

SPARC Final Report

Our Spatial Archaeometry Research Collaborations (SPARC) Fieldwork Award that provided RTK GPS support for a 3D GPR Survey at the Poverty Point World Heritage Site (WHS) has been completed. Three-dimensional (multi-channel) ground penetrating radar (3D GPR) technology associated with this SPARC award focused on an intriguing rise within the plaza at Poverty Point WHS known as the West Plaza Rise. Based on the location of this feature at the intersection of the western aisle to Mound A and the Mound E Ridge, and its proximity to deep post pits and several post circles, we think the West Plaza Rise could be a significant, yet under-appreciated, part of the prehistoric created landscape.

The 3D Radar GPR survey took place between 11/25/19 and 11/30/19. The area covered included the West Plaza Rise and its margins to the east, west, south, and (to a lesser degree) north. High resolution GPS equipment provided by this fieldwork award was crucial to the success of this project. One of the Leica GS15 receivers provided by the Center for Advanced Spatial Technologies (CAST) at the University of Arkansas was mounted on a tripod and used as a base station and the other served as a roving unit mounted on the 3D GPR antenna. We very much appreciate the extra batteries that were provided as they allowed us to run all day and we would also like to thank CAST for covering costs for shipping the equipment to the site.

Dr. Arne Anderson Stamnes, from the Terrestrial, Marine and Aerial Remote sensing for archaeology (TEMAR) research group at the Norwegian University of Science and Technology led the 3D GPR survey. He was assisted by Dr. Diana Greenlee, University of Louisiana Monroe and Poverty Point Station Archaeologist, and Dr. Rinita Dalan, Minnesota State University Moorhead. An Office of State Parks' Gator was used to pull the antenna array and the GPS receiver (Figure 1). 3d-radars Examiner software combined with the 3rd party navigation software "Farmer GPS" integrated the GPS and GPR data, allowing us to track our progress and ensure there were no gaps in data collection as well as offering a preliminary look at the data. In all, approximately 5.3 hectares (13.1 acres) of GPR data were collected during 3.5 days of fieldwork.

On Saturday, 30 November 2019, we hosted an Open House for visitors who were able to observed data collection in action and learn more about the project (Figure 2). A local TV station, KNOE Channel 8 ran a segment on the project that evening and several regional papers also ran stories.

The next phase of our broader National Park Service National Center for Preservation Technology and Training grant (#P19AP00139) will be to identify targets in the GPR data for soil coring, downhole magnetic susceptibility testing, and soil physical and chemical analyses. These activities will allow us to both test the accuracy of the 3D GPR data and to better understand the formation and use of the West Plaza Rise.

Submitted by Rinita A. Dalan, Diana Greenlee, and Arne Anderson Stamnes in fulfillment of the requirements of a Collaborative Research Agreement, January 23, 2020



Figure 1: Diana Greenlee and Arne Anderson Stamnes surveying the West Plaza Rise with the 3D Radar System.



Figure 2: Talking with visitors at the Open House.