Searching for Spanish Footprints: **Recent Geophysical Prospection on Sapelo Island, GA**

BACKGROUND

SIMPAP

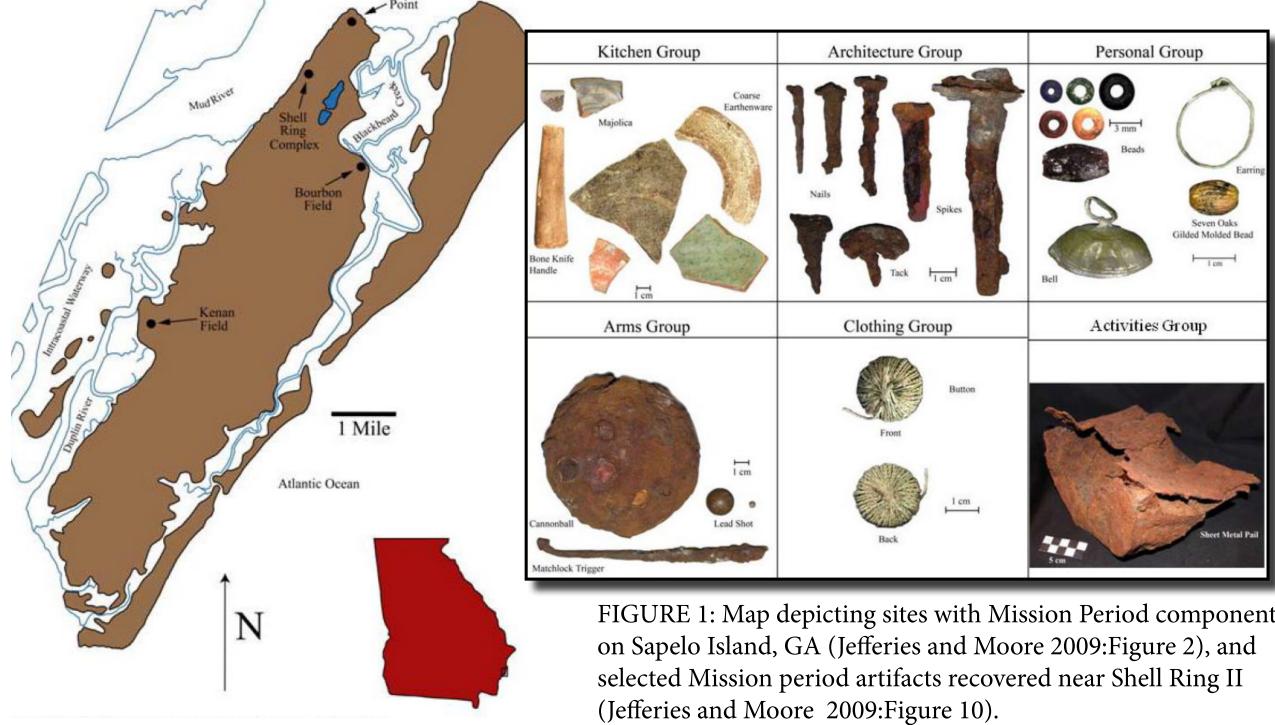
unit during Spring 2017 fieldwork.

Sapelo Island is one of Georgia's barrier islands and was the site of at least one Spanish mission, the Mission San Joseph de Sapala during the Mission Period (AD 1568 - 1684) (Worth 2007; Jefferies and Moore 2009). It is located south of St. Catherines Island. four miles east of the mainland, and is separated from the mainland by a wide sound containing numerous hammocks and marshes (Figure 1).

Sapelo Island has been the location of Mission Period research for many years, with the most recent investigations beginning in 2004 when University of Kentucky archaeologists started a new project, the Sapelo Island Mission Period Archaeological Project (SIMPAP). SIMPAP is designed to assess the nature, intensity, and extent of Mission Period activity in and around Shell Ring II at site 9MC23 (Jefferies and Thompson 2005; Jefferies and Moore 2009).

Since 2004, University of Kentucky and University of Indianapolis archaeologists have used geophysical survey, shovel probing, soil auguring, metal detector survey, and test unit excavation to locate evidence of Mission San Joseph de Sapala and its associated community.



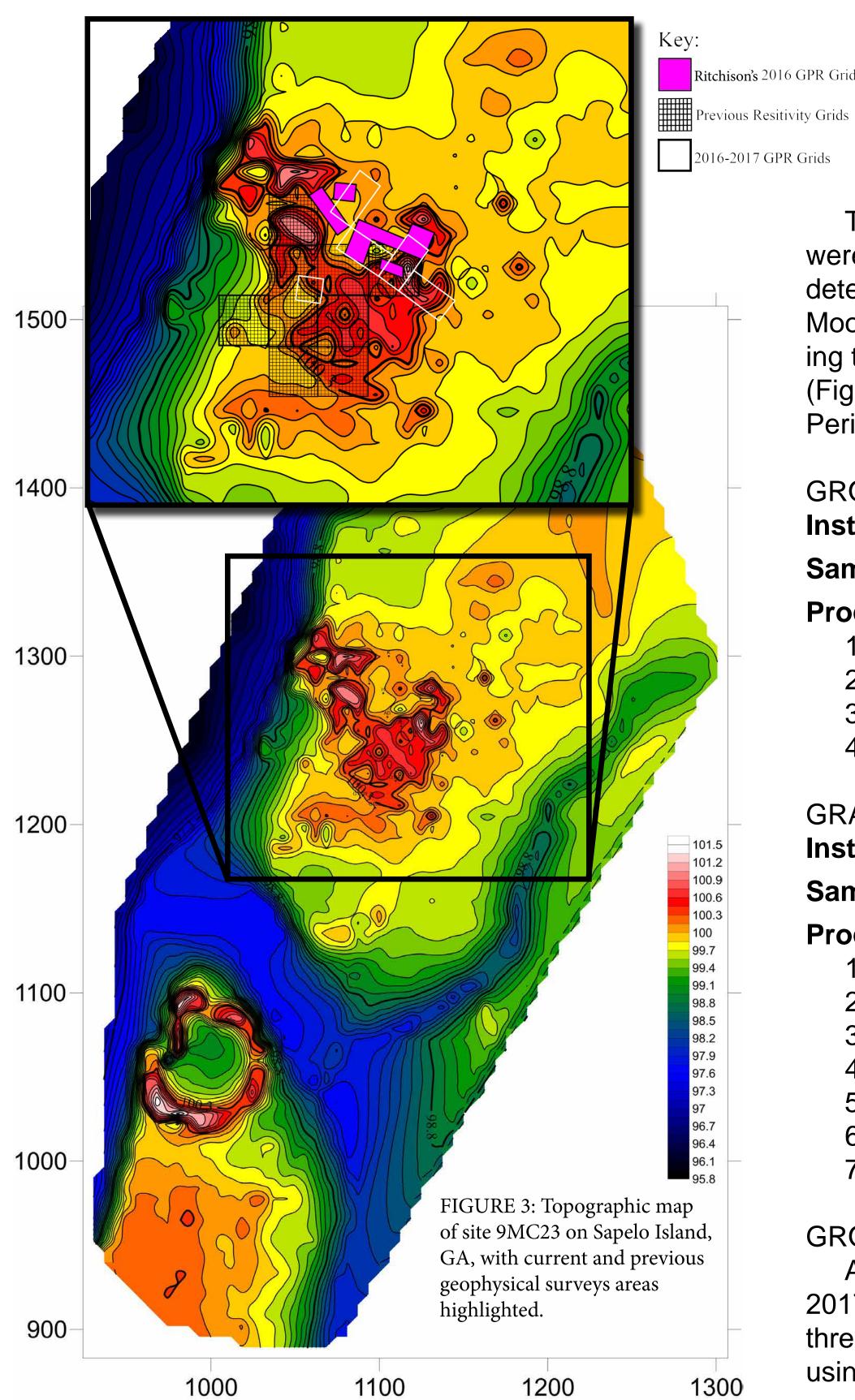


Previous Research

Over the past few years, SIMPAP researchers have conducted large-scale geophysical surveys to locate structural anomalies associated with the Mission Period community (Figure 3). Beginning in 2009, a Geoscan RM-15 resistance meter was utilized to investigate the shell midden piles located across the site. More recently, in 2016, Brandon Ritchison of the University of Georgia conducted a ground-penetrating radar (GPR) survey utilizing a GSSI SIR 3000 with a 400MHz antenna to investigate a selected area north of previous test excavations. His results produced promising anomalies that reflect possible structural features.

During the summer of 2016, we decided to build upon these previous results and conduct further GPR and gradiometer survey across a portion of the northern part of the site. In spring of 2017, a fieldcrew ground-truthed three anomailies identified during this survey (Figure 2). The results and interpretations of the new geophysical survey are presented and discussed here.

RESEARCH OBJECTIVES & METHODOLOGY



1) Locate possible structural anomalies.

- 2) Confirm the results of previous geophysical surveys.
- 3) Create a subsurface map of the site to guide future work.
- 4) Investigate the organization of the Mission community.

To locate possible structural anomalies, ground-penetrating radar (GPR) and gradiometer surveys were conducted over selected portions of the site 9MC23 (Figure 3). The areas selected for survey were determined based on previous resistence and GPR surveys (Jefferies and Thompson 2005; Jefferies and Moore 2009, 2013), with the goal of confirming previous results, identifying new anomalies, and determining the effectiveness of mangetometry and GPR survey to identify archaeological anomalies at the site (Figure 3). These results will be used to guide future investigations targeted at understanding the Mission Period community organization.

GROUND PENETRATING RADAR SURVEY **Instrument:** MALA X3M and Ramac XV11 Monitor with a 800MHz Antenna in the cart setup.

Sampling Strategy: 0.25m transects, 150 m/(mu)s soil velocity.

- Processing: GPR-Slice version 7.0 [cite guide]
- 1) Auto AGC gain adjustments for 16bit data conversion. 2) Utilized cart survey wheel for navigation markers.
- 3) 5x5 Low Pass Filter.
- 4) Auto-gained with a linear transformation.

GRADIOMETER SURVEY

Instrument: Geoscan FM256 Fluxgate Gradiometer.

Sampling Strategy: 0.1 nt., 0.25m sample interval, 0.5m traverse interval, and Zig-Zag pattern. **Processing:** Geoplot version 3.0 [cite guide]

- 1) Limit Data Clipped +/- 3 Standard Deviations of Mean
- 2) Correct Anomalie Displacement Destagger
- 3) Remove Collection Discontinuities Zero Mean Traverse
- 4) Neutralize Ferrous Material Clip and Despike
-) Remove Random Spikes Despike

7) Smoothing - Interpolation

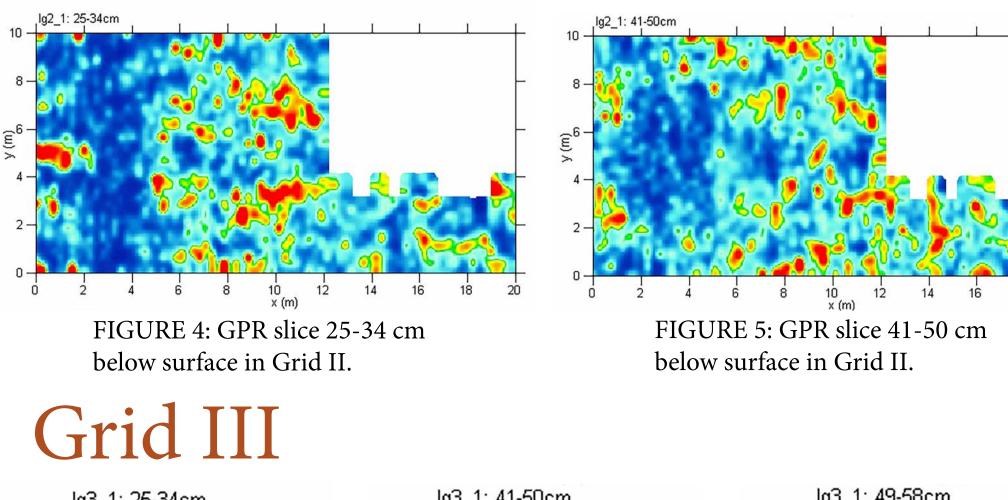
6) Enhance Weak Features - Low Pass Filter

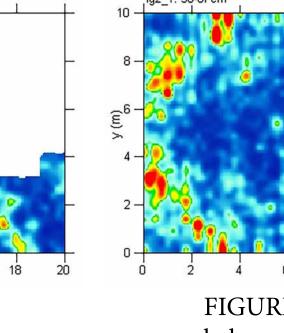
GROUND-TRUTHING

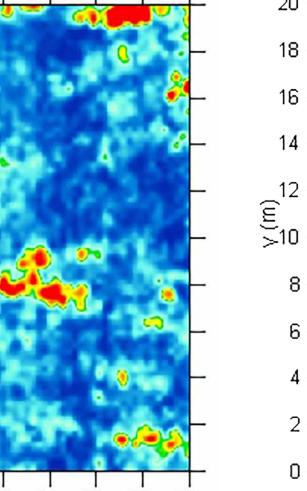
Anomalies identified during the present geophysical survey were ground-truthed during March 12-15, 2017, by a fieldcrew from the University of Kentucky. Three 1x1 meter test units were excavated over three anomalies. The units were dug in 10.0 cm levels until subsoil was reached, and all fill was screened using 1/8" wire mesh.

RESULTS

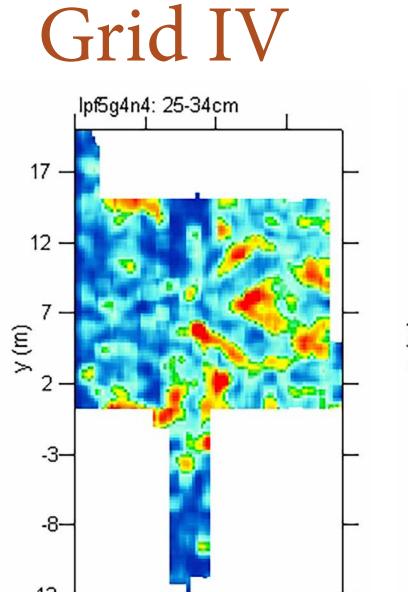
Grid II







70 22 24 26 28 30 FIGURE 10: GPR slice 49-58



20 22 24 26 28

below surface in Grid III.

below surface in Grid IV

Grid V

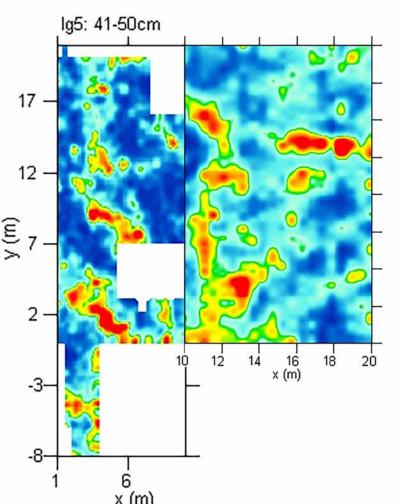
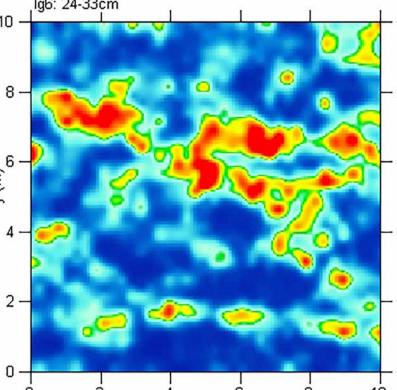
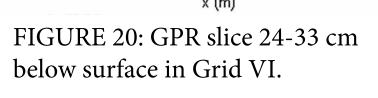


FIGURE 16: GPR slice 41-50 cr below surface in Grid V.

Grid VI



) 2 4 6 8 FIGURE 20: GPR slice 24-33 cm



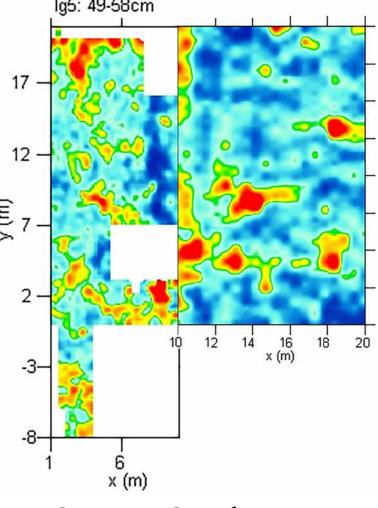


FIGURE 17: GPR slice 49-58 cm below surface in Grid V

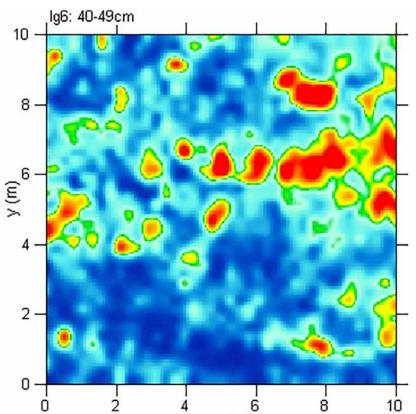


FIGURE 21: GPR slice 40-49 c below surface in Grid VI.

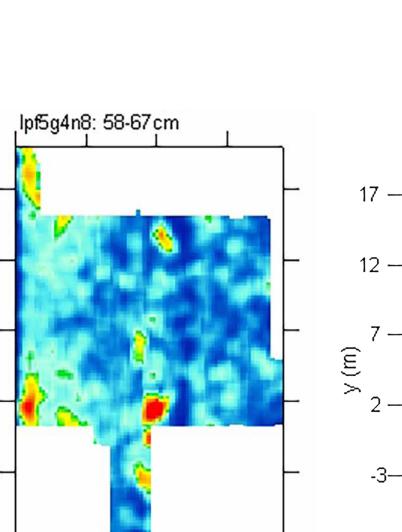
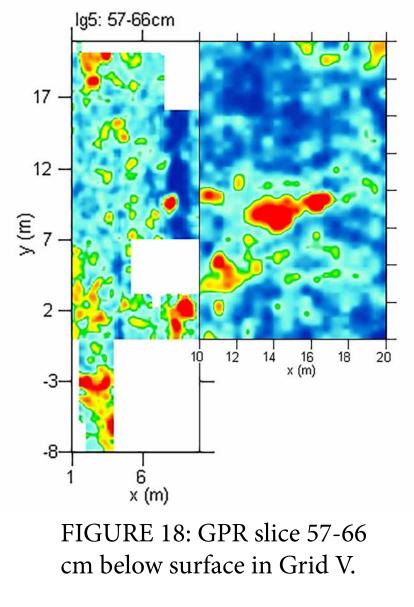
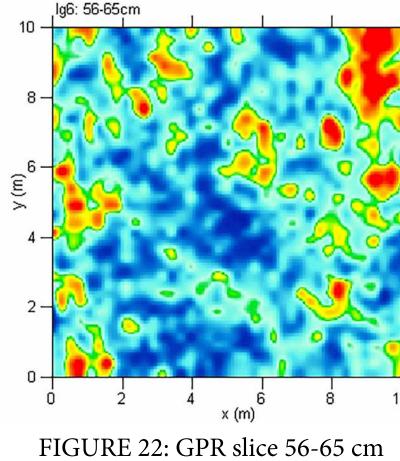


FIGURE 14: GPR slic





below surface in Grid VI

FIGURE 8: GPR slice 25-34 cm FIGURE 9: G

20 22 24 26 28 3



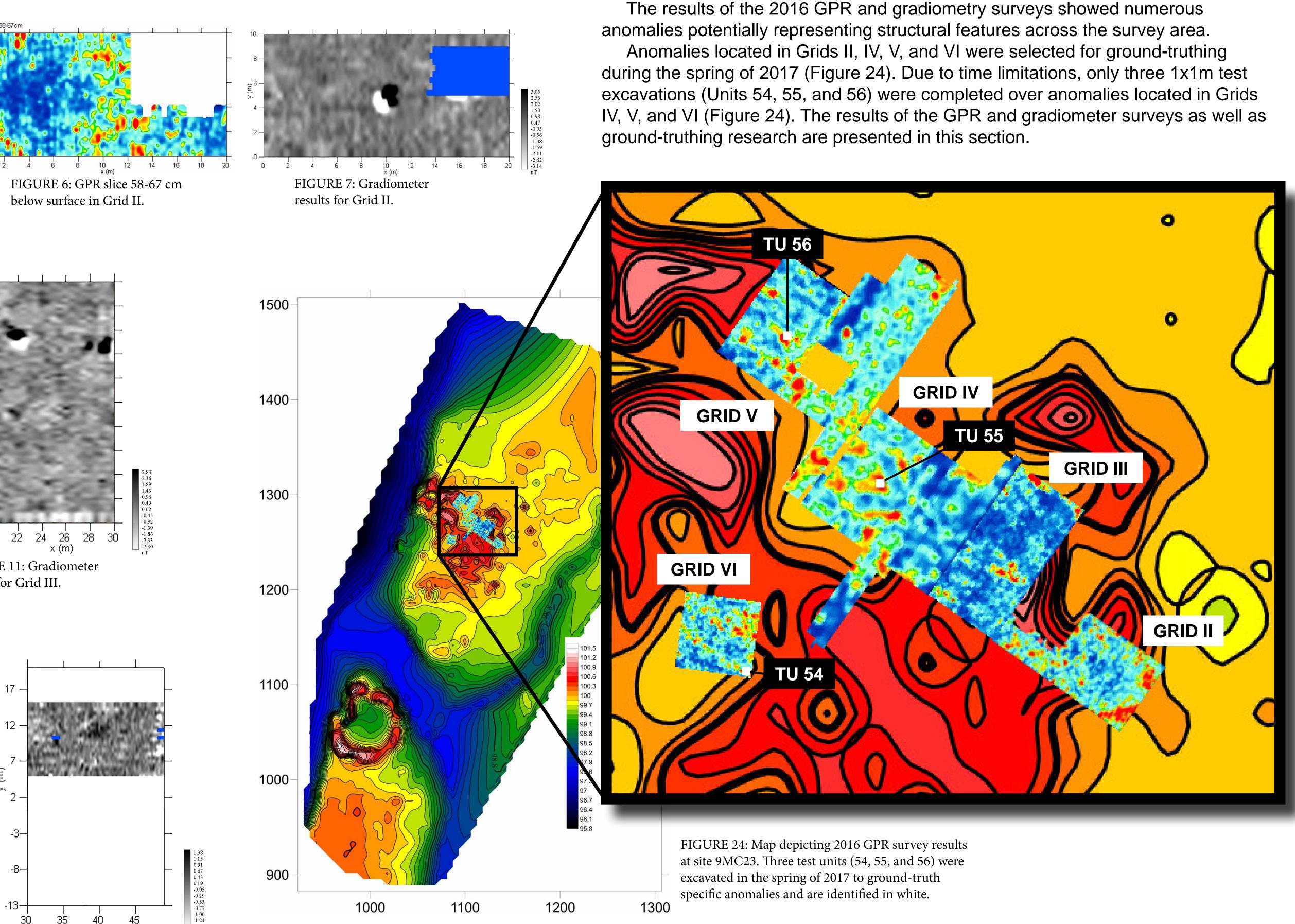
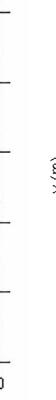


FIGURE 19· Gradiometer result

for western portion of Grid V.



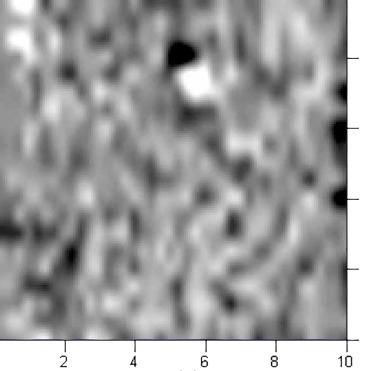


FIGURE 23: Gradiometer results for Grid VI.

INTERPRETATION

The results of the recent geophysical and ground-truthing research at site 9MC23 corroborate previous suggestions about the layout of the community. The current interpretation of the site layout includes a central plaza located within and around Grid IV of the geophysical survey (Figure 28). This suggested plaza can also be seen clearly on the elevation map of the site. The theory about the location of the central plaza is advanced by the stratigraphy of test unit 55, which shows an area of heavy soil disturbance and limited artifact density below the plowzone. Test units 54 and 56 produced post features suggesting the presence of structures surrounding the central plaza and flanking the numerous shell midden

piles across the site. Although no direct evidence of the Mission church, friary, or kitchen has been identified, previous research at the site suggests the location of a military structure to the southwest of this possible plaza (Jefferies and Moore 2017). Taken together the archaeological, geophysical, and ethnohistorical evidence begin to suggest a clear Mission Period community layout at site 9MC23, which mirrors precontact Guale settlement patterns (Jefferies and Moore 2014).

Conclusions & Future Work

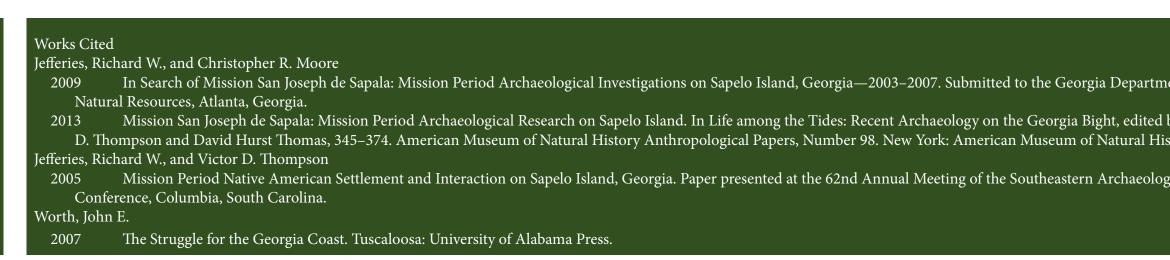
The geophysical surveys and test excavations conducted during the summer of 2016 and spring of 2017 have set the stage for continued research focusing on identifying and confirming the site layout of the Mission Period community at site 9MC23. The goals of this future research are to:

- 1) identify structures associated with the Mission Period community,
- 2) complete a subsurface map of the site with GPR survey,
- 3) understand the organization of the community, and
- 4) begin comparisons with surrounding Mission communities in the Guale and Mocama administrative districts.

Additional GPR survey aimed at covering the vast majority of the known site is planned for the summer of 2017 along with test excavations for ground-truthing anomalies. Further test and block excavations to confirm geophysical anomalies and collect structural data are planned for the summer of 2018.

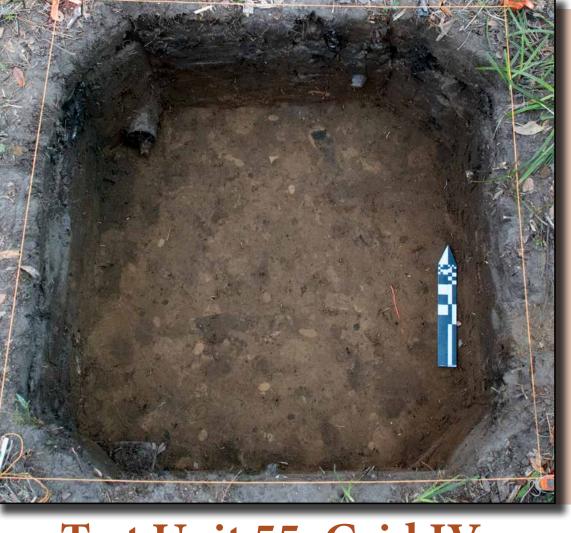
Acknowledgements

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Test Unit 56, Grid V



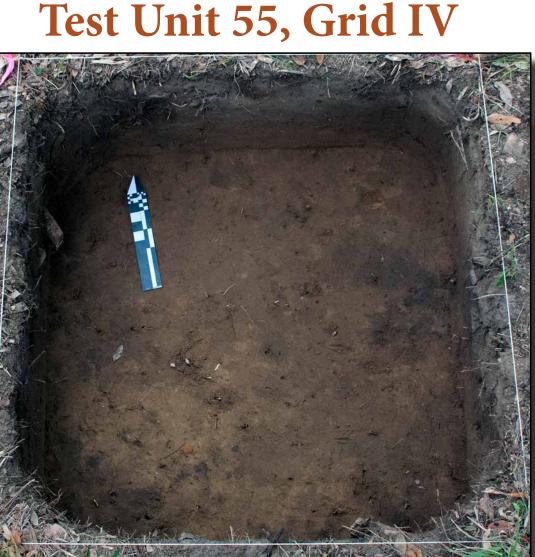


FIGURE 25: Left - Planview of test unit 50 which was placed over an anomaly in Grid Below - Profile of posthole from northwes corner of test unit.



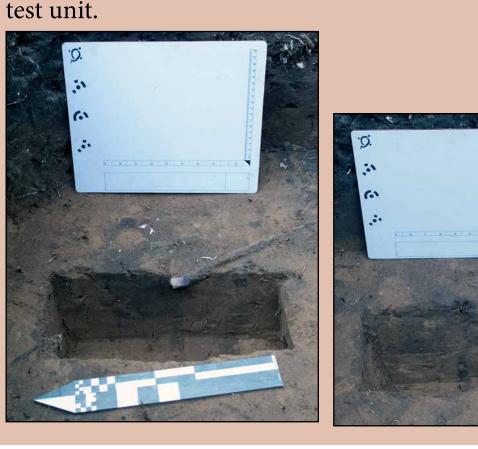


Olive jar fragment. Left -Decorated olive jar fragment.

IGURE 26: Left - Planview of test unit 5, which was placed over an anomaly in Grid IV. Right - Southern profile of the test unit depicting a heavily isturbed strata below the plowzon



FIGURE 27: Left - Planview of test unit 54 which was place over an anomaly in Grid VI. Top - Profiles of two postholes from the northeast and southeast quadrants of the





ssion Period artifacts recovered from test unit 4: Top - Altamaha Red Filmed and Line Block sherds, Majolica fragmen

