

A Preservation and Stabilization Plan for Battery Hamilton
(9CH953), Chatham County, Georgia

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1.0 Introduction

This document outlines efforts of the Georgia Department of Transportation (GDOT) to develop a preservation and stabilization plan for the archaeological remains of Battery Hamilton (9CH953), a Federal gun emplacement located on the northwestern edge of Bird/Long Island in the Savannah River, Chatham County, Georgia (Figure 1). The resource was identified during an archaeological survey of the island as part of a proposed wetland mitigation site associated with the widening of US 80 between the City of Savannah and Tybee Island (Watts 2001). Recognizing the importance and significance of this resource, GDOT is committed to fulfilling its stewardship responsibilities by providing for the successful long term management of Battery Hamilton.

This assessment was developed by GDOT and Southeastern Archeological Services, Incorporated, with technical assistance from the National Park Service (NPS) and the National Clearinghouse for Archaeological Site Stabilization at the University of Mississippi. The preservation activities outlined below are largely passive in nature; that is, they focus on maintaining the current natural equilibrium by not introducing foreign elements that would alter the vegetation, tidal actions, or water levels that might otherwise accelerate loss of the resource. At the same time, however, there are some concrete procedures that can be implemented to measure the rate and degree of degradation, and protect the subsurface remains from possible looting activities. This site is unique in both its archaeological manifestation and its environmental setting, requiring a creative and innovative orientation toward its preservation. The problems specific to the resource and its setting are discussed below, and appropriate recommendations are included where necessary.

2.0 Background

Battery Hamilton was first identified by Tidewater Atlantic Research (TAR) during an archaeological survey of Bird/Long Island (Watts 2001). At that time, the outline of the original structure was clearly visible on the surface, as well as on aerial photographs (Figure 2). In addition to the visible earthworks, limited probing indicated areas of discrete sand lenses buried beneath the marsh mud that were hypothesized to be the remains of sandbags used during construction. Based on the observed archaeological remains and historical and contextual information, the site was recommended eligible for the National Register of Historic Places (NRHP).

Consultation with the Georgia State Historic Preservation Office (SHPO) resulted in a finding that the site would not be affected by the proposed undertaking, although there was some concern that the resource was being compromised by natural forces. Recognizing that fact, GDOT contracted with Southeastern Archeological Services (SAS) to further assess the archaeological components of Battery Hamilton in order to develop an effective and practical preservation and stabilization plan.

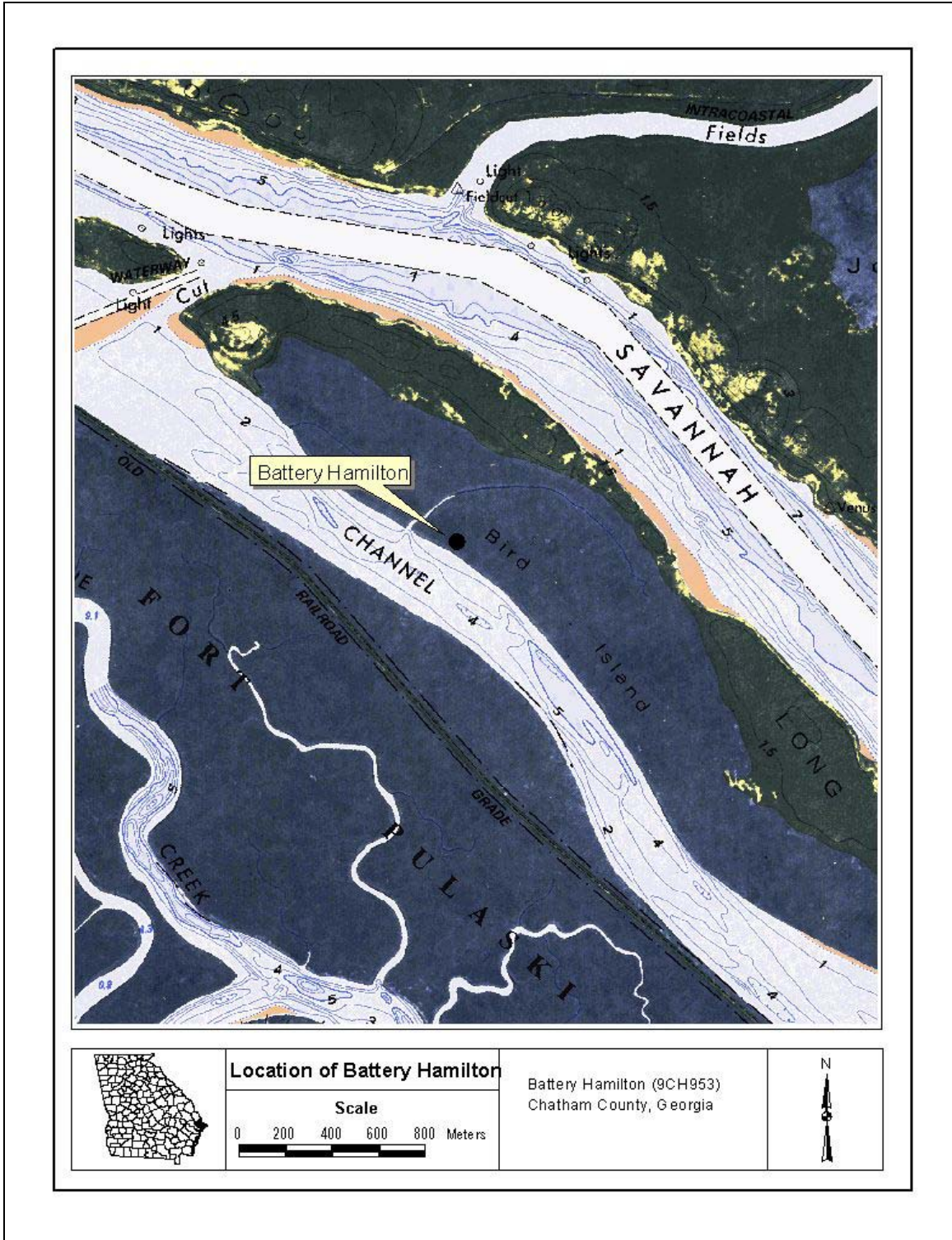


Figure 1. Map showing location of Battery Hamilton, Chatham County, Georgia.

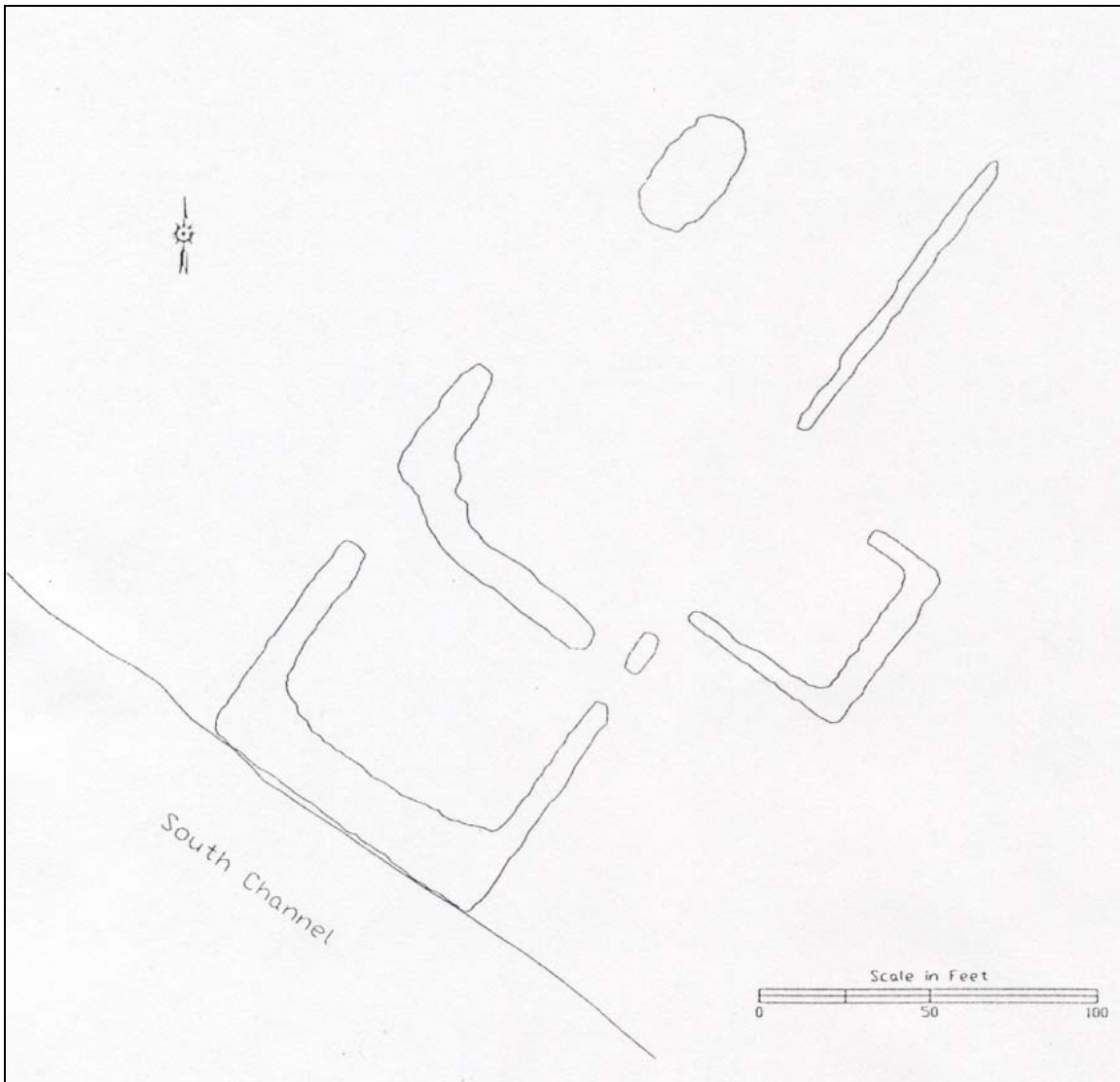


Figure 2. Sketch map of Battery Hamilton by Tidewater Atlantic Research (Watts 2001).

Additional archaeological investigations were undertaken in the spring of 2002 (Braley 2003). Largely non-intrusive in nature, these investigations yielded some rather unexpected and remarkable results. In addition to the previously known surface remains, SAS further delineated the layer of sand and discovered numerous well-preserved large timbers, remnants of the original construction materials, all buried under approximately 40 cm of marsh mud. Limited test excavations exposed numerous wood planks, boards, and timbers, while simple probing led to a highly accurate map of these structural elements. A detailed contour map was then generated and a permanent datum established (Figure 3). SAS also recovered two artifacts (in numerous fragments), including a glass condiment jar and a floral decorated pitcher.

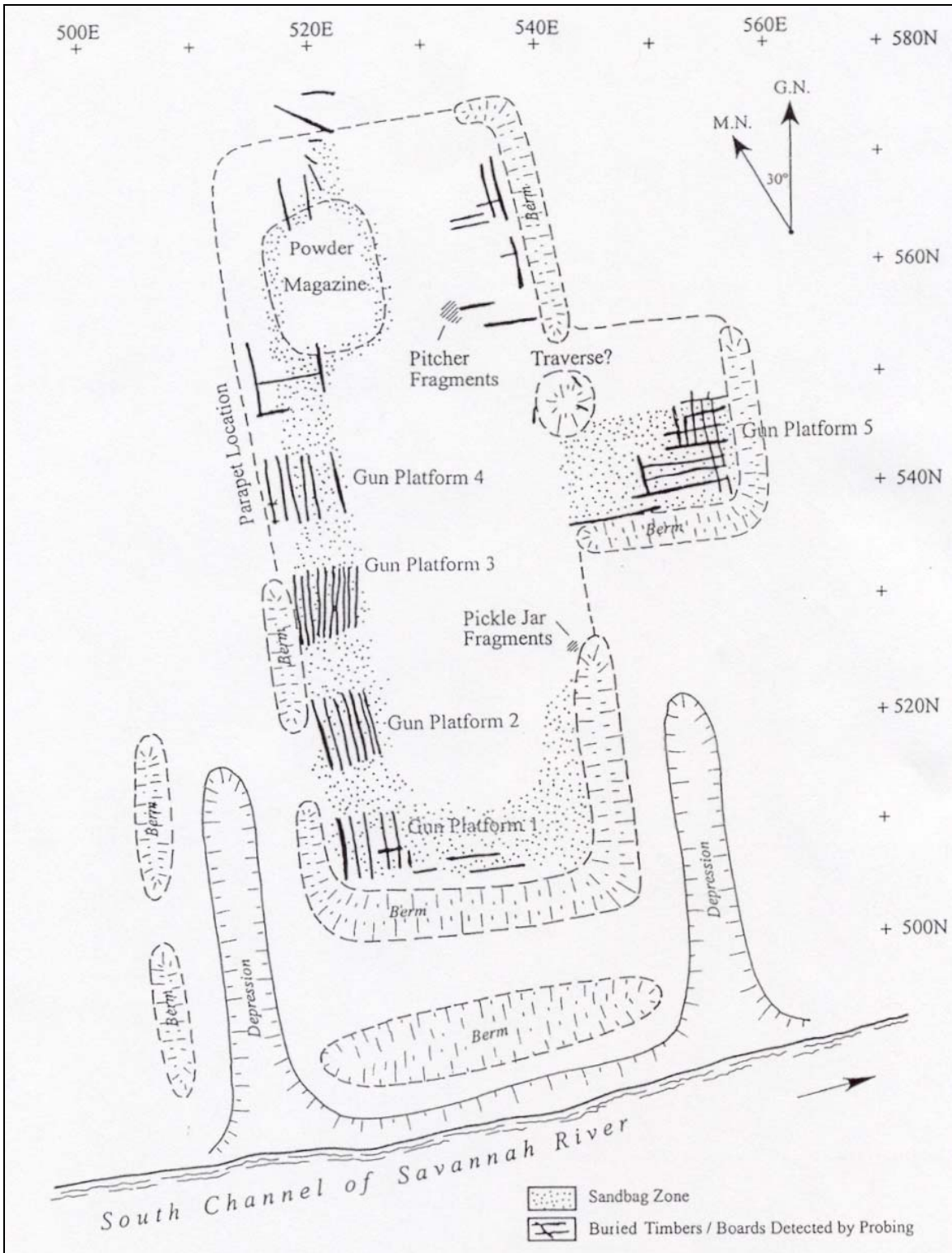


Figure 3. Detailed topographic map of Battery Hamilton by Southeastern Archeological Services (Braley 2003).

Archaeological investigations to date have been extremely productive while directly impacting very little of the resource. We now have a fairly good understanding of the site's setting, its depositional context, its formation and transformation, and the internal spatial relationships of artifacts and features. The site is remarkably well preserved and has changed very little since its original construction. Essentially, the archaeological investigations have confirmed the historical accounts of the battery, although, if anything, the site's size seems to have been a bit exaggerated in the W.T. Crane sketch (Figure 4; Braley 2003:7-9).

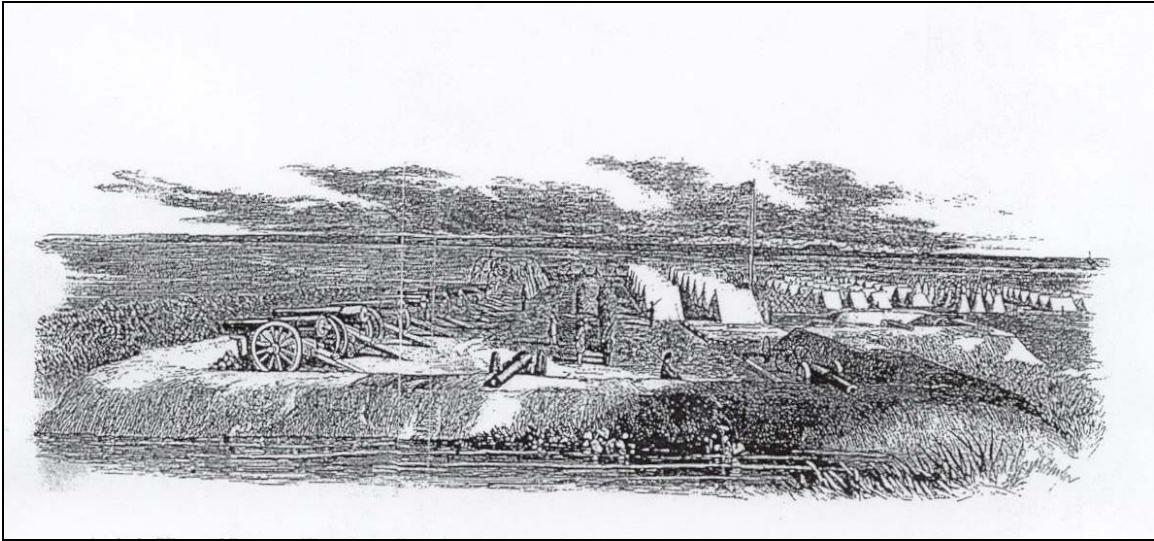


Figure 4. W.T. Crane's sketch of Battery Hamilton (Frank Leslie's Illustrated Newsletter 1862).

3.0 Preservation and Stabilization Issues

A site visit was held on March 20, 2003, with participants including John Ehrenhard (Southeast Archeological Center, National Park Service), Robert Thorne (University of Mississippi), Shawn Patch and James Pomfret (GDOT), Chad Braley (Southeastern Archeological Services), John Breen (Fort Pulaski National Monument), and Judy Wood (US Army Corps of Engineers, Savannah District). The purpose of this meeting was to evaluate the current condition of Battery Hamilton and discuss possible preservation and stabilization measures that would be appropriate. At that time, several issues were raised and addressed by all the participants, and they are briefly outlined below.

This date was intentionally chosen to coincide with high tides associated with the full moon, and by chance it also coincided with a relatively high spring tide, estimated at eight to nine feet at its peak. By the time of our arrival at the site, around 9:30 a.m., the tide had begun to recede, but the site was still inundated, with water up to a foot deep in some places. Prevailing winds were primarily from the south, although wave activity across the open river channel never reached white-cap stage. On-site, wave activity was quickly reduced by the vegetation cover to low, gentle, rolling waves that lacked sufficient force to dislodge the marsh sediment.

Natural Degradation and Marsh Reclamation

Prior to the archeological investigation conducted by Braley (2003), site observations by TAR suggested that the integrity of Battery Hamilton was being compromised by natural degradation. Watts (2001:55) concluded that the site had deteriorated over the previous sixty years in the following statement:

“The 1952 aerial indicates that the site was nearly intact with only the northwest corner showing any signs of degradation. By 1998, the level of deterioration had increased. The outline of the feature is less distinct and much of the northwest quarter of the site has been reclaimed by marsh.”

Watts (2001:108) continued in his assessment for Battery Hamilton by noting:

“Current plans of the GDOT mitigation project do not call for an alteration of the marsh environment associated with Bird Island. Though the site will be protected from construction activities, the landform is slowly being reclaimed by marsh. Examination of the aerial photographs revealed that much of the northwest corner of the battery has disappeared within the last 60 years. Further degradation of the resource is expected for the future. As a consequence, the site should be periodically monitored and considerations given to conducting a detailed topographic survey of the feature.”

Addressing TAR’s initial observations, the 1952 and 1998 aerial photographs are attached for comparison (Figures 5-6). Inspection of each photo reveals that there has been some deterioration, although we do not believe it is as severe as originally suggested by TAR. The two images are almost identical and, in our opinion, it does not appear that the northwest corner of the site has changed appreciably in the intervening years.

What is apparent, and verified on the ground, is that the southern portion of the west parapet has been breached; likely caused by extremely high tides that inundate the island several times a year. The remnants of the earthen walls act as dikes; when the tide subsides, the trapped water seeks outlets. In addition to extreme tidal fluctuations, periodic coastal and tropical storms, particularly hurricanes, have contributed to the site’s current condition.

As noted in Braley’s (2003) report, Battery Hamilton was constructed in a marsh setting, with little to no advance preparation to offset or retard the natural tendencies of such an active environment. The site was ephemeral in nature and was not designed for long-term use. In fact, given the active nature of the marsh, it is remarkable in itself that the surface remains are in such good condition.

This leads to the somewhat obvious conclusion that the marsh environment is an integral component of the resource, and is the primary factor contributing to the site’s excellent



Figure 5. 1952 aerial photograph showing condition of Battery Hamilton.



Figure 6. 1998 aerial photograph showing condition of Battery Hamilton.

preservation. The natural processes responsible for the development of the marsh are also the processes that have been, and will continue to be, directly responsible for affecting the ultimate preservation of the resource. The irony here is that the resource was initially intended for a single purpose, over a short time span, in an active environment, and it is precisely because of these factors that the resource is so well-preserved.

Shoreline Erosion

Questions of possible shoreline erosion were addressed during the recent archeological investigations (Braley 2003). Of specific concern was to what extent, if any, the site had been damaged by erosion of the South Channel's riverbank over the preceding 141 years. Preliminary analysis indicates that virtually no shoreline erosion has occurred along the South Channel. W.T. Crane's 1862 sketch shows the south parapet directly on the edge of the island, just as it is today. Field observations confirm this account, as there is a natural berm present on the edge of the riverbank. Comparison of the 1952 and 1998 aerial photographs, the 1943 Savannah Harbor map, and the 1978 USGS topographic map (Watts 2001:106), further supports the conclusion that no appreciable erosion has taken place over the last 50 to 60 years.

Currently, the South Channel receives little to no boat traffic due to the intensive use of the Intracoastal Waterway, and wave action impacts have been negligible in the past. We see no reason to believe that any appreciable changes in normal wave activity would occur in the future. Therefore, construction of a hard covering such as a jetty, bulkhead or riprap will not be necessary, and could possibly be detrimental.

Possible Looting and Vandalism

Given the uniqueness of the resource, monitoring potential looting impacts is of prime importance. Therefore, GDOT has partnered with NPS staff at Fort Pulaski National Monument and the Georgia Department of Natural Resources (GDNR) Law Enforcement staff to provide for annual monitoring visits to the site. As long as the resource remains state property, ultimate enforcement of looting violations will belong to GDNR Law Enforcement.

The resource is accessible only by boat and is not easily detectable. Maintaining the existing natural vegetation will minimize the potential for unwanted attention, particularly looting and vandalism. All permanent control points placed in and around the site should be easily concealed within the waist-high spartina grass. Annual monitoring visits will focus on detailed inspection of the site for signs of unauthorized activity, as well as general site conditions. It is anticipated that data would then be collected from the control points and an annual assessment made of the overall preservation state of Battery Hamilton.

4.0 Recommendations

A stabilization effort that alters the site's natural setting in an anaerobic condition within the marsh environment would, in the long run, be more detrimental to the resource and could have unknown deleterious effects. At the time of the site visit it was clear to all participants that initial recommendations of passive preservation activities for Battery Hamilton would be the most appropriate. Therefore, no proactive physical measures, such as filter fabric, rip-rap, or intentional burial, are necessary, as these efforts could severely alter the existing natural conditions that have served the site so well over the

years. In contrast, we recommend a “soft” approach that focuses on three primary areas: maintaining the existing marsh ecosystem, particularly *spartina alterniflora*; replanting native saltbush to stabilize the shoreline and conceal the earthworks; and a regular monitoring program that addresses overall site conditions.

Maintaining the Existing Marsh Ecosystem

Currently, the South Channel receives little to no boat traffic due to the intensive use of the Intracoastal Waterway, and wave action impacts have been negligible in the past. Tidal inundation of the site originates entirely from the South Channel; dredge spoils deposited on the north side of Bird Island have allowed the development of a mixed oak and pine forest, providing a natural barrier to wave and tidal action. Vegetation on the site itself is almost exclusively *spartina alterniflora*, and it is a thriving and healthy species that acts as a natural barrier to wave and tidal action. This particular vegetation has the capacity to reduce wave activity by as much as 90%, a condition that was clearly observed in the field. We see no reason to believe that any appreciable changes in normal wave activity would occur in the future. Therefore, construction of a hard covering such as a jetty, bulkhead or riprap will not be necessary, and could possibly be detrimental.

Some concern was expressed about the removal of dredge spoil deposits from the north side of the island. Removal of that protective barrier could allow tidal overflow of the site to originate from both channels, and possibly increase the rate of flow across the marsh. However, current GDOT design plans, although proposing to remove some fill, will retain sufficient material in place to buffer wave action from the North Channel. In addition, a secondary goal of the GDOT plans is to return Bird/Long Island to its natural state as a marsh island. Consequently, the health and preservation of the existing marsh ecosystem are of primary importance, and these goals have been incorporated into the wetlands mitigation plans.

Replanting Native Vegetation

In addition to the *spartina alterniflora*, marsh elder (*iva frutescens*), commonly called saltbush, is present in limited areas across the site, and its presence has helped preserve some of the earthworks from slumping and erosion. Due to the success of this plant as a stabilizing force, and the fact that it is a native species, we recommend that additional plants be introduced along the river bank and at limited locations across the site. However, we anticipate that salt bush will be most effective planted along the river bank, and that its presence will help dissipate wave and tidal action. Replanting activities will be incorporated into GDOT’s wetland mitigation plans, currently under development, and will be supervised by an archaeologist familiar with the resource

Marsh elder has smooth leaves that are elliptic to oval with coarse notches toward the tips; flowers on the male plants are yellowish compact clusters near the end of new growth and female plants produce mature seeds with silky white hairs or “paintbrushes” in the fall. Seed could be manually gathered from local stands for propagation, or transplanting of young plants might also be considered. Technical assistance from a

botanist or other experts will be solicited to select appropriate salt-tolerant species, and determine the best times for seed dispersal or transplanting established plants. The existing colonies of marsh elder that are present should be allowed to naturally regenerate or die out.

Periodic Site Monitoring and Evaluation

As part of the long term management of Battery Hamilton, we recommend a monitoring program consisting of annual site visits to assess overall conditions, collect site-specific data, and prepare a summary evaluation. An evaluation form will be developed specifically for Battery Hamilton that will provide consistent and accurate reporting in the event of changing personnel (Thorne 1996).

Several of the questions of interest regarding this site are directly related to the role of sedimentation, deposition, shoreline erosion, and slumping in a marsh setting. To help answer these questions, we recommend placing a series of control points at selected locations across the site and along the river bank. Care should be given to designing control points that are fairly inconspicuous, and fit into the overall environmental context; they should not attract any undesired attention from boaters or potential looters. These control points can then be used to measure rates of both erosion and sedimentation and provide an objective and standardized method for evaluating and monitoring the site's overall condition.

To offset the inevitable degradation and loss of surface features (i.e. earthworks), extensive topographic mapping of Battery Hamilton was completed during the recent archeological investigations. This detailed mapping, together with archival documentation and information gathered from aerial photographs, has adequately recorded the information potential of the visual extent of the earthworks.

5.0 Conclusions and Directions for Future Research

In summary, this management plan provides GDOT with an outline that will ensure the successful preservation of the buried component of Battery Hamilton. It must be noted that this unique resource is located in a natural environment that at times can be extremely volatile. No plan can adequately address and protect such a resource, given its coastal location, from natural phenomena that are catastrophic in nature. With that caveat in mind, however, the plan provides a working framework to adequately address and measure potential impacts of natural forces that will affect the site. In the event of unforeseen natural impacts to the site not accounted for in this plan do occur, GDOT will request further technical assistance, as needed, from NPS, the National Clearinghouse for Archaeological Site Stabilization, and other appropriate parties.

The ultimate goal of this document is to outline a framework that will ensure the long term preservation and stabilization of Battery Hamilton for future research and interpretive activities. With its successful preservation, we anticipate numerous areas of archaeological and historical research directed at Battery Hamilton including: comparison

of this site with other coastal batteries and fortifications throughout the country; geophysical investigations of the subsurface remains to reveal more detailed information about the site's internal structure; questions regarding the site's formation and transformation processes; the effects of sedimentation and erosion on archaeological resources in marsh settings; and marsh sediments as a preservative environment.

Battery Hamilton also has excellent interpretive potential, particularly with respect to the overall mission of Fort Pulaski National Monument. Specifically, we believe this site could contribute a great deal of information about its own role in the siege of Fort Pulaski; the importance and uniqueness of the marsh setting and the efforts required in its construction; comparison of this site with other ephemeral coastal fortifications designed for similar purposes or in similar environmental settings; and the possible reconstruction of a full size replica of this site somewhere on the grounds of Fort Pulaski or the adjacent mainland.

Battery Hamilton is a remarkably well-preserved and important resource in a unique environmental setting. Recent archaeological investigations sponsored by GDOT have been directed at assessing the site's historic context, its archaeological components, and its overall condition to help develop a preservation and stabilization plan. Numerous issues regarding the site's long term stability have been addressed in this plan, and clear recommendations have been offered based on the archaeological work and our assessment of the site's current preservation state. In short, we believe that no physical intervention is necessary, as these activities could severely alter the fragile marsh ecosystem. Rather, we propose a soft approach that relies on maintaining the existing marsh environment and promotes long term monitoring of the site (Thorne 1990). Although no direct intervention is recommended, this should not be construed as benign neglect, but a proactive approach that is based on a firm understanding of the unique environmental conditions and nature of the archaeological remains.

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