MITIGATIVE EXCAVATIONS AT 8-SM-23:
A PREHISTORIC SITE LOCATED WITHIN THE CENTRAL FLORIDA-KATHLEEN 500kV TRANSMISSION LINE RIGHT-OF-WAY, SUMTER COUNTY, FLORIDA

For

FLORIDA POWER CORPORATION

St. Petersburg, Florida

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INTRODUCTION

Florida Power Corporation (FPC) contracted with Piper Archaeological Research, Inc. for a limited mitigative excavation of a 20 foot wide roadway corridor cross-cutting archaeological site 8-Sm-23, located within the Central Florida-Kathleen 500 kV transmission line right-of-way (S00672#001). The site, along with six other prehistoric sites, was located during the earlier reconnaissance survey required by Special Condition XIII of the Central Florida-Kathleen 500 kV Transmission Line Certification (stipulated by the "Transmission Line Siting Act" and implemented under Chapter 17-17.58(2)(e) of the Florida statutes). In the summary report of that survey, the authors recommended that only 8-Sm-23 be considered potentially eligible for nomination to the National Register of Historic Places (NR) (Piper, Piper and Hardin 1982:10-11). They further recommended that the site be preserved if feasible, and if not, that limited test excavations should be conducted. The Florida Division of Archives, History and Records Management (DAHRM) concurred with the author's recommendations (Percy 1983a). Subsequently, FPC advised the DAHRM that it planned to arrange for the professional archaeological excavation of a 20 foot wide corridor (proposed roadway) in the only portion of site 8-Sm-23 that was scheduled to be disturbed by project activities (Percy 1983a:2, Percy 1983b).

Responding to an authorization to proceed from FPC, mitigation of the proposed 20 foot wide road corridor was begun with the generation of a site topographic map and excavation of the first level of a 1 x 2 m test unit (EU 2, Figure 1). The archaeological work was then suspended at the request of the landowner to FPC. Artifacts that were observed during the excavation of unit EU 2 were no longer present when the archaeologists were asked to return 6 1/2 months later. During the suspension of work, the trees in the central portion of the archaeological site had been inadvertently uprooted and several areas of the shallow site had been surface graded (the hatched areas in Figure 1). This necessitated additional archaeological investigations to recover the remaining data that were no longer protected by the root mat and overburden.

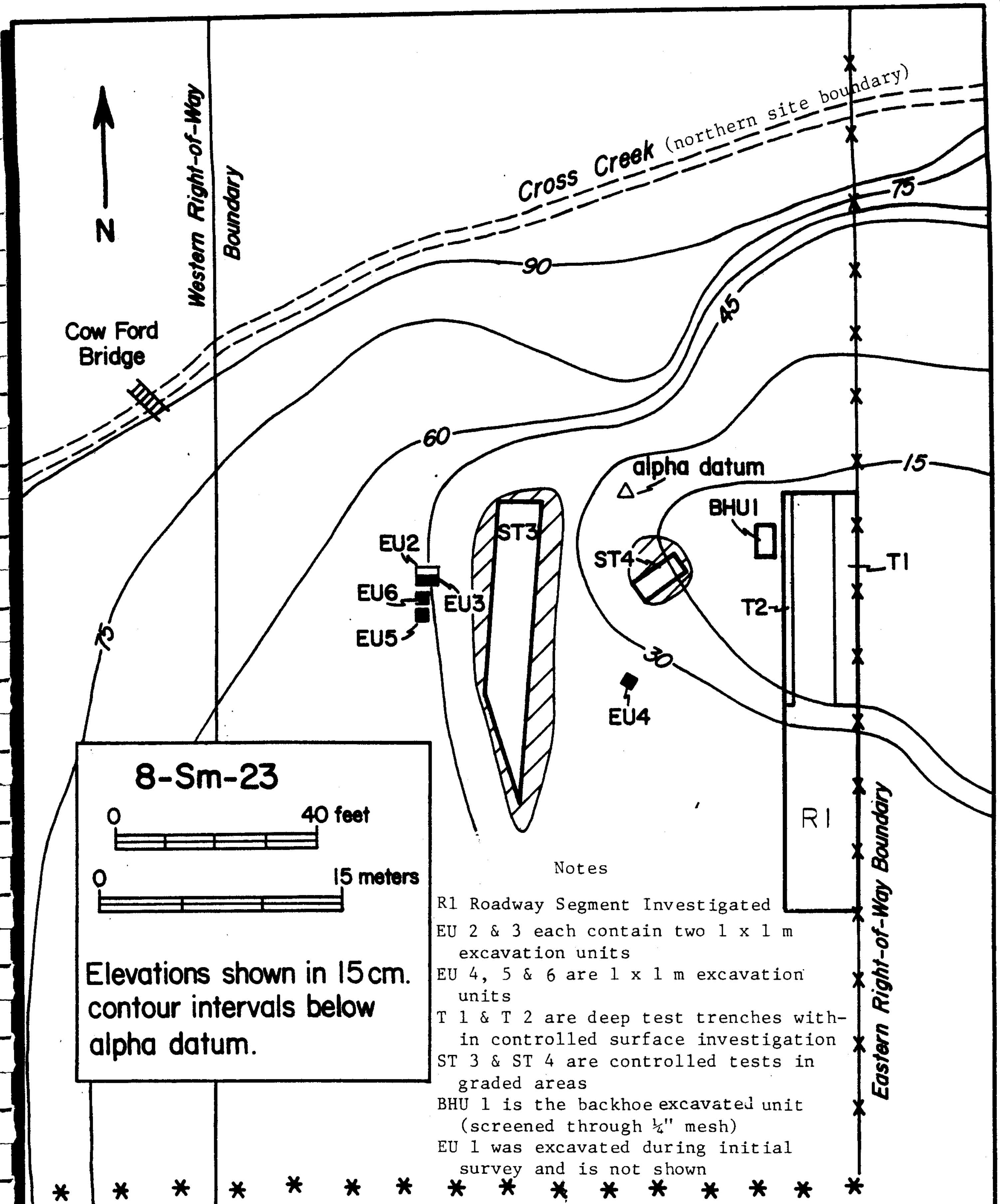

Figure 1: Mitigative Excavations Site Plan. Hatched areas represent accidental grading of site. Asterisks denote on-site flagging marking southern boundary of site.

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FIELD METHODOLOGY

The field methodology employed was outlined in the "Proposal for Limited Archaeological Excavations at 8-Sm-23..." submitted to FPC in September, 1982. As specified in that proposal, that portion of the proposed roadway likely to contain archaeological information was carefully stripped using a small backhoe (Figure 1, areas R1, T1, T2). During this operation, subsurface soil features were investigated in order to determine whether they were formed by cultural or natural processes.

For artifact assemblage-level comparisons, a deep test pit (ca. 1 x 2 m) was backhoe excavated adjacent to the proposed roadway (Figure 1, BHU 1). The matrix removed from this unit was screened (through 1/4" mesh hardware cloth) as one provenience. In addition, those areas of the site that had been graded and where the trees had been uprooted were investigated utilizing the same methodology as that employed in the proposed roadway area (Figure 1, ST 3 and ST 4 within the hatched areas).

In order to interpret more accurately the data recovered from the roadway and graded areas, general site comparative data were needed. This was accomplished by the hand excavation of five 1 x 1 m units (EU's 3-6) and the completion of EU 2 near the center of the site (Figure 1). The matrix from these units was removed by arbitrary levels within defined natural or cultural strata and was screened through 1/4" mesh hardware cloth. Further, soil samples of standard size were systematically collected from unit levels and features for special non-artifactual analyses.

Using the data collection methods briefly described above, followed by the subsequent analyses of the materials recovered, information necessary to mitigate the adverse impact to the cultural resources in the proposed roadway and graded areas was obtained. In the process, our understanding of interior, swamp zone utilization during the late prehistoric period has been greatly enhanced.

DATA SUMMARY

The western half of the site consists of a shallow midden deposit (0-18 cm below surface - a dark gray, organic clayey-sand) containing dense concentrations of lithic and ceramic artifacts (Table 1, EU's 2,3,5 and 6), as well as preserved floral and faunal remains (Appendices III and IV). The temporally diagnostic artifacts include both sand and limestone tempered, thin-walled ceramic sherds and basally and corner notched bifaces. (Figure 2a-c). Typologically, these artifacts are probably most similar to those of the Transitional period (ca. 2500-3000 B.P [Before Present]). Beneath the midden deposit, scattered lithic and ceramic artifacts were recovered to a depth of 30 cm below surface in a mottled, medium gray to tan fine sand.

Data obtained from the analyses of the special samples collected largely in the midden area of the site are presented in Appendices I-VI. Briefly, the identification of lithic raw material samples from the site indicates that local materials were used most extensively, but that materials originating in the Lake Panasoffkee area to the north and in the Hillsborough River area to the south were also utilized (Appendix I). The differential utilization of these materials is suggested by a comparison of Appendix 1 and Table 1).

The analyses of flotation samples (Appendices II-IV) indicate that the midden accumulated as a result of activities associated primarily with the procurement and processing of swamp zone,aquatic

Table 1. Artifact Assemblage Inventory from 8-Sm-23

Provenience	Description
General Surface	1- Coral biface fragment (distal tip); probable cutting function; unknown quarry cluster, probably the Upper Withlacoochee (see Appendix 1, Sample 1, Specimen #14).
	1- fine, sand tempered plain body sherd; homogeneous paste.
	1- fine, sand tempered plain body sherd; contorted paste with a few, fine limestone inclusions.
E.U.* 2, Level 1, Midden, 5-10 cm below surface	1- chert, primary decortication flake
	2- chert, secondary decortication flakes
	15- chert, tertiary flakes
	9- chert, thinning flakes
	1- chert, bifacial thinning flake
E.U. 2, General Collection-Midden, 5-13 cm below surface	19- chert, primary decortication flakes
	8- chert, secondary decortication flakes
	44- chert, tertiary flakes
	1- coral, tertiary flake
	33- chert, thinning flakes
	2- coral, thinning flakes
	1- chert, early-stage, ovoid biface fragment; no apparent use-wear
	1- chert, tertiary flake; unmodified, probable scraping function
	1- chert, thinning flake; unmodified,probable scraping function
E.U.2, Level 2, Feature 2, 13-20 cm below surface	1- chert, thinning flake
	1- coral, tertiary flake
	61- chert, retouch flakes from flotation sample (heavy fraction). Note: many are missing platforms and may, therefore, represent fine shatter.
	6- chert, tertiary flakes from flotation sample (heavy fraction).

*E.U.= Excavation Unit

Table 1. Artifact Assemblage Inventory from 8-Sm-23 (cont.)

Provenience	Description
E.U. 3, Level 1, 0-10 cm below surface	9- chert, primary decortication flakes
	14- chert, secondary decortication flakes
	1- coral, secondary decortication flake
	122- chert, tertiary flakes
	2- coral, tertiary flakes
	199- chert, thinning flakes
	6- coral, thinning flakes
	2- chert, bifacial thinning flakes
	1- coral, tertiary flake; unifacially modified, probable scraping function
	2- chert, tertiary flakes; unmodified, probable scraping function
	1- chert, tertiary flake from flotation sample (heavy fraction)
	1- chert, early-stage, ovoid biface fragment with no apparent use-wear damage
	1- chert, core nucleus (possibly bi-polar)
	5- chert , thinning flakes; unmodified, probable scraping functions
	1- chert, secondary decortication flake; unmodified, probable scraping function
	1- chert, block-on-block, primary decortication flake (74.1 g); Upper Withlacoochee Quarry Cluster (see Appendix I, Sample 2, Specimen #8)
	2- chert, block-on-block, secondary decortication flakes (85.1 and 98 g, respectively); Upper Withlacoochee Quarry Cluster (see Appendix 1, Sample 2, Specimen #'s 5 and 7)
	1- chert, block-on-block, tertiary flake (98.8 g); Upper Withlacoochee or Hillsborough River Quarry Cluster (see Appendix 1, Sample 2, Specimen #6)
	1- chert, multi-directional flake core (>200 g); Upper Withlacoochee Quarry Cluster (see Appendix 1, Sample 2, Specimen #4)
	2- chert, early stage, ovoid biface fragments (93 and 136.2 g, respectively); Upper Withlacoochee Quarry Cluster (see Appendix 1, Sample 2, Specimen #'s 2 and 3)
	1- chert, thinning flake; Hillsborough River Quarry Cluster (see Appendix 1, Sample 1, Specimen #11)

Table 1. Artifact Assemblage Inventory from 8-Sm-23 (cont.)

Provenience	Description
E.U. 3, Level 1, 0-10 cm below surface -cont.	1- chert, thinning flake; quarry cluster unknown (see Appendix 1, Sample 1, Specimen #8)
	1- chert, tertiary flake; Hillsborough River Quarry Cluster (see Appendix 1, Sample 1, Specimen #10)
	1- chert, tertiary flake; Lake Panasoffkee Quarry Cluster (see Appendix 1, Sample 1, Specimen #9)
	1- chert, tertiary flake; Upper Withlacoochee Quarry Cluster (see Appendix 1, Sample 1, Specimen#12)
	1- chert, basally notched (Hernando-like) biface; probable cutting function (exhibits multiple resharpening); Upper Withlacoochee Quarry Cluster (see Appendix 1, Sample 1, Specimen #3).(Also see Figure 2,b).
	1- chert, biface fragment (distal tip); probable cutting function; Upper Withlacoochee Quarry Cluster (see Appendix 1, Sample 1, Specimen #5)
	1- chert, basally notched (Hernando-like) biface; probable cutting function (exhibits resharpening); Upper Withlacoochee Quarry Cluster (see Appendix 1, Sample 1, Specimen #4).(Also see Fig.2,c).
	1- chert, early-stage ovoid biface with no apparent use-wear damage; Upper Withlocoochee Quarry Cluster (see Appendix 1, Sample 1, Specimen #6)
	1- chert, tertiary flake; unifacially modified, probable scraping function; Upper Withlacoochee Quarry Cluster (see Appendix 1, Sample 1, Specimen #7)
	14- fine, sand tempered plain body sherds; homogeneous to slightly contorted paste with occasional fine, limestone inclusions
E.U. 3, Level 2, 10-20 cm below surface	2- chert, primary decortication flakes
	26- chert, tertiary flakes
	19- chert, thinning flakes
	1- chert, tertiary flake from flotation sample (heavy fraction)
	9- chert, retouch flakes from flotation sample (heavy fraction). Note: most are missing platforms and may, therefore, represent fine shatter.

Table 1. Artifact Assemblage Inventory from 8-Sm-23 (cont.)

Provenience	Description
E.U. 3, Level 2, 10-20 cm below surface- cont.	1- fine, sand tempered plain body sherd; homogeneous paste
	1- fine, limestone tempered plain body sherd; contorted/lumpy paste
E.U. 3, Level 2, Feature 1, 10-18 cm below surface	1- chert, tertiary flake
	5- chert, thinning flakes
	2- chert, tertiary flakes from flotation sample (heavy fraction)
	2- chert, retouch flakes from flotation sample (heavy fraction). Note: are missing platforms and may, therefore, represent fine shatter
E.U. 4, Level 2, 10-20 cm below surface. Non-midden area	5- chert, thinning flakes
	1- chert, thinning flake; Lake Panasoffkee Quarry Cluster (see Appendix 1, Sample 1, Specimen #15)
E.U. 4, Level 3, 20-30 cm below surface. Non-midden area	1- chert, secondary decortication flake
	5-chert, tertiary flakes
	38- chert, thinning flakes
E.U. 4, Level 4, 30-40 cm below surface. Non-midden area	1- chert, secondary decortication flake
	3- chert, tertiary flakes
	16- chert, thinning flakes
	1- chert, block-on-block (133.5 g), secondary decortication flake; probable chopping function; Lake Panasoffkee or Ocala Quarry Cluster (see Appendix 1, Sample 1, Specimen #16)
E.U. 5, Level 1- midden zone, 0-8 cm below surface (west side), 0-2 cm below surface (east side)	1- coral, secondary decortication flake
	5- chert, tertiary flakes
	3- chert, thinning flakes
	1- chert,corner-notched biface; probable cutting function; Upper Withlacoochee Quarry Cluster(see Appendix 1, Sample 1, Specimen #2)(see also Fig.2,a)
	1- chert, early-stage, ovate-triangular biface basal fragment with no apparent use-wear damage; Upper Withlocoochee Quarry Cluster (see Appendix 1, Sample 1, Specimen #1)

Table 1. Artifact Assemblage Inventory from 8-Sm-23 (cont.)

Provenience	Description
E.U. 5, Level 1-midden zone, 0-8 cm below surface (west side), 0-2 cm below surface (east side) - cont.	1- fine, sand tempered plain body sherd; homogeneous paste with an occasional fine limestone inclusion
	4- fine, limestone tempered plain body sherds (probably same vessel) from lower light gray sand portion of level; contorted/lumpy paste
E.U. 5, Level 2, 10-20 cm below surface	1- chert, secondary decortication flake
	2- chert, tertiary flakes
	1- coral, tertiary flake
	1- chert, block-on-block, secondary decortication flake (>200 g); probable chopping function; Lake Panasoffkee Quarry Cluster (see Appendix 1, Sample 2, Specimen #34)
	4- fine, sand tempered plain body sherds; contorted paste
E.U. 5, Soil Column (flotation), S.W. corner, 0-15 cm below surface	2- chert, retouch flakes. Note: are missing platforms and may, therefore, represent fine shatter
E.U. 5, Soil Column (flotation), S.W. corner, 15-30 cm below surface	5- chert, retouch flakes. Note: most are missing platforms and may, therefore, represent fine shatter
	1- chert, tertiary flake
E.U. 5, 30 x 30 cm test in S.E. corner, 20-33 cm below surface	1- chert, block-on-block, secondary decortication flake (180.08 g); Upper Withlacoochee Quarry Cluster (see Appendix 1, Sample 2, Specimen #35)
E.U. 6, Level 1- midden zone, West ½, 0-9 cm below surface	3- chert, thinning flakes
E.U. 6, Level 1- midden zone, East ½, 0-9 cm below surface, flotation sample (heavy fraction)	1- chert, tertiary flake
	8- chert, retouch flakes. Note: most are missing platforms and may, therefore, represent fine shatter

Table 1. Artifact Assemblage Inventory from 8-Sm-23 (cont.)

Provenience	Description
E.U. 6, N.E. ¼, Level 2, 9-20 cm below surface, submidden	1- chert, secondary decortication flake
	10- chert, tertiary flakes
	21- chert, thinning flakes
	1- chert, bifacial thinning flake
	1- chert, tertiary flake; unmodified, probable scraping function
	1- chert, block-on-block, primary decortication flake (>200 g); Upper Withlacoochee Quarry Cluster (see Appendix 1, Sample 2, Specimen #1)
	1- medium, quartz sand tempered plain body sherd; contorted/lumpy paste
Backhoe Unit 1 (1 x 2 m), entire contents screened as one provenience	1- coral, tertiary flake
ST 3, non-midden area, 0-40 cm below surface	4- chert, primary decortication flakes
	1- chert, secondary decortication flake
	13- chert, tertiary flakes
	6- chert, thinning flakes
	1- chert, bifacial thinning flake
	1- chert, early-stage, ovoid biface fragment with no apparent use-wear damage
	1- chert, unifacially modified tertiary flake probably used in a scraping function
	11- chert, block-on-block primary decortication flakes (53.9->200 g)
	4- chert, unmodified nodules with cortex (75.05->200 g)
	1- chert, block-on-block tertiary flake (192.15 g)
	1- chert, early-stage, ovoid biface fragment (111.6 g) probably used in a chopping function
	2- chert, block-on-block, primary decortication flakes (>200 g); Upper Withlacoochee Quarry Cluster (see Appendix I, Sample 2, Specimen #'s 10 and 21)

Table 1. Artifact Assemblage Inventory from 8-Sm-23 (cont.)

Provenience	Description
ST 3, non-midden area, 0-40 cm below surface - cont.	1- chert, block-on-block, secondary decortication flake (132.7 g); Upper Withlacoochee Quarry Cluster (see Appendix I, Sample 2, Specimen #27)
	1- chert, block-on-block, tertiary flake (59.6 g); Upper Withlacoochee Quarry Cluster (see Appendix I, Sample 2, Specimen #31)
	1- chert, block-on-block, tertiary flake (>200 g), subsequently modified through use as a multi-directional flake core; Upper Withlacoochee Quarry Cluster (see Appendix I, Sample 2, Specimen #19)
	1- chert, block-on-block, secondary decortication flake (>200 g); subsequently modified through use as a multi-directional flake core, followed by probable use as a hammerstone; Upper Withlacoochee Quarry Cluster (see Appendix I, Sample 2, Specimen #15)
	1- chert, block-on-block, secondary decortication flake (>200 g), probably used in a chopping function; Upper Withlacoochee Quarry Cluster? (see Appendix I, Sample 2, Specimen #11)
	1- chert, block-on-block, secondary decortication flake (>200 g), probably used in a chopping function; Lake Panasoffkee Quarry Cluster (see Appendix I, Sample 2, Specimen #16)
	1- chert, tertiary or thinning flake; complete unifacial modification, except of platform area; elongate-ovoid morphology; probably used in a scraping function; Upper Withlacoochee Quarry Cluster (see Appendix I, Sample 1, Specimen #13). (See also Figure 2,d).

Note: More detailed techno-functional data are on file at Piper Archaeological Research, Inc., St. Petersburg, Florida.

below and to the east of the midden also indicate, based on both stratigraphic and artifact assemblage data (Table 1), the presence of one or more earlier temporal components at the site. The data further suggest that the site was utilized less intensively and in a different manner than is indicated for the later midden deposit.

The eastern, non-midden portion of the site (see Figure 1; area of ST 3 eastward to, and including, the proposed roadway portion of the site) contained only sparse, scattered lithic artifacts. Probably because of the methodology (heavy equipment stripping without screening is conducive to discovering features and artifact concentrations but not isolated artifacts), no cultural material was found within the proposed roadway area or within the area of ST 4 (Figure 1). Only one lithic flake (Table 1) was recovered from adjacent BHU 1 (Figure 1). The area of ST 3 (Figure 1), immediately west of the midden deposit, contained scattered lithic materials to a depth of 40 cm (medium gray, fine sand grading into a medium tan, fine sand; lying over a clay-marl substrate at 40 cm), none of which are temporally diagnostic. The large, block-on-block decortication and tertiary flakes recovered from that area of the site indicate at least some quarrying activity (Table 1).

CONCLUSIONS AND MANAGEMENT RECOMMENDATIONS

Conclusions

The limited excavations at the Cross Creek site have provided data which will contribute significantly to knowlege of the prehistory of the region. Of particular importance is what appears to be a relatively late prehistoric component at site 8-Sm-23. This component is represented by a thin, shallow midden deposit that has provided data suggesting the fairly intensive, seasonal procurement and processing of a narrow range of interior, swamp zone, aquatic faunal resources. These data are especially relevant to research pertaining to late prehistoric, hunter-gatherer subsistence economics operative within the broader socio-cultural system extant at that time on the Central Gulf Coastal Plain of Florida. This apparent importance of the swamp resources within the entire subsistence cycle forces a rethinking of traditional views regarding the utilization of Florida swamp environments by prehistoric peoples. Further research, augmented by the data generated from the testing at this site, will lead to a more refined, predictive (in an explanatory sense) settlement/-subsistence model for the Central Gulf Coastal area.

Management Recommendations

The mitigative excavations at 8-Sm-23 verified that the site would contribute significantly to knowledge of regional prehistory and that it is eligible for nomination to the NR. The excavations also sufficiently tested the area of the proposed 20 foot wide roadway to insure that no adverse impact to significant cultural resources will result from the construction of the roadway in that portion of the site (Figure 1).

The authors concur with Florida Power's recommendation that a protective fence or barrier be erected around site 8-Sm-23 (exclusive of the 20 foot wide road corridor) to protect the shallow, but significant cultural deposit from heavy machinery traffic.

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APPENDICES

APPENDIX I

Sample 1 (cont.)	Description
Specimen 3	Silicified foraminiferal grainstone; "clotty fabric" reflects peloids; chalcedony cement; no diagnostic fossils; luster not sufficient to suggest thermal alteration. Material is tough and relatively homogeneous, so it would make good tools. Similar materials are common in the immediate area and in the nearby Hillsborough River Quarry Cluster. It is probably local Suwannee or Tampa material. (Upper Withlacoochee Quarry Cluster).
Specimen 4	Silicified foraminferal packstone; opaque; vuggy; minor quartz sand included; orange color is probably staining; no evidence for thermal alteration. This is Suwannee Limestone and is undoubtedly local. Similar material occurs throughout area. (Upper Withlacoochee Quarry Cluster).
Specimen 5	Silicified foraminiferal gainstone; banded; badly iron stained; chalcedony cement; no quartz sand included; looks like #10; weak lustre is insufficient to suggest thermal alteration. Sample is silicified Suwannee or Tampa limestone and is local. (Upper Withlacoochee Quarry Cluster).
Specimen 6	Silicified foraminiferal grainstone; dark brown; chalcedony cement; no diagnostic fossils; possible potlids, color, and weak lustre suggest thermal alteration. Lack of diagnostic fossils and inclusions indicates that this is Suwannee Limestone and is local. (Upper Withlacoochee Quarry Cluster).
Specimen 7	Silicified clotty, peloidal grainstone; dark brown; organic coating indicates burial in wet, organic sediments; no diagnostic fossils. Is Suwannee or Tampa material of local origin. (Upper Withlacoochee Quarry Cluster).
Specimen 8	Silicified mudstone; dark, dark gray with wavy bands throughout; opaque; no evidence of thermal alteration; appears to be a section through a silicified duracrust and can be from anywhere in area. These are common in the northern part of the Hillsborough River Quarry Cluster. (Quarry cluster unknown).

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Sample 1 (cont.)

Specimen 9 — Silicified, poorly-sorted grainstone to packstone; abundant foraminifera, including Lepidocyclina; pelecypod molds; opaque matrix; vuggy; patinated and light cortex indicate burial in well-drained soils. This is Ocala (Crystal River) limestone and most probably came from the Lake Panasoffkee Quarry Cluster to the north. (Lake Panasoffkee Quarry Cluster).

Specimen 10 — Silicified foraminiferal wackestone; dark red with exterior stain; quartz sand inclusions; chalcedony cement; no diagnostic fossils; lustre is insignificant evidence for thermal alteration. This material is not diagnostic, but is common in the Tampa Limestone in the northern part of the Hillsborough River Quarry Cluster. (Hillsborough River Quarry Cluster).

Specimen 11 — Silicified wackestone to grainstone; dark brown; chalcedony cement is very translucent; organics present; lustre is bright and, with color, is weak evidence of thermal alteration. This material is not diagnostic, but is common in the northern part of the Hillsborough River Quarry Cluster. (Hillsborough River Quarry Cluster?).

Specimen 12 — Silicified foraminiferal, peliodal(?) grainstone; obscure fabric; red color; very granular, may be inferior raw material; abundant, coarse quartz sand inclusions; chalcedony cement; no evidence of thermal alteration. This is local Suwannee Limestone. (Upper Withlacoochee Quarry Cluster).

Specimen 13 — Silicified foraminiferal grainstone; chalcedony cement; burrowed(?); minor quartz sand inclusions; gastropod molds, but no diagnostic fossils; vuggy; thermally altered. This is typical, local material from the Suwannee Limestone. (Upper Withlacoochee Quarry Cluster).

Specimen 14 — Silicified coral boundstone (Siderastraea sp.); very clear chalcedony; grain parallel to middle axis of object; probably thermally altered. See No 2 for comments on source. (Quarry cluster unknown, probably Upper Withlacoochee).

APPENDIX I

Sample 1 (cont.)

Specimen 15 Silicified poorly-sorted, foraminiferal grainstone; vuggy; faint fossils appear to be *Lepidocyclina*; quartz sand inclusions. If faint fossils are correctly identified, this is Ocala (Crystal River) material from north of area. (Lake Panasoffkee Quarry Cluster?).

Specimen 16 Silicified, poorly-sorted, skeletal grainstone/ packstone; abundant foraminifera, including *Lepidocyclina*; opaque; vuggy; gastropod and pelecypod molds; color altered, but no other evidence of thermal alteration. This is Ocala (Crystal River) limestone and is from north of here. (Lake Panasoffkee or Ocala Quarry Clusters).

Regarding samples 15 and 16 above, they appear to be the same material. They do not seem to be from the same host rock. Sample 15 has quartz sand inclusions, 16 does not. The maps in Upchurch, *et al*. referenced above show the locations of the quarry clusters recognized. Note that site 8-Sm-23 is located in the Upper Withlacoochee Quarry Cluster. Coral and Suwannee Limestone characterize this cluster. The Lake Panasoffkee Quarry Cluster is characterized by Ocala Limestone and is just to the north. The Hillsborough River Quarry Cluster is just to the south. It, too, contains coral and a wide variety of Tampa Formation cherts. The artifact suite indicates use of local material, as well as material from both north and south.

Several of the geological sites are worthy of note. Many of the sites in the Upper Withlacoochee Cluster northwest of 8-Sm-23 are coral sources. The site at Z is a locally-famous quarry site. WC, a modern quarry, contains Suwannee over Crystal River. It contains most of the local material described herein. The site labelled

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P-1 is Suwannee Limestone and is also identical to the material attributed to local sources herein.

The following is a brief summary of the raw materials provided for inspection.

<u>Sample 2</u>	<u>Description</u>
Specimen 1	Sorted foraminiferal packstone; Suwannee Limestone; local.
Specimen 2	Slightly sucrosic, foraminiferal wackestone; local.
Specimen 3	Recrystallized foraminiferal grainstone; local.
Specimen 4	Mudstone to foraminiferal wackestone; chalcedony matrix; thermally altered; local.
Specimen 5	Echinoid-rich, foraminiferal grainstone; local.
Specimen 6	Chalcedonic mudstone; local or Hillsborough River Quarry Cluster.
Specimen 7	Coarse foraminiferal grainstone; local.
Specimen 8	Slightly granular, chalcedonic mudstone/wackestone; thermally altered; local.
Specimen 10	Vuggy, moldic, poorly-sorted foraminiferal grainstone; local (common NW of Zephyrhills).
Specimen 11	Sucrosic, cemented quartz arenite; terrible raw material; local(?).
Specimen 15	Foraminiferal packstone; local.
Specimen 16	Poorly-sorted, skeletal packstone; many large fossils, including <u>Lepidocyclina</u>; from Ocala Limestone, Lake Panasoffkee Quarry Cluster.
Specimen 19	Sucrosic, foraminiferal packstone; local.
Specimen 21	Vuggy, poorly-sorted, foraminiferal grainstone; local; see #10.
Specimen 27	Well-sorted, foraminiferal grainstone; local.

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Sample 2 (cont.)	Description
Specimen 31	Sucrosic foraminiferal packstone; local.
Specimen 34	Poorly-sorted, fossiliferous grainstone; abundant *Lepidocyclina*; good raw material; Ocala Limestone; see #16; Lake Panasoffkee Quarry Cluster.
Specimen 35	Granular, foraminiferal grainstone; much porosity; local.

APPENDIX I

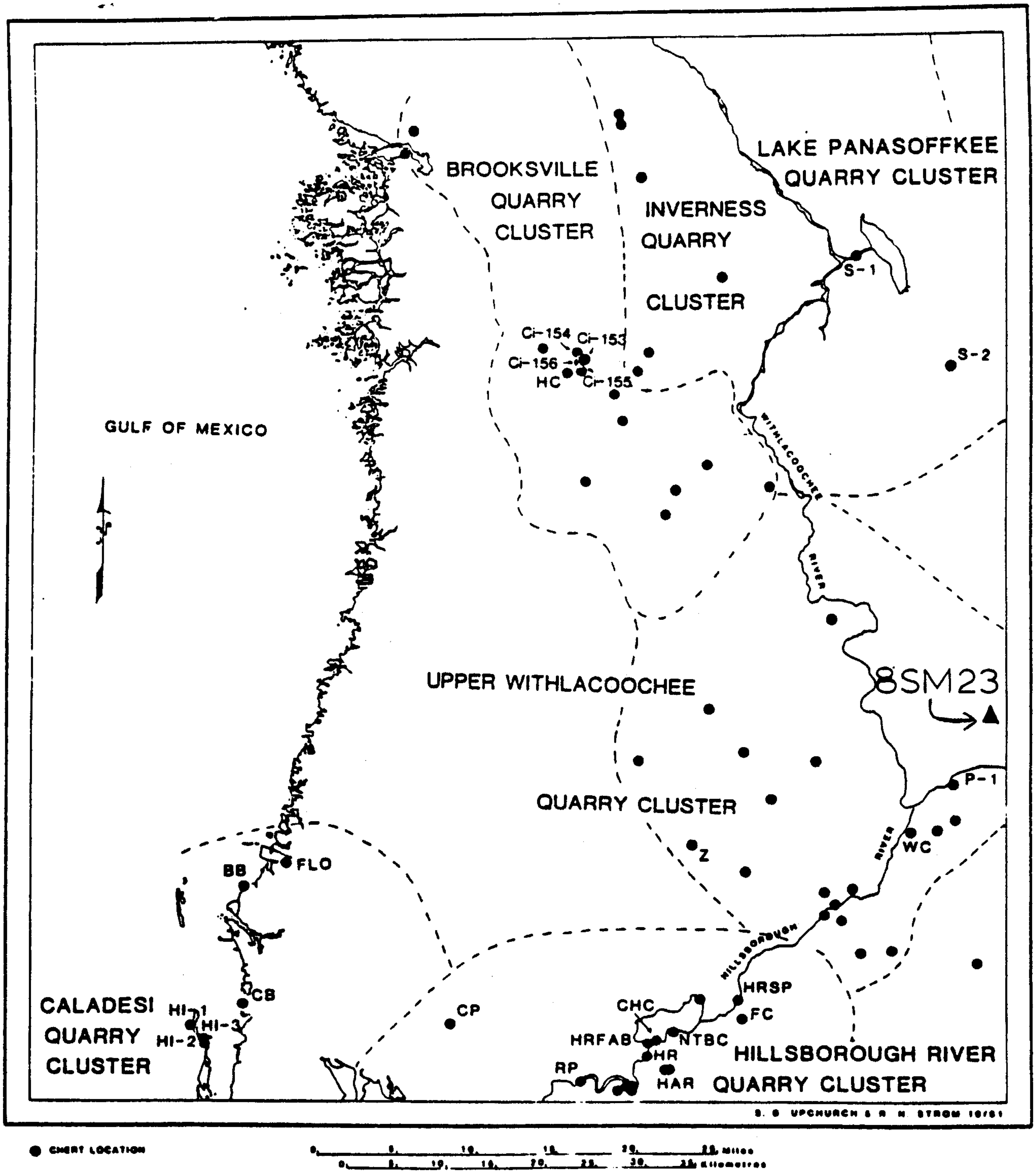

Figure 1. Quarry Cluster Locations, after Upchurch, Strom and Nuckels, 1981. Location of Archaeological Site 8-Sm-23 also noted.

APPENDIX II

FLOTATION METHODS EMPLOYED FOR SELECTED SOIL SAMPLES FROM 8-SM-23

by

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A sample of soil matrix from the 8-Sm-23 site was subjected to a water separation recovery technique. This matrix sample included 34.82 kilograms (31.12 liters) of soil from six excavation units. A short summary of the processing of this material is provided here; for a more detailed report of these procedures, see Ballo in Welch (1983).

The soil samples were removed from their original bags, and placed on newspaper-lined trays for drying. The samples were allowed to air dry in an air conditioned room for two day (48 hours). By the end of that time, most of the samples had dried sufficiently to allow weight and volume measurements to be taken, and the soil floated. Samples which had not dried sufficiently were allowed to dry for an additional 24 hours before being processed. All volume and weight measurements were taken with the samples in an <u>air dry</u> condition. Volume measurements on some of the samples had to be approximated, as the samples dried in lumps. This condition resulted in substantial air gaps when the samples were placed in a graduated cylinder. All approximations are <u>over-estimations</u> of what the volume of the sample would have been had the air gaps been removed.

APPENDIX II

The University of South Florida water separation device was used to process all samples. The device consists of four basic parts. A twenty-five gallon drum serves as a main chamber, in which the other parts are positioned or inserted. Inset in the top of the drum is the flotation chamber and spillway. The flotation chamber is constructed from a steel pail, a spillway, and a detachable geological screen. Water is introduced into the main chamber by means of a water pipe and showerhead positioned under the flotation chamber. Water pressure from the showerhead provides agitation for the system. during the procedure, the drum is filled with water, and the soil is slowly poured into the flotation chamber. The light fraction overflows into the spillway and is collected in a geological screen. The heavy fraction falls to the bottom of the flotation chamber, and is collected in the attached geological screen. After each soil sample is processed, every piece of equipment is cleaned, and the main chamber emptied, cleaned, and refilled before the next sample is processed.

Two pairs of standard geological screens are used in the procedure. Most of the samples were processed using a U.S. #50 screen for light fraction recovery, and a U.S. #35 screen for heavy fraction recovery. The screen sizes had to be increased for two of the samples as the matrix clogged the finer screens. In these cases, a U.S. #20 screen was used for light fraction recovery and a U.S. #16 screen recovered the heavy fraction.

APPENDIX II

After processing, each of the fractions were placed in three-fold cheese cloth, and allowed to air dry for 48 to 72 hours. After drying, each fraction was removed from the cloth and dry screened in a U.S. #60 sieve to remove any matrix still remaining in the sample. The fractions were placed in plastic vials, along with their identification tags, for transport and storage. No content analysis or botanical studies were undertaken on the samples.

All samples were processed using the finest mesh screens possible to ensure recovery of small remains. Unfortunately, this practice results in some extraneous matrix in the fractions. This material can be removed by dry screening the fractions before they are analyzed.

Note: Volume and weight measurements of the air dried samples are on file at Piper Archaeological Research, Inc., St. Petersburg, Fla.

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APPENDIX III

FAUNAL ANALYSIS OF SAMPLES FROM 8-SM-23

by

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Florida State Museum
Gainesville, Florida

The following results are from the analysis of faunal samples recovered from 8-Sm-23. A species table for the site is provided along with a brief description of the results. Overall, the sample is very small and does not allow extensive interpretation. Thus, estimation of meat weights, etc. was not undertaken. No seasonal indicators were present for the assemblage. While certain species are more abundant during a particular season, the individual could have been procured at any time throughout the year.

Scientific Name	Frag. Count #	Frag. Count %	MNI #	MNI %	Frag. Wt. gm	Frag. Wt. %
Sciurus niger	1	.62	1	16.67	.10	.77
Odocoileus virginianus	1	.62	1	16.67	2.40	18.53
Total Mammalia	2	1.24	2	33.34	2.50	19.30
Testudines	1	.62	-	-	2.05	15.83
Terrapene carolina	3	1.85	1	16.67	2.65	20.46
Kinosternon sp.	13	8.03	1	16.67	2.40	18.53
Total Reptilia	17	10.50	2	33.34	7.10	54.83
Osteichthyes	84	51.85	-	-	1.80	13.90
Lepisosteus sp.	41	25.31	1	16.67	.60	4.63
Amia calva	18	11.11	1	16.67	.95	7.34
Total Osteichthyes	143	88.27	2	33.34	3.35	25.87
TOTAL	162	100.01	6	100.02	12.95	99.99

APPENDIX III

Scientific Name	Common Name
Sciurus niger	Fox squirrel
Odocoileus virginianus	White-tailed deer
Testudines	Turtles
Terrapene carolina	Box turtle
Kinosternon sp.	Mud turtles
Osteichthyes	Boney fishes
Lepisosteus sp.	Gar
Amia calva	Bowfin

Unidentifiable bone in this sample totaled 3002 fragments weighing 19.38g. Bone modification in the form of charred fragments was observed in the assemblage (N=117 or 3.7% of total fragment count) as follows:

Provenience	FS#		
E.U.* 2, Level 2, Fea. 2	2	UID bone	3
E.U. 3, Level 2	3	UID bone	6
E.U. 3, Level 3	4	UID bone	2
E.U. 3, Level 1	5	UID bone	1
E.U. 5, 0-15 cm, S.C.*-SW corner	6	UID bone	9
E.U. 6, Midden Zone, E½	7	UID bone	93
E.U. 6, Midden Zone, E½	7	*Kinosternon* sp.; carapace frag.	1
E.U. 2, Fea. 2	8	UID bone	2

* E.U.= Excavation Unit, S.C.= Soil Column

Terrestrial species are represented by squirrel, deer and box turtle. Mud turtles are found in a variety of habitats including sloughs, canals, lakes, ponds and swamps. This genus of turtles is also to some degree tolerant of brackish water. Mud turtles will take a fisherman's hook. Gar and bowfin are both primarily freshwater fish.

APPENDIX IV

BOTANICAL ANALYSIS OF SAMPLES FROM 8-SM-23

by

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Dept. of Biology, Herbarium
University of South Florida

Provenience

E.U.*2, Level 2-Midden Zone, 10-18 cm below surface

No seeds

E.U. 3, Level 3, 20-30 cm below surface

No seeds

E.U. 5, 0-15 cm, S.C.* SW corner

a. Dichanthelium sp. (panic grass)- 9 seeds, non-carbonized. Upland/transition

b. Panicum sp.(panic grass), probably anceps- 3 seeds, non-carbonized. Upland, ditches.

c. Scleria sp. (nutgrass), probably pauciflora- 5 seeds, non-carbonized. Pine flatwoods, dry to wet.

d. Scleria sp.(tall nutgrass), probably triglomerata- 2 seeds, non-carbonized. Pine flatwoods, uplands.

e. Paspalum notatum (bahia grass)- 1 seed, non-carbonized. Upland/ruderal.

f. Paspalum sp. (thin Paspalum), probably setaceum- 6 seeds, non-carbonized. Uplands, ditches, ruderal.

g. Myrica cerifera (wax myrtle)- 24 seeds, mostly fragments, non-carbonized. Pine flatwoods, wetlands.

h. Crotalaria sp. (rattlebox), probably lanceolata- 8 seeds, non-carbonized. Pine flatwoods.

i. Ambrosia artemisiifolia (common ragweed)- 1 seed, non-carbonized. Upland, ruderal.

j. Cyperus sp.(sedge), probably sesquiflorus- 1 seed, non-carbonized. Upland, ruderal.

k. Unknown- 18 seeds, non-carbonized.

l. Paspalum sp.(grass)- 1 seed, non-carbonized.

APPENDIX IV

E.U. 5, 0-15 cm, S.C.
SW corner (cont.)

m. Eleocharis sp.? (spikerush)- 1 seed, non-carbonized. Wet ditch/wetlands.

n. Axonopus furcatus (big carpetgrass)- 1 seed, non-carbonized. Wet ditch/wetlands.

o. Unknown- 1 seed , non-carbonized.

p. Unknown- 2 seeds, non-carbonized.

E.U. 3, Level 1, 0-10 cm below
surface

a. Diodia virginiana (buttonweed)- 1 seed, non-carbonized. Wet ditch/wetlands.

b. Paspalum sp. (grass)- 1 seed, non-carbonized.

c. Hypoxis leptocarpa (yellow stargrass)- 2 seeds, non-carbonized. Wetlands.

d. Unknown, possibly Fabaceae- 1 seed, non-carbonized.

e. Axonopus affinis (common carpetgrass)- 1 seed, non-carbonized. Wet ditches/ wetlands.

E.U. 5, 15-30 cm, S.C.
SW corner

a. Panicum sp. (panic grass), probably anceps- 4 seeds, non-carbonized. Uplands, ditches.

b. Paspalum sp. (grass)- 1 seed, non-carbonized.

c. Paspalum sp. (grass), probably plicatulum- 1 seed, non-carbonized. Ditches.

d. Crotalaria sp. (rattlebox), probably lanceolata- 1 seed, non-carbonized. Pine flatwoods.

e. Unknown, possibly Fabaceae- 1 seed, non-carbonized.

f. Unknown- 2 seeds, non-carbonized.

g. Myrica cerifera (wax myrtle)- 3 seeds, non-carbonized. Pine flatwoods, wetlands.

E.U. 2, Feature 2, 13-20 cm
below surface

No seeds

E.U. 3, Level 2, 10-20 cm
below surface

No seeds

APPENDIX IV

<u>E.U. 3, Feature 1, 10-18 cm below surface</u>

1 possible seed, carbonized (?); impossible to identify

<u>E.U. 3, Level 4, 30-40 cm below surface</u>

No seeds

<u>E.U. 6, Level 1- midden zone, E½, 0-9 cm below surface</u>

a. Unknown- 19 seeds, non-carbonized.

b. *Paspalum* sp. (thin paspalum), probably *setaceum*- 12 seeds, non-carbonized. Uplands, ditches, ruderal

c. Unknown- 3 seeds, non-carbonized.

d. *Hypoxis leptocarpa* (yellow stargrass)- 4 seeds, non-carbonized. Wetlands.

e. *Diodia virginiana* (buttonweed)- 1 seed, non-carbonized. Wet ditch/wetlands.

f. Unknown, possibly Fabaceae- 14 seeds, non-carbonized.

*E.U.= Excavation Unit, S.C= Soil Column

APPENDIX V

REPORT OF PHOSPHATE ANALYSIS OF SAMPLES FROM 8-SM-23

by

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History and Records Management
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Provenience	Parts/million P *
E.U.** 3, Level 4	1,900.
E.U. 3, Level 2	975.
E.U. 3, Level 3	660.
E.U. 3, Level 1	500.
E.U. 3, Feature 1	1,300.
E.U. 2, Midden Zone, 10-18 cm	7,800.
E.U. 2, Feature 2, Level 2	5,300.
E.U. 5, Soil Column, 15-30 cm, S.W. corner	33.
E.U. 5, Soil Column, 0-15 cm, S.W. corner	97.5
E.U. 6, Midden Zone, E½	690.
E.U. 3, Level 5 (substrate)	2,350.

* Samples were analyzed for total phosphate and acid-soluble phosphorus. Results are reported as parts per million phosphorus.

** E.U.= Excavation Unit

APPENDIX VI

REPORT OF THERMOLUMINESCENCE DATING ANALYSES

by

Beta Analytic, Inc.
Coral Gables, Fla.

An attempt was made to date the ceramic sample (EU3-L1) that was submitted for thermoluminesence analysis. Unfortunately the material used in the manufacture of this object does not lend itself to the technique of TL dating. In addition to the standard techniques of preparation and measurement, other procedures were attempted in an effort to avoid problems that were inherent- to no avail.

The material was sensitive to TL and had an internal dose rate (ca. 0.547 rads/year) quite adequate for normal routine dating. The problem is that the TL growth response to lab additive radiation doses was far from linear, and the glow curve shape is highly variable between disks. Further still, the test to prove long term signal retention was inconclusive but highly suggestive that the matrix minerals was undergoing fading (loss). All evidence suggests a mineralogical content that is anomalous and unsuitable for the TL method of dating. This situation is not the norm, but neither is it uncommon; about 10% of sherds submitted for TL dating are not stable for this purpose.

APPENDIX VI

Provenience

Excavation Unit 3, Level 1,
0-10 cm below surface

Alpha-954	ceramic sherd	Material unsuitable for thermoluminescence dating**

Uranium	9.71 ppm
Thorium	13.28 ppm
Potassium	less than 0.05%

** signal nonreproducibility, signal fading, nonlinearity of growth curve.

The above sample was submitted for thermoluminescence dating on the individual sherd Recon basis. The 2 to 8 micron grain size fraction was separated for use in the fine-grain technique of glow curve analysis. Alpha and beta additive irradiations were performed using Am-241 and Sr-90 plack sources. U and Th contents were determined by thick-source alpha counting and potassium was measured by atomic absorption spectrophotometry.