Using GIS to Reevaluate the Ashley River Historic District

Charleston and Dorchester Counties,
South Carolina

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USING GIS TO REEVALUATE THE ASHLEY RIVER HISTORIC DISTRICT
CHARLESTON AND DORCHESTER COUNTIES, SOUTH CAROLINA

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1.0 INTRODUCTION

In August 2007, Historic Charleston Foundation (HCF) contracted Brockington and Associates, Inc., and Felzer Consulting to reassess and update the National Register of Historic Places (NRHP) nomination for the Ashley River Historic District. This new district was to include not only the existing district lands, but also lands south from Ashley River Road to the Stono Canal/Public Drain. The lands included in the existing district were resurveyed and any portions that no longer contained integrity were not included in the new boundary.

The initial plan to reassess the district included historic research, field reconnaissance, and the archaeological testing of selected sites. It soon became apparent that this approach would not yield enough data or coverage due to the size of the study area and the number of potential resources. We needed a tool to document and assess the overall historic landscape of the study area. We decided that the most efficient manner in which to accomplish the task was to create a chronological GIS database. The GIS database allowed us to look at large numbers of potential resources and not only to be able to assess them for integrity but also to link them together, creating a cohesive historical landscape of the entire area.

Brockington and Associates used historic plats, current aerials, and topographic maps to compile a GIS database. By using these layers, researchers were able to create a history of the area showing locations of potential contributing cultural features. Once the database was completed, archaeologists conducted a field reconnaissance to verify the locations and integrity of the features. Details of the GIS database and field reconnaissance are discussed below.

2.0 GIS DATABASE

In October 2007, we began collecting and compiling pertinent GIS data into the GIS system ArcMap 8.3. These data include current aerial photographs, topographic quadrangle maps, Dorchester and Charleston county parcel data, major roads, previously recorded archaeological sites and historic architectural resources, the existing Ashley River NRHP District, and the Dorchester County Historic Overlay District.

We defined a preliminary study area by looking at these layers and determining which parcels are directly tied to the Ashley River District plantations and might contain extant historic evidence.

Once a general study area was defined, Brockington and Associates, along with Felzer Consulting, began to collect historic maps of the area. Researchers started by collecting compilation maps that show the whole of the area (e.g., Mills, H.A.M. Smith). These maps were then geo-referenced onto the current aerials and topographic maps to provide a wide-ranging historical span showing key landowners and boundaries. This gave investigators a broad basis from which the search could be refined and focused on specific plantations and owners. Once a good set of historic maps ranging from the late seventeenth century to the early twentieth century were collected, researchers geo-referenced each map, paying special attention to land boundaries. The geo-referencing was done by locating key road intersections, landform features, known land boundaries, and any other easily discernable features that appear on both the plats and on the aerials or topographic maps.

Using the geo-referenced plats, researchers digitized features that might be a contributing element in the district as either polygons or line shapefiles. These included but were not limited to roads, structures, cemeteries, property boundaries, canals, phosphate mining areas, rice fields, and manmade ponds. All pertinent information (i.e., date, source, type) was recorded with each resource in the attribute table. Once all the data was digitized and compiled, researchers created a complex, slightly overwhelming field map that showed every possible resource. An Excel file of UTM coordinates for each possible resource was generated. This compilation map and Excel file allowed us to quickly locate and assess the potential features and to gain a better understanding of how each resource contributes to the overall landscape than we might have had otherwise.

Upon the completion of the field reconnaissance in January 2009, we updated the database to reflect any changes. Once the database was finished, researchers used natural boundaries (i.e., the Ashley River and associated marshes and the Stono Canal), parcel data, and the location of the resources to define a final

boundary for the proposed district. This boundary is based on the location of features that have integrity and that are directly linked to the major plantations in the current Ashley River Historic District. We created multiple maps using the layers of the database overlain on current aerials. These maps show how land use of the area changed over time and which resources contribute to the integrity of each historical episode. By looking at these maps, we are able to see which resources were reused and modified by different owners and land practices. This information provides an important link that is crucial to the strength of any historic district. In addition to these maps, a final database will be provided including all gathered and generated shapefiles, images, and aerials. Shapefiles will be projected in UTM NAD 27, Zone 17 and will be accompanied by sufficient metadata.

3.0 FIELD RECONNAISSANCE AND ASSESSMENT

From December 2007 to January 2009, archaeologists conducted systematic field reconnaissance and assessments for each of the possible cultural features identified in the GIS database. The resources were divided into two main categories: cultural resources and landscape features. In areas where access was permitted, a sub-meter Trimble GPS unit was used to navigate to the suspected location. Upon reaching the intended location, researchers fanned out to look for any distinguishing cultural features. When anything of cultural value was located, researchers recorded the size and type, and subsequently photographed and assessed the feature for integrity. For areas where right-of-entry could not be gained, investigators consulted previously published reports, local informants/historians, and current aerials for verification and integrity of the resources. The methods of investigation, recording, and assessment for each feature type are discussed below.

3.1 Cultural Resources

The cultural resources section is divided into two subcategories: archaeological sites and historic architectural resources. Both of these refer to domestic, funerary, and managerial areas in the district. They provide a view into the everyday living habits of the inhabitants and vary greatly throughout time. Without these resources, the district would not have the necessary base to be considered for nomination for the NRHP.

In this context, researchers use the terms archaeological site and historic architectural resource loosely. These terms not only refer to resources recorded at the South Carolina Institute of Archaeology and Anthropology (SCIAA) and the South Carolina Department of Archives and History (SCDAH), but also to resources we identified in the field. We did not submit any site or architectural forms to these agencies for review. All resources including the previously recorded sites and properties were visited and assessed for integrity.

Archaeological Sites. Archaeological sites were located by first positively identifying the road or intersection near the site. Once the road was positively identified, we went to the suspected locale and conducted a thorough surface inspection for artifacts and aboveground features or structures. Any artifacts that were discovered were field-identified, photographed, and left in place. When any aboveground features such as, but not limited to, brick chimneys, foundations, piers, and wells were identified, they were subsequently mapped and photographed. Researchers also noted any landscape architecture, including large oak trees or ornamental plantings, that might be associated with the site. After a through evaluation of the area, distances between the features were recorded and mapped, creating a general site boundary. No ground-disturbing excavations were conducted at any of the locales.

It is important to note that these archaeological sites were not assessed following the South Carolina Standards and Guidelines but were assessed as to whether they contributed to the whole of the proposed district. We therefore evaluated the sites for integrity based on the presence or absence of artifacts or aboveground features. If the site contained aboveground features or artifacts that corresponded to the date generated by the historic plats and was not highly altered by subsequent land-disturbing activities, then it was deemed to have integrity and was included as a contributing element to the district.

Historic Architectural Resources. Historic architectural resources were located by first positively identifying the road or intersection near the site. Once the road was positively identified, we traveled to the suspected locale. The extant historic architectural resources were photographed and assessed for architectural style, method of construction, building type, and alterations. Any additional landscape architecture, including large oak trees or ornamental plantings, that might be associated with the resource were also noted. After a through evaluation of the area, distances between the structure and any other features were recorded and mapped, creating a general site boundary.

It is important to note that these historic architectural resources were not assessed as individual resources following the Secretary of the Interior's Standards for Identification and Evaluation (36 CFR 61.3, 6; 36 CFR 61.4[b]) but were assessed as to whether they contributed to the whole of the proposed district. We therefore first evaluated the sites based on the presence or absence of a structure. If the area contained an intact structure that corresponded to the date generated by the historic plats and was not highly altered by subsequent building episodes or land-disturbing activities, then it was deemed to have integrity and considered a contributing element to the district.

3.2 Landscape Features

The landscape features are divided into four subcategories: earthen features/canals, historic roads, rice fields, and phosphate mining areas. Each of these plays an important role in the integrity of the district and was recorded and evaluated based upon its individual characteristics. These landscape features either tie the cultural features together or provide a source of income for the people who lived and worked in this region. While some of the features have been recorded in the past as historic architectural resources or archaeological sites, in this context they are considered landscape features. All landscape features, including ones previously recorded, were visited and assessed for integrity.

Earthen Features/Canals. Researchers defined an earthen feature as any landscape feature that was created by the mounding of earth and not used for travel. For the purpose of this study we included dikes, berms, dams, and property boundaries otherwise known as ditch-the-line. Canals were also included in this section due to their concurrent use with dikes, berms, and dams. Only dikes and berms that could not be definitely tied to rice fields or phosphate mining were included in this section.

Archaeologists used the sub-meter Trimble GPS unit to navigate to the suspected locales. For resources (i.e., ditch-the-line) that contained multiple turns and covered large, not readily accessible areas, researchers picked multiple points to field-verify. We then made the assumption that if the majority of the feature were intact, then it contained enough integrity to be included in the nomination. Current aerial photography was also used to help with this process. For smaller, less complicated features (i.e., berms, dikes, and dams) we were able to map the entire system. Researchers photographed and recorded the height, width, and length of the feature. The feature was said to have integrity and considered a contributing element to the district if it was relatively undisturbed and could be linked to historic plats.

Historic Roads. A historic road is defined as any road, path, or trail that was used as a major route for any occupation in this area. For the purpose of this study we included roads, tramlines, trails, and causeways. We limited these to only major routes or roads that show up on multiple historic maps or were given specific names.

Archaeologists used the sub-meter Trimble GPS unit and local historians/informants to navigate to the beginning of each suspected thoroughfare. For roads that could be driven, researchers recorded the length and width and noted any major modifications. In cases where it was not possible to investigate the road, current aerials were used to determine its presence or absence and to note any alterations. Archaeologists considered these features to have integrity if they were able to still show a travel route between a settlements or work areas. Therefore, if the feature was unaltered and visible or if it was improved upon, but not greatly altered, and still used today, it was thought to have integrity and considered a contributing element of the district.

Rice Fields. Rice fields are defined as any areas that were modified to grow rice. Two types of fields were noted during this study: inland and tidal. Tidal fields in this area are associated with either the Ashley River or Rantowles Creek and must make use of the tides in some capacity. These are usually defined by large perimeter dikes and can be seen easily on current aerials. Inland fields are associated with swamp networks that have been ponded by dams or dikes to create a flooded growing area. Both types of fields use dikes, dams, and berms to create a symmetric grid containing multiple right angles.

A sub-meter Trimble GPS unit was used to navigate to the areas of suspected rice fields, where archaeologists fanned out and inspected the area for intact dikes and canals. While it was not possible to cover the entire field, if there was evidence of integrity near roads or other accessible areas, researchers assumed that the inaccessible portion of the field was also intact. Archaeologists used the field reconnaissance in conjunction with current aerials on which it was possible to see extensive networks of rice fields. If the field contained an intact network of dikes and canals, it was considered to have integrity and to be a contributing element of the district. In some instances where fields were later mined for phosphate, we considered the fields to still have integrity due to the presence of some rice-related features.

Phosphate Mining Areas. Phosphate mining areas are defined as any areas in which phosphate mining occurred. Two types of mining were noted during this study: hand mining and steam dredging. Hand mining appears to be confined to smaller areas and is represented by shallow, random pits and moderate spoil piles. Dredging, on the other hand, is more systematic and appears to cover wider areas. It is represented by deep trenches and massive spoil piles.

A sub-meter Trimble GPS unit was used to navigate to the areas of suspected phosphate mining, where archaeologists spread out and inspected the area for trenches and spoil piles. While it was not possible to cover the entire area, if there was evidence of integrity near roads, researchers assumed that the inaccessible portion of the field was also intact. Archaeologists used the field reconnaissance in conjunction with current aerials on which it was possible to see extensive phosphate-dredged areas. If the field contained an intact network of trenches and spoils, it was considered to have integrity and to be a contributing element of the district.

4.0 RESULTS

By creating a GIS database incorporating all available historic plats, quadrangle maps, and aerials, researchers were able to locate and identify both cultural resources and landscape features. This system enabled researchers to form a consistent history of the region showing how each individual resource works in conjunction with the others to form a cohesive social network. While some of the resources do not contain enough information to be eligible for the NRHP by themselves, archaeologists were able to show a deep relationship between each that shows the importance not only of the historic plantation areas, but also of the lands where activities that allowed the plantations to function and flourish were conducted. Without the use of this database, researchers would not have been able to identify and locate the large number of resources, nor would they have been able to easily explain the connection and importance of each.