

**PHASE I ARCHAEOLOGICAL SURVEY OF
WEEKI WACHEE SPRINGS STATE PARK,
HERNANDO COUNTY, FLORIDA**



Jason M. O'Donoghue and Kenneth E. Sassaman

**Technical Report 18
Laboratory of Southeastern Archaeology
Department of Anthropology
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Cover photo of subsurface testing near the Underwater Mermaid Theater at Weeki Wachee Springs State Park, Hernando County, Florida, March 2013.

MANAGEMENT SUMMARY

The Laboratory of Southeastern Archaeology (LSA) of the Department of Anthropology, University of Florida, conducted a Phase I archaeological survey at Weeki Wachee Springs State Park in March and May 2013 to aid the Florida Division of Recreation and Parks (DRP), Department of Environmental Protection (DEP) as they plan infrastructure rehabilitation and redevelopment in the park. This survey was conducted to identify subsurface cultural resources that could be impacted by redevelopment activities and to evaluate their eligibility for nomination to the National Register of Historic Places (NRHP). An additional goal was to document the depth and extent of recent subsurface disturbance in the APE. This research was conducted under Florida DEP Order #A75928 and 1A-32 permit #1213.023. The survey was performed in accordance with Chapter 267 Florida Statutes and all work including background research, field work, artifact analysis and curation, and preparation of this report conformed to Chapter 1A-46, Florida Administrative Code and the Cultural Resource Management Standards and Operation Manual (FDHR 2002).

Archival research indicated that 12 historic structures and 3 archaeological sites had been previously recorded within or adjacent to the project APE. Eight of the structures have been evaluated as eligible for inclusion on the NRHP by the State Historic Preservation Officer (SHPO). The spring itself is also considered eligible for inclusion on the NRHP. One archaeological site is located within the project APE (8HE12) and two are adjacent to it (8HE490 and 8HE572). Only site 8HE572 has been evaluated by the SHPO. It is not considered eligible for inclusion in the NRHP.

Subsurface testing involved the excavation of shovel tests pits (STPs) at 25-m intervals along transects spaced 25 m apart and selective auger testing. Positive shovel test pits in undisturbed contexts were bounded with additional shovel test pits excavated at 10-m intervals. In total, 188 shovel test pits were excavated, 37 of which contained cultural materials in undisturbed contexts. Subsurface testing located one new archaeological site (8HE703) and 12 archaeological occurrences, and relocated three previously recorded archaeological sites (8HE12, 8HE490, 8HE572) within the project APE. Subsurface disturbance within the APE was found to be extensive, but of variable depth.

The previously recorded Weekiwachee site (8HE12) was relocated. Subsurface disturbance is extensive, but cultural materials were recovered from intact deposits in some locales. The site encompasses the main pool of Weeki Wachee Springs and an earthen burial mound dating to the early sixteenth century A.D. The subsurface condition of the mound was not evaluated due to the likelihood of encountering human remains, but it likely retains intact deposits and additional human remains. The previously recorded U.S. 19/S.R. 50 Intersection site (8HE490) was relocated and its boundary expanded to encompass a portion of the project APE. This is a low-density lithic scatter likely dating to the preceramic Archaic period (ca. 11,500–4500 B.P.). Disturbance within the site boundary is negligible. The previously recorded Weeki Wachee Pond #1 site (8HE572) was relocated and its boundaries expanded to encompass a portion of the project area.

This site is a low-density lithic scatter likely dating to the preceramic Archaic period. Disturbance within the site boundary is minor. The Weeki Wachee Canoe Launch site (8HE703) is a newly recorded site. This site is a low- to moderate-density ceramic and lithic scatter. Pasco plain pottery indicates that the site was occupied sometime between ca. 2500–500 BP. Subsurface disturbance is minor within the site boundary. Finally, 12 Archaeological Occurrences (AOs) were recorded during the survey.

Based on the results of the survey, the LSA considers the Weekiwachee site (8HE12) to be eligible for inclusion on the NRHP under Criterion D. This site has yielded important archaeological information and may continue to do so in the future. The remaining archaeological sites and AOs documented by this survey are considered ineligible for inclusion on the NRHP. However, the boundaries of sites 8HE490, 8HE572, and 8HE703 were partially determined by the boundary of the APE. Additional cultural materials associated with these sites likely exist outside the project APE.

Based on the results of fieldwork we have several recommendations that will aid the DEP in resource management and developing plans for infrastructure rehabilitation and redevelopment. It should be noted that these recommendations apply only to activities taking place within the boundaries of the project APE. In order to minimize the potential adverse impact to documented cultural resources, and to lessen the potential for unanticipated discoveries, we recommend the following: (1) rehabilitation and redevelopment activities should avoid adverse impact to significant historic structures; (2) adverse impacts to the earthen burial mound (8HE12) or the immediate vicinity should be avoided; activities that may impact the mound must be preceded by consultation with the State Archaeologist per Chapter 872, Florida Statutes; (3) activities that will impact near-shore terrestrial or subaqueous deposits in the APE should be monitored by a professional archaeologist; (4) activities taking place within the boundary of site 8HE12, but away from the burial mound and shoreline, can proceed without further intervention; (5) activities taking place within the boundaries of sites 8HE490, 8HE572, and 8HE703 can proceed without further intervention; (6) Activities taking place outside the boundaries of recorded sites will can proceed without further intervention.

ACKNOWLEDGMENTS

Archaeological investigations at Weeki Wachee Springs State Park was conducted under 1A-32 permit #1213.023 issued by the Bureau of Archaeological Research (BAR), Division of Historic Resources, Florida Department of State. We extend our thanks to BAR Senior Archaeologist Julie Byrd for her assistance in navigating the paperwork and advice on technical matters.

This research was facilitated by the capable hands of Triel Lindstrom, Archaeologist with the Florida Department of Environmental Protection, Division of Recreation and Parks, Bureau of Natural and Cultural Resources. We thank Triel for her enthusiasm and unflagging support for the project. Toby Brewer, Park Manager at Weeki Wachee Springs State Park, graciously offered us logistical support in the field and was readily available to lend assistance.

The field crew at Weeki Wachee Springs endured long days of survey, but in an idyllic setting. We are thankful to Randy Crones, Zack Gilmore, Kristen Hall, Micah Monés, and Mark Winburn for their hard and patient work. Administrative staff of the Department of Anthropology, University of Florida ensured smooth operations and responded quickly and cheerfully to last-minute requests and phone calls from the field. We are especially grateful to Office Manager Karen Jones for her fiscal oversight and to Patricia King and Pam Freeman for logistical support.

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CHAPTER 1 INTRODUCTION

The Laboratory of Southeastern Archaeology (LSA) of the Department of Anthropology, University of Florida, conducted a Phase I archaeological survey at Weeki Wachee Springs State Park in the months of March and May 2013 to aid the Division of Recreation and Parks (DRP), Department of Environmental Protection (DEP) as they plan infrastructure rehabilitation and redevelopment in the park. This research was conducted under Florida DEP Order #A75928 and 1A-32 permit #1213.023. The survey was performed in accordance with Chapter 267 Florida Statutes and all work including background research, field work, artifact analysis and curation, and preparation of this report conformed to Chapter 1A-46, Florida Administrative Code and the Cultural Resource Management Standards and Operation Manual (FDHR 2002).

PROJECT DESCRIPTION

Weeki Wachee Springs State Park is a 538-acre park located in western Hernando County. The main entrance to the park is located near the intersection of U.S. Highway 19 and State Road 50. Although specific plans for redevelopment and rehabilitation have not been finalized, the DEP has defined an area of potential effect (APE) that encompasses 25 acres surrounding Weeki Wachee Spring (Figure 1-1). This includes the main visitor area of the park and associated recreational and administrative facilities. Weeki Wachee Spring has been an important tourist destination in Florida since the early twentieth century, and is world renowned for underwater mermaid shows (Vickers and Dionne 2007). The spring has been used as an underwater filming location for dozens of films and television programs. The park features an underwater theater, constructed in 1959-60, Buccaneer Bay Water Park, river boat cruise, nature trails, animal demonstrations, canoeing and kayaking down the Weeki Wachee River, concessions, and gift shops.

The research undertaken at Weeki Wachee Springs is consonant with ongoing research into the archaeology and history of Florida's springs by the LSA. Florida is home to the densest concentration of artesian springs in the world, with nearly 800 recorded in the state. Previous research at springs in the St. Johns River Valley has illuminated a diversity of activities taking place at springs in the past (e.g., O'Donoghue et al. 2011; Sassaman et al. 2011). These places house evidence of votive deposits, domestic refuse, burial mounds, villages, and regional gatherings. Many springs have a long history of use, but the ways that people engaged them varied over space and time. Our knowledge of this variability is enhanced by the research at Weeki Wachee Springs, which expands the regional database of springs that have been archaeologically investigated by the LSA.

Weeki Wachee Springs State Park encompasses several historic and archaeological resources. Archival research indicated that 12 historic structures have been recorded within the project APE, including the Underwater Mermaid Theater, Mermaid Wall, Adagio Statue, and several administrative buildings. Eight of these have been evaluated as eligible for inclusion on the National Register of Historic Places

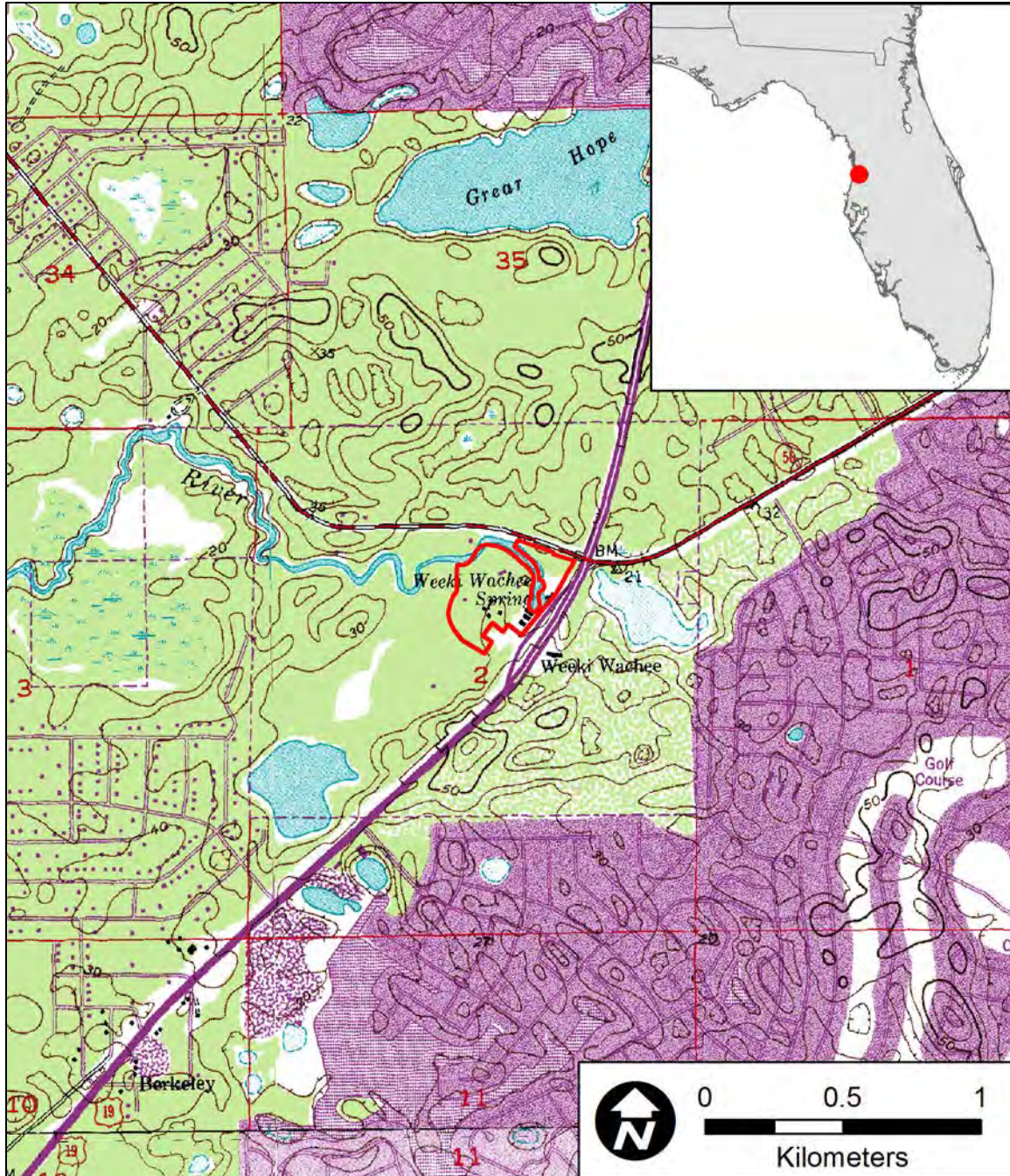


Figure 1-1. Subsection of the USGS 7.5' Weeki Wachee Springs (1954, PR1988) Topographic Quad showing the location of the project area.

(NRHP) by the State Historic Preservation Officer (SHPO). The spring itself is also considered eligible for inclusion on the NRHP. Further, three known archaeological sites are included within, or are adjacent to, the APE—8HE12, 8HE490, and 8HE572. The Weekiwachee site (8HE12) is a multi-component site adjacent to the spring that includes an earthen burial mound and encompasses the main pool of the spring. The mound and associated human remains date to the early sixteenth century A.D. (Mitchem 1989a, 1989b; Mitchem et al. 1985), however lithic artifacts indicate that a preceramic Archaic component is also present (Endonino and Linville 2006). An NRHP determination has not been made for the site, on the basis that there is insufficient information. The U.S. 19/S.R. 50 Intersection site (8HE490) is a low-density lithic scatter that lies to the north of the project APE (Archaeological Consultants, Inc. 2003). An NRHP determination has not been made for this site. Finally, the Weeki Wachee Pond #1 site (8HE572) is a small lithic scatter abutting the southwestern portion of the project area (Endonino and Linville 2006). It is not considered eligible for inclusion in the NRHP by the SHPO. The boundaries of the latter two sites have not been determined and likely extend into the APE of the current project.

Redevelopment activities have the potential to adversely affect archaeological and historical resources. However, many of these resources have been adversely affected by development activities at the park since the mid twentieth century. The Phase I archaeological survey reported here was designed to determine the character and extent of archaeological deposits and the depth of modern, near-surface disturbance in the project APE. The survey entailed archival research and subsurface testing within the project APE. Shovel test pits (STPs) were excavated at 25 m intervals along transects spaced 25 m apart, with deviations made to avoid park infrastructure. Positive shovel tests were bounded with additional shovel test pits spaced 10 m apart, in a cruciform pattern.

In total, 188 shovel test pits were excavated during the course of this survey. All three previously recorded sites were relocated, and the boundaries of two of them (8HE490 and 8HE572) were expanded to encompass a portion of the project APE. One new site—the Weeki Wachee Canoe Launch site (8HE703)—was documented, as were 12 archaeological occurrences (AOs). Subsurface disturbance was found to be extensive, with construction fill present over much of the project area. But, areas that have been only superficially impacted were also documented, and these generally contain cultural materials in undisturbed contexts.

ORGANIZATION OF THE REPORT

The remainder of this report is divided into three sections. Chapter 2 details the environmental, archaeological, and historical contexts of the project area. In Chapter 3 we discuss in detail the methods and results of the Phase I archaeological survey. Finally, in Chapter 4 we summarize the conclusions of the report and make recommendations for managing cultural resources at the park going forward.

CHAPTER 2 ENVIRONMENTAL CONTEXT AND CULTURE HISTORY

This chapter presents background information relevant to the Phase I archaeological survey of Weeki Wachee Springs State Park. The environmental context—including regional physiography and geology, paleoenvironmental reconstructions, and factors affecting spring discharge—are considered first. Following this is a discussion of the archaeological and historical background for the project. This includes a summary of both regional and localized patterns and a discussion of previously recorded sites in the vicinity of the project APE.

ENVIRONMENTAL CONTEXT

Weeki Wachee Springs State Park is a 538-acre state park located in western Hernando County, near the junction of U.S. Highway 19 and State Road 50. The park lies approximately 65 km north of Tampa and 8 km inland from the Gulf of Mexico. The project APE encompasses 25 acres of the State Park, surrounding Weeki Wachee spring. This is the main recreational area of the park, and includes the world famous mermaid shows and underwater theater, Buccaneer Bay Water Park, and other attractions, concessions, and activities. The APE lies within the *Weeki Wachee Dune Fields* physiographic province, which is in turn a part of the *Ocala Uplift* district.

Regional Physiography

The dominant factors in the geomorphology of Florida have been ancient marine forces and karst processes (Schmidt 1997). The Florida platform is broad with relatively little topographic relief. A sequence of Cenozoic carbonate sediments of varying thickness overlies a basement of mixed Mesozoic and Paleozoic formations. Approximately half of the Florida platform lies above sea-level today, although this situation did not always pertain in the past. Over the course of the Cenozoic era the platform has been subject to repeated marine transgressions and regressions, resulting in a broad, low-lying coastal zone in areas that were formerly shallow sea floors and a series of marine terraces and scarps along former coastlines. The interior highlands of Florida were not inundated by the most recent marine transgressions of the Pleistocene, but have instead been sculpted by fluvial erosion and karst processes (Scott 1997).

Karst terrain develops in regions underlain by carbonate rocks (e.g., limestone and dolomite) and is characterized by numerous surface and subsurface solution features—such as sinkholes, caves, springs, sink-rise streams, conduits, and fractures—that impart a distinctive hydrology and topography (Lane 1986). Channeled surface water is generally limited in areas of developed karst as surface water is typically captured by solution features and funneled into subsurface aquifers. The primary geomorphic agent in karst terrains is water, particularly through the chemical weathering of carbonate rocks. This process is driven by precipitation and the movement of groundwater, which in turn is controlled by gradients in hydrostatic pressure and the permeability of bedrock and surrounding sedimentary matrix.

The Floridan Aquifer System (FAS) underlies all of Florida and much of Georgia and South Carolina. This is a thick sequence of highly permeable carbonate rocks that are bounded above and below by less permeable materials, called confining units. It ranges in thickness from less than 200 feet in the panhandle to over 3,400 feet thick in the central and southern peninsula (Miller 1997). The FAS can be divided vertically into an Upper (UFA) and Lower (LFA) aquifer, which are separated by a middle confining (or semi-confining) unit. The UFA is the source of most of the springs in Florida, and is used extensively as a source of potable water (Miller 1997).

Geologists have identified a number of physiographic divisions in Florida (e.g., Cooke 1939; White 1970). The discussion below follows the conventions established by Brooks (1981). WWSSP is located within the *Weeki Wachee Dune Field* physiographic province. This is an area of ancient sand dunes and solution basins with gently sloping uplands and expansive, nearly flat lowlands. The *Weeki Wachee Dune Field* province is part of the *Ocala Uplift* district, a structural high of Paleogene carbonates that are generally covered by a thin layer of siliciclastic sediments. Most of these recent sediments are residual clays and aeolian sands (Brooks 1981; Scott 1997). Elevations in the vicinity of the park range from approximately 3 to 25 m above sea level, increasing to the east in the *Hernando Hammock* and *Masaryktown Slope* provinces. The *Chassahowitzka Coast Strip* lies to the west of the project area. This province is low lying and flat, with elevations generally less than 3 m above sea level. Surficial sediments can be thin, and limestone is frequently exposed at the surface. Hardwood and cypress swamps give way to salt marshes and mangrove swamps near the coast.

The area surrounding WWSSP is typified by four soil series, two of which occur in the project area (FNAI 2010; USDA-SCS 1977). *Paola fine sand, 0 to 8 percent slopes* is by far the most extensive soil in both in and around the project area. This is an excessively drained soil located on the tops and slopes of sandhills. Plant communities in unmanaged areas are typically high pine or scrub and can include sand pine, slash pine, longleaf pine, scrub live oak, scattered turkey oak, and bluejack oak.

The other soil series represented in the project area is *Anclote fine sand*. This soil consists of poorly drained sands in low-lying areas and depressions. The soil has high organic matter content in the upper portion of the profile as a result of the relatively shallow water table, and may be inundated for part of the year. Bottomland forest communities consisting of cypress, bay, cabbage palm, and pond pine are typical. *Anclote fine sand* borders the Weeki Wachee River over much of its course.

Two additional soil types are common in the vicinity of the project area. Both *Basinger fine sand, depressional* and *Myakka fine sand* are associated with isolated surface depressions or drainages in pine flatwoods. *Basinger fine sand, depressional* is a poorly drained soil that is typically inundated for 6 to 9 months out of the year. *Myakka fine sand* frequently surrounds these depressions at a slightly higher elevation. This poorly drained, nearly level soil is not typically inundated, although the water table is near the surface during a portion of the year.

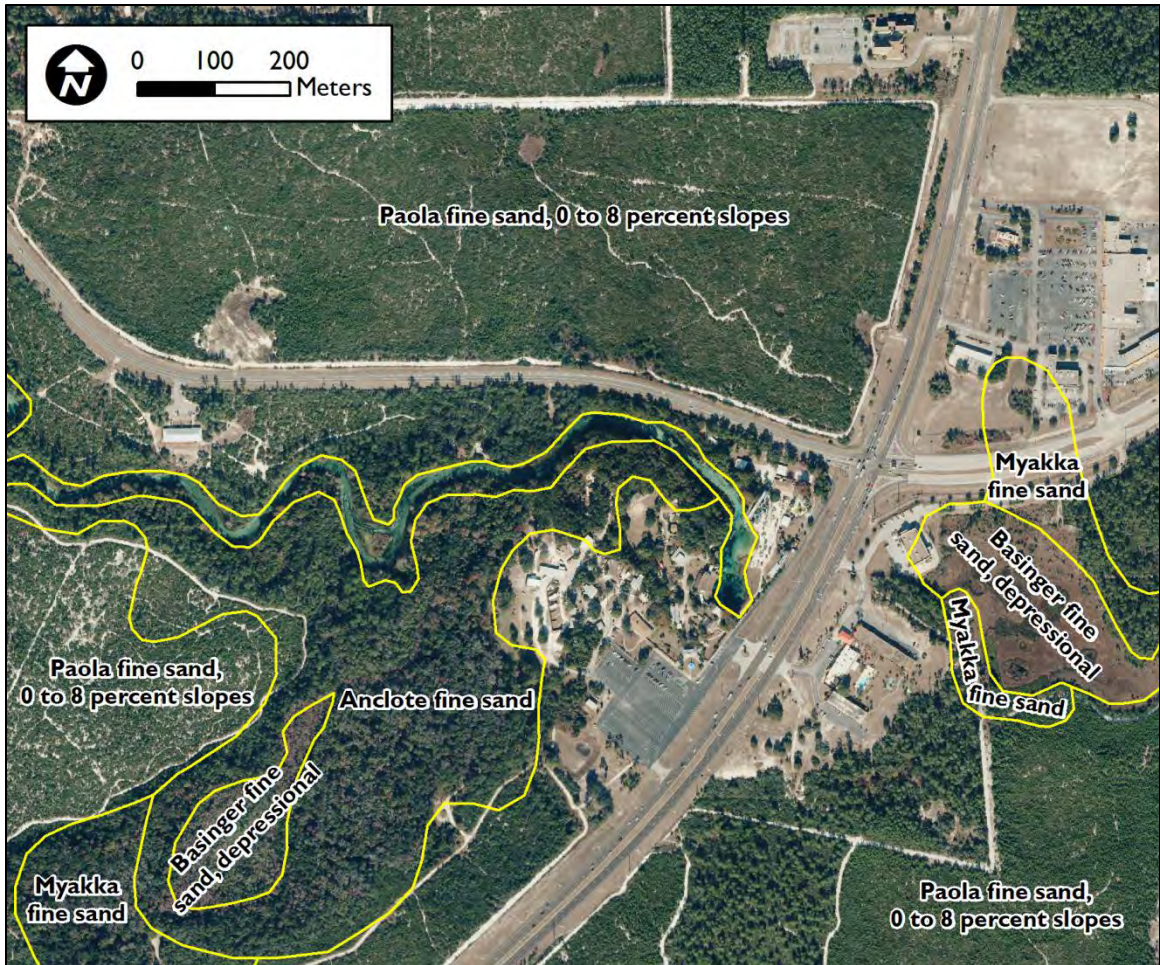


Figure 2-1. Soils in the vicinity of Weeki Wachee Springs.

Post-Pleistocene Environments of Florida

General narratives of post-Pleistocene change in Florida emphasize the gradual inundation of the peninsula as sea level rose and precipitation increased (e.g., Milanich 1994; Miller 1992; Watts and Hansen 1988). This is thought to reflect global- and regional-scale processes, as oceanic currents and atmospheric circulation accommodated the influx of glacial meltwater. At the onset of the Holocene, conditions in Florida were in the midst of a shift from arid and cool with limited surface water to warm and wet with abundant surface water. In the following we review evidence for sea-level rise, increased temperature and precipitation, and greater surface water availability.

Recent sea-level reconstructions in the Gulf of Mexico (e.g., Balsillie and Donoghue 2004; Otvos 2004) and globally (Siddall et al. 2003; Smith et al. 2011) suggest that sea-level was nearly 100 meters lower than present (mbsl) when humans first

occupied Florida ca. 13,000 B.P.¹. At this time, sea-level was rising from a low of about 120 mbsl during the Last Glacial Maximum. The rate of both deglaciation and sea-level rise increased markedly after 13,000 B.P., with sea level reaching 8 mbsl by ca. 8000 B.P. The average sea-level rise over this span was 10 mm per year, though whether this rise was gradual or punctuated is unclear. Donoghue (2011) argues for a punctuated model, and documents several periods of rapid sea-level rise in the Gulf which correspond to pulses of glacial meltwater or to global climate change events. Notably, one such period began at 8700 B.P. when sea-level rose some 10 meters in 500 years (twice the average rate of change). Water levels continued to rise, although less rapidly, until 6000 B.P. when they reached near-modern levels.

The main source of inference about temperature and precipitation are sediment cores extracted from deep Florida lakes (Grimm et al. 1993; Grimm et al. 2006; Watts 1969, 1971, 1975, 1980; Watts et al. 1992). Palynological analysis of Early Holocene sediments indicates (1) that water levels were reduced in the lakes, which in many cases were emergent wetlands rather than open water bodies, and (2) that the upland forest was dominated by oak and grasses, indicating a dry prairie- or savanna-like habitat. Different species of oaks can tolerate a variety of moisture conditions, so alone they are not indicative of a prairie. Rather, it is the combination of oaks and grasses that suggests a prairie and scrub-shrub landscape. Lake cores in Florida indicate that lacustrine sedimentation began between 12,000 and 9000 B.P. in many places (e.g., Donar et al. 2009; Watts 1969), though water levels were likely lower and more seasonal than today.

However, this reconstruction is not uncontested. The pollen assemblage of the early Holocene is similar in many respects to that recorded during dry, cool stadials of the Pleistocene. However, isotopic analysis of leaf waxes used to estimate the relative abundance of C3 and C4 plants in a Lake Tulane core suggests that this scenario may not hold, at least not across the entire peninsula (Huang et al. 2006). Despite the abundance of grass pollen in the core, low $\delta^{13}\text{C}$ values indicate a relative paucity of C4 plants (i.e., most grasses). Further, the grass pollen assemblage has relatively low amounts of herbs, such as *Ambrosia*, that would indicate an oak-grass savanna. An alternative scenario, then, is that the grass pollen is derived from emergent or damp-ground grasses surrounding the lake and thus is over-represented in the core and not reflective of the regional vegetation. The uplands, then, may have contained closed woodlands and not a savannah/prairie.

Following this, the available records indicate a broad transition in Holocene vegetation and (by proxy) temperature and moisture regimes in the Middle Holocene. By approximately 6000 B.P. forest composition changed from oak-dominated to pine-dominated. This is frequently taken as evidence for the establishment of modern climatic conditions in the state and is likely reflective of increases in summer precipitation and temperature at this time, likely driven by a shift in the position of the Intertropical Convergence Zone (ITCZ) and greater El Niño Southern Oscillation (ENSO) activity (Donders et al. 2011; Donders et al. 2005; Kelly and Gore 2008).

¹ All dates discussed below refer to calibrated ages before present (A.D. 1950), unless otherwise noted.

As the above review indicates, many factors were at play in the past environments of Florida. Hemispheric and global processes (e.g., eustatic sea-level rise, atmospheric circulation) combine with localized factors such as topography and soils to affect climate variability and resource structure regionally and locally. Although the broad patterns of post-Pleistocene environmental changes in Florida seem well established, localized and short term variations are less clear.

Factors Affecting Spring Flow

The most notable physiographic feature of the park is Weeki Wachee spring itself. The disposition of the spring is driven by both regional and local geologic and climatic processes. The presence of a spring and the quality and quantity of water flowing from it are dependent on a unique blend of surface and subsurface processes. Like all artesian springs in Florida, Weeki Wachee Spring discharges groundwater from the Floridan Aquifer System (FAS).

The hydrologic cycle of karst aquifers can be conceptually divided into processes of recharge, flow, and discharge. Precipitation is the main source of recharge to karst aquifers. Precipitation may enter the groundwater system through closed basins (sinkholes, lakes, etc.) that recharge the aquifer directly, or by diffuse percolation through overlying soil or sediment, entering the aquifer through fractures and matrix pores of the underlying rock (White 2002). The flow of groundwater in karst aquifers is driven by gradients in pressure and temperature, which are in turn are closely related to recharge and discharge. That is, flow is generally directed away from recharge zones towards points of discharge.

Springs are the primary discharge point for groundwater in karst aquifers (Scott et al. 2004; White 2002). Springs may be subdivided into several types on the basis of size, source of water, or discharge mechanism (White 2002:90). The springs of Florida are generally of two types: seep (or water table), and karst (or artesian) springs. Seep springs occur when water percolating through surficial soils and sediments encounters an impermeable layer. The water moves laterally along this layer until it reaches a point of lowered elevation and emerges at the surface. The water emanating from seep springs in Florida are not derived from the FAS. Karst or artesian springs appear where groundwater emerges at the surface due to pressure. These comprise the bulk of the 700+ identified springs in Florida (Scott et al. 2004:8-9). Two criteria must be satisfied for a karst spring to be present. First, the confining unit overlying the aquifer must be absent or breached so that there is a pathway for the transmission of water from the aquifer to the surface. Second, hydrostatic pressure in the aquifer must be high enough to drive water up and onto to the surface.

The intensity of artesian flow in karst springs is pressure dependent. This pressure fluctuates both temporally and spatially as a result of several factors that vary within and between individual spring basins: precipitation, sea level, topography, soil characteristics, distribution of other karst features, and variations in the physical properties of the aquifer (e.g., permeability; Scott et al. 2004). Current understanding of spring flow dynamics emphasizes precipitation as the main driver of discharge variation (Knowles et al. 2002;

White 2002). However, areas of relatively young karst, such as Florida, tend to have lower amplitude variation in discharge, longer lag time in response to precipitation events, and greater buffering of high frequency/low intensity events, which may not substantially recharge the FAS. Rather, high-intensity storms and seasonal, annual, and decadal precipitation cycles appear to exert greater influence on variation in spring discharge (Florea and Vacher 2006, 2007). In addition, deepwater upwelling can contribute significant amounts of water to spring discharge (Moore et al. 2009). Thus, discharge at springs may include both water that entered the aquifer relatively recently and much older waters, recharged as much as 30,000 years ago (Plummer 1993; Toth and Katz 2006). At longer temporal scales changes in sea level and precipitation implicate fluctuating hydrostatic pressure in the FAS and spring flow.

Weeki Wachee Spring is contained in a conical basin that measures 50 m (165 ft.) east to west and 64 m (210 ft.) north to south. Groundwater issues from a single vent near the center of the pool. The maximum depth of the spring, over the vent, is approximately 14 m (45 feet) (Scott et al 2004:131). The volume and velocity of the water exiting the vent of Weeki Wachee Spring renders exploration of the cavern difficult. However, efforts to map the system are ongoing (Karst Underwater Research, Inc. 2007, 2009). The system proximate to the vent consists of broad tunnels connecting a series of larger open chambers. A large quantity of water flows out of two conduits, one to Weeki Wachee spring and the other to an unknown location.

A second spring, known alternatively as Twin Dees or Little Spring, is located approximately 0.5 miles south of Weeki Wachee. A circular pool measuring 7.5 m (25 ft.) in diameter and 12 m (40 ft.) deep contains discharge from two vents. This is a relatively small spring that occasionally stops flowing. The water is channeled into two small spring runs that eventually merge and debouche into the Weeki Wachee River. An extensive cave system has been mapped at Twin Dees Spring (Karst Underwater Research, Inc. 2009).

Recent Land Alterations (1947–Present)

Like many other springs in Florida, Weeki Wachee Spring has been developed as a tourist attraction and undergone significant land alteration in recent decades. As discussed below, land clearing and construction of the underwater theater began in March 1947 and was opened to the public seven months later. Development and renovation of the attraction continued over the course of the late twentieth century. The original underwater theater was demolished in 1959 and the current theater constructed in 1960. Additional development resulted in the construction of numerous recreational and administrative structures.

These alterations can be seen on aerial photographs of the area taken by the USDA and Florida DOT. Figure 2-2 presents aerial photographs from 1944, 1951, 1973, and 1995. These photographs detail the steady expansion of the Weeki Wachee attraction and associated facilities, indicating that significant subsurface disturbance in the vicinity of the spring is likely. The earliest available aerial photograph is from 1944, prior to the development of the attraction. Both State Road 50 and U.S. Highway 19 are clearly



Figure 2-2. Aerial photographs of Weeki Wachee Springs taken between 1944 and 1995.

visible in this photograph. By 1951 significant land clearing is visible in the vicinity of the spring. This land clearing, the underwater theater, and numerous other structures can also be seen in photographs of the attraction from 1947 and 1948 (Figure 2-3). One feature of note is the small wetland visible on the 1944 aerial between Weeki Wachee Spring and S.R. 50. This wetland was apparently drained and infilled beginning in the 1950s. A small channel leading from the wetland into the Weeki Wachee River is visible on the 1951 aerial, possibly a canal excavated to drain the wetland. The wetland is not visible on the 1973 aerial or on a photograph from 1965 (Figure 2-4). A series of roads or trails are visible in its place. Also apparent in these photographs is the significant alteration of the park during the 1977 renovation. Notable differences in the location and disposition of park infrastructure can be seen when comparing the 1973 and 1995 aerials.

The historic photographs indicate that extensive land alteration took place in the vicinity of Weeki Wachee spring. The area east of the spring was apparently a wetland that was drained and infilled. Additional fill was added in this area in the early 1980s, with the construction of a beach and water slides of the Buccaneer Bay water park. The area west of the spring likely saw significant subsurface disturbance as well. The demolition of the original underwater theater and construction of the current structure in 1959-60 no doubt entailed excavation in the surrounding area (Figure 2-5). The addition of other recreational and administrative facilities and their subsequent renovation likely included subsurface disturbance as well, minimally from the installation of underground utility lines.



Figure 2-3. Aerial photographs of Weeki Wachee Springs ca. 1947 (top) and 1948 (bottom). Modern Photographers, New Port Richie, FL. Photo by Ted Lanberg (from Vickers and Dionne [2007])



Figure 2-4. Aerial photo of Weeki Wachee Springs, January 1965. Courtesy of the State Archives of Florida, *Florida Memory*, (<http://floridamemory.com/items/show/103995>).

ARCHAEOLOGICAL AND HISTORICAL CONTEXTS

Florida has a long history of human occupation, beginning at least 13,000 years ago. Archaeologically, Weeki Wachee Springs State Park is located in an interstitial region with affinities to both the circum-Tampa Bay area and the north peninsular Gulf Coast (as defined by Milanich 1994:xix). The culture history of the region can be broadly divide into five chronological periods: Paleoindian (ca. 13,000–11,500 B.P.); Archaic (ca. 11,500–2500 B.P.); Woodland (ca. 2500–1050 B.P.); Safety Harbor (1050–225 B.P.); and Post-Contact/Historic (450 B.P.–Present). It should be noted that there is an overlap of 225 years in the latter two periods, because sites of the Safety Harbor tradition persisted through the time of European contact. In the following we summarize both regional and state-wide patterns, but with an emphasis on the area surrounding Weeki Wachee Springs State Park.

Paleoindian (ca. 13,000–11,500 B.P.)

When Paleoindian people first migrated into Florida during the Late Pleistocene, they undoubtedly encountered a markedly different landscape than today. As discussed above, Florida was considerably drier during the late Pleistocene and early Holocene. Paleoenvironmental studies indicate that Florida was arid and prairie-like with surface

water limited to perched ponds and deep freshwater springs (e.g., Watts et al. 1996; Watts



Figure 2-5. Construction of the current underwater theater in 1959. Courtesy Florida State Parks (<http://www.floridastateparks.org/history/parkhistory.cfm?parkid=196>).

and Hansen 1988). Further, reduced sea level would have exposed portions of the platform that are now inundated, resulting in a much broader peninsula.

Given the arid climatic conditions that prevailed in Florida at the time, it has been argued that deep sinkholes and springs were some of the few locales where fresh water would have been reliably available (Dunbar 1991; Neill 1964). Though highly nomadic, Paleoindian populations may have been tethered to these places, frequently revisiting them in the course of their subsistence pursuits. These watering holes would also have attracted large game, thus affording people ample hunting opportunities. This model, known as the Oasis Model, has recently been evaluated by Thulman (2009:271), who concluded “reliable water sources were the strongest environmental constraint on the occupation patterns [of Paleoindians].” Thulman argues that the largest lakes and springs are the most likely to have contained water during the late Pleistocene and early Holocene.

Late Pleistocene settlements of peninsular Florida are recognized by the presence of a series of diagnostic hafted bifaces. In general, hafted bifaces are lanceolate-shaped and may be either fluted or unfluted. The earliest of these are generally classified as a variant of Clovis. Other forms include Simpson, Suwannee, and Dalton. The temporal placement of these latter forms is uncertain, but they are generally thought to post-date

Clovis. In addition to these hafted bifaces, the Paleoindian toolkit includes unifacial scrapers, bifacial knives, bola stones, adzes, retouched flake and blade tools, and a variety of items manufactured from ivory and bone (Milanich 1994).

The timing of the human colonization of the Americas is the subject of heated debate amongst specialists. The Clovis tradition, dating to as early as 13,000 B.P., has long been regarded as the earliest manifestation of human presence on the continent. However, there is increasing acceptance that an earlier occupation likely existed. A number of “pre-Clovis” sites have been reported, with tool assemblages unlike those of Clovis occupations and dates older than 13,000 B.P. (Waters and Stafford 2007). Three of these are located in Florida—Page-Ladson, Sloth-Hole, and Wakulla Springs Lodge—and pre-date Clovis by as much as 1500 years (Rink et al. 2012). The newly-defined Page-Ladson point, known from three sites in Florida, has been hypothesized to be a pre-Clovis diagnostic. Although the tool assemblage differs from that at Clovis-aged sites, technological similarities suggest that these may be pre-cursors to Clovis bifaces.

Paleoindian sites near the study area are poorly represented. Five sites containing possible Paleoindian components are recorded in the Florida Master Site File database for Hernando County. However only two of these contain diagnostic artifacts. Site 8HE380 is located along the Withlacoochee River and consists of an isolated proximal fragment of a Suwannee or Simpson point. The Colorado site (8HE241) is a multi-component quarry site located 5 km west of Brooksville. Several Paleoindian diagnostics were recovered from this site, including Suwannee and Simpson preforms.

Archaic (11,500–2500 B.P.)

The beginning of the Archaic period generally coincides with the onset of the Holocene and the gradual amelioration of the environment following the glacial conditions of the late Pleistocene. Regionally, the Archaic is generally divided into Early (11,500–8900 B.P.), Middle (8900–5800 B.P.), and Late (5800–2500 B.P.) subperiods. These divisions are recognized largely on the basis of shifts in technology, settlement patterns, and subsistence regimes, although the precise timing of these vary considerably both throughout the Southeast and within the state of Florida. Broad brush strokes generally paint a picture of increasing population, reduced settlement mobility, and subsistence specialization as communities adapted to near-modern environmental conditions.

The Early Archaic period is recognized by a shift in the form of diagnostic hafted bifaces. Lanceolate forms, characteristic of the Paleoindian period, were no longer manufactured by approximately 11,000 B.P. In their place appear a variety of side- and corner-notched forms, the most common of which are Kirk and Bolen. The remainder of the technological inventory is largely reminiscent of Paleoindian assemblages, although with an increase in the diversity of tool forms.

Early Archaic communities were likely highly mobile and, like Paleoindian communities, may have been tethered to sources of freshwater and toolstone. However, both sea level and precipitation increased over the course of the early Holocene, so the

constraint posed by freshwater availability would have lessened gradually, opening up new areas for exploitation (Donoghue 2011; Milanich 1994:62–63). Early Archaic components are frequently found at Paleoindian sites, but are also found in previously unoccupied locales. Overall, Early Archaic sites are more widely distributed than Paleoindian sites, again attesting to the broadening of settlement opportunities.

Archaeological developments over the interval 10,000–7500 B.P. are poorly understood. In general this interval is thought to continue trends set forth earlier. However, it is marked by the disappearance of notched hafted bifaces and the appearance of stemmed varieties. Kirk stemmed or serrated is perhaps the earliest of these, in use by approximately 9,000 B.P. Following this are a variety of named forms (Levy, Alachua, Putnam, Marion) grouped under the rubric “Florida Archaic Stemmed.”

This period also saw the inception of the pond-burial tradition, best known in Florida from the Windover archaeological site in Brevard County (Doran 2002). Professional investigation over the course of some thirteen years documented (minimally) 168 individuals interred in saturated peat deposits. In addition to well-preserved human remains, researchers recovered organic materials not typically preserved in terrestrial sites, including textiles, botanicals, and wooden and bone artifacts. Radiocarbon assays suggest the site was in use for a few centuries between ca. 9000 and 8000 B.P. Pond mortuaries from this time have been documented at other locations in Florida as well. The slough adjacent to Little Salt Spring is estimated to contain the remains of over 1,000 individuals interred during the Middle Archaic (Clausen et al. 1979). Large mid-Holocene pond mortuaries have also been documented at Republic Groves (Wharton et al. 1981) and Bay West (Beriault et al. 1981), where burials number in the hundreds.

Although settlement and subsistence trends appear continuous with earlier periods, the shift in both hafted biface form and mortuary treatment has led some researchers to suggest that there is a marked cultural discontinuity in Florida at this time. Faught and Waggoner (2012) marshaled evidence from a state-wide database of radiocarbon dates, site distributions, and stratigraphic unconformities to suggest that there was a dearth of settlement in Florida from 10,000–9,000 B.P. Consequently, later inhabitants of the state may not have been descendants, either genetically or culturally, of Paleoindian and Early Archaic communities.

After ca. 7500 B.P. there was an increased focus on aquatic resources, as evidenced by the appearance of shell middens and mounds along the coasts and interior river valleys of the state. This may have been in part enabled by a stabilization of hydrologic regimes, facilitated by increased precipitation and a reduction of the rate of sea-level rise as it approached near-modern levels. However, the precise relationship between environmental and cultural changes at this time has yet to be established, and other explanatory factors may be at play. In addition to shifting settlement and subsistence pattern, changes also occurred in ritual practices and exchange relationships. Mortuary traditions shifted at this time, with interments in mounds of shell and sand appearing by ca. 6500 B.P. Long-distance relationships with denizens of the interior Southeast are indicated by ca. 5600 B.P. This is inferred from the appearance of items

that originated from far-flung locales. These include bannerstones, polished stone beads, and pendants produced of materials not available in the Florida peninsula (e.g., greenstone, steatite, jasper from the interior Piedmont). Thus at this time there was an influx of new materials from both local (shell) and exotic contexts, contact with foreign individuals and places, and a shift from pond burials to terrestrial interment. The interrelationship of these developments in the context of shifting settlement and subsistence practices is as yet unclear, but provides an intriguing avenue for future research.

The Late Archaic period is marked regionally by the establishment of near-modern climatic regimes and sea level. This interval is characterized by long-distance exchange and interaction centered on Poverty Point, in Louisiana (Gibson 2000; Kidder 2010). Pottery appeared by ca. 4500 B.P. in Florida (Sassaman 2004). This pottery, among the earliest in North America, was tempered with Spanish moss fibers and is locally referred to as either Orange, in Eastern Florida, or Norwood in western Florida. The distinctiveness of these series has not been firmly established, and they may in fact be largely indistinguishable. Decorative motifs include geometric patterns of incised lines, as well as simple stamping. The latter of these is apparently restricted to the Gulf coastal region. Though primarily tempered with fiber, pastes frequently include sand and/or sponge spicules in varying amounts.

Despite the addition of pottery, regional syntheses emphasize continuity throughout the course of the Archaic period. Settlement and subsistence patterns are thought to reflect a gradual settling in to the stabilizing climatic regimes of the state. Mobility decreased with an increased focus on the aquatic resources of the coasts and interior rivers and wetlands. However, this picture of gradual adaptation is being overturned by recent research that increasingly recognizes the importance of sociality, interaction, identity, and history to Archaic communities (e.g., Randall et al. 2014; Russo 2004; Sassaman 2010).

Archaic period sites are relatively well-represented in the vicinity of the project area. The Florida Master Site File database for Hernando County indicates that 56 sites dating to the Archaic period have been recorded. This is a substantial increase over the Paleoindian record, but perhaps not surprising given that the Archaic period encompasses approximately 9,000 years.

Woodland (2500–1050 B.P.)

Archaeological sites post-dating ca. 2500 B.P., during what is known regionally as the Woodland period, are much more numerous in Florida. Whether this is due to settlement dispersal, population increase, or the inundation and/or destruction of earlier sites is unclear. It is likely that some combination of these factors is responsible. However, in Hernando County the opposite appears to be true. The Florida Master Site File database indicates that 31 Woodland period sites have been recorded here, a decrease from the Archaic period.

In the Southeast, the Woodland period is generally characterized by an increased

reliance on pottery and horticulture and the appearance of widespread mound construction and ceremonialism (Anderson and Sassaman 2012). However, all of these developments have their roots in the Archaic period. Also at this time there is greater regional differentiation both across the Southeast and within Florida. Fiber-tempered pottery was no longer manufactured by this time, and was replaced by a variety of wares with differing tempering agents and decorative motifs. Along the Gulf Coast of Florida between Cedar Key and Tampa Bay these sites are recognized by the widespread use of undecorated pottery tempered with either sand or crushed limestone. Limestone-tempered pottery is referred to as either the Pasco or Perico series. Both plain limestone-tempered and sand-tempered wares have a wide spatial and temporal breadth, diminishing their utility as diagnostic artifacts. Decorated wares of the Deptford and Swift Creek series are relatively rare here, being more common north of Cedar Key (Milanich 1994:111–154, 2002).

In the circum-Tampa Bay area, the local Woodland culture is referred to as Manasota. This culture was first described by Luer and Almy (1982). It is characterized by an economy of fishing, hunting, and gathering that is primarily focused on the maritime environments of the coast. Most sites are extensive coastal shell middens, although smaller, presumably special-use, sites are found in the interior. Utilitarian ceramics were almost exclusively undecorated and sand tempered. Vessel forms include flattened globular bowls and deeper jars with straight or constricted orifices. Tools manufactured of shell or bone are common, while lithics are relatively rare.

At earlier Manasota sites (2500–1650 B.P.) mortuary practices featured the interment of primary, flexed burials in shell middens or unbounded cemeteries. Burial mounds began to be constructed after 1850 B.P., and include both flexed and, infrequently, extended burials. A shift in mortuary practices is indicated after 1650 B.P., concurrent with the adoption of Weeden Island mortuary ceremonialism. Both primary and secondary burials were placed within the mounds, as was Weeden Island and complicated stamped pottery. Check stamped pottery of the Wakulla and St. Johns series was commonly placed in burial mounds after ca. 1250 B.P.

Luer and Almy (1982) emphasize the marked continuity in Manasota archaeological assemblages, particularly in the area immediately surrounding Tampa Bay. While this may be true it should be noted that the apparent sameness of domestic ceramic assemblages (i.e., plain sand- and limestone-tempered wares) is likely masking variation in other realms. This is compounded by the poor understanding of inland sites, and the erosion or inundation of sites directly on the coast.

Safety Harbor (1050–225 B.P.)

The post-Woodland occupation of the central peninsular Gulf coast of Florida has been termed Safety Harbor (Willey 1949; Mitchem 1989a, 1989b, 2012). Regionally, the Safety Harbor period is contemporaneous with the Mississippian period and the emergence of large, stratified societies in the greater Southeast (Anderson and Sassaman 2012:152-190). Individual societies were widespread at this time, but were not persistent and many political centers went through cycles of emergence, fluorescence, and collapse.

Maize agriculture was widespread in the Southeast, although the degree to which it was practiced in Florida is debated (Ashley and White 2012). Monumental architecture, with numerous mortuary and platform mounds arranged around plazas, hierarchical settlement patterns, stratified social organization, and regional exchange and interaction, perhaps in the context of shared religious ideology, all characterize Mississippian societies in the Southeast.

Safety Harbor sites are found as far north as the mouth of the Withlacoochee River and south to Charlotte Harbor, both along the coast and inland. However, only 12 Safety Harbor sites are recorded in the Florida Master Site File database for Hernando County. Most information comes from burial contexts; relatively little is known about habitation sites. Safety Harbor components typically overlie earlier Manasota sites, with no indication of a break or discontinuity. Subsistence pattern and utilitarian tools and pottery are largely consistent with earlier assemblages. Despite this, the motifs and vessel forms of the decorated pottery found in Safety Harbor burial mounds differs markedly from the Weeden Island pottery of Manasota mounds. There is also some indication of a more elaborate settlement hierarchy, particularly in the vicinity of Tampa Bay.

Mitchem (1989a) synthesized the archaeological evidence of the Safety Harbor culture, and defined four phases and four regional variants. Temporal divisions are based primarily on differences in artifact assemblages. The earliest phase, Englewood (1050–850 B.P.) is distinguished by the presence of Englewood Incised, Sarasota Incised, and Lemon Bay Incised pottery (Mitchem 1989a:557-561). The subsequent Pinellas phase (850–450 B.P.) is marked by the appearance of several new types, including Safety Harbor, Pinellas Incised, Port Washington Incised, and, in the circum-Tampa Bay region, Pinellas Plain (Mitchem 1989a:561-564). Sixteenth and Seventeenth century Spanish artifacts attest to the endurance of the Safety Harbor culture well into the post-contact period. These first appeared at the onset of the Tatham phase (450–383 B.P.). The Bayview phase (383–225 B.P.) is considered the period of Safety Harbor disintegration. Sites dating to this phase feature a different suite of European artifacts, including drawn blue and white glass seed beads, opaque turquoise blue glass beads, and mission-period ceramics from north Florida

In addition to these temporal divisions, the Safety Harbor tradition can also be divided spatially. These regional variants are defined on the basis of differing utilitarian pottery assemblages. In the northern region of Safety Harbor, extending from the Withlacoochee River to southern Pasco County, utilitarian wares were almost exclusively Pasco Plain, with sand-tempered plain and St. Johns check-stamped occurring in minor amounts. The circum-Tampa Bay region is defined by the use of Pinellas plain pottery, the south-central region by sand-tempered plain, and the inland region by Belle Glades and St. Johns wares. However, burial mound ceremonialism united these regions. Decorated wares are rarely found outside of burial mounds, and are consistent across the region. Decorated wares are usually punctated or incised, with motifs markedly different than earlier Weeden Island styles (Mitchem 1989a:564-565).

There is also evidence for settlement pattern variation among these regions. In

general, Mississippian-like nucleated villages with platform mounds, plaza areas, habitations, and burial mounds are found only in the circum-Tampa Bay region. Elsewhere, settlements are dispersed, with burial mounds often isolated and located away from habitation areas.

The degree of interaction with contemporaneous Mississippian communities in the interior Southeast is a debated topic (e.g., Ashley and White 2012). Some vessel forms bear traits similar to Mississippian pottery and there is evidence of settlement hierarchy and stratification in some locales. However, maize agriculture was rare in Florida, and maize itself was not a major food source. The presence of whelk and conch shells at many sites in the interior, however, indicates some level of contact and the possibility that Safety Harbor communities were brokers for these exchange items.

Post-Contact and Historic Era

A series of Spanish expeditions into Florida began when Juan Ponce de León came ashore near Melbourne A.D. 1513, dubbing the peninsula *La Florida*. Subsequent explorations and attempted colonizations led by de Leon, Hernando de Soto, and others failed to establish a permanent foothold, but informed Europeans about Florida and its relationship to the Caribbean, and Central and South America (Tebeau and Marina 1999:16–25).

France began exploring Florida somewhat later, with an excursion led by Jean Ribault in A.D. 1562 (Museum of Florida History 2013:2; Tebeau and Marina 1999:27–30). Ribault entered the St. Johns River near present-day Jacksonville and enjoyed brief, but amicable relationships with native populations. Two years later René Goulaine de Laudonnière returned and established Fort Caroline near the mouth of the St. Johns River. This spurred a response from the Spanish, who in A.D. 1565 dispatched Pedro Menéndez de Avilés to expel the French, capture Fort Caroline, and establish a permanent Spanish settlement. Menéndez and his fleet first sighted Florida's coast on the feast day of Saint Augustine, and thus gave the saint's name to the new settlement (Tebeau and Marina 1999:31). This would become the first permanent European settlement in the present-day United States. Although never more than a garrison town, Saint Augustine remained important as a strategic point to rebuff incursions from Spain's colonial rivals (Gannon 2007:7-8).

Menéndez successfully expelled the French, attacking and killing many. Fort Caroline was captured and renamed San Mateo. Shortly after this Menéndez invited the Franciscan Order in Spain to convert the native populations to Christianity. From A.D. 1567–1705 the Franciscans established mission across northern Florida and up the Atlantic Coast, as far north as Savannah (Hann 1996; Tebeau and Marina 1999:39–48). Missionization efforts peaked in the middle of the seventeenth century, when there were 70 missionaries in 38 churches in northern Florida. Missions in Florida were not as economically exploitative as they would be later, in other areas of the United States (Gannon 2007:12–13). This was largely due to the absence of Spanish settlers at most Florida missions and the lack of close supervision from the Crown. However, native populations in Florida, and the greater Southeast, experienced sharp declines as a result

of contact with Europeans. Many missions were abandoned in the A.D. 1650s after a series of epidemics decimated native populations. However, many persisted until the beginning of the eighteenth century when, from A.D. 1702–06 British raiders destroyed the remaining Spanish missions and enslaved or killed most of the native population.

The British—who established colonies in Jamestown, Virginia in A.D. 1607 and Plymouth, Massachusetts in A.D. 1620—became increasingly aggressive in the eighteenth century (Gannon 2007:16–17). They twice laid siege to St. Augustine in A.D. 1702 and 1740, but failed to capture it. The Spanish were also attacked by French forces moving east from Louisiana, who captured Pensacola in A.D. 1719 (Museum of Florida History 2013:3). Under the terms of the Treaty of Paris, negotiated to end the French and Indian War, Spain ceded control of Florida to the British in A.D. 1763. In exchange the British returned control of Havana to Spain. The British divided La Florida into two colonies, West Florida and East Florida, with capitals in Pensacola and St. Augustine, respectively (Gannon 2007:16–17; Museum of Florida History 2013:3; Tebeau and Marina 1999:65).

Following the expulsion of the Spanish and the destruction of native populations, the period of British control saw diverse populations enter Florida. The British introduced large-scale plantation farming, bringing enslaved Africans with them. Extensive land grants were offered in an attempt to attract white settlers from the north. Meanwhile, Lower Creek Indians, whom the British referred to as Seminoles, also moved into Florida in numbers at this time. British control was short lived. Although both Floridas remained loyal to the British Crown during the War for American Independence, Spain recaptured Pensacola in A.D. 1781 (Gannon 2007:22; Museum of Florida History 2013:4; Tebeau and Marina 1999:79). Full control of Florida was ceded back to Spain under the Second Treaty of Paris that marked the end of the American Revolution.

Florida became a territory of the United States on February 22, 1819, under the Adams–Onís treaty (Tebeau and Marina 1999:105). Andrew Jackson was installed as governor and given the task of occupying and establishing territorial government in Florida. Although the United States had now taken official control of Florida, the First Seminole War would not officially end until late in 1823, with the Treaty of Moultrie Creek. Under this treaty, the United States government granted the Seminoles a 4,000,000-acre reservation stretching from south of Ocala to Charlotte Harbor (Stanaback 1976:11). However, under increasing pressure from settlers moving into Florida from the north, the United States reversed the decision less than ten years later, and decreed that all Seminoles must relinquish their lands and relocate to reservations west of the Mississippi by January 1, 1836. The Seminoles were resistant, and intermittent skirmishes erupted on December 28, 1835, when Major Francis Dade and 108 men were killed in Sumter County. This event marked the onset of the Second Seminole War, a bloody, seven-year affair that resulted in tremendous loss of life. At the close of the war many Seminoles relocated to reservations in Oklahoma, some by choice, others under military escort. Most of the remaining population retreated into the Everglades.

After the close of the Second Seminole War the United States government passed

the Armed Occupation Act in 1842 to encouraged settlers to move into Florida. What is now Hernando County was at the time the southwestern portion of Alachua County (Stanaback 1976:12). The population influx at this time led to the establishment of Hernando County on February 24, 1843. The name would be briefly switched to Benton County in 1844, but this lasted for only six years. The population of Florida continued to swell and on March 3, 1845 Florida was admitted to the Union as the twenty-seventh state. By 1850 the population in Florida was 87,445 (Museum of Florida History 2013:6) while Hernando County included 604 whites and 322 enslaved Africans (Stanaback 1976:18).

Sixteen years later, in 1861, Florida became the third southern state to secede from the Union (Gannon 2007:28; Museum of Florida History 2013:6). As the state was geographically distant from Union control, Florida was spared much of the destruction experience by its Confederate neighbors. However, most of Florida's ports were controlled by Union forces during the war. Florida provided an estimated 14,000–15,000 troops to the Confederate Army, as well as salt, beef, and cotton. Citizens of Hernando County played a prominent role by aiding Confederate blockade runners and moving supplies to the army.

Ultimately, the Confederate Army was defeated. Union troops took control of Tallahassee on May 10, 1865. In the aftermath of the Civil War the federal government emplaced a program of reconstruction in Florida and other southern states. This had multiple effects, notably the reduction of the cotton industry with the loss of slave labor, and the enactment of reforms aimed at improving the opportunities for African Americans. (Gannon 2007:29; Tebeau and Marina 1999:223)

Following the Civil War and Reconstruction came a period of expansion and development in Florida. Agriculture, the notably citrus and cattle-raising industries, continued to expand, and extractive industries were established (e.g., lumber, turpentine, phosphate mining). The tourism industry began to take root in Florida at this time as entrepreneurs began offering scenic tours of Florida's interior rivers on paddle-wheel steamboats. Tourism was bolstered by the construction of railroads, hotels, and resorts by oil tycoon Henry Flagler on the Atlantic coast and railroad magnate Henry Plant around Tampa Bay (Gannon 2007:33–34).

Along with this, developers began eyeing Weeki Wachee Springs as a potential tourist attraction. Although it is not known who the first owners of the spring were, in 1883 the Wilder family purchased the spring and 500 acres surrounding it for \$5,000 (Stanaback 1976:222). At the time, the spring attracted few visitors, save for local swimmers, divers, and boaters (Figure 2-6). The early 1920s saw a population boom in Florida as people came in droves to purchase land in Florida. In 1925 J. M. Rogers of Brooksville and L. L. Buchanan and Frank P. Bentley of Tampa, purchased the spring for \$100,000 with the intent of developing it as a tourist attraction. The crash of 1929 put a halt to those plans. It would be two decades before developers again targeted the spring for substantial investment. However, a cabin and glass bottom boat were installed at the springs by the early 1930s (Figure 2-7).



Figure 2-6. Boat on Weeki Wachee Spring, 1924. Courtesy of the State Archives of Florida, *Florida Memory* (<http://floridamemory.com/items/show/124796>).



Figure 2-7. Glass-bottomed boat and cabin on Weeki Wachee Spring, 1933. Courtesy of the State Archives of Florida, *Florida Memory* (<http://floridamemory.com/items/show/149891>).

Weeki Wachee springs was purchased by the city of St. Petersburg in 1940, with an eye towards using it as a source of freshwater. Plans for a pipeline never materialized, and in 1946 a four-man syndicate, dubbed the St. Petersburg Corporation, sought development rights from the city of St. Petersburg. They ultimately leased the spring and surrounding area for 25 years after agreeing to spend \$300,000 over three years developing the property (Stanaback 1976:230–232). The investors contacted Newt Parry to spearhead the development. Parry was renowned swimmer and self-styled promoter and exhibitionist (Pelland and Pelland 2006; Vickers and Dionne 2007:20–21). He had trained Navy SEALs during World War II, set a world record for free diving, and previously worked promoting the attractions at both Wakulla and Silver springs, where he performed underwater exhibitions. It was Parry's vision to install an underwater theater where swimming and diving exhibitions could be observed. Development began in earnest in March 1947 with land clearing and the construction of the underwater theater. Parry, meanwhile, began auditioning and training underwater performers that would ultimately become the Weeki Wachee mermaids.

The original underwater theater was submerged six feet underwater and held 18 people (Figure 2-8). The park's grand opening took place on October 12, 1947. Although this event was sparsely attended, the attraction quickly gained popularity (Figure 2-9), and by 1957 several million dollars had been spent expanding the facilities to include an orchid garden, beach, jungle cruise, restaurant, gift station, motor court and service station (Stanaback 1976:232).

Weeki Wachee Spring reached the height of its popularity in the late 1950s and 1960s. The American Broadcasting Corporation (ABC) bought the attraction in 1959 (it should be noted that the spring itself and the land surrounding it was still owned by the City of St. Petersburg, the property continued to be leased to the owner of the attraction). ABC invested heavily in the park, removing the original underwater theater constructing a state-of-the-art 500-seat facility in 1959–60. The mermaid wall that surrounds the park and adagio statue were added in 1965. ABC endlessly promoted the park as well, using Hollywood connections bring in celebrities and attract television and movie producers to the spring. In 1966, after ABC petitioned the state, the City of Weeki Wachee was incorporated with a population of mermaids and park staff. This literally put Week Wachee on the map, and on road signs along Interstate 75.

The popularity of the Weeki Wachee attraction began to decline with the emergence of Disney World as Florida's preeminent tourist attraction in 1971. ABC continued to make improvements to the attraction, including a \$3 million renovation in 1977 and the construction of the Buccaneer Bay water park in 1982. However, in 1984 the attraction was sold to Florida Leisure Attractions for \$25 million. This precipitated nearly two decades of mismanagement and infrastructural decay as the park struggled to keep its doors open (Vickers and Dionne 2007:215-230). This was compounded by declines in the water quality of the spring as contaminants and algal blooms proliferated. Florida Leisure Acquisition Corporation bought the attraction in 1989 for \$40 million. They wouldn't hold the park for long, selling it to the Weeki Wachee Springs LLC in 1999. In 2001 the Southwest Florida Water Management District (SWFWMD) purchased



Figure 2-8. The original underwater theater, photographed on November 2, 1947. Courtesy of the State Archives of Florida, Florida Memory, (<http://floridamemory.com/items/show/67635>).

Weeki Wachee Spring and 442 acres surrounding it from the City of St. Petersburg (Florida Division of Recreation and Parks 2011; Vickers and Dionne 2007:254). They then leased the 27 acres encompassing the attraction back to Weeki Wachee Springs LLC to continue operation. However by 2003, under pressure from the SWFWMD to repair failing infrastructure, Weeki Wachee Springs LLC donated the attraction to the City of Weeki Wachee. Over the ensuing five years a blitz of media attention and fundraisers kept the attraction afloat (Vickers and Dionne 2007:249–270). In 2008 the Florida Division of Recreation and Parks (DRP) purchased the attraction and entered into a 50-year lease with SWFWMD to manage the attraction and lands surrounding the spring as a unit of Florida’s state parks system (Florida Division of Recreation and Parks 2011). Weeki Wachee Springs State Park encompasses 538 acres of terrestrial land. In addition, in 2010 the DRP took over management of 32 acres of submerged land—including the Weeki Wachee head spring and upper portion of the Weeki Wachee River—through a lease from the Board of Trustees of the Internal Improvement Trust Fund.



Figure 2-9. View across the spring in 1952. Courtesy of the State Archives of Florida, *Florida Memory* (<http://floridamemory.com/items/show/149889>).

PREVIOUS INVESTIGATIONS

The Florida Master Site File database indicates that 12 archaeological sites have been previously recorded within 3 km of project area, primarily in proximity to the Weeki Wachee River (Figure 2-10, Table 2-1). Most of these are lithic scatters lacking pottery or lithic and ceramic scatter dating to the Woodland period. Several twentieth century refuse deposits are also present. Only three of these have been evaluated by the State Historic preservation Office (SHPO)—8HE30, 8HE31, and 8HE365—and all were found to be ineligible for inclusion on the National Register of Historic Places (NRHP).

Three previously recorded sites lie within or immediately adjacent to the project APE (Figure 2-11). The largest of these is the Weekiwachee site (8HE12), a multi-component site adjacent to the spring that includes a small burial mound. The mound itself was originally investigated in 1969 by Ripley Bullen, after a worker exposed artifacts and human remains during the expansion of an orchid garden. In the following

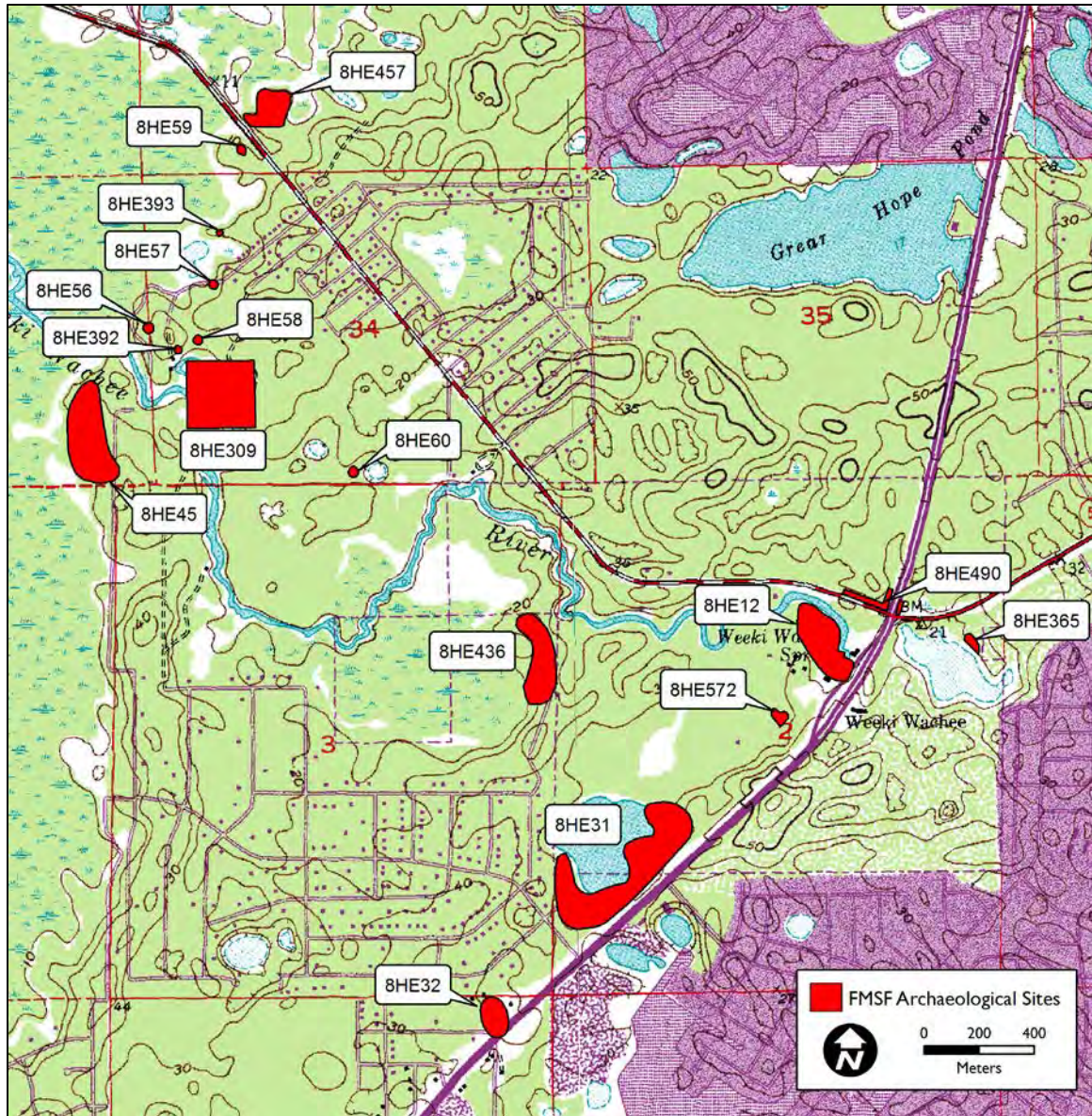


Figure 2-10. Subsection of the USGS 7.5' Weeki Wachee Springs (1954, PR1988) Topographic Quad showing previously recorded archaeological sites within 3 kilometers of Weeki Wachee Springs.

year UF graduate student Robert Allen conducted more extensive testing, resulting in the excavation of over one-third of the mound. Although a report was never produced, Mitchem and colleagues later analyzed the materials and published the results (Mitchem et al. 1985; see also Mitchem 1989a, 1989b). The mound, approximately 14 m in diameter and 1 m high, is located approximately 180 m west of the spring (Mitchem 1989b:324). The mound and associated human remains are associated with the Safety Harbor culture and date to the early sixteenth century A.D. The mound was apparently constructed in two stages (Mitchem et al. 1985:184). The first stage involved the removal

Table 2-1. Previously Recorded Archaeological Sites within 3 km of the Project Area

FMSF No.	Name	Type	Component(s)	SHPO NRHP Evaluation
8HE00012	Weekiwachee	Campsite, Mound, Log Boat, Historic burials	Archaic (8500–1000 B.C.), Prehistoric, Historic	Insufficient Information
8HE00031	Berkeley 1	Midden, Artifact scatter	Weeden Island (A.D. 450–1000)	Ineligible
8HE00032	Berkeley 2	Midden, Artifact scatter	Weeden Island (A.D. 450–1000)	Ineligible
8HE00045	NN	Indeterminate	Indeterminate	Not Evaluated
8HE00056	Lykes 1	Artifact scatter	Weeden Island (A.D. 450–1000)	Not Evaluated
8HE00057	Lykes 2	Artifact scatter	Weeden Island (A.D. 450–1000)	Not Evaluated
8HE00058	Lykes 3	Artifact scatter	Weeden Island (A.D. 450–1000)	Not Evaluated
8HE00059	Lykes 4	Lithic scatter/quarry	Aceramic	Not Evaluated
8HE00060	Lykes 5	Lithic scatter/quarry	Aceramic	Not Evaluated
8HE00309	Military Landing	Homestead, Wharf/Dock/Pier	American Civil War (1861–1865), Twentieth Century	Not Evaluated
8HE00365	Pond A Site	Indeterminate	Aceramic	Ineligible
8HE00392	Weeki Wachee Wall	Historic refuse/dump, Ceramic scatter	Prehistoric, Twentieth Century	Not Evaluated
8HE00393	Winding Waters	Campsite	Prehistoric	Not Evaluated
8HE00436	River Country	Lithic scatter	Archaic (8500–1000 B.C.)	Not Evaluated
8HE00457	Pond Hole	Lithic scatter	Aceramic	Not Evaluated
8HE00490	US 19/SR 50 Intersection	Campsite	Aceramic	Not Evaluated
8HE00572	Weeki Wachee Pond #1	Campsite, Lithic scatter, Historic refuse/dump	Aceramic, Twentieth Century	Ineligible

of top soil and construction of a low (ca. 0.4 m high) platform containing interments. Sometime later, interments were placed atop this platform and another layer of sand, again approximately 0.4 m thick, was added. Interments continued to be added to this layer as it was deposited.

The pottery assemblage from the mound is largely composed of Safety Harbor types: Pasco plain and sand-tempered plain wares account for over two-thirds of the recovered sherds. Minority types include St. Johns plain and check-stamped, Pinellas plain, Point Washington incised, Alachua cob marked, Prairie cord marked, Pinellas incised, Lake Jackson plain, and Safety Harbor incised. Shell artifacts were also abundant at the Weeki Wachee mound. Notable among these is a large assemblage of shell beads ($n = 340$), as well as pendants, gorgets, and *Busycon* shell vessels. Contact with early Spanish explorers is evidenced by the presence of glass, silver, and amber beads.

Allen documented 63 discrete burials, many of which contained more than one individual. Most of the burials were secondary, although flexed burials and cremations were documented as well. Grave goods were largely absent—pottery was typically stratigraphically separated from burials—with the notable exception of beads. In several cases these were found proximate to the neck of an individual, suggesting they may have been strung as necklaces. Skeletal analysis indicated that the population was not reliant on maize agriculture and suffered from pathologies typical of native Southeastern groups (Hutchinson and Mitchem 1996).

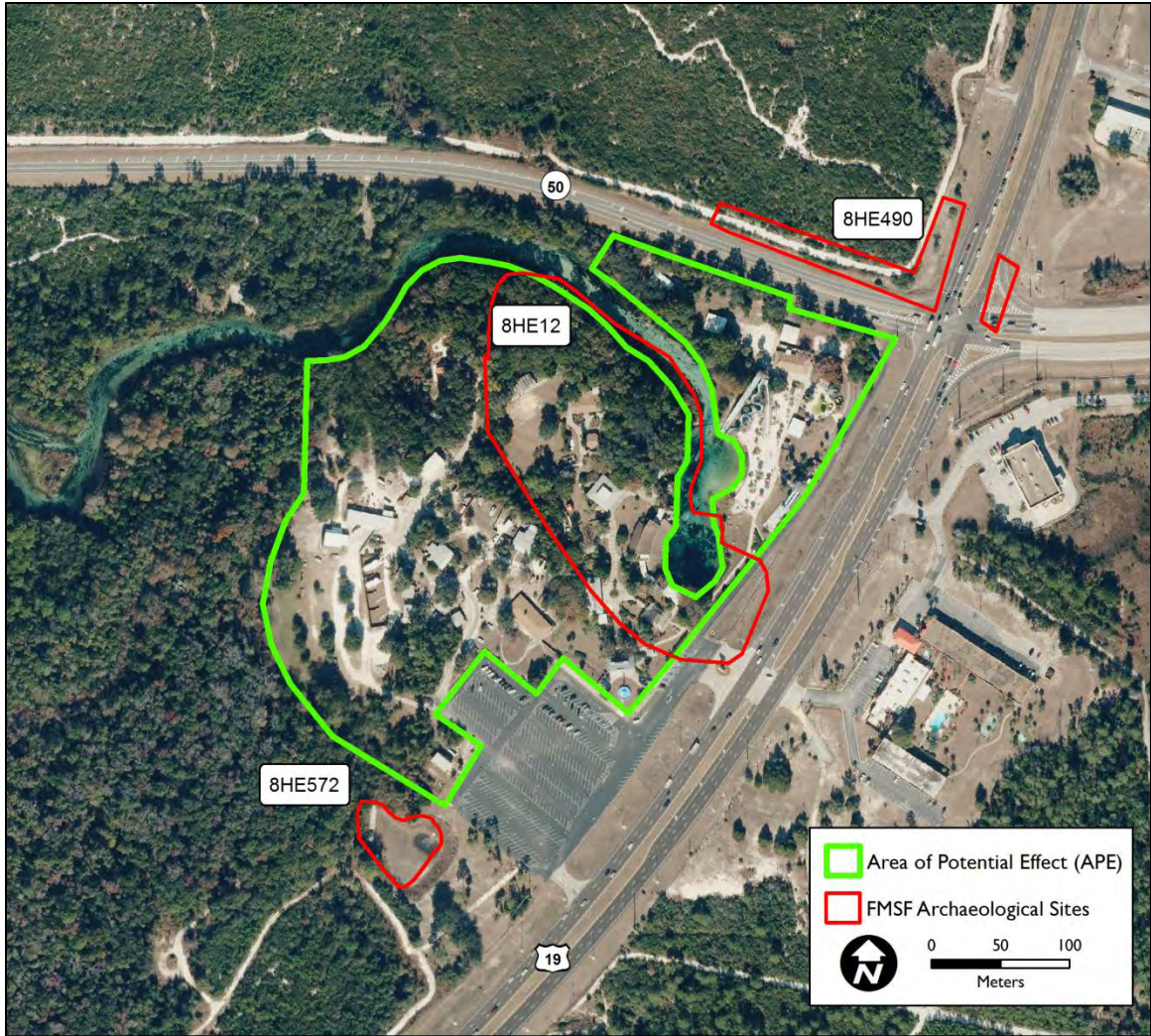


Figure 2-11. Previously recorded sites within or adjacent to the project area.

Although comprehensive survey of the surrounding area was not conducted, Mitchem (1989a:42) concluded that the burial mound is isolated, with no associated village. This is consistent with Safety Harbor settlement patterns north of Tampa Bay (see above). However, the boundary of site 8HE12 recorded in the Florida Master Site Files encompasses an area of approximately 2.5 acres surrounding the mound and extending into and across the spring run. Recent survey along the periphery of the site indicates that a preceramic Archaic component is also present (Endonino and Linville 2006). The justification for this boundary is not clear, although the FMSF site form indicates that several canoes were supposedly found in the spring run. However, this claim could not be substantiated. An NRHP determination has not been made for the site, on the basis that there is insufficient information.

The U.S. 19/S.R. 50 Intersection site (8HE490) lies in the right-of-way in the northwest and northeast quadrants of the intersection, immediately north of Weeki

Wachee Springs State Park (Archaeological Consultants, Inc. 2003). Four of fifteen total shovel tests yielded cultural materials. The assemblage consists of seven pieces of lithic debitage and one flake tool. The site is estimated to measure 200 by 25 m. However, the boundaries of the site must be considered provisional since the survey did not extend beyond the right-of way. Given the proximity of this site to the Park, it is possible, if not likely, that the site extends into the APE of the current project.

The Weeki Wachee Pond #1 site (8HE572) is a small lithic scatter abutting the southwestern portion of the project area (Endonino and Linville 2006). Seven shovel tests were excavated in the area, four of which yielded cultural materials. Five pieces of lithic debitage were recovered, weighing 3.1 grams in total. In addition, modern or historic artifacts were recovered from two shovel tests, in disturbed contexts. These included bottle glass, wire nails, and whiteware and Inca Ware ceramics. As with the U.S. 19/S.R. 50 Intersection site, the boundaries of the Weeki Wachee Pond # 1 site have not been determined and likely extend into the APE of the current project.

Twelve historic structures have been recorded within the project area (Figure 2-12, Table 2-2). Of these, eight have been evaluated as eligible for inclusion on the NRHP. The remaining four have not been evaluated. These are all associated with the development of the Weeki Wachee Springs attraction, and have been evaluated on the basis of their architectural features and/or significance to the history of Florida tourism. In addition, the spring itself is considered eligible for inclusion on the NRHP. An NRHP eligible determination for the spring was made by the SHPO in conjunction with the Undewater Mermaid Theater (8HE391) on October 2, 2003. The spring is considered eligible under Criterion A and the theater under Criterion C. According to documents available from the Florida Master Site File, the spring was not assigned a unique FMSF number, but is considered a part of 8HE391.

Table 2-2. Historic Structures Recorded within the Project Area

FMSF No.	Name	Architect	Year Built	SHPO NRHP Evaluation
8HE00391	Weeki Wachee Spring Mermaid Theater	Collins, Robert E.	1960	Eligible
8HE00649	Employee Cottage #1		1969	Eligible
8HE00650	Employee Cottage #2		1969	Eligible
8HE00651	Employee Cottage #3		1969	Eligible
8HE00652	Employee Cottage #4		1969	Not Evaluated
8HE00653	Manager Cottage #1		1969	Eligible
8HE00654	Manager Cottage #2		1969	Eligible
8HE00655	Utility & Storage Building	Collins, Robert E.	1962	Not Evaluated
8HE00656	Prop Building		c.1962	Not Evaluated
8HE00657	Greenhouse		1960	Not Evaluated
8HE00658	Adagio Statue		c.1965	Eligible
8HE00659	Mermaid Wall	Eley, Gene (Sculptor)	1963	Eligible

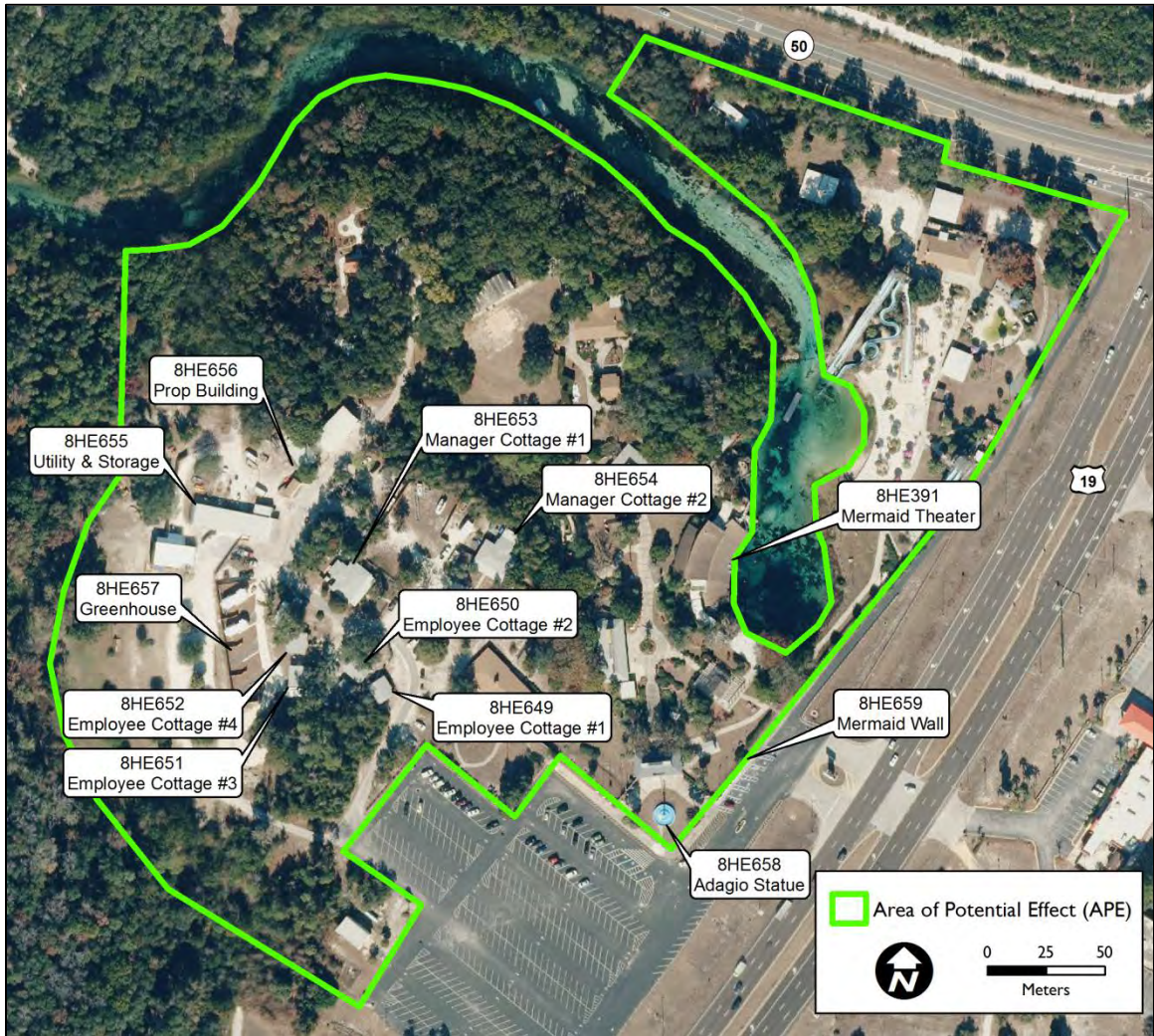


Figure 2-12. Historic structures recorded within the project area.

CHAPTER 3

SURVEY METHODS AND RESULTS

This chapter presents the results of the Phase I archaeological survey within Weeki Wachee Springs State Park. Reconnaissance survey was conducted in advance of infrastructure rehabilitation and redevelopment by the Florida Division of Recreation and Parks, Department of Environmental Protection. The project area of potential effect (APE) encompasses 25 acres surrounding Weeki Wachee Spring and includes associated recreational and administrative facilities. Archival research demonstrated that all or part of three previously recorded archaeological sites are located within or adjacent to the project area—8HE12, 8HE490, and 8HE572. The goal of the reconnaissance survey was to (1) determine character and extent of archeological deposits within the project APE; and (2) document the depth and extent of modern, near-surface disturbance. In the following sections we discuss the methods used in conducting the reconnaissance survey. We then provide a discussion of the results of the survey within the entire project area and detailed discussion of previously and newly recorded archaeological sites.

SURVEY METHODS

The project area was surveyed using standard Phase I reconnaissance protocol for establishing the presence/absence of archaeological remains and depth of disturbance. Given the proximity to a freshwater spring and the presence of previously recorded archaeological resources, the entire project area was deemed to have a high probability of containing cultural resources. Previous survey in the vicinity demonstrated that subsurface disturbance was likely to be extensive, but variable in depth (Endonino and Linville 2006).

Shovel tests pits (STPs) were excavated at 25-m intervals along transects spaced 25 m apart. Shovel test pits were round, 50 cm in diameter, and excavated to a depth of 100 cm below surface (cmbs), unless prevented by environmental conditions. In the event that obstacles (e.g., buildings or infrastructure) prevented excavation of a shovel test pit, attempts were made to relocate the STP within 12.5 m of the prescribed location (i.e., half the distance to adjacent STPs). Excavated matrix was passed through ¼-inch-mesh hardware cloth and cultural materials were placed in bags labeled with provenience information. Each shovel test pit was assigned a unique alpha-numeric ID number that indicates its grid location and documented on a standardized data recording form. Recorded data included the shovel test ID number, description of the stratigraphic profile (including soil/sediment color and texture), the extent of modern fill or disturbance, the depth below surface of intact archaeological deposits, and information about the recovered cultural materials and their general provenience. The location of each shovel test pit was recorded on a paper map and with a Magellan MobileMapper™ CX differential GPS. All shovel test pits were completely backfilled after data recording was completed.

In cases where cultural materials were recovered in significant quantities at 100 cm below surface (i.e., the standard termination depth) attempts were made to excavate the shovel test pit to a greater depth until no longer feasible (~120 cmbs). Alternatively,

in select cases where the depth of disturbance was in excess of 1 m, a 4-inch-diameter bucket auger was used to sample deeper deposits and ascertain the depth of disturbance. Shovel test pits that contained cultural materials in undisturbed contexts were bounded in a cruciform pattern with shovel test pits spaced 10 m apart.

Two areas were excluded from systematic shovel testing. A low-lying wetland abuts the southern bank of the spring run and extends approximately 20 m inland. The water table is near the surface in this area, and thus it was excluded from the shovel test survey. The mound associated with 8HE12 is known to contain near-surface human burials. The mound is currently roped off and marked with a sign. No shovel tests were excavated into, or in the immediate vicinity of, the mound.

RESULTS

Reconnaissance survey within Weeki Wachee Springs State Park was conducted by the Laboratory of Southeastern Archaeology (LSA), Department of Anthropology, University of Florida from March 21–25 and May 14–15, 2013. A total of 144 shovel test pits were excavated in the 25-acre project area during the March fieldwork. Of these, 13 were positive (i.e., contained cultural materials in undisturbed deposits). A further 18 contained cultural materials in disturbed contexts, while 113 shovel test pits did not contain any identifiable cultural material. After the initial survey DEP authorized the excavation of additional shovel test pits for bounding. Only those shovel test pits with cultural materials in undisturbed contexts were bounded. Forty-four shovel test pits were required for bounding. Twenty-four of the bounding shovel test pits were positive, one was positive in a disturbed context, and nineteen were negative. In sum, 188 shovel test pits were excavated in the 25-acre parcel, 37 of which contained cultural materials in undisturbed contexts (Figure 3-1).

Soil profiles were highly variable in the project area (Figure 3-2). Fill sand or modern debris was often found overlying natural soil profiles. In many cases these soil profiles exhibited evidence of truncation (i.e., surface layers removed prior to emplacement of fill). This was particularly true at higher elevations and is consistent with the history of twentieth century land alteration inferred from aerial and historic photographs. Fill was indicated by mottled deposits or near-surface depositional stratification, often coupled with the recovery of modern cultural materials or buried utilities. Indicators of intact deposits varied with landscape position. Intact deposits at higher elevations were generally indicated by a very light grey to white (10YR 7/1–10YR 8/1) medium sandy subsoil, grading to yellowish brown (10YR 5/6) with depth. This is consistent with the *Paola fine sand* soil series mapped in the vicinity (see Chapter 2). At lower elevations, proximate to the spring and river, soil profiles were less likely to be truncated. Instead, fill was typically overlying a dark brown to black (10YR 2/2–10YR 2/1) buried surface horizon consisting of organically enriched, mucky sands and/or peat deposits. This indicates that sand was used to fill low-lying wetlands marginal to the spring in several locales.

Overall, disturbance in the project area was widespread but of variable depth. Of the 188 shovel test pits excavated in the project area 132 (70%) exhibited evidence of

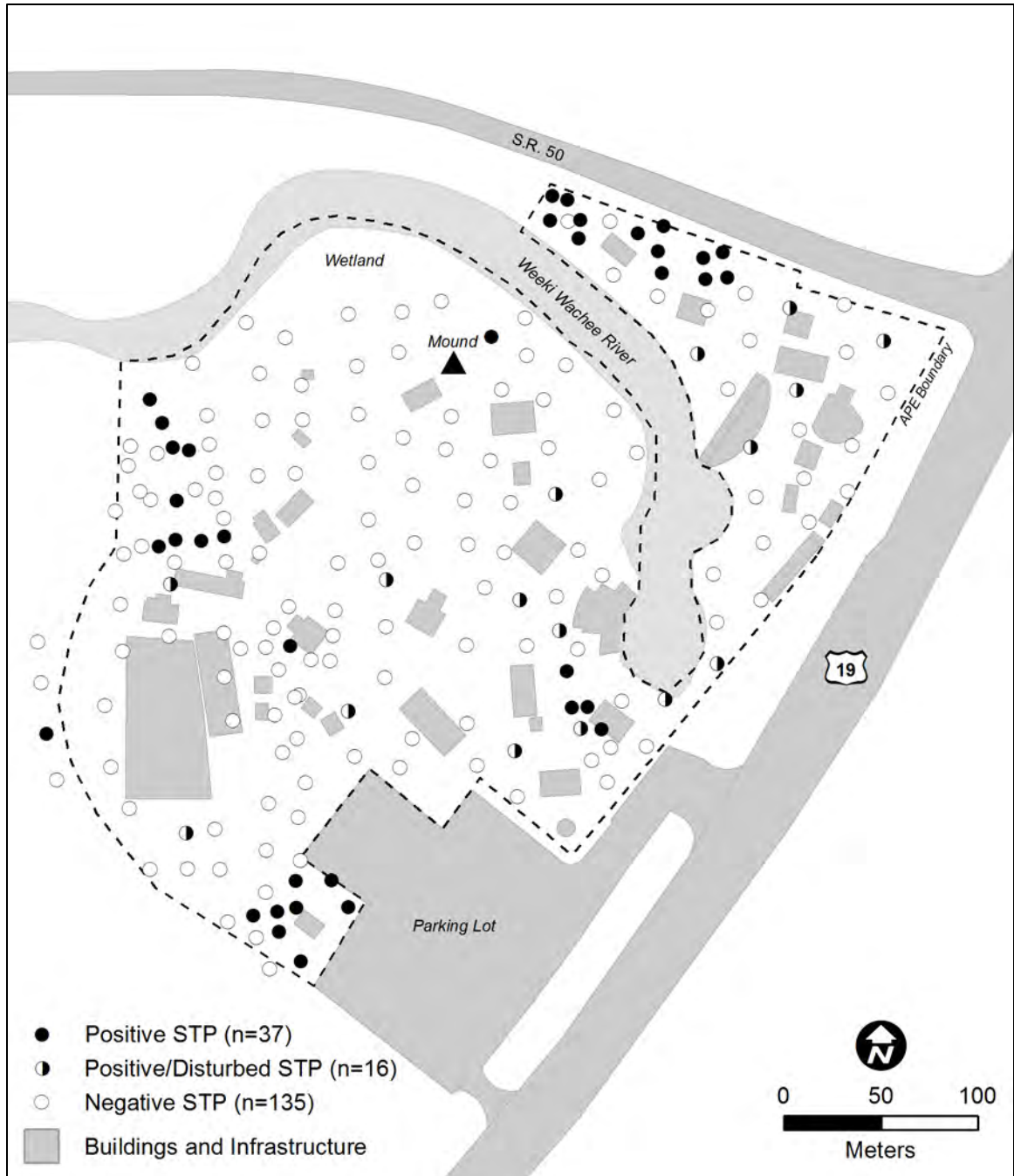


Figure 3-1. Shovel test pit results.

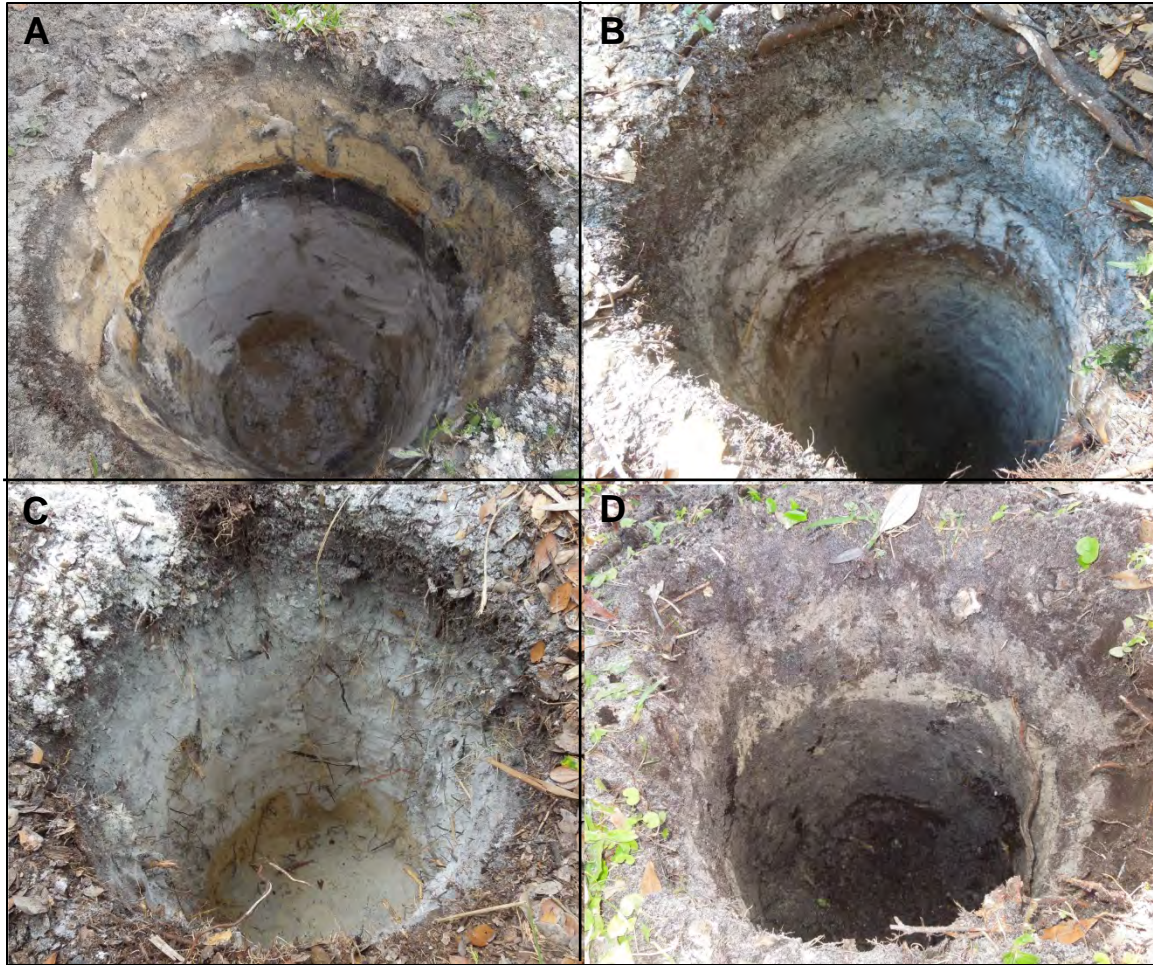


Figure 3-2. Representative shovel test pit profiles. A: STP J3; B: STP S36; C: STP M12; D: STP F2. Note: photos are not to scale and were taken at an oblique angle.

disturbance (Figure 3-3; for purposes of this analysis a shovel test pit with disturbance only in the upper 30 cm is considered intact). Figure 3-4 displays the interpolated depth of disturbance for the project APE, which varies from less than 30 cmbs to well over 100 cmbs. Disturbance was greatest in the vicinity of the spring head, where recreation facilities are concentrated (e.g., Underwater Theater, Buccaneer Bay, Wilderness River Cruise, gift shops, and concessions). The western third of the project area, which primarily contains administrative and maintenance buildings, was less disturbed.

The artifact inventory (Figure 3-5 and Table 3-1) comprises four broad material categories: lithics, pottery, historic artifacts, and vertebrate faunal remains. Lithic debitage and tools are the most frequent material, composing 60.8% of the total (n = 144 out of 237 total). Historic artifacts, primarily metal and glass, were the second most frequent (23.2%; n = 55). This is followed in abundance by pottery (14.3%; n = 34) and vertebrate fauna (1.7%; n = 4). These materials were spread across the project APE, but in undisturbed contexts were concentrated in discrete locales.



Figure 3-3. Distribution of shovel test pits with evidence for disturbance. STPs with disturbance only in the upper 30 cm are considered intact.



Figure 3-4. Interpolated depth of disturbance in the APE.



Figure 3-5. Selected artifacts recovered during the survey: (a) glazed earthenware; (b–c) Pasco plain rim sherds; (d) biface; (e–i) lithic debitage.

Table 3-1. Inventory of Cultural Materials Recovered from STPs (all weights in grams)

Object Class	8HE12		8HE490		8HE572		8HE703		AOs		Total	
	n	wt.	n	wt.	n	wt.	n	wt.	n	wt.	n	wt.
Chert Biface	1	28.1									1	28.1
Chert Debitage	65	78.8	19	18.8	8	10.0	30	27.8	9	26.0	131	161.4
Coral Biface			1	25.1							1	25.1
Coral Debitage			5	1.6	2	4.1	3	5.7	1	0.7	11	12.1
Pasco Plain							32	142.7	1	3.2	33	145.9
Sand-Temp. Plain									1	5.2	1	5.2
Fiestaware									1	11.5	1	11.5
Earthenware					1	171.2					1	171.2
Glass	14	28.1					1	3.8	10	177.6	25	209.5
Hist. Construction	5	16.5							2	8.0	7	24.5
Metal	10	99.2							11	116.2	21	215.4
Vertebrate Fauna	2	8.3							2	0.4	4	8.7
Total	97	259.0	25	45.5	11	185.3	66	180.0	38	348.8	237	1018.6

As a result of this survey the boundaries of two previously recorded sites have been revised (8HE490 and 8HE572) and one new site has been documented (8HE703; Figure 3-6). Cultural materials were also recovered from within the existing boundary of site 8HE12. Additionally, cultural materials were recovered from twelve archaeological occurrences (AO1 through AO12). However, only two of these (AO9 and AO11) exhibited cultural materials in an undisturbed context. The following sections provide a detailed discussion of the survey results for each of these archaeological resources.

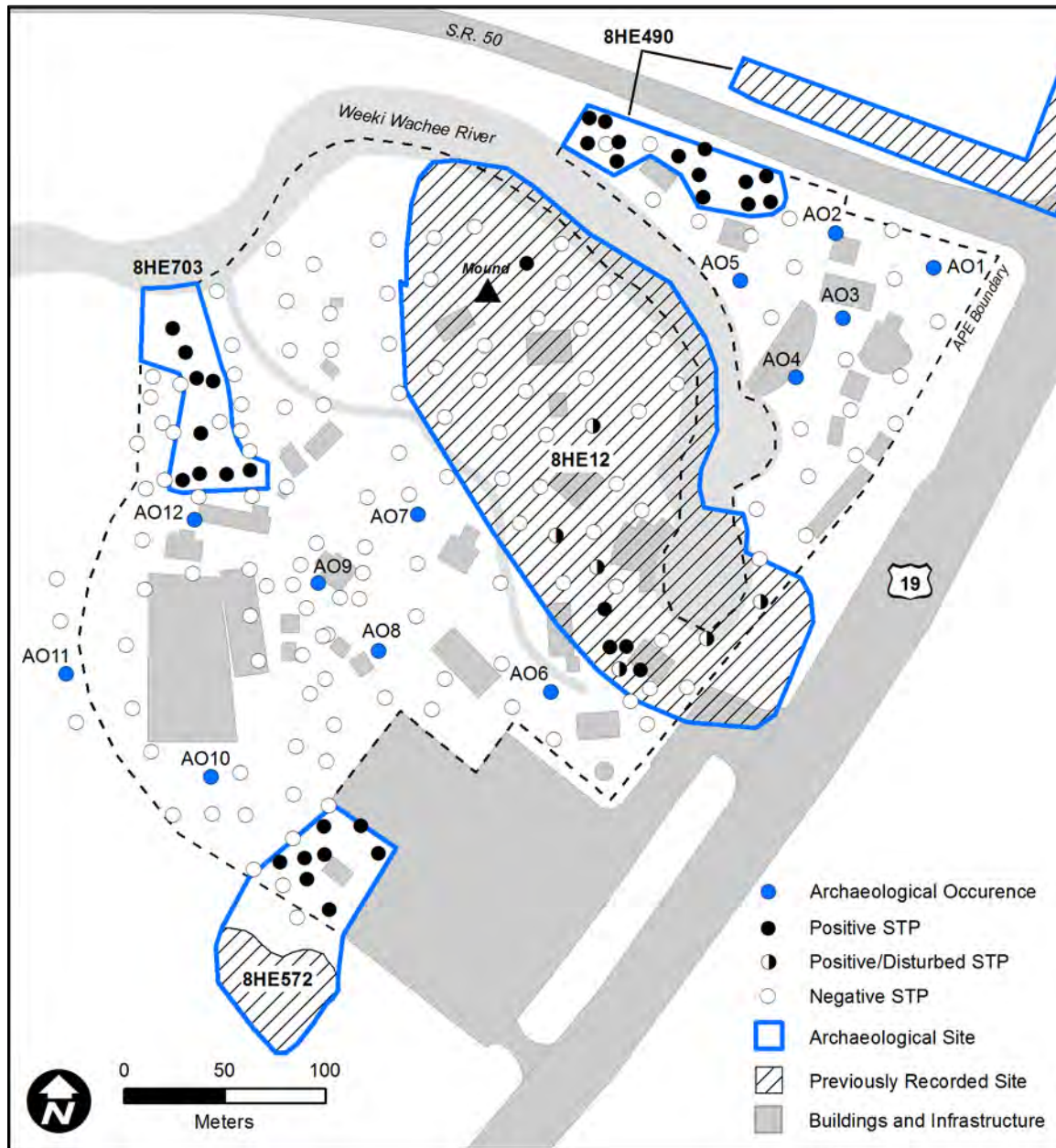


Figure 3-6. Archaeological sites and occurrences recorded during the survey.

The Weekiwachee Site (8HE12)

As noted in Chapter 2, the Weekiwachee site (8HE12) is a previously recorded site adjacent to the spring. The principal feature of the site is a low earthen burial mound that was constructed during the Safety Harbor period (Figure 3-7). Due to the likely presence of additional human remains in the mound, it was given a wide berth during the shovel test survey. The site boundary encompasses an area of approximately 32,650 m² (8.07 acres) surrounding the mound, and extending southeast along the margins of the spring run. This includes the main visitor area of the park (Figure 3-8). A small portion of the site (2,325 m² [0.57 acres]) lies outside the project APE.

Forty-two shovel test pits were excavated within the recorded site boundary (Figure 3-9A). The majority (n = 31) of these were negative, while 11 shovel test pits contained cultural materials. However, only 5 of these 11 shovel test pits contained cultural materials in undisturbed deposits (STPs H9, I2, and S30–32). Twelve shovel test pits excavated immediately outside the site boundaries were negative (n = 11) or positive in disturbed contexts only (n = 1; see AO7, below), so no expansion of the site boundary has been made. The intact artifact assemblage consists exclusively of lithic debitage (n = 49; Table 3-2). Most of this was recovered from three shovel test pits clustered at the southern end of the site, between the gift shop and Underwater Theater (STPs H9, S30, and S32). Shovel test pit H9 contained 40 pieces of chert debitage from 80–130 cmbs. Above this, the shovel test pit was disturbed; both a metal and terra cotta pipe were present, as were historic and modern materials. A bucket auger was used to test at greater depths, from 130–220 cmbs. No additional cultural materials were recovered. Smaller



Figure 3-7. The earthen mound at the Weekiwachee site (8HE12). View is facing north.



Figure 3-8. General view of the Weekiwachee site (8HE12). View facing east from STP J7. The gift shop is on the left, the underwater theater is in the background.

amounts of chert debitage were recovered from STPs S30 and S32. A single piece of chert debitage was recovered from STP I2, at the north end of the site proximate to the burial mound. Surrounding shovel tests were all negative and/or disturbed. Collectively the assemblage contains 17 whole flakes, 8 proximal fragments, 17 medial/distal fragments, and 7 fragments of blocky shatter. None of the specimens exhibits dorsal cortex, suggesting that early stage reduction took place elsewhere. The flakes are generally small (median size grade = 1.5–2.0 cm). Nine of the whole flakes and proximal fragments are flakes of bifacial retouch (FBRs). Seven of the FBRs are thermally altered, along with three medial/distal fragments. The lack of diagnostic artifacts in the assemblage precludes a firm determination of age or cultural association. However, the lack of pottery and prevalence of thermal alteration suggest that the artifacts date to the preceramic Archaic.

The remainder of the artifact assemblage comes from disturbed contexts. It consists primarily of non-diagnostic lithic debitage, tools, and historic/modern materials. Given their recovery from construction fill, the origin of these materials is unknown. The flakes are small (median size grade = 1–1.5 cm). There is a notable lack of Native American pottery in the assemblage, and no evidence of historic structures or deposits.

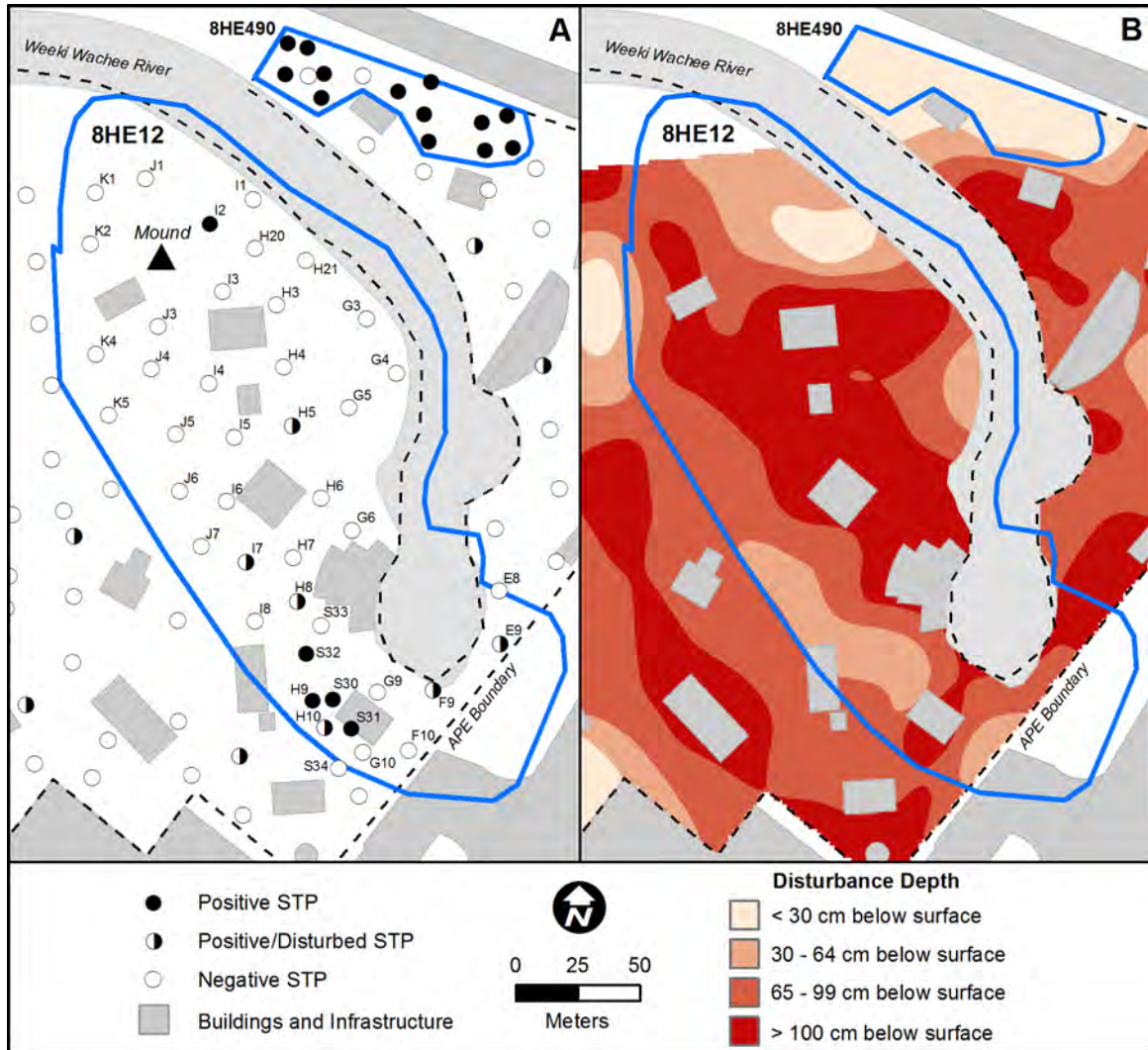


Figure 3-9. Shovel test results (A) and interpolated depth of disturbance (B) for the Weekiwachee site (8HE12).

Overall the site is heavily disturbed (Figure 3-9B). All but one of the shovel test pits excavated within the site boundary exhibited a disturbed profile. Depth of disturbance ranged from 25 to 140 cm below surface (mean = 85.2 cmbs; median = 97.5 cmbs; sd = 31.2 cmbs). Heavy disturbance is not unexpected, given that this area of the park is heavily developed and features numerous buildings, recreation facilities, and associated utility lines and walkways. Disturbance is particularly extensive in the vicinity of the Underwater Theater, where construction fill typically extended more than 100 cm beneath the surface. Presumably this disturbance resulted from the demolition of the original theater and construction of the current one in 1959–60. There has been extensive emplacement of fill elsewhere as well, and in some cases this buried the previously utilized surface. For example, STP J6 had to be terminated when it intercepted a portion of a concrete walkway at 85 cmbs. Forty meters to the southeast, STP I7 was terminated

Table 3-2. Cultural Materials Recovered from the Weekiwachee site (8HE12).

Bag	Shovel Test	Depth cm BS	Chert			Glass			Terra Cotta			Stone			Leaf-Shaped			Vert.			Total		
			Biface	Flake	Shatter	Clear	Amber	Pipe	Tile	Badge	Fauna	n	wt.	n	wt.	n	wt.	n	wt.	n		wt.	
8	F9	25-90		3	0.5		7	9.1	2	6.0						2	8.3	9	98.4	29	122.0		
9	H9	80-130		37	56.4	3	1.6	3	8.1		1	3.2	2	3.8						46	73.1		
10	H5	30-40		1	0.1						1	2.3								2	2.4		
18	H10	30-43		7	14.1															7	14.1		
25	E9	20-30	1	2	0.6															3	28.7		
26	I2	40-50				1	1.8													1	1.8		
27	I7	40-50		1	1.2															1	1.2		
46	H8	10-20									1	7.2								1	7.2		
57	S30	45-80		2	1.5	3	0.5													5	2.0		
69	S31	0-20														1	0.8			1	0.8		
73	S32	80-120		3	0.3															3	0.3		
118	H10	43-70		2	0.2			2	4.9											4	5.1		
Total			1	58	74.9	7	3.9	12	22.1	2	6.0	2	5.5	3	11.0	1	0.8	2	8.3	9	98.4	97	259.0

at 75 cmbs due to the presence of densely packed gravel. This fill is likely associated with major park renovations conducted in 1977. It may have been emplaced to raise the surface elevation or smooth topographic undulations. A small drainage ditch/creek is immediately west of this area, running northwest to the Weeki Wachee River. If this drainage was artificially dredged then the spoil could have been used to fill small depressions, or may simply have been spread next to the channel.

The subsurface condition of the burial mound was not determined during the course of this survey. It is located immediately to the northeast of a concrete amphitheater, and is currently roped off and marked with a plaque. One local informant suggested that the mound was relocated in recent decades and is no longer in its original position. This claim cannot be substantiated since no subsurface testing took place. However, the mound is in the approximate position reported by Mitchem from the original excavation notes (Mitchem et al. 1985; Mitchem 1989a, 1989b). The available evidence indicates that approximately two-thirds of the mound was disturbed and/or excavated in the 1960s and 1970s. In its current configuration it is slightly oblong, measuring 15 x 18 meters in plan with a height of approximately 1 meter. Six shovel test pits were excavated within ~30 m of the mound. These generally exhibit disturbed profiles, only one (STP I2) appeared to be completely intact. There was no evidence for an associated settlement, corroborating Mitchem's conclusion that this was an isolated burial mound.

As of 2006 the SHPO determined that there was insufficient information to evaluate the eligibility of the Weekiwachee site for inclusion on the National Register of Historic Places. The results of the present survey indicate that the majority of the site is extensively disturbed beneath the surface and thus is unlikely to generate additional archaeological knowledge. However, the boundary of site 8HE12 encompasses the main pool and vent of Weeki Wachee spring, which is itself considered eligible for inclusion on the NRHP. Further, although the condition of the burial mound was not assessed during the present survey, it is likely to be at least partially intact. This portion of the site has yielded important archaeological information and may continue to do so in the future. Therefore, we consider this site eligible for inclusion on the NRHP under Criterion D.

The U.S. 19/S.R. 50 Intersection Site (8HE490)

Thirteen shovel test pits excavated in the northern-most portion of the project area yielded cultural materials in intact deposits (Figure 3-10A). The cultural materials were recovered immediately to the south of S.R. 50, directly across from the previously recorded U.S. 19/S.R. 50 Intersection site (8HE490). This site is a low-density lithic scatter in the right-of-way northwest and northeast of the intersection that gives the site its name (see Chapter 2). The site boundaries are unknown. Given their proximity to this site and similarity of the assemblage, the materials recovered here are considered to be an extension of 8HE490. The total site area encompasses approximately 10,057 m² (2.49 acres). The portion of the site within the APE measures approximately 115 m x 30 m, and covers an area of 2,526 m² (0.62 acres).

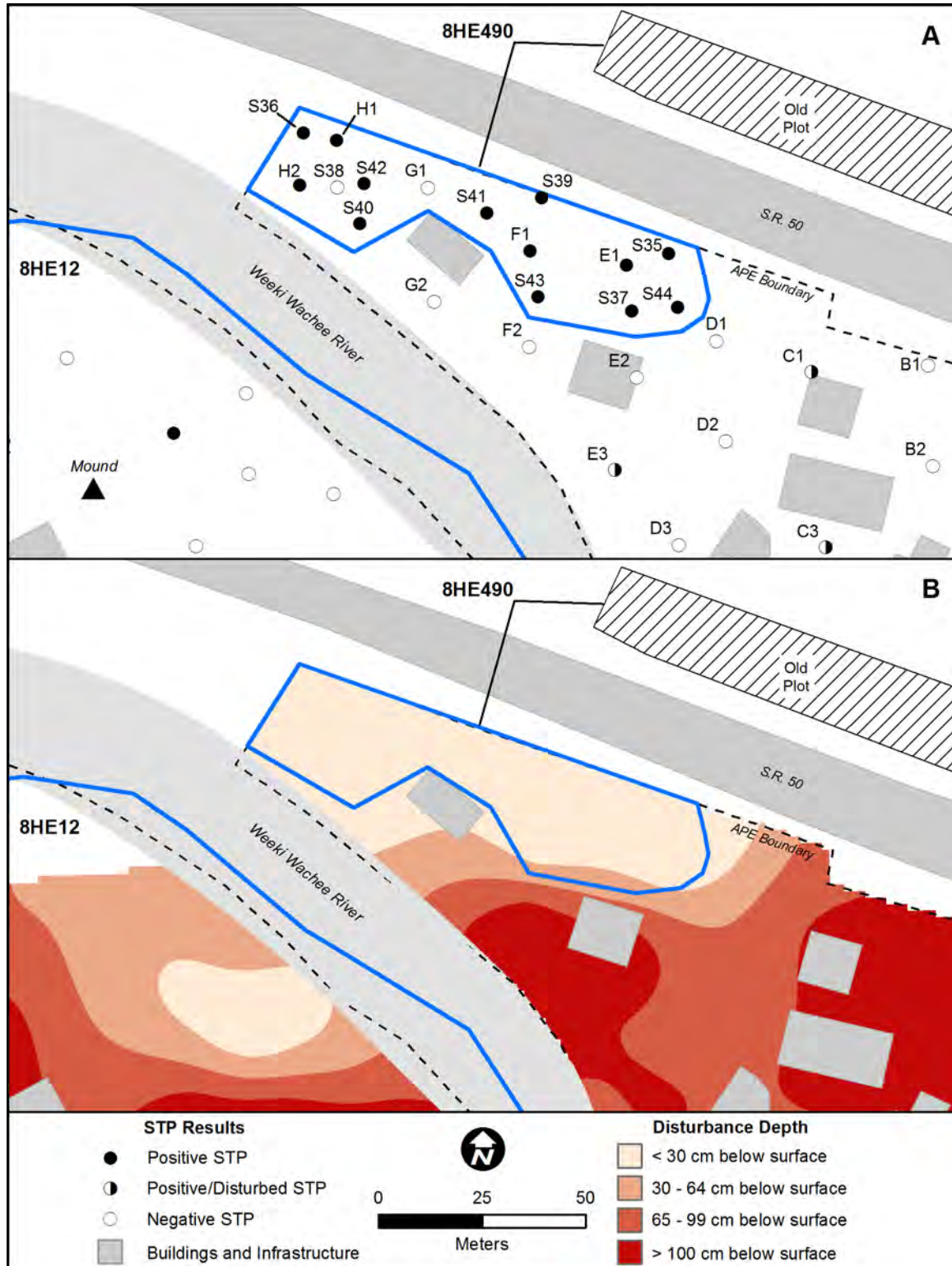


Figure 3-10. Shovel test results (A) and interpolated depth of disturbance (B) for the U.S. 19/S.R. 50 Intersection site (8HE490).

This portion of the site is located on a hill overlooking the Weeki Wachee River. Elevation ranges from approximately 4.5–6.5 m amsl. Shovel tests excavated on the hill generally exhibited intact deposits (Figure 3-10B); within the site boundary the depth of disturbance is less than 20 cm below surface (mean = 3.7 cmbs, median = 0.0 cmbs, sd = 7.4 cmbs). A picnic pavilion is located on top of the hill with a concrete pad that prevented subsurface testing. This pavilion has been excluded from the site. The stratigraphy of the site is typified by the following profile: 0–20 cmbs dark gray medium sand; 20–80 cmbs light gray fine sand; 80–100+ cmbs pale brown fine sand. Elevation is lower to the south and east of the site. Subsurface disturbance is notably more extensive in these areas, ranging from 45 to over 100 cm below surface in seven shovel test pits within 50 m of the site (mean = 80.7 cmbs, median = 100 cmbs, sd = 24.1 cmbs). Elevation drops to the north as well, although this drop is artificial, resulting from the truncation of the hill by S.R. 50. Elevation rises again on the north side of S.R. 50. The site extends to the boundary of the project APE. It is unknown how far west the site continues since we did not test beyond this boundary. This area, between S.R. 50 and the Weeki Wachee River, consists of bottomland forest that is largely undeveloped. There is good potential for intact archaeological deposits here.

The artifact assemblage is comprised of lithic debitage ($n = 24$), both chert and silicified coral, and a single hafted biface of silicified coral (Table 3-3). Seven whole flakes were recovered, five proximal fragments, eight medial/distal fragments, and two fragments of blocky shatter. The flakes are generally small (median size grade = 1.5–2.0 cm) and lacking in dorsal cortex. Four of the whole flakes/proximal fragments represent FBRs; six specimens exhibit evidence of thermal alteration. A single biface fragment, manufactured of thermally altered silicified coral, was also recovered. Approximately half of the basal portion is missing, and appears to have broken along a fracture plane induced by the thermal alteration. The biface is a non-diagnostic triangular preform; its maximum length = 59.9 mm, maximum width = 48.8 mm, and maximum thickness = 10.2 mm. As with the Weekiwachee site (8HE12, above), the lack of diagnostic artifacts precludes a firm determination of antiquity or cultural affiliation, but the absence of pottery and prevalence of thermal alteration suggest a preceramic Archaic origin for the artifacts.

The U.S. 19/S.R. 50 Intersection site (8HE490) has not been evaluated by the SHPO, although the original recorders considered it to be ineligible for inclusion on the NRHP. The results reported have expanded the boundary of this site but have not substantially expanded the artifact assemblage. The lithic assemblage is too small to infer the range of activities occurring at the site, but the location and assemblage characteristics indicate that site 8HE490 is an intact lithic scatter that reflects short-duration activities centered on Weeki Wachee Spring. Because of the low density of artifacts, similarity to other sites in the area, and unlikelihood of producing significant archaeological knowledge, we do not consider site 8HE490 as currently bounded and characterized to be eligible for inclusion on the NRHP. We would reiterate, however, that the site boundaries have not been delineated beyond the APE, so this conclusion must be considered provisional.

Table 3-3. Cultural Materials Recovered from the U.S. 19/S.R. 50 Intersection site (8HE490).

Bag	Shovel Test	Depth cm BS	Silicified Coral						Chert								
			Biface		Flake		Shatter		Flake		Shatter		Total				
			n	wt.	n	wt.	n	wt.	n	wt.	n	wt.	n	wt.	n	wt.	
4	E1	80-110	1	25.1									1	0.1		2	25.2
5	F1	80-100											3	2.2		3	2.2
6	H1	40-50													1	4.1	4.1
7	H2	80-90											1	1.9		1	1.9
58	S35	70-80											1	2.5		1	2.5
59	S37	20-115											3	1.6		3	1.6
60	S39	60-70			1	0.4										1	0.4
61	S41	40-60											2	0.4		2	0.4
62	S43	65-75											1	1.3		1	1.3
70	S36	24-33											1	3.3		1	3.3
71	S40	30-40											2	0.3		2	0.3
72	S42	20-80			3	0.7	1	0.5					3	1.1		7	2.3
Total			1	25.1	4	1.1	1	0.5	18	14.7	1	4.1	25	45.5			

The Weeki Wachee Pond #1 Site (8HE572)

Eight shovel test pits recovered cultural materials from intact deposits in the southwestern portion of the project APE (Figure 3-11A). The cultural materials were recovered immediately adjacent to the previously recorded Weeki Wachee Pond #1 site (8HE572). This site is a low-density lithic scatter in the area of a retention pond abutting the current project APE (see Chapter 2). Given their proximity to this site and similarity of the assemblage, the materials recovered here are considered to be an extension 8HE572. The site measures approximately 115 x 65 m, and covers an area of 5,959 m² (1.47 acres) at an elevation of 4.5–8 m amsl. Just under half of the site area lies within the project APE (2,397 m² [0.59 acres]). The site is bounded to the east by the parking lot of Weeki Wachee Springs State Park. The site boundary to the west and south, outside of

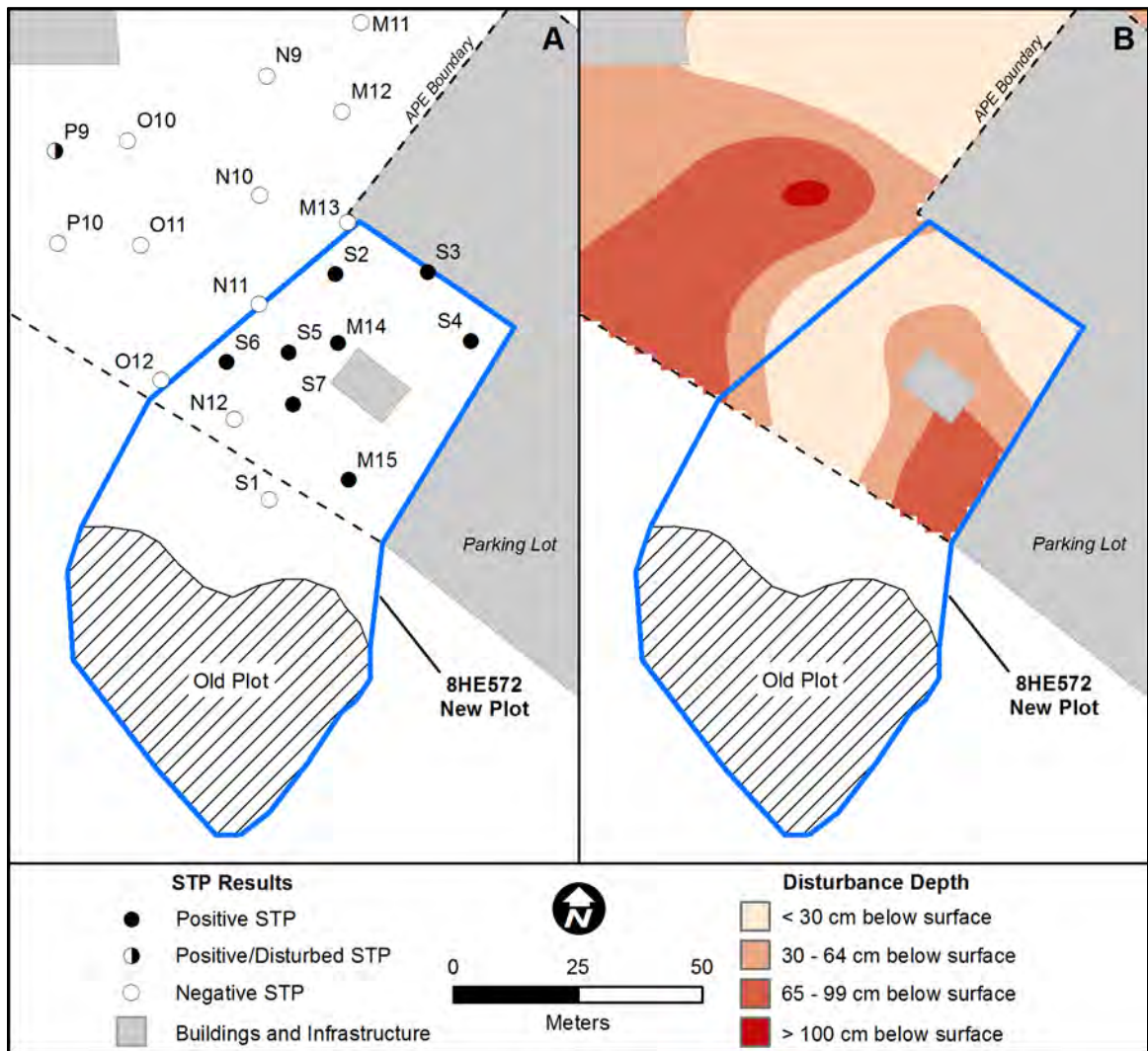


Figure 3-11. Shovel test results (A) and interpolated depth of disturbance (B) for the Weeki Wachee Pond #1 site (8HE572).

the project APE, are unknown. The stratigraphy of the site is typified by the following profile: 0–20 cmbs gray medium sand with abundant fine to medium roots; 20–70 cmbs light gray to white fine sand; 70–100+ cmbs yellowish brown fine sand.

The portion of the site investigated here is moderately disturbed (Figure 3-11B). Depth of disturbance within the site boundaries ranged from 0–80 cmbs (mean = 19 cmbs, median = 5.0 cmbs, sd = 26.3 cmbs). Only two of the ten shovel test pits excavated within the site boundary were excessively disturbed (STPs M14 and M15). These were located on either side of a utility building, indicating that fill has been emplaced in the vicinity of the structure. Eleven shovel test pits excavated within 50 m of the site were all negative and/or disturbed. Depth of disturbance in the immediate vicinity of the site ranged from 0 to 100 cmbs (mean = 44.5 cmbs, median = 55.0 cmbs, sd = 37.3 cmbs).

The artifact assemblage consists of ten pieces of lithic debitage and a basal fragment of a nondiagnostic modern/historic ceramic crock (Table 3-4). The lithic assemblage includes four whole flakes, four proximal fragments, and two medial/distal fragments. Three of the whole flakes and one of the proximal fragments are FBRs. One FBR and one medial/distal fragment were manufactured of thermally altered silicified coral. None of the chert exhibits evidence of thermal alteration. Median flake size is 1.5–2.0 cm.

The SHPO evaluated the Weeki Wachee Pond #1 site (8HE572) on September 5, 2006 and concluded that it was ineligible for inclusion on the National Register of Historic Places. The results reported here have expanded the boundary of this site but have not substantially expanded the artifact assemblage. Because of the low density of artifacts, similarity to other sites in the area, and unlikelihood of producing significant archaeological knowledge, we do not consider site 8HE572 as currently bounded and characterized to be eligible for inclusion on the NRHP and do not recommend a

Table 3-4. Cultural Materials Recovered from the Weeki Wachee Pond #1 Site (8HE572)

Bag	Shovel Test	Depth cm BS	Silicified Coral		Chert		Historic Glazed Earthenware		Total	
			n	wt.	n	wt.	n	wt.	n	wt.
12	M14	90-100			1	0.1			1	0.1
13	M15	90-100			1	1.4			1	1.4
49	S2	70	1	4.0					1	4.0
50	S3	50	1	0.1					1	0.1
51	S4	40-80			3	4.9			3	4.9
52	S5	45					1	171.2	1	171.2
53	S6	40-70			2	3.2			2	3.2
54	S7	40-50			1	0.4			1	0.4
Total			2	4.1	8	10.0	1	171.2	11	185.3

reevaluation of the site by the SHPO. However, we would reiterate that, as with site 8HE490, the site boundaries have not been delineated beyond the APE, so future work may revise this conclusion.

The Weeki Wachee Canoe Launch Site (8HE703)

The Weeki Wachee Canoe Launch site (8HE703) was recorded while surveying the northwestern portion of the project APE, proximate to the Paddling Adventures building and canoe launch (Figure 3-12A). The site is bounded to the north by the project APE boundary and Weeki Wachee River, to the south by maintenance and administrative buildings and extensively disturbed deposits, and to the east by the driveway to the Paddling Adventures canoe launch and a drainage ditch. The site is provisionally

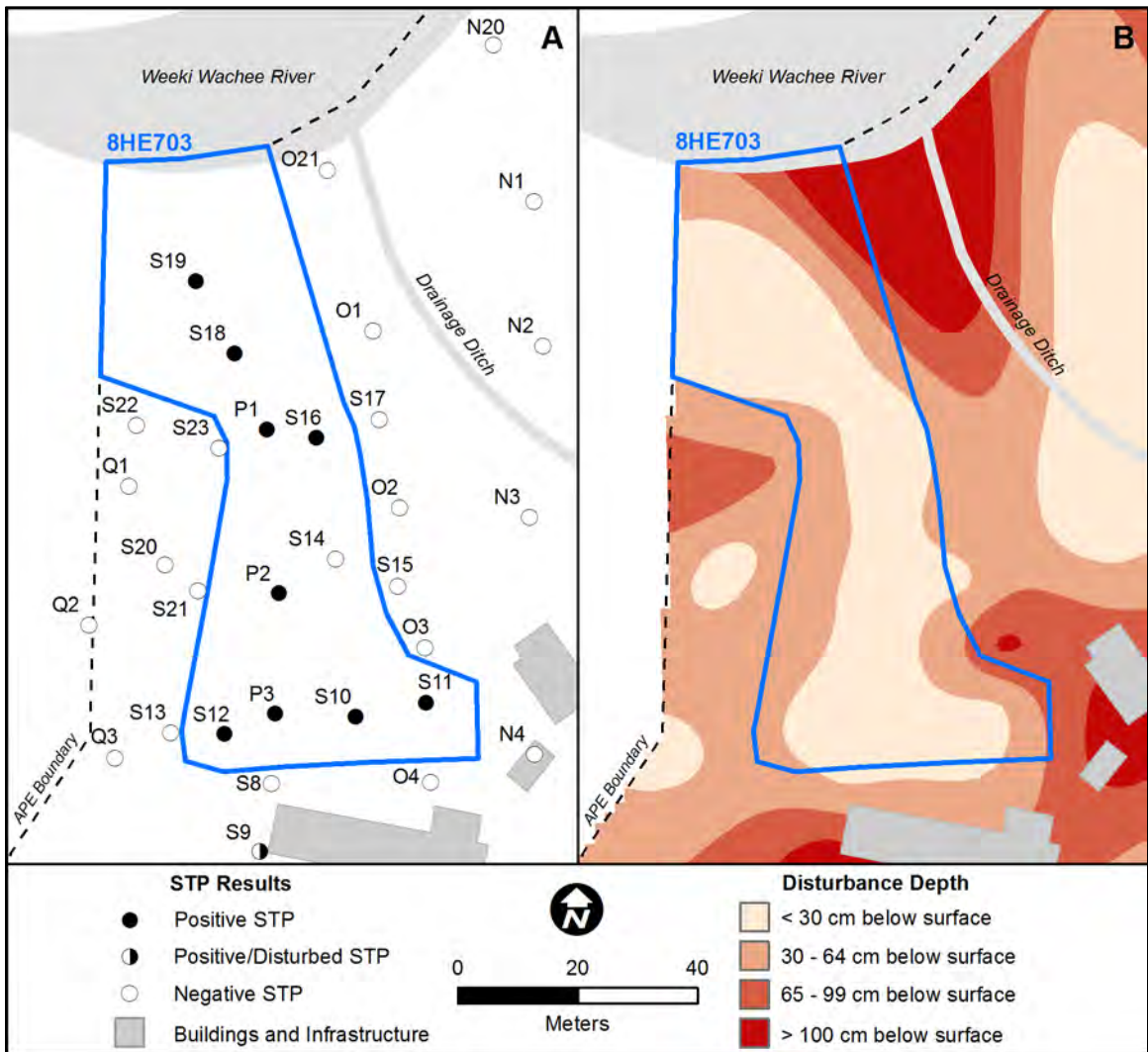


Figure 3-12. Shovel test results (A) and interpolated depth of disturbance (B) for the Weeki Wachee Canoe Launch site (8HE703).

bounded to the west by the APE boundary; it may extend into the bottomland forest west of the project area. As currently mapped, the Weeki Wachee Canoe Launch site has an irregular boundary, but measures approximately 100 x 50 m, covering an area of 3,345 m² (0.83 acres). Elevation ranges from approximately 2.5 m amsl at the northern end of the site, proximate to the river, to 5.5 m amsl at the southern end of the site. At higher elevations (> ~3.5 m amsl) soils are sandy and well-drained; the stratigraphy in these areas is typified by the following profile: 0–20 cmbs dark gray medium sand; 20–50 cmbs gray fine sand; 50–80 cmbs white fine sand; 80–100+ cmbs very pale brown fine sand. At lower elevations the site grades into a bottomland forest bordering the river. Soils here are poorly drained with abundant organic matter. Site stratigraphy here is typified by the following profile: 0–55 cmbs dark brown sandy muck; 55–100+ cmbs grayish brown medium sand.

The site was first encountered in STP P1 with the recovery of a chert flake and shard of clear glass. Subsequent testing in STPs P2 and P3 recovered additional lithic debitage, as well as Pasco Plain pottery. These initial shovel test pits were bounded with additional shovel test pits, seven of which were positive and undisturbed. A further eighteen shovel test pits excavated within 25 m of the site were negative and/or disturbed. Disturbance within the site is shallow (Figure 3-12B). Seven of the ten shovel test pits excavated within the site boundary exhibited evidence of disturbance, but in all cases this disturbance was confined to the upper 30 cm of the profile (mean = 17.0 cmbs, median = 22.5 cmbs, sd = 11.9). Disturbance in the immediate vicinity of the site is more extensive. The depth of disturbance within 25 m of the site ranged from 15 to 190 cmbs (mean = 65.8 cmbs, median = 50 cmbs, sd = 42.1 cmbs).

The artifact assemblage consists almost exclusively of lithic debitage and pottery (Table 3-5). A single piece of clear glass represents the only historic artifact recovered here. The lithic assemblage includes 30 pieces of chert debitage. Thirteen of these are whole flakes, five are proximal fragments, and twelve are medial/distal fragments. Six of these are FBRs. Three pieces of silicified coral debitage were also recovered (one whole flake, one proximal fragment, and one medial/distal fragment). In general, flakes are small and lacking in cortex. Median flake size grade is 1.0–1.5 cm.

Thirty-two fragments of pottery were recovered from this site, representing 94% of the pottery recovered during the survey. In fact, 79% (n = 27) of all pottery recorded during the survey was recovered from a single shovel test pit (STP S19). Several of these sherds refit, and they appear to have originated from a single vessel. Three of these are rim sherds that indicate a relatively small vessel with an orifice diameter of 11 cm. Of the remaining sherds, fifteen are body sherds and nine are crumb sherds (i.e., < 0.5 inches in maximum length). All of the sherds are plain. Additional pottery was found in STPs P3 and S18. These include four Pasco Plain body sherds and one Pasco Plain rim sherd.

The Weeki Wachee Canoe Launch site (8HE703) is a newly recorded site representing a low to moderate density ceramic and lithic scatter. Pasco plain pottery indicates that the site was occupied sometime between ca. 2500–500 BP. As with the sites discussed above, the boundaries of this site are provisional as they are partially

Table 3-5. Cultural Resources Recovered from the Weeki Wachee Canoe Launch Site (8HE703).

Bag	Shovel Test	Depth cm	BS	Silicified Coral		Chert		Pasco Plain Pottery										Total		
				n	wt.	n	wt.	Flake	Body	Rim	Crumb Sherds	Clear Glass	n	wt.	n	wt.	n		wt.	
14	P1	30-40		1	10.0										1	3.8			4	13.8
15	P2	80-110		2	5.1														2	5.1
16	P3	40-50		1	0.1	3	5.7												4	5.8
55	S18	10-90		5	0.8	1	7.8	1	5.8										7	14.4
56	S19	40-70				15	69.7	3	46.1	9	7.6								27	123.4
65	S10	30-65		2	0.7														2	0.7
66	S11	30-95		16	8.8														16	8.8
67	S12	55-70		1	3.5														1	3.5
68	S16	55-70		1	0.2														1	0.2
116	P3	80-90		1	0.6														2	0.8
165	S10	70-80		1	1.9														1	1.9
166	S11	100-110		1	1.6														1	1.6
Total				3	5.7	30	27.8	19	83.2	4	51.9	9	7.6	1	3.8			66	180.0	

defined by the project APE boundary to the north and west. Because of the low density of artifacts, similarity to other sites in the area, and unlikelihood of producing significant archaeological knowledge, we do not consider site 8HE703 as currently bounded and expressed in the project APE to be eligible for inclusion on the NRHP.

Archaeological Occurrences

Twelve archaeological occurrences were recorded during the course of the survey (Figure 3-6; Table 3-6). Ten of these consist of cultural materials found in disturbed contexts that are not within the boundaries of the archaeological sites discussed above. Cultural materials recovered include lithic debitage, sand-tempered plain pottery, vertebrate fauna, and historic glass, ceramic, metal, and construction materials. Since these were recovered from disturbed contexts their original provenance cannot be determined. They may have originated in a location proximate to their recovery, but, given the widespread emplacement of fill, the possibility exists that they originated from outside the project APE. In either case, their recovery from disturbed contexts precludes the expansion of the archaeological site boundaries to encompass these locations. AOs 1–5 were recorded in the northeastern quadrant of the APE, proximate to 8HE490 and the Buccaneer Bay water park. This is also the location of an infilled wetland visible on historic aerial photographs (see Chapter 2). Disturbance was extensive in this area, with fill extending from 70 to over 120 cmbs. AOs 6–8 lie to the west of 8HE12, where disturbance ranged from 80 to over 100 cmbs. AO10, north of 8HE572, was disturbed to a depth of 35 cmbs. However, no cultural materials were recovered from undisturbed contexts. Finally, AO12, located south of 8HE703, was heavily disturbed to a depth of 110 cmbs.

Two of the archaeological occurrences consist of cultural materials recovered from undisturbed contexts. AO9 corresponds to STP M8. This shovel test pit was disturbed to a depth of 90 cmbs, but one fragment of silicified coral blocky shatter and one small Pasco Plain rim sherd were recovered in undisturbed deposits from 100–130 cmbs. Eleven additional shovel tests were excavated within 30 m of STP M8 to bound it. All of these were negative and eight were disturbed in excess of 65 cmbs.

AO11 corresponds to STP R3. This shovel test pit was disturbed to a depth of 30 cmbs. Clear glass, UID metal fragments, and a terra cotta pipe fragment were recovered from this context. A single medial/distal flake fragment manufactured on chert was recovered from intact deposits at a depth of 70-80 cmbs. This shovel test pit was not bounded as it was inadvertently excavated outside the project APE.

DISCUSSION

The Phase I archaeological survey conducted within Weeki Wachee Springs State Park documented one newly recorded archaeological site (8HE703) and 12 archaeological occurrences, and relocated three previously recorded archaeological sites (8HE12, 8HE490, 8HE572) within the project APE. The site boundaries of two previously recorded sites (8HE490 and 8HE572) were expanded to encompass a portion of the project APE. In general, areas that have been minimally impacted by twentieth century land alterations contained cultural materials in intact archaeological deposits.

Table 3-6. Cultural Materials Recovered from Archaeological Occurrences in the Project Area.

AO#	Bag	Shovel Test	Depth cm	Silic. Coral		Chert		Pasco Plain		Sand-Temp.		Fiesta-ware		Glass		Asbestos		Terra		Vert.		Total					
				Shatter	Flake	Flake	Rim	Plain Rim	Plain Rim	ware	Clear	White	Metal	Tile	Cotta Pipe	Fauna	n	wt.	n	wt.	n		wt.	n	wt.		
1	1	A1	0-120										2	0.9	1	2.8	10	74.2			2	0.4	15	78.3			
2	3	C1	40-50		1	1.5							1	2.1								2	3.6				
3	23	C3	40-50					1	5.2													1	5.2				
4	24	D4	0-25		2	13.7						1	11.5									3	25.2				
5	22	E3	70-80																			0	0.0				
6	28	I10	70-80		1	0.1																1	0.1				
7	47	K7	0-70		1	0.1											1	4.4				2	4.5				
8	29	L9	60-70		1	0.1																1	0.1				
9	11	M8	100-130	1	0.7			1	3.2													2	3.9				
10	48	P9	0-20		1	2.3							1	0.1								2	2.4				
11	17	R3	0-30										5	171.7		1	42.0		1	3.6		7	217.3				
11	117	R3	70-80		1	7.2																1	7.2				
12	64	S9	70-80		1	1.0																1	1.0				
Total				1	0.7	9	26.0	1	3.2	1	5.2	1	11.5	9	174.8	1	2.8	11	116.2	1	4.4	1	3.6	2	0.4	38	348.8

Areas outside of the site boundaries are heavily disturbed. The recorded site boundaries are thus not strictly reflective of pre-Columbian and historic activities taking place at Weeki Wachee spring, but are indicative of modern land alteration. With the exception of site 8HE12, the boundaries of all sites within the project area are defined by the boundary of the project APE and the boundary between intact and disturbed deposits. Thus, these sites reflect the remainder of what were once likely more expansive archaeological deposits that have been truncated by land clearing and development, primarily since 1947.

There was a notable lack of historic materials recovered during subsurface testing. We expected to encounter historic resources reflecting the development of the Weeki Wachee Springs attraction. However, the only significant historic resources within the project APE are 12 historic structures, all of which post-date 1960. Subsurface remains from the early development of the attraction (1947–1960) is lacking. We suspect that the major renovation that took place in 1977 involved the removal of much of this earlier material.

CHAPTER 4 CONCLUSIONS AND RECOMMENDATIONS

The Phase I archaeological survey conducted within Weeki Wachee Springs State Park by the LSA consisted of archival research and subsurface testing of the project APE. Archival research indicated that three previously recorded archaeological sites lie within or adjacent to the project APE—the Weekiwachee site (8HE12), the U.S. 19/S.R. 50 Intersection site (8HE490), and the Weeki Wachee Pond #1 site (8HE572). Archival research also indicated that subsurface disturbance was likely to be widespread in the APE, but the depth of disturbance was unknown. Subsurface testing was designed to document the character and extent of archaeological resources in the project APE and determine the depth of modern near-surface disturbance. This chapter summarizes the results of testing within the APE, and provides recommendations for managing cultural resources in the park as DEP develops plans for infrastructure rehabilitation and redevelopment.

SUMMARY OF RESULTS

Subsurface testing of the proposed APE involved the excavation of shovel tests pits (STPs) at 25-m intervals along transects spaced 25 m apart. Positive Shovel test pits in undisturbed contexts were bounded with additional shovel test pits excavate at 10-m intervals. In total, 188 shovel test pits were excavated, 37 of which contained cultural materials in undisturbed contexts.

The Phase I archaeological survey conducted within Weeki Wachee Springs State Park documented one newly recorded archaeological site (8HE703) and 12 archaeological occurrences, and relocated three previously recorded archaeological sites (8HE12, 8HE490, 8HE572) within the project APE. Table 4-1 summarizes these archaeological resources, including their size, depth of cultural materials and disturbance, and our opinion of their significance.

The previously recorded Weekiwachee site (8HE12) was relocated. The site encompasses an area of approximately 32,650 m² (8.07 acres). A small portion of the site (2,325 m² [0.57 acres]) lies outside the project APE. Subsurface testing determined that this site is heavily disturbed. Nevertheless, cultural materials were recovered from intact deposits in some locales. Further, the site encompasses the main pool of Weeki Wachee Springs, which is considered eligible for inclusion on the NRHP, and an earthen burial mound dating to the Safety Harbor period. The subsurface condition of the mound was not evaluated during the course of this survey, due to the likelihood of encountering human remains. The mound has been previously tested by archaeologists, and, although it has been partially impacted by twentieth century land use, it likely retains intact deposits and additional human remains. This portion of the site has yielded important archaeological information and may continue to do so in the future. Therefore, we consider this site eligible for inclusion on the NRHP under Criterion D.

The previously recorded U.S. 19/S.R. 50 Intersection site (8HE490) was relocated and its boundary expanded to encompass a portion of the project APE. This is a low-

Table 4-1. Archaeological Resources Recorded in the Project APE

Site No.	Name	Area (m ²)	Depth of Cultural Materials (cmbs)	Median Depth of Disturbance (cmbs)	NRHP Opinion	SHPO NRHP Evaluation
8HE00012	Weekiwachee	32,650	0–130	97.5	Eligible	Insufficient Information
8HE00490	US 19/SR 50 Intersection	10,057	20–115	0.0	Ineligible	Not Evaluated
8HE00572	Weeki Wachee Pond #1	5,959	40–100	5.0	Ineligible	Ineligible
8HE00703	Weeki Wachee Canoe Launch	3,345	30–110	22.5	Ineligible	Not Evaluated
AO1	N/A	1	0–120	120.0	Ineligible	N/A
AO2	N/A	1	40–50	100.0	Ineligible	N/A
AO3	N/A	1	40–50	105.0	Ineligible	N/A
AO4	N/A	1	0–25	70.0	Ineligible	N/A
AO5	N/A	1	70–80	100.0	Ineligible	N/A
AO6	N/A	1	70–80	80.0	Ineligible	N/A
AO7	N/A	1	0–70	100.0	Ineligible	N/A
AO8	N/A	1	60–70	80.0	Ineligible	N/A
AO9	N/A	1	100–130	90.0	Ineligible	N/A
AO10	N/A	1	0–20	35.0	Ineligible	N/A
AO11	N/A	1	0–80	30.0	Ineligible	N/A
AO12	N/A	1	70–80	110.0	Ineligible	N/A

density lithic scatter likely dating to the preceramic Archaic period (ca. 9500–4500 B.C.). Disturbance within the site boundary is negligible, but the surrounding area is heavily disturbed. The site covers an area of approximately 10,057 m² (2.49 acres). The portion of the site within the APE measures approximately 115 x 30 m, and covers an area of 2,526 m² (0.62 acres). Because of the low density of artifacts, similarity to other sites in the area, and unlikelihood of producing significant archaeological knowledge, we do not consider site 8HE490 as currently bounded and characterized to be eligible for inclusion on the NRHP. However, it should be noted that the site extends beyond the project APE, and site boundaries have not delineated. Nevertheless, no significant archaeological resources are present in the portion of the site encompassed by the project APE.

The previously recorded Weeki Wachee Pond #1 site (8HE572) was relocated and its boundaries expanded to encompass a portion of the project area. This site is a low-density lithic scatter likely dating to the preceramic Archaic period (ca. 9500–4500 B.C.). The site covers an area of 5,959 m² (1.47 acres) at an elevation of 4.5–8 m amsl. Just under half of the site area lies within the project APE (2,397 m² [0.59 acres]). Disturbance within the site boundary is minor, but the surrounding area is heavily disturbed. Because of the low density of artifacts, similarity to other sites in the area, and unlikelihood of producing significant archaeological knowledge, we do not consider site 8HE572 as currently bounded and characterized to be eligible for inclusion on the NRHP. However, as with site 8HE490 (see above), it should be noted that the site extends beyond the project APE, and site boundaries have not been delineated. However, no significant archaeological resources are present within the project APE.

The Weeki Wachee Canoe Launch site is a newly recorded site. This site, which covers approximately 3,345 m² (0.83 acres), is a low to moderate density ceramic and lithic scatter. Pasco plain pottery indicates that the site was occupied sometime between ca. 2500–500 BP. As with the sites discussed above, the boundaries of this site are provisional as they are partially defined by the project APE boundary to the north and west. Because of the low density of artifacts, similarity to other sites in the area, and unlikelihood of producing significant archaeological knowledge, we do not consider site 8HE703 as currently bounded and expressed to be eligible for inclusion on the NRHP.

Twelve Archaeological Occurrences (AOs) were recorded during the survey. All but two consist of cultural materials recovered from disturbed deposits. Two AOs were recovered from intact deposits. AO9 consists of one fragment of silicified coral blocky shatter and one small Pasco Plain rim sherd recovered from intact deposits at 100–130 cmbs. Eleven additional shovel tests were excavated within 30 m of AO9 to determine if additional cultural materials were present in the immediate vicinity. All of these were negative and several were excessively disturbed. AO11 consists of clear glass, UID metal fragments, and a terra cotta pipe fragment recovered from disturbed contexts at 0–30 cmbs and a single fragment of chert debitage recovered from intact deposits at a depth of 70–80 cmbs. This archaeological occurrence was not bounded as it was inadvertently excavated outside the project APE. All of the AOs are considered ineligible for inclusion on the NRHP.

RECOMMENDATIONS

Based on the results of fieldwork we have several recommendations that will aid the DEP in resource management and developing plans for infrastructure rehabilitation and redevelopment. Unless otherwise noted, these recommendations apply only to work taking place within the boundaries of the project APE.

1. The APE encompasses 12 historic structures. Although the status of these was not evaluated during this survey, it was noted that one had been destroyed (Greenhouse [8HE657]). Eight structures are considered NRHP eligible by the SHPO. Several are iconic structures in the history of Weeki Wachee spring, such as the Underwater Mermaid Theater, Addagio Statue, and Mermaid Wall. Plans for rehabilitation and redevelopment should avoid adverse impact to the significant features of these structures.
2. Any activities that may impact the earthen burial mound (8HE12) should be avoided due to the likely presence of human remains. Plans for rehabilitation and redevelopment that may impact the burial mound will require consultation with the State Archaeologist, per Chapter 872 of the Florida Statutes. We also recommend that subsurface disturbance within 25 meters of the mound be avoided as a safeguard against unanticipated discoveries.

3. Although the APE does not include subaqueous deposits, the boundary of site 8HE12 encompasses a portion of the spring and river. Previous investigations of near-shore deposits at springs have demonstrated the potential for significant archaeological resources to be preserved in these settings (e.g., O'Donoghue et al. 2011; Randall et al. 2011). Activities that will impact near-shore terrestrial or subaqueous deposits within the APE should be monitored by a professional archaeologist.
4. Activities taking place within the boundary of site 8HE12, but away from the burial mound and shoreline, will not impact any significant or intact subsurface archaeological resources and can proceed without further intervention.
5. Sites 8HE490, 8HE572, and 8HE703 consist of cultural materials in intact deposits. None of these is considered eligible for listing on the NRHP. However, the full extent of these sites outside the project APE is unknown. No further archaeological intervention is required for activities taking place within the APE. Activities taking place proximate to these sites outside the APE should be preceded by archaeological reconnaissance.
6. Activities taking place outside the boundaries of recorded sites will not impact any significant or intact subsurface archaeological resources and can proceed without further intervention.

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**APPENDIX A
SHOVEL TEST DATA**

Table Heading Definitions:

STP: Shovel Test Pit Identification

UTM NORTH: Northing in UTM, Zone 17N, NAD1983

UTM EAST: Easting in UTM, Zone 17N, NAD1983

ELEV.: Surface elevation from Hernando County LiDAR (meters NAVD 1988)

MAX: Maximum excavation depth, centimeters below surface

DISTURBED: Depth of disturbed deposits, centimeters below surface

CULTURAL: Depth range of cultural deposits, centimeters below surface

STP	UTM NORTH	UTM EAST	ELEV.	MAX	DISTURBED	CULTURAL
A1	346156.5	3155674.3	5.02	120	120	0-120
A2	346157.8	3155647.5	4.95	110	110	
B1	346136.4	3155693.4	5.12	105	105	0-50
B2	346136.9	3155669.1	4.79	110	110	
B4	346138.7	3155621.0	4.73	200	85	
B5	346135.6	3155597.5	5.19	220	120	
C1	346108.3	3155692.6	4.63	100	100	40-50
C3	346110.7	3155650.3	4.39	110	105	40-50
C4	346111.8	3155629.7	4.32	105	45	
C5	346113.3	3155604.8	4.42	100	40	
C6	346115.6	3155582.2	4.87	100	50	
D1	346085.4	3155700.6	4.59	110	45	
D2	346087.1	3155676.3	4.21	140	75	
D3	346075.2	3155651.7	3.92	100	100	
D4	346086.5	3155621.5	3.84	105	70	0-25
D5	346088.4	3155595.9	3.63	160	100	
D6	346091.5	3155572.3	3.82	105	85	
D7	346089.7	3155543.0	4.40	150	140	
E1	346064.2	3155719.4	6.26	200	0	80-110
E2	346066.0	3155692.3	3.74	100	100	
E3	346060.2	3155670.2	2.55	110	100	70-80
E7	346065.5	3155556.8	3.67	180	80	
E8	346066.4	3155532.0	3.64	105	105	
E9	346066.3	3155510.8	4.40	110	100	20-30
F1	346041.0	3155723.5	6.14	100	0	80-100
F2	346040.2	3155700.2	3.30	100	100	
F9	346039.1	3155493.0	4.27	115	90	25-90
F10	346028.6	3155469.1	5.12	40	40	
G1	346016.7	3155739.1	5.41	100	0	
G2	346017.7	3155711.6	4.75	160	45	
G3	346016.1	3155642.2	3.62	175	110	
G4	346027.4	3155620.0	3.44	110	40	
G5	346007.9	3155606.7	4.46	100	90	
G6	346008.1	3155557.7	4.70	135	135	
G9	346016.7	3155492.8	4.64	100	100	
G10	346010.1	3155468.9	4.78	210	110	
G11	346008.1	3155451.3	5.02	100	100	
H1	345995.0	3155751.1	4.51	105	0	40-50
H2	345985.8	3155740.6	3.54	95	0	80-90
H3	345980.1	3155648.5	4.74	150	130	
H4	345982.1	3155623.6	5.06	100	100	
H5	345985.2	3155599.9	4.89	180	110	30-40
H6	345995.9	3155570.8	5.06	110	110	
H7	345984.0	3155547.4	5.38	100	100	
H8	345985.5	3155529.8	5.42	100	100	10-20
H9	345990.7	3155490.1	5.25	180	80	80-130
H10	345995.3	3155479.1	4.94	110	80	30-70

STP	UTM NORTH	UTM EAST	ELEV.	MAX	DISTURBED	CULTURAL
H20	345971.8	3155671.3	4.18	105	0	
H21	345992.1	3155666.0	3.21	90	45	
I1	345971.6	3155690.7	3.07	100	45	
I2	345954.0	3155681.7	4.75	120	25	40–50
I3	345958.6	3155654.3	5.42	110	110	
I4	345951.9	3155617.9	5.19	100	100	
I5	345961.6	3155596.1	5.32	105	105	
I6	345958.0	3155570.5	5.12	115	115	
I7	345965.3	3155546.0	5.44	70	70	40–50
I8	345968.2	3155522.3	5.92	115	60	
I10	345960.8	3155468.6	5.02	105	80	70–80
I11	345961.5	3155444.9	6.25	105	105	
J1	345928.6	3155700.3	4.65	100	60	
J3	345932.1	3155641.0	5.80	220	95	
J4	345929.0	3155624.2	5.42	120	110	
J5	345938.2	3155597.8	5.44	115	100	
J6	345939.2	3155575.1	5.06	85	85	
J7	345947.4	3155552.7	5.38	110	65	
J8	345937.1	3155523.3	5.13	130	80	
J9	345936.5	3155483.1	5.46	110	110	
J10	345941.2	3155461.4	5.75	100	100	
K1	345908.3	3155695.3	4.67	200	75	
K2	345905.9	3155674.8	5.47	110	110	
K4	345907.1	3155630.6	5.25	105	105	
K5	345911.4	3155606.1	4.47	100	85	
K6	345911.7	3155576.6	4.33	100	75	
K7	345896.6	3155558.2	5.33	100	100	0–70
K8	345895.7	3155533.9	6.03	100	100	
K9	345894.6	3155507.7	6.35	100	100	
K10	345907.9	3155476.2	5.96	100	100	
K11	345901.4	3155461.3	6.79	65	65	
L1	345880.5	3155694.9	3.80	105	105	
L2	345884.1	3155668.2	4.58	100	30	
L3	345884.5	3155643.3	4.90	100	15	
L4	345888.9	3155618.6	4.64	55	55	
L5	345888.2	3155589.0	4.74	110	110	
L6	345892.5	3155568.3	5.05	110	110	
L7	345869.9	3155542.7	5.62	105	85	
L8	345866.4	3155517.2	6.08	100	70	
L9	345875.4	3155491.1	6.72	105	80	60–70
L10	345878.2	3155467.6	6.79	115	25	
M1	345847.6	3155683.6	3.50	90	75	
M2	345855.4	3155658.9	3.97	100	40	
M3	345855.5	3155641.2	4.06	100	50	
M4	345851.0	3155613.7	4.28	105	50	
M6	345871.8	3155567.2	5.05	100	100	
M8	345846.3	3155525.5	5.59	130	90	100–130

STP	UTM NORTH	UTM EAST	ELEV.	MAX	DISTURBED	CULTURAL
M9	345850.3	3155499.8	6.04	100	100	
M10	345848.6	3155477.6	6.46	110	0	
M11	345852.4	3155454.8	6.77	130	0	
M12	345848.1	3155437.1	7.09	100	0	
M13	345848.7	3155414.8	7.07	130	40	
M14	345846.2	3155390.8	7.06	140	55	90–100
M15	345847.7	3155363.3	6.34	125	80	90–100
N1	345833.9	3155665.6	3.17	70	0	
N2	345834.7	3155641.4	3.57	100	0	
N3	345831.8	3155613.0	4.48	100	0	
N4	345831.7	3155573.5	4.78	110	110	
N5	345837.7	3155534.8	5.31	105	75	
N6	345840.0	3155513.0	5.58	100	65	
N7	345837.4	3155489.9	5.94	110	100	
N8	345840.9	3155470.7	6.21	100	20	
N9	345833.1	3155444.6	6.09	105	0	
N10	345831.2	3155420.7	6.12	110	100	
N11	345830.5	3155398.9	6.27	105	0	
N12	345825.0	3155376.0	5.69	100	10	
N20	345827.7	3155691.8	3.66	105	50	
O1	345806.3	3155644.6	4.46	100	100	
O2	345810.1	3155615.0	5.19	100	55	
O3	345813.7	3155591.7	5.45	100	100	
O4	345814.1	3155569.3	5.28	40	40	
O6	345812.1	3155533.0	4.89	100	100	
O7	345812.0	3155510.0	4.65	100	100	
O8	345815.5	3155487.6	4.69	105	75	
O10	345804.9	3155432.2	4.38	130	55	
O11	345807.0	3155411.3	5.39	110	95	
O12	345810.5	3155384.2	4.93	100	65	
O20	345799.4	3155671.5	3.59	190	190	
P1	345788.3	3155628.7	5.38	100	30	30–40
P2	345789.6	3155601.4	5.55	135	25	80–110
P3	345788.5	3155581.4	5.43	120	15	40–90
P4	345783.8	3155531.7	4.48	105	50	
P9	345790.3	3155430.6	4.16	105	35	0–20
P10	345790.4	3155412.1	4.17	75	75	
Q1	345764.9	3155619.8	3.71	90	90	
Q2	345757.7	3155596.8	3.97	100	40	
Q3	345761.5	3155574.5	4.49	105	25	
Q4	345759.2	3155548.8	4.22	100	75	
Q5	345759.7	3155524.5	4.09	115	70	
Q6	345749.8	3155496.9	4.08	110	45	
Q7	345752.1	3155465.5	4.01	105	35	
Q8	345761.1	3155443.9	3.94	100	100	
Q9	345771.0	3155412.2	4.15	100	60	
R1	345716.1	3155530.6	3.78	100	95	

STP	UTM NORTH	UTM EAST	ELEV.	MAX	DISTURBED	CULTURAL
R2	345717.3	3155509.7	3.67	52	30	
R3	345719.6	3155483.3	3.93	80	30	0-80
R4	345724.0	3155459.3	3.85	105	90	
S1	345831.6	3155359.8	5.85	115	25	
S2	345846.1	3155404.6	6.84	110	0	70
S3	345864.6	3155404.6	7.68	100	20	50
S4	345872.9	3155390.6	7.80	105	0	40-80
S5	345836.2	3155389.2	6.41	110	0	45
S6	345823.8	3155387.5	5.83	100	0	40-70
S7	345836.9	3155378.8	6.51	105	0	40-50
S8	345787.6	3155569.7	5.25	115	30	
S9	345785.4	3155558.4	5.03	110	110	70-80
S10	345801.9	3155580.6	5.48	120	20	30-80
S11	345813.8	3155582.5	5.28	135	30	30-110
S12	345779.9	3155578.2	5.04	120	25	55-70
S13	345770.9	3155578.5	4.86	115	40	
S14	345799.2	3155606.8	5.61	125	25	
S15	345809.5	3155602.0	5.33	100	30	
S16	345796.5	3155627.2	5.48	110	0	55-70
S17	345807.1	3155629.9	4.94	110	50	
S18	345783.2	3155641.6	4.60	110	0	10-90
S19	345776.9	3155653.7	3.29	105	0	40-70
S20	345770.6	3155606.6	4.38	115	15	
S21	345776.0	3155602.1	4.43	125	50	
S22	345766.5	3155629.9	3.46	105	50	
S23	345780.2	3155625.8	4.72	125	60	
S24	345833.5	3155524.9	5.31	100	70	
S25	345820.5	3155524.7	5.10	105	25	
S26	345847.8	3155498.9	5.99	105	65	
S27	345856.7	3155518.0	5.85	105	20	
S28	345868.4	3155529.9	5.84	100	75	
S29	345845.8	3155545.4	5.23	100	20	
S30	345998.8	3155490.4	4.95	105	35	45-80
S31	346005.8	3155478.6	4.75	160	140	0-20
S32	345988.6	3155509.0	5.58	130	35	80-120
S33	345994.5	3155520.0	5.11	130	75	
S34	346000.2	3155462.8	4.93	105	95	
S35	346074.6	3155721.9	5.64	110	0	70-80
S36	345987.1	3155753.1	4.31	125	0	24-33
S37	346065.2	3155708.4	4.74	115	20	20-115
S38	345994.9	3155739.7	4.21	110	0	
S39	346044.2	3155736.2	5.21	105	0	60-70
S40	346000.1	3155731.0	4.33	95	0	30-40
S41	346030.9	3155732.8	5.96	100	20	40-60
S42	346001.4	3155740.6	4.71	120	0	20-80
S43	346042.7	3155712.3	4.88	115	15	65-75
S44	346076.4	3155709.0	5.07	110	0	

**APPENDIX B
CATALOG**

Bag #	Site	STP	Level	Description	N	Wt. (g)	Notes
1.01	AO1	A1	0-120	VERTEBRATE FAUNA	2	0.4	UID
1.02	AO1	A1	0-120	GLASS, WHITE	1	2.8	"CREA" STAMPED ON SIDE
1.03	AO1	A1	0-120	GLASS, CLEAR	2	0.9	
1.04	AO1	A1	0-120	METAL, NAILS	10	74.2	
2.00		B1	0-50				1991 PENNY, NAIL; DISCARDED
3.01	AO2	C1	40-50	FLAKE, CHERT	1	1.5	FRAG.
3.02	AO2	C1	40-50	GLASS, CLEAR	1	2.1	
4.01	8HE490	E1	80-110	HAFTED BIFACE, SILIC. CORAL	1	25.1	FRAG., THERMAL ALT.
4.02	8HE490	E1	80-110	FLAKE, CHERT	1	0.1	FRAG.
5.01	8HE490	F1	80-100	FLAKE, CHERT	3	2.2	PROXIMAL
6.01	8HE490	H1	40-50	SHATTER, CHERT	1	4.1	THERMAL ALT.
7.01	8HE490	H2	80-90	FLAKE, CHERT	1	1.9	FRAG.
8.01	8HE12	F9	25-90	FLAKE, CHERT	3	0.5	40-50 CMBS; 2 WHOLE, 1 FRAG.
8.02	8HE12	F9	25-90	VERTEBRATE FAUNA	2	8.3	80-90 CMBS; 1 DEER ULNA, 1 UID
8.03	8HE12	F9	25-90	GLASS, AMBER, SOLARIZED	2	6.0	
8.04	8HE12	F9	25-90	GLASS, CLEAR, SOLARIZED(4)	7	9.1	
8.05	8HE12	F9	25-90	METAL, BOTTLE CAP	1	12.1	
8.06	8HE12	F9	25-90	METAL, NAILS	8	86.3	
9.01	8HE12	H9	80-130	FLAKE, CHERT, WHOLE	15	39.0	6 THERMAL ALT. FBR
9.02	8HE12	H9	80-130	FLAKE, CHERT, PROXIMAL	8	10.1	1 THERMAL ALT. FBR
9.03	8HE12	H9	80-130	FLAKE, CHERT, FRAG.	14	7.3	3 THERMAL ALT.
9.04	8HE12	H9	80-130	SHATTER, CHERT	3	1.6	
9.05	8HE12	H9	80-130	GLASS, CLEAR, BOTTLE	3	8.1	
9.06	8HE12	H9	80-130	TERRA COTTA PIPE FRAG.	1	3.2	
9.07	8HE12	H9	80-130	CUT STONE TILE	2	3.8	
10.01	8HE12	H5	30-40	FLAKE, CHERT	1	0.1	FRAG.
10.02	8HE12	H5	30-40	TERRA COTTA PIPE FRAG.	1	2.3	
11.01	AO9	M8	100-130	SHATTER, SILIC. CORAL	1	0.7	
11.02	AO9	M8	100-130	PASCO PLAIN, RIM	1	3.2	
12.01	8HE572	M14	90-100	FLAKE, CHERT	1	0.1	PROXIMAL, FBR
13.01	8HE572	M15	90-100	FLAKE, CHERT	1	1.4	WHOLE, FBR
14.01	8HE703	P1	30-40	FLAKE, CHERT	1	10.0	WHOLE, BLADE

Bag #	Site	STP	Level	Description	N	Wt. (g)	Notes
14.02	8HE703	P1	30-40	GLASS, CLEAR	1	3.8	
15.01	8HE703	P2	80-110	FLAKE, SILIC. CORAL	2	5.1	1 WHOLE, 1 FRAG.
16.01	8HE703	P3	40-50	PASCO PLAIN, BODY	3	5.7	
16.02	8HE703	P3	40-50	FLAKE, CHERT	1	0.1	FRAG.
17.01	AO11	R3	0-30	GLASS, CLEAR, BOTTLE	4	19.3	
17.02	AO11	R3	0-30	GLASS, CLEAR, BOTTLE	1	152.4	AQUA VELVA
17.03	AO11	R3	0-30	METAL, CAN, SCHLITZ	1	42.0	
17.04	AO11	R3	0-30	TERRA COTTA PIPE FRAG.	1	3.6	
18.01	8HE12	H10	30-43	FLAKE, CHERT	7	14.1	1 WHOLE, 2 PROX FBR, 4 FRAG.
22.01	AO5	E3	70-80	FIESTAWARE, GREEN	1	11.5	
23.01	AO3	C3	40-50	SAND TEMPERED PLAIN, RIM	1	5.2	EVERTED, FOLDED
24.01	AO4	D4	0-25	FLAKE, CHERT	2	13.7	WHOLE, FRAG.
25.01	8HE12	E9	20-30	BIFACE, CHERT	1	28.1	DISTAL BLADE; THERMAL ALT., PERVERSE FRACTURE
25.02	8HE12	E9	20-30	FLAKE, CHERT	2	0.6	PROXIMAL
26.01	8HE12	I2	40-50	SHATTER, CHERT	1	1.8	
27.01	8HE12	I7	40-50	FLAKE, CHERT	1	1.2	WHOLE, FBR
28.01	AO6	I10	70-80	FLAKE, CHERT	1	0.1	FRAG.
29.01	AO8	L9	60-70	FLAKE, CHERT	1	0.1	FRAG.
43.00		C5	0-20				1970 DIME, 1981 PENNY; DISCARDED
44.00		C6	0-30				PLASTIC, NAILS, MODERN PENNIES; DISCARDED
45.00		D7	5-30				ALUMINUM CAN FRAG.; DISCARDED
46.01	8HE12	H8	10-20	CUT STONE TILE	1	7.2	SQUARE, CUT STONE
47.01	AO7	K7	0-70	FLAKE, CHERT	1	0.1	FRAG.
47.02	AO7	K7	0-70	ASBESTOS TILE	1	4.4	
48.01	AO10	P9	0-20	SHATTER, CHERT	1	2.3	
48.02	AO10	P9	0-20	GLASS, CLEAR	1	0.1	
49.01	8HE572	S2	70	FLAKE, SILIC. CORAL	1	4.0	WHOLE, FBR
50.01	8HE572	S3	50	FLAKE, SILIC. CORAL	1	0.1	FRAG.
51.01	8HE572	S4	40-80	FLAKE, CHERT	3	4.9	2 PROXIMAL, 1 FRAG.
52.01	8HE572	S5	45	GLAZED EARTHENWARE	1	171.2	BASAL FRAG.

Bag #	Site	STP	Level	Description	N	Wt. (g)	Notes
53.01	8HE572	S6	40-70	FLAKE, CHERT	2	3.2	1 FRAG., 1 PROXIMAL
54.01	8HE572	S7	40-50	FLAKE, CHERT	1	0.4	WHOLE, FBR
55.01	8HE703	S18	10-90	FLAKE, CHERT	5	0.8	1 WHOLE, 1 PROX, 3 FRAG.
55.02	8HE703	S18	10-90	PASCO PLAIN, RIM	1	5.8	
55.03	8HE703	S18	10-90	PASCO PLAIN, BODY	1	7.8	
56.01	8HE703	S19	40-70	PASCO PLAIN, RIM	3	46.1	
56.02	8HE703	S19	40-70	PASCO PLAIN, BODY	15	69.7	
56.03	8HE703	S19	40-70	PASCO, CRUMB	9	7.6	
57.01	8HE12	S30	45-80	FLAKE, CHERT	2	1.5	WHOLE, FBR
57.02	8HE12	S30	45-80	SHATTER, CHERT	3	0.5	
58.01	8HE490	S35	70-80	FLAKE, CHERT	1	2.5	FRAG.
59.01	8HE490	S37	20-115	FLAKE, CHERT	3	1.6	1 FRAG., 2 WHOLE
60.01	8HE490	S39	60-70	FLAKE, SILIC. CORAL	1	0.4	WHOLE, THERMAL ALT.
61.01	8HE490	S41	40-60	FLAKE, CHERT	2	0.4	FRAG.
62.01	8HE490	S43	65-75	FLAKE, CHERT	1	1.3	PROXIMAL
64.01	AO12	S9	70-80	FLAKE, CHERT	1	1.0	WHOLE, FBR
65.01	8HE703	S10	30-65	FLAKE, CHERT	2	0.7	WHOLE, FBR
66.01	8HE703	S11	30-95	FLAKE, CHERT	16	8.8	7 WHOLE, 3 PROX, 6 FRAG.; 3 FBR
67.01	8HE703	S12	55-70	FLAKE, CHERT	1	3.5	PROX
68.01	8HE703	S16	55-70	FLAKE, CHERT	1	0.2	WHOLE
69.01	8HE12	S31	0-20	METAL, BADGE	1	0.8	LEAF-SHAPED W/MOTHER OF PEARL INLAY
70.01	8HE490	S36	24-33	FLAKE, CHERT	1	3.3	WHOLE
71.01	8HE490	S40	30-40	FLAKE, CHERT	2	0.3	FRAG.
72.01	8HE490	S42	20-80	FLAKE, SILIC. CORAL	3	0.7	THERMAL ALT.; 2 PROXIMAL, 1 WHOLE
72.02	8HE490	S42	20-80	SHATTER, SILIC. CORAL	1	0.5	THERMAL ALT.
72.03	8HE490	S42	20-80	FLAKE, CHERT	3	1.1	1 PROXIMAL, 2 WHOLE
73.01	8HE12	S32	80-120	FLAKE, CHERT	3	0.3	FRAG.
116.01	8HE703	P3	80-90	FLAKE, SILIC. CORAL	1	0.6	PROX
116.02	8HE703	P3	80-90	FLAKE, CHERT	1	0.2	FRAG.
117.01	AO11	R3	70-80	FLAKE, CHERT	1	7.2	FRAG.
118.01	8HE12	H10	43-70	GLASS, CLEAR, SOLARIZED	2	4.9	1 FLAT, 1 BOTTLE
118.02	8HE12	H10	43-70	FLAKE, CHERT	2	0.2	1 PROXIMAL, 1 FRAG.
165.01	8HE703	S10	70-80	FLAKE, CHERT	1	1.9	FRAG.
166.01	8HE703	S11	100-110	FLAKE, CHERT	1	1.6	WHOLE, FBR

APPENDIX C
1A-32 ARCHAEOLOGICAL RESEARCH PERMIT



FLORIDA DEPARTMENT OF STATE

Ken Detzner

Secretary of State

DIVISION OF HISTORICAL RESOURCES

ARCHAEOLOGICAL RESEARCH PERMIT

Permit No. 1213.023

Field Begin Date: 2/1/2013

Field End Date: 3/10/2013

PERMITTEE/AUTHORIZED ENTITY:

University of Florida

Report/Artifact Due Date: 8/31/2013

Project: Cultural Resources Assessment Survey of
Infrastructure Redevelopment in Weeki Wachee
Springs State Park, Hernando County, Florida

c/o Kenneth E. Sassaman
and Jason M. O'Donoghue
Department of Anthropology
1112 Turlington Hall
P.O. Box 117305
University of Florida
Gainesville, FL 32611

This permit is issued under the authority of Chapters 267.031 (1) and 267.12, Florida Statutes (F.S.) and Rule 1A-32, Florida Administrative Code (F.A.C.), and is administered by the Florida Bureau of Archaeological Research (BAR), Florida Division of Historical Resources (DHR).

ACTIVITY DESCRIPTION:

25-m interval shovel testing over APE; Vibracoring and bucket augering in area adjacent to spring.

LOCATION DESCRIPTION:

Weeki Wachee Springs, south of spring
DEP, Division of Recreation and Parks

GENERAL CONDITIONS:

1. The Principal Investigator listed above or another qualified archaeologist designated by the applicant shall be responsible for all archaeological investigations, production of a final report, and be on site during all fieldwork.
2. A copy of this permit shall be provided to the land managing agency (when applicable) and field personnel shall carry a copy during fieldwork.
3. The permittee shall (initial each item as indicated):
 - a. prepare a final report that meets standards and guidelines required by Rule 1A-46, F.A.C., including the necessary Florida Master Site File forms; JMO
 - b. inform the BAR permit administrator that a report has been completed and submitted to the Division of Historical Resources; or submit a copy of the final report to the BAR permit administrator; JMO

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

Director's Office
(850) 245-6309 • FAX: 245-6436

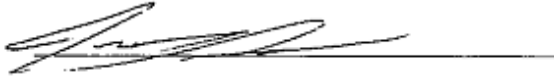
Archaeological Research
(850) 245-6444 • FAX: 245-6452

Historic Preservation
(850) 245-6333 • FAX: 245-6437

- c. provide proper curation and conservation of recovered artifacts and other recovered site materials until such time as those artifacts and other site materials are conveyed to the BAR for curation;
JMO
 - d. convey all artifacts and related materials obtained from state-owned or controlled land to the BAR permit administrator for permanent curation or processing for loan; JMO
 - e. convey copies of all notes, maps, photographs, videotapes, and other field records pertaining to research conducted under this permit to the BAR permit administrator following completion of the project JMO ;
 - f. and not remove from a stable environment artifacts and materials which the permit recipient is unable to properly curate and conserve before conveying to BAR. JMO
4. The effective field investigation dates are subject to receipt of permission from the State Park Manager and from the DEP Division of Recreation and Parks, Bureau of Natural and Cultural Resources (attn: Parks Small, Chief, Bureau of Natural & Cultural Resources, Florida Division of Recreation & Parks, 3900 Commonwealth Blvd., MS #530, Tallahassee, FL 32399-3000, 850 245 3104), and in some instances, the State/Federal dredge-and-fill permitting program. Those agencies likely will require work performance conditions relevant to their resource management and permitting responsibilities. A representative of the land managing agency will need to sign this permit document prior to BAR executing this permit (see page 3).
 5. Unless approved in writing by BAR, no work beyond that described in the "ACTIVITY DESCRIPTION" and attached to your application shall be performed.
 6. This permit is valid for up to one year following the requested report due date. Requests for approval for amendments to fieldwork, fieldwork end date and report/artifact due date are required during this time. Such requests may be made and approved by phone, email, or in writing during this time and do not require amendments to this document.
 7. In any release of information, including public presentations, media contacts, and the final written report, there shall be acknowledgement that the portion of the project involving state-owned and controlled land was conducted under the terms of an archaeological research permit issued by the Florida Department of State, Division of Historical Resources, Bureau of Archaeological Research.
 8. If Unmarked Human Burials are discovered, permit recipient shall comply with the provisions of 872.05, F.S., and when appropriate, Rule 1A-44, F.A.C. Specifically, upon discovery of unmarked human remains, all activities that might further affect those remains shall be halted and the remains protected from further disturbance until an appropriate course of action has been determined by the local medical examiner or by the State Archaeologist, as appropriate.
 9. In issuing this permit, the State assumes no liability for the acts, omissions to act or negligence of the permittee, its agents, servants or employees; nor shall this permittee exclude liability for its own acts, omissions to act or negligence to the State.
 10. The permittee, unless the permittee is an agency of the State, agrees to assume all responsibility for, indemnify, defend and hold harmless the Division of Historical Resources from and against any and all claims, demands, or liabilities, or suits of any nature whatsoever arising out of, because of, or due to any act or occurrence of omission or commission arising out of the permittee's operations pursuant to this permit and shall investigate all claims at its own expense. In addition, the permittee hereby agrees to be responsible for any injury or property damage resulting from any activities conducted by the permittee.

11. The parties hereto agree that the permittee, its officers, agents and employees, in performance of this permit, shall act in the capacity of an independent contractor and not as an officer, employee, or agent of the State.

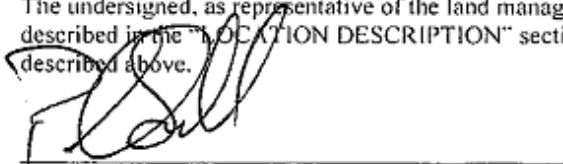
The undersigned, as representative of the Permittee/Authorized Entity, understands and accepts the terms of this 1A-32 Archaeological Research Permit.



Date: 24 Jan 2013

Signature

The undersigned, as representative of the land managing agency for the managed area/state property described in the "LOCATION DESCRIPTION" section of this document, hereby permits the activity described above.



Date: 1/29/13

Parks Small, Chief, Bureau of Natural & Cultural Resources,
Florida Division of Recreation and Parks

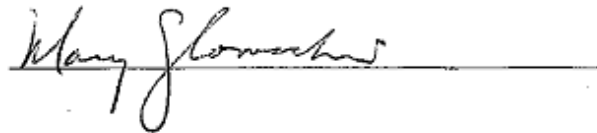
This permit will not become effective until it has been executed by the Chief of BAR. Before BAR can execute this permit, the Permittee must have a land management representative (if applicable) sign in the space provided above. Please send the signed permit to the Permit Administrator at the address above.

A copy of the executed permit will be sent to you prior to commencing fieldwork.

Executed in Tallahassee, Florida

STATE OF FLORIDA
DEPARTMENT OF STATE

Mary Glowacki, Ph.D.
Chief, Bureau of Archaeological Research



Date of Issue Jan. 30, 2013

Enclosures:

Rule 1A-46, F.A.C.
BAR Collections and Curation Guidelines
How to Package Documents, Florida Master Site File

Copies furnished to:
Triel Lindstrom
MG/JCB



FLORIDA DEPARTMENT OF STATE
Ken Detzner
Secretary of State
DIVISION OF HISTORICAL RESOURCES

March 14, 2013

Re: Extension for 1A-32 Permit Number 1213.023

Dear Mr. O'Donoghue,

The Bureau of Archaeological Research (BAR) approves an extension of the archaeological research permit for work at Weeki Wachee Springs State Park. The new fieldwork dates are:

Begin date: 3/15/2013

End date: 5/15/2013

Because the fieldwork is delayed, the report due date is also extended. All deliverables will be due to the Division of Historical Resources on or before 12/31/2013.

If you have any questions or need to notify BAR about changes in the dates of fieldwork, please call me at (850) 245-6336.

Sincerely,

Julia C. Byrd
Bureau of Archaeological Research

APPENDIX D
FDHR SURVEY LOG

Page 1

Ent D (FMSF only) _____



Survey Log Sheet

Florida Master Site File
Version 4.1 1/07

Survey # (FMSF only) _____

Consult *Guide to the Survey Log Sheet* for detailed instructions.

Identification and Bibliographic Information

Survey Project (name and project phase) Phase I survey of Weeki Wachee Springs State Park

Report Title (exactly as on title page) Phase I Archaeological Survey of Weeki Wachee Springs State Park, Hernando County, Florida

Report Authors (as on title page, last names first) 1. Jason M. O'Donoghue 3. _____
2. Kenneth E. Sassaman 4. _____

Publication Date (year) 2013 Total Number of Pages in Report (count text, figures, tables, not site forms) 98

Publication Information (Give series, number in series, publisher and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*.)
Technical Report 18, Laboratory of Southeastern Archaeology, Department of Anthropology, University of Florida, Gainesville

Supervisors of Fieldwork (even if same as author) Names Jason M. O'Donoghue

Affiliation of Fieldworkers: Organization University of Florida City Gainesville

Key Words/Phrases (Don't use county name, or common words like *archaeology, structure, survey, architecture, etc.*)

1. freshwater spring 3. lithic scatter 5. _____ 7. _____
2. Safety Harbor 4. Florida tourism 6. _____ 8. _____

Survey Sponsors (corporation, government unit, organization or person directly funding fieldwork)
Name _____ Organization Florida Department of Environmental Protection
Address/Phone/E-mail _____

Recorder of Log Sheet Jason M. O'Donoghue Date Log Sheet Completed 12-17-2013

Is this survey or project a continuation of a previous project? No Yes: Previous survey #s (FMSF only) _____

Mapping Clear Mapping Values

Counties (List each one in which field survey was done; attach additional sheet if necessary)
1. Hernando 3. _____ 5. _____
2. _____ 4. _____ 6. _____

USGS 1:24,000 Map Names/Year of Latest Revision (attach additional sheet if necessary)

1. Name <u>WEEKIWACHEE SPRINGS</u> Year <u>1988</u>	4. Name _____ Year _____
2. Name _____ Year _____	5. Name _____ Year _____
3. Name _____ Year _____	6. Name _____ Year _____

Description of Survey Area

Dates for Fieldwork: Start 3-21-2013 End 5-15-2014 Total Area Surveyed (fill in one) _____ hectares 25 acres

Number of Distinct Tracts or Areas Surveyed 1

If Corridor (fill in one for each) Width: _____ meters _____ feet Length: _____ kilometers _____ miles

Research and Field Methods

Types of Survey (check all that apply): archaeological architectural historical/archival underwater
 damage assessment monitoring report other(describe): _____

Scope/Intensity/Procedures Archival research and reconnaissance survey for subsurface cultural resources in APE. Round STPs, 50-cm diameter, 100 cm deep, excavated at 25 m intervals on N/S transects spaced 25 m apart. Bucket auger and vibracoring for paleohydrological data.

Preliminary Methods (check as many as apply to the project as a whole)

Florida Archives (Gray Building) library research- local public local property or tax records other historic maps
 Florida Photo Archives (Gray Building) library-special collection - nonlocal newspaper files soils maps or data
 Site File property search Public Lands Survey (maps at DEP) literature search windshield survey
 Site File survey search local informant(s) Sanborn Insurance maps aerial photography
 other (describe): _____

Archaeological Methods (check as many as apply to the project as a whole)

Check here if NO archaeological methods were used.
 surface collection, controlled shovel test-other screen size block excavation (at least 2x2 m)
 surface collection, uncontrolled water screen soil resistivity
 shovel test-1/4" screen posthole tests magnetometer
 shovel test-1/8" screen auger tests side scan sonar
 shovel test 1/16" screen coring pedestrian survey
 shovel test-unscreened test excavation (at least 1x2 m) unknown
 other (describe): _____

Historical/Architectural Methods (check as many as apply to the project as a whole)

Check here if NO historical/architectural methods were used.
 building permits demolition permits neighbor interview subdivision maps
 commercial permits exposed ground inspected occupant interview tax records
 interior documentation local property records occupation permits unknown
 other (describe): _____

Survey Results (cultural resources recorded)

Site Significance Evaluated? Yes No (tear Check Boxes)

Count of Previously Recorded Sites 3 Count of Newly Recorded Sites 1

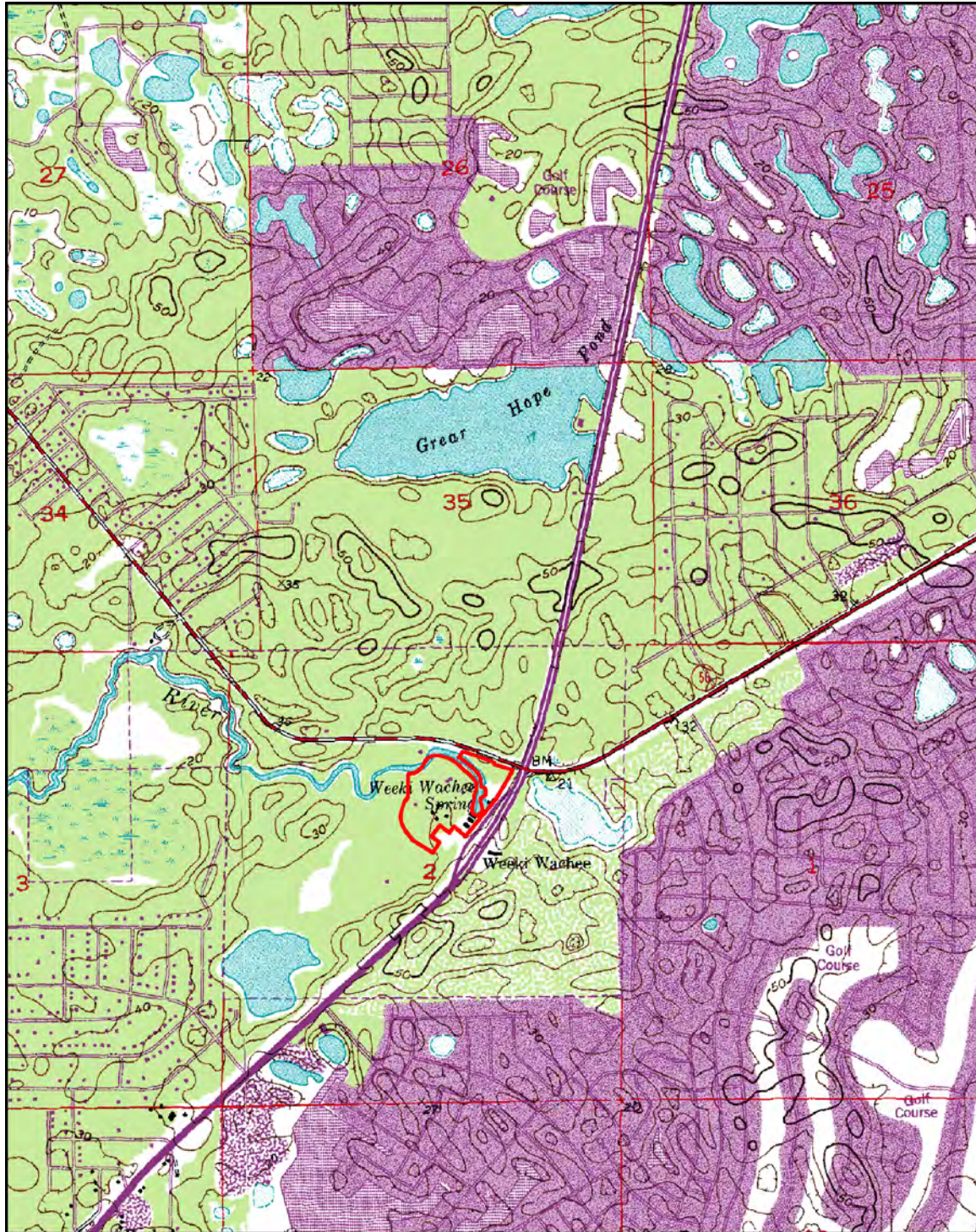
Previously Recorded Site #'s with Site File Update Forms (List site #'s without "8". Attach additional pages if necessary.) HE00012, HE00490, HE00572

Newly Recorded Site #'s (Are all originals and not updates? List site #'s without "8". Attach additional pages if necessary.) HE00703

Site Forms Used: Site File Paper Form Site File Electronic Recording Form

*****REQUIRED: ATTACH PLOT OF SURVEY AREA ON PHOTOCOPY OF USGS 1:24,000 MAP(S)*****

SHPO USE ONLY	SHPO USE ONLY	SHPO USE ONLY
Origin of Report: <input type="checkbox"/> 872 <input type="checkbox"/> CARL <input type="checkbox"/> UW <input type="checkbox"/> 1A32 # _____	<input type="checkbox"/> Academic <input type="checkbox"/> Contract <input type="checkbox"/> Avocational	<input type="checkbox"/> Compliance Review: CRAT # _____
Type of Document: <input type="checkbox"/> Archaeological Survey <input type="checkbox"/> Historical/Architectural Survey <input type="checkbox"/> Marine Survey <input type="checkbox"/> Cell Tower CRAS <input type="checkbox"/> Monitoring Report	<input type="checkbox"/> Overview <input type="checkbox"/> Excavation Report <input type="checkbox"/> Multi-Site Excavation Report <input type="checkbox"/> Structure Detailed Report <input type="checkbox"/> Library, Hist. or Archival Doc	<input type="checkbox"/> MPS <input type="checkbox"/> MRA <input type="checkbox"/> TG <input type="checkbox"/> Other: _____
Document Destination: _____	Plotability: _____	



Subsection of the USGS 7.5' Weeki Wachee Springs (1954, PR1988) Topographic Quad showing the location of the survey area. Map produced Dec. 17, 2013.

