

Appendix 10.7

Monitoring Programs

Appendix 10.7.1

SHPO Concurrence Letter—May 19, 2017



FLORIDA DEPARTMENT of STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Dr. Kathleen S. Hoffman
Janus Main Office
1107 N. Ward Street
Tampa, Florida 33607

May 19, 2017

RE: DHR Project File No.: 2017-2159, Received by DHR: April 21, 2017
*Cultural Resource Assessment Survey (CRAS) for the Seminole Electric Cooperative, Inc. (SECI),
Seminole County Cycle Facility (SCCF) in Putnam County, Florida*

Dear Dr. Hoffman:

Our office reviewed the referenced survey report in accordance with Chapters 267 and 373, *Florida Statutes*, and implementing state regulations, for possible effects to historic properties listed, or eligible for listing, in the *National Register of Historic Places* (NRHP), or otherwise of historical, architectural or archaeological value.

In November and December 2016, Janus Research (Janus) conducted a Phase I cultural resources assessment survey of the Seminole County Cycle Facility (SCCF) project area on behalf of Seminole Electric Cooperative, Inc. (SECI). Janus encountered two (2) archaeological occurrences (AO), consisting of one (1) and two (2) lithic flakes respectively, within the area of potential effect (APE). AO are categorically ineligible for NRHP listing.

Janus determined that the proposed project will have no effect on cultural resources listed, or eligible for listing in the NRHP, or otherwise of archaeological, historical, or architectural significance within the survey area.

Based on the information provided, our office concurs with these determinations and finds the submitted report complete and sufficient in accordance with Chapter 1A-46, *Florida Administrative Code*.

If I can be of any further help, or if you have any questions about this letter, please feel free to contact Lindsay Rothrock at Lindsay.Rothrock@dos.myflorida.com.

Sincerely,

A handwritten signature in blue ink, reading "Timothy A. Parsons" with "For" written below it.

Timothy A. Parsons, Ph.D., RPA
Director, Division of Historical Resources
and State Historic Preservation Officer

Appendix 10.7.2

Cultural Resources Assessment Survey March 2017

**CULTURAL RESOURCE ASSESSMENT SURVEY FOR THE
SEMINOLE ELECTRIC COOPERATIVE, INC. (SECI) SEMINOLE COMBINED
CYCLE FACILITY (SCCF) IN PUTNAM COUNTY, FLORIDA**

Prepared for:

Environmental Consulting & Technology, Inc.
3701 NW 98th Street
Gainesville, FL 32606

Prepared by:

Janus Research
1107 N Ward Street
Tampa, Florida 33607

March 2017

EXECUTIVE SUMMARY

This *Cultural Resource Assessment Survey (CRAS) for the Seminole Electric Cooperative, Inc. (SECI), Seminole Combined Cycle Facility (SCCF) at the Seminole Generating Station in Putnam County, Florida*, was conducted in support of a Florida Department of Environmental Protection (FDEP) Site Certification Application (SCA). The CRAS was conducted by Janus Research in association with Environmental Consulting & Technology, Inc. (ECT), in December 2016. The objective of the survey was to identify cultural resources within the project area and assess their eligibility for listing in the *National Register of Historic Places* (National Register) according to the criteria set forth in 36 CFR Section 60.4. The CRAS was conducted in compliance with Chapter 267, F.S.; Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), *Florida Administrative Code*, as well as the standards embodied in the Florida Division of Historic Resources' (FDHR) *Cultural Resource Management Standards and Operational Manual* (February 2003). The Principal Investigator, Kathleen Hoffman, Ph.D., meets the *Secretary of the Interior's Professional Qualification Standards* (48 FR 44716).

A portion of the project area is within the boundaries of a reconnaissance survey conducted in 2006. No archaeological sites were identified and the FDHR concurred with the results of that survey. Therefore, the current survey focused on areas of the Seminole Generating Station that are outside of the boundaries of the 2006 reconnaissance survey. Prior to the initiation of the field survey, a desktop analysis was conducted to identify previously recorded resources, and to determine the potential for unrecorded historic resources and archaeological sites within the project's area of potential effect (APE). This analysis did not identify any previously recorded or potentially historic resources within the APE. Due to the absence of historic resources, the goal of the field survey was to identify and bound archaeological sites. No National Register-eligible archaeological sites were identified within the project APE and no impacts to significant resources are anticipated.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
TABLE OF CONTENTS.....	ii
LIST OF APPENDICES.....	ii
LIST OF FIGURES	ii
INTRODUCTION	1
Project Description and Location.....	1
AREA OF POTENTIAL EFFECT	3
ENVIRONMENTAL SETTING	3
PRECONTACT OVERVIEW	5
Paleoindian Period (12,000–7500 BC)	5
Archaic Period (7500–500 BC)	5
Early Archaic (7500–5000 BC)	6
Middle Archaic Period (5000–3000 BC).....	6
Late Archaic Period (3,000–500 BC)	6
Formative and Mississippian Periods (500 BC–AD 1513).....	7
FLORIDA MASTER SITE FILE SEARCH AND LITERATURE REVIEW	7
PUTNAM COUNTY GOVERNMENT COORDINATION	8
PROJECT RESEARCH DESIGN AND SITE LOCATION MODEL	10
FIELD METHODS	10
RESULTS AND CONCLUSIONS	11
Unanticipated Finds	13
Curation.....	13
REFERENCES CITED.....	14

LIST OF APPENDICES

Appendix A: SHPO Concurrence Letter for the 2006 Survey
Appendix B: Location of Shovel Tests and Current Conditions Illustrated on an Aerial Photograph
Appendix C: Survey Log

LIST OF FIGURES

Figure 1: General Location of the Project Area.....	2
Figure 2: Project APE	4
Figure 3: Previously Recorded Archaeological Sites within One Half Mile of the Project APE	9
Figure 4: North End of the Archaeological APE, Facing South.....	11
Figure 5: North End of the Archaeological APE, Facing North.....	12
Figure 6: Archaeological APE Near ST 8, Facing North	12

INTRODUCTION

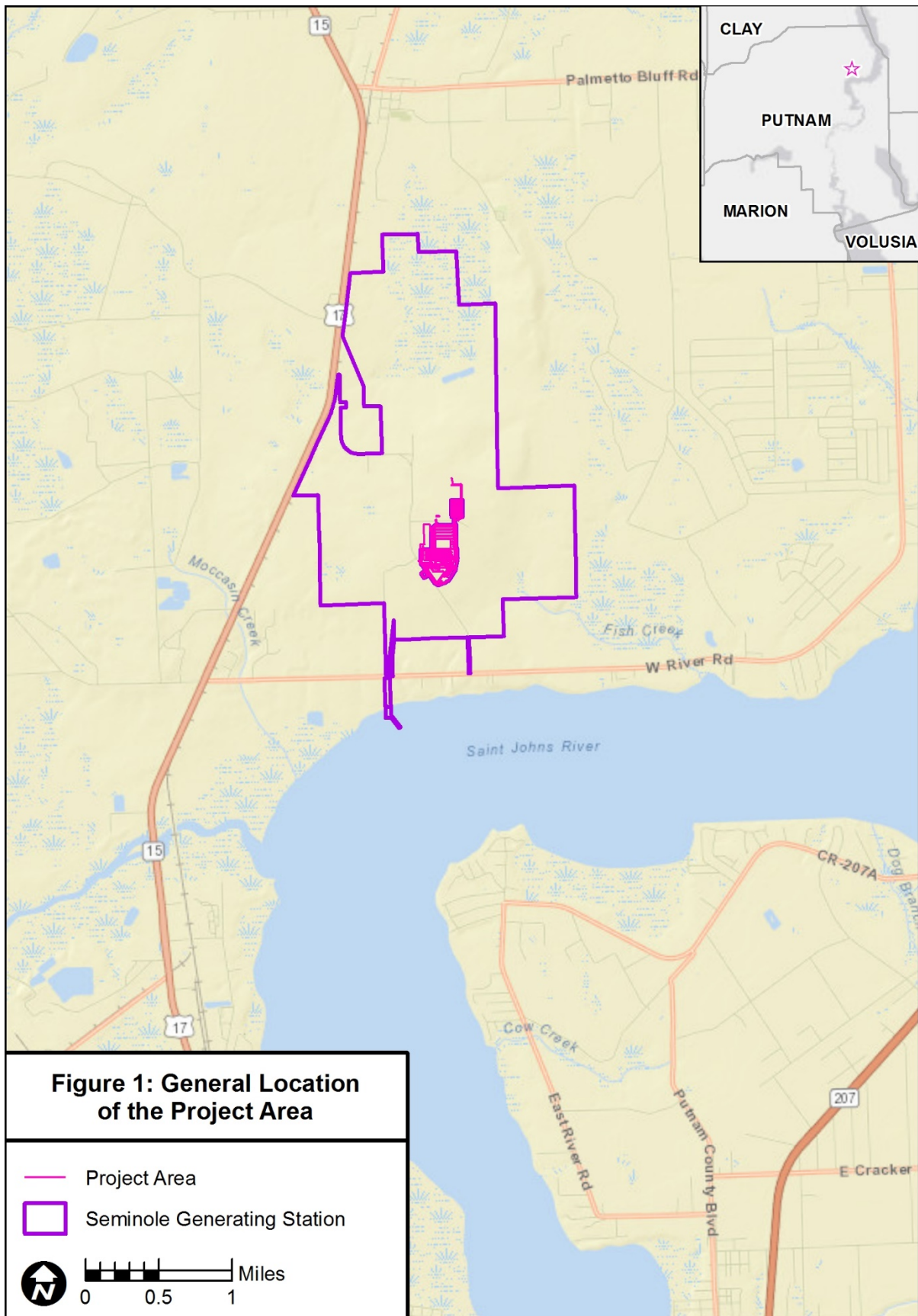
This Cultural Resource Assessment Survey (CRAS) for the Seminole Electric Cooperative, Inc. (SECI) Seminole Combined Cycle Facility (SCCF) at the Seminole Generating Station in Putnam County, Florida was conducted in support of a Florida Department of Environmental Protection (FDEP) Site Certification Application (SCA). Janus Research, in association with Environmental Consulting & Technology, Inc. (ECT), conducted the CRAS in December 2016. The objective of this survey was to identify cultural resources within or adjacent to the project area and assess their eligibility for listing in the National Register according to the criteria set forth in 36 CFR Section 60.4.

The CRAS was conducted in compliance with Chapter 267, F.S.; Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), Florida Administrative Code as well as the standards embodied in the Florida Division of Historic Resources' (FDHR) *Cultural Resource Management Standards and Operational Manual* (February 2003). The Principal Investigator, Kathleen Hoffman, Ph.D., meets the *Secretary of the Interior's Professional Qualification Standards* (48 FR 44716).

A portion of the project area is within the boundaries of a reconnaissance survey conducted in 2006. No archaeological sites were identified and the FDHR concurred with the results of that survey. Therefore, the current survey focused on areas of the Seminole Generating Station that are outside of the boundaries of the 2006 reconnaissance survey. Prior to the initiation of the field survey, a desktop analysis was conducted to identify previously recorded cultural resources, and to determine the potential for unrecorded historic resources and archaeological sites within the project's area of potential effect (APE). This analysis did not identify any previously recorded or potentially historic resources within the APE. Due to the absence of historic resources, the goal of the field survey was to identify and bound archaeological sites within the APE.

Project Description and Location

SECI is proposing to construct new electrical generating facilities at its existing Seminole Generating Station (SGS) in unincorporated Putnam County, Florida. The SGS site was previously certified for Units 1 and 2 as an electrical power plant site in September 1979 (Case No. PA 78-10) pursuant to the Florida Electrical Power Plant Siting Act (PPSA), Section 403.501 through 403.518, Florida Statutes (F.S.). The proposed facilities will be located just to the south of the existing SGS Units 1 and 2 facilities (Figure 1). The new facilities will consist of a natural gas-fired, two-on-one, combined-cycle unit utilizing two advanced combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs), one steam turbine generator (STG), and directly associated onsite facilities. The combined-cycle unit will have a nominal net generating capacity of 1,050 megawatts (MW).



The project area consists of approximately 58 acres within the certified site in northeastern Putnam County. It is located in Sections 7 and 8 of Township 9 South, Range 27 East on the Palatka (1968 Photorevised [PR] 1992) U.S. Geological Survey (USGS) quadrangle map.

AREA OF POTENTIAL EFFECT

According to 36 CFR 800.16(d), the APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking as well as its geographical setting. The survey for archaeological sites typically focuses on identifying and evaluating resources within the geographic limits of the proposed action and its associated ground disturbing activities where subsurface construction activity will take place. Therefore, the APE for archaeological resources was confined to the footprint of the project improvements (Figure 2).

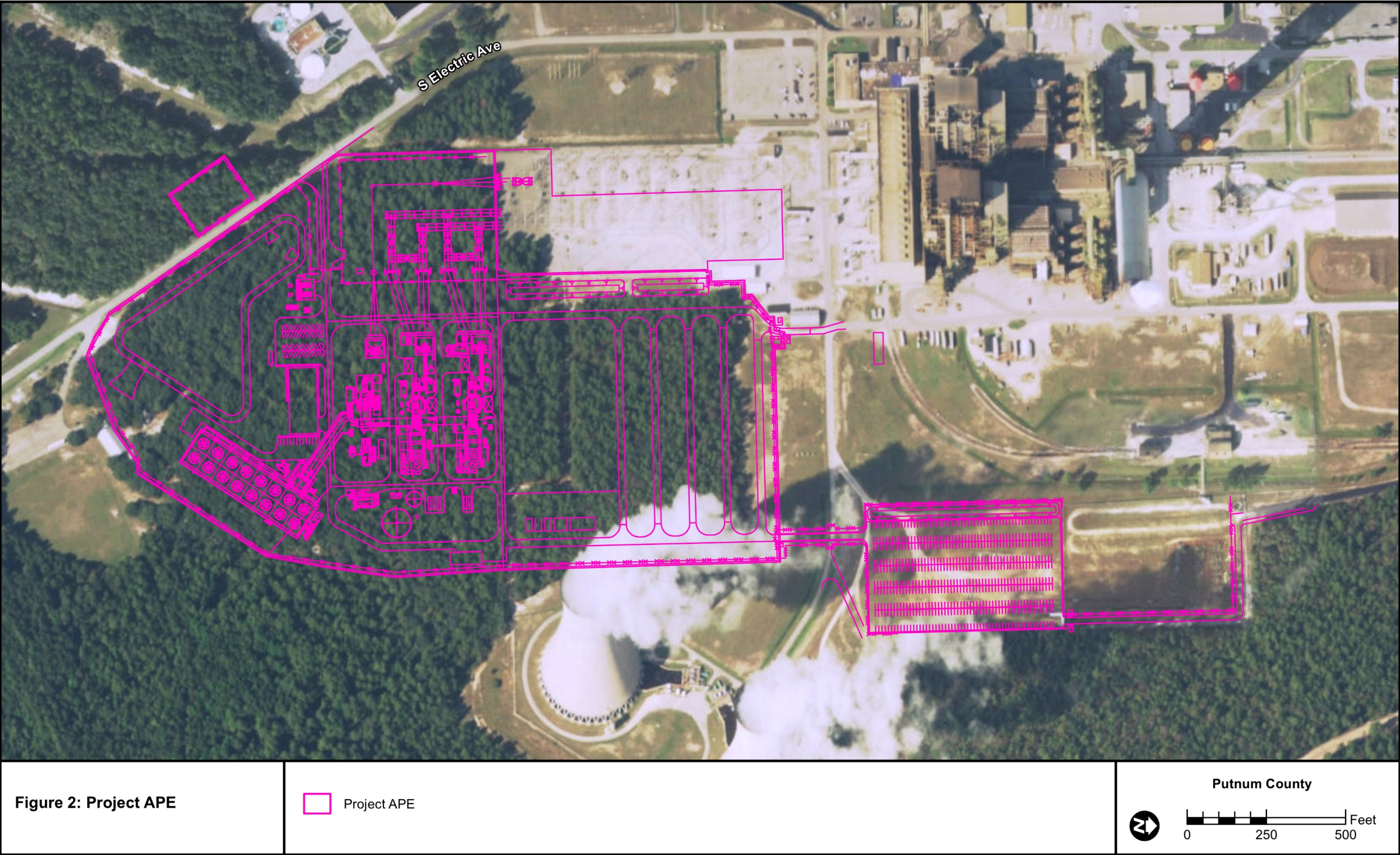
ENVIRONMENTAL SETTING

The project APE is located in unincorporated Putnam County within the Teasdale Hill geomorphic feature. The Teasdale Hill is a small, isolated area in proximity to the St. Johns River within the northern or proximal physiographic zones which is generally characterized by high land that extends into the Eastern Valley to the east and the Western Highlands to the west (White 1970). The elevation within the APE ranges from approximately 50 to 75 feet. The closest sources of freshwater are the St. Johns River, located approximately 0.5 miles to the south, and Fish Creek to the southeast.

The *Soil Survey of Putman County Area, Florida* (United States Department of Agriculture [USDA] 1990) was reviewed to determine the predevelopment environment within the APE. Soils associated with the APE consist of Tavares fine sand and Centenary fine sand, which are both moderately well drained. Tavares fine sand is found on the uplands or small knolls and ridges in the flatwoods. Natural vegetation includes turkey oak, longleaf pine, and scattered live oak with an understory of threeawn, bluestem, panicum, and saw palmetto (USDA 1990:22). Centenary fine sand is found on low knolls and ridges on the low uplands. Natural vegetation includes turkey oak, scrub live oak, and longleaf pines with understory vegetation of threeawn and panicum (USDA 1990: 39).

A review of the 1849 General Land Office (GLO) historic plat map (Florida Department of Environmental Protection [FDEP] 1849a) and surveyors' field notes (FDEP 1849b) was conducted to examine past environmental conditions within the vicinity of the APE. The plat map shows a hammock on the southeastern corner of the APE, near Fish Creek. The surveyors' notes describe the section line between Section 7 and 8 as containing 3rd rate timber pine and blackjack, bushes, live oak scrub, and saw palmetto. Bay gum, cypress, and pine are noted to the north and east of the APE. No historic features were illustrated on the plat maps or described in the surveyors' notes within the APE.

Aerials photographs from 1943, 1953, 1964, and 1971 (University of Florida, George A. Smathers Libraries 2017) were reviewed to examine land use history within the APE and



identify environmental features associated with an increased probability for the presence of archaeological resources. The aerial photographs show that the APE and surrounding area were undeveloped during the mid-20th century. Fish Creek is evident to the southeast and the St. Johns River to the south. Most of the APE appears to be flatwoods but a hammock is visible in the southeastern portion of the APE.

PRECONTACT OVERVIEW

Native peoples have inhabited Florida for over 14,000 years. The earliest cultural stages are pan-Florida in extent, while later cultures exhibited unique cultural traits. The following discussion of the precontact time period is included to provide a framework within which the local archaeological record can be understood.

Paleoindian Period (12,000–7500 BC)

The earliest period of precontact cultural development dates to the time people first arrived in Florida. The greatest density of known Paleoindian sites is associated with the rivers of northern and north-central Florida where distinctive lanceolate projectile points and bone pins have been found in and along the Santa Fe, Silver, and Oklawaha Rivers (Dunbar and Waller 1983). The majority have been found in shallow fords and river crossings where the Native Americans presumably ambushed Pleistocene mammals. The bones of extinct species such as mammoth, mastodon, and sloth are commonly found preserved in the highly mineralized waters of the area's springs and rivers.

The majority of Paleoindian sites in Florida consist of surface finds. The most widely recognized Paleoindian tool in Florida is the Suwannee point, typically found along the springs and rivers of northern Florida. Other points, including Simpson and Clovis points, are found in lesser numbers. Other Paleoindian stone tools are known from the Harney Flats site (Daniel and Wisenbaker 1987:41–97), the Silver Springs site in Marion County (Neill 1958), and other northern Florida sites (Purdy 1981:8–32). These Paleoindian tools tend to be unifacial and plano-convex, with steeply flaked, worked edges (Purdy and Beach 1980:114–118, and Purdy 1981). Bifacial and “hump-backed” unifacial scrapers, blade tools, and retouched flakes, including spokeshaves, have been found at these sites (Purdy 1981; Daniel and Wisenbaker 1987:62–81, 86–87). However, some tools are little more than flakes or blades that were struck from cores, used, and discarded (Milanich 1994:51).

Archaic Period (7500–500 BC)

The Archaic period of cultural development was characterized by a shift in adaptive strategies stimulated by the onset of the Holocene and the establishment of increasingly modern climate. It is believed to have begun in Florida around 7500 BC (Milanich 1994:63). This period is further divided into three sequential periods: the Early Archaic (7500–5000 BC), the Middle Archaic (5000–3000 BC), and the Late Archaic (3000–500 BC). The Late Archaic is subdivided into the Preceramic Late Archaic (3000–2000 BC) and the Orange Period (2000–500 BC).

Early Archaic (7500–5000 BC)

Cultural changes began around 8000 BC in the late Paleoindian times with less arid conditions, correlating to changes in projectile-point types, specifically from lanceolate to stemmed varieties. Beginning about 7500 BC, Paleoindian points and knives were replaced by a variety of stemmed tools, such as the Kirk, Wacissa, Hamilton, and Arredondo types (Milanich 1994:63).

Kirk points and other Early Archaic diagnostic tools are often found at sites with Paleoindian components, suggesting that Early Archaic peoples and Paleoindians shared similar lifeways (Daniel and Wisenbaker 1987:33–34). However, it appears that the distribution of Early Archaic artifacts is wider than that of Paleoindian materials. Sites having both Paleoindian and Early Archaic components have been largely restricted to natural springs and the extensive perched water sources of northern Florida. Early Archaic points are found in smaller numbers at upland sites in northern Florida where there is a lack of Paleoindian materials (Neill 1964).

Middle Archaic Period (5000–3000 BC)

The Middle Archaic period is characterized by increasing population and a gradual shift toward shellfish, fish, and other food resources from freshwater and coastal wetlands as a significant part of their subsistence strategy (Watts and Hansen 1988:310; Milanich 1994:75–84). Pollen evidence from Florida and south-central Georgia indicates that after about 4000 BC, a gradual change in forest cover took place, with oaks in some regions giving way to pines or mixed forests. The vegetation communities that resulted from these changes, which culminated by 3000 BC, are essentially the same as those found in historic times before widespread land alteration took place (Watts 1969, 1971; Watts and Hansen 1988).

The Middle Archaic artifact assemblage is characterized by several varieties of stemmed, broad-blade projectile points, including the Newnan point and the less common Alachua, Levy, Marion, and Putnam points (Bullen 1968; Milanich 1994). In addition to these stemmed points, cores, true blades, modified and unmodified flakes, ovate blanks, hammerstones, “hump-backed” unifacial scrapers, and sandstone “honing” stones are also associated with this period (Purdy 1981; Clausen et al. 1975). Additionally, thermal alteration, a technique in stone tool production, reached its peak during the Middle to Late Archaic periods. Three common types of Middle Archaic sites are known in Florida (Bullen and Dolan 1959; Purdy 1975), small special-use camps, large base camp, and quarry-related sites.

Late Archaic Period (3,000–500 BC)

After 3000 BC, there was a general shift in settlement and subsistence patterns emphasizing a greater use of wetland and marine food resources than in previous periods. This shift was related to the natural development of food-rich wetland habitats in river valleys and along the Atlantic and Gulf coasts (Bense 1994). By the Late Archaic period, a regionalization of precontact cultures began to occur as human populations became adapted to specific environmental zones. Based on current evidence, it appears that relatively large numbers of Late Archaic peoples lived in some regions of the state but not in others. For example, large sites of this period are uncommon in the interior highland forests of northwestern Florida and northern peninsular Florida, regions where Middle Archaic sites are common. The few Late Archaic sites found in these areas are either small artifact scatters or components in sites

containing artifacts from several other periods. This dearth of sites in the interior forests suggests that non-wetland locales either were not inhabited year-round or were only inhabited by small populations (Milanich 1994:87).

Extensive Late Archaic middens are found along the northeastern coast inland waterway from Flagler County north, along the coast of southwestern Florida from Charlotte Harbor south into the Ten Thousand Islands, and in the braided river-marsh system of the central St. Johns River, especially south of Lake George. The importance of the wetlands in these regions to precontact settlements was probably duplicated in other coastal regions, especially the Central Peninsular Gulf Coast and the Northwest (Milanich 1994:85). However, in many of these coastal areas, such as Tampa Bay, many of the Late Archaic sites are inundated (Warren 1964, 1970; Warren and Bullen 1965; Goodyear and Warren 1972; Goodyear et al. 1980).

Formative and Mississippian Periods (500 BC–AD 1513)

Changes in pottery and technology occurred in Florida during the Late Archaic period, also known as the Florida Transitional period; these changes mark the beginning of the Formative period. Fiber-tempered wares were replaced by sand-tempered, limestone-tempered, and chalky temperless ceramics and three different projectile point styles (basally-notched, corner-notched, and stemmed) occur in relatively contemporaneous contexts. This profusion of ceramic and tool traditions suggests population movement and social interaction between culture areas. Site types include constructed mounds as well as special-use camps and long term settlements.

Mississippian cultural development began in the central Mississippi Valley around AD 750 and was adopted by cultures in Florida between AD 800 and AD 1000. It was characterized by elaborate community developments including truncated pyramidal mounds, large plazas, and a chiefdom-level of socio-political organization. Other distinctive traits include small, triangular-shaped projectile points, the use of the bow, religious ceremonialism, increased territoriality and warfare, and, in some areas, development of agriculture (Milanich 1994:355–412). The APE is located in the East and Central cultural region (Milanich 1994:208), which includes the lower and central portions of the St. Johns River, its tributaries, adjacent portions of the coastal barrier–salt marsh–lagoon system, and the Central Florida Lake District.

FLORIDA MASTER SITE FILE SEARCH AND LITERATURE REVIEW

A comprehensive FMSF search and literature review was performed to determine the locations of National Register–listed, National Register–eligible, and potentially National Register–eligible cultural resources. In addition, Geographic Information Systems (GIS) data, local property appraiser’s data, information from the in-house Janus Research library, and historic aerials were consulted during the background research.

The FMSF search identified two previously conducted cultural resource surveys that include portions of the APE or are adjacent to the APE. *A Cultural Resource Assessment of the Seminole Electric Property in Putnam County, Florida* was conducted by Cultural Resource Management, Inc. in 1978 (Cultural Resource Management, Inc. 1978; FMSF Manuscript No.

105). The survey included the site of the proposed electric generating plant and associated pipeline corridors. The locations and extent of subsurface testing is not included in the report and it is not known if testing was conducted within the current APE. This report also does not meet the current standards embodied in the FDHR cultural resource compliance program. In 2006, Janus Research completed a *Letter Report for Background Research and Reconnaissance Survey of the Hampton Homestead (8PU118) within the SGS Unit 3 Project Area, Putnam County, Florida* (Janus Research 2006; FMSF Manuscript No. 13305). The survey was conducted for an equipment storage area associated with the potential development of SGS Unit 3. No archaeological sites were identified during the survey.

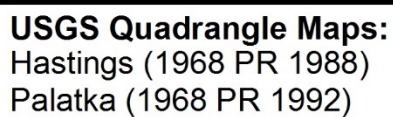
The review of the FMSF identified three late 19th or early 20th century sites (8PU114, 8PU115, and 8PU116) within 0.5 miles of the APE (Figure 3). Only 8PU115 is partially recorded in the APE. 8PU114, identified on the FMSF form as the Hart Homestead, was identified based on the presence of a brick fireplace foundation, a scatter of brick and metal and an early 20th century trash pit. Although noted by the surveyor as ineligible, the State Historic Preservation Officer (SHPO) has not evaluated this site for eligibility in the National Register.

8PU115, the Hampton Homestead, was identified based on the presence of scattered artifacts, including bottle glass, transfer printed ceramics, metal, and portions of a wood stove. This site was initially recorded in 1978 during *A Cultural Resource Assessment of the Seminole Electric Property in Putnam County* (Cultural Resource Management, Inc. 1978; FMSF Manuscript 105). The initial recorder determined the site to be National Register–ineligible. The site was revisited by Janus Research during the 2006 survey conducted on behalf of SECI. The survey consisted of background research, subsurface testing, and metal detecting of a laydown area associated with Unit 3 of the facility. This survey included a portion of the southern end of the current APE and focused on identifying the location of 8PU115, which was recorded to the west of the current APE. No evidence of the site or any other cultural resource was identified. The results of the survey suggested that the homestead may have been destroyed during previous construction and no further archaeological investigation was recommended. In a letter dated September 29, 2006, the SHPO concurred with this recommendation (Appendix A). Because no evidence of the site was found, the SHPO noted on the FMSF form that there is insufficient information to determine its eligibility.

8PU116, the Crew Homestead, is located approximately 0.5 miles to the east of the project APE. This site was identified by the presence of a sparse scatter of metal fragments and brick. Although noted by the surveyor as ineligible, the SHPO has not evaluated the eligibility of this site.

PUTNAM COUNTY GOVERNMENT COORDINATION

Putnam County is not on the FDHR February 24, 2017 list of Florida Certified Local Governments (CLG) (FDHR 2017). Coordination was conducted with the Putnam County Planning and Development Department to determine if any resources listed in the county Local Register, as identified in Section 4.04 of the Land Development Code, were within the APE. In an email dated March 29, 2017, Mike Brown, the Planning Director stated that no locally listed resources are within the APE.



PROJECT RESEARCH DESIGN AND SITE LOCATION MODEL

The background research and literature review, in conjunction with pertinent environmental variables, contributed to the formulation of project-specific field methods designed to locate and evaluate previously unrecorded archaeological sites and historic structures within the project APE.

Based on the archaeological literature concerning the validity of site predictive models and the various environmental variables used to formulate such predictions, four environmental variables were used to predict archaeological site potential: distance to fresh water, soil type (soil drainage), distance to hardwood hammocks, and relative elevation. Soil type and relative elevation relate to the water drainage pattern found in a particular area. Fresh water is obviously an important resource, as the need for water is universal. This variable would have been of greater importance during the Paleoindian and Early Archaic periods (12,000–5000 BC) when the perched water system was more restricted. Access to water during these early periods would have been from sinkholes and aquifer-fed rivers. The closest freshwater is Fish Creek and an associated marsh which is approximately 0.5 miles to the southeast.

The characteristics of soils have been used successfully by several researchers in the formulation of predictive models for precontact site location. In general, soils with an organic pan, with underlying marl or clays, and with slow to moderate internal drainage tend to retain water or be inundated. Areas with a low elevation relative to perched water systems tend to be wet or inundated. Although wet areas can contain abundant wildlife and plant resources, they make poorer habitation areas when better-drained locations are available. As noted, the soils associated with the project area are moderately drained, suggesting a moderate archaeological site potential.

The review of pertinent environmental features suggests that a portion of the APE has high to moderate archaeological probability. The high archaeological area is located in the southeastern corner where historic plat maps and aerial photographs indicate the presence of a hammock. The remainder of the APE has low archaeological potential due to the presence of gravel, hardscape, or visible land alternations.

FIELD METHODS

The archaeological survey included a pedestrian survey to assess existing conditions as well as subsurface testing. Subsurface testing in areas of high archaeological site potential were conducted at approximately 25-m (80 ft) intervals. Testing in any areas having moderate archaeological site potential were tested at approximately 50-m (160 ft) intervals. Testing in areas of low archaeological site potential were tested judgmentally at intervals no closer than 100 m (320 ft). Subsurface tests were 0.5 m (20 in.) in diameter and excavated to a minimum depth, subsurface conditions permitting, of one meter (3.3 ft). All excavated soil was sifted through 6.4 mm ($\frac{1}{4}$ in.) metal hardware cloth screen suspended from portable wooden frames. Any cultural materials recovered were stored in plastic bags with all provenience data recorded. The identification number, location, stratigraphic profile, and soil descriptions were recorded for every shovel test performed and their locations marked on aerial photographs (Appendix B).

Processing of artifacts consisted of cleaning, inventorying, packaging, and temporary storage of the artifacts recovered. Any artifacts found during the survey will be transferred to SECI, as requested.

RESULTS AND CONCLUSIONS

A total of 28 shovel tests were excavated in the project area. Three small chert flakes were found in two of the tests, Shovel Tests (ST) 8 and 16. ST 8 yielded one proximal thinning flake between 1 and 2 mm in size. One distal retouch flake that measured less than 1 mm and one unidentifiable longitudinal flake that measured 1 to 2 mm were found in ST16. The positive shovel tests were bound at 25-meter intervals until two negative shovel tests were excavated (Appendix B). No additional artifacts were identified. Representative photographs of the shovel tests and APE are included in Figures 4–6.

In accordance with the guidelines of the FDHR, the three flakes were documented as archaeological occurrences that do not yield valuable information and are not considered National Register–eligible. Based on the results of the CRAS, no National Register–eligible historic resources or archaeological sites were identified and no impacts to significant resources are anticipated.



Figure 4: North End of the Archaeological APE, Facing South



Figure 5: North End of the Archaeological APE, Facing North



Figure 6: Archaeological APE Near ST 8, Facing North

Unanticipated Finds

Should construction activities uncover archaeological remains, it is recommended that activity in the immediate area of the remains be stopped while a professional archaeologist evaluates the remains. In the event that human remains are found during construction or maintenance activities, the provisions of Chapter 872.05 of the *Florida Statutes* will apply. Chapter 872.05 states that, when human remains are encountered, all activity that might disturb the remains shall cease and may not resume until authorized by the District Medical Examiner or the State Archaeologist. The District Medical Examiner has jurisdiction if the remains are less than 75 years old or if the remains are involved in a criminal investigation. The State Archaeologist has jurisdiction if the remains are 75 years of age or older.

Curation

Field notes and other pertinent project records are temporarily stored at Janus Research until requested by SECI. A survey log for this report is included in Appendix C.

REFERENCES CITED

Bense, Judith

1994 *Archaeology of Southeastern United States*. Academic Press, San Diego, California.

Bullen, Ripley P.

1968 Beveled Stemmed Points from Tampa Bay. *The Florida Anthropologist* 21:90–98.

Bullen, Ripley P., and Edward M. Dolan

1959 The Johnson Lake Site, Marion County, Florida. *The Florida Anthropologist* 12:77–99.

Clausen, Carl J., H. R. Brooks, and A. B. Wesolowsky

1975 *Florida Spring Confirmed as 10,000-Year-Old Early Man Site*. Florida Anthropological Society Publications 7. Gainesville, Florida.

Cultural Resource Management, Inc.

1978 *A Cultural Resource Assessment of the Seminole Electric Property in Putnam County, Florida*. Manuscript on file, Florida Department of State, Division of Historical Resources, Tallahassee.

Daniel, I. Randolph, and Michael Wisenbaker

1987 *Harney Flats: A Florida Paleo-Indian Site*. Baywood Press, Farmingdale, New York.

Dunbar, James, and Ben I. Waller.

1983 A Distribution Analysis of the Clovis/Suwannee Paleoindian Sites of Florida—A Geographic Approach. *The Florida Anthropologist* 36(1-2):18–30.

Florida Department of Environmental Protection (FDEP)

1849a Plat Map for Township 9 South, Range 27 East. Division of State Lands, Board of Trustees Land Document System. Electronic document, <http://tlhdsweb.dep.state.fl.us/image.asp?index=2&id=112149&qryid=45932.57&imageid=112149&page=1&format=p>, accessed January 16, 2017.

1849b Surveyors' Notes for Township 9 South, Range 27 East. Electronic document, http://labins.org/survey_data/landrecords/glo_volssearch.cfm?mvol=053, accessed January 16, 2017.

Florida Department of Transportation (FDOT), Surveying and Mapping Office

2016 Aerial Photography Archive. Electronic documents, <https://fdotewp1.dot.state.fl.us/AerialPhotoLookUpSystem/>, accessed January 16, 2017.

Florida Division of Historic Resources (FDHR)

2017 Florida Certified Local Governments (As of February 24, 2017). Electronic document, <http://dos.myflorida.com/media/697569/clg-list-22417.pdf>, accessed March 15, 2017.

Goodyear, Albert C., and Lyman O. Warren

- 1972 Further Observations on the Submarine Oyster Shell Deposits of Tampa Bay. *The Florida Anthropologist* 25(2, part 1):52–66.

Goodyear, Albert C., Sam B. Upchurch, and Mark J. Brooks

- 1980 Turtlecrawl Point: An Inundated Early Holocene Archaeological Site on the West Coast of Florida. In *Southeastern Geological Society Guidebook* 22, edited by S. B. Upchurch, pp. 24–33. Tallahassee, Florida.

Janus Research

- 2009 *Letter Report for Background Research and Reconnaissance Survey of the Hampton Homestead (8PU118) within the SGS Unit 3 Project Area, Putnam County, Florida.* Manuscript on file, Florida Department of State, Division of Historical Resources, Tallahassee.

Milanich, Jerald T.

- 1994 *Archaeology of Precolumbian Florida.* University Press of Florida, Gainesville.

Neill, Wilfred T.

- 1958 A Stratified Early Site at Silver Springs, Florida. *The Florida Anthropologist* 12:33–52.
1964 Trilisa Pond, an Early Site in Marion County, Florida. *The Florida Anthropologist* 17:187–200.

Purdy, Barbara Ann

- 1975 The Senator Edwards Chipped Stone Workshop Site (MR-122), Marion County, Florida: A Preliminary Report of Investigations. *The Florida Anthropologist* 28:178–189.
1981 *Florida's Precontact Stone Tool Technology.* University of Florida Press, Gainesville, Florida.

Purdy, Barbara A., and Laurie M. Beach

- 1980 The Chipped Stone Tool Industry of Florida's Preceramic Archaic. *Archaeology of Eastern North America* 8:105–124.

United States Department of Agriculture (USDA)

- 1990 *Soil Survey of Putman County Area, Florida.* USDA/Soil Conservation Service.

University of Florida, George A. Smathers Libraries

- 2017 Aerial Photography: Florida Collection. University of Florida Digital Collections. Electronic documents, <http://ufdc.ufl.edu/aerials>, accessed January 4, 2017.

Warren, Lyman O.

- 1964 Possibly Submerged Oyster Shell Middens of Upper Tampa Bay. *The Florida Anthropologist* 17(4):227–230.

1970 The Kellog Fill from Boca Ciega Bay, Pinellas County, Florida. *The Florida Anthropologist* 23:163–167.

Warren, Lyman O., and Ripley P. Bullen

1965 A Dalton Complex from Florida. *The Florida Anthropologist* 18:29–32.

Watts, William A.

1969 A Pollen Diagram from Mud Lake, Marion County, North-central Florida. *Geological Society of America, Bulletin* 80:631–642.

1971 Post-Glacial and Interglacial Vegetation History of Southern Georgia and Central Florida. *Ecology* 52:676–689.

Watts, William A., and Barbara C. S. Hansen

1988 Environments of Florida in the Late Wisconsin and Holocene. In *Wet Site Archaeology*, edited by Barbara A. Purdy, pg. 307–323. The Telford Press, Caldwell, New Jersey.

White, William A.

1970 The Geomorphology of the Florida Peninsula. *Geological Bulletin* No. 51, Bureau of Geology, State of Florida Department of Natural Resources.

APPENDIX A:

SHPO CONCURRENCE LETTER FOR THE 2006 SURVEY



13305

FLORIDA DEPARTMENT OF STATE

Sue M. Cobb

Secretary of State

DIVISION OF HISTORICAL RESOURCES

Mr. Mike Roddy
Seminole Electric Cooperative, Inc.
16313 North Dale Mabry Highway
Tampa, Florida 333688-2000

September 29, 2006

Re: DHR Project File No. 2006-07494 / Received by DHR: August 24, 2006
Letter Report for Background Research and Reconnaissance Survey of the Hampton Homestead (8PU115) within the SGS Unit 3 Project Area, Putnam County, Florida

Dear Mr. Roddy:

Our office received and reviewed the above referenced survey report in accordance with Chapter 267, and 373 *Florida Statutes*, for assessment of possible adverse impact to cultural resources (any prehistoric or historic district, site, building, structure, or object) listed, or eligible for listing, in the *National Register of Historic Places (NRHP)*, or otherwise of historical, architectural or archaeological value.

In June 2006, Janus Research conducted an archaeological and historical survey of the Hampton Homestead site on behalf of Seminole Electric Cooperative, Inc. Janus Research could not locate any remnants of the Hampton Homestead (8PU115) during the course of the investigation.

It is the opinion of Janus Research that the historical significance of John Hampton does not have great regional or local historical importance. No historic cultural resources were located at the reported site location and no cultural materials were observed. It is believed by Janus Research that the homestead may have been destroyed during construction of the Seminole Electric Pipeline. No further archaeological work is recommended for this property.

Based on the information provided, our office concurs with these determinations and finds the submitted report complete and sufficient in accordance with Chapter 1A-46, *Florida Administrative Code*.

If you have any questions concerning our comments, please contact Scott Sorset, Historic Sites Specialist, by phone at (850) 245-6333, or by electronic mail at srsorset@dos.sate.fl.us. Your continued interest in protecting Florida's historic properties is appreciated.

Sincerely,

Frederick P. Gaske, Director, and
State Historic Preservation Office

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

☐ Director's Office
(850) 245-6300 • FAX: 245-6436

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

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

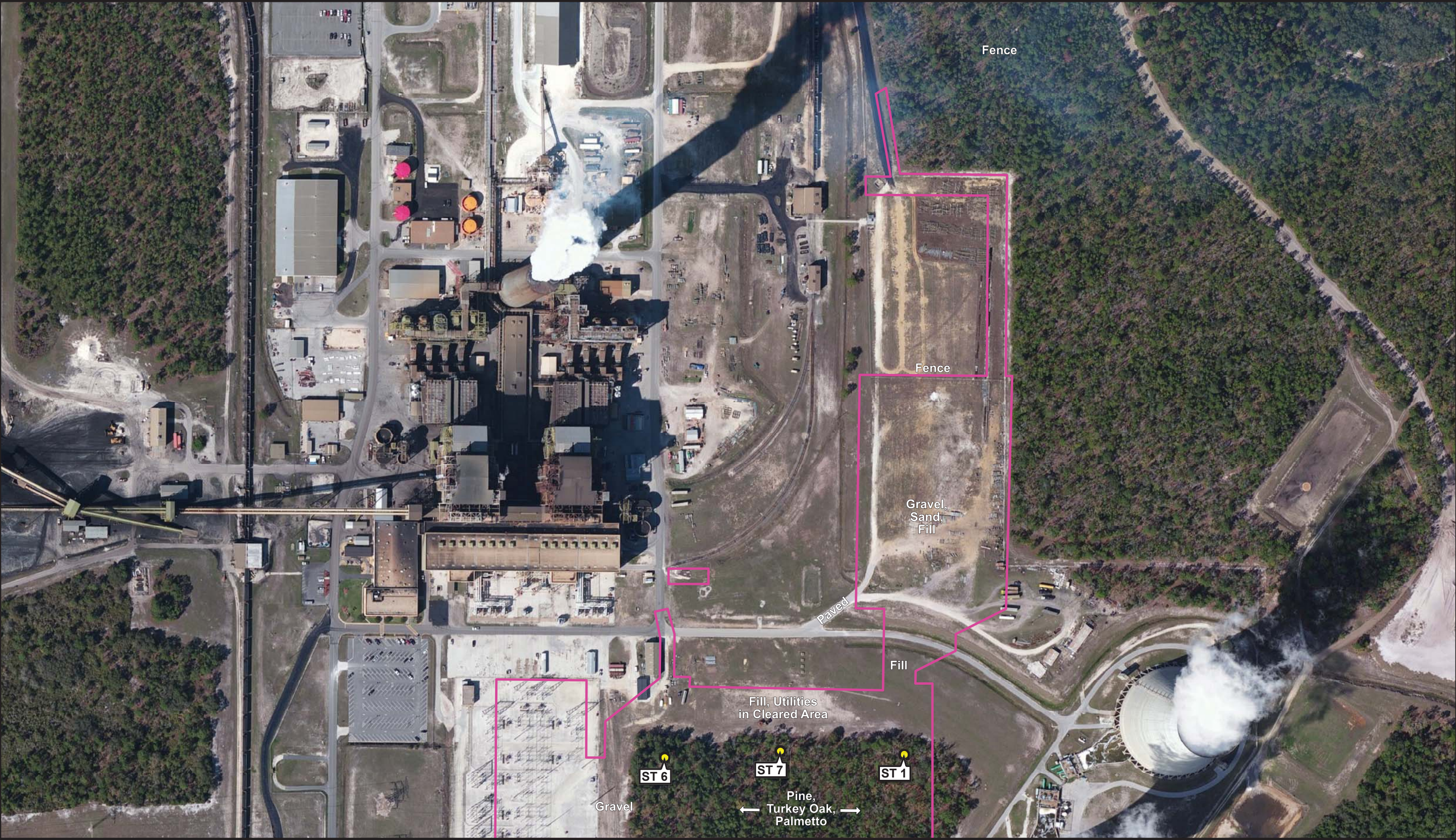
☐ Historical Museums
(850) 245-6400 • FAX: 245-6433

☐ Southeast Regional Office
(954) 467-4990 • FAX: 467-4991

☐ Northeast Regional Office
(904) 825-5045 • FAX: 825-5044

☐ Central Florida Regional Office
(813) 272-3843 • FAX: 272-2340

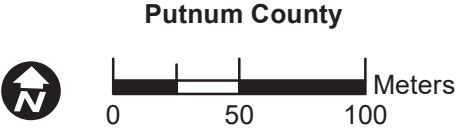
APPENDIX B:
LOCATION OF SHOVEL TESTS AND CURRENT CONDITIONS ILLUSTRATED
ON AN AERIAL PHOTOGRAPH



**Seminole Combined Cycle
Facility (SCCF)**

*Archaeological
Resources
Field Mapping*

- | | | |
|--|--|--|
|  Archaeological APE |  High Probability |  Positive Shovel Test |
|  Previously Surveyed (Janus Research 2006) |  Moderate Probability |  Negative Shovel Test |

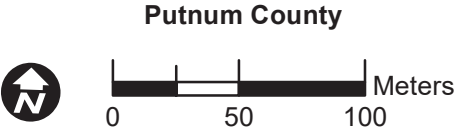




**Seminole Combined Cycle
Facility (SCCF)**

*Archaeological
Resources
Field Mapping*

- | | | |
|--|--|--|
|  Archaeological APE |  High Probability |  Positive Shovel Test |
|  Previously Surveyed (Janus Research 2006) |  Moderate Probability |  Negative Shovel Test |



APPENDIX C:
SURVEY LOG

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) Seminole Electric Cooperative, Inc (SECO) Seminole Combined Cycle Facility (SCCF) Generating Station in Putnam County, Florida

Report Title (exactly as on title page) Cultural Resource Assessment Survey (CRAS) for the Seminole Electric Cooperative, Inc (SECO) Seminole Combined Cycle Facility (SCCF) Generating Station in Putnam County, Florida

Report Authors (as on title page, last names first) 1. Janus Research 3. _____
2. _____ 4. _____

Publication Date (year) 2017 **Total Number of Pages in Report** (count text, figures, tables, not site forms) 19

Publication Information (Give series, number in series, publisher and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*.)
Janus Research, 1107 N. Ward Street, Tampa FL 33607

Supervisors of Fieldwork (even if same as author) Names Hoffman, Kathleen, Ph.D.

Affiliation of Fieldworkers: Organization Janus Research City Tampa

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

1. Seminole Electric 3. Generating Station 5. _____ 7. _____
2. Combined Cycle Facility 4. _____ 6. _____ 8. _____

Survey Sponsors (corporation, government unit, organization or person directly funding fieldwork)

Name Seminole Electric Cooperative, Inc Organization _____

Address/Phone/E-mail 3701 NW 98th Street, Gainesville, FL 32606

Recorder of Log Sheet Janus Research **Date Log Sheet Completed** 3-14-2017

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

Mapping

Counties (List each one in which field survey was done; attach additional sheet if necessary)

1. Putnam 3. _____ 5. _____
2. _____ 4. _____ 6. _____

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

1. Name PALATKA Year 1992 4. Name _____ Year _____
2. Name _____ Year _____ 5. Name _____ Year _____
3. Name _____ Year _____ 6. Name _____ Year _____

Description of Survey Area

Dates for Fieldwork: Start 12-9-2016 End 12-9-2016 **Total Area Surveyed** (fill in one) _____ hectares 61.5 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 Pedestrian Survey and subsurface testing. A total of 28 shovel tests were excavated.

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): Janus Library

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): Historic aerial photographs

Survey Results (cultural resources recorded)

Site Significance Evaluated? ☐ Yes ☒ No

Count of Previously Recorded Sites 0 Count of Newly Recorded Sites 0

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

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

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

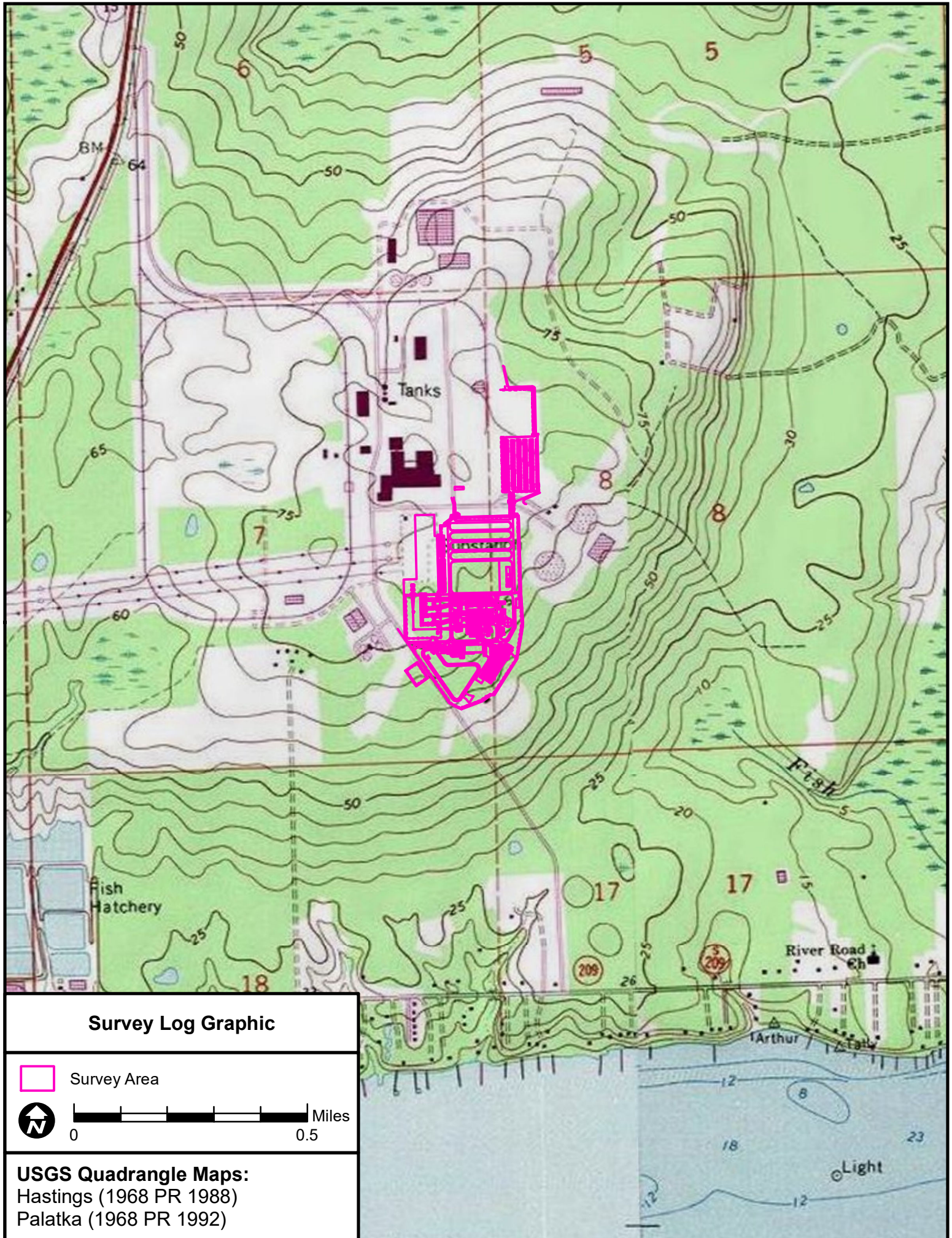
*****REQUIRED: ATTACH PLOT OF SURVEY AREA ON PHOTOCOPY OF USGS 1:24,000 MAP(S)*****

SHPO USE ONLY

SHPO USE ONLY

SHPO USE ONLY

Origin of Report: ☐ 872 ☐ CARL ☐ UW ☐ 1A32 # _____ ☐ Academic ☐ Contract ☐ Avocational
☐ Grant Project # _____ ☐ Compliance Review: CRAT # _____
Type of Document: ☐ Archaeological Survey ☐ Historical/Architectural Survey ☐ Marine Survey ☐ Cell Tower CRAS ☐ Monitoring Report
☐ Overview ☐ Excavation Report ☐ Multi-Site Excavation Report ☐ Structure Detailed Report ☐ Library, Hist. or Archival Doc
☐ MPS ☐ MRA ☐ TG ☐ Other: _____
Document Destination: _____ Plotability: _____



Survey Log Graphic

 Survey Area

 0 0.5 Miles

USGS Quadrangle Maps:
Hastings (1968 PR 1988)
Palatka (1968 PR 1992)

Appendix 10.7.3

Ambient Noise Monitoring Report Seminole Generating Station

**AMBIENT NOISE
MONITORING REPORT
SEMINOLE GENERATING STATION
PALATKA, FLORIDA**

Prepared for:

**SEMINOLE ELECTRIC COOPERATIVE, INC.
Tampa, Florida**

Prepared by:



ECT No. 150658-0200

March 2016

DOCUMENT REVIEW

The dual signatory process is an integral part of Environmental Consulting & Technology, Inc's (ECT's) Document Review Policy No. 9.03. All ECT documents undergo technical/peer review prior to dispatching these documents to any outside entity.

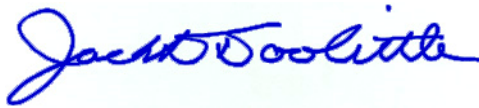
This document has been authored and reviewed by the following employees:

William F. Karl
Author


Signature

March 31, 2016
Date

Jack D. Doolittle
Peer Review


Signature

March 31, 2016
Date

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 INTRODUCTION	1
2.0 BACKGROUND	2
3.0 METHODOLOGY	5
4.0 RESULTS	6
5.0 DISCUSSION	7

APPENDICES

APPENDIX A—LARSON DAVIS 831 SOUND LEVEL METER
CERTIFICATION

APPENDIX B—LARSON DAVIS CAL200 CALIBRATOR
CERTIFICATION

APPENDIX C—PUTNAM COUNTY NOISE STANDARDS

1.0 INTRODUCTION

Seminole Electric Cooperative, Inc. (SECI), contracted Environmental Consulting & Technology, Inc. (ECT), to conduct ambient noise measurements at several fenceline noise receptor locations at the Seminole Generating Station (SGS) located in Palatka, Florida. The purpose of obtaining ambient noise measurements was to establish current baseline ambient noise levels during daytime and nighttime hours when both SGS Units 1 and 2 are operating at full load. Ambient noise measurements were conducted on Thursday, February 25, 2016, during daytime hours (sunup to sundown) and again during nighttime hours (sundown to sunup).

2.0 BACKGROUND

SECI is considering the addition of a combined-cycle combustion turbine at their existing SGS for additional electrical power generation. The proposed general location of the combustion turbine power block is south of the existing SGS Units 1 and 2 near the pavilion along South Entrance Road. Five fenceline locations along the southern portion of the SGS property were selected as ambient noise receptors. Figure 1 provides an aerial map that graphically shows the location of the noise receptors. Table 1 provides the exact coordinates of each noise receptor location.

Table 1. Ambient Noise Receptor Locations

Noise Receptor Location	Description	Latitude	Longitude
1	Eastern boundary adjacent to cooling towers	N29 44.062	W81 37.424
2	Western boundary along transmission line corridor	N29 43.707	W81 38.661
3	Southwestern boundary	N29 43.389	W81 38.225
4	Southern boundary along south entrance road	N29 43.167	W81 37.663
5	Southeastern boundary	N29 43.385	W81 37.406

Source: ECT, 2016.

The five ambient noise receptors listed in Table 1 were selected for the following two reasons. One, Putnam County's noise ordinance states the maximum permissible sound levels should be taken at the property line of the generating source of the noise. Two, these noise receptor locations provide the nearest fenceline points in varying directions to the proposed combined-cycle combustion turbine location.

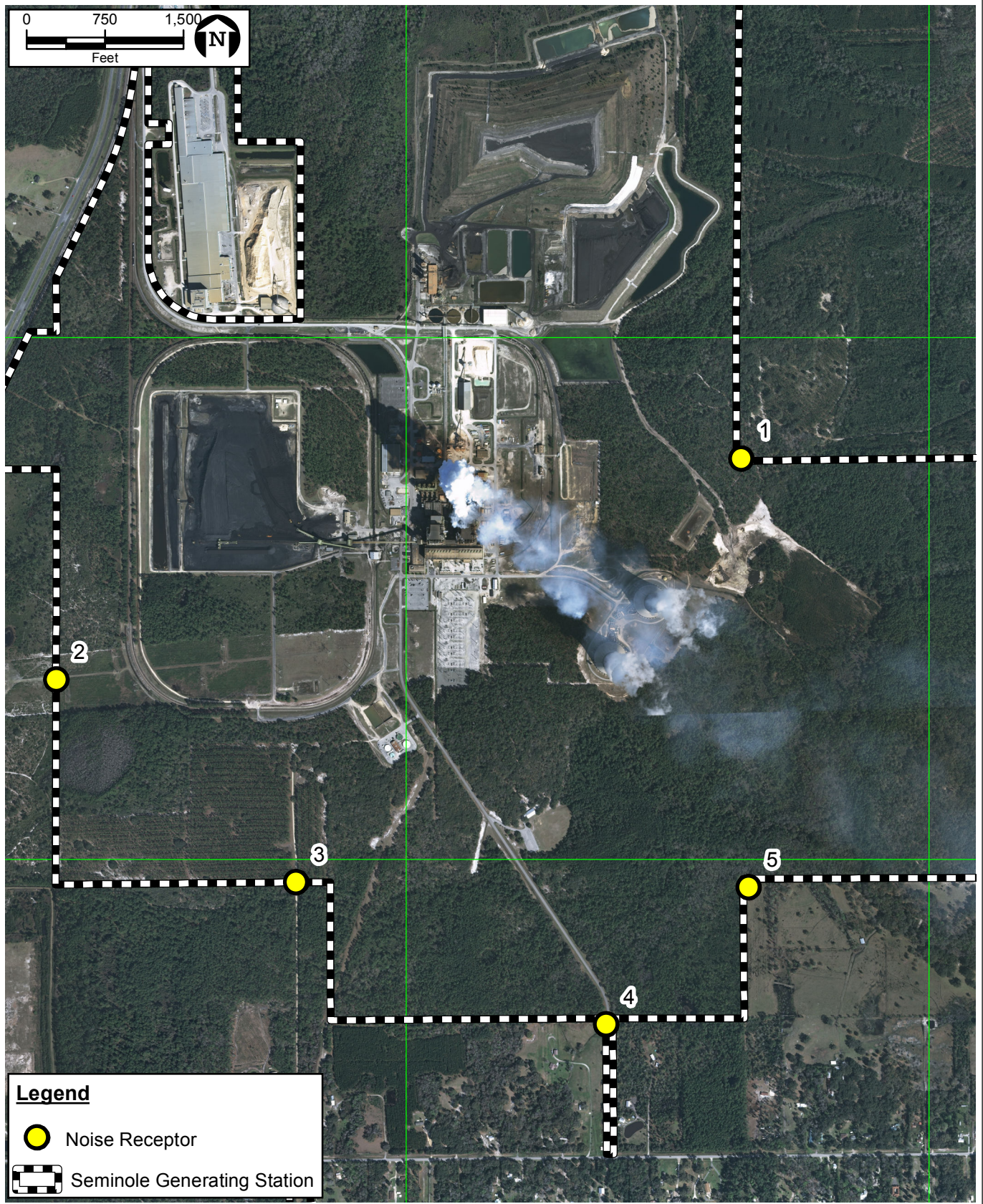


FIGURE 1
SEMINOLE GENERATING STATION
PALATKA, FL
NOISE RECEPTOR SITES

Sources:FLDOT, 2014; ECT, 2016.

ECT Environmental
Consulting &
Technology, Inc.

Putnam County's noise standards are located in Article VII, Chapter 18, Putnam County Code (See Appendix C for a copy of the Putnam County noise standards). The Putnam County standards apply only to "amplified sound," which is "any noise or sound that is artificially enhanced or increased in volume by means of amplifier, speaker, tape or disc player, radio, or any other mechanical or electronic device" (see § 18-199, Putnam County Code). Noise produced by electrical power generation does not involve amplified sound. Therefore, Putnam County noise standards are not applicable. Because there are no noise standards applicable to electrical generation at SGS, Putnam County's amplified noise standards are addressed here for informational comparison purposes.

Under Putnam County's standards, the maximum permissible amplified sound levels are specified by the day/time and whether the property experiencing the noise disturbance is "noise sensitive." Table 2 provides a summary of the maximum allowable amplified sound levels allowed.

Table 2. Maximum Allowable Amplified Sound Limits

Property Experiencing Noise Disturbance	Day of Week/Time of Day	Sound Level Limit, L_{eq} (dB)	
Noise sensitive	All day/any time	65 (A-wt)	70 (C-wt)
All others	Sunday-Thursday/8:01 a.m. – 10 p.m.	70 (A-wt)	75 (C-wt)
	Sunday-Thursday/10:01 p.m. – 8 a.m.	65 (A-wt)	70 (C-wt)
	Friday-Saturday/8:01 a.m. – 11:30 p.m.	75 (A-wt)	80 (C-wt)
	Friday-Saturday/11:31 p.m. – 8 a.m.	65 (A-wt)	70 (C-wt)

Source: Article VII, Chapter 18, § 18-201, Putnam County Code (amended March 8, 2016).

Noise sensitive uses are hospitals, nursing homes, schools, courts of law, or other areas designated by resolution of the Putnam County Board of County Commissioners. There are no noise sensitive properties in the immediate vicinity of SGS; therefore, if applicable, the maximum permissible sound levels would be 65 dBA during the nighttime and either 70 or 75 dBA during the daytime, depending on the day of the week.

3.0 METHODOLOGY

On Thursday, February 25, 2016, ECT conducted ambient noise measurements at the five fenceline noise receptor locations listed in Table 1. Ambient sound pressure levels were continuously measured for 30 minutes at each of the monitoring sites using a Larson-Davis® Model 831 sound level meter with integral octave band analyzer and free field microphone. The Larson-Davis® Model 831 meets the requirements of American National Standards Institute (ANSI) S1.4-1983 for Type I precision sound level meters. The microphone was positioned at a height of approximately 5 feet (ft) above the ground. A foam windscreen was used during all measurements to reduce wind-generated noise across the microphone. The sound level meter was calibrated before and after the ambient noise measurements using a Larson-Davis® CAL200 sound level calibrator. All ambient noise measurements were taken using generally accepted industry practices for measuring ambient noise levels.

The sound level meter was set for a slow response using the linear integration method and was programmed to measure and record the equivalent continuous sound level (L_{eq}) in A-weighted decibels (dBAs). The L_{eq} is a sound energy level averaged over a specified time period and represents, in a single constant numerical value, the amount of actual time-varying sound energy received during the time interval. The strength of the L_{eq} lies in the ability to assess the total time-varying effects of noise on sensitive receptors. LA_{eq} represents the L_{eq} measured in decibels on the A-scale.

The Larson-Davis® Model 831 sound level meter was manually started and continuously monitored the ambient noise for a period of 30 minutes. The sound pressure levels measured and presented in this report represent the time-weighted average of the sound pressure level over a period of 30 minutes. It was assumed ambient noise levels would be steady-state with no variability in the noise levels over time. The noise receptor locations were well away from any major roadway or other business activity that may cause an increase or decrease in ambient noise levels.

4.0 RESULTS

Table 3 summarizes the results of sound pressure levels at the five receptor locations for daytime and nighttime ambient noise measurements.

Table 3. Sound Pressure Levels

Noise Receptor	Time Log Start Stop		Octave Band Center Frequencies (Hertz):									
			31.5	63	125	250	500	1,000	2,000	4,000	8,000	LA _{eq}
			Sound Pressure Levels (dBA)									
<u>Daytime</u>												
1	7:06	7:36	28.8	35.0	38.8	42.8	49.1	49.3	42.7	38.6	38.9	53.3
2	7:58	8:28	26.1	31.7	35.1	36.8	43.0	45.0	40.6	40.3	39.7	48.9
3	8:44	9:14	20.1	31.0	34.4	38.5	45.3	46.9	42.8	39.8	39.1	50.5
4	9:25	9:55	29.4	35.5	37.9	40.9	46.0	47.3	44.2	41.9	40.2	52.0
5	10:19	10:49	19.1	31.1	37.0	39.7	45.6	46.5	43.4	40.6	39.5	50.8
<u>Nighttime</u>												
1	19:46	20:16	28.3	34.4	37.9	43.6	50.4	49.3	42.6	38.2	38.8	53.8
2	20:32	21:02	18.4	21.9	26.0	30.7	38.8	38.5	35.4	37.7	38.7	41.9
3	21:15	21:45	20.1	30.2	34.2	37.3	42.1	39.0	35.9	37.6	38.7	45.0
4	22:11	22:41	19.9	31.7	35.8	40.3	42.3	40.0	36.5	37.8	38.7	46.3
5	18:50	19:20	18.5	29.6	36.4	32.8	41.7	38.8	35.7	37.8	38.8	44.6

Source: ECT, 2016.

The results of the noise measurements demonstrate that, even if applicable, the noise levels at these five noise receptors would be below maximum permissible amplified sound levels specified in Putnam County's noise standards.

Unit 1 was at full load, i.e. 680 megawatts (MW) for both testing periods. Unit 2 was at 646 MW at 7:00 and ramped up to full load (680 MW) by 7:46. Unit 2 began to ramp down at 10:46, three minutes before the end of the daytime noise measurements.

During nighttime noise measurements, Unit 2 was at 653 MW at 19:00 and ramped up to full load by 19:31. Unit 2 began to ramp down at 22:30.

5.0 DISCUSSION

Daytime noise measurements commenced at 7:06 am and ended at 10:49 am. Noise measurements started at noise receptor 1 and continued sequentially to noise receptor 5. The skies were clear, and the ambient temperature was 48 degrees Fahrenheit throughout the morning readings. A weather front was moving through the area, and the wind was consistently blowing at 10 to 15 miles per hour (mph) with gusts greater than 15 mph. There was no precipitation throughout the ambient noise measuring timeframe. High winds affected several daytime noise measurements by creating noise from movement and rustling of pine trees. This was noticeable at noise receptors 3 and 4, as these locations were surrounded by pine trees. The overall noise level increased to approximately 55 to 58 dBA during these periods of high wind.

Nighttime noise measurements commenced at 18:50 and started at noise receptor 5. This was due to the fact that access to noise receptor 5 had to be provided through private property located southeast of this receptor location. It was more convenient to the property owner to perform this measurement in the early evening. Noise readings were then conducted for noise receptors 1 through 4. The wind was considerably less during nighttime noise measurements. Nighttime noise measurements ended at 22:41.

Ambient noise was generally steady-state throughout the daytime and nighttime hours with few intermittent noise sources. There was a coal train that arrived during daytime noise measurements at noise receptor 2. This only affected approximately two minutes out of the 30-minute measurement period. There was an occasional helicopter or train heard during the nighttime measurement at noise receptor 3. However, these short, intermittent noise sources did not affect the overall noise measurement, which was measured and weighted over a 30-minute period.

The difference between daytime and nighttime was due primarily to the noise generated from the pine trees due to the high winds during the daytime hours.

APPENDIX A

LARSON DAVIS 831 SOUND LEVEL METER CERTIFICATON

Certificate of Calibration and Conformance

This document certifies that the instrument referenced below meets published specifications per Procedure PRD-P263; ANSI S1.4-1983 (R 2006) Type 1; S1.4A-1985; S1.43-1997 Type 1; S1.11-2004 Octave Band Class 0; S1.25-1991; IEC 61672-2002 Class 1; 60651-2001 Type 1; 60804-2000 Type 1; 61260-2001 Class 0; 61252-2002.

Manufacturer:	Larson Davis	Temperature:	72.8	°F
Model Number:	831		22.67	°C
Serial Number:	3331	Rel. Humidity:	38.4	%
Customer:	TMS Rental	Pressure:	1001.3	mbars
Description:	Sound Level Meter		1001.3	hPa
Note:	As Found / As Left: In Tolerance			

Upon receipt for testing, this instrument was found to be:

Within the Stated tolerance of the manufacturer's specification

Calibration Date: 25-Sep-15

Calibration Due:

Calibration Standards Used:

Manufacturer	Model	Serial Number	Cal Due	Traceability No.
Larson Davis	LDSigGen/2239	0760/0109	4/7/2016	2014-193220

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at The Modal Shop and/or Larson Davis Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. Calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of The Modal Shop.

Technician: Andy McGuire

Signature:



The Modal Shop, Inc.
3149 East Kemper Road
Cincinnati, OH 45241
Phone: (513) 351-9919
(800) 860-4867
www.modalshop.com

APPENDIX B

LARSON DAVIS CAL200 CALIBRATOR CERTIFICATION

Calibration Certificate

Certificate Number 2015005902

Customer:

The Modal Shop
3149 East Kemper Road
Cincinnati, OH 45241, United States

Model Number	CAL200	Procedure Number	D0001.8386
Serial Number	11084	Technician	Scott Montgomery
Test Results	Pass	Calibration Date	19 Jun 2015
Initial Condition	Inoperable	Calibration Due	19 Jun 2016
Description	Larson Davis CAL200 Acoustic Calibrator	Temperature	24 °C ± 0.3 °C
		Humidity	33 %RH ± 3 %RH
		Static Pressure	101.2 kPa ± 1 kPa

Evaluation Method The data is acquired by the insert voltage calibration method using the reference microphone's open circuit sensitivity. Data reported in dB re 20 µPa.

Compliance Standards Compliant to Manufacturer Specifications per D0001.8190 and the following standards:
IEC 60942:2003 ANSI S1.40-2006

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2008.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

This report may not be reproduced, except in full, unless permission for the publication of an approved abstract is obtained in writing from the organization issuing this report.

Standards Used

Description	Cal Date	Cal Due	Cal Standard
Agilent 34401A DMM	09/04/2014	09/04/2015	001021
Sound Level Meter / Real Time Analyzer	04/07/2015	04/07/2016	001051
Microphone Calibration System	08/20/2014	08/20/2015	005446
1/2" Preamplifier	10/09/2014	10/09/2015	006506
Larson Davis 1/2" Preamplifier 7-pin LEMO	08/20/2014	08/20/2015	006507
1/2 inch Microphone - RI - 200V	07/25/2014	07/25/2015	006511
Pressure Transducer	05/07/2015	05/07/2016	007310

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001



LARSON DAVIS
A PCB PIEZOTRONICS DIV.

Output Level

Nominal Level [dB]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
114	101.4	114.00	113.80	114.20	0.13	Pass
94	101.2	93.99	93.80	94.20	0.14	Pass

-- End of measurement results--

Frequency

Nominal Level [dB]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
94	101.2	1,000.17	990.00	1,010.00	0.20	Pass
114	101.4	1,000.15	990.00	1,010.00	0.20	Pass

-- End of measurement results--

Total Harmonic Distortion + Noise (THD+N)

Nominal Level [dB]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
94	101.2	0.32	0.00	2.00	0.25	Pass
114	101.4	0.28	0.00	2.00	0.25	Pass

-- End of measurement results--

Level Change Over Pressure

Tested at: 114 dB, 24 °C, 34 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
108.0	108.1	0.00	-0.30	0.30	0.04	Pass
101.3	101.4	0.00	-0.30	0.30	0.04	Pass
92.0	91.9	0.03	-0.30	0.30	0.04	Pass
83.0	83.1	0.03	-0.30	0.30	0.04	Pass
74.0	74.0	-0.03	-0.30	0.30	0.04	Pass
65.0	65.1	-0.17	-0.30	0.30	0.04	Pass

-- End of measurement results--

Frequency Change Over Pressure

Tested at: 114 dB, 24 °C, 34 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
108.0	108.1	0.00	-10.00	10.00	0.20	Pass
101.3	101.4	0.00	-10.00	10.00	0.20	Pass
92.0	91.9	0.00	-10.00	10.00	0.20	Pass
83.0	83.1	0.00	-10.00	10.00	0.20	Pass
74.0	74.0	0.00	-10.00	10.00	0.20	Pass
65.0	65.1	0.00	-10.00	10.00	0.20	Pass

-- End of measurement results--



Total Harmonic Distortion + Noise (THD+N) Over Pressure

Tested at: 114 dB, 24 °C, 34 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
108.0	108.1	0.29	0.00	2.00	0.25	Pass
101.3	101.4	0.28	0.00	2.00	0.25	Pass
92.0	91.9	0.27	0.00	2.00	0.25	Pass
83.0	83.1	0.27	0.00	2.00	0.25	Pass
74.0	74.0	0.27	0.00	2.00	0.25	Pass
65.0	65.1	0.28	0.00	2.00	0.25	Pass

-- End of measurement results--

Signatory: Scott Montgomery

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001



LARSON DAVIS
A PCB PIEZOTRONICS DIV.

APPENDIX C

PUTNAM COUNTY NOISE STANDARDS

ARTICLE VII. - AMPLIFIED SOUND^[5]

Sec. 18-196. - Title.

The ordinance from which this article is derived may be known and cited as the "Amplified Sound Ordinance of Putnam County, Florida."

(Ord. No. 2016-7, § 1, 3-8-2016)

Sec. 18-197. - Applicability.

This article shall apply to and be enforced in all unincorporated areas of the county.

(Ord. No. 2016-7, § 1, 3-8-2016)

Sec. 18-198. - Temporary use permits.

The planning and development department director (the "director") may issue a permit for a temporary use for all non-noise sensitive areas. The director may place appropriate conditions upon the permit to ensure the protection of the health, safety and general welfare. If there is clear and convincing evidence that no conditions can be attached to the permit that will ensure the public safety, the director may deny the permit. The permit document shall be kept at the site of the temporary use and immediately made available upon request by a county code enforcement officer or a member of the county sheriff's office. Failure to produce the permit documents upon request will be deemed a violation of this article.

(Ord. No. 2016-7, § 1, 3-8-2016)

Sec. 18-199. - Definitions.

The following definitions shall apply in the interpretation, enforcement and intent of this article.

A-weighted sound pressure level shall mean the sound pressure level, in decibels, as measured on a sound level meter using the A-weighted network. The level so read shall be designated as dB(A-wt).

Amplified sound means any noise or sound that is artificially enhanced or increased in volume by means of amplifier, speaker, tape or disc player, radio, or any other mechanical or electronic device.

Background or ambient noise level shall mean the sound pressure level of the all-encompassing noise emanating from a given environment, usually being a composite of sound from many sources.

C-weighted sound pressure level shall mean the sound pressure level, in decibels, as measured on a sound level meter using the C-weighted network. The level so read shall be designated as dB(C-wt).

Continuous amplified sound means any amplified sound which does not vary in sound level by more than five dB(A-wt) or five dB(C-wt) during at least a 15 minute measurement period.

Decibel or *dB* shall mean a unit for describing the amplitude of sound, equal to 20 times the logarithm to the base ten of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micronewtons per square meter.

Equivalent sound pressure level (Leq) shall mean a sound level descriptor based on the average acoustic intensity over time. Leq is intended as a single number indicator to describe the mean energy or intensity level over a 15 minute period time during which the sound level fluctuated. Leq is measured in dB and must either be A-weighted, C-weighted, or both.

Intermittent amplified sound shall mean an amplified sound lasting more than one second and less than 15 minutes.

Noise control officer ("NCO") means the county sheriff, code enforcement officer, and any other law enforcement officer designated as such by the sheriff or the board of county commissioners.

Noise or *noise disturbance* shall mean any amplified sound produced in such quantity and for such duration that it annoys, disturbs or injures a reasonable individual of normal sensitivities, and exceeds the sound level limits set forth in table 1.

Property line shall mean an imaginary line along the surface of land or water, and its vertical plane extension, which separates the real property owned, rented or leased by a person from real property owned, rented or leased by another person.

Noise sensitive use means hospitals, nursing homes, schools, courts of law or other areas designated by resolution of the board of county commissioners.

Person means any individual, association, partnership, corporation or other entity and includes any officer, employee, department, agency or instrumentality of the United States, the state or any political subdivision thereof.

Sound level meter shall mean an instrument which includes a microphone, amplifier, RMS detector, integrator or time average, output meter, and weighting network used to measure sound pressure levels. The sound level meter shall be of type 2 or better.

Sound pressure level shall mean 20 times the logarithm to the base ten of the ratio of the root mean square sound pressure to the reference pressure of 20 micronewtons per meter squared. The sound pressure level is denoted L_p (or SPL) and is expressed in decibels.

(Ord. No. 2016-7, § 1, 3-8-2016)

TABLE 1: MAXIMUM ALLOWABLE AMPLIFIED SOUND LEVEL LIMITS
(measured with a Sound Level Meter)

Use of the Property Suffering the Noise Disturbance	Measurement	Measurement Location (upon the property suffering the Noise Disturbance)	Day of Week/Time of Day	Sound Level Limit
Noise Sensitive	LEQ	Property Line nearest to the source of the Amplified Sound	Any time/any day	65 dB(A-wt)/ 70 dB(C-wt)
All Others	LEQ	Property Line nearest to the source of the Amplified Sound	Sunday — Thursday 8:01 a.m. — 10:00 p.m.	70 dB(A-wt)/ 75 dB(C-wt)
			Sunday — Thursday 10:01 p.m. — 8:00 a.m.	65 dB(A-wt)/ 70 dB(C-wt)
			Friday — Saturday 8:01 a.m. — 11:30 p.m.	75 dB(A-wt)/ 80 dB(C-wt)

			Saturday 11:31 p.m. — Sunday 8:00 a.m.	65 dB(A- wt)/ 70 dB(C- wt)
--	--	--	---	---

(Ord. No. 2016-7, § 1, 3-8-2016)

Sec. 18-201. - Measurement of amplified sounds.

- (a) Amplified sound shall be measured with an integrating-averaging sound level meter.
- (b) Calibration of all instruments, components, and attachments shall conform to the manufacturers recommendations.
- (c) Measurement of amplified sound shall be made by individuals trained in a noise measurement program approved by the county.
- (d) Amplified sound shall be measured outdoors, at the property line of the property suffering the noise disturbance, which is closest to the source of the amplified sound.
- (e) Unless site conditions are prohibitive, measurements shall be taken at approximately four feet above the ground or water surface and at least five feet away from any obstruction or reflecting surface.
- (f) At sites with background or ambient noise levels which are at, or in excess of, the applicable sound level limits set forth in table 1, the maximum allowable amplified sound level will be the greater of three dB(A-wt)/dB(C-wt) above the sound level limits set forth in table 1, or one dB(A-wt)/dB(C-wt) above the background or ambient noise level.
- (g) All amplified sounds shall be measured for a period not less than 15 minutes in duration.
- (h) The average of the Leqs for intermittent amplified sounds shall be used to determine if a violation exists.

(Ord. No. 2016-7, § 1, 3-8-2016)

Sec. 18-202. - Exempt amplified sounds.

Safety signals and warning devices are exempt from the provisions of this article.

(Ord. No. 2016-7, § 1, 3-8-2016)

Sec. 18-203. - Enforcement responsibility.

The NCO shall have the enforcement responsibility for this Ordinance. The NCO shall investigate any potential violations of this Ordinance either on complaint of a person alleging a violation or upon personal audible sense. Such complainant may be anonymous.

(Ord. No. 2016-7, § 1, 3-8-2016.)

Sec. 18-204. - Violation; penalty.

It shall be unlawful for any person to hinder or prevent the performance of any act or duty authorized or required by this article. The NCO, finding probable cause that a person has committed an act in violation of this article, shall prosecute said person as described in F.S. § 125.69.

(Ord. No. 2016-7, § 1, 3-8-2016.)