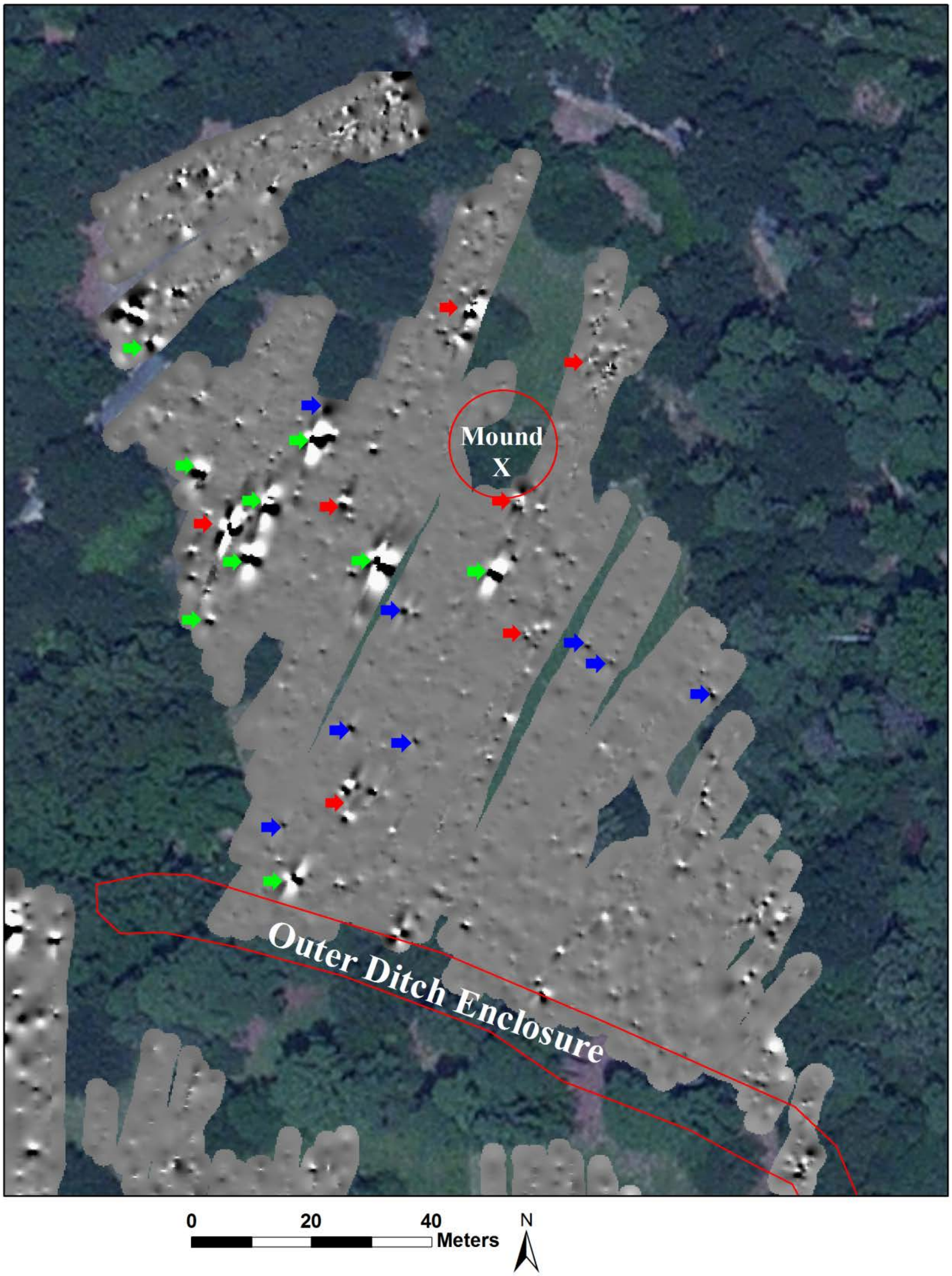

Figure 7.14. Magnetometer data collected on Mound X Ridge. Red arrows indicate possible structures, green arrows indicate metal sources, and blue arrows indicate possible hearths, pits, or other features (2010 Bing Maps image).

CHAPTER 8

DUNLAP HILL

Dunlap Hill is a bluff located in the northeastern portion (Figure 8.1). It gets its name from Samuel Dunlap, head of the Dunlap family who occupied the plot of land for most of the 1800s. The Dunlap House (the center of a dairy farm and cotton plantation during the 1800s) remains a historic landmark on the bluff. Dunlap Mound, a construction dating to the Early Mississippian (Ingmanson 1964b) is also located on the bluff and marks the highest point in this study area. The bluff is bounded on the west by the park's entrance road. A steep gradient is located to the west of the entrance road. It is bounded on the east by dense forest. The north is a gentle slope leading to the park boundary and the south has steep topography bounded by a creek that separates the Dunlap Hill from the North Plateau. The Visitor Center is located just inside the southern limits of the Dunlap Hill.

This large area has been subjected to varied disturbance (Figure 8.2). The Visitor Center and associated parking lot disturbed much of the southern portion. The entrance road enters the park at the northern boundary and curves to the east approximately 200 m south of the Dunlap House. There is a Civil War defensive earthwork built by the Union in the southeastern corner. Several outbuildings were burned and destroyed during the Civil War (Iobst 2009), but more buildings were constructed between the end of the Civil War and the early 1900s (Froeschouer 1984). Outbuildings included barns, a kitchen, servant quarters, additional two room residential structures, and an overseer's house and chicken coops located on the summit of Dunlap Mound.

The locations of these buildings are known through historic maps (Froeschouer 1984), archival documentation (Ingmanson 1964b:2), and archaeological survey (Bigman 2010).

A water main and sewer line were constructed in the 1980s. These enter the park on the north, bisect Dunlap Hill, and lead to the Visitor Center. The park recently re-used utility lines constructed in the 1980s (Horvath 1988a) to operate the new electric front gate. The open area surrounding the Dunlap House has been used in recent years as the parking lot for the annual Native American festival. According to park ranger Lonnie Davis, the festival attracts approximately 15,000 people each year.

Previous Investigations

Kelly carried out excavations on Dunlap Hill during the 1930s. His investigations focused exclusively on Dunlap Mound (Ingmanson 1964b). Kelly excavated a large block on Dunlap Mound that revealed a rectangular structure or structures in the mound's first construction episode (Ingmanson 1964b:Figure 2). Historic disturbance destroyed much of these building's remains and possibly structures in the second construction layer. The postholes Kelly uncovered in the first construction stage measured 6 in to 8 in in diameter, with a few outliers measuring 14 in. The posthole patterns suggest that the summit structure was expanded, rebuilt, or refurbished. Kelly's records are not detailed enough to permit a finer reconstruction of the summit building sequence. No hearth or other indications of the structures' function(s) have been observed. These remains may have been on the side of the mound that was disturbed and such information is no longer be recoverable.

More recently the NPS investigated the area in response to Section 106 compliance issues. These investigations consisted of extensive shovel testing (Abbott 2000a; Hageseth 1996; Horvath 1988c), a large scale systematic test program (Walker 1978a, 1978b, 1978c), and water/sewer/utility line monitoring (Cooper and Walker 1987; Horvath 1988a, 1988b). None of the NPS work over the last 35 years has been on Dunlap Mound.

In 1977, a plan was put into place to test systematically the northern portion of the site (mostly consisting of Dunlap Hill) in response to proposed construction of solar panels, a new entrance road, and a maintenance facility (Walker 1978b). Walker established a grid over an area of 133.4 ac consisting of 100 m square blocks divided into quadrants (Figure 8.3). Dunlap Hill fell within the boundaries of this test area. Walker randomly selected 53 quadrants for testing and excavated an additional 24 arbitrarily placed tests concentrated near the Visitor Center to assess the impact of proposed solar panel installations (Walker 1978a).

Random and arbitrary tests excavated by Walker varied in size from 1 m x 1 m to 2 m x 3 m. Walker encountered the deepest cultural deposits near the Visitor Center at 1.37 m below the surface, but cultural deposits averaged 1 m in depth (Walker 1978a).Walker recovered the highest concentrations of Early Mississippian pottery near the Dunlap Mound. The southern extent of this distribution was north of the Visitor Center, in the area tested for solar panels. Tests excavated south of the Visitor Center and west of Dunlap Hill were negative. Tests near the train trestle (southeast of Dunlap Hill) yielded Swift Creek ceramics (Walker 1978b). Walker’s investigations produced no Vining Simple Stamped (See Chapter 9)

Walker concluded that the total area of Early Mississippian ceramics was approximately 25 ac. It “extends from the southern end of the Visitor Center parking lot to just north of the superintendent's residence and from the Civil War earthworks on the east to the park tour road on the west...Although containing small amounts of evidence from both earlier and later cultural periods, the main occupation of the site seems to have occurred during the Macon Plateau period" (Walker 1978b:1-2). The low density of artifacts may suggest that Dunlap Hill was only occupied for a short period of time (Walker 1978a:1, 1978b:3). Explanations for a short occupation may include "a camping area occupied by outlying villagers during periods devoted to religious ceremonies or regional markets; a relatively short-lived residential area which built up as the main town expanded; or, perhaps, even an area around a mound which was occupied by the clan to which it was sacred" (Walker 1978c:2).

Cooper and Walker (1987) returned to Dunlap Hill in 1984 during the installation of a new sewer and water line. These lines extended from the northern boundary of the park to the Mound C (Funeral Mound) parking lot. Archaeological monitoring on Dunlap Hill took place in the areas between the Visitor Center and the Dunlap House. Cooper and Walker monitored 400 m of trench, but they recovered only 46 sherds. Cooper and Walker (1987:5) believed that these findings support the idea that the occupation surrounding Dunlap Mound was ephemeral. Two limitations of this work are that the dirt was not screened and the archaeologists were working while large machinery was excavating the trenches.

Three compliance projects (Abbott 2000a; Hageseth 1996; Horvath 1988a, 1988b, 1988c) carried out north of the Dunlap House and two carried out in the Visitor Center parking lot support Walker's initial assessment (1978b) that the Early Mississippian occupation did not extend to these areas. In 1988, the NPS put a shovel test and utility trench monitoring program in place to assess the impact of a new entrance road and utility line for the park. Forty-seven shovel tests were placed at the northernmost boundary of Dunlap Hill and produced mostly historic artifacts and modern debris (Horvath 1988c). Native artifacts only consisted of chert flakes and a single chert core (Horvath 1988c). These are not diagnostic of any period and cannot be attributed to the Early Mississippian. The absence of ceramics may suggest that the Early Mississippian settlement did not extend to this area. It may date to earlier than the Mississippian period or was used for the production of lithic tools outside of the Early Mississippian residential boundaries. The NPS excavated two additional shovel test surveys north and northeast of the Dunlap House (Abbott 2000a; Hageseth 1996).One of these was on the northern limit of Dunlap Hill (more than 100 m north of the Dunlap House) (Hageseth 1996) and the other just beyond the park boundary in the Emory Highway Triangle (Abbott 2000a). Almost all of the artifacts recovered from these two projects were modern. Only two pre-historic sherds were recovered in 77 shovel tests. These came from a single shovel test placed next to the Dunlap House and date to the Early Mississippian (Hageseth 1996).

NPS archaeologists excavated eight shovel tests in Visitor Center parking lot and around its perimeter (Cornelison 1992; McNeil 2006b). The parking lot shovel tests did not recover pre-historic artifacts, but they did recover a piece of concrete, an iron fragment, two wire nails (McNeil 2006b), and other “modern artifacts” (Cornelison 1992:4). The parking lot context may be disturbed, but there is no indication of an Early Mississippian occupation this far south.

Several important conclusions can be derived from previous investigations. The early work by Kelly uncovered buildings on top of Dunlap Mound’s first construction stage, but it is not clear that they were residential in nature. The changing form of these buildings may suggest that the function of mound summit architecture on Dunlap Mound changed over time. This is similar to my interpretation of Mound A on the South Plateau.

Early Mississippian artifacts recovered from Dunlap Hill appear to be utilitarian, consisting mostly of grit and shell-tempered plain wares. This suggests that Dunlap Hill was used as residential space, but no structures had ever been identified off the mound prior to my survey. The scarcity of Early Mississippian ceramics also suggests that the occupation may have been short-lived. The distribution of Early Mississippian ceramics suggests that the settlement was large (10 ha). The boundaries are defined on the west by the sloping edge of Dunlap Hill, on the north by the Dunlap House, on the east by the Civil War earthwork, and on the south by the Visitor Center. I surveyed this area with a magnetometer, a conductivity meter, and a GPR to identify anomalies that represent pre-historic structures, their spatial relationship to each other, and the size of their distribution, as described in the following section.

Survey Results and Discussion

An unfortunate side effect of Dunlap Hill's history is the large amount of noise it produced in the geophysical data. The historic use of the site during the Dunlap family's ownership has influenced the conductivity data by creating a highly variable background of apparent conductivity values. Utility lines and the use of Dunlap Hill as a parking lot produce additional noise in the magnetic data. The scattered distribution of small metal objects produced many isolated dipolar magnetic anomalies. Several large trees and the possibility of disturbance from the park road influenced the GPR data. Some of the trees have had time to develop extensive roots that create un-interpretable reflections and may have destroyed archaeological remains. Despite these problems, the data I collected on Dunlap Hill provide useful information regarding native structures, their distribution, and the size of the settlement.

Conductivity survey identified several anomalies representing pre-historic structures on the top of Dunlap Hill surrounding the western half of Dunlap Mound. These anomalies are generally rectilinear patterns of higher apparent conductivity (Figure 8.4). Many of these also had a high conductivity anomaly inside the rectilinear pattern, possibly representing a hearth or a pit filled with organic material. Some also exhibit anomalies of lower apparent conductivity, suggesting that burials may have been interred below house floors. These anomalies of lower apparent conductivity may just represent pits filled with non-conductive material. The possible structures are oriented around the mound itself, but the conductivity data to the east of Dunlap Mound is too difficult to interpret. Dunlap Mound is the focal point for structures that probably encircled it.

I mapped several strong magnetic anomalies possibly representing burned structures, two patterned anomalies of enhanced (positive) magnetic soils, and numerous small, mono-polar, positive magnetic anomalies in close proximity to Dunlap Mound (Figure 8.5). The magnetometer identified one large circular anomaly directly west of Dunlap Mound. Several anomalies representative of pits, hearths, or large postholes were located inside the circular anomaly's boarders. It would be speculative to say this represents an earth lodge or council chamber, but it is similar in size, shape, and feature composition of earth lodges uncovered by Kelly (2010; Ingmanson 1964a) on the North and South Plateaus.

The magnetic data east of Dunlap Mound is clearer than the conductivity data from the same area and contain very little evidence of Mississippian structures or features (Figure 8.5).

These may have been destroyed by the water and sewer trenches and historic buildings close to the Dunlap House driveway, but further east from Dunlap Mound (near the eastern tree line) there appears to be comparatively little disturbance. The data from this area show few signs of prehistoric native habitation. Early Mississippian structures likely did not exist further than 100 m east of Dunlap Mound.

I used GPR to survey a smaller space than the conductivity and magnetometer. The western corner of the GPR survey block intersected the roots of a large tree and possibly some disturbance from the construction of the park's entrance road. Several clear linear reflection anomalies can be seen between 0 ns and 5 ns two-way travel time, but are most prominent at approximately 4 ns (Figure 8.6). There is no reverberation of reflection, which suggests these are not utility lines (Figure 8.7). These anomalies did not show up in the magnetic data which would be expected if they were utility lines. The central and the westernmost of these linear anomalies show up in the conductivity data as linear anomalies of slightly lower apparent conductivity. These probably do not represent the remains of a palisade wall. The expectation for such a feature would be higher apparent conductivity values. Small trenches seem to be the most plausible interpretation based on the GPR and conductive characteristics of the anomaly. Neither the WPA nor the NPS excavated trenches in this area. These anomalies may represent a trench excavated during the historic period for the base of a fence. The ultra-shallow depth, relationship to anomalies representing possible Mississippian structures, orientation, context, and geophysical characteristics suggest that these anomalies were not part of the Early Mississippian Dunlap Hill settlement.

There are two patterned clusters of reflections that may represent the remains of Mississippian house floors between 4 ns and 12 ns in two-way travel time (Figure 8.6). These correspond with anomalies identified in the conductivity and magnetic data as possible structures. There is another area of patterned reflections at 23 ns (Figure 8.6) that was not identified with another geophysical instrument and may represent a large pit. Another series of anomalies in the GPR data characterized a historic structure (Figure 8.6, Figure 8.7). The readings over this spot show high amplitude reflections that reverberate through the subsurface. These reflections represent metal objects at or just below the surface and are not an expected response from an Early Mississippian structure.

The geophysical data suggest the distribution of Early Mississippian structures on Dunlap Hill may have been smaller than the 10 ha distribution of Early Mississippian ceramics. Unfortunately the dense forest between Dunlap Mound and the Visitor Center is difficult to survey with high resolution geophysics and the exact southern extent of Early Mississippian structures is unknown.The boundary most likely lies somewhere in the woods. Non-structure anomalies correlate well with the distribution of Early Mississippian ceramics and define the total use area of Dunlap Hill. Geophysical evidence suggests that pits extended further from Dunlap Mound than structures did.

Isolated positive magnetic anomalies appear toward the northern and northwestern boundaries of the magnetic survey plot in low density, but anomalies representing possible structures from both the magnetic and conductivity data terminate approximately 25 m northwest of the Dunlap House (Figure 8.4, Figure 8.5). There are no clearly identifiable structures in the magnetic or conductivity data east of the Dunlap Mound. This may be a result of historic and modern disturbance. Some isolated positive magnetic anomalies appear east and northeast of Dunlap Mound, but these also show up in low density. The results from the magnetometer and conductivity surveys suggest that the space leading to the eastern tree line and the northern extent of the park road may have been used infrequently and were not Mississippian residential space. The lack of pre-historic anomalies in these areas correlates well with the limited recovery of artifacts from NPS shovel tests (Abbott 2000a; Hageseth 1996; Horvath 1988a, 1988b, 1988c). Another possibility is that the positive magnetic anomalies in the north represent pits from earlier periods. Several shovel tests in the area recovered lithic artifacts to the exclusion of ceramic artifacts. Though these cannot be considered diagnostic of a particular time period the negative evidence suggests that they could date to the Archaic.

Results from conductivity and GPR survey on the south of Dunlap Hill support the idea that the residential area of Dunlap Hill did not extend south of the Visitor Center. There is almost no variation in apparent conductivity values across the 60 m x 100 m block (Figure 8.8). The only variation comes from a sidewalk. GPR identified a shallow linear anomaly between 3 ns and 14 ns just below the ground surface (Figure 8.8). The shallow depth and inability of the conductivity meter to resolve it (due to the averaging effect) suggest that the feature is insubstantial. GPR has been used to image Gopher Tortoise burrows (Conyers et al. 2007) and does have the resolution to image small, near-surface features created by small animals that a conductivity meter working at a frequency of 12150 Hz would not have. The linear anomaly may be a burrow from a small animal.

A general increase in reflection amplitude across the GPR survey block at 18 ns (Figure 8.8) suggests that a stratigraphic layer change occurs at a shallow depth. There are no patterned hyperbolic reflections at this level indicative of an archaeological feature. Lack of variation in earth's physical properties, negative shovel tests (Cornelison 1993, McNeil 2006b), and negative test units (Walker 1978) south of the Visitor Center indicates that this area was vacant during the

Early Mississippian. Dunlap Hill probably served as the space of a separate neighborhood or sub-community segregated by open space from other residential areas.

Chapter Summary

Dunlap Hill is located in the northeast of Ocmulgee. Early work by Kelly concentrated on Dunlap Mound. He uncovered structures in the first construction layer, but archaeological evidence in the second construction layer was destroyed during the historic period. A series of NPS compliance projects began in 1978 with the most recent work conducted in 2006. Most of the Early Mississippian artifacts recovered by NPS projects were plain ceramic wares indicating that Dunlap Hill was used as residential space.

My geophysical survey located several probable structures dating to the Early Mississippian. These anomalies encircle Dunlap Mound on its western side, but I did not record possible structures to the east. This is probably due to historic and modern destruction. The spatial extent of the structures is significantly smaller in size than the distribution of Early Mississippian ceramics, suggesting that households were concentrated near Dunlap Mound but activities took place outside of the residential boundaries. There is also clear open space between the Dunlap Hill neighborhood and the North Plateau. The Dunlap Hill occupation was isolated from the rest of the town or other neighborhoods. This finding supports the claim that Dunlap Mound was the nucleus of a sub-community (Hally and Williams 1994).

Figure 8.1. Boundary of Dunlap Hill sector (2010 Bing Maps image).

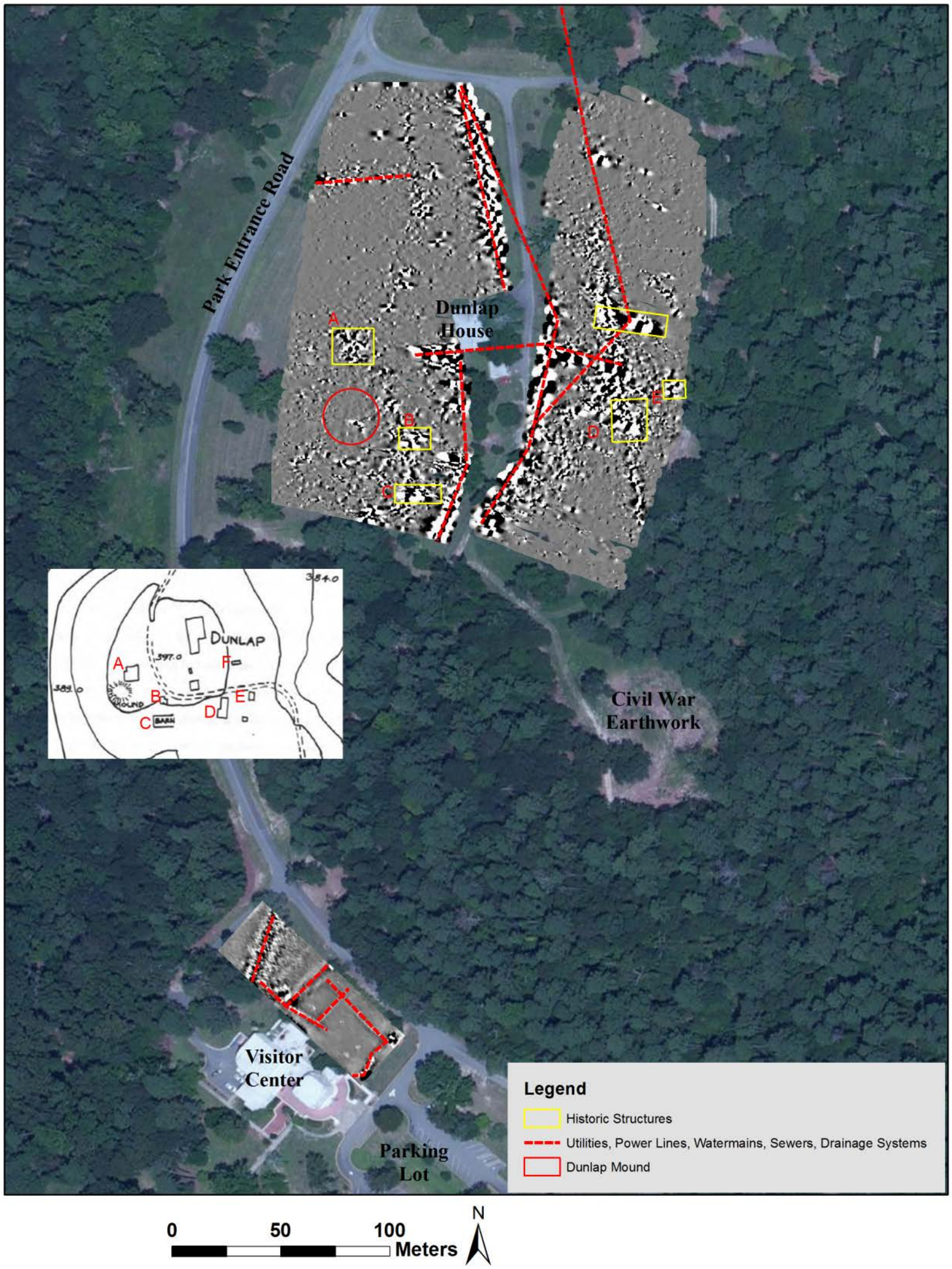

Figure 8.2. Total field magnetic data from Dunlap Hill showing locations of power lines, buried public works, and historic structures. Insert is a 1930s sketch map of the locations of historic structures on Dunlap Hill (2010 Bing Maps image).

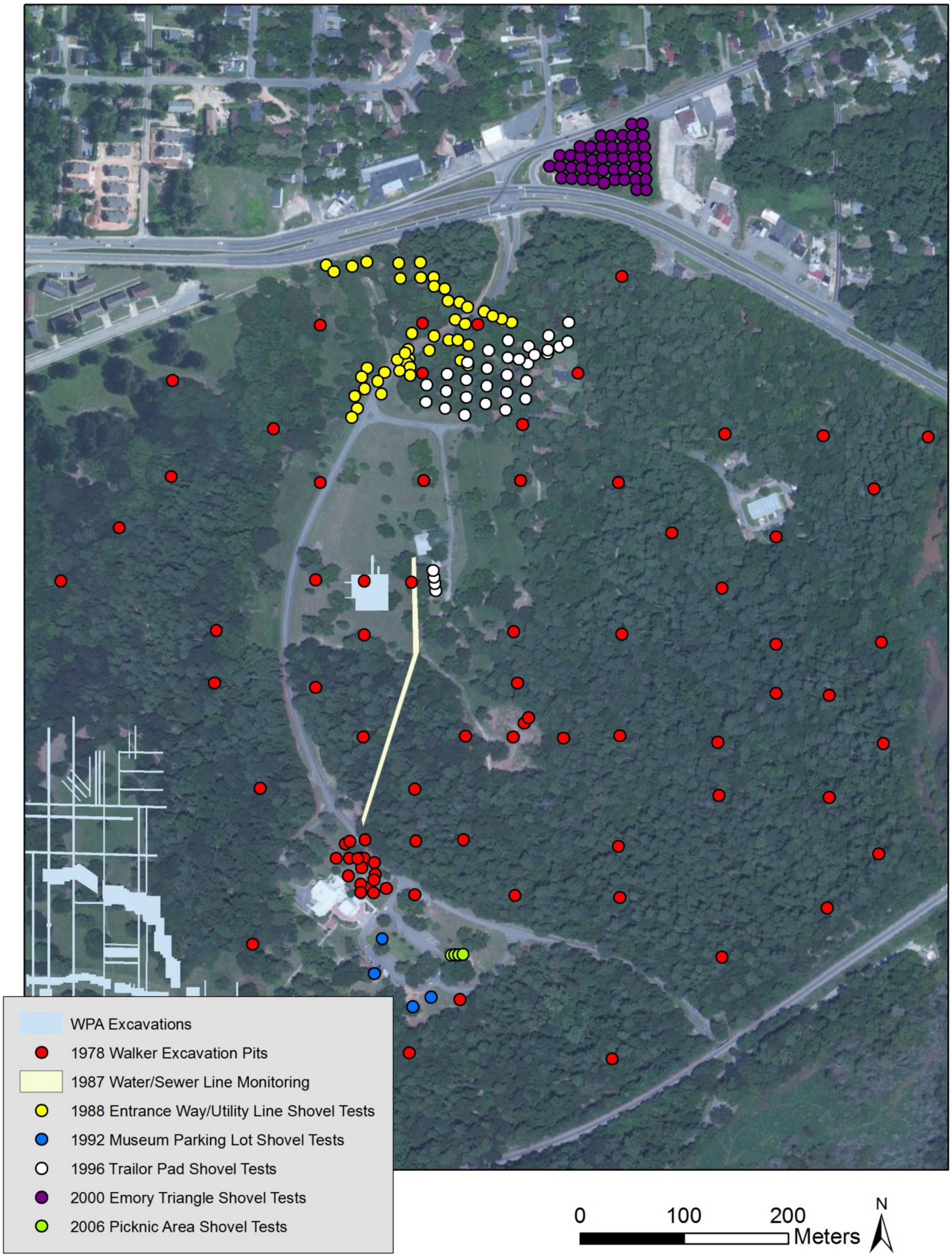

Figure 8.3. Locations of excavations on Dunlap Hill (2010 Bing Maps image).

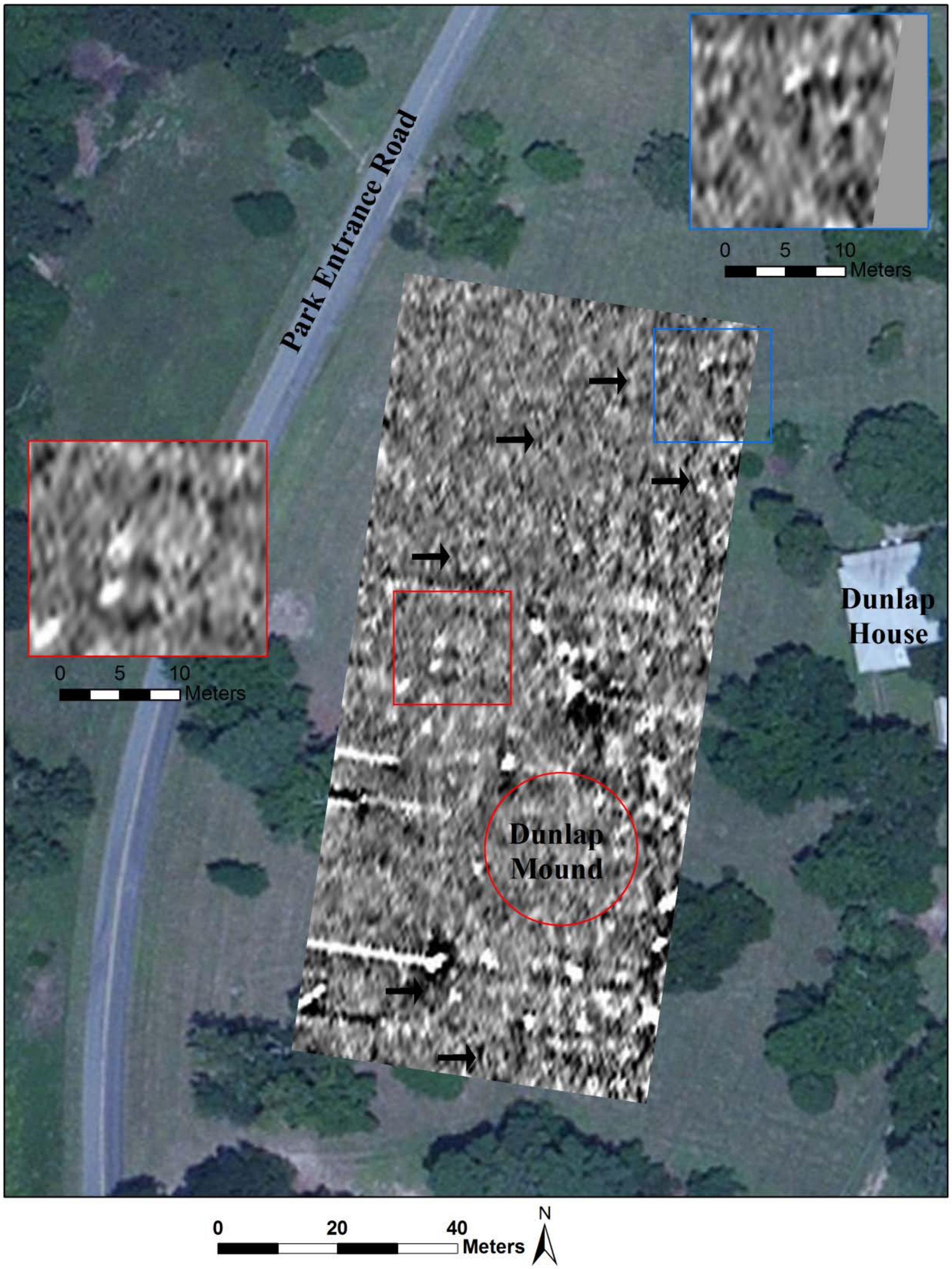

Figure 8.4. Apparent conductivity data from Dunlap Hill. Red and blue inserts show enlargements of two possible Early Mississippian structures. Black arrows indicate additional conductivity anomalies representing possible Early Mississippian structures (2010 Bing Maps image).

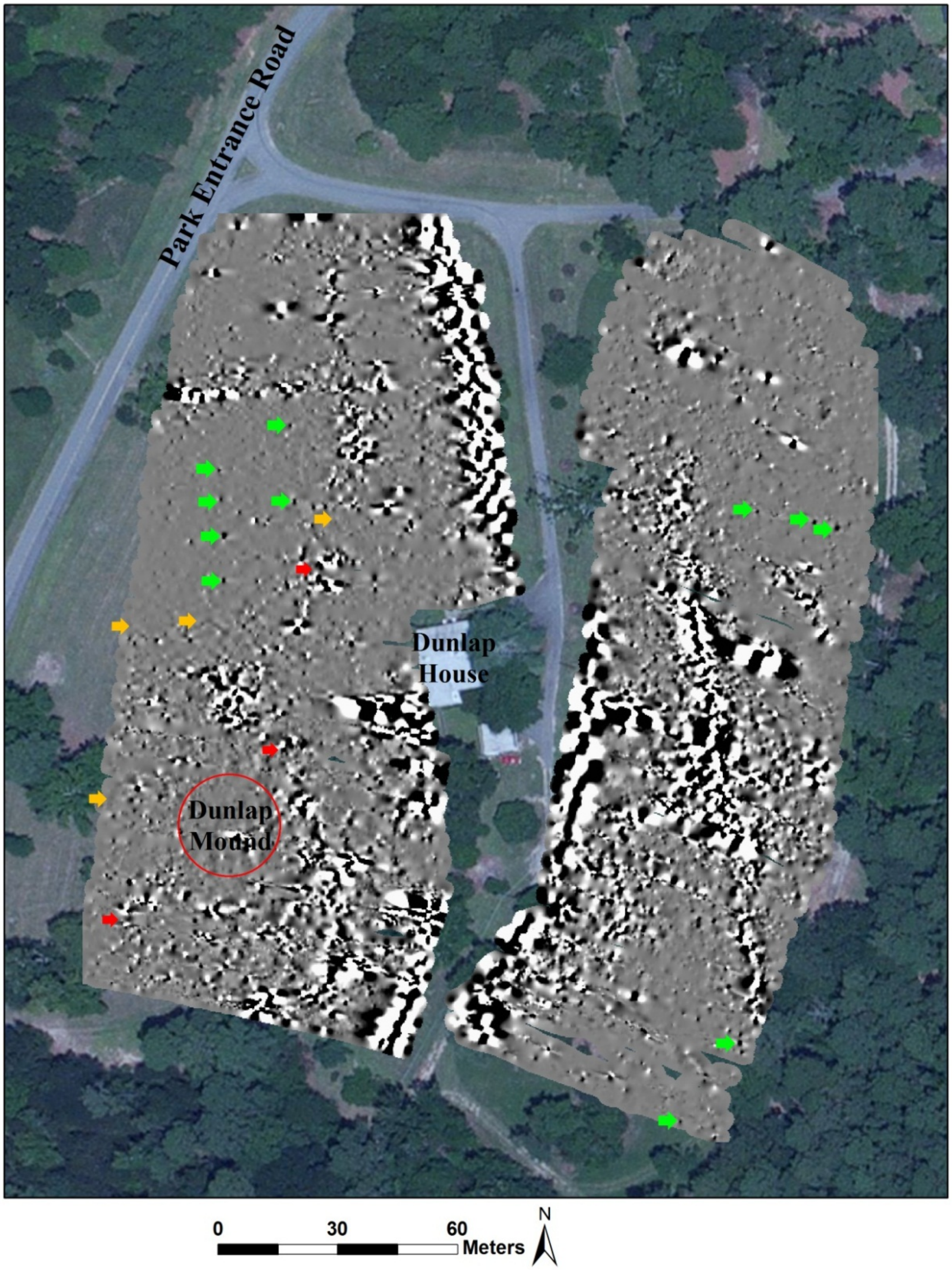

Figure 8.5. Total field magnetic data from Dunlap Hill. Red arrows indicate locations of possible burned structures, orange arrows indicate possible unburned structures, and green arrows indicate small positive magnetic anomalies representative of hearths or pits (2010 Bing Maps image).

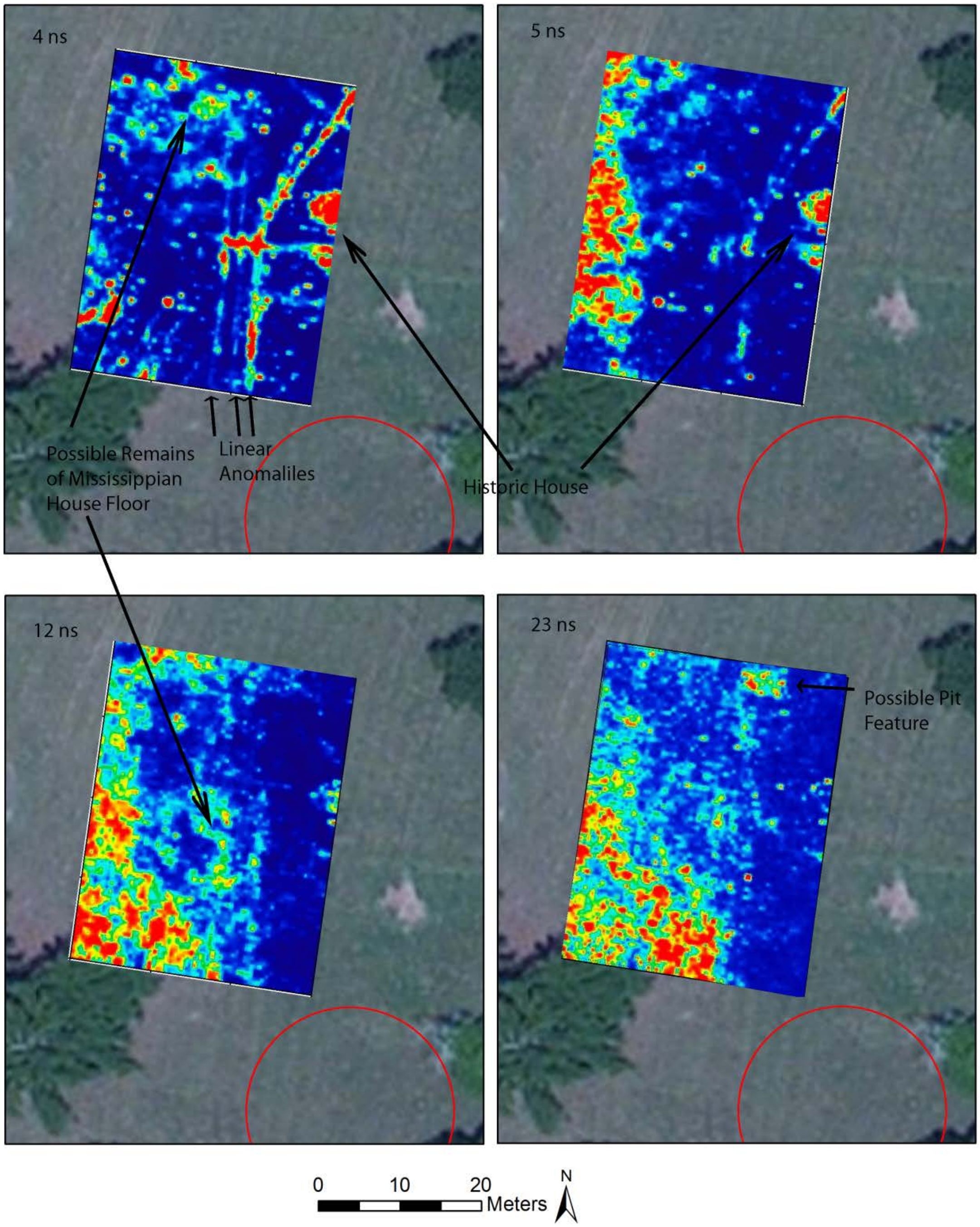

Figure 8.6. GPR time-slices at 4 ns, 5 ns, 12 ns, and 23 ns collected to the north of Dunlap Mound. The remains of a historic house, possible Early Mississippian house floors, and a pit are indicated (2010 Bing Maps image).

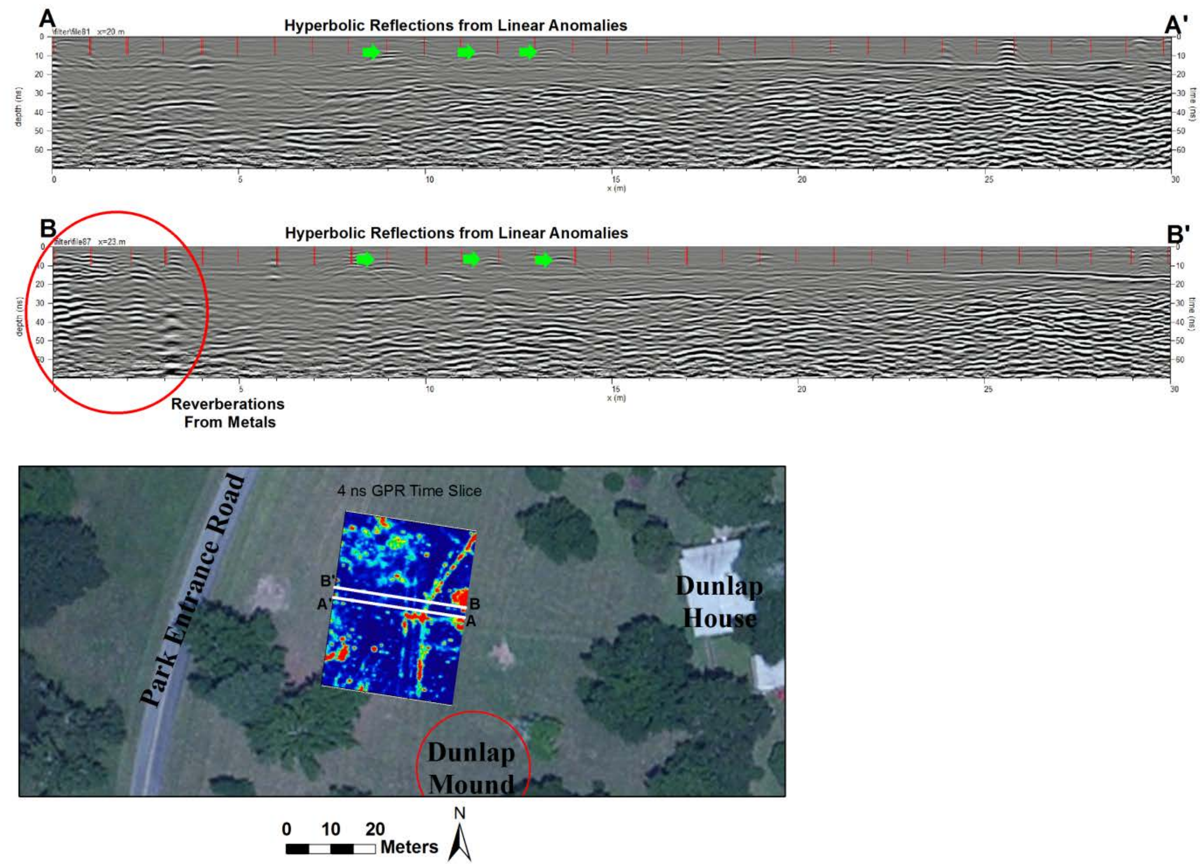

Figure 8.7. 2D radargrams showing hyperbolic reflections from linear anomalies and reverberated reflections from historic house (2010 Bing Maps image).

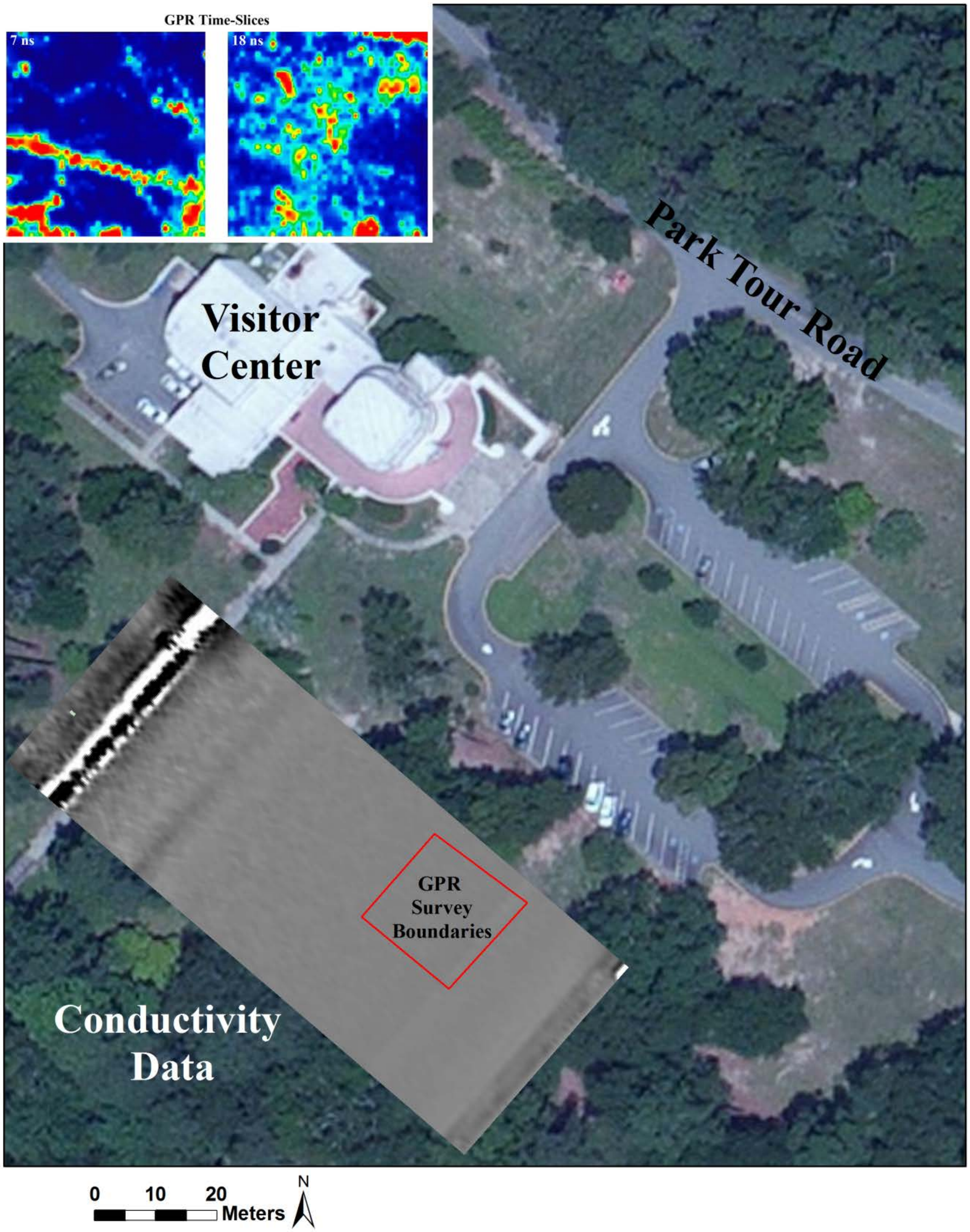

Figure 8.8. Apparent conductivity data collected on Dunlap Hill to the south of the Visitor Center with GPR time-slices at 7 ns and 18 ns (2010 Bing Maps image).

CHAPTER 9

CERAMIC CHRONOLOGY

In this chapter I present the results from my analysis of Ocmulgee ceramics. First, I present the history of ceramic studies and the current understanding of Ocmulgee chronology. Next, I review my methods and sampling strategy and describe the collections from stratified and non-stratified contexts. I provide ceramic descriptions based on style-temper combinations. Finally, I present a revised ceramic chronology of the Early Mississippian based on lip modes, Bibb Plain temper material, and types from three different stratigraphic contexts.

My ceramic analysis had three goals: (1) evaluate the possible contemporaneity of shell-tempered types and Vining Simple Stamped pottery; (2) test Ingmanson's (1964a) observations on the declining use of shell temper during the Early Mississippian; and (3) refine the ceramic chronology by comparing other possible diagnostic characteristics such as lip mode, handle form, decoration, or surface treatment.

It is necessary to revise the ceramic chronology to understand the settlement history. Unlike other Mississippian sites with continuous streams of refinements to chronology, Ocmulgee's chronology has not been readdressed since the early 1970s. The ceramics have not been analyzed for approximately four decades and the present understanding of the chronology is limited. Hally and Williams' (1994) brief reconstruction of the community history is based on Ingmanson's (1964a) identification of decreased shell use in the Bibb Plain type. Ingmanson

(1964a, 1964b) only analyzed a single occupational context and two mound contexts. I address additional occupational contexts in my study.

The chronological significance of other ceramic types and stylistic characteristics also needs to be addressed. In particular, Elliott and Wynn (1991) made a significant refinement to the central Georgia chronology. They suggest Vining Simple Stamped began approximately AD 800 and continued until approximately AD 1200. Virtually every other researcher (Fairbanks 2003 [1956]; Ingmanson 1964a, 1965; Smith 1973; Williams and Henderson 1974) identified Vining Simple Stamped (which they termed Mossy Oak Simple Stamped except for Kelly who coined the term Vining), but they dated it to the Early Woodland. Ocmulgee needed to be researched with this new understanding of Vining Simple Stamped as a useful Early Mississippian type at Ocmulgee.

Fairbanks (1956; Jennings and Fairbanks 1939, 1940) recognized the diversity in stylistic characteristics of Early Mississippian pottery. He identified variation in lip modes, vessel shapes, and handle forms, but Fairbanks never addressed the chronological significance of these variations. Temporal variation in stylistic characteristics remains an important avenue of possible refinement.

History of Ocmulgee Ceramic Chronology

The earliest reference to Ocmulgee's ceramic chronology comes from Kelly's (1938) *A Preliminary Report on Archaeological Explorations at Macon, GA*. Kelly (1938:63-66) summarized his findings in a table (1938:63-65) and suggested that the earliest pottery assemblage consists predominantly of plain grit-tempered pottery (some with cord marking) and is in association with Napier and Vining. Other early features included effigy heads on rims, fabric impressions, and net impressions (Kelly 1938:66). Kelly termed this complex Macon Plateau I. Effigy heads and Napier decreased in the following complex (Macon Plateau II), while Vining, cord marking, and Macon Plateau plain increased (Kelly 1938:66). Kelly suggested that Swift Creek, Deptford Checked, and steatite vessels post-date Macon Plateau I and II complexes, but pre-dated Lamar (Kelly 1938:66). Kelly did not provide seriation tables or frequency counts by stratigraphic level. Kelly's understanding of the Early Mississippian chronology was that rim effigy heads and fabric impressions are indicators of early occupation, Vining pre-dates Macon Plateau Plain (which he saw as different from grit tempered plain), and Macon Plateau Plain co-occurred with Vining suggesting contemporaneity.

Fairbanks (2003 [1956]:36) provides the earliest published seriation of Ocmulgee. He presented the Early Mississippian types in a seriation with all pottery types dating from the Archaic to the Historic. The two contexts Fairbanks provides are Kelly's "Old Road Survey" and Willey's Test Pits. Kelly carried out the Old Road Survey excavations to the south of Mound C, between Mound C and Mounds A and B. Willey excavated west of Mound C in the Funeral Mound parking lot.

Bibb Plain dominated Kelly's Old Road Survey, but declined in frequency over time (Fairbanks 2003 [1956]:36). Halstead Plain and Hawkins Fabric Marked occurred in small frequencies throughout all four strata. Vining Simple Stamped (termed Mossy Oak Simple Stamped by Fairbanks (2003 [1956]:36)) only occurred in small quantities in the three most recent layers, but decreased through time. None of the other Woodland types (Dunlap Fabric

Marked, Swift Creek, and Deptford Checked) showed up in the lowest layer either. Historic types did occur in the lowest layer, but increased through time. The Old Road Survey was disturbed and minimally informs our understanding of temporal variation.

Willey controlled and recorded his excavations better than most other WPA work at Ocmulgee. He labeled the deepest stratum four and the most recent stratum one. Bibb Plain dominated the lowest levels of Willey's Test Pits and Ocmulgee Fields Plain dominated the most recent levels. Hawkins Fabric Marked only occurs in levels three and four and decreases in frequency. Macon Thick occurred in levels one, two, and three, and decreased through time. Unlike the Old Road Survey, Halstead Plain only occurred in the most recent layer. Vining Simple Stamped occurred in all four layers, but Vining Simple Stamped, Macon Thick, Hawkins Fabric Marked, and Halstead all occurred as minority types. Fairbanks (2003 [1956]:41-42) placed Mossy Oak before Swift Creek. Unlike Kelly (1938), Fairbanks (Fairbanks 2003 [1956]:41-42) placed Swift Creek before the Early Mississippian.

Fairbanks (1956) based his typology on descriptions published by Jennings and Fairbanks (1939, 1940) in the Southeast Archaeological Conference Newsletter. These descriptions became the basis for all subsequent research on Ocmulgee ceramics. Williams and Thompson (1997) reused the descriptions with minimal modification in their volume on Georgia ceramic types with the exception of Mossy Oak Simple Stamped. The original descriptions from Jennings and Fairbanks (1939, 1940) are reproduced here in Appendix B. One important departure Jennings and Fairbanks (1939) make from Kelly (1938) is renaming Vining as Mossy Oak and dating Mossy Oak as an Early Woodland type. This change held for 50 years until Elliott and Wynn (1991) reexamined the problem.

The understanding of Ocmulgee's Early Mississippian chronology after Fairbanks' seriations was as follows. Mossy Oak Simple Stamped and Bibb Plain were not contemporary. Hawkins Fabric Marked was the earliest rare Early Mississippian type and preceded Macon Thick. Halstead was the last addition to the Early Mississippian assemblage.

In 1964, Ingmanson created a frequency seriation of types for the South Plateau. Ingmanson (1964a:31) classified the South Plateau stratigraphy into three groups of "occupational levels" that he named Macon Plateau A, Macon Plateau B, and Macon Plateau C; Macon Plateau A being the oldest occupational group and Macon Plateau C the most recent.

Vining Simple Stamped (still referred to as Mossy Oak Simple Stamped by Ingmanson (1964a)) accounted for 22 percent of the Macon Plateau A occupational episode, while Bibb Plain accounted for 74 percent. The frequency of Vining Simple Stamped decreased to 6 percent in Macon Plateau B, while Bibb Plain increased to 91 percent. The frequencies of Vining Simple Stamped (7 percent) and Bibb Plain (90 percent) remained relatively the same during Macon Plateau C. Even though Vining Simple Stamped decreased over time, it is important to note that no other type was represented by more than 1 percent in any occupational phase except Swift Creek. Swift Creek accounted for 2 percent in Macon Plateau A, the earliest occupational level. Vining Simple Stamped was an important component of the ceramic assemblage early on, and it remained the second most frequent type throughout the entire occupation. Ingmanson's results suggest that Vining Simple Stamped continued on throughout the sequence. Vining Simple Stamped was also represented in almost every layer of Kelly's Old Road Survey excavations and Willey's excavation pits. Bibb Plain and Vining Simple Stamped pottery co-occurred in almost every context and higher frequencies of Vining Simple Stamped should indicate Early

Mississippian occupations. However, Ingmanson (1964a) did not identify Vining Simple Stamped as an Early Mississippian type.

Fairbanks (2003 [1956]:79) was the first to count differences in Bibb Plain temper during his work on the Mound C collections. WPA excavators did not separate sherds by stratigraphic level and Fairbanks' study does not provide insight into the changing use patterns of temper. Ingmanson (1964a) first recognized stratigraphic variation in temper material in Bibb Plain. He assessed changes in temper use throughout the Macon Plateau A, B, and C occupational phases.

Shell temper dominated the Bibb Plain assemblage in the Macon Plateau A group and accounted for 74 percent of Bibb Plain sherds. Grit tempered Bibb Plain sherds only accounted for 20 percent of the Macon Plateau A occupation. By Macon Plateau B, there was more equity between shell and grit tempered Bibb Plain sherds. Shell temper was still more frequent than grit, but shell tempered Bibb Plain sherds only accounted for 53 percent of the sample, while grit tempered Bibb Plain sherds accounted for 40 percent. In Macon Plateau C, grit tempered Bibb Plain accounted for 53 percent of the sample while shell tempered Bibb Plain only made up 40 percent of the sample. The results of Ingmanson's (1964a) study indicate that shell temper was the preferred early temper material for Bibb Plain pottery, but eventually became the minority temper material. Mixed (shell and grit) tempered Bibb Plain sherds always occurred in low frequencies, never accounting for more than 7 percent of any occupational phase (Ingmanson 1964a).

Ingmanson (1964b) retested his results at Dunlap Mound and McDougal Mound. He found that the same pattern occurred in the Dunlap Mound construction stages. The lowest layer of the Dunlap Mound was comprised of 50 percent shell tempered Bibb Plain, 40 percent grit tempered Bibb Plain, and 10 percent Mixed Bibb Plain sherds. The surface layer of the Dunlap Mound consisted of only 29 percent shell tempered Bibb Plain, 67 percent grit tempered Bibb Plain, and 5 percent Mixed Bibb Plain sherds. However, the McDougal Mound construction stages did not reveal any trends.

Ingmanson's work improved our understanding of the Early Mississippian chronology for several reasons. Ingmanson worked with deep, relatively intact deposits on the South Plateau. His work revealed higher frequencies of Vining Simple Stamped, but Ingmanson did not argue contemporaneity between Vining Simple Stamped and Bibb Plain. Ingmanson's recognition of the declining use of shell is the most significant breakthrough for understanding the Early Mississippian chronology.

Williams and Henderson (1974) attempted to measure variation in Bibb Plain temper materials from the depositional layers of the filled-in ditch on the North Plateau. Unlike Ingmanson, they found "no significant variations in the proportions of shell to grit to mixed temper Bibb Plain sherds as one proceeds from bottom to top in the fill of the dugouts" (Williams and Henderson 1974:10). However, Hally and Williams (1994:93) did recognize that there was more shell and mixed tempered Bibb Plain recovered by Kelly from the outer ditch (61 percent) than the inner ditch (51 percent) and concluded that construction of the outer ditch began first.

Kelly (1938), Fairbanks (2003 [1956]), and Ingmanson (1964a, 1964b) are inconsistent in the placement of Vining Simple Stamped. Kelly suggested that Vining Simple Stamped predated Bibb Plain, but use of Vining Simple Stamped continued and eventually was contemporary with Bibb Plain. Fairbanks and Ingmanson both labeled grit tempered simple stamped as Mossy Oak

Simple Stamped and argued that it predated Bibb Plain, but was not contemporary. Until my analysis, no one has revisited the Early Mississippian ceramics from Ocmulgee in light of Elliot and Wynn's identification.

Kelly and Fairbanks agree that Hawkins Fabric Marked is a rare type that occurs early during the Early Mississippian and disappears from the record before the end of the occupation. Fairbanks' seriations suggest that Hawkins Fabric Marked predates Macon Thick and Halstead. Ingmanson's work indicates the dominant temper in Bibb Plain shifts from shell to grit as time goes on.

No archaeologists undertook chronological studies of other stylistic characteristics such as lip mode or handle form. Fairbanks (1956) recognized diversity in these characteristics, but could not assess temporal variation in Mound C construction layers due to poor recovery and recording methods. No understanding of temporal change in these characteristics exists.

Methods and Sample

I approach the analysis of Ocmulgee ceramics differently than all previous studies. I only analyzed artifacts from non-mound contexts and I examined every sherd from each analytical unit (trench/pit) to obtain complete counts that are comparable across the site. I used formal definitions and criteria to classify ceramics to control consistency. My study also marks the first time that every major geographic area at Ocmulgee was sampled in a single analysis (Figure 9.1).

Sample Selection

I investigated eight separate areas in this study (Figure 9.1). These areas represent diverse settings in Ocmulgee such as near mound and away from mound contexts. For example, the South Plateau contains two mounds and the Middle Plateau contains no mounds. Contexts represent early and late developments during the Early Mississippian occupation. For example, the South Plateau is suggested to be early and Dunlap Hill is suggested to be late (Hally and Williams 1994). Finally, contexts represent functionally distinct areas. For example, the North Plateau contained an occupational zone (Williams and Henderson 1974; Chapter 5 this volume) and the Mound C Bluff functioned as an Early Mississippian cemetery (Bigman 2010, 2011, 2012; Fairbanks 2003 [1956]).

I did not randomly select excavation units, but selected units to maximize spatial coverage. If a given area had numerous units to choose from, then I selected for high artifact counts based on previous research and chose units that transected a structure (such as on the South Plateau, Middle Plateau, and North Plateau). If a given area only had a limited number of units, then I attempted to analyze the entire collection (such as on the Southeast Plateau, Dunlap Hill, Mound C Bluff, and McDougal Mound Bluff). I searched all WPA provenience cards for each geographic area and recorded the trench unit, stratigraphic level, depth (when available), WPA number, and additional notes. Then I sorted all WPA numbers by trench number. I analyzed trenches that I could find profile drawings for and that appeared to have the entire collection at the Southeast Archeological Center (SEAC).

There is good stratigraphic control for three contexts: the South Plateau, Middle Plateau (north), and North Plateau. Due to poor recording or minimal investigations, I could not reconstruct an accurate stratigraphy for the Middle Plateau (south), Mound C Bluff, Dunlap Hill, and McDougal Mound Bluff. Willey recorded his excavations on the Southeast Plateau, but the area is severely disturbed. In the next chapter I use totals from the non-stratified contexts to reconstruct the community history (see Table 9.1 for total counts from each geographic context by type).

Descriptions of Proveniences

South Plateau. Kelly (Ingmanson 1964a) began excavating trenches on the South Plateau in 1937. He opened up a large excavation block connecting trenches 6, 8, and 10 after he uncovered architectural remains. The South Plateau contained the deepest deposits at Ocmulgee. Excavation of some trench units reached almost 3 m in depth. The stratigraphy on the South Plateau was more complicated than anywhere else at the site. Profile drawings on file at SEAC show multiple occupational levels and an artificial western expansion of the bluff edge.

Kelly uncovered a variety of architectural features on the South Plateau; among them two earth lodges. One earth lodge appeared to be rebuilt at least three times; both were circular with a fire pit in the center; and both had wall trench construction. There was also evidence of earth embankments surrounding the structures. Kelly also uncovered two circular structures built in the single-set post tradition with the fire pit located off-center to the northeast. He collected a mix of Vining Simple Stamped and Bibb Plain pottery from the “floors” of these structures. The largest rectangular structure (House A) Kelly excavated was also located on the South Plateau. This building had a fire pit located directly in its center, and several whole pots were recovered from its floor (mostly Bibb Plain jars). Finally, a small circular structure (known as House B) was identified to the east of House A. This structure did not have an entranceway and may have been used as a granary, sweat house, or other specialized function.

I classified sherds from two trenches (Trench 6 and Trench 8) on the South Plateau. These are located just north of Mound A. These trenches cut into the stratified deposits containing the structures just described. The stratigraphy was complicated on the bluff and inconsistencies between the WPA cards and profiles made vertical proveniencing difficult. Both Trenches 6 and 8 began on the central to eastern side of the bluff, extended west, and terminated beyond the bluff edge. The stratigraphy west of the bluff is composed of construction episodes from the build-out of the western bluff edge. There are three distinct sets of strata: pre-construction, first construction episode, and second construction episode (Figure 9.2). The manufactured bluff terminated on the east at the ditch. Pottery from the stratified deposits from the bluff expansion stages provided the first good evidence for ceramic variation through time.

Middle Plateau (north). Archaeological testing of the location of a pedestrian bridge connecting the Middle Plateau to the North Plateau began in July 2000 (Abbot 2000b). A posthole test excavated by the NPS contained artifacts and revealed a relatively undisturbed stratigraphy (Abbott 2000b). The NPS returned in the fall of 2000 to carry out additional mitigation. Excavations in the fall of 2000 included four shovel tests and three 1 m x 2 m test units. NPS archaeologists excavated these units down to 30-40 cm. They revealed features at this depth (McNeil 2006a:21). Uncertainty of the bridge’s expected location forced the termination of excavations.

The NPS returned to the Middle Plateau (north) mitigation project in September 2001. NPS archaeologist Jill Halchin opened up six 1 m x 1 m units in hopes of full data recovery

(Halchin 2001). The NPS excavated nine additional 1 m x 1 m units in December 2001 (McNeil 2006a:21, 24). The 1 m x 2 m units excavated in 2000 were also reopened, divided into 1 m x 1 m units, and excavated deeper (McNeil 2006a:24). The NPS excavated a total of 21 1 m x 1 m units, each ranging from 50 cm to 80 cm in depth. Every unit articulated with another unit on at least one side forming a contiguous block.

I classified sherds from every excavation unit from the 2000/2001 mitigation project. Although this area was not destroyed by the railroad construction it was the subject of intensive plowing. Small sherds were more abundant in the 2000-2001 collections than WPA collections, a reflection probably of differences in recovery methods. The NPS archaeologists screened all dirt through a 1/4 in mesh. The WPA did not screen excavations. Sherds smaller than 1 cm on a side are too difficult to classify in a meaningful way and I did not include them in my analysis. NPS archaeologists recorded the Middle Plateau (north) excavations compliant with modern standards. This provided me with accurate proveniences and allowed me to record ceramic variation from different subsurface levels.

The NPS excavators identified five separate stratigraphic levels (Figure 9.3), but recognized that these layers graded into each other and were not very distinct. The top layer consisted of thick humus and below that was a thick disturbed plow zone. Three additional layers below the plow zone are thought to be relatively intact.

North Plateau (Stratified Village Site). The Stratified Village Site (SVS) is located on the North Plateau and was excavated by Kelly (2010). The SVS was located to the west of Mound D and the Mound D-1 Earthlodge and just south of the Mound D-2 Earthlodge. During the WPA work this area was considered to be on the West Plateau and the Mound D-1 earth lodge was on the East Plateau. Now the entire area is generally called the North Plateau. The SVS got its name from the high density of post holes and pits found at various stratigraphic levels. Some posthole patterns represented the corners of a structure and most pits were located within the boundaries of what would have been the structure's limits.

There has been some difficulty in determining the stratagraphic level of each pit (Williams and Henderson 1974). The question arose: were they contemporary with the structure or a later intrusion? I identified a similar pattern of anomalies during my geophysical survey (Bigman 2010) just east of the SVS. I recorded anomalies representative of pits clustered in a square pattern (Bigman 2010, 2011). It is clear that at least some pits in the SVS were intrusive based on the high frequency of historic ceramic types and trade items (for example SVS Pit 5). Structures with numerous internal pits do not frequently occur elsewhere on the plateau during the Early Mississippian. This may suggest people living on the North Plateau accumulated more goods or food or the North Plateau was used for a specialized function. Williams and Henderson (1974) described the contents of these pits; there information presumably came from Kelly's notes on file at SEAC. Neither Williams and Henderson (1974) nor I could locate the artifacts from these pits. I only classified ceramics from horizontally stratified layers.

Excavation of the SVS began with trenches running north-south. The spaces between these trenches were excavated after Kelly uncovered numerous features and postholes. There is better recording of provenience and stratigraphy of the SVS than most other areas. I was able to track changes in ceramic characteristics from the SVS because of the higher quality of recording and relative simplicity of the stratigraphy.

The SVS consists of four distinct layers (Figure 9.4). Thin humus overlays a layer of dark tan mottled sand. Below the dark tan mottled sand is what Kelly termed an “occupational layer.” Although Kelly identified postholes above the occupational layer, he encountered the majority of postholes in the occupational layer and the mottled red clay below the occupational layer.

Mound C Bluff. Kelly began excavating trenches on Mound C Bluff in 1934. He cut east-west running trenches beginning 35 ft south of the mound and continued north, excavating trenches parallel to one another until he located the mound base. The WPA also excavated a long trench east of Mound C towards the Middle Plateau. Kelly excavated an additional 45 test pits measuring 5 ft x 10 ft at the ground level east and southeast of the Mound’s edge (summarized from Fairbanks 2003 [1956]:34-35). I could not identify the exact locations of Kelly’s excavation pits.

I classified the ceramics recovered by Kelly from the ground level excavations east and southeast of Mound C. Many of the artifacts could only be provenienced by trench or excavation pit number. There was also a large general collection which could only be provenienced to the ground level east of Mound C. I classified the collection as a whole for comparison with other areas. I did not classify artifacts from the mound, sub-mound, Willey’s pits, and the NPS compliance projects because of the disturbance in the area and the substantial percentage of historic creek artifacts compared with Early Mississippian artifacts.

Middle Plateau (South). Prokopetz (1974) and Smith (1973) reported on the WPA excavations from the Middle Plateau (south). Prokopetz (1974) focused his research on the trenches excavated to the south of the historic Trading Post. These trenches produced higher frequencies of ceramics and Kelly excavated five structures (four square structures and one round structure); all with a single-set post method of construction (Prokopetz 1974). Prokopetz (1974) identified two superimposed square structures and a round structure located directly beneath another square structure. Smith (1973) reported on control trenches 1, 2, and 4 and limited his work to ceramic classifications and counts, and reconstructing excavation history.

Artifacts recovered from the WPA excavations are curated in two separate places: SEAC in Tallahassee, Florida, and Ocmulgee National Monument in Macon, Georgia. Control trench 4 and all of its offsets are broken up between the two curational locations except for offset trench 4R7. It would not be possible to locate artifacts held by SEAC and held by Ocmulgee National Monument that correlate to a given trench to analyze as a complete unit. None of the ceramics held at the Ocmulgee National Monument museum have been catalogued, and to my knowledge there is no protocol in place that would allow me to identify WPA numbers in an efficient manner. The entire collection is primarily preserved in open metal curation drawers. As a result, offset trench 4R7 is the only compatible unit for my study.

Southeast Plateau (Willey's Stratified Survey). Gordon Willey excavated the Southeast Plateau in 1937 and 1938 as part of his Stratified Survey. Willey's Stratified Survey is the best documented and most systematic work performed at Ocmulgee during the New Deal era. Unfortunately it remains one of the least reported. Archaeologists re-analyzed data from other areas during the 1960s and 1970s, but Willey's work was only re-stated. Ingmanson (1965) reproduced Willey's artifact counts from the 1930s tables without looking at the actual ceramics. This afforded me a good opportunity to re-work the ceramics with over 70 years of new understanding.

Willey excavated four trenches in total on the Southeast Plateau, two each on two different spurs that are now bisected by the park's tour road and are located to the east of Mound E. He excavated 5 ft x 20 ft trench units in 3 in arbitrary levels below the humus which he defined as being 6 in deep. Willey excavated to an average of 30 in, with the deepest excavations reaching 42 in. According to the WPA provenience cards, Willey excavated additional test pits on the Southeast Plateau but I could not identify the locations.

I analyzed ceramics from three of these trenches: Trench 2 on Spur 1, and Trenches 1 and 2 on Spur 2. A slight emphasis was placed on these excavations because documentation was clear and consistent, this area possibly contains ceramics from more occupational phases than any other in Ocmulgee, and this area may help define the eastern boundary of the Early Mississippian occupation.

Dunlap Hill. Dunlap Hill is a bluff located in the northeastsern area of the park. WPA excavations on Dunlap Hill focused exclusively on Dunlap Mound. I did not classify or analyze artifacts recovered by the WPA from Dunlap Mound. More recently there have been archaeological investigations by the NPS in response to Section 106 compliance issues. These consisted of extensive shovel testing (Abbott 2000a; Hageseth 1996; Horvath 1988c), a large scale systematic test pit program (Walker 1978a, 1978b), and water/sewer/utility line monitoring (Cooper and Walker 1987; Horvath 1988a, 1988b). All of the NPS excavations on Dunlap Hill took place in non-mound contexts. Only two NPS projects yielded artifacts dating to the Early Mississippian occupation (Cooper and Walker 1987; Walker 1978a, 1978b).

In 1977, Walker (1978a, 1978b) excavated 53 randomly placed test pits and 24 arbitrarily placed test units in response to construction of solar panels, a new entrance road, and a maintenance facility. Cooper and Walker (1987) returned to Dunlap Hill in 1984 to monitor a trench excavated for new water and sewer lines. I integrated data from every unit in these two projects to build my sample from Dunlap Hill.

McDougal Mound Bluff. The McDougal Mound sits on top of the highest bluff in Ocmulgee National Monument and the mound's peak marks the highest point of elevation. Most of the area surrounding McDougal Mound falls outside of the park limits. The steep bluff edge rapidly descends approximately 35 m from the mound's eastern edge suggesting that Early Mississippian occupation would have been to the north, south, or west. Main Street is located immediately north of the mound and remains of an Early Mississippian settlement in that direction has been destroyed. My geophysical survey suggests few structures were located to the south and east of McDougal Mound (Bigman 2010). Very little is known about the area to the west of the mound.

Excavations in the area during the 1930s focused on the mound. Kelly oriented two control trenches north/south: one going directly through McDougal mound (Trench 2) and the other located 100 ft to the east (Trench 1). Kelly believed that a second mound was located where he excavated Trench 1 (Ingmanson 1964b). The WPA abandoned excavations after it became apparent that a second mound did not exist. This trench would have been the most appropriate context to analyze during the current study, but I could not locate the artifacts. Trench 2 bisected McDougal Mound and Kelly opened offset trenches to the west. These combined to produce a large block excavation. The offset trenches terminated beyond the western edge of the mound at the ground level. I analyzed the two western most trenches. The sample is small and almost all of the ceramics dated to the Early Woodland (Dunlap Fabric

Marked). There is very little ceramic evidence that can be used to interpret Early Mississippian activity in this area. Aside from showing totals, I leave this area out of my discussion.

Methods of Classification

My classification generally follows the steps put forward by Schroedl et al. (1985). I determined major attributes that could be used for classification. Based on Fairbanks' (2003 [1956]) and Ingmanson's (1964a, 1964b) work, these are surface treatment and temper. Temper material I identified include shell, grit, quartz, and sand. Shell is almost always leached out of Ocmulgee's sherds. Leached shell leaves linear, typically horizontal, cavities in cross section. Grit refers to a variety of minerals. I exclude quartz from the grit category because it is abundant to the exclusion of other temper material in several categories. I also distinguish quartz temper from sand (which is quartz). Quartz temper is identifiable by its angular shape. Sand is water weathered, has a smooth rounded surface, and is taken from rivers, streams, or creeks.

Additional attributes I identified include rim form, lip mode, and handle form. Rims were often small with minimal curvature, so rim form could not accurately be determined for many rims. Handles appeared less frequently than I had hoped and cannot be used as an indicator of chronological change until more handles are analyzed. Lip mode could be identified for all rims and is a temporally sensitive characteristic. I classified sherds based on the major attributes and described each class based on combinations of temper and surface treatment. Finally, I compared each of these categories with known types where possible. This multi-stepped process allowed me to remove the limitations of previously defined typologies without discarding accepted names. As a result, I was able to subsume several previously defined types into a single type and identify previously unidentified temper/surface treatment combinations.

I sorted sherds from each WPA number by temper and surface treatment. I recorded lip modes for every rim and drew rim profiles to reflect the range of variation of rim forms for each ceramic type (see Figure 9.5 for range of variation in lip modes). I took digital photographs to document representative specimens for each surface treatment or decoration.

Ceramic Descriptions

Quartz Tempered Simple Stamped

Sample Size. 491 body and 29 rims.

Paste and Temper. Paste is black, grey, or brown and sometimes includes mica. Temper consists of abundant amounts of fine to medium-sized crushed quartz. Temper size is generally uniform in each sherd. Some larger pieces of quartz occur as minor inclusions. Other grit temper materials are rare. Temper protrudes through the exterior and interior surfaces making the surface texture rough and gritty.

Surface Treatment. The exterior surfaces are covered with straight parallel ridges and grooves (Figure 9.6) made with thong or root-wrapped paddle, or pressed with a carved wooden paddle. Stamping is applied with varying orientations. Many sherds have multiple stamps crossing at various angles, but clearly not all were produced in this style. A small number of vessels have horizontal lines incised around the neck or body. Stamping occurs both above and below the incision. In sum, there was a wide variety of stamping techniques, stamp orientations, stamp styles, and stamp sizes.

Rims and Lips. Vessel forms consist of bowls and jars. Rims (Figure 9.7) are slightly incurvate, vertical, or slightly excurvate. Lips (Figure 9.7) are rounded, flattened, or squared and are rarely tapered or thickened. Twenty-two rims had rounded lips, 4 rims had flattened lips, and 3 rims had squared lips.

Comments. Quartz tempered simple stamped sherds from Ocmulgee conform to the type Vining Simple Stamped as defined by Kelly (1938:31, 59), Elliott and Wynn (1991), and Meyers et al. (1997).

Chronological Placement. Elliott and Wynn (1991) suggest the chronological range of Vining Simple Stamped is AD 800-1200. Pluckhahn (1997:30) reported on C-14 dates from the Tarver site (9JO6) in southwestern Jones County, Georgia, approximately 10 km northwest of Ocmulgee. Charcoal from bone and pottery recovered in Feature 92 yielded a radiocarbon age of 960 +-60 BP, and a calibrated date of AD 985-1220 at two sigma probability. A charcoal sample from Feature 277 had an age of 1020 +-60 BP and a calibrated date of AD 895-1170 at two sigma. Pluckhahn indicated the calibrated ranges overlap between AD 985 to 1170. Worth (1996) ran dates on soil from Raccoon Ridge which closely correspond to Elliot and Wynn's suggested range and Pluckhahn's carbon dates. These dates overlap with the Early Mississippian occupation at Ocmulgee.

Quartz Tempered Cord Marked

Sample Size. 20 body.

Paste and Temper. The paste and temper are the same as Quartz Tempered Simple Stamped. Paste is black, grey, or brown and quartz temper size ranges from fine to medium with rare inclusions of larger quartz pieces and other temper material. Temper protrudes through the surface providing a gritty or rough feel.

Surface Treatment. The exterior is cord marked, possibly pressed with a twisted cord wrapped paddle. Cord marks are parallel, but applied in varying orientations. Some sherds have multiple chord marks crossing at various angles.

Rims and Lips. No rims or lips.

Comments. The paste and temper conform to the paste and temper of Vining Simple Stamped, but cord marking has rarely if ever been observed in other contexts. Wauchope (1966:52) observed fine to medium, sand and grit tempered cord marked sherds from the Wilbanks (9Ck5), Noonday Creek (9Ck7), Will White (9Wh29), and Lithonia (9Da1) sites, which he classified as Mossy Oak Cord Marked. Wauchope only observed rounded and flattened lips, which are generally similar to the lip modes occurring with Quartz Tempered Simple Stamped. There are also small numbers of cord marked sherds from Ocmulgee that have different paste and temper characteristics. Temper materials in these sherds are more heterogeneous than Quartz Tempered Cord Marked. Temper particle sizes were also less uniform and ranged from medium to coarse. Finally, paste color varied and included light and dark shades. These sherds probably belong to an earlier Woodland component and I classified them as Indeterminate Grit Tempered Cord Marked

Chronological Placement. Wauchupe dates Mossy Oak Cord Marked to the Early Woodland with Mossy Oak Simple Stamped. Williams and Thompson (1999:81) recommend against using the name Mossy Oak Cord Marked because “nobody has used this [type name] except [Wauchupe].” As with Mossy Oak Simple Stamped, Mossy Oak Cord Marked should be relassified as an Early Mississippian type. Quartz Tempered Cord Marked sherds from Ocmulgee should be classified as Vining Cord Marked; a rarer decorative technique compared to simple stamping.

Shell Tempered Plain

Sample Size. 3068 body and 343 rims.

Paste and Temper. Paste is often grey, red, or orange. Temper consists of medium to coarse shell, grit, and quartz. Most sherds have of a mixture of shell and grit. Rarely does shell appear without grit. Sherds with more grit tend to have a gritty feel and are heavier than sherds with more shell. Shell is almost always leached out.

Surface Treatment. Surfaces are smooth and often eroded (Figure 9.8). Some body sherds have one or two nodes (Figure 9.9). One body sherd has two parallel horizontal lines incised on the vessel body that extended around the entire vessel (Figure 9.10). There are enough large sherds to suggest that most vessels are undecorated.

Rims and Lips. Vessel forms consist of bowls and jars. Rims (Figure 9.11) are incurvate, straight, and excurvate. Lip forms of Shell Tempered Plain rims vary widely (Figure 9.11) and can be classified into nine separate modes: rounded (n=187), flattened (n=113), squared (n=8), rounded/rolled (n=12), flattened/rolled (n=3), flattened/grooved (n=8), rounded/folded (n=1), rounded/beveled (n=2), and rounded/flanged (n=7). There is more diversity of lip modes in Shell Tempered Plain rims than other types.

Two rims have bird or owl effigies (Figure 9.12) on their exterior surface above the rim. Both of these rims were probably parts of bowls. One appears to have owl tufts and the other has a broad face and broken beak.

Comments. Shell Tempered Plain sherds conform to the Bibb Plain, McDougal Plain, and Brown's Mount Plain types as defined by Fairbanks (1956), Jennings and Fairbanks (1940), and Williams (1993). All of these types have been identified as being shell tempered or a mix of shell and grit temper. The difference between them is vessel form. Jennings and Fairbanks only identify vessels with "globular" bodies and "sharply angled shoulders" as being Bibb Plain. They identify McDougal Plain as only consisting of "large circular basin[s] with slightly sloped sides." Some have recognized the difficulty in sorting various shell tempered plain types, specifically in distinguishing between Bibb Plain and McDougal Plain (Williams and Thompson 1999:76). Brown's Mound Plain vessels are "essentially Bibb Plain in the form of little owl effigies that are perched on the lips of Bibb Plain bowls…Owl effigies are the defining characteristic" (Williams and Thompson 1999:17). It would be difficult then to identify a sherd as coming from a Brown's Mount Plain bowl if it does not have an owl effigy and many Brown's Mount Plain bowl fragments undoubtedly would end up in the Bibb Plain category.

I view these three types as representing different vessel form attributes or modes and classify all shell tempered plain pottery as Bibb Plain. The range of Shell Tempered Plain rim forms includes additional jar forms and presumably bowls without effigies molded onto the rim. Bibb Plain should be defined as a shell tempered plain ware that consists of jars of varying constriction and possibly shape, large round basin pans, and bowls that sometimes have rim effigies.

Varieties. I distinguish three varieties of Bibb Plain based on the amount of shell present in the temper mix. Sherds either have more shell than grit, less shell than grit, or a relatively equal amount of shell and grit. The amount of shell used in Bibb Plain temper mixtures seems to decrease through time (Ingmanson 1964a). As a result, recognition of the three varieties is crucial to my ceramic analysis. I identify sherds with more than 50% shell as Bibb Shell, sherds with more than 50% grit as Bibb Grit, and sherds with similar frequencies of shell and grit as Bibb Mixed. These distinctions can be made accurately and reliably with the naked eye (Figure 9.13). If a distinction cannot be made between Bibb Shell and Bibb Grit, then I classify the sherd as Bibb Mixed suggesting that the frequencies of shell and grit is too close to warrant clear distinction. The Bibb Mixed variety is less useful than the other two and always occurs in small frequencies.

Chronological Position. Two radiocarbon dates have been obtained from Ocmulgee and one from Brown's Mount (Ingmanson 1964a, Wilson 1964). One from Ocmulgee came from charred timbers above the Mound D-1 earth lodge floor and dates to AD 1015 +- 110 years. The other came from charred timber in House A on the South Plateau and dates to AD 1040 +- 115 years. The Brown's Mount sample was comprised of charcoal from a house floor and dates to AD 980 +- 150 years. All three dates should be accepted with caution because all were run early in the development of the method. However, all suggest an Early Mississippian date.

Shell Tempered Red Filmed

Sample Size. 34 body and 18 rims.

Paste and Temper. Paste is tan, orange, or red. Temper consists of abundant medium to coarse shell with rare inclusions of grit. Shell is leached out in every case.

Surface Treatment. Surfaces are smooth with traces of red filming (Figure 9.14). Red film occurs on either the interior or the exterior. No specimen has red film on both the interior and the exterior.

Rims and Lips. Vessel forms consist of jars, bowls, and plates. Rims (Figure 9.15) are most often straight, sometimes incurvate, and never flared. Lip forms include rounded (n=5), flattened (n=9), squared (n=1), rounded/rolled (n=2), and rounded/flanged (n=1). Shell Tempered Red Filmed is the only category with more flattened lips than rounded lips.

Comments. Red filming on shell tempered pottery was first identified by Fairbanks (2003 [1956]), but he did not classify these into a distinct category. Lewis and Kneberg (1984 [1946]) identified shell tempered red filmed pottery at Hiwassee Island, but the sherds at Ocmulgee differ from those at Hiwassee Island in several ways. Hiwassee Island Red Filmed vessel forms include bottles and bowls. The Shell Tempered Red Filmed vessel forms from Ocmulgee include bowls, jars, and plates. Lip modes of Hiwassee Island Red Filmed rims only include rounded and folded while lip modes of Shell Tempered Red Filmed rims from Ocmulgee include rounded, flattened, squared, rolled, and flanged. Lewis and Kneberg (1984 [1946]) do not mention if red filming on Hiwassee Island Red Filmed sherds occurs on the interior. It clearly does occur on the exterior of bottles, but they do not mention where filming occurs on bowls. Red filming at Ocmulgee occurs on the interior of some vessels and the exterior of other vessels, suggesting its placement is related to vessel form. Some Hiwassee Island Red Filmed vessels contained effigy heads. I observed no effigies on Shell Tempered Red Filmed sherds from Ocmulgee.

I observed Kasita Red Filmed sherds in the sample that date to the historic Creek occupation. Kasita Red Filmed is distinguishable because it has thinner walls and is sand and grit tempered. This type always co-occurs with other historic types such as Ocmulgee Fields Plain, Ocmulgee Fields Incised, and Walnut Roughened.

It is likely that Shell Tempered Red Filmed was more abundant during the Early Mississippian than the counts suggest. Weathering of pottery surfaces has doubtless removed the thin layer of red filming from some sherds. This probably deflates the frequency of Shell Tempered Red Filmed and inflates the frequency of Bibb Plain.

Chronological Position. Contemporary with Bibb Plain.

Shell Tempered Fabric Marked

Sample Size. 243 body and 1 rim.

Paste and Temper. Paste is grey, tan, orange, red, or brown. Temper consists of abundant, medium to coarse shell with rare inclusions of grit. Shell is leached out in every case. There were only two sherds with more grit than shell.

Surface Treatment. Surfaces are marked with twined fabric (Figure 9.16), often in a regularly shaped grid. Some surfaces were marked with weft-faced fabric, where twined horizontal yarns were spaced so closely that vertical yarns could not be distinguished (Spanos 2009:82). This fabric style could be distinguished from cord wrapped stick impressions because no linear convex ridges are observable on the surfaces of Shell Tempered Fabric Marked sherds.

Rims and Lips. I recorded only one Shell Tempered Fabric Marked rim and as a result cannot comment on the diversity or lack of diversity in rim forms or lip modes. The lip mode I recorded was rounded, but earlier researchers recorded rounded, flattened, thickened and grooved lips (Jennings and Fairbanks 1940:132). Some eroded sherds were possibly incurvate rims suggesting a large constricted bowl.

Comments. Shell Tempered Fabric Marked sherds conform to the Hawkins Fabric Marked type as defined by Kelly (1938) and Jennings and Fairbanks (1940). These researchers identified abundant coarse shell temper vessels with straight rims. Jennings and Fairbanks (1940:132) suggested that Hawkins Fabric Marked vessels were all “large open circular basin[s]” with a flattened base and fabric markings covered the “entire surface up to the lip.” I recorded several examples where fabric marking did not cover the entire vessel (see Figure 9.17 for an example). This observation has an important implication for understanding style and decoration. It is probable that some plain sherds classified as Bibb Plain actually came from unmarked portions of Hawkins Fabric Marked vessels.

Chronological Position. Contemporary with Bibb Plain.

Shell Tempered Simple Stamped

Sample Size. 9 body.

Paste and Temper. Paste is white or grey. Temper is medium to coarse shell with occasional fine to medium grit inclusions. Shell is leached out in all nine sherds. Grit does not protrude to the interior or exterior surface. Temper and paste most closely resembles Bibb Shell.

Surface Treatment. Exterior surfaces are smoothed and stamped with parallel broad, shallow, linear simple stamps (Figure 9.18). No sherds contained overstamping. Stamping covered the entire exterior surface of each sherd. The data do not allow a determination of how much of a vessel was stamped.

Rims and Lips. No rims.

Comments. According to Williams and Thompson (1999), there are no other examples of shell tempered simple stamped sherds from other sites in Georgia. As with the range in shell and grit temper characteristic of Bibb Plain, these sherds are best seen as a variation on the type, or variety of, Vining Simple Stamped.

Chronological Position. Contemporary with Bibb Plain.

Shell Tempered Cord Marked

Sample Size. 19 body.

Paste and Temper. The paste and temper is the same as Shell Tempered Simple Stamped, Hawkins Fabric Marked, and Bibb Plain. Shell temper is abundant and medium to coarse in size. Shell is leached out of all sherds. Occasional medium to coarse grit; grit never protrudes to surfaces.

Surface Treatment. Interior surfaces are smooth. Exterior surfaces have twisted twine markings (Figure 9.19). Cord marks are separated from each other by uniform distances. I did not compare distances between markings across the Shell Tempered Cord Marked sample.

Comments. Shell Tempered Cord Marked do not conform to other previously defined types. Lewis and Kneberg (1984 [1946]) identified shell tempered cord marked ceramics at Hiwassee Island, but these made up a larger portion of the assemblage. Shell tempered cord marked sherds have also been found in Georgia, but associated with later Mississippian contexts (Hally 1978:179-181). The cord markings on the Shell Tempered Cord Marked sherds at

Ocmulgee resemble Vining Cord Marked, but with different temper, and could be classified as a variety of that type.

Chronological Position. Contemporary with Bibb Plain.

Fine Shell Tempered Polished

Sample Size. 409 body and 41 rims.

Paste and Temper. Paste is grey, black, or brown. Temper consists of finely crushed shell that is sometimes difficult to identify. Grit is never included in the temper mix. Vessel walls are thin.

Surface Treatment. Surfaces are smoothed, often polished, and rarely eroded (Figure 9.20). I recorded nodes on vessel bodies and rims, but this modification is rare.

Rims and Lips. Vessel forms include jars, bowls, and bottles. Lip modes of Fine Shell Tempered Polished (Figure 9.21) are limited to rounded (n=29), flattened (n=10), and squared (n=2).

Comments. Shell Tempered Polished sherds from Ocmulgee conform to the Halstead Plain type defined by Jennings and Fairbanks (1940:127-128). They define the type as having fine shell temper with smooth, polished or painted surfaces. I did not observe painted sherds. Jennings and Fairbanks emphasize the importance of the bottle form and indicated that effigies are a rare modification made to bottle rims (hooded bottles), but they also recognize jar, bowl, and simple bottle forms. Jennings and Fairbanks identified only rounded lips. Rounded lips dominate the sample in my analysis, but flattened lips are represented in approximately 25 percent and squared lips are represented in approximately 5 percent.

Chronological Position. Contemporary with Bibb Plain.

Fine Grit Tempered Incised

Sample Size. 8 body.

Paste and Temper. Paste is tan, red, or orange. Temper is scarce to moderate, fine to medium sized grit. Grit rarely protrudes to interior or exterior surface. Surface texture is smooth and walls are thick.

Surface Treatment. Surfaces are decorated with broad, deep incised lies. Incised lines are oriented horizontal or vertical, some are curvilinear. Designs are simple.

Rims and Lips. No rims.

Comments. Fine Grit Tempered Incised conform to the Macon Thick type defined by Kelly (1938) and Jennings and Fairbanks (1940). They identified more variety of surface treatments including chord marking, stamping, and punctate. Kelly (1938) observed surged lips; some lips were incised. Vessels are considered to be small and represent only cylindrical jars with small orifices.

Chronological Position. Contemporary with Bibb Plain.

Results and Discussion

Temporal Variation in Ceramic Type Frequencies

The frequency of Vining Simple Stamped in the South Plateau is greatest in the pre-construction layer and decreases through time (See Appendix C for totals). Bibb Plain occurs with low frequency in the pre-construction layer and increases through time (Figure 9.22). Vining dominates the lowest level and is found in higher frequency than Bibb Plain. Vining decreases, but its frequency remains over 10 percent in the first and second construction episodes. Napier Complicated Stamped was in the pre-construction layer on the South Plateau, but was a minority type (Figure 9.22). It virtually vanished by the first construction episode, occurring only as a single sherd. Napier was not in the second construction episode. This is an important contrast with Vining Simple Stamped and means that the type should not be considered Early Mississippian at Ocmulgee.

Hawkins Fabric Marked and Shell Tempered Red Filmed occur as minority types in the South Plateau. However, these types do not occur until the first construction episode (Figure 9.22). Hawkins Fabric Marked and Shell Tempered Red Filmed replace Napier Complicated Stamped to almost an exact percentage. The frequencies of Hawkins Fabric Marked and Shell Tempered Red Filmed decrease in the second construction episode (Figure 9.22).

Halstead is an important type found in high frequency in the first and second construction episodes. Halstead appears in the pre-construction episode as a minority type (Figure 9.22). This indicates that Halstead was one of the earliest additions to the Early Mississippian assemblage, but I do not know if a pre-Bibb Plain/Halstead occupation existed or what the assemblage consisted of. Halstead increases to almost 20 percent in the first and second construction stages. The fivefold increase in Halstead and the additions of Hawkins Fabric Marked and Shell Tempered Red Filmed in the first construction episode suggests a move toward a more diverse assemblage. This trend foreshadows similar trends toward diversity in both the Bibb Plain Temper and Lip Mode characteristics.

My analysis from the Middle Plateau is less revealing, but several of the trends I observed on the South Plateau can also be observed on the Middle Plateau (Figure 9.23). Vining Simple Stamped first occurs in the second to lowest layer and decreases in frequency in the third to lowest layer. The top and second layers have higher frequencies of Vining Simple Stamped, but this is probably the result of heavy plowing. I did not record sherd weights, but NPS archaeologists recognized severe plow disturbance (McNeil 2006a). Although no Vining Simple Stamped occurs in the lowest layer, and Bibb Plain and Halstead Plain do, the total number of sherds recovered from this layer is 10. The absence of Vining Simple Stamped from the lowest layer could be due to sample size. Halstead decreases through time on the Middle Plateau (north). Halstead accounts for approximately 22 percent in the second to lowest level on the Middle Plateau (north) (Figure 9.23), but Halstead drops to below 10 percent in the third to lowest layer and continues to decrease to approximately 2 percent in the most recent layer.

The general trends that occur in both the Middle Plateau and the South Plateau are as follows: Vining Simple Stamped continues on and co-occurs with the rest of the Early Mississippian assemblage throughout the occupation, Halstead appears early on (in the deepest layers), Shell Tempered Red Filmed and Hawkins Fabric Marked occur as minority types and are not represented until the two most recent stratigraphic layers, and Bibb Plain dominates the Early Mississippian assemblage. Contrary to Ingmanson’s (1964a) Macon Plateau B and C occupations, Bibb Plain only ranges from 62 percent to 84 percent of the entire Early Mississippian assemblage. In the context I analyzed on the South Plateau, Bibb Plain never exceeds approximately 72 percent in any given layer.

The frequency of Bibb Plain in the North Plateau Stratified Village Site context never is below approximately 80 percent (Figure 9.24). Vining Simple Stamped occurs in every layer, and generally decreases through time (Figure 9.24), but occurs in much lower frequencies than in either the Middle Plateau (north) or the South Plateau layers. Halstead also occurs in lower frequency on the North Plateau compared with the Middle Plateau (north) and South Plateau, but does appear in every layer.

Hawkins Fabric Marked occurs in the lowest stratum on the North Plateau (Figure 9.24). Macon Thick occurs in the second to lowest stratum. Shell Tempered Red Filmed appears in the second layer from the surface and all three minority types (Macon Thick, Hawkins Fabric Marked, and Shell Tempered Red Filmed) appear in this layer (Figure 9.24).

Several conclusions can be derived about Early Mississippian chronology from my analysis. Vining occurred in higher frequency early on in the Early Mississippian, decreased through time, but generally remained part of the ceramic complex. Bibb Plain increased in frequency through time and began to dominate the Early Mississippian assemblage. Halstead occurred early on, but its distribution may have a spatial component as well as a temporal component. It increased in frequency through time on the South Plateau, decreased in frequency through time on the Middle Plateau (north), and occurred in minor frequencies throughout time on the North Plateau. Hawkins Fabric Marked and Shell Tempered Red Filmed types appear after Halstead and Bibb Plain. Macon Thick may have appeared after Hawkins Fabric Marked and Shell Tempered Red Filmed.

A limitation of my type analysis was my inability to classify Vining Plain. Vining paste, temper, and forms were not well defined at Ocmulgee, but during my analysis these characteristics became clear. Future research should aim to classify Vining Plain. This addition may have significant effects on future understanding of Ocmulgee chronology and settlement history. I classified possible Vining Plain in my Unidendified Grit Plain category.

Temporal Variation in Bibb Plain Temper

I tested the presumption formulated by Ingmanson (1964a) regarding the declining use of shell as a temper material in Bibb Plain pottery. All three stratified contexts conform to the general trend identified by Ingmanson (See Appendix C for totals). The pre-construction layer and the first construction layer on the South Plateau have over 50 percent Bibb Shell (Figure 9.25). The frequency of Bibb Shell falls to only 30 percent in the second construction layer. Bibb Grit also goes from below 50 percent in the pre-construction layer and first construction layer to almost 60 percent in the second construction layer.

The Bibb Shell/Bibb Grit frequencies on the Middle Plateau (north) also see a similar inflection point where Bibb Shell goes from being the dominant variety to the minority variety (Figure 9.26). Bibb Shell outweighs Bibb Grit in the bottom three layers. This relationship changes in the top two layers where Bibb Grit becomes dominant. Bibb Grit is below 50 percent in the bottom three layers and is above 50 percent in the top two layers (Figure 9.26). It reaches almost 60 percent in the humus.

The frequency of Bibb Shell declines over time and the frequency of Bibb Grit increases over time on the North Plateau (Figure 9.27). There is an important difference however between the North Plateau and the other two contexts. There is no inflection point where Bibb Grit goes from the minority variety to the majority variety. Bibb Grit is always the majority variety (Figure 9.27). In the lowest layer there is relative equity between Bibb Shell (47 percent) and Bibb Grit (50.5 percent), but Bibb Grit occurs slightly more frequently. Bibb Grit steadily increases and Bibb Shell steadily decreases in each subsequent layer. Bibb Shell decreases to only 25 percent in the most recent layer and Bibb Grit increases to 71 percent (Figure 9.27).

Temporal Variation in Lip Modes

Researchers recognized variation in Early Mississippian lip modes since the WPA investigations (Fairbanks 2003 [1956]; Jennings and Fairbanks 1940). However, they never stratigraphically traced this variation. The South Plateau and North Plateau are the only two contexts where I could track variation in lip modes through time (See Appendix C for totals).

The pre-construction layer on the South Plateau contained three different lip modes: rounded, flattened, and rounded/beveled (Figure 9.28). Rounded lips dominate the layer, flattened lips appear in moderate frequency, and rounded/beveled lips are rare. In the first construction layer there is an increase in total number of lip modes to six. These include rounded, flattened, rounded/beveled, rounded/rolled, rounded/folded, and flattened/grooved. Rounded rims do not dominate the layer. Rounded and flattened rims are roughly equal in proportion. The other four lip modes are equivalent in rarity. In the second construction phase there is a decrease in the total number of lip modes back to three. Rounded rims increase slightly in proportion, but rounded and flattened rims remain generally equivalent. The additional mode, flattened/grooved, is rare. The rare mode in the second construction layer differs from the rare mode in the pre-construction layer.

The stratigraphy reveals an increase in lip mode variation during the first construction phase (Figure 9.28). This has much to do with the increase in Bibb Plain pottery in the layer. The pre-construction layer consists of large proportions of Vining Simple Stamped and Bibb Plain. Vining Simple Stamped vessels only have rounded, flattened, and squared lips. Bibb Plain vessels have nine different lip modes. However, the second construction episode also only contains three types. Diversity in lip modes correlates with the initial expansion of shell tempered pottery, but there is a homogenization later on in the sequence. The increased variation only seems concurrent with the early onset of the Early Mississippian occupation. It does not last throughout the entire occupation.

All but the second to lowest layer on the North Plateau contain two lip modes (Figure 9.29). Furthermore, rounded lips increasingly dominate each layer making flattened lips less and less equitable. The second to lowest layer contained a total of three lip modes including: rounded, squared, and rounded/flanged. No flattened lips were recovered from the second to lowest layer. Rounded lips and flattened lips were most equitable in the lowest layer and the most diversity occurs in the second to lowest layer. The general trend is toward less diversity over time.

Ceramic Chronology

I recognize four chronological stages in the stratified deposits (See Table 9.2 for a summary of chronological characteristics of each stage). Stage 1 consists of high frequencies of Vining Simple Stamped and Bibb Plain and low frequencies of Halstead. Bibb Shell accounts for over 50 percent of Bibb Plain. Lip modes show minimal diversity. Rounded lips occur in high quantity and flattened lips are the only other common type. Rounded lips outweigh flattened lips. Rounded/beveled rims occur as a rare mode.

Stage 2 is marked by a reduced frequency of Vining Simple Stamped and an increased frequency of Bibb Plain to over 60 percent. Halstead increases in frequency and more rare types such as Hawkins Fabric Marked and Red Filmed emerge. Bibb Shell remains over 50 percent of the Bibb Plain assemblage. An increase in lip mode diversity occurs during Stage 2. New modes such as rounded/rolled, rounded/folded, flattened/grooved, squared, and rounded/flanged occur.

Stage 3 is marked by an inflection point where Bibb Grit increases in frequency and becomes a larger percentage than Bibb Shell in the Bibb Plain type. Bibb Grit accounts for over 50 percent of Bibb Plain. The reduction of Vining Simple Stamped continues, but the type still accounts for 5 to 10 percent of the assemblage. Halstead also remains between 10 and 15 percent of the assemblage. Other rare types such as Hawkins Fabric Marked and Red Filmed decrease in occurrence and may cease to be produced.

Bibb Grit continues to rise relative to Bibb Shell during Stage 4. Bibb Grit represents 60 to 70 percent of Bibb Plain. Presumably Vining Simple Stamped and other early rare types cease to be used or produced. Halstead is reduced to a minority type. The diversity of lip modes decreases significantly and rare modes such as rounded/beveled, founded rolled, rounded/folded do not occur. Rounded lips dominate the assemblage and there is a reduction in the frequency of flattened lips.

Chapter Summary

This chapter presented the goals and methods of my ceramic analysis, the history and present understanding of Ocmulgee's chronology, descriptions of the Early Mississippian ceramic types, the selection process and description of proveniences, the results of my classification, and a new chronology based on types, temper, and lip modes. I tracked the variation of types, Bibb Plain temper, and lip modes through time in three different stratified contexts: the North Plateau, Middle Plateau (north), and the South Plateau. Vining Simple Stamped is more abundant early on in the sequence, but continues on and is part of the Early Mississippian assemblage. Bibb Shell is identified in higher frequencies early and decreases through time. Lip modes increase in variety, and the variety of modes are more equitable early. I identified four chronological stages.

Table 9.1. Ceramic totals from each geographic context by type.

SEAC Acc#	129		123		210		1683		122		319; 686		227		227		211		
Study Area	North Plateau		Mound C Bluff		South Plateau		Middle Plateau (N)		Middle Plateau (S)		Dunlap Hill		Southeast Plateau (Spur 2)		Southeast Plateau (Spur 1)		McDougal Mound Bluff Top		Totals
Total Sherds	1309		934		2659		854		207		348		2193		1059		74		9637
Bibb Plain	923	70.51%	252	26.98%	1030	38.74%	265	31.03%	88	42.51%	191	54.89%	613	27.95%	41	3.87%	8	10.81%	3411
Bibb Shell	349	26.66%	118	12.63%	551	20.72%	98	11.48%	45	21.74%	47	13.51%	387	17.65%	17	1.61%	4	5.41%	1616
Bibb Mixed	42	3.21%	16	1.71%	78	2.93%	37	4.33%	23	11.11%	18	5.17%	67	3.06%	7	0.66%	0	0.00%	288
Bibb Grit	537	41.02%	124	13.28%	406	15.27%	130	15.22%	20	9.66%	126	36.21%	338	15.41%	17	1.61%	4	5.41%	1702
Shell Temp Red Filmed	2	0.15%	15	1.61%	28	1.05%	3	0.35%	0	0.00%	0	0.00%	4	0.18%	0	0.00%	0	0.00%	52
Halstead	86	6.57%	47	5.03%	244	9.18%	19	2.22%	5	2.42%	6	1.72%	42	1.92%	1	0.09%	0	0.00%	450
Vining Simple Stamp	57	4.35%	65	6.96%	294	11.06%	50	5.85%	34	16.43%	0	0.00%	17	0.78%	3	0.28%	0	0.00%	520
Indeterminate Grit Plain	162	12.38%	131	14.03%	847	31.85%	433	50.70%	51	24.64%	118	33.91%	740	33.74%	527	49.76%	6	8.11%	3015
Napier Comp Stamp	16	1.22%	61	6.53%	8	0.30%	0	0.00%	0	0.00%	0	0.00%	24	1.09%	25	2.36%	0	0.00%	134
Swift Creek	0	0.00%	9	0.96%	14	0.53%	0	0.00%	0	0.00%	5	1.44%	52	2.37%	180	17.00%	0	0.00%	260
Deptford Check	4	0.31%	43	4.60%	17	0.64%	22	2.58%	2	0.97%	2	0.57%	62	2.83%	24	2.27%	0	0.00%	176
Dunlap Fabric Marked	0	0.00%	56	6.00%	10	0.38%	1	0.12%	0	0.00%	4	1.15%	43	1.96%	11	1.04%	36	48.65%	161
Deptford Simple Stamp	0	0.00%	2	0.21%	15	0.56%	0	0.00%	6	2.90%	1	0.29%	4	0.18%	5	0.47%	5	6.76%	38
Cord Marked Grit	6	0.46%	1	0.11%	9	0.34%	11	1.29%	1	0.48%	6	1.72%	10	0.46%	17	1.61%	0	0.00%	61
Hawkins Fabric Marked	7	0.53%	52	5.57%	26	0.98%	2	0.23%	0	0.00%	0	0.00%	157	7.16%	0	0.00%	0	0.00%	244
Indeterminate Comp Stamp	0	0.00%	0	0.00%	2	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	2
Indeterminate Stamp	19	1.45%	46	4.93%	51	1.92%	15	1.76%	14	6.76%	3	0.86%	145	6.61%	91	8.59%	0	0.00%	384
Net Impressed	0	0.00%	0	0.00%	3	0.11%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	3
Woodstock Comp Stamp	0	0.00%	0	0.00%	1	0.04%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1
Etowah Comp Stamp	0	0.00%	0	0.00%	2	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.09%	0	0.00%	3
Indeterminate Brush	0	0.00%	0	0.00%	4	0.15%	0	0.00%	0	0.00%	0	0.00%	1	0.05%	0	0.00%	0	0.00%	5
Macon Thick	4	0.31%	2	0.21%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	2	0.09%	0	0.00%	0	0.00%	8
Indeterminate Incised	2	0.15%	2	0.21%	3	0.11%	0	0.00%	0	0.00%	1	0.29%	11	0.50%	6	0.57%	0	0.00%	25
Indeterminate Decorated	3	0.23%	34	3.64%	34	1.28%	28	3.28%	4	1.93%	9	2.59%	47	2.14%	91	8.59%	2	2.70%	252
Indeterminate Weathered	12	0.92%	0	0.00%	3	0.11%	0	0.00%	0	0.00%	0	0.00%	7	0.32%	0	0.00%	17	22.97%	39
Indeterminate Heavily Crusted	0	0.00%	0	0.00%	2	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	2
Fiber Temp Plain	0	0.00%	55	5.89%	3	0.11%	0	0.00%	2	0.97%	2	0.57%	16	0.73%	36	3.40%	0	0.00%	114
Fiber Temp Simple Stamp	0	0.00%	12	1.28%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	6	0.27%	0	0.00%	0	0.00%	18
Fiber Temp Punctate	0	0.00%	5	0.54%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	5
Steatite	0	0.00%	10	1.07%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	10
Vining Cord Mark	0	0.00%	17	1.82%	0	0.00%	3	0.35%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	20
Shell Temp Cord Marked	1	0.08%	11	1.18%	1	0.04%	2	0.23%	0	0.00%	0	0.00%	4	0.18%	0	0.00%	0	0.00%	19
Shell Temp Simple Stamp	0	0.00%	0	0.00%	2	0.08%	0	0.00%	0	0.00%	0	0.00%	7	0.32%	0	0.00%	0	0.00%	9
Shell Temp Incised	0	0.00%	0	0.00%	1	0.04%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1

Table 9.1. (continued).

SEAC Acc#	129		123		210		1683		122		319; 686		227		227		211		
Study Area	North Plateau		Mound C Bluff Top		South Plateau		Middle Plateau (N)		Middle Plateau (S)		Dunlap Hill		Southeast Plateau (Spur 2)		Southeast Plateau (Spur 1)		McDougal Mound Bluff Top		Totals
Kasita Red Filmed	5	0.38%	13	1.39%	0	0.00%	2	0.23%	0	0.00%	0	0.00%	2	0.09%	0	0.00%	0	0.00%	22
Ocmulgee Fields Plain	98	7.49%	171	18.31%	3	0.11%	490	57.38%	57	27.54%	0	0.00%	28	1.28%	1	0.09%	0	0.00%	848
Ocmulgee Fields Incised	15	1.15%	174	18.63%	0	0.00%	46	5.39%	26	12.56%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	261
Walnut Rough	27	2.06%	94	10.06%	0	0.00%	198	23.19%	34	16.43%	0	0.00%	0	0.00%	1	0.09%	0	0.00%	354
Chatahoochee Brush	0	0.00%	0	0.00%	0	0.00%	11	1.29%	1	0.48%	0	0.00%	0	0.00%	1	0.09%	0	0.00%	13
Lamar Bold	0	0.00%	2	0.21%	0	0.00%	0	0.00%	1	0.48%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	3
Lamar Incised	0	0.00%	0	0.00%	0	0.00%	0	0.00%	4	1.93%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	4
White/Yellow/Pearl Ware; Porcelain	3	0.23%	53	5.67%	4	0.15%	3	0.35%	0	0.00%	4	1.15%	0	0.00%	0	0.00%	0	0.00%	67
Historic Earthenware	1	0.08%	6	0.64%	0	0.00%	2	0.23%	0	0.00%	2	0.57%	0	0.00%	0	0.00%	0	0.00%	11
Stoneware	3	0.23%	104	11.13%	1	0.04%	2	0.23%	0	0.00%	35	10.06%	0	0.00%	0	0.00%	0	0.00%	145
Kaolin Pipe	0	0.00%	7	0.75%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	7

Table 9.2. General summary of ceramic chronological characteristics by stage.

	VSS	Bibb	Halstead	Rare Types	Bibb Temper	Lip Mode Diversity
Stage 1	Moderate	Moderate	Low	Absent	More Shell	Low
Stage 2	Low	High	Moderate	Present	More Shell	High
Stage 3	Rare	High	Moderate	Present	Slightly More Grit	Low
Stage 4	Absent	High	Low	Absent	More Grit	Lowest

Figure 9.1. Distribution of excavation units I used in my ceramic analysis (2010 Bing Maps image).

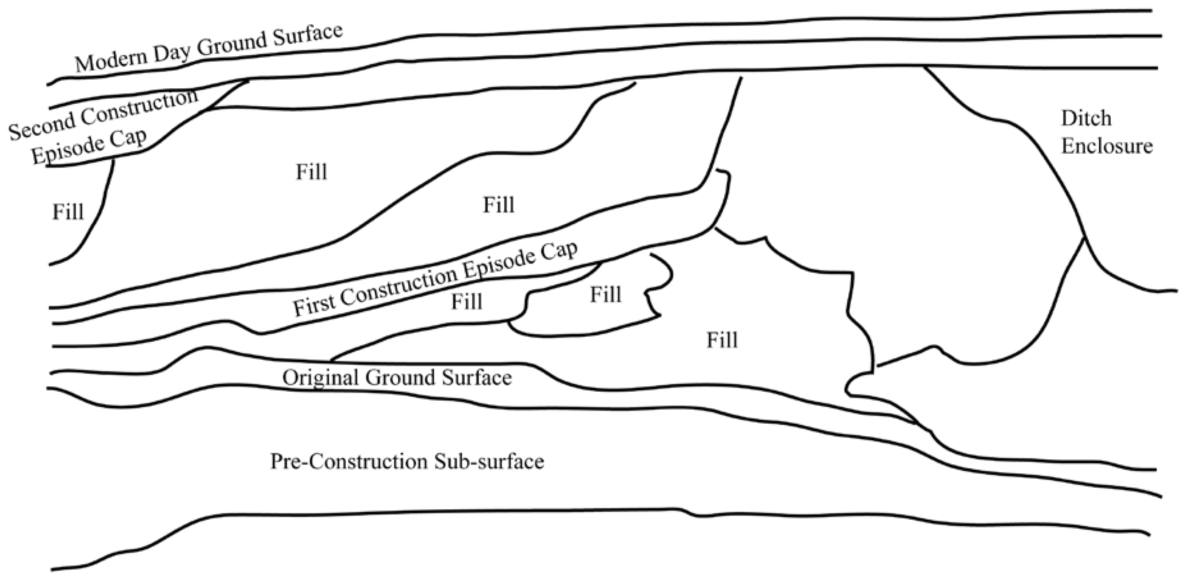

Figure 9.2. Profile drawing of control trench 6 on South Plateau showing construction episodes of western bluff top edge (After Kelly's field notes).

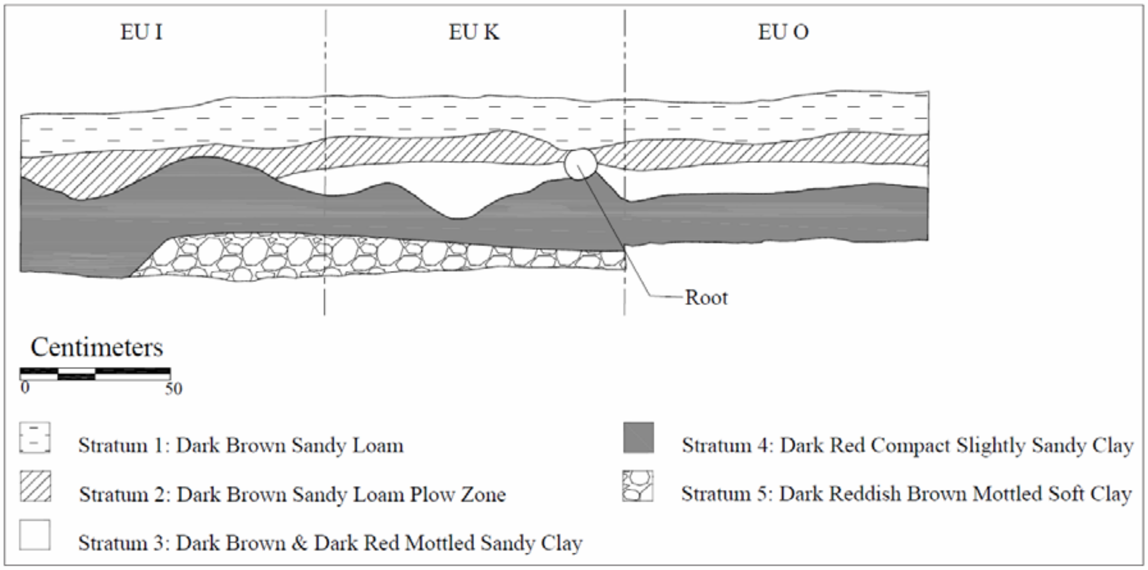

Figure 9.3. Profile drawing from NPS Middle Plateau bridge excavations (after McNeil 2006).

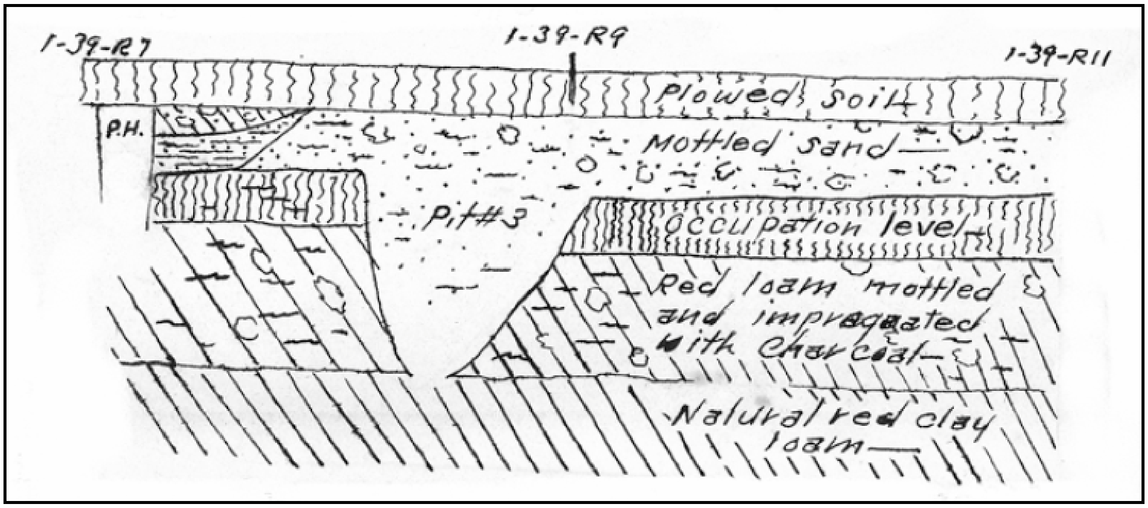

Figure 9.4. Profile drawing of North Plateau Stratified Village Site offset trench 1-39 (after Kelly 2010).

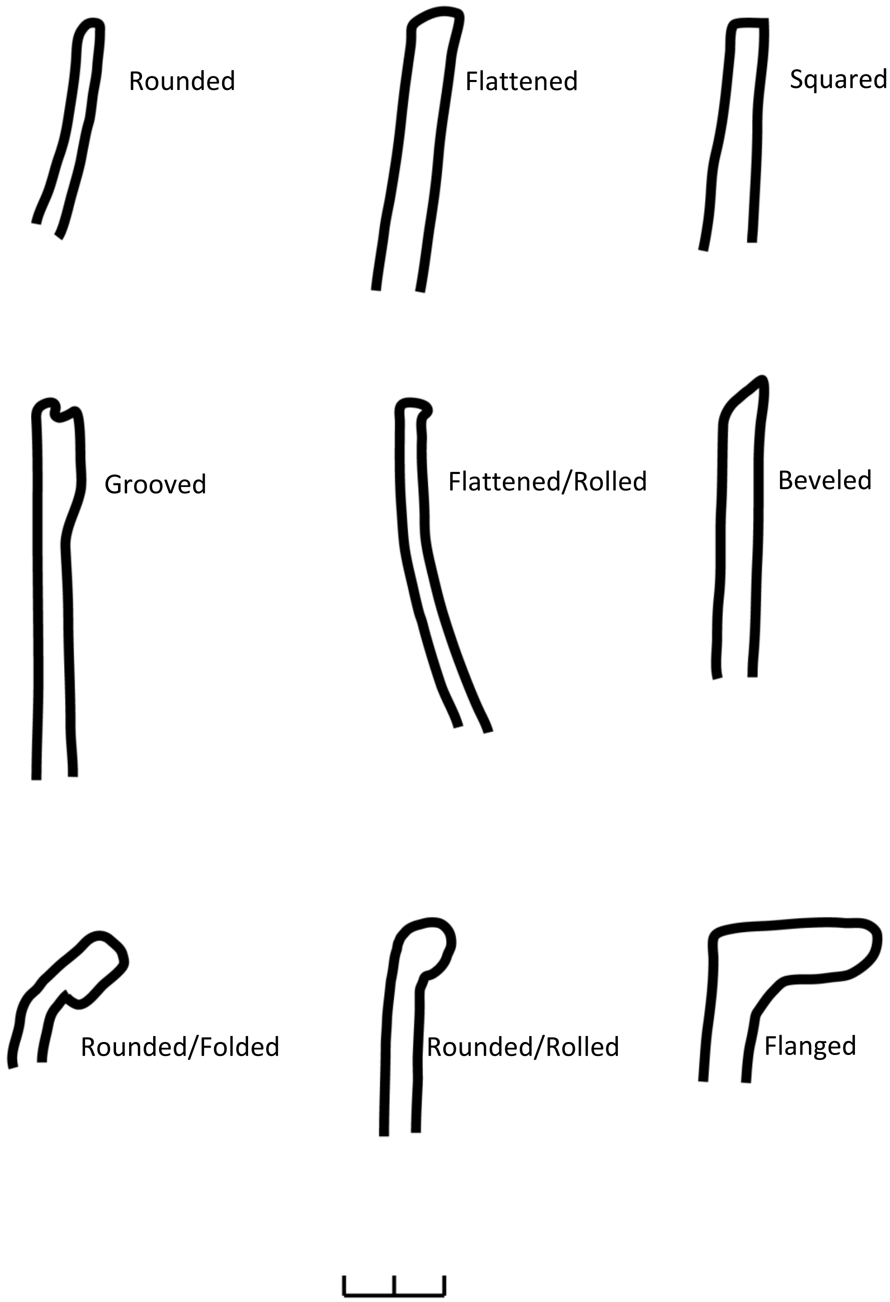

Figure 9.5. Early Mississippian lip modes.

Figure 9.6. Vining Simple Stamped.

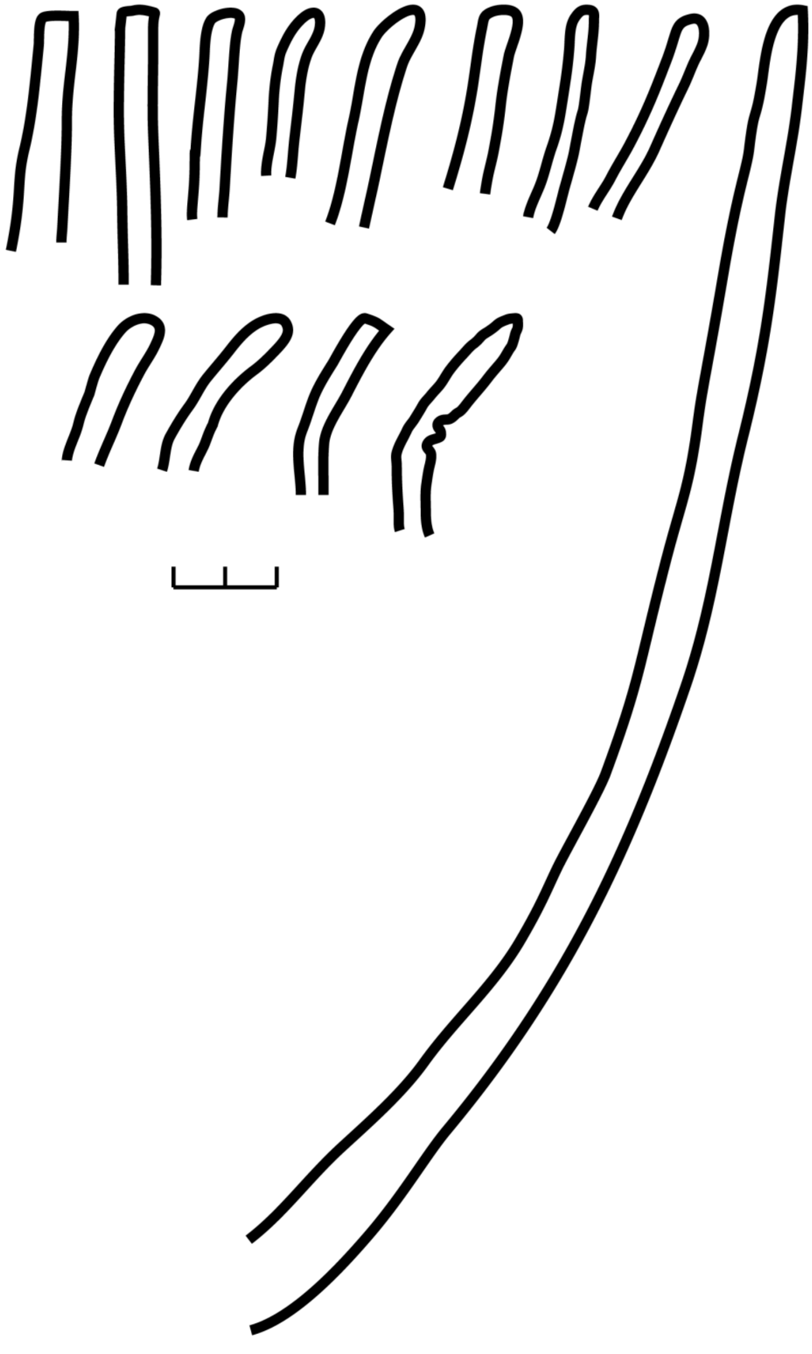

Figure 9.7. Vining Simple Stamped rim profiles.

Figure 9.8. Bibb Plain.

Figure 9.9. Bibb Plain with body node.

Figure 9.10. Bibb Plain with double horizontal incised lines extending around body.

Figure 9.11. Bibb Plain rim profiles.

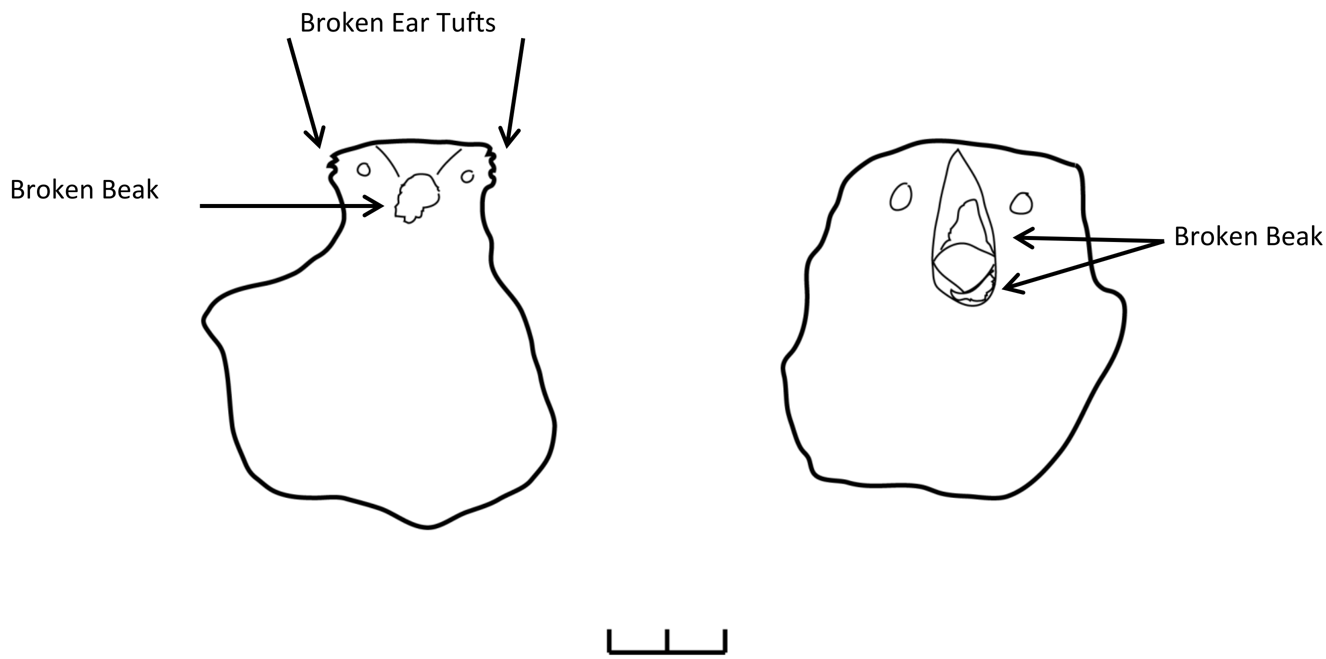

Figure 9.12. Bibb Plain (Brown's Mount) rims with bird effigies.

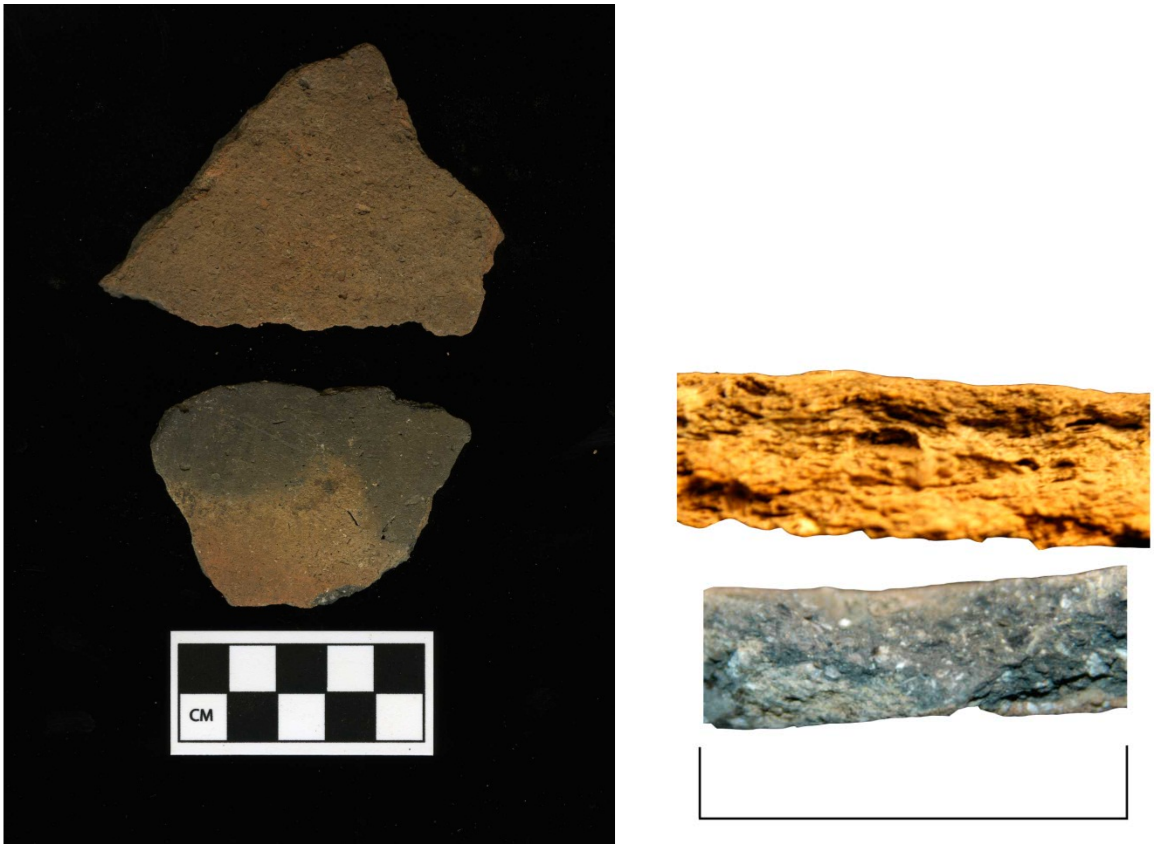

Figure 9.13. Comparison of Bibb Plain varieties: left shows external surfaces of Bibb Shell (top) and Bibb Grit varieties, and right shows cross sections of Bibb Shell (top) and Bibb Grit (bottom) varieties. Bibb Shell variety shows significantly more leaching of shell on the exterior and in cross section.

Figure 9.14. Red Filmed.

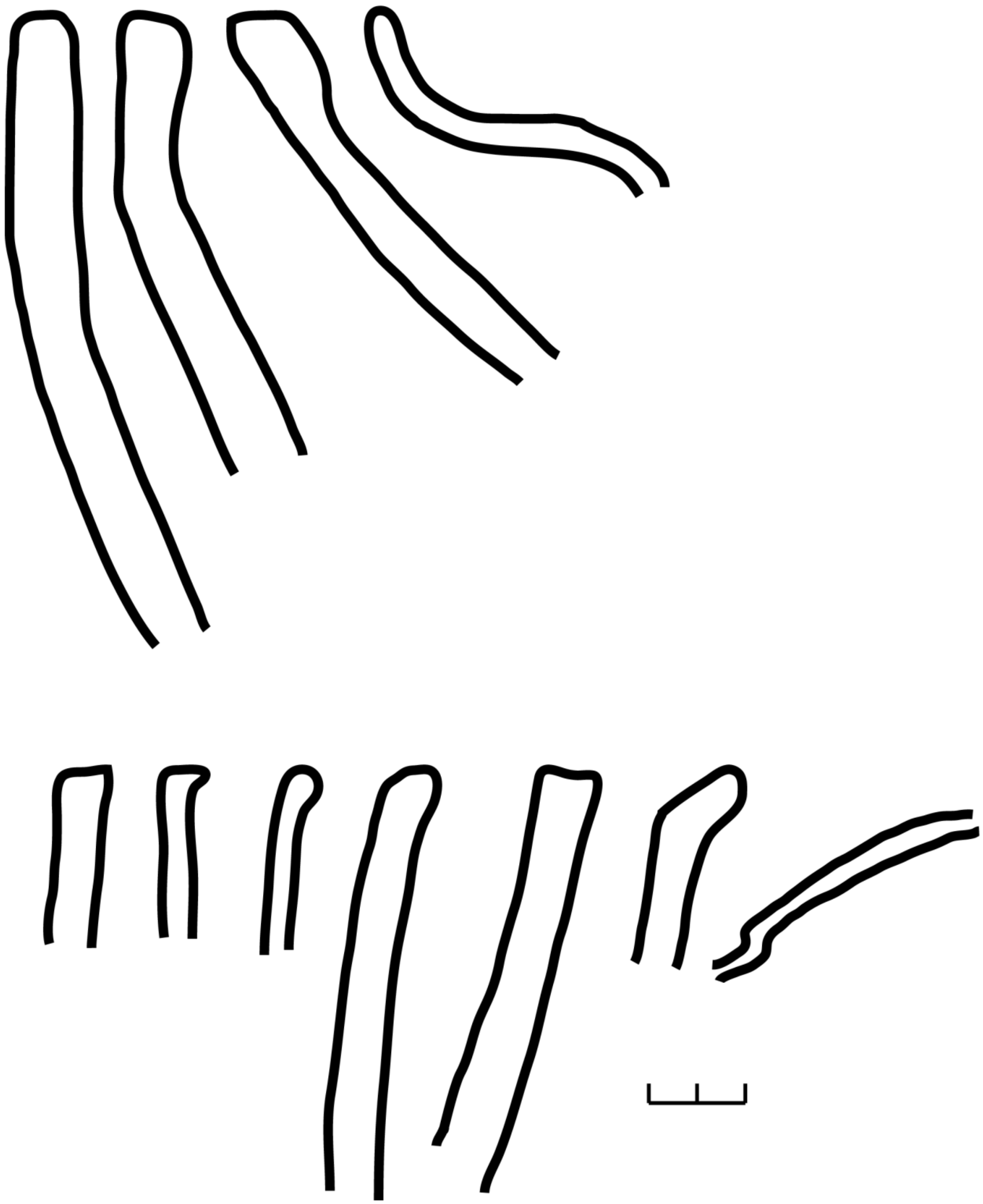

Figure 9.15. Red Filmed rim profiles.

Figure 9.16. Hawkins Fabric Marked.

Figure 9.17. Hawkins Fabric Marked with fabric impressions only covering part of vessel.

Figure 9.18. Shell Tempered Simple Stamped.

Figure 9.19. Shell Tempered Cord Marked.

Figure 9.20. Halstead Plain.

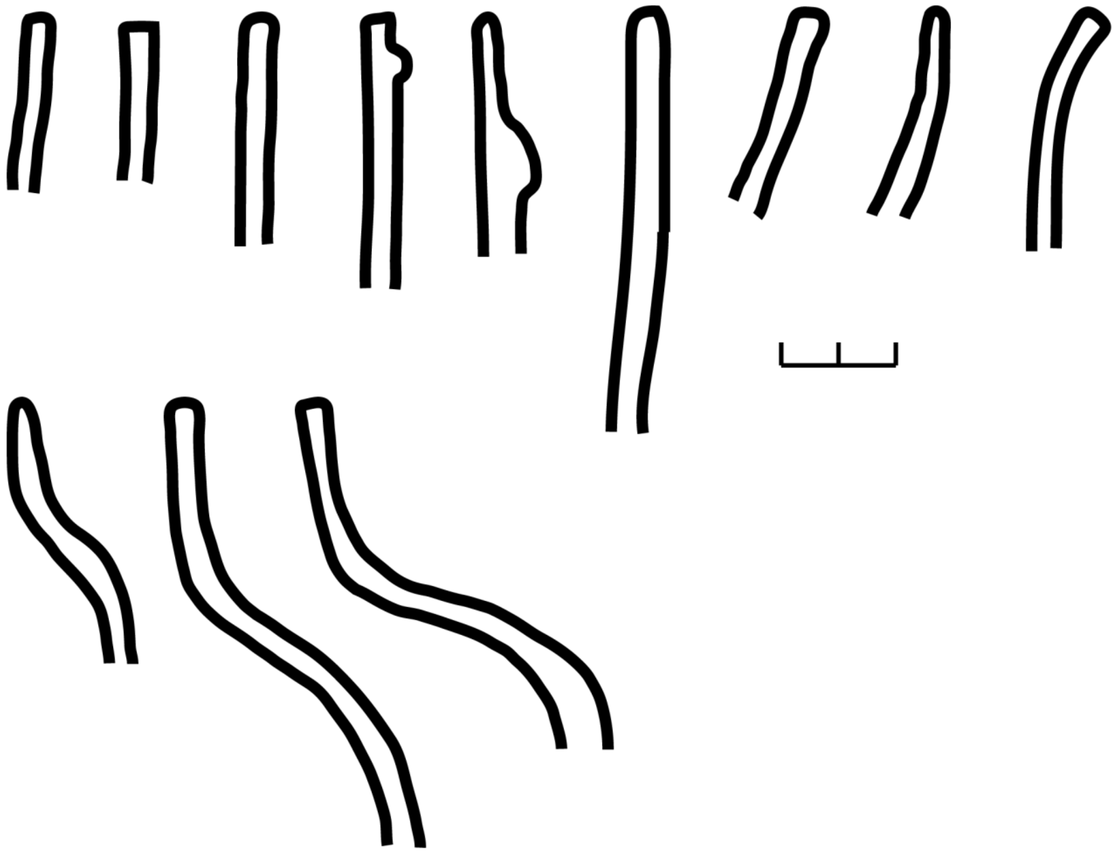

Figure 9.21. Halstead rim profiles.

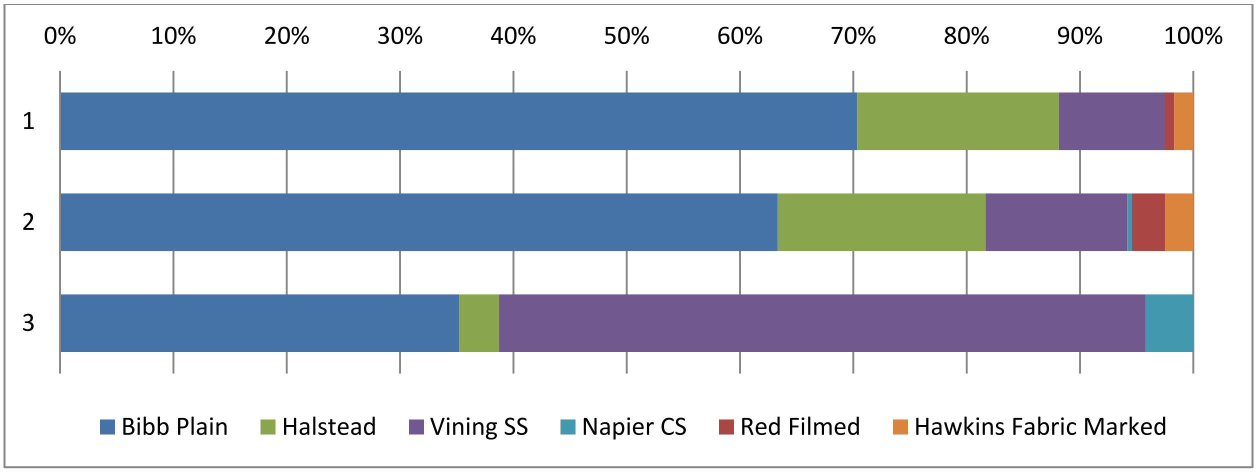

Figure 9.22. Frequencies of types by construction episode on South Plateau; 1 = second construction layer, 2 = first construction layer, 3 = pre-construction layer.

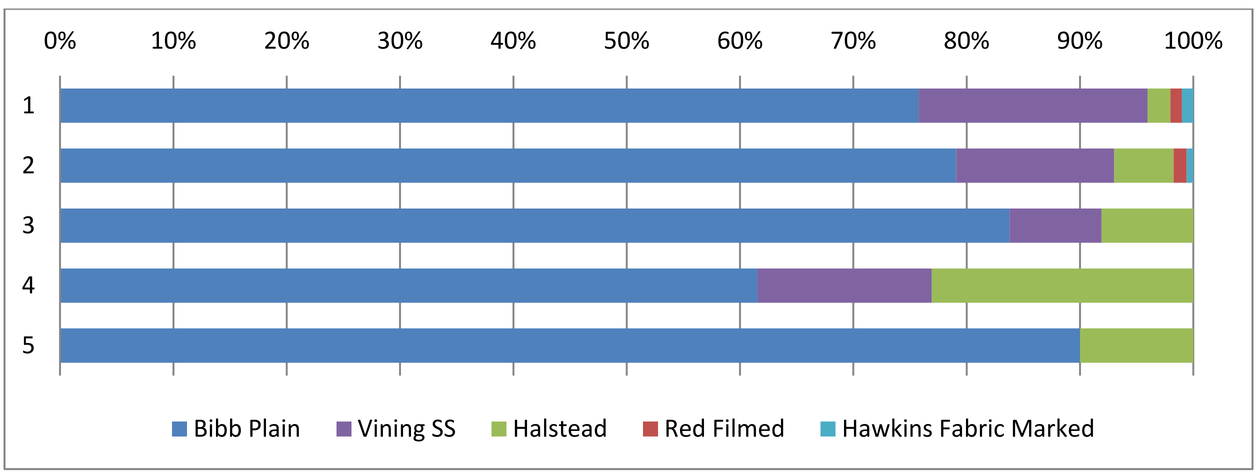

Figure 9.23. Frequencies of types by stratigraphic layer on Middle Plateau; 1 is the most recent layer, 5 is the oldest layer.

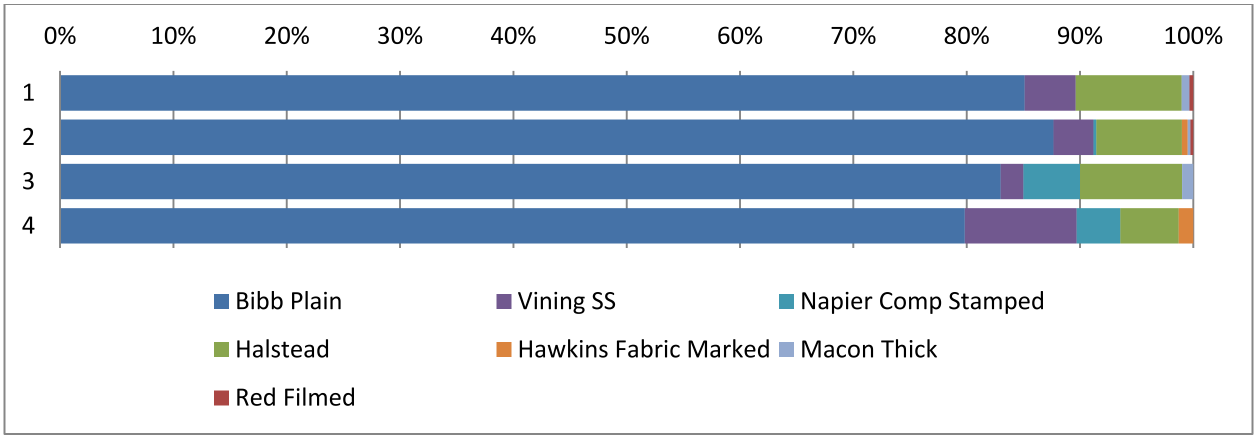

Figure 9.24. Frequencies of types by stratigraphic layer on North Plateau (SVS); 1 is most recent layer, 4 is oldest layer.

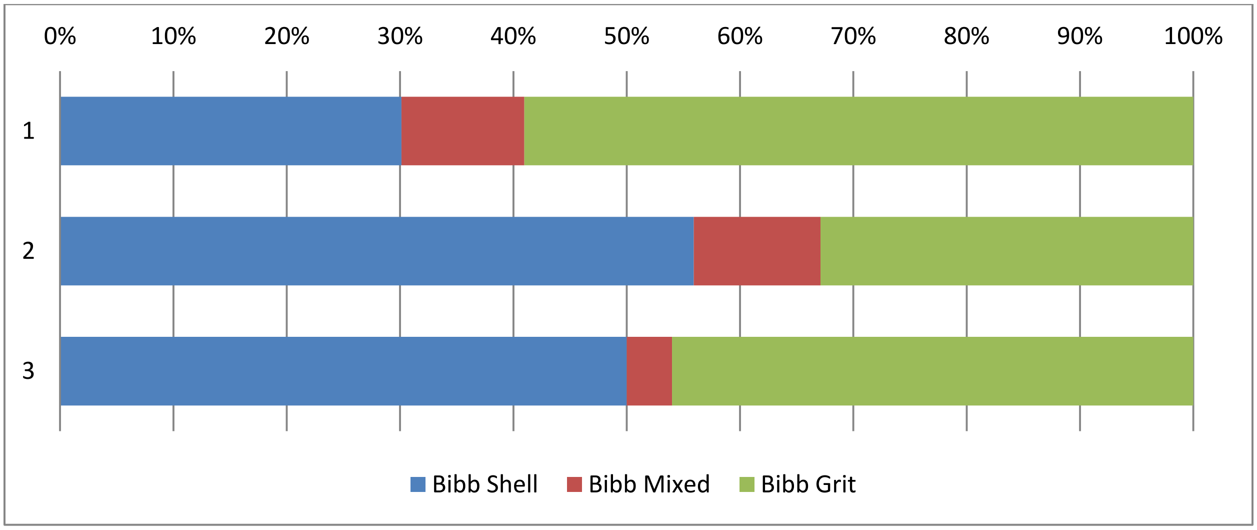

Figure 9.25. Distribution of Bibb Plain varieties by construction episode on South Plateau; 1 = second construction layer, 2 = first construction layer, and 3 = pre-construction layer.

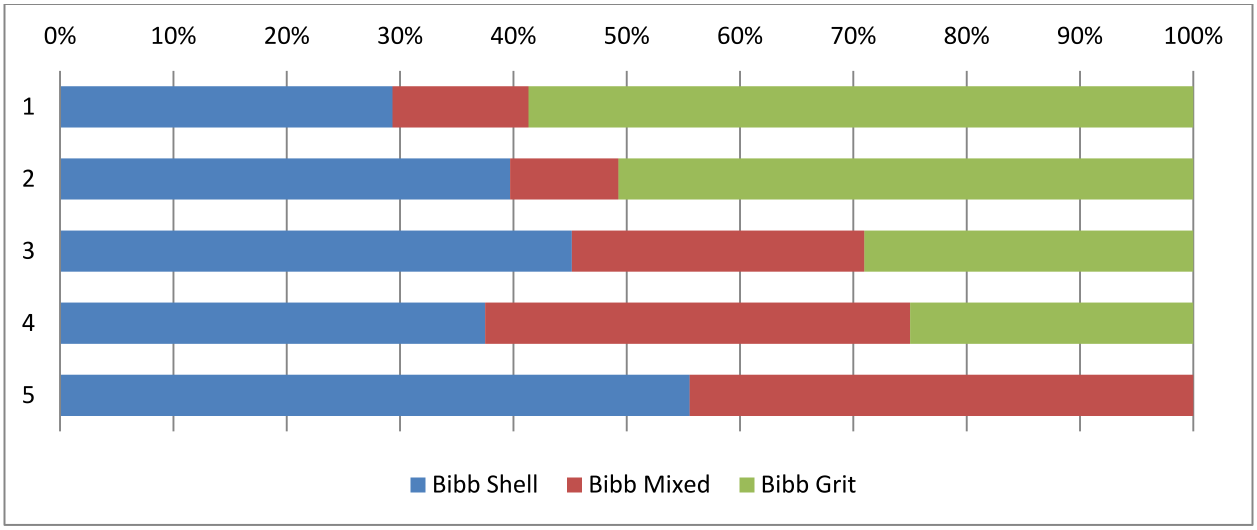

Figure 9.26. Distribution of Bibb Plain varieties by stratigraphic layer on Middle Plateau; 1 is most recent, 5 is oldest.

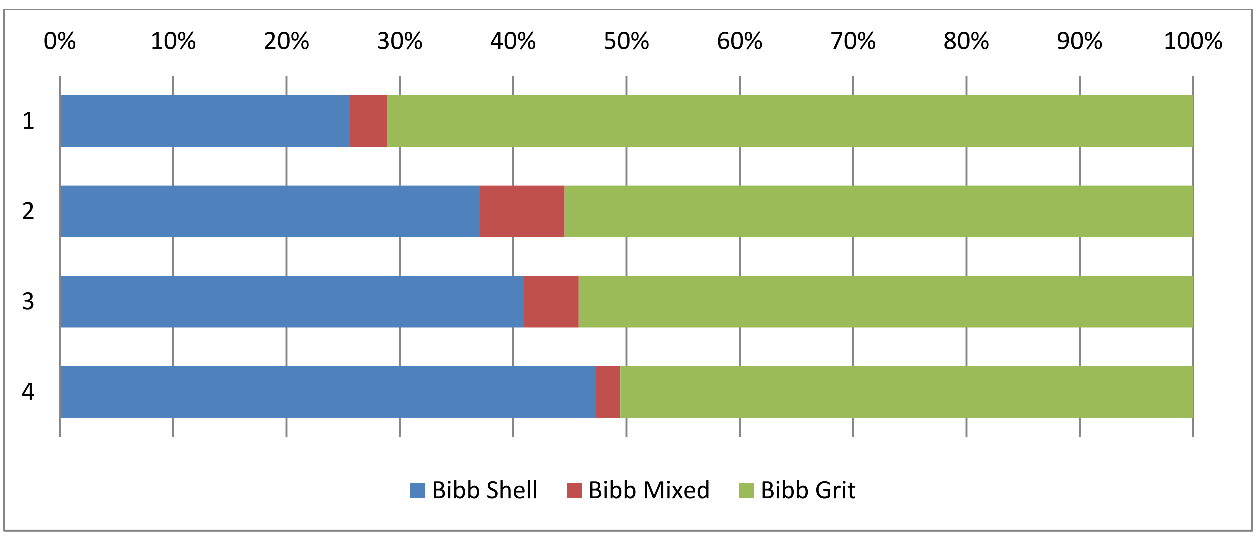

Figure 9.27. Distribution of Bibb Plain varieties by stratigraphic layer on North Plateau (SVS); 1 is most recent, 4 is oldest.

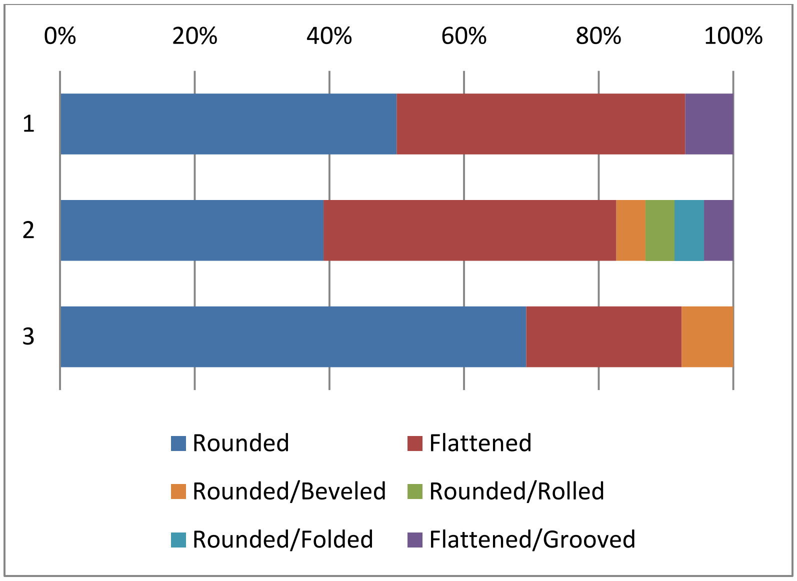

Figure 9.28. Distribution of lip modes by construction episode on South Plateau; 1 = second construction layer, 2 = first construction layer, 3 = pre-construction layer.

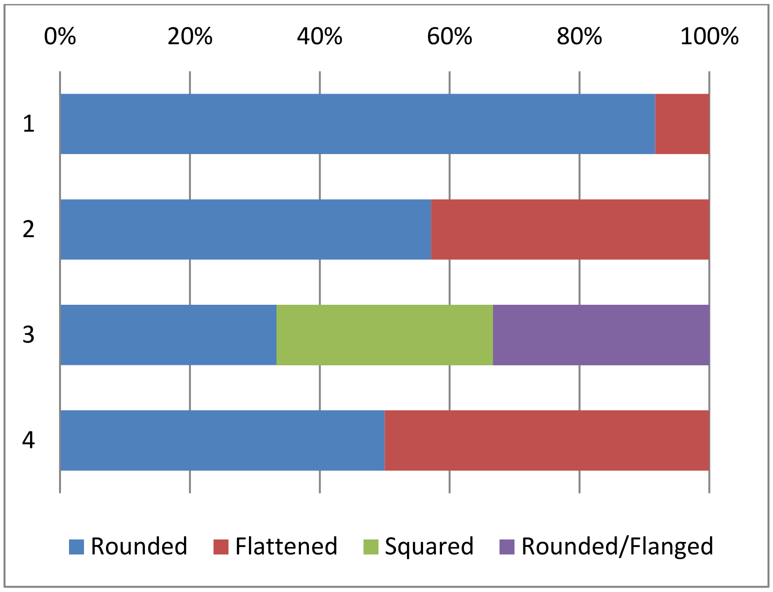

Figure 9.29. Distribution of lip modes by stratigraphic layer on North Plateau (SVS); 1 is most recent, 4 is oldest.

CHAPTER 10

SETTLEMENT HISTORY

This chapter outlines the settlement history at Ocmulgee. First, I present the spatial distribution of chronological indicators I identified during my ceramic analysis. I synthesize the results of previous investigations, my geophysical survey, and my ceramic analysis and layout five stages of occupation. Each stage can be compared in succession to infer changing patterns of community form. In reality, the stages are not discrete and should be viewed as a continuous temporal flow or shift in community layout.

I compare the frequencies and ratios of types, temper, and lip modes from different spatial contexts. These comparisons allow me to identify which areas people inhabited early and late. For each occupational stage, I present the general spatial distribution of chronologically significant characteristics, provide community layouts based on excavation and geophysical data, and derive some interpretations regarding power relationships and social inequality based on the evolving town landscape.

By reconstructing site settlement histories, archaeologists can compare the trajectories of different Early Mississippian mound centers and attempt to explain similarities and differences across the Mississippian world. Other large, multi-mound Mississippian centers such as Moundville (Knight and Steponaitis 1998, Wilson 2008), Cahokia (Pauketat 1994), Etowah (King 2003), and Lake George (Williams and Brain 1983) have detailed settlement histories, but the reconstruction of Ocmulgee's history has been neglected. I provide a settlement history of Ocmulgee so it can be compared to other centers with respect to the processes responsible for emergence, leadership roles, and the historical sequence of large mound towns.

Spatial Distribution of Types, Temper, and Lip Modes

The areas of Ocmulgee occupied first during the Early Mississippian would have higher frequencies of Vining Simple Stamped (Table 10.1) and lower ratios of Bibb Plain to Vining Simple Stamped (Table 10.2). The South Plateau (18 percent) and Middle Plateau (south) (27 percent) have the highest frequencies of Vining Simple Stamped (Table 10.1). The Middle Plateau (north) (15 percent) and Mound C Bluff (15 percent) have the next lowest frequencies of Vining Simple Stamped, but Vining Simple Stamped is still the second most frequent type in these areas (Table 10.1). The North Plateau (5 percent) has a lower frequency of Vining Simple Stamped and the Vining Simple Stamped type is the third most frequent type (Table 10.1). Vining Simple Stamped occurs in extremely low frequency on the Southeast Plateau (1.6 percent) and is absent from Dunlap Hill (Table 10.1).

The ratios of Bibb Plain to Vining Simple Stamped are lowest on the South Plateau (3.5), Middle Plateau (south) (2.6), and Mound C Bluff (3.9) (Table 10.2). The Middle Plateau (north) has a ratio of 5.3 which is slightly higher than the areas to the south. The North Plateau (16.2) shows a marked increase in the ratio and is more than 6 times greater than the ratio on the Middle Plateau (south), 4 times greater than the ratios of the South Plateau and Mound C Bluff, and 3 times greater than the ratio of Middle Plateau (north) (Table 10.2). The Southeast Plateau has a ratio of 46.5 and a ratio cannot be calculated for Dunlap Hill because no Vining Simple Stamped were recovered (Table 10.2). The data indicate that the Early Mississippian occupation began in the southern portions of the site and expanded north (Figure 10.1). The North Plateau seems to have been on the margins or just outside the earliest town and the Southeast Plateau was clearly not occupied at the outset. The absence of Vining Simple Stamped on Dunlap Hill suggests this area was occupied later.

The frequencies of Halstead Plain are also generally higher in the southern portion of the site (Table 10.1). The South Plateau (15 percent) and Mound C Bluff (11 percent) have the highest frequencies of Halstead Plain (Table 10.1). The North Plateau (8 percent) is slightly lower than Mound C Bluff (Table 10.1). Halstead is the second most frequent type on the North Plateau. The Middle Plateau (north) has a frequency of 5 percent and the Middle Plateau (south) and Southeast Plateau have frequencies of 4 percent (Table 10.1). Dunlap Hill (3 percent) has the lowest frequency of Halstead Plain (Table 10.1). The lowest ratios of Bibb Plain to Halstead Plain occur on the South Plateau (4.2) and Mound C Bluff (5.4) (Table 2). These are substantially lower than other areas. The North Plateau (10.7) has the next highest ratio which is 2.5 times great than the South Plateau and twice as large as Mound C Bluff (Table 10.2). The Middle Plateau (north) has a ratio of 14, the Middle Plateau (south) has a ratio of 17.6, and the Southeast Plateau has a ratio of 18.9 (Table 10.2). Dunlap Hill (31.8) has a ratio that is 7.5 times greater than the South Plateau, 3 times greater than the North Plateau, and twice as large as the Middle Plateau (Table 10.2).

The distribution of Halstead Plain appears to have both a spatial and temporal dimension. The frequencies Halstead Plain are higher and the ratios of Bibb Plain to Halstead Plain are lowest in the southernmost part of the site with mounds (South Plateau and Mound C Bluff).

However, contrary to the distribution of Vining Simple Stamped, the area with the next lowest frequency and the next highest ratio is the North Plateau, near Mound D and the Mound D-1 earth lodge. This suggests that Halstead was a prized ceramic ware that occurred in contexts related to public architecture. The frequencies are higher and ratios lower in both Middle Plateau contexts compared to Dunlap Hill (a context with a mound). The use of Halstead Plain decreases over time, but while in use, it was most closely associated with mounds. A plot of the ratios of Bibb Plain to Halstead Plain by geographic location reflects a general trend that begins in the south and moves northward (Figure 10.2). A similar trend is observed in the distribution of Bibb Plain temper and Early Mississippian lip modes.

Comparing the frequencies of Bibb Shell to Bibb Grit across the entire site helps reconstruct the settlement history. The South Plateau and Middle Plateau (south) are the only two areas that have gross frequencies of Bibb Shell greater than 50 percent (Table 10.3, Figure 10.3). The earliest use of Bibb Plain pottery likely occurred in these areas. The Mound C Bluff and the Southeast Plateau have gross frequencies of Bibb Shell greater than 40 percent but less than 50 percent (Table 10.3). The Middle Plateau (north) and the North Plateau have gross frequencies of Bibb Shell greater than 30 percent but less than 40 percent (Table 10.3). However, there is more Bibb Grit in the North Plateau sample than in the Middle Plateau (north) sample which may indicate that the North Plateau is slightly later in the sequence. Dunlap Hill contained the lowest gross frequency of Bibb Shell (25 percent) and the highest gross frequency of Bibb Grit (66 percent) (Table 10.3).

I also compared the ratios of Bibb Shell to Bibb Grit (Table 10.2). The areas with the highest ratios of Bibb Shell to Bibb Grit are the South Plateau (1.34) and the Middle Plateau (south) (2.25) (Table 10.2). The Southeast Plateau (1.14) is the only other study area that has a ratio higher than 1 (Table 10.2). The Mound C Bluff has a ratio of .9, the Middle Plateau (north) has a ratio of .75, and the North Plateau has a ratio of .64 (Table 10.2). Dunlap Hill (.37) has the lowest ratio of any study area (Table 10.2). Higher ratios of Bibb Shell to Bibb Grit should indicate areas occupied or used earlier in the Early Mississippian, while lower ratios should indicate areas occupied or used later in the sequence (Figure 10.4).

The chronological trends seen in Bibb Plain temper variation reinforce the trends seen in the distribution of types. The southern portion of the site was occupied first. Use of the landscape expanded to the east and west, covering the Mound C Bluff area and the Southeast Plateau. As population numbers increased, the northern portion of the Middle Plateau and the North Plateau became occupied. The last place to see occupation was Dunlap Hill, and presumably the other northern bluffs where McDougal Mound and Fort Hawkins are located. The distribution of Bibb Plain varieties suggests that the town expanded north from the southernmost portions of the site. The outer bluffs become inhabited after the main bluff. However, it remains unclear if the outer bluffs and the main bluff were contemporary, overlapped partially in occupation, or not contemporary.

Lip mode diversity exhibited similar spatial patterns compared to ceramic types and Bibb plain temper, but it is the weakest chronological indicator. The South Plateau contained the greatest amount of diversity in lip modes (Table 4, Figure 10.5). This area contained nine separate lip modes including rounded, flattened, squared, rounded/rolled, flattened/rolled, flattened/grooved, rounded/folded, rounded/beveled, and rounded/flanged (Table 10.4). The Mound C Bluff and the Middle Plateau (south) contained six and five lip modes respectively (Table 10.4). Both the Southeast Plateau and the North Plateau contained four separate lip modes (Table 10.4). The variety of lip modes from Mound C Bluff, Middle Plateau (south), Southeast

Plateau, and North Plateau are subsets of the diversity found on the South Plateau. The only two modes I identified on the South Plateau, but nowhere else, are rounded/beveled and rounded/folded. Finally, the Middle Plateau (north) and Dunlap Hill only contained two lip modes: rounded and flattened (Table 10.4).

It is difficult to assess the influence of sample size on the results of lip mode diversity. I analyzed 65 percent more lips from the Mound C Bluff (n=188) than the South Plateau (n=114), but the South Plateau contained 50 percent more lip modes. I analyzed 1250 percent more lips from Mound C Bluff (n=188) than Middle Plateau (south) (n=15), but I only identified a single additional lip mode from the Mound C Bluff. I analyzed three and a half times more lips from the Southeast Plateau (n=53) and two and a half times more lips from the North Plateau (n=37) compared to the Middle Plateau (south) (n=15), but identified an additional lip mode on the Middle Plateau (south).

Ratios between modes from different geographic contexts are also valuable in differentiating equitability of modes (Table 10.4). In comparing the two most common modes, rounded and flattened, rounded is most dominant on the Middle Plateau (north) (5) and Dunlap Hill (4.5) (Table 10.4). These are the areas with the least diversity of lip modes. The ratio of rounded to flattened is lowest on the Southeast Plateau (1.5), Mound C Bluff (1.6), and South Plateau (1.75) (Table 10.4).

Ratios are lower on the South Plateau compared to the North Plateau when comparing common modes to rare modes (Table 10.4). The ratio of rounded to square lips is three and a half times greater on the North Plateau, the ratio of flattened to squared is almost three times greater on the North Plateau, and the ratios of rounded to rounded/flanged and flattened to rounded/flanged are approximately double on the North Plateau. This suggests that common modes were more dominant on the North Plateau and that rare modes were more equitable on the South Plateau.

The distribution of lip mode diversity suggests that the earliest occupation occurred in the southern portion. The areas with the next greatest diversity are north and northeast, on the main bluff. Dunlap hill has low diversity and a clear dominance of the rounded lip mode. This area probably represents the most recent occupation, but its contemporaneity with the main bluff cannot be determined from this analysis. Although the results of my analysis of lip modes support the general trends seen in the two other chronological factors, I rely more heavily on the two other indicators when reconstructing Ocmulgee’s settlement history because of the limited number of lips I analyzed. Based on my results, lip modes do hold promise for further refinement of Ocmulgee’s ceramic chronology and should be the focus of future investigations.

The earliest Early Mississippian occupations occurred in the southern portion. The site grew over time and expanded north toward the North Plateau. Dunlap Hill was a later addition to the site, but it is unclear if it was contemporary with the occupation on the main bluff or if it was occupied after abandonment. Although there is little evidence recovered near the McDougal Mound and Fort Hawkins, I suspect these were contemporary with Dunlap Hill because no Vining Simple Stamped was recovered from either context. These represent later occupations during the Early Mississippian.

Stage 1: Beginnings

The ceramic analysis presented above suggests the Early Mississippian community began on the South Plateau, Middle Plateau (north and south), and Mound C Bluff (Figure 10.6). This is based on the fact that the frequency of Vining Simple Stamped exceeds 15 percent of the Early Mississippian assemblage in each of these areas. The distribution of Vining Simple Stamped indicates the northern limit of the settlement was between the Middle Plateau (north) and the North Plateau and was destroyed by the northern railroad cut. The low frequency of Vining Simple Stamped on the Southeast Plateau indicates the eastern boundary of Stage 1 is west of Mound E.

Stage 1 occupants likely constructed circular residential buildings in the single set post tradition. Kelly (Ingmanson 1964a; Prokopetz 1974) only uncovered examples of this architecture on the Middle Plateau and South Plateau. The sizes of excavated circular house structures dating to Stage 1 range between 4.5 m to 10 m in diameter (Ingmanson 1964a; Prokopetz 1974). There is mixed evidence of prepared fire basins in the excavated circular houses. Two located on the South Plateau have prepared fire basins in the northeastern section, but the house excavated on the Middle Plateau had no fire basin. Kelly only excavated the western half of the fourth structure, but he did not identify a fire basin.

My geophysical survey identified three additional anomalies on the northern portion of the Middle Plateau that I interpret as circular structures dating to Stage 1. The diameters of these anomalies fall within the range of known diameters from excavated examples. One structure has a conductive high representative of a fire basin in the northeastern portion. This is a similar placement compared to the two fire basins excavated on the South Plateau.

The layout of the Stage 1 community (Figure 10.7) is difficult to reconstruct with the available data. The circular anomalies may not represent the northernmost boundary, but are probably in close proximity to the northern boundary since Vining Simple Stamped is found in low frequency on the North Plateau. The circular structures Kelly excavated on the South Plateau probably reflect the southernmost edge of the Stage 1 community unless additional circular structures are located beneath Mound A. If there are Stage 1 structures below Mound A the boundary would have only been 20 m or so further south.

There is considerable distance between the excavated houses on the South Plateau and the excavated house on the Middle Plateau, and between the excavated house on the Middle Plateau and the circular anomalies on the northern edge of the Middle Plateau. However, it is likely that any architecture in the middle may have been lost to historic disturbance. The southern railroad/park tour road annihilated evidence of structures between the South and Middle Plateaus and the AD 1680 Trading Post on the Middle Plateau is situated between the excavated structure and circular anomalies.

Stage 1 wooden structures appear to be clustered in groups or stand-alone buildings, indicating that some households lived in a single structure while others utilized multiple structures (Figure 10.8). Kelly (Ingmanson 1964a) uncovered three in a semi-circular arrangement. These may have opened into an area of shared space. Similarly, I identified two circular anomalies on the Middle Plateau almost adjacent to each other using magnetometry and electromagnetic induction. Kelly found minimal disturbance south of the Trading post and uncovered numerous square structures, but only one circular structure. This may indicate that some households lived in a single structure while other households utilized several. However, the single circular structure Kelly excavated on the Middle Plateau did not contain a fire basin and it is possible that it was part of a household cluster where the fire basin was contained in another structure unidentified during the 1930s investigations. Kelly located this structure just inside the eastern boundary of an excavation unit and he left a reasonably large area unexcavated to the east. The circular building may have been part of a larger courtyard group that included square buildings to the west. Alternatively, the fire basin may have been destroyed by plowing and erosion.

Due to disturbance it is difficult to say with certainty if the household clusters were separated by open space. From this survey I cannot detect a larger community layout such as a circular grouping around a community wide plaza or courtyard. There is approximately 35 m between the pair of circular anomalies and the third anomaly to the east, but additional circular anomalies may have been difficult to define. The long history of occupation created a complicated and varied subsurface and plowing during the 1800s may have destroyed significant portions of the archaeological record.

The Mound C Bluff also contained a high frequency of Vining Simple Stamped, but Kelly did not identify circular structures in the 1930s; nor did my geophysical survey identify circular anomalies that could be inferred as structures dating to Stage 1. Stage 1 structures may have been destroyed from plowing and erosion and it may be difficult to identify un-patterned anomalies as buildings, but I assume that few or no Stage 1 structures existed in this area. Mound C Bluff may have been used early in the settlement history for specialized functions. Sub-mound postholes and pits indicate a pre-mound structure. Fairbanks (2003 [1956]:20-21) suggested that these features represent a village area, but he cautions against concrete interpretation because "no horizontal record of [the postholes] exists." Kelly's (Fairbanks 2003 [1956]:21) field notes indicate a higher concentration of pre-mound postholes to the east rather than below the center of the mound. Despite Fairbanks' assessment that the sub-mound remains belong to a village, it is more likely that they represent the remains of a non-residential structure.

Only 38 sherds can be attributed to the sub-mound use episode and only 12 sherds date to the Early Mississippian (Fairbanks 2003 [1956]:21). Fairbanks classified 9 sherds (75 percent) as Bibb Plain and 3 sherds (25 percent) as Mossy Oak Simple Stamped. If we assume that the Mossy Oak Simple Stamped can be classified as Vining Simple Stamped, then the sub-mound use dates to Stage 1.

Stage 2: Expansion I

The size of the settlement increased slightly during Stage 2. It still incorporated all of the previous areas including the South Plateau, Middle Plateau, and Mound C Bluff, but expanded east to include the Southeast Plateau (Figure 10.9). This conclusion is based on the fact that Bibb Shell comprised approximately 50 percent of the South Plateau, Mound C Bluff, Southeast Plateau, and Middle Plateau (south) Bibb Plain totals. These represent the areas with the highest frequency of Bibb Shell. Another indicator that the Southeast Plateau was initially used during Stage 2 is that it contained the highest frequency of Hawkins Fabric Marked (15 percent) and the second to lowest ratio of Bibb Plain to Hawkins Fabric Marked (5.0).

The Southeast Plateau may not have been initially used as a residential area during Stage 2, but rather was used as a specialized activity or production area. Some of the Bibb Shell sherds may have come from Hawkins Fabric Marked vessels. I came across several fragments of Hawkins Fabric Marked vessels and cross mended sherds that contained limited fabric marking while large portions remained undecorated. The high frequency of Bibb Shell sherds from the Southeast Plateau may have come from more specialized non-utilitarian vessels. The only other area with a similar frequency of Hawkins Fabric Marked and ratio of Bibb Plain to Hawkins Fabric Marked is Mound C Bluff. I have already established that the Mound C Bluff was a special use area from inception (Bigman 2012; Chapter 6 this volume). While both of these areas contained mounds, a comparison of the shell to grit ratios indicate that the construction of Mound C began before the construction of Mound E on the Southeast Plateau (Hally and Williams 1994). If some of the Bibb Shell sherds belonged to Hawkins Fabric Marked vessels, then the actual ratio of Bibb Shell to Bibb Grit on the Southeast Plateau would be lower suggesting a later occupation. I believe the Southeast Plateau was initially used during Stage 2, but was not converted into residential space until later in the town's history. Hawkins Fabric Marked is only found on Spur 2 indicating the eastern boundary of the Stage 2 community.

Bibb Plain from the Middle Plateau (north) contained 37 percent Bibb Shell. The Middle Plateau (north) was close to the margins of the Stage 1 community and may have been less densely occupied during the initial phases of Stage 2. The higher frequency of Bibb Grit in the Middle Plateau (north) may suggest an increase in population density later in the community's history.

The shape of residential buildings transitioned from circular to square during Stage 2. Prokopetz (1974:63) reported an example from the Middle Plateau (south) where a square structure was constructed directly above the remains of a circular structure (Figure 10.10). This pattern may indicate a close relationship between people and the space they initially settled (Wilson 2008). The Stage 2 community continued to build houses in the single set post tradition. Kelly (Ingmanson 1964a; Prokopetz 1974) excavated four square structures dating to the Early Mississippian and the NPS excavated postholes and features that may be interpreted as square dating to the Early Mississippian (McNeil 2006a) inside the Stage 2 boundaries. The largest excavated square structure (named House A (Ingmanson 1964a)) is located on the South Plateau immediately north of Mound A. Kelly excavated five additional square structures on the Middle Plateau (Smith 1973), but he did not record the size, shape, orientation, or dates of these structures (Smith 1973). These may or may not be square structures dating to the Early Mississippian. Another possibility is that these five structures of unknown size, shape, etc…date to the historic Creek occupation and are contemporary with the Trading Post. I present them in the Stage 2 community layout for purposes of visualization (Figure 10.11). Several of these structures appear to be part of household groups of known Early Mississippian date. This would suggest that at least some of them dated to the same period, and may have been part of the Stage 1 or Stage 2 communities.

WPA and NPS excavations and my geophysical data recorded more square structures inside the Stage 2 community limits than circular structures. This allows me to reconstruct the Stage 2 settlement plan with more accuracy than Stage 1. Similar to Stage 1, the Stage 2 community consisted of household clusters (Figure 10.12). Stage 2 household clusters contained more structures and may have been separated by less space than household clusters dating to Stage 1. Stage 2 household clusters surrounded open space on 2 or 3 sides, but did not fully enclose courtyards. Household clusters may represent finalized forms that did not come together until Stage 3. It is difficult to tell which buildings Ocmulgee's inhabitants used during each stage and some buildings may not be contemporary, but Expansion I likely occurred quickly. There is evidence on single rebuilding episodes on the Middle Plateau and possible wall refurbishment (Prokopetz 1974). Rebuilding and refurbishment suggest that people developed close relationships to the space they occupied, built courtyard groups, and rebuilt/refurbished deteriorated buildings in place. I believe that the courtyard groups erected by Ocmulgee's Stage 2 occupants perpetuate into Stage 3 and the expansion may have occurred over a single generation.

This community layout did not explicitly restrict access to most areas in the town's habitation zone, but I could only identify three or four household clusters. The abundance of magnetic anomalies and the degree of variation in apparent conductivity on the Middle Plateau suggests the entire area was filled with architecture, although some of this variation is attributable to the Creek occupation. Identifiable structures account for only a fraction of the total structures in use during Ocmulgee's expansion. Many structures were likely destroyed by plowing and erosion.

Additional structural forms emerge during Stage 2. Kelly (Ingmanson 1964a) uncovered a small circular structure with no entrance located on the South Plateau east of House A. This structure was 2.5 m in diameter and its stratigraphic position was above a Stage 1 circular structure. The function of this structure remains speculative, but can be assumed to be contemporary with House A based on stratigraphic provenience. Neither Kelly, nor other researchers, uncovered a similar structure elsewhere in the site, nor can I confidently ascribe any anomalies to this type of architecture. The term House A should be taken with caution. Although Kelly designated this building a "house" it is much larger than Mississippian buildings from other sites designated as domestic (Steere 2011). Kelly also uncovered two earth lodges on the South Plateau north of House A. House A overlaps one of the earth lodges suggesting House A post-dated that earth lodge. House A did not overlap the other earth lodge indicating the possible contemporaneity of the two structures. This earth lodge had four construction stages and by inference was used over an extended period of time.

The first construction of the western extension of the South Plateau took place during Stage 2. Bibb Plain and Halstead accounted for over 80 percent of the Early Mississippian sherds in this layer. Vining Simple Stamped only accounted for approximately 13 percent. The implication is that Mound A was a considerable size and needed a larger foundation to support its growing mass by the end of Stage 2. There also appears to be additional square structures on the extended bluff suggesting a growing population.

My GPR survey identified possible structures on top of Mound A from early in its construction. The earliest anomalies could be interpreted as a paired structure. Archaeologists have identified possible paired structures on mound summits at other Mississippian sites such as Obion (Garland 1992), Hiwassee Island (Lewis and Kneburg 1984 [1946]), Cemochechobee (Schnell et al 1981), and Kincaid (Cole 1951). Structures on Mound A's summit may reflect the emergence of a chief or centralized political leader by the end of Stage 2. The initial construction episode of Mound B occurred during Stage 2. The largest square house, two earth lodges, and a specialized structure only seen on the South Plateau were all in close proximity to Mound A, which was probably only accessed only by a subset of society. Unlike the household clusters on the Middle Plateau, access to this architecture may have been restricted.

The distribution of Halstead also suggests differential access to fine wares or precious items. Halstead made up 15 percent of the Early Mississippian ceramic assemblage on the South Plateau and 11 percent on the Mound C Bluff. In contrast, only 4 percent of the Early Mississippian assemblage on the Middle Plateau (south) and 5.6 percent on the Middle Plateau (north) consisted of Halstead. The ratio of Bibb Plain to Halstead on the South Plateau and Mound C Bluff is 4.2 and 5.4 respectively. The ratio of Bibb Plain to Halstead is significantly higher on Middle Plateau (south)(17.6) and Middle Plateau (north)(13.9). The lower ratio of Bibb Plain to Halstead on the South Plateau and Mound C Bluff suggests that people living and working in these areas had greater access to fine, shell-tempered, decorated wares. Some households living on the Middle Plateau owned Halstead vessels, but had more difficulty obtaining them.

The construction of Mound C began during Stage 2. Fairbanks (2003 [1956]) identified 7 construction episodes of Mound C. Unfortunately, WPA workers bagged the artifacts from these layers together and vertical provenience cannot be reproduced. Mound C contains more construction layers than other mounds at the site. This suggests Mound C was in use for an extended period of time, possibly until abandonment. I cannot state how many construction episodes occurred during Stage 2, but the practice of building a mound over an area that appeared to be segregated from the Stage 1 residential community indicates its perpetuation as an important place on the landscape. This area likely remained restricted and the number of elite burials associated with Mound C increased over time.

Stage 3: Expansion II

The town dramatically expanded in size by the beginning of Stage 3 (Figure 10.13). The Middle Plateau (north) and the North Plateau became densely populated areas. The percentage of Bibb Shell to total Bibb Plain is below 40 percent in both of these areas which is a lower frequency than the South Plateau, Middle Plateau (south), Mound C Bluff, and Southeast Plateau. The ratio of Bibb Shell to Bibb Grit is 0.8 on the Middle Plateau (north) and 0.6 on the North Plateau compared to 1.3 on the South Plateau and 2.3 on the Middle Plateau (south) indicating a significant decline in the relative use of shell as a temper agent in Bibb Plain.

The spatial layout of residential groups became more formal. The inhabitants of the North Plateau arranged structures around courtyards (Figure 10.14). Access to courtyards was restricted. This conclusion is based on the full enclosure of small open spaces by structures. The courtyard groups located on the North Plateau differ in form from the household clusters located on the Middle Plateau. People constructed household clusters on the Middle Plateau in an open, less formal layout with unrestricted access. These were not enclosed on all sides. The open access may have promoted social interaction between household groups. On the other hand, the bounded North Plateau courtyard groups may have deterred inter-household interaction. It is unclear if this transition occurred on the Middle Plateau during Stage 3 or if it is a phenomenon exclusive to the North Plateau. The proximity of the courtyard groups to Mound D and the Mound D-1 earth lodge suggests that the people living in these courtyard groups held a special place in society. I view the bounding of courtyard groups as a socio-political strategy of an emerging elite vying for power. Households associated with Mound D segregated themselves from the general population. Possible viewing of esoteric activities carried out in these enclosed courtyards would have been restricted.

The frequency of Halstead is higher on the North Plateau (8 percent) than the Middle Plateau (north and south), but lower than the frequency on the South Plateau and Mound C Bluff. Halstead declined in importance over time, or less Halstead accumulated on the North Plateau because it was occupied later in the sequence. The increased frequency of Halstead on the North Plateau indicates preferential access to fine wares. A similar pattern occurs on the South Plateau.

The household forms I presented in Stage 2 may reflect layouts that evolved by the end of Stage 2 or the beginning of Stage 3. On the Middle Plateau (south) there is one example of a rectangular building being rebuilt directly on top of another rectangular building (Prokopetz 1974). This may suggest that a square house was built early, over time additional square structures were constructed, and eventually the early square house needed rebuilding. The household clusters may represent a more bounded form than originally conceived by the community's population. Even so, the household clusters on the Middle Plateau remained less bounded than the newly constructed courtyard groups on the North Plateau indicating differential access to space and a socially complex landscape that had real life impacts on human relationships.

Construction of the outer ditch began during the late part of Stage 2 or the early part of Stage 3. Hally and Williams (1994) identified a higher frequency of Bibb Shell in the outer ditch than the inner ditch. The ditch was probably used as a receptacle for trash such as broken pottery vessels. The declining use of shell suggests that the ditch with a higher percentage of Bibb Shell was excavated earlier by Ocmulgee's occupants. Another piece of evidence supports Hally and

Williams' (1994) claim. Williams and Henderson (1974) classified 5 percent of the sherds from the outer ditch as Mossy Oak Simple Stamped and approximately 0.5 percent of the sherds from the inner ditch as Mossy Oak Simple Stamped. However, we now know that these sherds date to the Early Mississippian occupation and declined in production and use over time. The counts from both ditches are relatively small, but the percentage of Vining Simple Stamped from the outer ditch is an order of magnitude greater than the inner ditch. This suggests the inner ditch was constructed later.

The destruction of the archaeological record from the two railways and the discontinuous excavations made it difficult for archaeologists to correlate remains of ditches on the Middle and South Plateaus with the remains of the two ditches on the North Plateau (Ingmanson 1965:46). Remains on either side of the railroad separating the North and Middle Plateau are clear, but the orientations of the trenches further south on the Middle Plateau are ambiguous. Does the outer ditch or the inner ditch enclose Mound A and the South Plateau? The profile of Trench 6 from the South Plateau indicates that the ditch surrounding Mound A could not have been built until the second western expansion of the plateau. This expansion occurred during Stage 3. Nine percent of the Early Mississippian sherds from the second construction layer are Vining Simple Stamped. The ratio of Bibb Shell to Bibb Grit is below 1.0 indicating the decreased use of shell and increased reliance on grit for Bibb Plain temper.

Vining Simple Stamped also makes up 7 percent of the Early Mississippian assemblage from the ditch on the South Plateau (from Trench 6). The ratio of Bibb Shell to Bibb Grit is 1.6 in the ditch on the South Plateau showing the higher breakage of shell tempered pots than grit tempered pots following the construction of the ditch. This may suggest that shell tempered plain pots made up a larger percentage of the vessel assemblage of those living in the immediate area of the ditch. The amount of shell compared to grit and the frequency of Vining Simple Stamped is similar to the outer ditch on the North Plateau. The data indicate that the ditch on the South Plateau is likely part of the same system as the outer ditch on the North Plateau (Figure 10.14) and was constructed earlier than the inner ditch found on the North Plateau and presumably the Middle Plateau. Unfortunately, Ingmanson (1965) did not present ceramic counts from the ditch sections on the Middle Plateau and I cannot incorporate a detailed discussion of these segments here.

The construction of Mound C likely continued with additional burials interred into the bluff. Unfortunately, without a separation of artifacts by construction layer, accurate reconstruction cannot be completed. Similarly, the final construction stages and clay caps may have been added to Mound A during Stage 3, but without stratigraphic control it is impossible to say for certain.

Stage 4: Expansion III?

The fourth stage of occupation included the outlying bluffs (Figure 10.15). Dunlap Hill must be used as a proxy to date the other outlying bluffs because sufficient information is unavailable for the McDougal Mound and Fort Hawkins areas. Dunlap Hill contained no Vining Simple Stamped and the ratio of Bibb Shell to Bibb Grit is lower on Dunlap Hill than every other area I analyzed. This indicates the further decline of shell use by the time Dunlap Hill became occupied. The Southeast Plateau also appeared to be occupied during Stage 4. The area was used earlier in the settlement sequence, possibly with a specialized function. By assigning some Bibb

Shell sherds to Hawkins Fabric Marked, the ratio of Bibb Shell to Bibb Grit would decrease. Bibb Grit appeared to come from utilitarian vessels suggesting a possible habitation area. Hally and Williams (1994) indicated that the last mounds to be built at Ocmulgee include McDougal Mound, Dunlap Mound, Mound X and Mound E.

Settlement patterns dating to Stages 1, 2, and 3 may be characterized as continuous habitation zones. Separate areas of specialized function, such as Mound C Bluff and Southeast Plateau, did not have substantial residential populations. Most of the resident population lived on the main bluff. This changed during Stage 4. Outlying bluffs were separated from each other by large areas of open space.

The town layout of the first three stages did not conform to the sub-community hypothesis proposed by Hally and Williams (1994). On the other hand, the layout during Stage 4 does conform to the sub-community hypothesis. Smaller neighborhoods formed. Each neighborhood had its own small mound that may have been used as a foundation for the local leader’s house, a stage to conduct neighborhood wide ceremonies, or the foundation for a local temple. Dunlap Mound contained summit architecture in its first construction layer, but no architecture in the second. This may indicate the changing role public architecture played in the outlying neighborhoods, but the lack of architecture could be the result of plowing.

There is a difference in the layout of residential groups on the main bluff and Dunlap Hill. By the end of Stage 3, courtyard groups on the North Plateau completely enclosed open areas and household clusters on the Middle Plateau surrounded open areas that were semi-closed off, but typically open on one side. These courtyard groups and household clusters filled in the space between Mounds A/B and Mound D/D-1 earth lodge. Mound complexes “bookended” the community. Only structures in close proximity to the mounds could be considered affiliated with the associated public architecture (for example House A on the South Plateau was affiliated with Mound A and the Terrace House and Halfway House on the North Plateau were affiliated with the Mound D). Residents living in the commons did not have open access to mounds nor the earth lodges located next to them.

Stage 4 witnessed a transition from sealed off courtyards to an integrated neighborhood pattern (Figure 10.16). Individual or paired residential structures surrounded local mounds. People began to live in smaller household units, but possibly identified at a larger neighborhood scale. Mounds became the focal point of each neighborhood and access to mounds became less restricted. Local mounds became part of everyday life for the general population during Stage 4 as opposed to inaccessible spaces monopolized by few. The construction of Mound E, Dunlap Mound, McDougal Mound, Mound X, and possibly three mounds at Fort Hawkins suggests a waning of power held by centralized leaders.

There are three possible explanations for the late occupation of the outlying areas. First, the population increased over time and the main bluff could no longer support the growing population. According to Hally (1996), mound stages can be used as proxies for time and represent approximately 20 years. Mound C contained seven construction stages, indicating a community occupation of up to 140 years. If populations doubled every 25 years, this could account for a significant increase in total population numbers over a century and a half. The limited space on the main bluff would have pushed residents to settle neighboring bluff.

A second possibility is that the success of the community attracted newcomers. The Stage 4 outlying bluff populations consisted of migrant groups who attached themselves to the

Ocmulgee chiefdom. Upon arrival, there was no additional space on the main bluff and these groups settled the closest neighboring bluffs. Migrant groups may have entered the system with leadership positions in place and felt obligated to pay tribute to these leaders or make their role in the changing political landscape concrete by erecting smaller mounds on the outlying bluffs in the center of the neighborhood. This fusion may represent a process similar to that described by Blitz (1999) for the aggregation of Late Mississippian and Historic communities.

A final possibility is that the outlying neighborhoods represent the remains of the community after political fallout. The transition from the main bluff to the outlying bluffs could have been sudden or dragged out over time. One indication of political tension and an incremental movement of population is the reduction of size of the second ditch. Also, the second ditch did not surround the Mound A/B complex (Figure 10.16). The final stages of Mound A contained no summit architecture. This suggests a ceremonial construction episode marking the discontinued use of the mound or a change in mound function from a residential platform or temple platform to a large stage. However, the lack of architecture on Mound A's summit may be the result of erosion.

This process would have left a smaller resident population on the main bluff while the rest of the population began to inhabit outlying bluffs. Hally and Williams (1994) indicate the function of the Mound D-1 earth lodge changed from a council chamber to a platform mound. Kelly (1938) uncovered burned wood roof beams on the floor of the earth lodge covered over with a possible mound layer. This transition reflects the second time that two mounds were located less than 250 m from each other. It is unclear if this conversion occurred by the end of Stage 3 or the beginning of Stage 4, but it clearly occurred before the construction of the inner ditch (Hally and Williams 1994). The inner ditch crosscut the entrance way to the Mound D-1 earth lodge. Reshaping the North Plateau landscape, reduction in ditch length, and the explicit exclusion of Mounds A/B from the inner ditch all imply an end to the political struggle born during Stage 3. The faction(s) occupying the North Plateau appear to have wrestled power away from the leaders on the South Plateau and continued to lay claim to space on the main bluff.

Stage 5: Contraction

Early researchers suggested that Ocmulgee was abandoned by the end of the Early Mississippian period (Fairbanks 1956:11; Kelly 1938:23). Many Mississippian mound sites in Georgia became reoccupied throughout the period (Hally 1996). Chiefdom cycling, the resorting of people on a regional scale, and the behavior of newly emerging leaders affiliating themselves with sacred spots on the landscape all contribute to the reoccupation of mound sites (Hally 1996, 2006). Ocmulgee is different. It appears that a taboo was placed on Ocmulgee. The Lamar site was constructed south and Ocmulgee itself was not reoccupied until the historic Creek period (Hally 1993).

Nelson et al. (1974:39-41) indicated a small residual population existed near the South Plateau after the abandonment of the rest of the town. They identified Etowah Complicated Stamped in the Ocmulgee Bottoms excavations. The Ocmulgee Bottoms are located immediately south of the South Plateau toward the Ocmulgee River. They rejected the hiatus hypothesis and concluded that Ocmulgee continued to have a resident population significantly reduced in numbers. Ocmulgee’s influence over the region diminished, while Etowah’s influence grew significantly. Nelson et al. caution against speculations of direct migration from Ocmulgee to

Etowah, but suggest that "the Plateau continued to be occupied…[and] it is apparent that the Plateau population level fell sharply" (Nelson et al. 1974:42).

I identified three Etowah Complicated Stamped sherds during my ceramic analysis. Two came from the South Plateau and one from the Southeast Plateau. The distribution of these three sherds combined with the sherds recovered from Ocmulgee Bottoms indicates that the reduced population confined itself to the southern portion of the site (Figure 10.17). Nelson et al. (1974) identified significantly more Etowah Complicated Stamped in their analysis than I. The Ocmulgee Bottoms may have been the primary location of the residual community or the residual population on the southern parts of the site may have used the Ocmulgee Bottoms for waste management. The higher frequency of Etowah Complicated Stamped in the Ocmulgee Bottoms suggests it was the locus of occupation (Figure 10.17). My data regarding the subject of a residual population is minimal. However, it supports the hypothesis laid out by Nelson et al. (1974) and challenges the hiatus hypotheses proposed by Kelly (1938) and Fairbanks (1956).

Chapter Summary

This chapter began with a discussion of the spatial distribution of ceramic characteristics diagnostic of the Early Mississippian. The highest frequency of Vining Simple Stamped, an early type, is found on the South Plateau, Middle Plateau (south), Middle Plateau (north), and Mound C Bluff. The frequency of Vining Simple Stamped decreases further away from these areas. I did not classify a single sherd from Dunlap Hill as Vining Simple Stamped. Higher frequency of the Bibb Shell variety and more variation in lip modes, both indicators of early occupation, are also found in the southern portion of the site. Dunlap Hill contained the lowest frequency of Bibb Shell and the least diversity in lip modes. The general trend of settlement history is the town began in the southern portion of the site, primarily on the main bluff, and expanded north. The expansion eventually included outlying bluffs such as Dunlap Hill, and the McDougal Mound and Fort Hawkins areas.

I laid out 5 developmental stages in this chapter. Stage 1, “Beginnings,” occurred in the southern portion of the site. Occupants built circular residential structures in household clusters separated from each other by some space. Social inequality was minimal in the first stage and although there may have been leaders, power was probably distributed throughout household groups. Stage 2, “Transformation,” saw important changes to the social and physical landscape. Residents began to build square houses, sometimes in a loosely arranged household group surrounding shared space, and were separated from one another. Construction began on Mounds A, B, and C; and on the South Plateau earth lodges. Differences in access to public architecture and fine ceramic wares (such as Halstead) became more dramatic indicating a larger divide in social inequality and an increased power base of an emerging leadership. Stage 3, “Expansion,” saw a dramatic increase in town size. The Mound D complex on the North Plateau was built during this stage and Ocmulgee’s occupants excavated the outer ditch. Courtyard groups associated with Mound D and Mound D-1 earth lodge are constructed more formally in a secluded arrangement that inhibited access. This emergent segment may have been contesting the traditional power structure on the South Plateau. Stage 4, “Growth, Additions, or Fall Out,” witnessed a decrease in population on the main bluff and the inhabiting of outlying bluffs. Residents ceased to occupy Mound A, Mound B, and the South Plateau. They also excavated the inner ditch which was smaller, more formal, and enclosed the Mound D complex to the exclusion of the Mounds A/B complex. The arrangements of residential structures on the outlying bluffs differ from previous formations. These were arranged around a small mound in a circular fashion. All occupants of the outlying bluffs seem to have had access to their neighborhood mound indicated a reduction in social inequality and possibly the dispersion of power throughout segregated sub-groups. Stage 5, “Abandonment and Residual Population,” witnessed a massive reduction in population size and total area of inhabited space. Use of all mounds ceased and the remnant population shifted south of the main bluff.

Table 10.1. Totals and percentages of Early Mississippian types by geographic location.

Study Area	Totals	BP	BS	BS/G	BG	RF	Hal	VSS	Hwk	Net	MTh	VCM	STCM	STSS	STInc
North Plateau (SVS)	1079	923	344	42	537	2	86	57	7	0	4	0	1	0	0
		85.5%	31.9%	3.9%	49.8%	0.2%	8.0%	5.3%	0.6%	0.0%	0.4%	0.0%	0.1%	0.0%	0.0%
Mound C Village	433	252	112	16	124	15	47	65	52	0	2	17	11	0	0
		58.2%	25.9%	3.7%	28.6%	3.5%	10.9%	15.0%	12.0%	0.0%	0.5%	3.9%	2.5%	0.0%	0.0%
South Plateau	1626	1030	546	78	406	28	244	295	26	3	0	0	1	2	1
		63.3%	33.6%	4.8%	25.0%	1.7%	15.0%	18.1%	1.6%	0.2%	0.0%	0.0%	0.1%	0.1%	0.1%
Middle Plateau (north)	339	265	98	37	130	3	19	50	2	0	0	3	2	0	0
		78.2%	28.9%	10.9%	38.3%	0.9%	5.6%	14.7%	0.6%	0.0%	0.0%	0.9%	0.6%	0.0%	0.0%
Middle Plateau (south)	127	88	45	23	20	0	5	34	0	0	0	0	0	0	0
		69.3%	35.4%	18.1%	15.7%	0.0%	3.9%	26.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dunlap Hill	197	191	47	18	126	0	6	0	0	0	0	0	0	0	0
		97.0%	23.9%	9.1%	64.0%	0.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Southeast Plateau	1014	792	387	67	338	4	42	17	157	0	2	0	4	7	0
		78.1%	38.2%	6.6%	33.3%	0.4%	4.1%	1.7%	15.5%	0.0%	0.2%	0.0%	0.4%	0.7%	0.0%
Totals	4815	3362	1490	264	1608	51	443	518	223	3	8	0	0	0	0

Table 10.2. Ratios of Early Mississippian types by geographic location.

Study Area	Total #	Bsh/Bgr	Bsh/VSS	Bgr/VSS	Bibb/VSS	Bsh/Hal	Bgr/Hal	Bibb/Hal	Bibb/Hwk	Bibb/RF	Bibb/STCI	Bibb/STD(	VSS/Hwk	VSS/RF	VSS/Hal
South Plateau	8.0	1.3	1.9	1.4	3.5	2.2	1.7	4.2	39.6	36.8	1030.0	16.9	11.3	10.5	1.2
Mound C Village	8.0	0.9	1.7	1.9	3.9	2.4	2.6	5.4	4.8	16.8	22.9	3.2	1.3	4.3	1.4
Middle Plateau (S)	3.0	2.3	1.3	0.6	2.6	9.0	4.0	17.6	N/A	N/A	N/A	N/A	N/A	N/A	6.8
Southeast Plateau	8.0	1.1	22.8	19.9	46.6	9.2	8.0	18.9	5.0	198.0	198.0	4.6	0.1	4.3	0.4
Middle Plateau (N)	7.0	0.8	2.0	2.6	5.3	5.2	6.8	13.9	132.5	88.3	132.5	37.9	25.0	16.7	2.6
North Plateau	7.0	0.6	6.0	9.4	16.2	4.0	6.2	10.7	131.9	461.5	923.0	92.3	8.1	28.5	0.7
Dunlap Hill	2.0	0.4	N/A	N/A	N/A	7.8	21.0	31.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 10.3. Totals and percentages of Bibb Plain varieties by geographic location.

Study Area	Total Bibb Plain	Bibb Shell	Bibb Mixed	Bibb Grit
North Plateau (SVS)	923	344	42	537
		37.27%	4.55%	58.18%
Mound C Village	252	112	16	124
		44.44%	6.35%	49.21%
South Plateau	1030	546	78	406
		53.01%	7.57%	39.42%
Middle Plateau (north)	265	98	37	130
		36.98%	13.96%	49.06%
Middle Plateau (south)	88	45	23	20
		51.14%	26.14%	22.73%
Dunlap Hill	191	47	18	126
		24.61%	9.42%	65.97%
Southeast Plateau (Spur 2)	613	298	50	265
		48.61%	8.16%	43.23%
Totals	3362	1490	264	1608

Table 10.4. Ratios of lip modes by geographic location and type.

Context	N=	Total Modes	N/ToM	Ro/Fl	Ro/Sq	Ro/RR	Ro/FG	Ro/RFl	Ro/FR	Fl/Sq	Fl/RR	Fl/FG	Fl/RFl	Fl/FR	RR/FG	RR/RF	FG/RFl
South Plateau	114	9	12.67	1.75	7.00	11.20	14.00	11.20	56.00	4.00	6.40	8.00	6.40	32.00	1.25	1.00	0.80
Mound C Vill	188	6	31.33	1.61	21.60	27.00	36.00	N/A	108.00	13.40	16.75	22.33	N/A	67.00	1.33	N/A	N/A
Middle Plat (S)	15	5	3.00	3.00	N/A	9.00	9.00	9.00	N/A	N/A	3.00	3.00	3.00	N/A	1.00	1.00	1.00
Southeast Plat	53	4	13.25	1.53	N/A	7.25	N/A	N/A	29.00	N/A	4.75	N/A	N/A	19.00	N/A	N/A	N/A
Middle Plat (N)	12	2	6.00	5.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
North Plateau	37	4	9.25	2.18	24.00	N/A	N/A	24.00	N/A	11.00	N/A	N/A	11.00	N/A	N/A	N/A	N/A
Dunlap Hill	11	2	5.50	4.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Type	N=	Total Modes	N/ToM	Ro/Fl	Ro/Sq	Ro/RR	Ro/FG	Ro/RFl	Ro/FR	Fl/Sq	Fl/RR	Fl/FG	Fl/RFl	Fl/FR	RR/FG	RR/RF	FG/RFl
Bibb Shell	173	9	19.22	1.77	15.67	15.67	18.80	23.50	47.00	8.83	8.83	10.60	13.25	26.50	1.20	1.50	1.25
Bibb Grit	142	7	20.29	1.71	42.00	28.00	42.00	84.00	84.00	24.50	16.33	24.50	49.00	49.00	1.50	3.00	2.00
Red Filmed	18	5	3.60	0.56	5.00	2.50	N/A	5.00	N/A	9.00	4.50	N/A	9.00	N/A	N/A	2.00	N/A
Halstead Plain	41	3	13.67	2.90	14.50	N/A	N/A	N/A	N/A	5.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bibb Mixed	25	5	5.00	0.82	N/A	3.00	9.00	9.00	N/A	N/A	3.67	11.00	11.00	N/A	3.00	3.00	1.00
Vining SS	29	3	9.67	5.50	7.33	N/A	N/A	N/A	N/A	1.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A

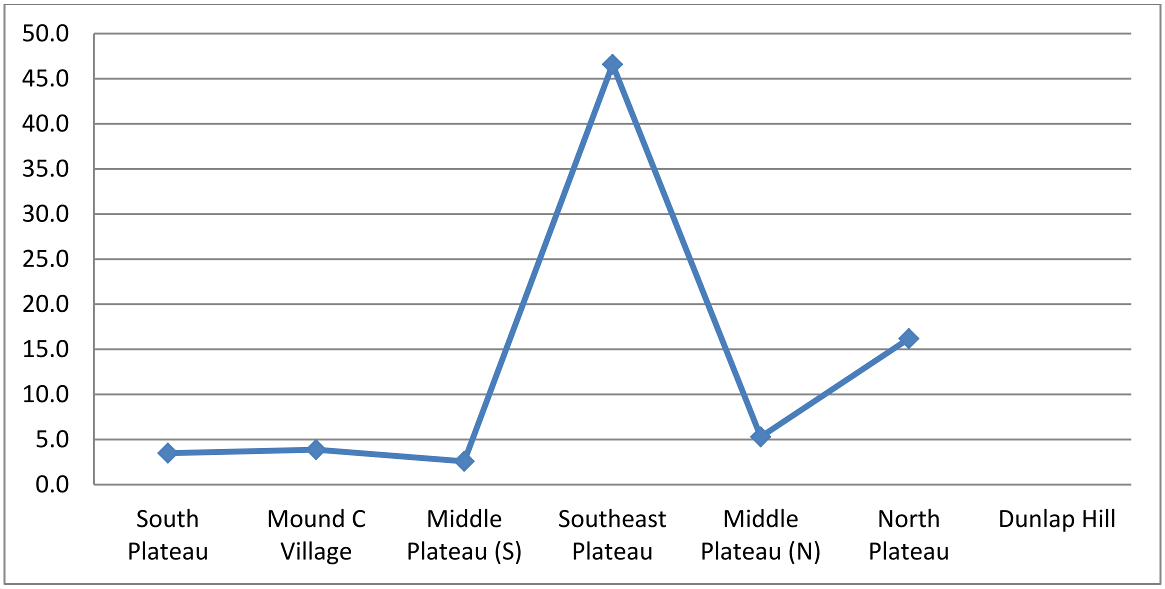

Figure 10.1. Ratio of Bibb Plain to Vining Simple Stamped in each study area.

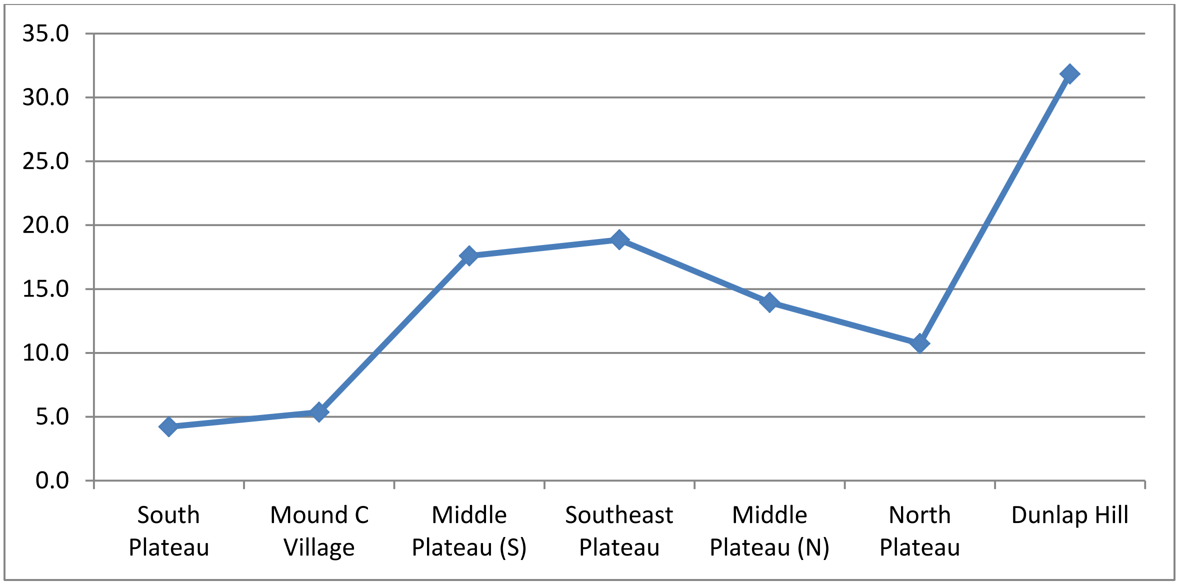

Figure 10.2. Ratio of Bibb Plain to Halstead in each study area.

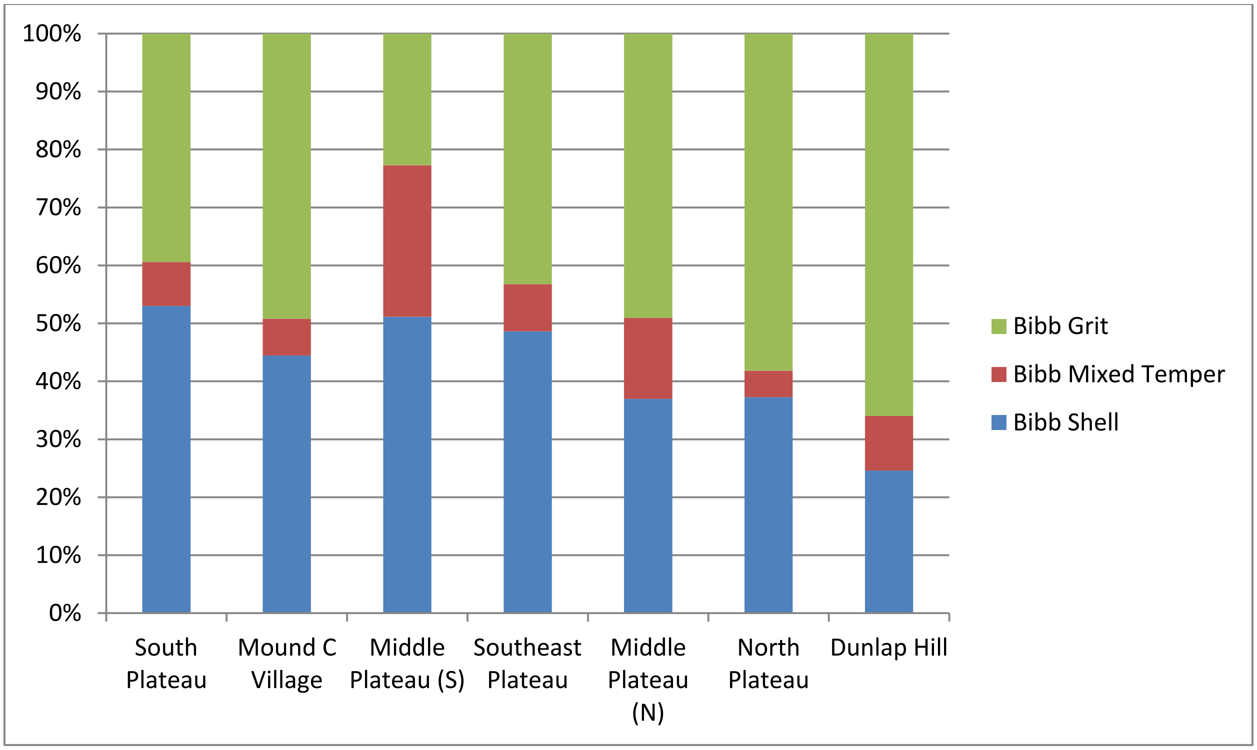

Figure 10.3. Frequencies of Bibb Plain varieties (Bibb Shell, Bibb Grit, and Bibb Mixed) by study area.

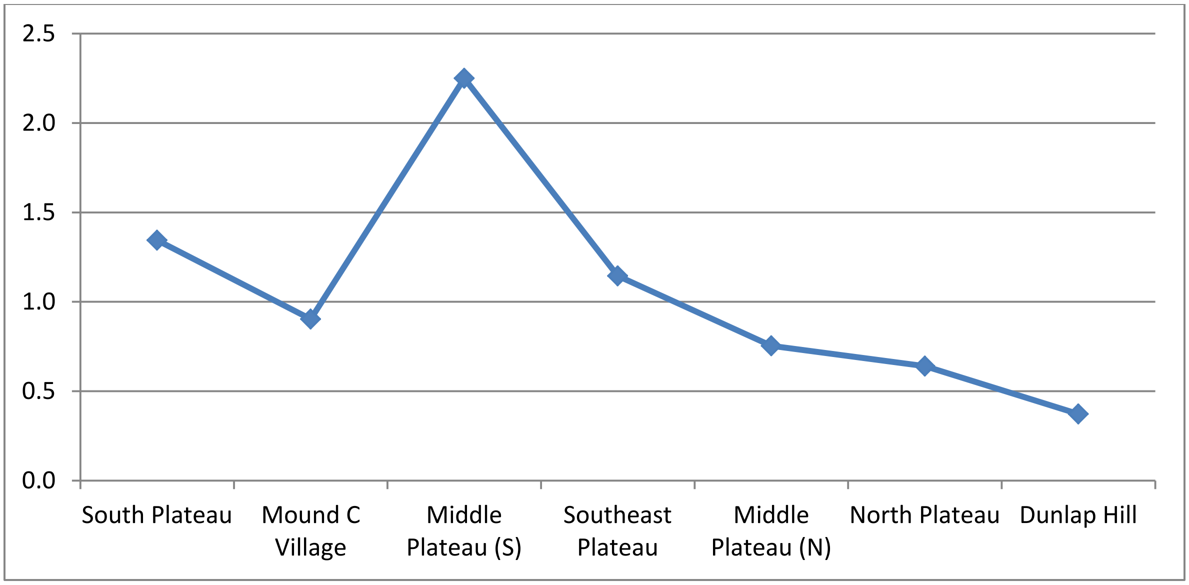

Figure 10.4. Ratios of Bibb Shell to Bibb Grit by study area.

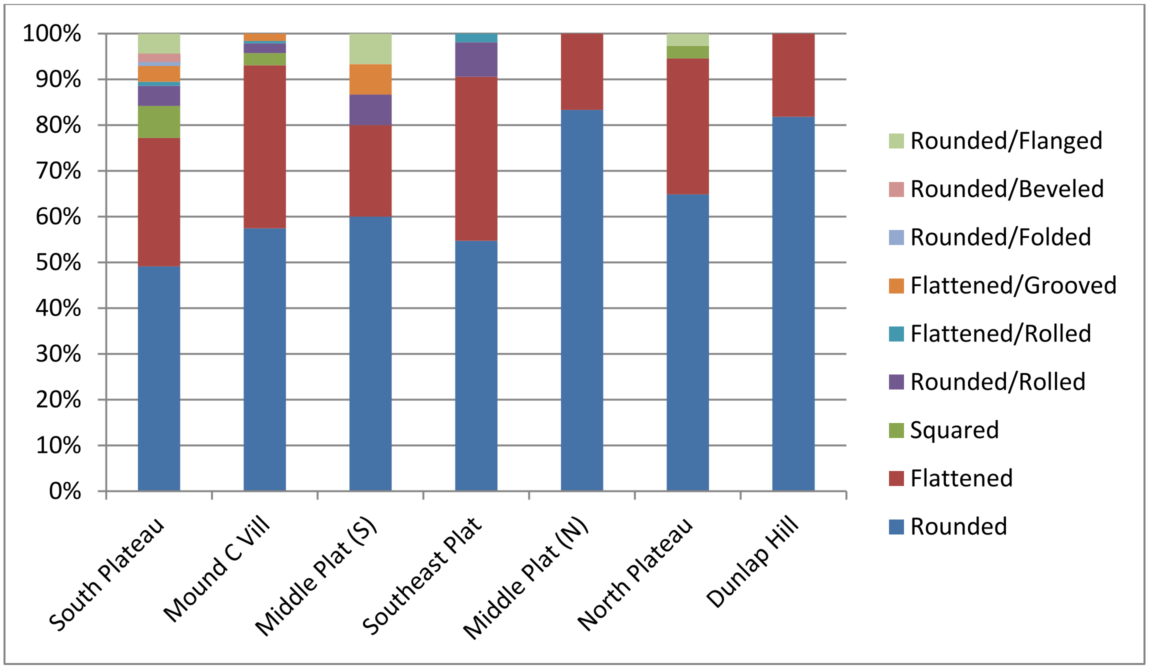

Figure 10.5. Frequencies of lip modes by study area.

Figure 10.6. Approximate boundaries of Stage 1 occupation (2010 Bing Maps image).

Figure 10.7. Settlement layout during Stage 1.

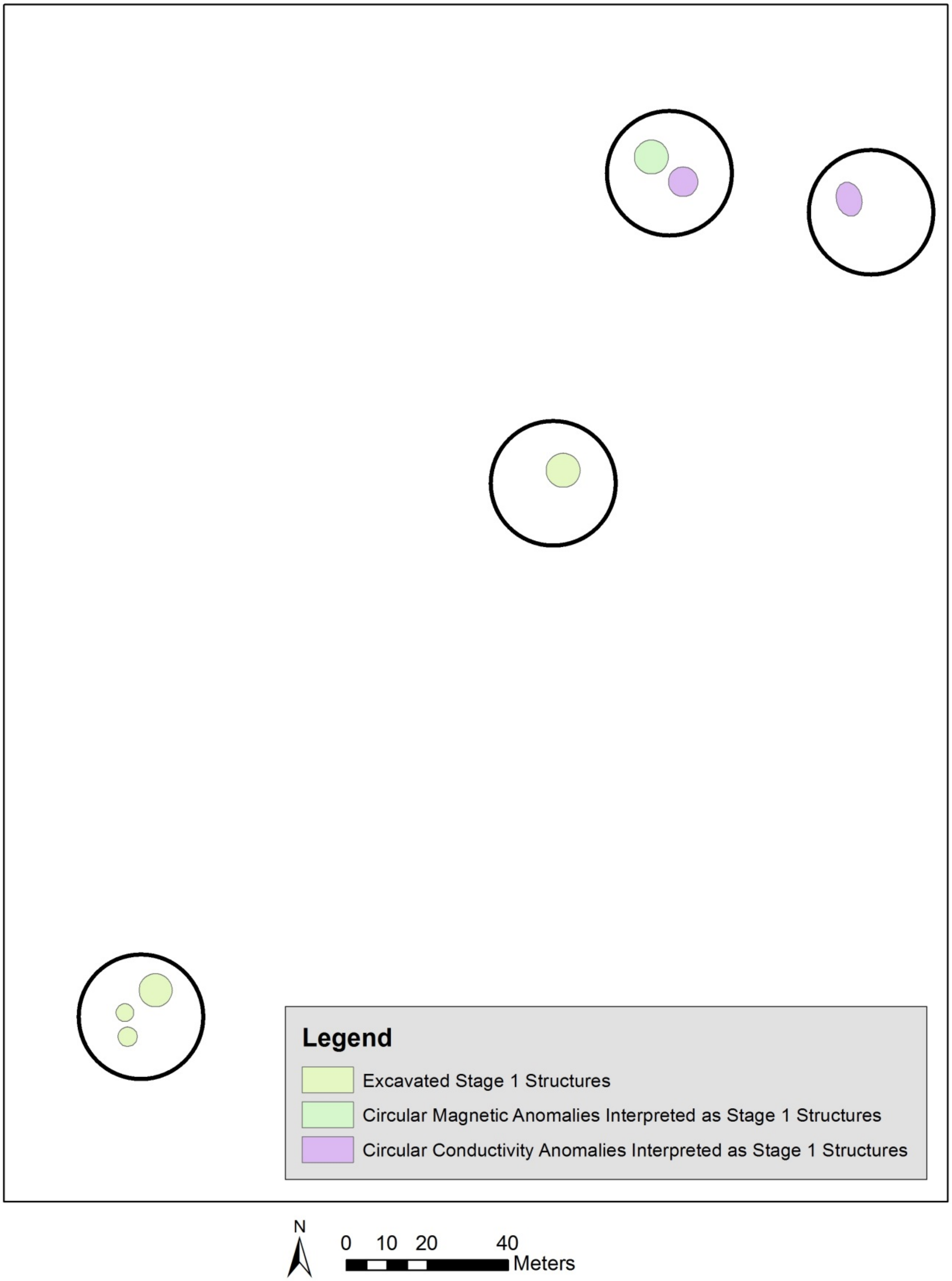

Figure 10.8. Possible residential clusters during Stage 1.

Figure 10.9. Approximate boundaries of Stage 2 occupation (2010 Bing Maps image).

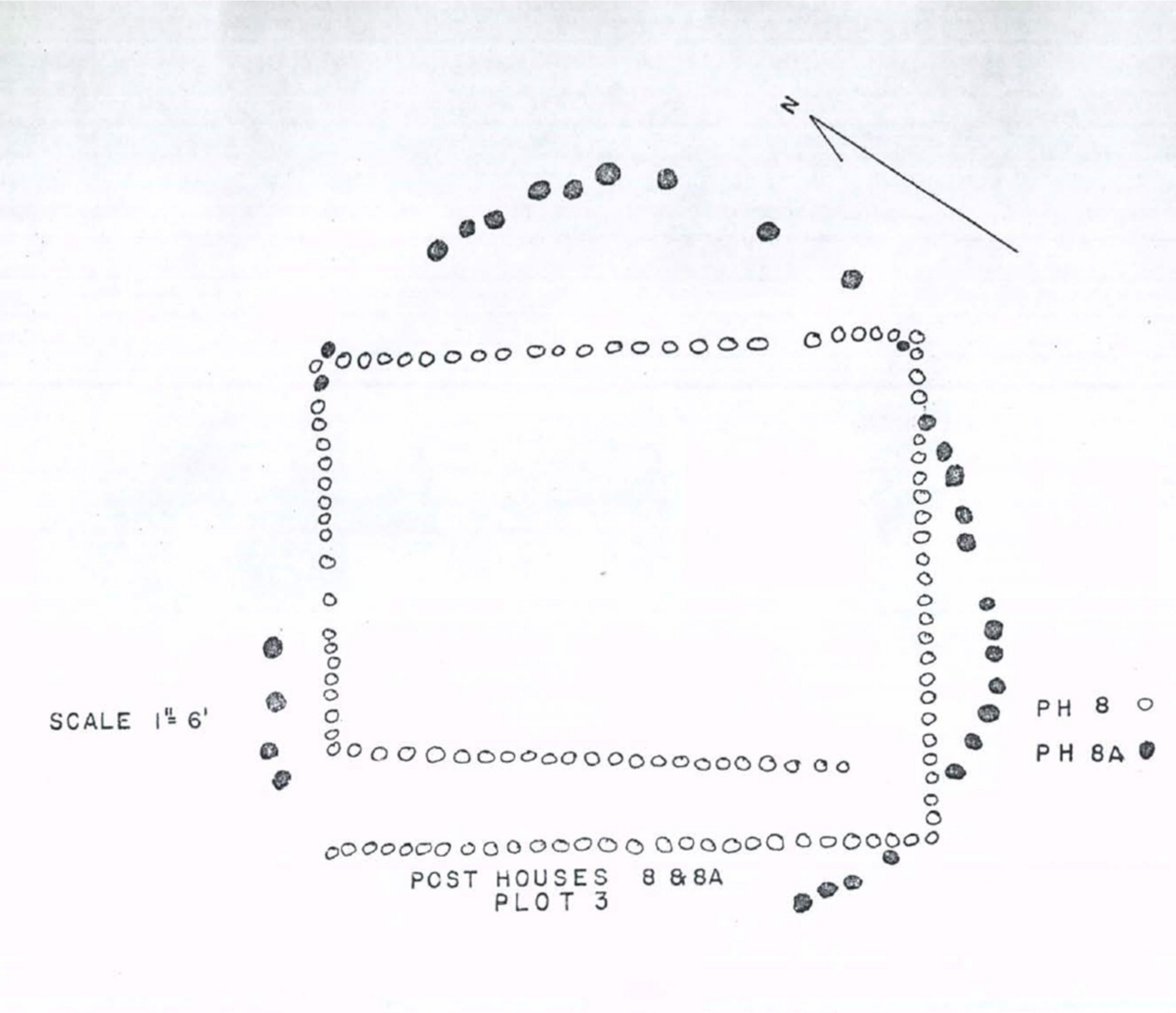

Figure 10.10. Plan view map of Kelly's excavations on Middle Plateau showing square structure directly above a circular structure (after Prokopetz 1974:63).

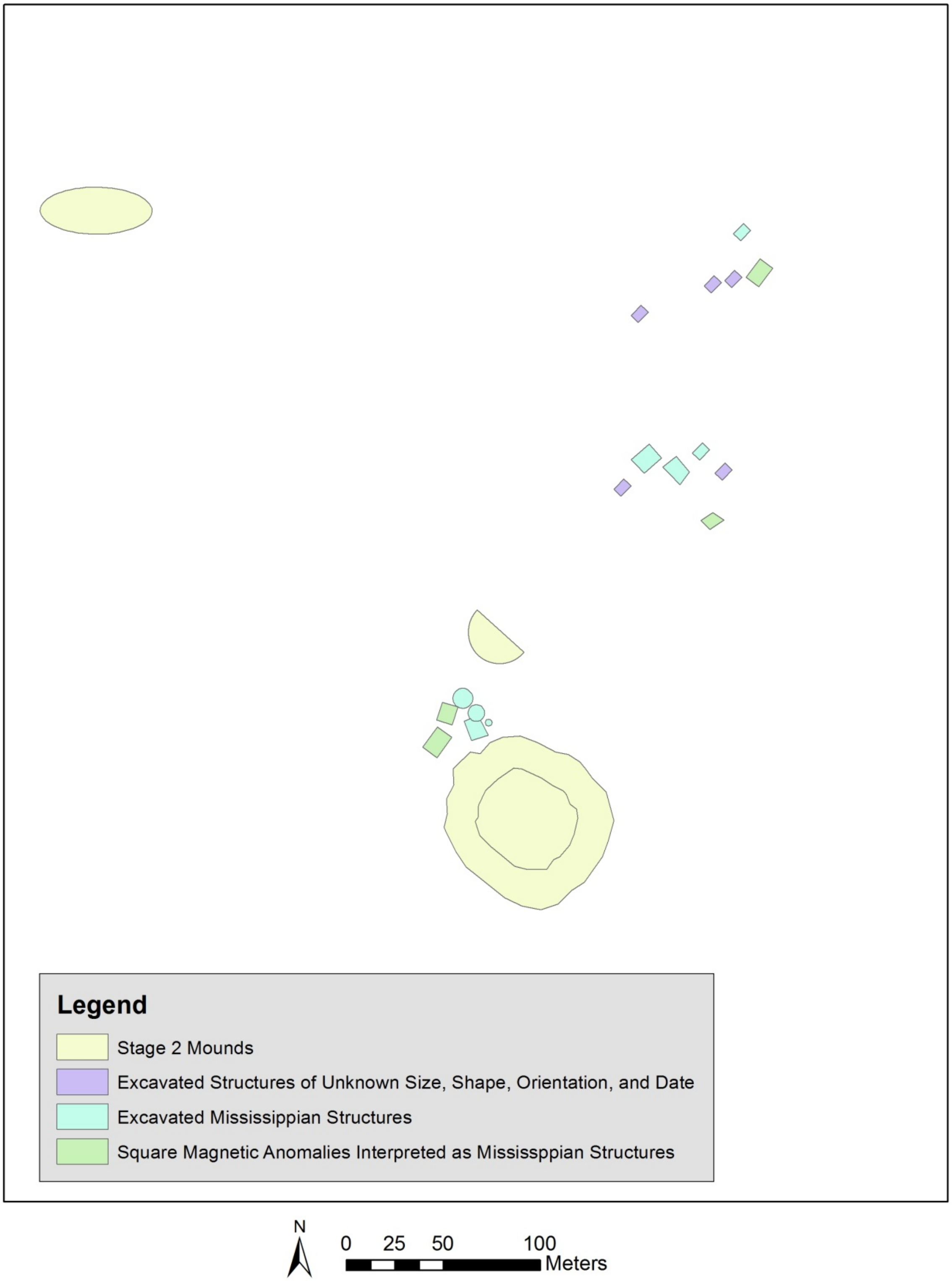

Figure 10.11. Settlement layout during Stage 2.

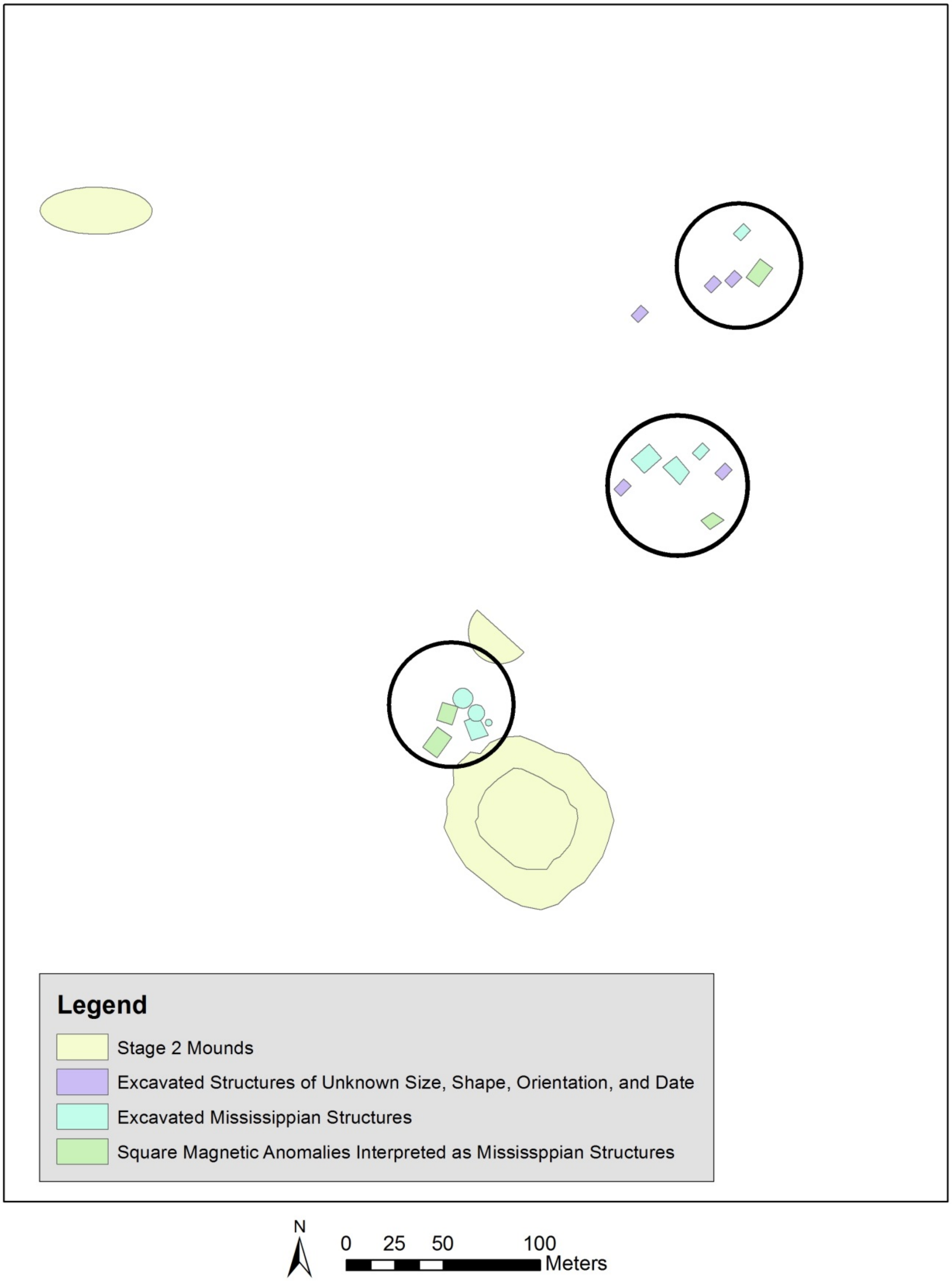

Figure 10.12. Interpretation of possible household clusters during Stage 2.

Figure 10.13. Approximate boundaries of Stage 3 occupation (2010 Bing Maps image).

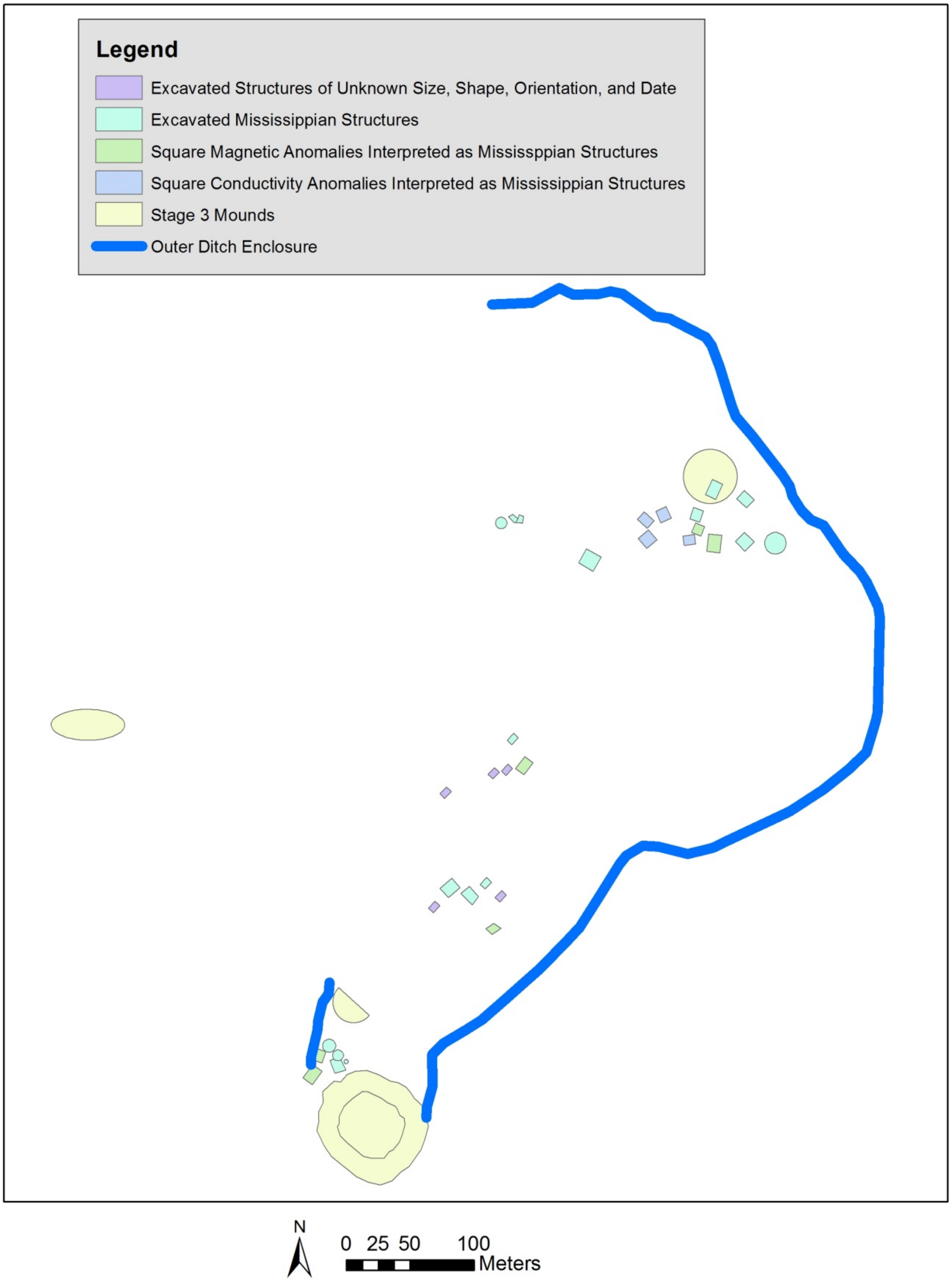

Figure 10.14. Settlement layout during Stage 3.

Figure 10.15. Approximate boundaries of Stage 4 occupations (2010 Bing Maps image).

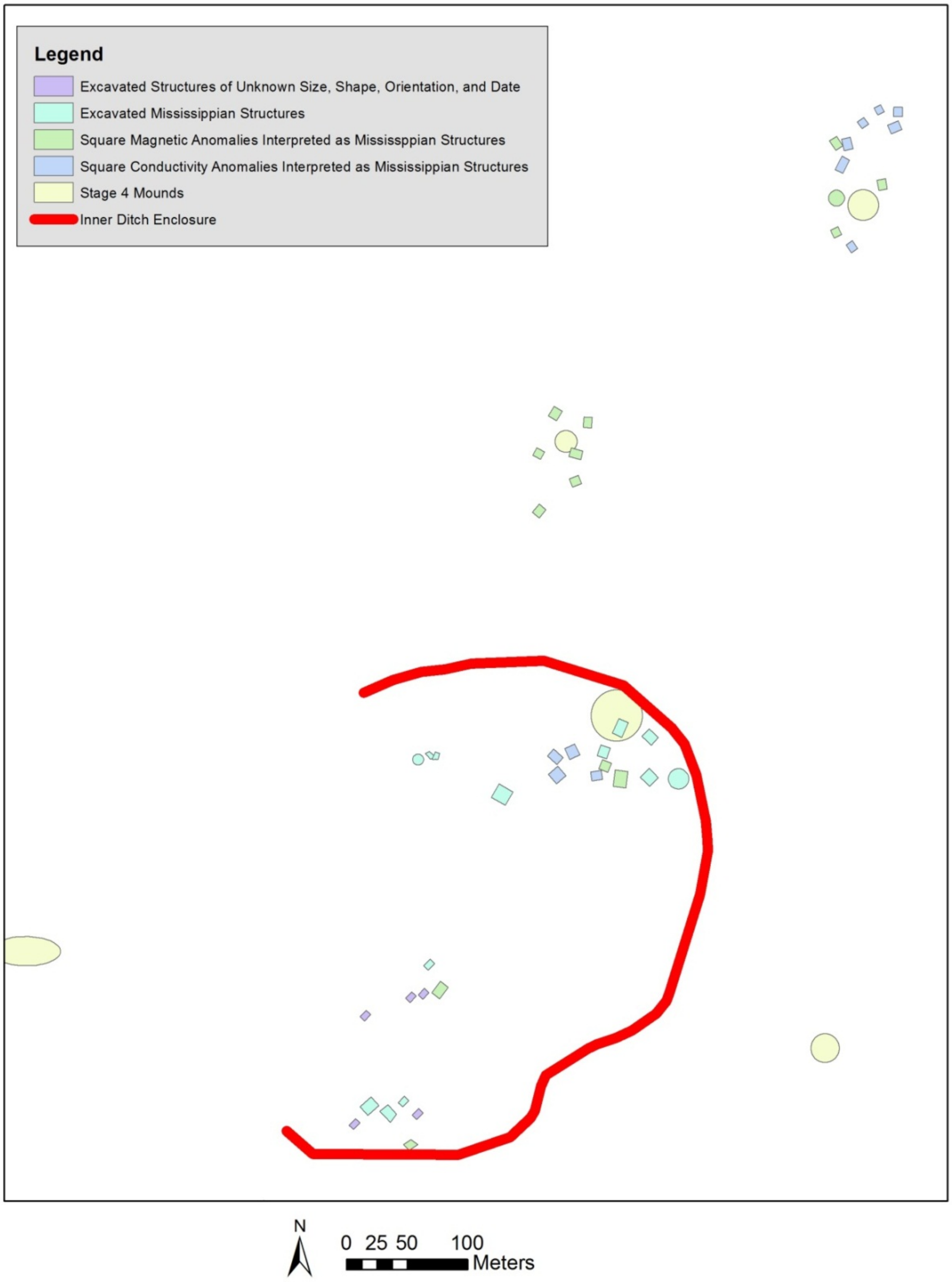

Figure 10.16. Settlement layout during Stage 4. There are no data from McDougal Mound or Fort Hawkins.

Figure 10.17. Approximate boundaries of Stage 5 occupation (2010 Bing Maps image).

CHAPTER 11

CONCLUSION

Ocmulgee drew the attention and speculations of archaeologists as far back as the late 1800s because of its large number and distinct arrangement of mounds. During the 1930s, Ocmulgee again drew the interest of WPA archaeologists because of the anomalous pottery recovered from the site and the presumed sub-terrainian residential structures that Kelly (1938) called “dug outs” (this idea was later rejected by Fairbanks (2003)). The distinctive settlement layout and shell tempered pottery did not look like anything else in central Georgia. This prompted some archaeologists to suggest Ocmulgee was a “site unit intrusion” and the result of in-migration (Fairbanks 2003 [1956]; Willey 1953; Williams 1994). They indicated that plain shell tempered pottery (Bibb Plain) unlikely evolved from grit tempered complicated stamped pottery (Swift Creek) which was presumed to be in use just prior to the appearance of shell tempered plain wares. The site unit intrusion hypothesis remained the leading interpretation of Ocmulgee’s origins with few contrarians offering alternative hypotheses (see Schroedl (1994) as a notable exception). This long standing interpretation continues to inform studies that emphasize large-scale movement of people and diffusion of cultural characteristics in the emergence of the Mississippian world (Pauketat 2001, 2007).

“Origins” played a central role in Ocmulgee literature until Hally and Williams (1994) integrated analyses of WPA excavations performed in the 1960s and 1970s to construct Ocmulgee’s community layout. Hally and Williams interpreted the long distances between mounds as a “sub-community” arrangement, similar to Cahokia, where each mound served as the ritual focus for local neighborhoods separated from each other by steep topography, small streams, and open space. Importantly, Hally and Williams recognized that Ocmulgee's inhabitants did not build all of the mounds at the same time. They suggested the final arrangement reflects an explicit plan and "as new mounds were constructed, their placement was guided by ideological principles designed to give the overall site-configuration symbolic, perhaps cosmological significance" (Hally and Williams 1994:95).

Recent refinement of local ceramic chronology (Elliott and Wynn 1991; Pluckhahn 1997) and the development of efficient non-invasive subsurface imaging methods begged for a reassessment of Ocmulgee's layout and its place in the larger Mississippian world. Mapping Ocmulgee's settlement history provides another case study to compare other large Early Mississippian mound centers to. Variation in historical trajectories informs us on the conditions surrounding initial occupation of different towns and their varied responses to population increases. The re-definition of quartz tempered simple stamped pottery in central Georgia from Early Woodland to Early Mississippian (Elliott and Wynn 1991) provides a local indigenous context in which to investigate the appearance of shell tempered plain pottery.

I conducted a ceramic analysis to refine Ocmulgee's chronology and build an understanding of the use of space through time. I analyzed samples from every major bluff and classified artifacts collected by the WPA and more recently by the NPS. I classified artifacts from three stratigraphic contexts located on the South Plateau, Middle Plateau, and North Plateau, and observed three diagnostic indicators that shifted through time. First, Vining Simple Stamped dominated the early assemblage, decreased through time but remained an important type, and increasingly was replaced by Bibb Plain. Second, the dominant Bibb Plain variety changed from Bibb Shell early on to Bibb Grit later in the occupation. Finally, diversity in lip mode style increased during the first part of occupation and then subsequently decreased. However, this last trend may be the result of small sample size or inconsistency of sample size between stratigraphic layers.

I conducted a large-scale, multi-method survey consisting of GPR topographic mapping, magnetometry electromagnetic induction, magnetic susceptibility, electrical resistivity, ground-penetrating radar, and limited posthole testing to delineate site boundaries, identify possible Early Mississippian buildings, distinguish between areas with sub-surface cultural modification and those absent of modification, and assess the degree of disturbance throughout the site. My survey detected patterned geophysical anomalies that may be caused by the remains of Early Mississippian buildings and numerous isolated anomalies that may be caused from partially destroyed buildings of other features. I integrated in GIS the locations of these anomalies with the locations of previously excavated buildings to construct Ocmulgee's settlement pattern. The geophysical survey also established a baseline for future studies. Ocmulgee is an important site with much past excavation and disturbance, and it would be irresponsible to begin new excavations without getting a larger picture to base hypotheses on.

My study and interpretations are limited in several ways (Figure 11.1). Decades of plowing and centuries of erosion substantially disturbed many parts of Ocmulgee. This leaves only a limited amount of space with intact archaeological deposits. Two large railroad cuts destroyed significant portions of the site. The lack of documentation during the excavation of these cuts left an eternal void in our understanding of Ocmulgee. Much of Ocmulgee remains forested and it is difficult to conduct large-scale, high resolution geophysical survey of these areas. Therefore, large un-surveyed gaps exist in my data. The scope of WPA excavations inhibited quality of recording during the 1930s and obtaining accurate proveniences of some artifacts is difficult. Finally, my inability to ground truth most geophysical anomalies leaves some of my interpretations unconfirmed. For example, not all square anomalies may represent domestic buldings. Despite these limitations, my research project collected large amounts of data and contributes much to an understanding of Ocmulgee's Early Mississippian settlement history. Two conclusions that are of particular importance are: Ocmulgee was not arranged as sub-communities until late in the sequence, and based on the high frequency of Vining, the local population may have played a significant role in the expansion of Ocmulgee's size and influence.

In this conclusion, I first reflect on some methodological issues from my survey and ceramic analysis and then summarize my reinterpretation of Ocmulgee's Early Mississippian settlement history. Next I place Ocmulgee in an increasingly larger context by comparing its settlement history to Etowah's and Moundville's, situating Ocmulgee in its larger sub-region, and finally briefly exploring how Ocmulgee informs our understanding of the larger Early Mississippian world.

Methodological Issues

Many archaeologists, including myself, have turned to large-scale GPS guided magnetometry surveys to map settlements and cultural landscapes. I also employed several experimental or less frequently used geophysical survey techniques to map Ocmulgee's settlement pattern. Few have used electromagnetic induction on large-scales or magnetic susceptibility measurements in the plow zone to map boundaries of disturbed sites or sites not accessible with more traditional geophysical survey techniques. I carried out electromagnetic induction with close sampling interval and 1 m transect interval. This resolution proved high enough to identify individual burials and distinguish between boundaries of buildings in undisturbed areas with short occupations. The survey also revealed that areas with multiple or long occupations produced data with overlapping signals and made it difficult to identify individual anomalies or interpret anomalies as specific types of features. I collected magnetic susceptibility readings on Mound X ridge at 30 m intervals. High magnetic susceptibility readings were strongly correlated with positive post hole tests and clearly delineated the boundary of the occupation. Such high correlation indicates this method is useful without excavating below the plow zone and could be utilized on a larger scale with no destructive impact on intact deposits. I could not distinguish between pre-historic and historic deposits based on susceptibility values indicating limits of understanding in complicated cultural landscapes. Surveying with multiple techniques also allows me to compare results, efficiency, and interpretability across several physical characteristics and plan future survey. GPR and electrical resistivity provided useful data sets, but I was limited in my capability to use these instruments over a large area. I recommend returning with high-precision GPS guided multi-channel GPR and a cart mounted electrical resistivity unit to survey all open areas and expand plow zone susceptibility survey to forested areas.

The methods I used to classify ceramics and the results of my analysis contributed to the understanding of Ocmulgee’s settlement history and community relationships. Since numerous researchers recognized the difficulties of Ocmulgee’s large amount of plain ceramics, I approached the classification emphasizing other characteristics inherent in plain sherds. Building on Ingmanson (1964a), I recorded variation in temper use. This contributed to my understanding of temporal changes in ceramics and settlement history. O’Brien (2001) also recorded large quantities of plain pottery in his work on Missouri, and recognized the difficulty plain pottery presents for diachronic analysis. He suggested it would be logical “that overall vessel shape, especially rim form, might offer the best means of identifying markers that could bring better chronological control” (2001:292). I recorded lip modes, which proved useful for refining Ocmulgee’s chronology.

Large-scale geophysical survey combined with ceramic analysis was an effective strategy for settlement pattern research. These complimentary approaches allowed me to collect large amounts of spatial data in a relatively short period of time, and contextualize the survey data with temporal information. The results of my study highlight the importance of understanding the spatial patterning of entire towns through time. Only by sampling the “whole” site and addressing changes in settlement layout, artifact distributions, and the function of space, can archaeologists re-create the life histories of communities. Some archaeologists assess the final arrangements of Mississippian settlements in an effort to understand anthropological issues (for examples see Lewis and Stout 1998). Riordan (2006) argued that a similar problem exists in Ohio Hopewell research where some archaeologists carried out synchronic analysis on earthworks with complicated construction histories. These analyses take for granted the complicated manipulation of landscapes by humans over decades, centuries, or millennia. There have been a small number of diachronic analyses on large portions of Mississippian mound centers. Some of the most well documented case studies include Moundville (Knight and Steponaitis 1998; Wilson 2008), Etowah (King 2003; Walker 2009), Cahokia (Milner 1998; Pauketat 1994), Town Creek (Boudreaux 2007), and Toqua (Polhemus 1987). We now have an opportunity to add numerous other town names to this list. With the accessibility of geophysical equipment, possibility of large spatial coverage, and abundance of excavated but unanalyzed artifacts sitting in boxes on so many laboratory shelves, I encourage other archaeologists to carry out settlement pattern studies similar to my own.

Summary of Ocmulgee Settlement History

Stage 1

The Stage 1 settlement was confined to the South Plateau and Middle Plateau. Archival research and geospatial surveys identified four circular, single set post tradition residential structures associated with Stage 1. Geophysical survey identified three new potential structures all located near each other and, when combined with prior excavation maps, it appears household clusters may have been separated by short distances of open space. Household clusters consisted of several structures, but it is possible that some families occupied a single structure. Additionally, geophysical survey on Mound C Bluff suggests use, but no residential structures indicating that the use of specialized areas emerged during Stage 1. The Mound C sub-mound structure was segregated from the main bluff by steep topography and a stream. It is unclear if an emerging elite restricted access to specialized areas or if community-wide access to public architecture existed, but the limited number of burials below Mound C suggests limited access at death. Mound C Bluff is higher in elevation than the settlement on the main bluff and likely could have been seen by the entire community at all times. This may have promoted an integrated sense of community. Social inequality between residential groups was minimized and political leaders maintained minimal influence.

Stage 2

The community grew slightly during Stage 2. The community occupied the same areas with the additional use of the Southeast Plateau. The Southeast Plateau did not contain residential units, but may have been a pottery workshop producing large Hawkins Fabric Marked circular basins or a specialized activity area where people disproportionately relied on the use of large basins. The shapes of residential structures changed from circular to square as suggested by Kelly's excavations, but people continued to construct buildings in the single set post tradition except for earth lodges/council chambers which were constructed with wall trenches. Household clusters became more formal and surrounded small shared open space. The arrangement of household clusters, as determined by the distribution of geophysical anomalies and excavated structures, did not completely surround courtyards and did not explicitly restrict access for residents of other household clusters. Construction of Mounds A, B, and C began during this stage and access to these areas most likely was restricted. Ground-penetrating radar identified structures on earlier construction stages of Mound A and the mound may have been the foundation for a chiefly residence. The distribution of Halstead also indicates preferential access to fine wares on the South Plateau and near Mound C compared to the Middle Plateau. The uneven distribution of fine wares and the variation in distance from mounds indicate a growing divide of social inequality. Mound building suggests leaders began to exercise power and influence over the general population.

Stage 3

The community increased in size during Stage 3 to include the North Plateau. Presumably additional stages are added to Mounds A, B, and C. Construction of Mound D and the Mound D-

1 earth lodge began on the North Plateau. Geophysical survey and WPA excavations documented enclosed courtyard groups immediately south of Mound D and west of Mound D-1 earth lodge. The layout of these courtyard groups contrasts with open household clusters on the Middle Plateau. Access was restricted to the Mound D complex. The outer ditch was likely completed during Stage 3 and enclosed the North, Middle, and South Plateaus. The emergence of the Mound D complex possibly indicates growing political tension. People living on Mound D and in the Mound D courtyard groups may have contested the monopolization of power held by people living on Mound A and in the structures immediately north of Mound A on the South Plateau. Social inequity reaches its peak during Stage 3. In addition to differential access to fine wares and public architecture, people began to shade there practices behind fully enclosed courtyards. Esoteric activities could only be viewed by a select few. Continued building of mounds and the initiation of a large public works project (outer ditch) indicates the ability of political leaders to mobilize labor and plan large community wide activities.

Stage 4

There is a reduction in population size suggested by the reduced amount of space used on the main bluff during Stage 4, but people began to settle on the outlying bluffs. Mound X and Mound E are constructed on the boundaries of the main bluff outside the ditch. Dunlap Mound, McDougal Mound, and possibly the Fort Hawkins mounds are constructed on the three subsequent bluffs north of the main bluff. The area between these outlying mounds consists of empty space. This is in contrast to the continuous habitation zone on the main bluff during Stages 1, 2, and 3. The layout of outlying bluff neighborhoods differs from the town core. On Dunlap Hill, square structures are built surrounding Dunlap Mound. Dunlap Mound is located at the center of the neighborhood. Access to Dunlap Mound was probably not restricted and it may have played an important role in neighborhood ceremonies. The inner ditch is constructed during this stage and encloses a smaller area including the North Plateau and the Middle Plateau. The Mound A/B complex is located outside the newly constructed ditch and the final clay cap is laid on Mound A. There was no summit architecture on the final stages of Mound A. The outlying bluffs could have been settled by migrants, overflow of a growing population, or inhabitants removed from the main bluff. These possibilities are not mutually exclusive. There is a decrease in the social divide between residential groups or neighborhoods during Stage 4. Residents erected new mounds on successive bluffs with neighborhoods arranged in a circle around the mound. Proximity and access to mounds increased from the general population. New leaders likely emerged in these newly constructed neighborhoods. Power was shared across residential mound groups, of which there could have been up to seven at Ocmulgee (D, E, X, McDougal, Dunlap, Fort Hawkins).

Stage 5

Stage 5 represents a significant reduction in the total population. Fairbanks (1956) argued that Ocmulgee experienced a hiatus, but the identification of Etowah Complicated Stamped sherds on the Southeast Plateau, South Plateau, and Ocmulgee Bottoms indicate that a small population remained or a small group reoccupied the area after a short abandonment. The core of the Stage 5 community centered on the Ocmulgee Bottoms where investigations yielded a higher frequency of Etowah Complicated Stamped than other parts of the site. It is clear that Ocmulgee's power and influence diminished on a larger regional scale. At the same time, Etowah's influence began to increase across Georgia. Unfortunately, most of the Etowah Complicated Stamped sherds found at Ocmulgee come from mixed contexts (Southeast Plateau and Ocmulgee Bottoms). Better stratigraphic control would help delimit the general time of full abandonment. Ocmulgee contained no resident population by the Lamar phase. Little can be inferred regarding social inequality and political influence. I speculate that social inequities continued to decrease and a significant decision making hierarchy was further de-emphasized.

Comparison of Three Mississippian Town Histories

This section compares the historical trajectories of Ocmulgee, Moundville, and Etowah in order to demonstrate the divergent histories and convergent evolution of three large Early Mississippian mound towns. All three towns began in similar form with small initial population sizes and little to no construction of mounded architecture. The earliest evidence of occupation at Moundville dates to around AD 1050. Most people in the Black Warrior River Valley began living in small farmsteads, but Moundville contained a denser population that constructed two mounds (Knight and Steponaitis 1998:11). Wilson (2008:131) found that households were already staking claim to particular areas on the Moundville landscape. During this time, households took advantage of available space and rebuilt worn down houses on plots directly next to the previous house (Wilson 2008:79). Similarly, Etowah consisted of residential structures and non-mound public architecture during its initial phase of occupation (King 2003:52-60), but the layout of residential structures dating to this phase is difficult to reconstruct. There is a lack of evidence for individual wealth and material culture primarily consisted of local materials.

The similar beginnings may indicate each town arose under a similar set of conditions. It is unlikely that the initial group of inhabitants forecasted the influence that each town and polity would eventually obtain in their respective regions. People may have initially chose these locations for the proximity to a major river system, floodplain soils, access to multiple ecological zones, or that they were of sufficient distance from other emerging towns. Ocmulgee, Etowah, and Moundville may have initially been occupied under the same pretenses as numerous other Mississippian towns that never ascended to dominate the sociopolitical landscape. While inhabitants likely constructed these three towns for a variety of reasons, their initial settlement layouts do not appear to be pre-conceived. Groups possibly suffering from endemic warfare did not engage in a social contract stipulating the location of a new capital that all may benefit from and that is located on neutral territory. In each case, a small group settled a somewhat typical village that eventually lived an extraordinary life.

Small founding populations did not maintain themselves for the same length of time at Ocmulgee, Etowah, and Moundville. Etowah appears to have increased its population more quickly than the other two. By the late Etowah phase (possibly less than a century), Etowah had become densely populated. The expansion of Moundville did not occur until approximately 150 years after its founding. Unfortunately, few dates exist for Ocmulgee.

Following their meager beginnings, Moundville and Etowah shared a similar type of development. The difference between the two is magnitude. Moundville witnessed an explosion of mound construction and residential clusters became associated with large/small mound pairs (Knight and Steponaitis 1998:15). Unoccupied space separated each mound pair and associated residential cluster and Wilson (2008) recognized greater variation in building size within residential clusters than between them. This may indicate power sharing relationships. Although this institution was embedded into a hierarchy, Moundville’s occupants deemphasized social inequality between corporate groups. Similarly, the town plan of early Etowah consisted of redundant neighborhood groupings (Walker 2009). Domestic buildings surrounded large courtyards and no clear decision making hierarchy existed, but there are differences in the sizes of courtyard groups and construction may have begun on Mounds A and B (King 2001, 2003). This may indicate that Etowah framed an institution of power sharing in a loosely hierarchical structure and like Moundville, deemphasized social inequality between corporate groups.

Ocmulgee on the other hand develops a conspicuous two-tier hierarchy with more dramatic social inequality following expansion. The divide between social groups is evident in the varying geographic distance between household groups and mounds, the larger sizes of domestic buildings closer to mounds and other forms of public architecture such as earth lodges, the limited number of elaborate burials in and around Mound C, and the differentially higher frequency of precious items such as Halstead pottery near mounds, earth lodges, and larger domestic buildings.

Etowah witnessed a hiatus of occupation following its initial expansion (King 2001, 2003), but little is known regarding the first abandonment of Etowah. This may be the result of traditional chiefdom cycling. Precarious chiefdom politics often results in short-term occupations and subsequent reoccupations of political capitals. Ocmulgee and Moundville remain continuously occupied throughout their histories and do not share a break in occupation as seen at Etowah. One possible difference between Ocmulgee and Moundville is length of occupation. Moundville was occupied continuously for 400 to 500 years, but Ocmulgee may have only been occupied for 100 to 200 years based on limited rebuilding activity. Future ceramic work coupled with new radio-carbon dates will help resolve this issue.

Etowah and Moundville share a similar history during their next phase of occupation, while Ocmulgee's history diverges. Both Moundville and Etowah witness a monopolization of power by leaders. Declining frequency of residential architecture (Walker 2009; Wilson 2008) suggests populations decreased at both towns, but construction of public/monumental architecture continues (King 2003; Wilson2008). The palisade wall at Moundville is reduced in size (Scarry 1998) and residential clusters adjacent to the plaza are converted into family cemeteries (Wilson 2008). Construction of mounds continues at Etowah (King 2003) and the palisade is built (Bigman et al. 2011). Taking a similar interpretive approach to Trubitt's (2001) research on Cahokia, Beck (2006) and King (2003) suggest that leaders are imparting exclusionary political strategies at both Moundville and Etowah during the depopulation. The leadership are distancing themselves from their constituents, but drawing on labor from outside the depopulated center (Bigman et al. 2011). Social inequality increased in the Moundville and Etowah systems.

Ocmulgee may have witnessed the development of a political rivalry. Until this point, Mounds A/B dominated the physical landscape and inequitable access to goods, labor, and space characterized the sociopolitical landscape. The build-out of the Mound D complex including formalized courtyard groups, increased frequency of precious items, the association of the complex with the Mound D-1 earth lodge and its elaborate sculpted floor all suggest that dominance by a single corporate group on the South Plateau waned. Eventually, a cessation of mound use on the South Plateau accompanied construction of neighborhoods with central mounds on at least three adjacent bluffs. This signifies a shift from less access to public architecture to greater access for the general public. In comparing this phase, the monopolization of power is solidified in the Moundville and Etowah systems, but is contested in the Ocmulgee system.

Finally, Ocmulgee and Moundville share a common death. Mound construction ceases at both towns and small residual populations remained. These populations clustered themselves into small confined space in the southern portions of the towns: just southwest of Mound G at Moundville (Knight and Steponaitis 1998) and south of Mound A at Ocmulgee. The residual population of Moundville occupied the site for approximately 200 years. The length of residual occupation at Ocmulgee remains unknown.

Etowah died a more sudden death (Kelly and Larson 1957; King 2001:7). Evidence suggests that Etowah was attacked and suffered a devastating defeat. For example, archeological and geophysical evidence suggests that the enormous palisade wall was burned (Bigman et al. 2011; King 2003). People did not reoccupy Etowah until the Late Mississippian Brewster phase. During its third occupation it may have been subject to another town in a larger political system.

Etowah fits the expectation of chiefdom cycling while Moundville and Ocmulgee do not. Moundville and Ocmulgee witnessed dramatic changes in elite power and control and in social inequality. Such fluctuations are the hallmarks of precarious chiefly political systems (Anderson 1994; Hally 1996), but neither witnessed cycles of abandonment and reoccupation; only shifts in population size, structure, and location.

The goal of this section was to illustrate the varied lives of Mississippian towns and political systems; the convergent evolution and divergent histories of social groups living in the same geographic macro-region with overlapping cultural characteristics, but possibly motivated by different evolutionary mechanisms. The power of large spatial data sets framed through time will inform our understanding of late pre-historic social and political landscapes at multiple scales ranging from towns, to polities, to peer-polity interaction, to inter-regional contact.

Ocmulgee in a Wider Context

Using Georgia Archaeological Site File data, I plotted the distribution of sites with Napier Complicated Stamped, Vining Simple Stamped, Bibb Plain, and Etowah Complicated Stamped in a 50 km radius of Ocmulgee (Figure 11.2) to assess its relationship with other sites in the local area and central Georgia sub-region, and view changes in the cultural landscape through time (see Williams (1994) for a discussion of central Georgia survey biases). I demonstrated in Chapter 9 that Ocmulgee's inhabitants ceased to produce Napier Complicated Stamped before Stage 1, and the limited frequency of the type during Stage 1 represents residual use of a limited number of pots or intrusion in the stratigraphic layer. I view the distribution of sites containing Napier as representing the period just prior to the use of Vining Simple Stamped. Vining Simple Stamped and Bibb Plain overlap, but Vining pre-dates Bibb and the overlap is restricted to Stages 1, 2, and 3. Stage 4 is marked by Bibb Plain without Vining Simple Stamped (as seen on Dunlap Hill), and Etowah Complicated Stamped indicates Stage 5.

There was a 20 percent reduction in total sites with Napier compared to Vining within a 20 km radius of Ocmulgee and mostly within 10 km south (Figure 11.3). This may suggest an initiation of settlement aggregation, but site size data do not exist for most sites in the region and it is unclear how large each sherd collection is. A comparison of Vining and Bibb indicates further possible aggregation (Figure 11.4). Only three sites contained both Vining and Bibb. This correlates to Ocmulgee's Expansion I (Stage 2) and Expansion II (Stage III). The aggregation "event" likely was not sudden, but over time sites became abandoned and people moved toward Ocmulgee and some sites with Vining but without Bibb likely were contemporary for at least a short period of time with sites that contained both Vining and Bibb. Much of the population growth during Stages 2 and 3 may have come from Ocmulgee's immediate hinterland and Brown's Mount marks the southern extent of the cluster.

Five sites contained Bibb without Vining. These possibly represent sites inhabited by people moving away from Ocmulgee's main bluff during Stage 4 (Figure 11.4). Ocmulgee remained occupied during this time, but the settlement shifted to outlying bluffs. It is probable that people inhabiting the two other sites containing both Vining and Bibb continued to live there during Stage 4. The total number of sites during Stage 4 increased to eight. An increase in total sites, a decrease in the use of Ocmulgee's main bluff, and the building of mounds on other bluffs may indicate waning political power of Ocmulgee's leaders and possibly a de-emphasis on hierarchical decision-making. A similar number of sites date to Stage 5. There were eight sites with Bibb Plain and seven sites with Etowah Complicated Stamped (Figure 11.5). Five sites contained both Etowah Complicated Stamped and Bibb Plain (including Ocmulgee and Brown's Mount). This suggests stabilization and continuity in the occupation. Abandonment of Ocmulgee's mounds, a probable reduction in Ocmulgee's population, and outlying site continuity indicates continued reduction of hierarchical decision-making. Ocmulgee and Brown's Mount are the only sites containing Vining, Bibb, and Etowah (Figure 11.6).

Comparing site distributions in a 50 km radius contextualizes Ocmulgee's settlement system in a larger political landscape. Ocmulgee's settlement system is demarcated by clustering of sites around Ocmulgee with Vining Simple Stamped, Bibb Plain, and Etowah Complicated

Stamped, but with open space separating the Ocmulgee cluster from other site clusters. Sites containing Vining or Bibb were clustered into three groups including Ocmulgee (Figure 11.7). Besides Ocmulgee, one cluster existed 50 km south and the other approximately 35 to 40 km northeast. Some isolated sites occur in the zone between the Ocmulgee and the two other clusters, but all three were generally separate. The number of sites with Napier compared with Vining decreased around Ocmulgee, but increased in the southern cluster (Figure 11.7). The decrease of sites with Napier in the northern portion of the sub-region suggests that Ocmulgee may have integrated people as far as 50 km away. Some may have relocated to the northeast cluster. All but three sites containing Etowah Complicated Stamped were located in the three clusters (Figure 11.8). There were fewer sites containing Etowah than Vining or Bibb. This may indicate a depopulation or further site aggregation. Future work in the sub-region should collect basic data on site size and artifact density to address this issue.

The detailed chronology for the Ocmulgee area indicates that further site aggregation did not occur, and that Bibb compared to Etowah was relatively stable. The region as a whole may have been depopulated. Etowah emerged as a pre-eminent power in Georgia at the time. Its political system included four sub-administrative centers viewed as subordinate political managers of sub-regions in the Etowah polity. The Etowah political system maintained an additional level in its decision making hierarchy (Hally 1993; King 2003). People may have relocated north to Etowah from Ocmulgee. While this is speculative, Hally (2006) recognized the constant resorting of populations throughout the Mississippian and argued this process had several advantages for regional stabilization at the north Georgia scale. The entire sub-region remained relatively stable between AD 800-1200. Only three site clusters persisted throughout the sequence, but Ocmulgee likely had the largest population and greatest influence.

These results insist that we re-address the origins of Ocmulgee. Many have argued that Ocmulgee was the product of a site unit intrusion (Fairbanks 2003 [1956]; Willey 1953; Williams 1994) in which people migrated from outside the region and displaced local populations. My data cannot address the possibility that outsiders came to central Georgia, but it does force us to re-assess the importance of local population Ocmulgee's development. Previous understanding of Ocmulgee's origins emphasized discontinuity in ceramic styles (Willey 1953), and suggested the transition from Swift Creek to Bibb Plain was too abrupt to have be a local development. Repositioning Vining as an Early Mississippian type, which is recognized in contexts with Napier, suggests it is a local indigenous style. The co-occurrence of Vining and Bibb throughout much of the occupation at Ocmulgee and the dominance of Vining in early stratigraphic levels indicates that the local population was not displaced. This leaves us with an important new context in which to understand Ocmulgee's beginnings.

Archaeologists can direct future research based on the recognition that Ocmulgee's origin is complicated and may not involve mass migration, but was likely influenced by foreign and local stimuli. Why did shell tempering not spread to other parts of central Georgia? What relationship did Ocmulgee and Brown's Mount have? Did Ocmulgee isolate itself from the rest of the sub-region, or did the other political units place an early taboo on Ocmulgee's new practices? Did Ocmulgee have a connection to Cahokia, or did it repel influence from the American Bottom? Research projects addressing these questions can be grounded in new understanding of Ocmulgee's history and its position in the larger Mississippian world.

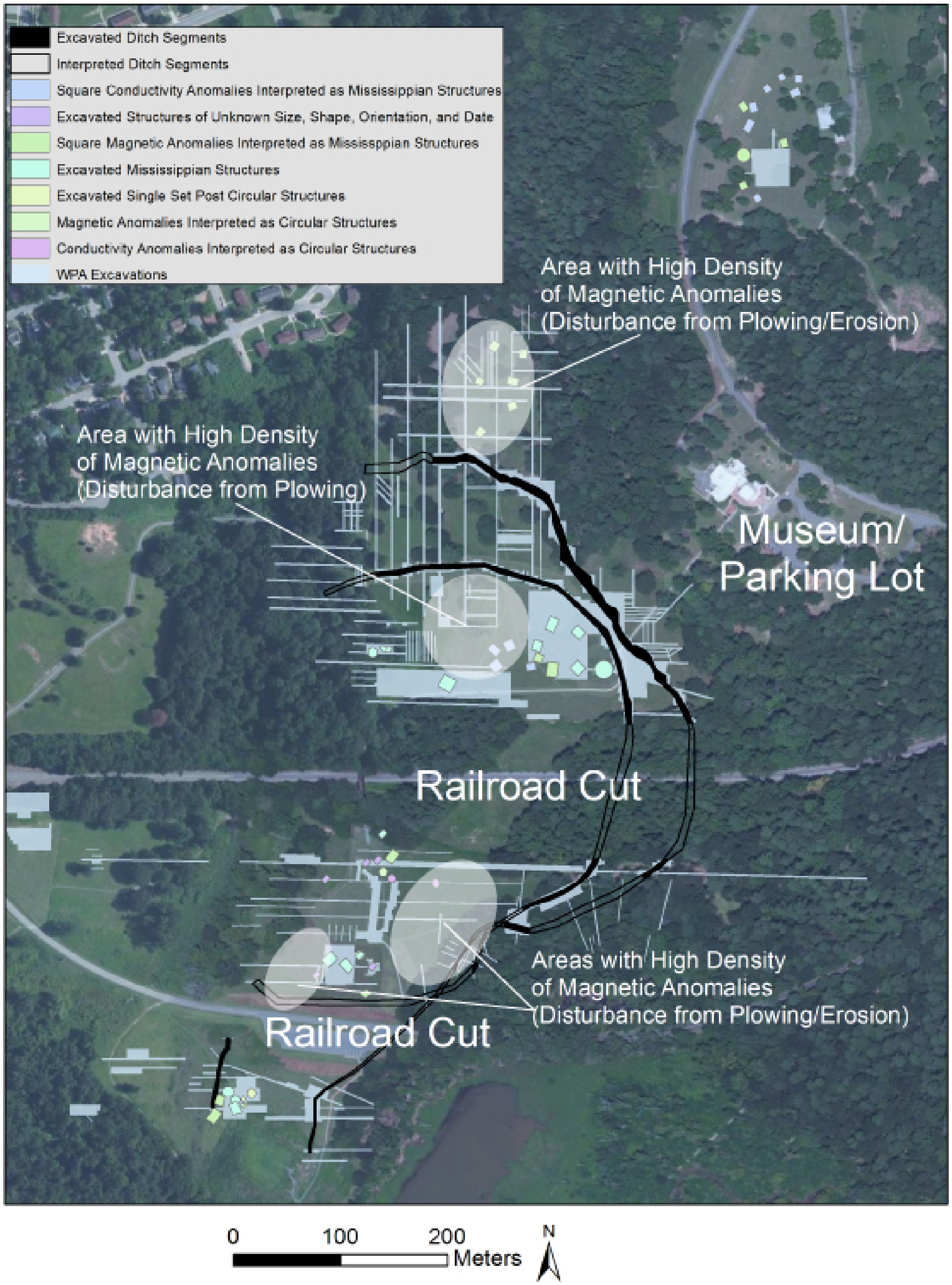

Figure 11.1. Composite map showing railroad cuts, areas with high density of anomalies, areas disturbed by plowing an erosion, excavated structures, magnetic and electromagnetic anomalies indicative of possible structures, and the locations of WPA excavations.

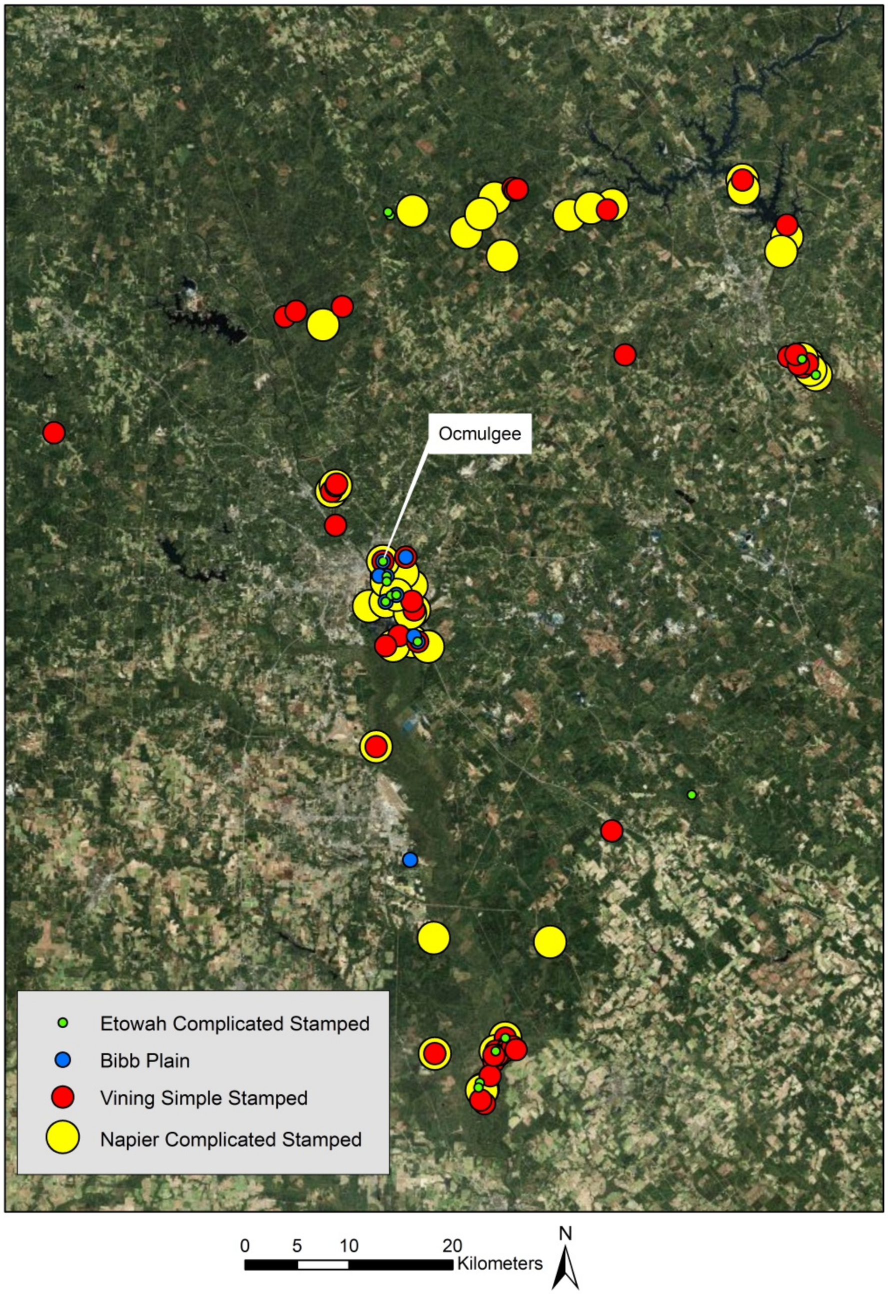

Figure 11.2. Distribution of sites containing Napier Complicated Stamped, Vining Simple Stamped, Bibb Plain, or Etowah Complicated Stamped in a 50 km radius of Ocmulgee (2010 Bing Maps image; site locations downloaded from GNAHRGIS).

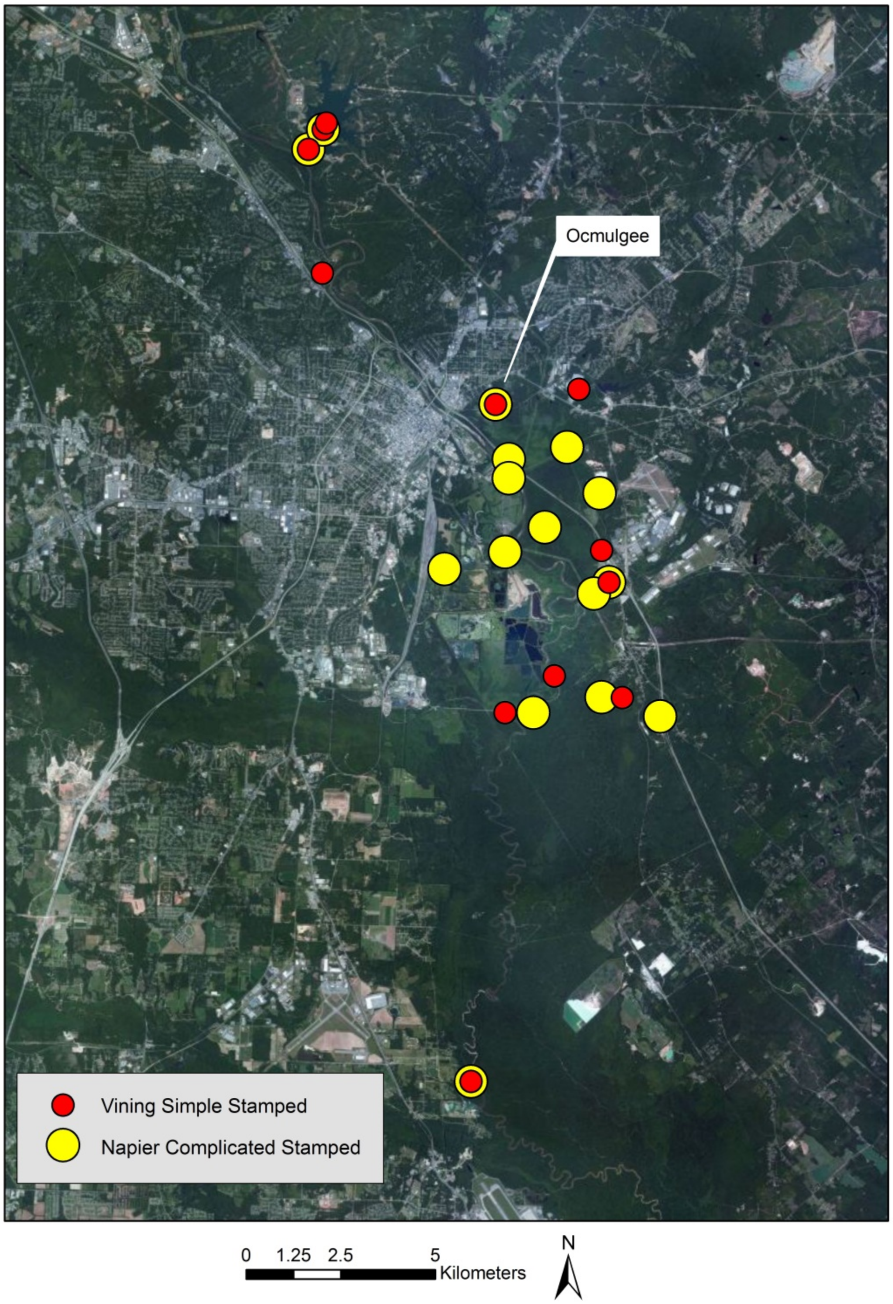

Figure 11.3. Distribution of sites containing Napier Complicated Stamped or Vining Simple Stamped in 20 km radius of Ocmulgee (2010 Bing Maps image; site locations downloaded from GNAHRGIS).

Figure 11.4. Distribution of sites containing Vining Simple Stamped or Bibb Plain in a 20 km radius of Ocmulgee (2010 Bing Maps image; site locations downloaded from GNAHRGIS).

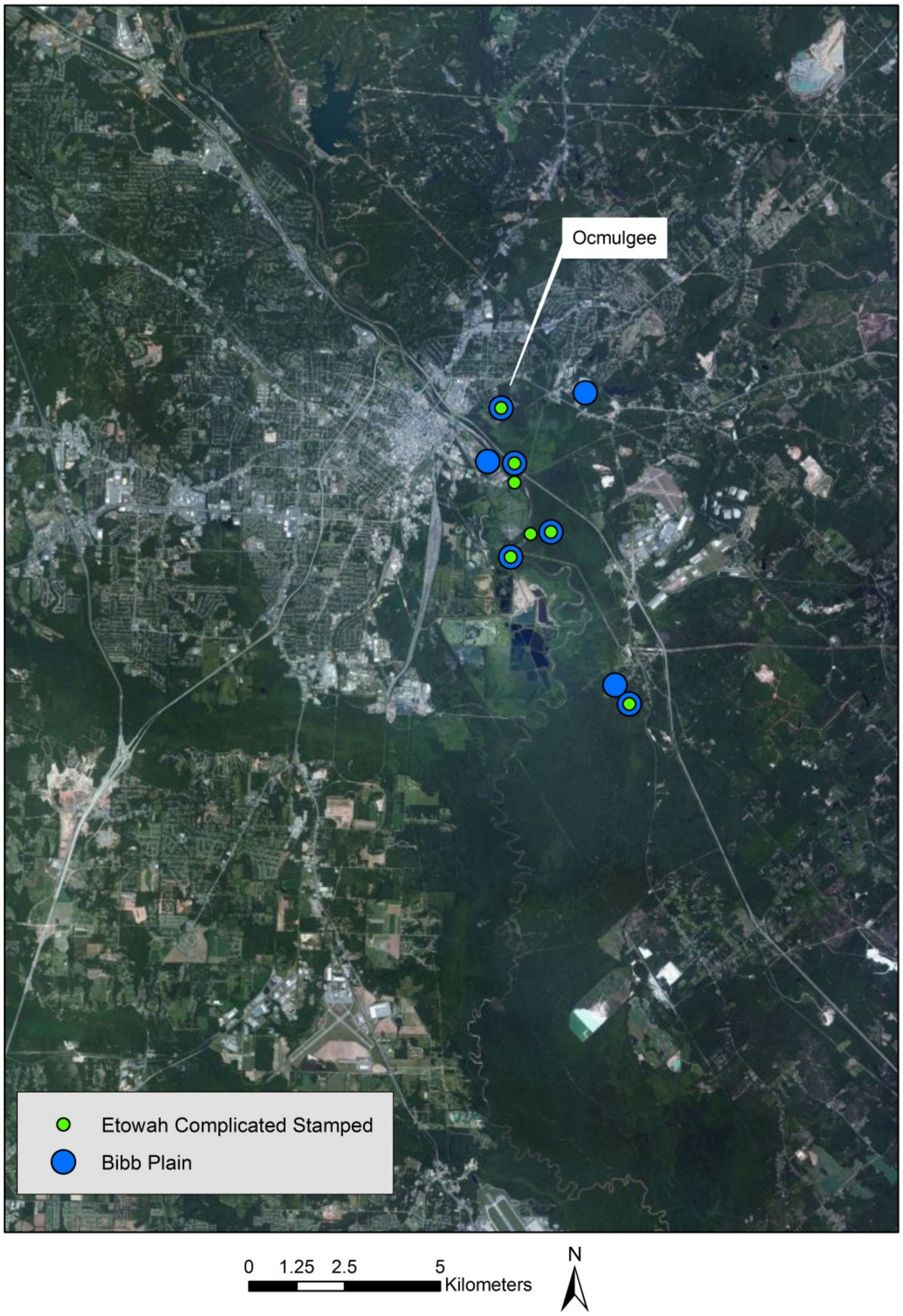

Figure 11.5. Distribution of sites containing Bibb Plain or Etowah Complicated Stamped in 20 km radius of Ocmulgee (2010 Bing Maps image; site locations downloaded from GNAHRGIS).

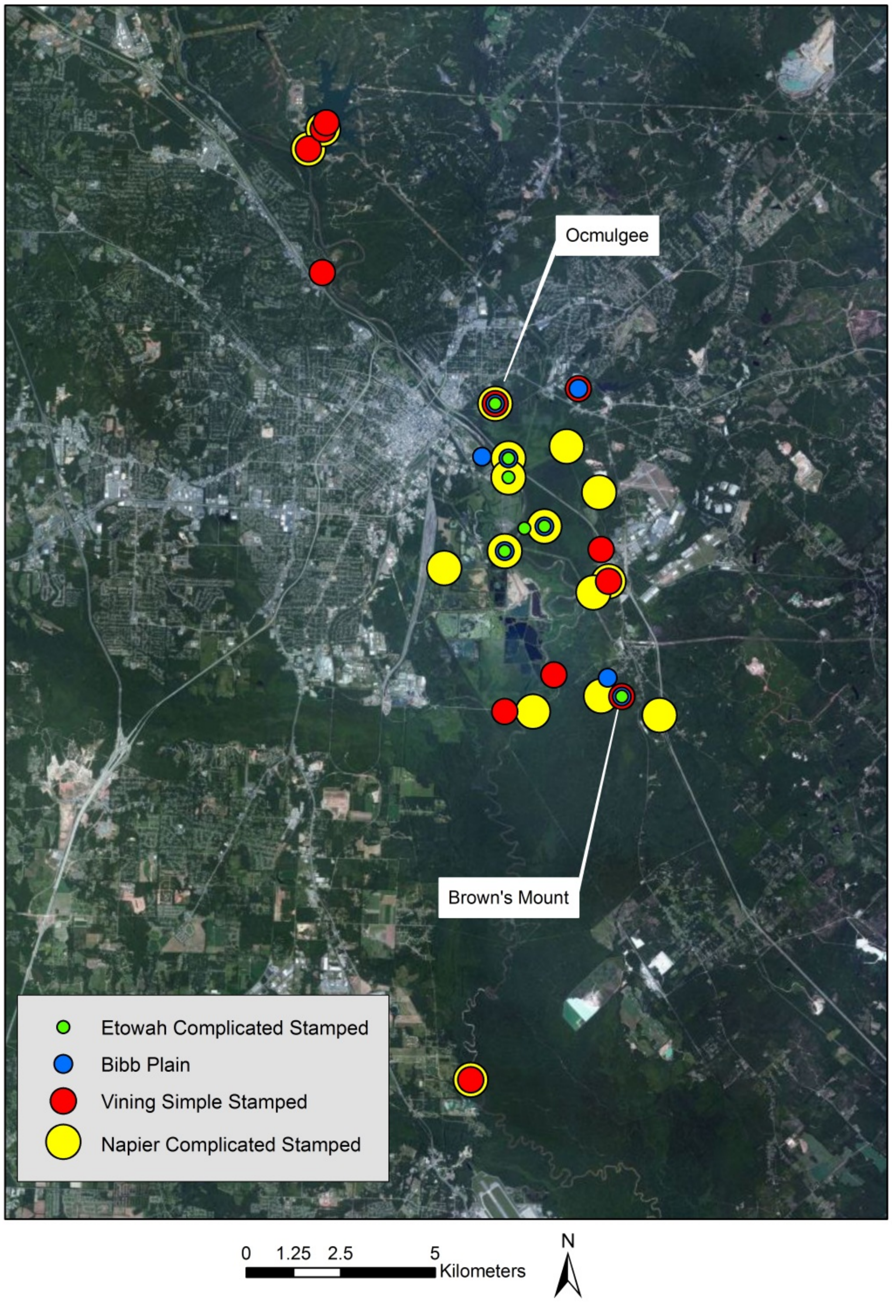

Figure 11.6. Distribution of sites containing Napier Complicated Stamped, Vining Simple Stamped, Bibb Plain, or Etowah Complicated Stamped in 20 km radius of Ocmulgee (2010 Bing Maps image; site locations downloaded from GNAHRGIS).

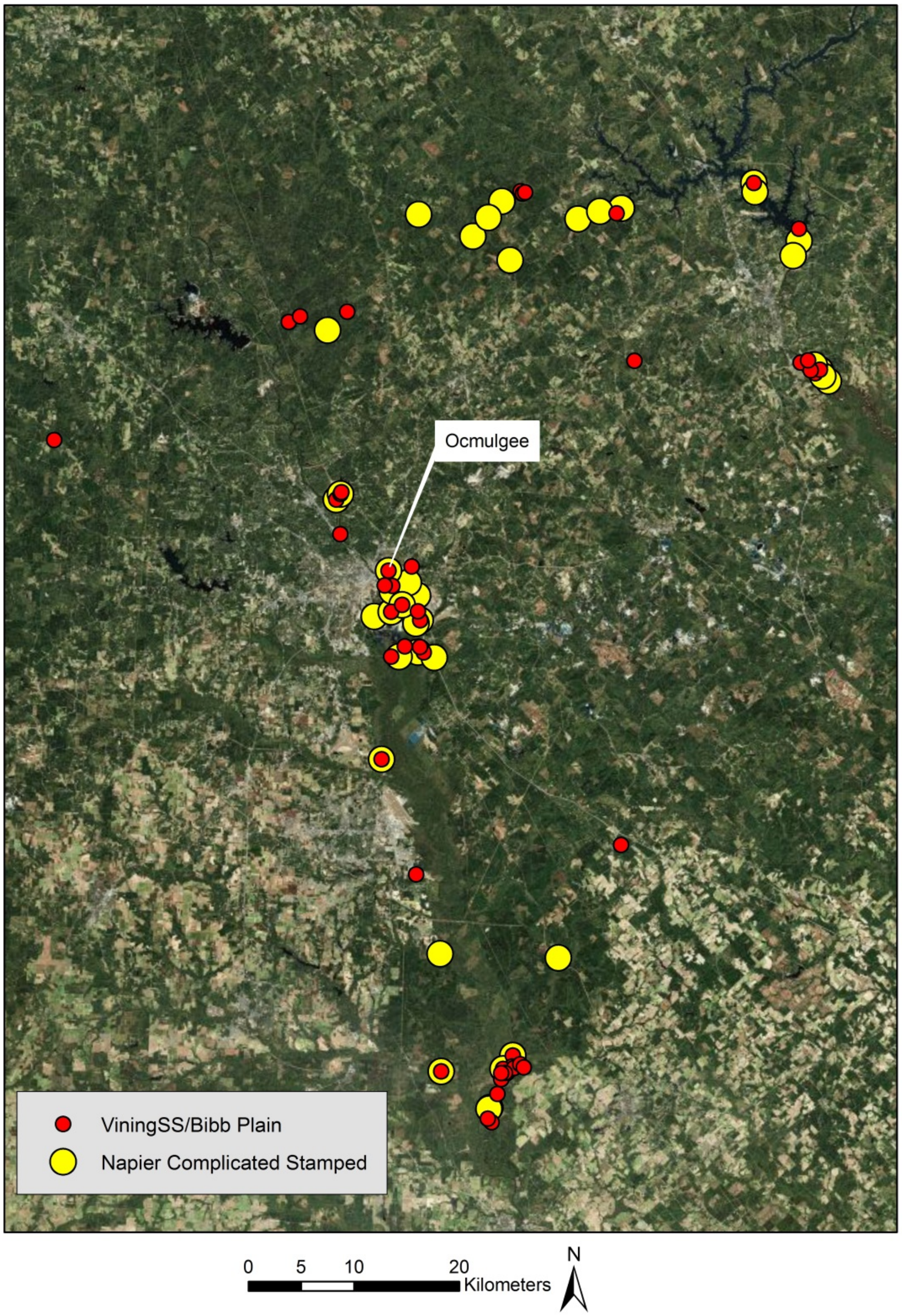

Figure 11.7. Distribution of sites containing Vining Simple Stamped, Bibb Plain, or Napier Complicated Stamped in 50 km radius of Ocmulgee (2010 Bing Maps image; site locations downloaded from GNAHRGIS).

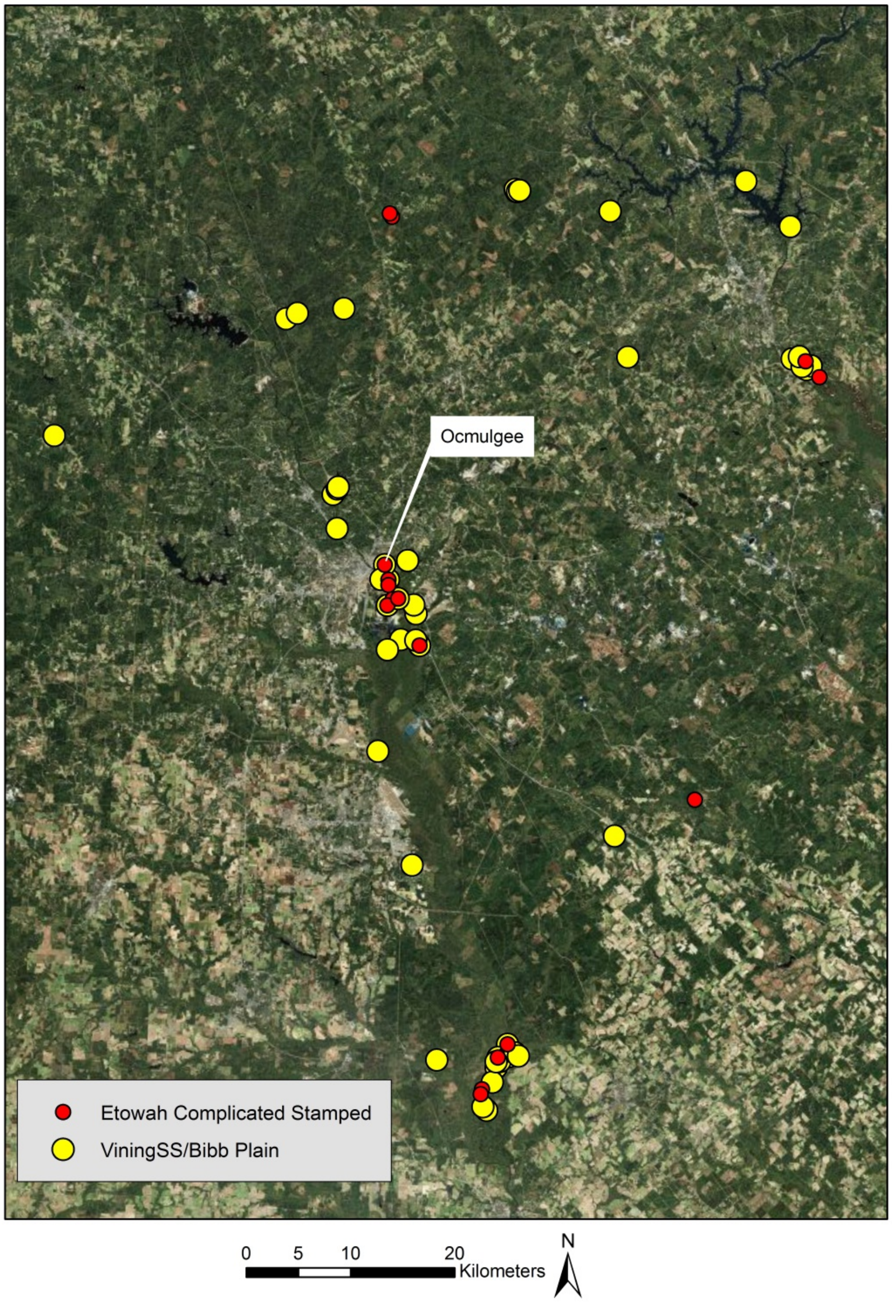

Figure 11.8. Distribution of sites containing Vining Simple Stamped, Bibb Plain, or Etowah Complicated Stamped in a 50 km radius of Ocmulgee (2010 Bing Maps image; site locations downloaded from GNAHRGIS).

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APPENDIX A

ESTIMATED STRUCTURE SIZES

Method of Identification	Location	Shape	Diameter (m)/ Dimensions (m)	Area (m^2)
WPA Excavation	SP	Rectangle	10.6 x 9.1	96.5
WPA Excavation	SP	Circle	4.4	15.2
WPA Excavation	SP	Circle	4.8	18.1
WPA Excavation	SP	Circle	8.1	51.5
Magnetic Survey	SP	Rectangle	9.6 x 8.4	80.6
Magnetic Survey	SP	Rectangle	12.9 x 9.1	117.4
WPA Excavation	MP	Rectangle	9.8 x 12.2	119.6
WPA Excavation	MP	Rectangle	8.9 x 12.7	113.0
WPA Excavation	MP	Rectangle	5.1 x 7.4	37.7
WPA Excavation	MP	Circle	8.4	55.4
Magnetic Survey	MP	Rectangle	6.7 x 8.6	57.6
Magnetic Survey	MP	Rectangle	8.1 x 11.9	96.4
Magnetic Survey	MP	Circle	8.4	55.4
Electromagnetic Induction	MP	Circle	7.3	41.9
Electromagnetic Induction	MP	Oval	8.6 x 6.2	53.3
WPA Excavation	NP	Rectangle	4.0 x 6.6	26.4
WPA Excavation	NP	Rectangle	3.7 x 5.3	19.6
WPA Excavation	NP	Rectangle	9.3 x 8.2	76.3
WPA Excavation	NP	Rectangle	13.0 x 8.8	114.4
WPA Excavation	NP	Rectangle	8.8 x 10.6	93.3
Magnetic Survey	NP	Rectangle	7.8 x 7.9	61.6
Magnetic Survey	NP	Rectangle	13.7 x 10.3	141.1
Electromagnetic Induction	NP	Rectangle	10.4 x 10.4	108.2
Electromagnetic Induction	NP	Rectangle	10.5 x 7.8	81.9
Electromagnetic Induction	NP	Rectangle	9.0 x 9.8	88.2
Electromagnetic Induction	NP	Rectangle	9.1 x 7.5	68.3
Magnetic Survey	DH	Rectangle	9.3 x 7.1	66.0
Magnetic Survey	DH	Rectangle	7.2 x 8.4	60.5
Magnetic Survey	DH	Rectangle	6.8 x 7.3	49.6
Electromagnetic Induction	DH	Rectangle	6.4 x 7.7	49.3
Electromagnetic Induction	DH	Rectangle	12.2 x 7.0	85.4
Electromagnetic Induction	DH	Rectangle	9.8 x 7.4	72.5
Electromagnetic Induction	DH	Rectangle	6.5 x 6.7	43.6
Electromagnetic Induction	DH	Rectangle	6.0 x 6.5	39.0
Electromagnetic Induction	DH	Rectangle	7.3 x 7.6	55.5

APPENDIX B

CERAMIC DESCRIPTIONS FROM JENNINGS AND FAIRBANKS (1939, 1940)

Type Name: Mossy Oak Simple Stamp. (Formerly Vining Simple Stamp.)

Paste:

Method of Manufacture: Coiled.
Tempering: Sand, some grit, micaceous sand usual; coarse to medium, large grains occasionally; abundant to very abundant.
Texture: Coarse to very gritty or sandy.
Hardness: 2.5 – 5 – interior; 2.5-5.5.
Color: Core dark, black to brown; surfaces black, brown, rarely buff or light grey; mottled black, smudged.

Surface Finish:

Modifications: Smoothed interior; exterior before stamping. Temper shows on surface and gives sandy feel.
Filming: Absent.

Decoration:

Technique: Simple stamp; probably dragged cord-wrapped, thong, or root wrapped paddle. Never shows twisting of cord.
Design: Random application so that grooves and ridges cross at varying angles. Some smoothed rims. Rarely parallel applications.
Distribution: All exterior; exception of rim occasionally.

Form:

Rim: Vertical or slightly flaring, rarely folded.
Lip: Rounded, squared, rarely tapered, rarely thickened.
Body: Slight shoulders seem to be present, constriction above shoulders slight.
Base: Conoidal.
Thickness: Lip, 4.5-6 mm; Rim, 6-10 mm; Body, 6-10 mm; Base, 8-12 mm.
Appendage: None found.

Usual Range of Type:

Central Georgia, Bibb, Baldwin Buts, Putnam Counties.

Chronological Position of Type in Range:

Below Lamar at Mossy Oak. From trade sherds on Macon Plateau appears early –is early as Early Macon Plateau, Early Swift Creek.

Type Name: Bibb Plain

Paste:

Method of Manufacture: Coil fractures occur.
Temper: Generally shell and grit mixed, rarely shell or grit alone. Grit temper is medium to coarse; sand, crushed limestone (or dolomite), quartz; moderate to abundant. Shell often leached, coarse abundant. Mixed temper sherds, shell usually predominate over grit.
Texture: Slightly gritty when grit temper. Clay fine texture. Some diagonallaminations.
Hardness: 2.5 – 5.0.
Color: Core black to dark brown. Rarely buff. Surfaces red – brown to chocolate, rarely buff. Exterior mottled and smudged.

Surface Finish:

Modifications: Smooth, rarely polished, usually eroded and showing gritty core.

Decorations:

Technique: Molded nodes, simple or bifurcated.
Distribution: Bifurcated nodes on shoulder between handles.
Single or multiple nodes, grooves, or rarely crude animal effigies, on handles.

Form:

Vessels 12 to 30 cm diameter, 8 to 25 cm, high.
Rim: Slightly flaring (43?), flaring (32%), straight (22.5%), Surged (2.5%); generally short. Surged rim is actually shoulder area, true rim being absent.
Lip: Generally rounded, or flattened; rarely squared, narrowed and rounded, or slightly extruded. Very rarely interior beveled rim.
Body: Globular, slight shoulder; with surfed rim, shoulder is sharply angled.
Base: Generally rounded, simple; flattened in large water-bottles.
Thickness: Lip 3 to 6 mm., body 4 to 9 mm.
Appendages: Loop handles, welded to lip, riveted to shoulder, cross section average 17 x 14 mm. Often with raised boss above lip, nodes on handle or longitudinal groove. 2 handles per pot. Rarely bifurcated nodes on shoulder between handles.

Usual Range of Type:

Macon Plateau, Brown's Mount. Comparable and probably related type from Small Log Town House sites in Norris Basin.

Chronological Position of Type in Range:

Above Swift Creek and Mossy Oak Simple Stamp. Below Lamar or upper levels contemporary with early Lamar. Earliest Middle Mississippi horizon in Central Georgia, intrusive into complicated stamp occupation.

Type Name: Halstead Plain

Paste:

Method of Manufacture: Coil fractures rare.
Tempering: Fine shell, rare, often lacking.
Texture: Fine, some diagonal laminations.
Hardness: 2.5 to 4.0.
Color: Core generally gray; buff; surface tan to brown mottled black, some gray, rarely black.

Surface Finish:

Modifications: Smoothed, often polished, some crackling.
Filming: Rarely red or white (fugitive) paint.

Decoration:

Technique: Narrowed incised lines, appliqué modeling, paint.
Design: As details of effigy. Incised hair, appliqué ears, etc., paint on body or faceof effigy. Perhaps all over paint (rare).
Distribution: Usually head of effigy, simple bottles not decorated.

Form:

Rim: Straight, short, on simple bottles, rarely flaring or slightly flaring. Rim on effigy bottles tapers from body.
Lip: Narrowed and rounded, rounded.
Body: Globular, somewhat flattened in both forms; effigy form rare.
Base: Simple, Rounded.
Thickness: Lip, 2-4 mm., body and rim, 3-6 mm., base, 6 mm., thickest at junction of rim and body.
Appendages: Modeled appliqué on effigy bottles to form ears, hair crest, etc.

Usual Range of Type:

Macon Plateau, especially Mound “C”, with burials.

Chronological Position of Type in Range:

Contemporary with other Macon Plateau Types. Later than Swift Creek, earlier than Lamar.

Type Name: Macon Thick

Paste:

Method of Manufacture: Some coil fractures. Some vessels possibly moulded.
Tempering: Grit, medium to fine; scarce to moderate. Coarse clay frequent.
Hardness: 2.0 – 4.0, generally 2.0.
Color: Core red to buff. Surface buff, red, brown. Little difference between core and surface, surface color partly due to weathering.

Surface Finish:

Modifications: Surface fairly smooth, matte, some temper appears on surface.

Decoration:

Technique: Broad, deep incising, lines triangular in cross section. Cord impressed. Stamped. Plain. Some punctuate.
Design: Horizontal incised lines; diagonal incised lines; combinations of diagonal and vertical incised lines; some curvilinear incised designs – all simple, widely spaced. Punctate combined with incising or cord impression. Cord impressions vertical. Some simple, concentric circle stamp.
Distribution: Sides of vessel, on lip surface rarely.

Form:

Rim: Vertical, not differentiated from walls.
Lip: Frequently surged at right angle, frequently rounded, some flattened, or expanded and flattened.
Body: Walls straight; rarely very slightly convex. Cylindrical jars with small orifice. Height about twice diameter, or more.
Base: Flat, rarely rounded; possibly flared.
Thickness: Lip 6-20 mm; body 13-20 mm.
Appendages: None.

Usual Range of Type:

Macon Plateau, Brown's Mount, possibly similar type occurs along the Northwest coast of Florida.

Chronological Position of Type in Range:

First levels at Macon Plateau. An early type associated with Macon Plateau Component.

Type Name: Hawkins Fabric Marked

Paste:

Method of Manufacture: Coil fractures occur rarely.
Temper: Generally abundant, coarse shell. Rarely abundant coarse grit or sand.
Texture: Laminated, not greatly contorted.
Hardness: 2.0 – 4.0, average 2.0 – 2.5.
Color: Core red, chocolate, rarely tan or black, usually but slightly darker than red, chocolate gray-brown surface. Some smudging.

Surface Finish:

Modifications: Impressed with plain twined openwork fabric over entire surface up to lip. Rarely twilled twined fabric. Interior smooth.
Fabric: Cord, double strand, 1-2 mm diameter, weft spaced 4-14 mm., warp spaced 103 mm., cord and weaving clockwise twist (1 case of counter-clockwise twisted warp), very rarely plain twined close-woven resembling "basketry".

Form:

Rim: Straight, slightly tilted outward from base.
Lip: Plain (57%), thickened (43%), more commonly rounded than flat, rarely longitudinal groove.
Body: Large open circular basin, slightly flaring to flaring sides.
Base: Flattened.
Thickness: Wall 8-13 mm., lip 8-21 mm.
Appendages: None.

Usual Range of Type:

Hawkins Fabric Marked at Macon Plateau and Brown's Mound, comparable types throughout Middle Mississippi area.

Chronological Position of Type in Range:

Part of Macon Plateau pottery complex; later than Swift Creek, earlier than Lamar. Belongs to Early Middle Mississippi Complex.

Type Name: McDougal Plain

Paste:

Method of Manufacture: Coil fractures occur rarely.
Temper: Generally abundant, coarse shell, some coarse sand or grit, rarely mixed shell and grit.
Texture: Generally laminated, rarely contorted.
Hardness: 2.0 – 4.0, average 2.0 – 2.5.
Color: Core red, chocolate, rarely tan or black, usually a little darker than red or chocolate surface. Rarely smudged.

Surface Finish:

Modifications: Poorly smoothed, generally area below lip for about 10 cm. is smoother than basal portion.

Form:

Rim: Straight, rarely thickened below lip (either rounded or flattened thickened area below lip).
Lip: Flat, less commonly rounded, rarely ridged or longitudinally grooved.
Body: Large circular basin with slightly sloped sides.
Base: Flat, rarely rounded.
Thickness: 8-13 mm; lip 8-20 mm.
Appendages: None.

Usual Range of Type:

Macon Plateau and Brown's Mount, comparable types up through Eastern Tennessee to southern part of Ft. Ancient area west to Mississippi River (Cahokia).

Chronological Position of Type in Range:

Part of Macon Plateau pottery complex; later than Swift Creek, earlier than Lamar.

APPENDIX C

CERAMIC FREQUENCY COUNTS BY PROVENIENCE FROM THREE STRATIFIED CONTEXTS

Appendix C presents the ceramic totals from each provenience from the three stratified contexts I analyzed. First I present total counts for ceramic types, including the varieties of Bibb Plain. I show the totals from the South Plateau (Trench 6), Middle Plateau (north), and North Plateau (Stratified Village Site). Next, I present the total counts of lips modes from the South Plateau (Trench 6) and North Plateau (Stratified Village Site). The WPA recorded proveniences as letters, soil descriptions, depth below humus, or description of level (such as sub-mound occupation; or occupational level). In some instances, WPA workers recorded two or more indicators of provenience. Unfortunately, the WPA did not always record excavations or proveniences accurately. WPA cards and profile drawings are sometimes inconsistent in provenience descriptions. Some profile drawings contained a key that linking letter designations with soil descriptions or descriptions of levels. Some collections from the South Plateau and North Plateau contexts could not be provenienced because I could not resolve discrepancies or the WPA provided no provenience information. NPS archaeologists excavated the stratified context from the Middle Plateau and it does not suffer from the same issues. I provide WPA numbers, NPS excavation unit numbers, and provenience descriptions for repeatability.

Provenience Description Key:	Ceramic Type Key:	
B = brown	TS = Total Sherds	BP = Bibb Plain
C = clay	BS = Bibb Shell	BGS = Bibb Mixed
D = dark	BG = Bibb Grit	RF = Red Filmed
G = grey	Hal = Halstead	VSS = Vining SS
L = light	UDG = Unidentified Grit	NCS = Napier CS
L (at end of description) = loam	SC = Swift Creek CS	DCh = Deptford Ch
M = mottled	Dfb = Dunlap Fabric	DSS = Deptford SS
R = red	CdM = Grit-temp Cord Mark	Hwk = Hawkins Fabric
S = sand	UDS = Unidentified Stamp	UDB = Unidentified Brushed
T = tan	MTh = Macon Thick	UDI = Unidentified Incised
Y = yellow	UDD = Unidentified Decoration	
	UDW = Unidentified Weathered	
	UDE = Unidentified Eroded	
	Kas = Kasita Red Filmed	WR = Walnut Roughened
	OFP = Ocmulgee Fields Plain	
	OFI = Ocmulgee Fields Incised	
	ChB = Chattahoochee Brushed	
	WYPP = White/Yellow/Pearl Ware/Porcelain	
	HET = Historic Earthenware	
	StV = Steatite Vessel	FTP = Fiber-tempered Plain

SEAC Acc#	WPA #	Geo Area	Context	Level	WPA Prov	TS	BP	BS	BSG	BG	RF	Hal	VSS	UDG	NCS	SC	DCh	Dfb	DSS	CdM	Hwk	UDS	UDB	MTh	UDI	UDD	UDW	UDE	Kas	OFP	OFI	WR	ChB	WY PP	HET	StV	FTP
210	8588	SP	Trench 6	2nd	Humus	11	2	1		1			3	6																							
210	9263	SP	Trench 6	2nd	Humus	14	5	1		4				9																							
210	9325	SP	Trench 6	2nd	A/humus	20	7	1		6	1	6		5											1												
210	8513	SP	Trench 6	2nd	1st (2')	42	23	10	3	10		13	2	4																							
210	8500	SP	Trench 6	2nd	B	43	19	6	4	9		2		17						1	2	1								1							
210	9407	SP	Trench 6	2nd	F/dtrysc	3	2	2					1																								
210	9412	SP	Trench 6	2nd	l/dtgrsc	4	2			2				2																							
210	9826	SP	Trench 6	2nd	Floor/I-4	5	2	1		1				3																							
210	9404	SP	Trench 6	2nd	E/rbsc	11	10	2		8																										1	
210	9894	SP	Trench 6	2nd	trsc	28	11	1	2	8			5	8												3		1									
210	8630	SP	Trench 6	2nd	lrs	8	0							7				1																			
TOTALS		SP	Trench 6	2nd		189	83	25	9	49	1	21	11	61	0	0	0	1	0	1	2	1	0	0	1	3	0	1	0	1	0	0	0	0	0	1	0
210	9222	SP	Trench 6	1st	R/rdtsc	89	48	30	5	13		30	5	6																							
210	8574	SP	Trench 6	1st	N-2	12	6	3	1	2		3	2									1															
210	9848	SP	Trench 6	1st	N-1/bsc	12	5	3		2		1	3	3																							
210	8921	SP	Trench 6	1st	mrycdts	19	14	9	3	2			4				1																				
210	9327	SP	Trench 6	1st	J-1/ash	64	30	15	3	12	6	1	11	12	1						3																
210	9326	SP	Trench 6	1st	J-1/ash	85	49	25	5	19	1	9	5	16							3		1		1												
TOTALS		SP	Trench 6	1st		281	152	85	17	50	7	44	30	37	1	0	1	0	0	0	6	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
210	9235	SP	Trench 6	Pre	sub/ds	89	6	6					31	30			1	1	10			10															
210	9233	SP	Trench 6	Pre	sub/ds	222	24	16	2	6		5	50	96	6	4	4	2	3	1		13				13											1
210	9231	SP	Trench 6	Pre	sub	28	20	3		17							1	2		2						1											2
TOTALS		SP	Trench 6	Pre		339	50	25	2	23	0	5	81	126	6	4	6	5	13	3	0	23	0	0	0	14	0	0	0	0	0	0	0	0	0	0	3

SEAC Acc#	WPA #	Geo Area	Context	Level	WPA Prov	TS	BP	BS	BSG	BG	RF	Hal	VSS	UDG	NCS	SC	DCh	Dfb	DSS	CdM	Hwk	UDS	UDB	MTh	UDI	UDD	UDW	UDE	Kas	OFP	OFI	WR	ChB	WY PP	HET	StV	FTP
1683	N/A	MP	EU O	Level 1	N/A	59	3	2	1					37						8						2				8				1			
1683	N/A	MP	EU M	Level 1	N/A	36	6	5	1				2	8			1													15	2	2					
1683	N/A	MP	EU L	Level 1	N/A	52	4	1	1	2			2	14			2					2				1				11	4	12					
1683	N/A	MP	EU N	Level 1	N/A	59	5		1	4	1	1	4	17						3	1	1				1				16	5	4					
1683	N/A	MP	EU H	Level 1	N/A	32	9	2	1	6		1	1	3						1									1	10		6					
1683	N/A	MP	EU I	Level 1	N/A	42	6	3	2	1			5	7												2				13		9					
1683	N/A	MP	EU J	Level 1	N/A	37	5			5				8																18	2	3			1		
1683	N/A	MP	EU K	Level 1	N/A	44	6		2	4			3	11																12	1	10	1				
1683	N/A	MP	EU F	Level 1	N/A	64	6	1		5			1	19			2									3			1	13	3	14	2				
1683	N/A	MP	EU A	Level 1	N/A	39	8	3		5				5												1				18	1	6					
1683	N/A	MP	EU C	Level 1	N/A	29	4	1		3			1	1						1										16	1	4				1	
1683	N/A	MP	EU E	Level 1	N/A	48	10	3		7				9																18	2	9					
1683	N/A	MP	EU D	Level 1	N/A	22	3	1		2			1	5																8		3	1	1			
TOTALS		MP		Level 1		563	75	22	9	44	1	2	20	144	0	0	5	0	0	13	1	3	0	0	0	10	0	0	2	176	21	82	4	2	1	1	0
1683	N/A	MP	EU K	Level 2	N/A	46	5		1	4			1	15			1													16		7	1				
1683	N/A	MP	EU O	Level 2	N/A	27	4	2		2			1	8												1				3	1	7	1		1		
1683	N/A	MP	EU M	Level 2	N/A	64	11	4	3	4		2	1	22																9	6	13					
1683	N/A	MP	EU L	Level 2	N/A	106	14	8	1	5		1	2	27				1								5				36	4	15	1				
1683	N/A	MP	EU H	Level 2	N/A	37	7	4	1	2			1	9			1			1						1				13	1	3					
1683	N/A	MP	EU N	Level 2	N/A	13	2	2					1	1								1								7						1	
1683	N/A	MP	EU E	Level 2	N/A	67	14	6	2	6			6	14						1		1								24	1	6					
1683	N/A	MP	EU F	Level 2	N/A	21	3	1	1	1			2	8												2				4			2				
1683	N/A	MP	EU G	Level 2	N/A	45	3	1		2				9												4				21	2	6					
1683	N/A	MP	EU I	Level 2	N/A	42	12	2	3	7				9			2													12	1	6					
1683	N/A	MP	EU J	Level 2	N/A	21	3	2		1			3	1																9	1	4					
1683	N/A	MP	EU C	Level 2	N/A	110	15	6	1	8	1	3	2	28						1						1				40	1	17	1				
1683	N/A	MP	EU A	Level 2	N/A	93	12	6		6		3	1	17												1				46	1	12					
1683	N/A	MP	EU B	Level 2	N/A	86	14	3		11	1		1	17			1													38	1	11	1	1			
1683	N/A	MP	EU D	Level 2	N/A	87	17	7		10			2	22			1				1	2				2				28	4	8					
TOTALS		MP		Level 2		865	136	54	13	69	2	9	24	207	0	0	6	1	0	3	1	4	0	0	0	17	0	0	0	306	24	115	7	1	1	1	0
1683	N/A	MP	EU J	Level 3	N/A	2	1		1					1																							
1683	N/A	MP	EU K	Level 3/F	N/A	1	0							1																							
1683	N/A	MP	EU M	Level 3	N/A	2	0							1																1							
1683	N/A	MP	EU K	Level 3	N/A	7	1	1						5																		1					
1683	N/A	MP	EU G	Level 3	N/A	8	2			2				3								3															
1683	N/A	MP	EU 82 S	Level 3	N/A	8	3	1		2				4																1							
1683	N/A	MP	EU 81 S	Level 3	N/A	1	0					1																									
1683	N/A	MP	EU O	Level 3	N/A	2	0					1		1																							
1683	N/A	MP	EU N	Level 3	N/A	3	0							2			1																				
1683	N/A	MP	EU O	Level 3/F	N/A	1	0							1																							
1683	N/A	MP	EU I	Level 3	N/A	1	0															1															
1683	N/A	MP	EU F	Level 3	N/A	1	0							1																							
1683	N/A	MP	EU D	Level 3/F	N/A	1	0																								1						
1683	N/A	MP	EU E	Level 3	N/A	3	0						1	2																							
1683	N/A	MP	EU L	Level 3	N/A	4	1			1				1																2							
1683	N/A	MP	EU 81 N	Level 3	N/A	14	8	5	1	2				4			1									1											
1683	N/A	MP	EU F	Level 3	N/A	2	0							2																							
1683	N/A	MP	EU H/I	Level 3/F	N/A	1	1	1																													
1683	N/A	MP	EU B	Level 3	N/A	16	9	2	6	1			1	5			1																				
1683	N/A	MP	EU D	Level 3	N/A	2	1	1				1																									
1683	N/A	MP	EU C	Level 3	N/A	3	1	1					1																	1							
1683	N/A	MP	EU A	Level 3	N/A	12	3	2		1				7																2							
TOTALS		MP		Level 3		95	31	14	8	9	0	3	3	41	0	0	3	0	0	0	0	4	0	0	0	1	0	0	0	7	1	1	0	0	0	0	0

SEAC Acc#	WPA #	Geo Area	Context	Level	WPA Prov	TS	BP	BS	BSG	BG	RF	Hal	VSS	UDG	NCS	SC	DCh	Dfb	DSS	CdM	Hwk	UDS	UDB	MTh	UDI	UDD	UDW	UDE	Kas	OFP	OFI	WR	ChB	WY PP	HET	StV	FTP
1683	N/A	MP	EU N	Level 4	N/A	1	0																							1							
1683	N/A	MP	EU 82 N	Level 4	N/A	3	0					1										2															
1683	N/A	MP	EU E	Level 4	N/A	2	0										2																				
1683	N/A	MP	EU K	Level 4/I	N/A	1	0															1															
1683	N/A	MP	EU M	Level 4	N/A	1	0							1																							
1683	N/A	MP	EU 2 N	Level 4	N/A	5	4	2	2					1																							
1683	N/A	MP	EU A	Level 4	N/A	2	1			1				1																							
1683	N/A	MP	EU H	Level 4	N/A	1	1		1																												
1683	N/A	MP	EU K	Level 4/I	N/A	3	0							3																							
1683	N/A	MP	EU D	Level 4	N/A	1	0							1																							
1683	N/A	MP	EU 81 N	Level 4	N/A	2	0						1	1																							
1683	N/A	MP	EU L	Level 4	N/A	1	1			1																											
1683	N/A	MP	EU F	Level 4	N/A	1	0							1																							
1683	N/A	MP	EU 2 S	Level 4	N/A	3	1	1					1	1																							
1683	N/A	MP	EU 81 S	Level 4	N/A	1	0							1																							
1683	N/A	MP	EU G	Level 4/I	N/A	2	0					2																									
1683	N/A	MP	EU O	Level 4	N/A	9	0							6			3																				
TOTALS		MP		Level 4		39	8	3	3	2	0	3	2	17	0	0	5	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
1683	N/A	MP	EU B	Level 5	N/A	2	2	2																													
1683	N/A	MP	EU 2 S	Level 5	N/A	2	0							1			1																				
1683	N/A	MP	EU G	Level 5/I	N/A	2	0							2																							
1683	N/A	MP	EU 82 S	Level 5	N/A	1	1		1																												
1683	N/A	MP	EU 81 N	Level 5	N/A	1	0							1																							
1683	N/A	MP	EU 82 N	Level 5/I	N/A	3	2	2						1																							
1683	N/A	MP	EU 82 N	Level 5	N/A	2	1	1						1																							
1683	N/A	MP	EU E	Level 5	N/A	10	0							10																							
1683	N/A	MP	EU 2 N	Level 5	N/A	1	0							1																							
1683	N/A	MP	EU A	Level 5	N/A	4	0							4																							
1683	N/A	MP	EU K	Level 5	N/A	2	0					1		1																							
1683	N/A	MP	EU O	Level 5	N/A	1	0							1																							
1683	N/A	MP	EU N	Level 5	N/A	1	0															1															
1683	N/A	MP	EU L	Level 5	N/A	3	3		3																												
1683	N/A	MP	EU M	Level 5	N/A	1	0							1																							
TOTALS		MP		Level 5		36	9	5	4	0	0	1	0	24	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SEAC Acc#	WPA #	Geo Area	Context	Level	WPA Prov	TS	BP	BS	BSG	BG	RF	Hal	VSS	UDG	NCS	SC	DCh	Dfb	DSS	CdM	Hwk	UDS	UDB	MTh	UDI	UDD	UDW	UDE	Kas	OFP	OFI	WR	ChB	WY PP	HET	StV	FTP
129	4083	NP	SVS	Level 1	Humus	82	66	10	5	51		2	1	2						1		1		1	1		1			2	1	1		2			
129	4101	NP	SVS	Level 1	Humus	54	24	5		19				4																15	1	10					
129	4247	NP	SVS	Level 1	Humus	205	113	34	3	76		16	10	30						1		3		1						23	7					1	
129	4175	NP	SVS	Level 1	humus	48	29	7		22		5	2																2	2	1	5		1	1		
129	4178	NP	SVS	Level 1	Humus	24	14	7		7	1	4		4								1															
TOTALS		NP	SVS	Level 1		413	246	63	8	175	1	27	13	40	0	0	0	0	0	2	0	5	0	2	1	0	1	0	2	42	10	16	0	3	1	1	0
129	4335	NP	SVS	Level 2	6" below hu	21	16	2		14		1																		4							
129	4193	NP	SVS	Level 2	2nd level	70	51	25	4	22		4												1	1	1	1			6	1	4					
129	4235	NP	SVS	Level 2	B	12	8	5		3				1												2						1					
129	4084	NP	SVS	Level 2	B/ClayCap	9	6	1		5			1	2																							
129	4092	NP	SVS	Level 2	B/rlm&hard	52	39	19		20		1	2	6	1							3															
129	4076	NP	SVS	Level 2	mrl	99	57	26	6	25		4	2	1													2		3	20	4	4				2	
129	4107	NP	SVS	Level 2	B	145	91	35	6	50		9	7	31						1	1									5							
129	4112	NP	SVS	Level 2	B	34	26	7	4	15		3		1																4							
129	4115	NP	SVS	Level 2	B/dts	5	5	1		4																											
129	4339	NP	SVS	Level 2	dark occ. So	63	33	9		24		8	1	20							1																
129	4065	NP	SVS	Level 2	above Pit 5	26	20	3	6	11	1		1	2																2							
TOTALS		NP	SVS	Level 2		536	352	133	26	193	1	30	14	64	1	0	0	0	0	1	2	3	0	1	1	3	3	0	3	41	5	9	0	0	0	2	0
129	4336	NP	SVS	Level 3	27" below h	38	30	14		16		2		2						1		1								2							
129	4082	NP	SVS	Level 3	D/occ	14	11	5		6				1	2																						
129	4090	NP	SVS	Level 3	D/occ	10	8	4		4			2																								
129	4086	NP	SVS	Level 3	D/occ	13	10	3	1	6					1												2										
129	4099	NP	SVS	Level 3	D/occ	11	6	2		4				2						1		2															
129	4111	NP	SVS	Level 3	D/occ	26	15	5	2	8		2		8	1																						
129	4334	NP	SVS	Level 3	Occ	10	3	1	1	1		5												1						1							
129	4089	NP	SVS	Level 3	D	1	0								1																						
TOTALS		NP	SVS	Level 3		123	83	34	4	45	0	9	2	13	5	0	0	0	0	2	0	3	0	1	0	0	2	0	0	3	0	0	0	0	0	0	0
129	4114	NP	SVS	Level 4	D/mrcl	29	15	4		11			3		5												1			4		1					
129	4116	NP	SVS	Level 4	E/mrcl	2	2			2																											
129	4277	NP	SVS	Level 4	E/mrl	50	34	18	2	14		4	2	6			2					2															
129	4084	NP	SVS	Level 4	G/mrcl	18	13	1	1	11			2		2															1							
129	4173	NP	SVS	Level 4	rmcl	34	20	6		14		2		2	1					1		2					2			4							
129	4343	NP	SVS	Level 4	rcl	20	13	7		6				3						1	1	2															
129	4121	NP	SVS	Level 4	41"	29	24	15	1	8		3		1																1							
129	4102	NP	SVS	Level 4	ccl			38		28		3	16	19	1		1				2						2										
TOTALS		NP	SVS	Level 4		292	187	89	4	94	0	12	23	31	9	0	3	0	0	2	3	6	0	0	0	0	5	0	0	10	0	1	0	0	0	0	0

SEAC Acc#	WPA #	Geo Area	Context	WPA Prov	Level	Total Rims	Round	Flat	Square	Round/ Roll	Flat/ Roll	Flat/ Grooved	Round/ Folded	Round/ Beveled	Round/ Flanged
210	8588	SP	Trench 6	Humus	2nd	0									
210	9263	SP	Trench 6	Humus	2nd	0									
210	9325	SP	Trench 6	A/humus	2nd	1		1							
210	8513	SP	Trench 6	1st (2')	2nd	6	5	1							
210	8500	SP	Trench 6	B	2nd	5		4				1			
210	9407	SP	Trench 6	F/dtrysc	2nd	0									
210	9412	SP	Trench 6	l/dtgrsc	2nd	0									
210	9404	SP	Trench 6	E/rbsc	2nd	0									
210	9894	SP	Trench 6	trsc	2nd	1	1								
210	8630	SP	Trench 6	lrs	2nd	0									
210	10528		Trench 6	rcs	2nd	1	1								
TOTALS		SP	Trench 6		2nd	14	7	6	0	0	0	1	0	0	0
210	9222	SP	Trench 6	R/rdtsc	1st	8	2	5						1	
210	8574	SP	Trench 6	N-2	1st	1		1							
210	9848	SP	Trench 6	N-1/bsc	1st	1		1							
210	8921	SP	Trench 6	mrycdts	1st	2						1	1		
210	9327	SP	Trench 6	J-1/ash	1st	2	1			1					
210	9326	SP	Trench 6	J-1/ash	1st	8	5	3							
210	10624	SP	Trench 6	5 ft	1st	1	1								
TOTALS		SP	Trench 6		1st	23	9	10	0	1	0	1	1	1	0
210	9235	SP	Trench 6	sub-mound	Pre	1	1								
210	9233	SP	Trench 6	sub-mound	Pre	4	2	1						1	
210	9231	SP	Trench 6	sub-mound	Pre	0									
210	10619	SP	Trench 6	7.9 ft	Pre	1	1								
210	10618	SP	Trench 6	7.9 ft	Pre	1	1								
210	10617	SP	Trench 6	7.9 ft	Pre	3	3								
210	10616	SP	Trench 6	7.9ft	Pre	1	1								
210	10615	SP	Trench 6	6.8 ft	Pre	1		1							
210	10613	SP	Trench 6	7 ft	Pre	1		1							
TOTALS		SP	Trench 6		Pre	13	9	3	0	0	0	0	0	1	0

SEAC Acc#	WPA #	Geo Area	Context	WPA Prov	Levels	Total Rims	Round	Flat	Square	Round/ Roll	Flat/ Roll	Flat/ Grooved	Round/ Folded	Round/ Beveled	Round/ Flanged
129	4083	NP	SVS	Humus	Level 1	1	1								
129	4101	NP	SVS	Humus	Level 1	2	1	1							
129	4247	NP	SVS	Humus	Level 1	6	6								
129	4175	NP	SVS	humus	Level 1	3	3								
129	4178	NP	SVS	Humus	Level 1	0									
TOTAL		NP	SVS		Level 1	12	11	1	0	0	0	0	0	0	0
129	4335	NP	SVS	6" below hu	Level 2	2	1	1							
129	4193	NP	SVS	2nd level	Level 2	4	2	2							
129	4235	NP	SVS	B	Level 2	1		1							
129	4084	NP	SVS	B/ClayCap	Level 2	1	1								
129	4092	NP	SVS	B/rlm&hard	Level 2	0									
129	4076	NP	SVS	mrl	Level 2	0									
129	4107	NP	SVS	B	Level 2	4	4								
129	4112	NP	SVS	B	Level 2	0									
129	4115	NP	SVS	B/dts	Level 2	0									
129	4339	NP	SVS	dark occ. So	Level 2	1		1							
129	4065	NP	SVS	above Pit 5	Level 2	1		1							
TOTAL		NP	SVS		Level 2	14	8	6	0	0	0	0	0	0	0
129	4336	NP	SVS	27" below h	Level 3	1			1						
129	4082	NP	SVS	D/occ	Level 3	0									
129	4090	NP	SVS	D/occ	Level 3	0									
129	4086	NP	SVS	D/occ	Level 3	1	1								
129	4099	NP	SVS	D/occ	Level 3	1									1
129	4111	NP	SVS	D/occ	Level 3	0									
129	4334	NP	SVS	Occ	Level 3	0									
129	4089	NP	SVS	D	Level 3	0									
TOTAL		NP	SVS		Level 3	3	1	0	1	0	0	0	0	0	1
129	4114	NP	SVS	D/mrcl	Level 4	0									
129	4116	NP	SVS	E/mrcl	Level 4	0									
129	4277	NP	SVS	E/mrl	Level 4	1	1								
129	4084	NP	SVS	G/mrcl	Level 4	2	1	1							
129	4173	NP	SVS	rmcl	Level 4	1	1								
129	4343	NP	SVS	rcl	Level 4	0									
129	4121	NP	SVS	41"	Level 4	2		2							
TOTAL		NP	SVS		Level 4	6	3	3	0	0	0	0	0	0	0