Ground Penetrating Radar Survey Report:

Site 8So18, Little Salt Springs, Florida

Completed by Jessie Pincus in cooperation with Mnemotrix Systems, Inc.

Introduction

From January 2, 2003 until January 11, 2003, the Ibis Archaeological Field School for Little Salt Spring (site 8So18) near North Port, Florida, took place. All research and excavations during this period of time were under the auspices of the University of Miami and New College. During the field school, in cooperation with Kathy Pincus and Michael Pincus of Mnemotrix Systems, Inc., we conducted a Ground Penetrating Radar (GPR) survey under the archaeological guidance of Dr. Traci Ardren of the University of Miami.

Little Salt Spring is a very significant archaeological site in Western Florida. Much research in the past has been done here concerning the evidence of Paleo and Archaic Indian settlements in the area. However, no terrestrial excavations have ever been attempted. The Ibis Archaeological Field School was the first season in which terrestrial excavations were pursued.

Among the many goals of this field season, determining a location where future research facilities could be built, was one of them. Thus under the direction of Dr. Ardren, test pits and a GPR survey were completed partly for this reason.

Excavations and Research at the Site:

A total of five test pits (Operations 1-5) were dug, coring, a GPR survey, and the cataloging of previously found artifacts by past researchers, were all accomplished during the 2003 field season at Little Salt Spring. Operations 1 and 2 were located in a field across from the Glen Allen Elementary School on Glen Allen Road. These were dug after this initial GPR survey was completed. Operation 1 was located north of the GPR

survey area, while Operation 2 was located south of the GPR survey area. In so doing, the findings from the traditional archaeological methods helped to confirm the GPR data, while the GPR data helped to confirm the consistency of the test pit findings for the area in question.

Actions Taken for the GPR Survey

In total, three GPR surveys were done at Little Salt Spring. The first two surveys were completed on January 3 and 4, 2003, respectively, during the field school program in two nearby areas. A third follow-up survey in the area of the first survey was done on January 25, 2003.

The area of the first and third surveys, which is the focus of this report, was in the open field of UM's 112 acres of property directly across from the elementary school mentioned above. A map of this area is shown in Figure 1.

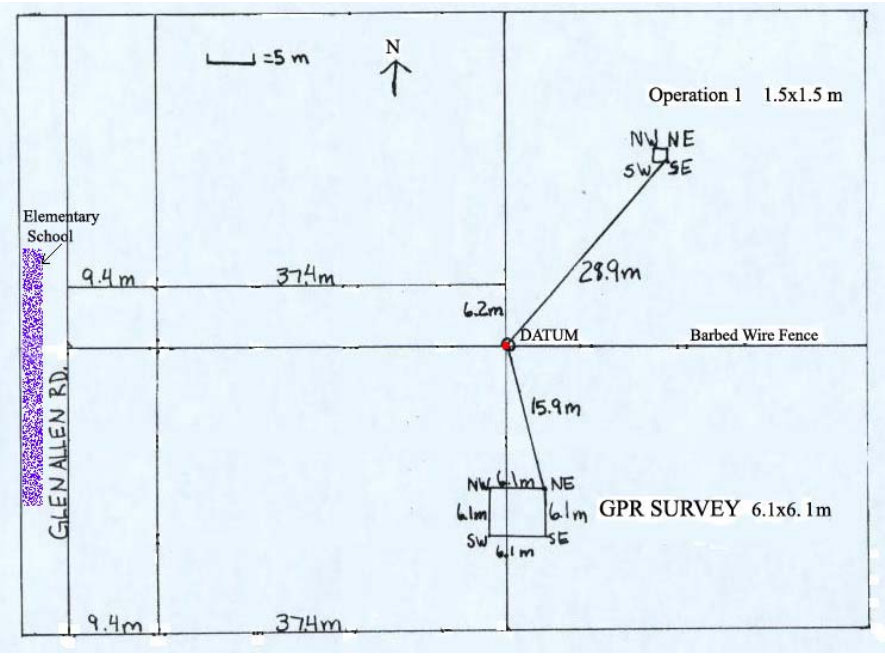

Figure 1. Red datum point on barbed wire fence was used as reference point for measured distances. Archaeological excavations were done at Operation 1.

Little Salt Spring itself is located southeast of the area shown in Figure 1. A second GPR survey was done near the spring itself, N4^{o}E to the 17th marker on the spring. A map of this area is not available at this time, but can be provided in the future if further study in this area should be desired.

This location came to be designated as Archaeological Operation 3 and traditional archaeological test pit methods were also used here. Once the pit was dug, no archaeological features were found. As nothing of interest was discovered in this area using either GPR or traditional archaeological methods, no further discussion of this area is necessary to this report.

Initial post-processing and analysis of the first GPR survey led the survey team to the decision that a follow-up GPR survey of that area would be beneficial. Thus on January 25, 2003, the third GPR survey was completed in the same location as the first. The results from that survey will be discussed in this report.

Equipment Used in GPR Surveys

A SIR-2000 (Subsurface Interface Radar) system was used with a 400 MHz antenna and survey wheel, manufactured by Geophysical Survey Systems, Inc. (GSSI). The 400 MHz antenna was chosen in order to have maximum detail/highest resolution in the uppermost 6-12 feet (~2-4 meters).

Method of the Survey:

A 20 x 20 ft (6.1 x 6.1 m) square grid was marked out, parallel to and about 50 meters east of Glen Allen Road across from the elementary school.

It should be noted that the surface area is composed entirely of large, irregular, coarse grass clumps which rise from 3-7 inches above horizontal. This inhibits a smooth drag of the GPR equipment over the surface area. A view of the terrain can be seen in Figure 2.

Figure 2. This image was taken from the NE corner of the survey grid, in direct line to the west corner of the grid. The white building in the background is the edge of Glen Allen Elementary School.

Starting at the NE corner of the grid, the antenna was pulled in a north to south direction, alternating to a south to north direction. Survey lines were spaced every foot

proceeding west towards the road. The data set for the Little Salt Spring GPR survey was completed with 20 GPR survey lines.

Post-Processing and Analysis of the GPR Survey

Post-processing involved tracing the initial subsurface layer shift from soil to sand, and studying specific anomalies which appeared throughout the survey. One view of the soil-sand shift and these anomalies, about eight feet in (~2.5 meters), is shown in Figure 3 and Figure 4 below. Figure 3 shows the raw data, while Figure 4 highlights these anomalies.

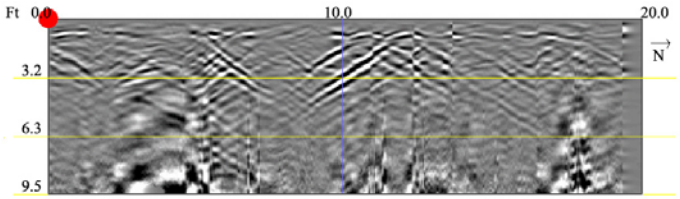

Figure 3. View of soil-sand layers and anomalies below. Red dot marks the GPR survey start point.

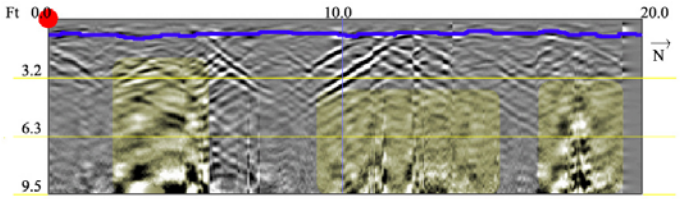

Figure 4. Mixed matrix areas are highlighted in yellow. The initial soil layer change to sand is traced in blue. Red dot marks the GPR survey start point.

The soil-sand demarcation extends horizontally throughout the survey area and can be seen traced in blue in Figure 4 above. Three slight anomalies were detected throughout the data/survey area, which were several feet in diameter extending into the sand layer. Based on documented history of the area, a reasonable explanation is that these are remnants of recent digging in the last few decades. Since this area is known to

have been the site of tomato fields, areas of mixed matrix (ground material) would have been created during the tilling of the soil, making this past farming activity a probable source of the disturbance.

Figure 5 below shows the horizontal time-slices of scans at two, eight, and sixteen feet south of the northern boundary of the survey. These help to show a more three-dimensional view of the survey. The red dot marks the northeast GPR survey start point. This figure illustrates the overall homogenous nature of the broad area surveyed and the general absence of archaeological features throughout.

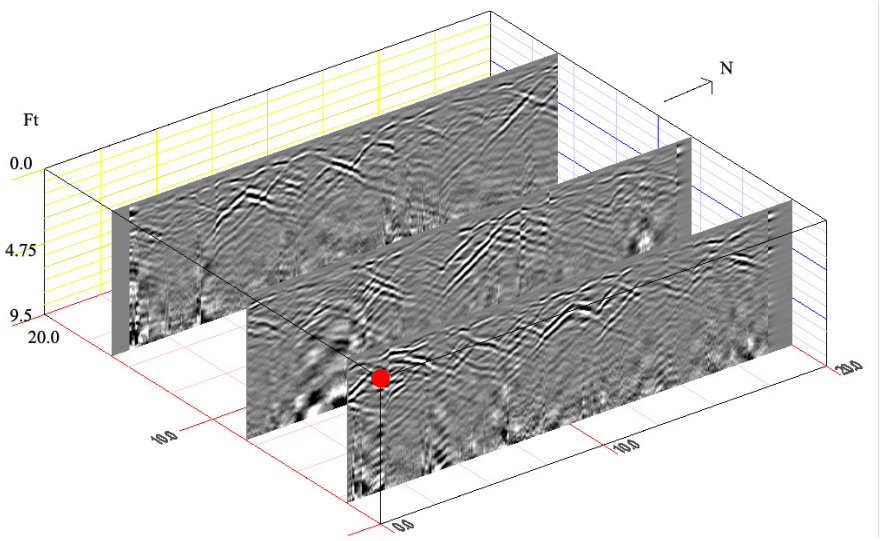

Figure 5. A view of scan lines 2, 8, and 16.

Conclusions

As already mentioned above, no archaeological remains were found at Operations 1 and 2. The figures shown in this report illustrate the only features of interest that were found in our GPR study. It would appear, at least in the area surveyed, that the area covered was rather homogenous and devoid of anything worthy of further attention.

On the other hand, rich archaeological material was found on another location of the Little Salt Spring site during the 2003 field season. With more field seasons to come, other archaeological features may be discovered. As this occurs, further GPR surveys may be helpful in determining which areas should be protected for further research and discovery.