A CULTURAL RESOURCE ASSESSMENT OF THE ALICO EAST PARCEL LEE COUNTY, FLORIDA

ARCHAEOLOGICAL AND HISTORICAL CONSERVANCY, INC.

AHC TECNICAL REPORT NO. 993
SEPTEMBER 2013

A CULTURAL RESOURCE ASSESSMENT OF THE ALICO EAST PARCEL LEE COUNTY, FLORIDA

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For:
PRIVATE EQUITY GROUP, LLC

AHC PROJECT NO. 2013.73
AHC TECHNICAL REPORT NO. 993
SEPTEMBER 2013

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CONSULTANT SUMMARY

In September, 2013, the Archaeological and Historical Conservancy, Inc. (AHC) conducted a cultural resource assessment of the 5106-acre Alico East parcel located in southern Lee County. The assessment was conducted for Private Equity Group, LLC. The parcel is located in Township 46S, Range 26E, Sections 5, 7, 8, 17, 18, 19, 20 (Figure 1).

This assessment was conducted to fulfill historic resource requirements in response to State of Florida and Lee County historic preservation guidelines. The work and the report conform to the specifications set forth in Chapter IA-46, Florida Administrative Code.

The 5106-acre parcel encompasses quarried land, woodlands, and remnant wetlands. The natural areas are characterized as a mosaic of pinewoods, marsh ponds, pond cypress flatwoods, and cypress ponds and sloughs.

A site search with the Florida Division of Historic Resources determined that no previously recorded cultural resources occur in the subject parcel. No historic structures occur on the parcel. Two previous cultural resource assessments were conducted on all and parts of the parcel (Janus 1994, 2002).

This cultural resource assessment included a vehicular and pedestrian survey as a re-assessment of work performed on the parcel by Janus Research in 1994 and 2002. The 1994 assessment included 58 test holes and the 2002 Janus assessment included 27 shovel tests; all negative for cultural materials, however, the latter report was never submitted for agency review, and is attached to this report as an appendix. This assessment concurs with the conclusions by Janus Research that the parcel contains no significant archaeological or historical resources.

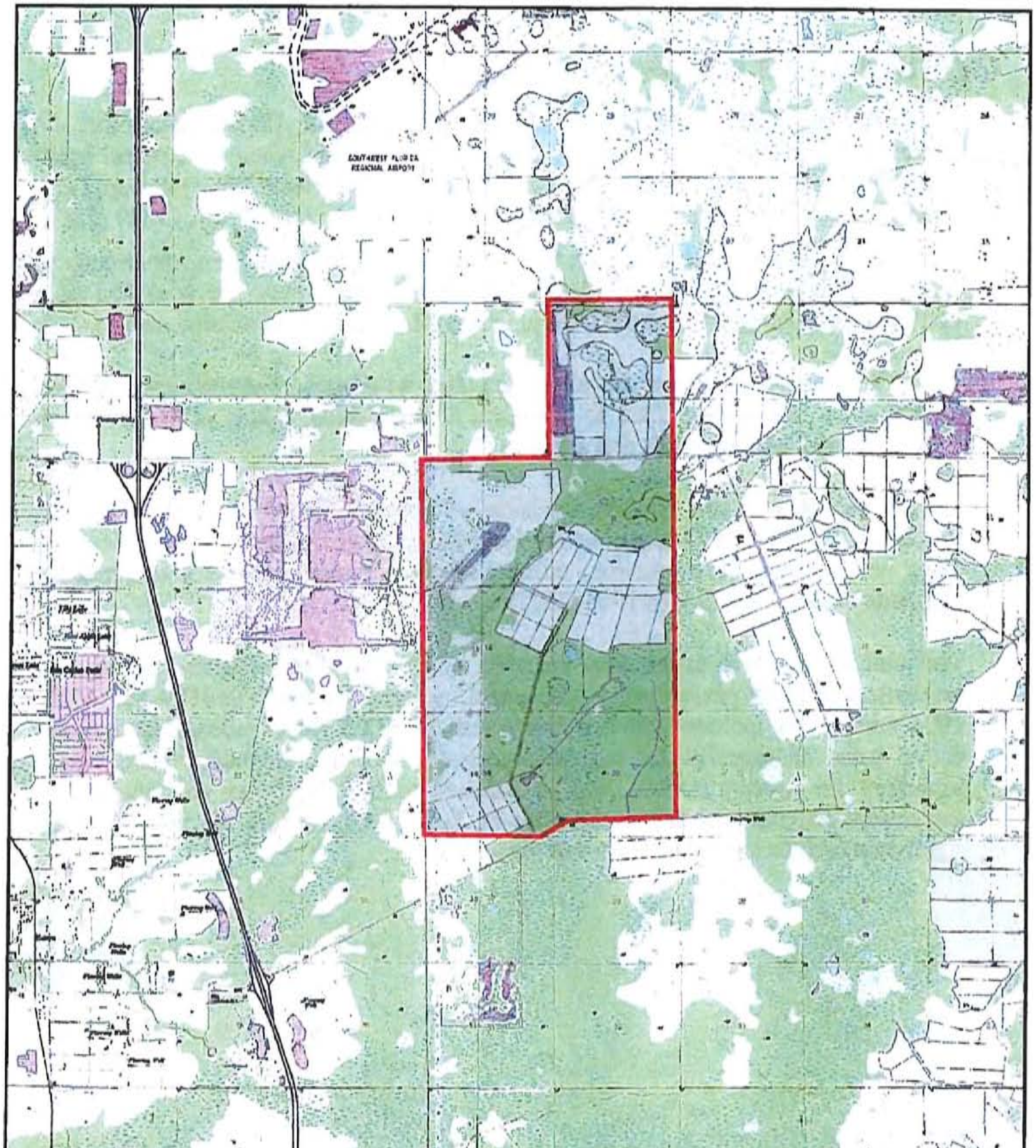


Figure 1. USGS Map of the Alico East parcel.

TOWNSHIP 46S, RANGE 26E, SECTIONS 5, 7, 8, 17, 18, 19, 20
USGS MAPS: ALVA SW, REV. 1987
CORKSCREW NW, REV. 1987
ESTERO, REV. 1987

N

0 1/2 1 2 Mi. approx.
0 .8 1.6 3.2 Km. approx.

PROJECT SETTING

The project parcel is located in Township 46S, Range 26E, Sections 5, 7, 8, 17, 18, 19 and 20. The 5106 acre parcel is adjacent and east of I-75 and immediately north and south of Alico Road in southern Lee County. The relevant USGS maps are Alva SW, Corkscrew NW, and Estero (Figure 1).

The project parcel consists of extensive quarries, wooded areas, and wetlands. Historically the parcel was low-lying, seasonally flooded cypress and slash pine hydric flatwoods. A series of linear cypress slough and strand systems were oriented NE/SW and these fed into the Six Mile Cypress Strand lying to the south and west of the parcel.

A 1958 aerial photograph shows the parcel in its unaltered natural state. Only a single agricultural field linked to Corkscrew Road is depicted. (Figure 3). Slash pine flatwoods communities were situated on the subject parcel on slightly higher ground above the adjoining cypress strands. Among the plants typically found in the slash pine/saw palmetto flatland/prairie environments are: slash pine, saw palmetto, gallberry, rusty lyonia, staggerbush, dahoon holly, ground oak, wire grass, broom sedges, shiny blueberry, xyris, and a variety of annual and perennial herbs and wildflowers blooming seasonally.

Cypress flatwoods characterized by low and scattered pond cypress (*Taxodium distichens*) communities were situated on lower ground as were shallow marsh ponds. These areas historically had greater hydroperiods (innundation time) than the slash pine/saw palmetto areas. The marsh ponds exhibited floristic banding of vegetation such as Saint John's wort (*Hypericum spp.*) and other succulent and woody plants and grasses.

The geology of the area is characterized by poorly drained fine sands and clay soils. In cypress sloughs, but particularly in cypress dome/solution ponds there are potentially deep deposits of muck or peat. These sands overlie relict marine deposits of shelly marl and limestone caprock that are part of the Pleistocene Caloosahatchee formation. These marine marls contain lenses and deposits of clay intermixed with varying percentages of sand. These clays may have been a source for ceramic manufacture by the Formative period Native Americans.

Soils found on the project parcel include Hallandale fine sand; Eau Gallie fine sand; Pompano fine sand; Felda fine sand; Boca fine sand; Valkaria fine sand; Pineda fine sand; Pompano fine sand, depressional; Immokalee sand; Oldsmar sand; Malabar fine sand; Isles fine sand, depressional; Anclote sand, depressional; Valkaria fine sand, depressional; Wabasso sand, limestone substratum; Malabar fine sand, depressional; Felda fine sand, depressional; Floridana sand, depressional; Winder sand , depressional; Matlacha gravelly fine sand; and Pineda fine sand, depressional (USDA soil survey, 2012).

The parcel has been impacted from clearing, filling and extensive excavations by commercial quarries. Other uses include large-scale agricultural operations The USDA commercial quarries. Other uses include large-scale agricultural operations The USDA Web Soil Survey shows roughly 18% of the parcel or nearly 1100 acres are dug lakes and ponds.

The remaining natural areas are degraded woodlands with emerging exotic pest plants such as meleleauca and brazillian pepper that exceed 50% of the vegetation in certain areas.

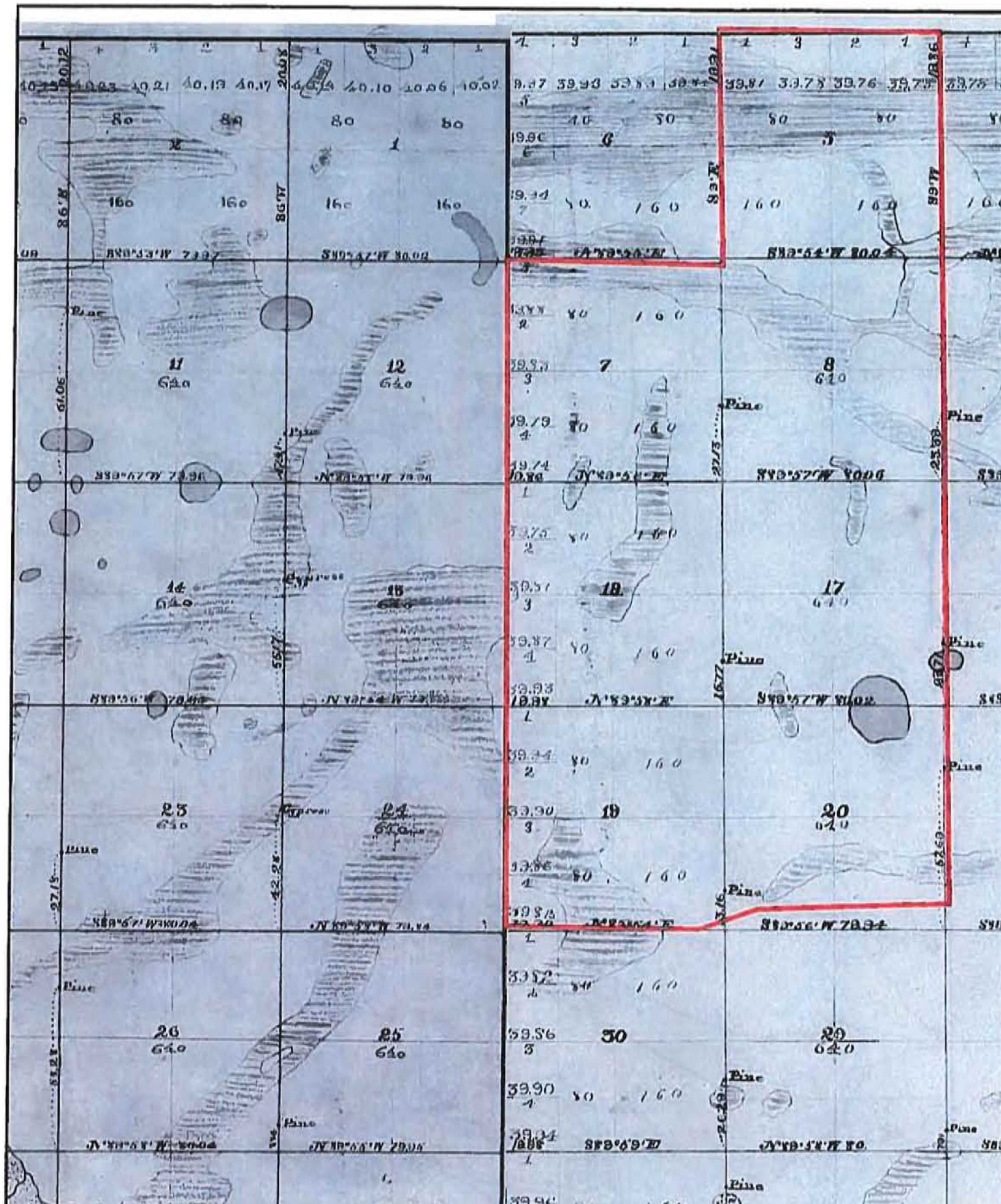


Figure 2. 1873 plat maps for Township 46S, Range 25E and 26E with the project parcel boundaries superimposed.

N

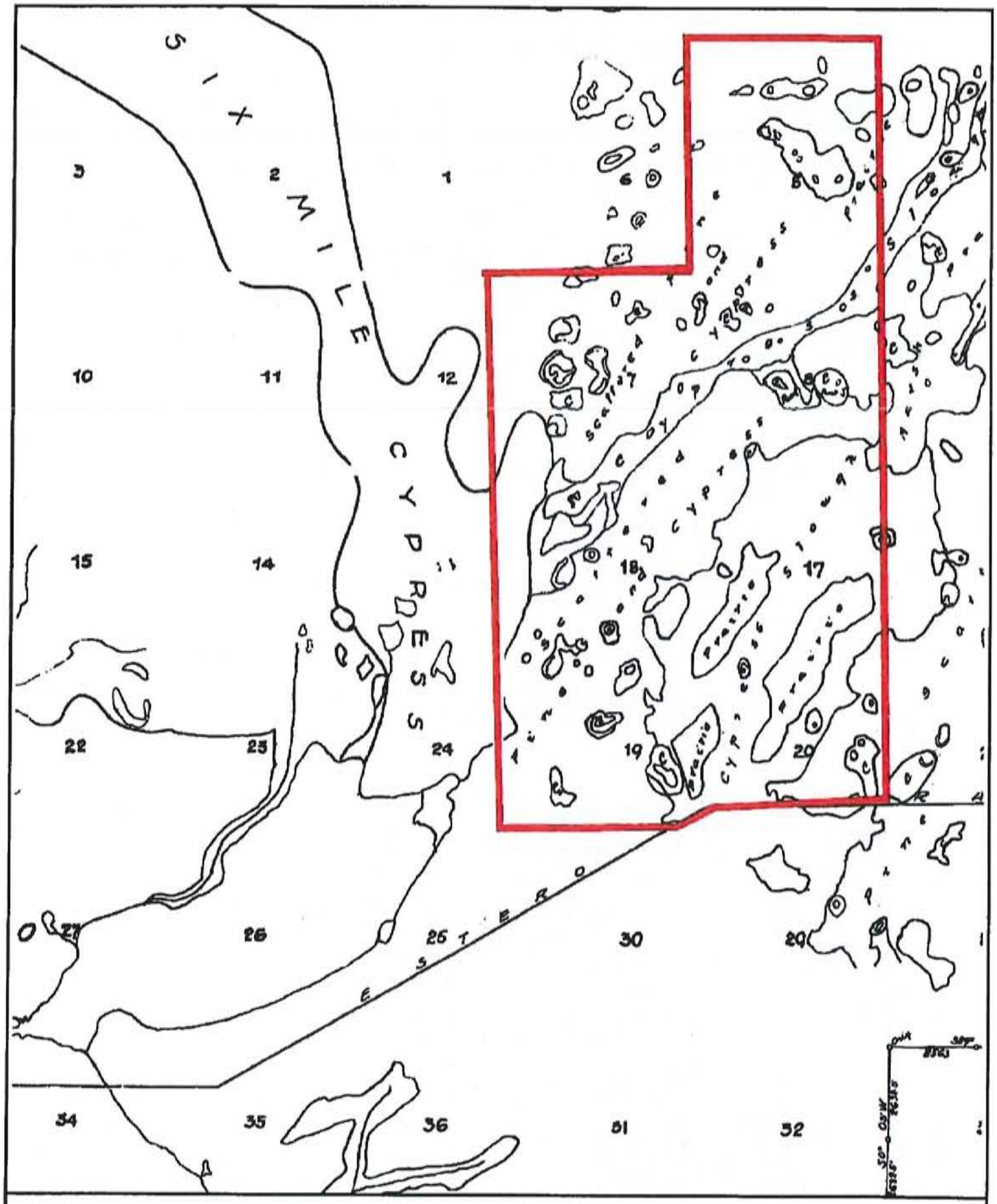
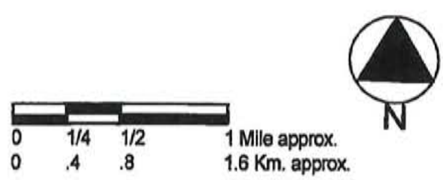


Figure 3. 1943 Copeland map for Township 46S, Range 25E and 26E with the project parcel boundaries superimposed.



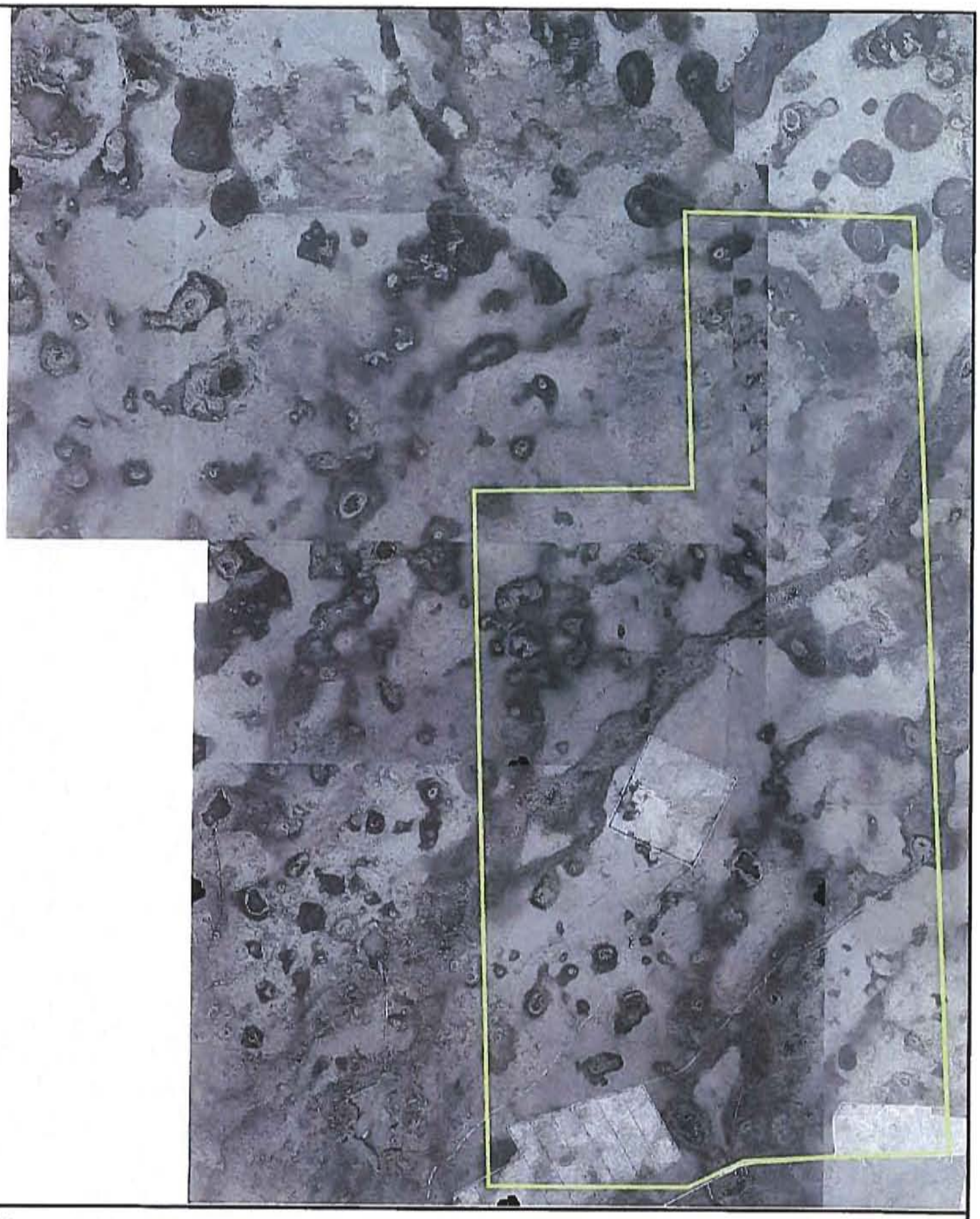


Figure 4. 1958 black and white aerial photograph of the Alico East parcel.

N

0 1/4 1/2 1 Mile approx.
0 .4 .8 1.6 Km. approx.

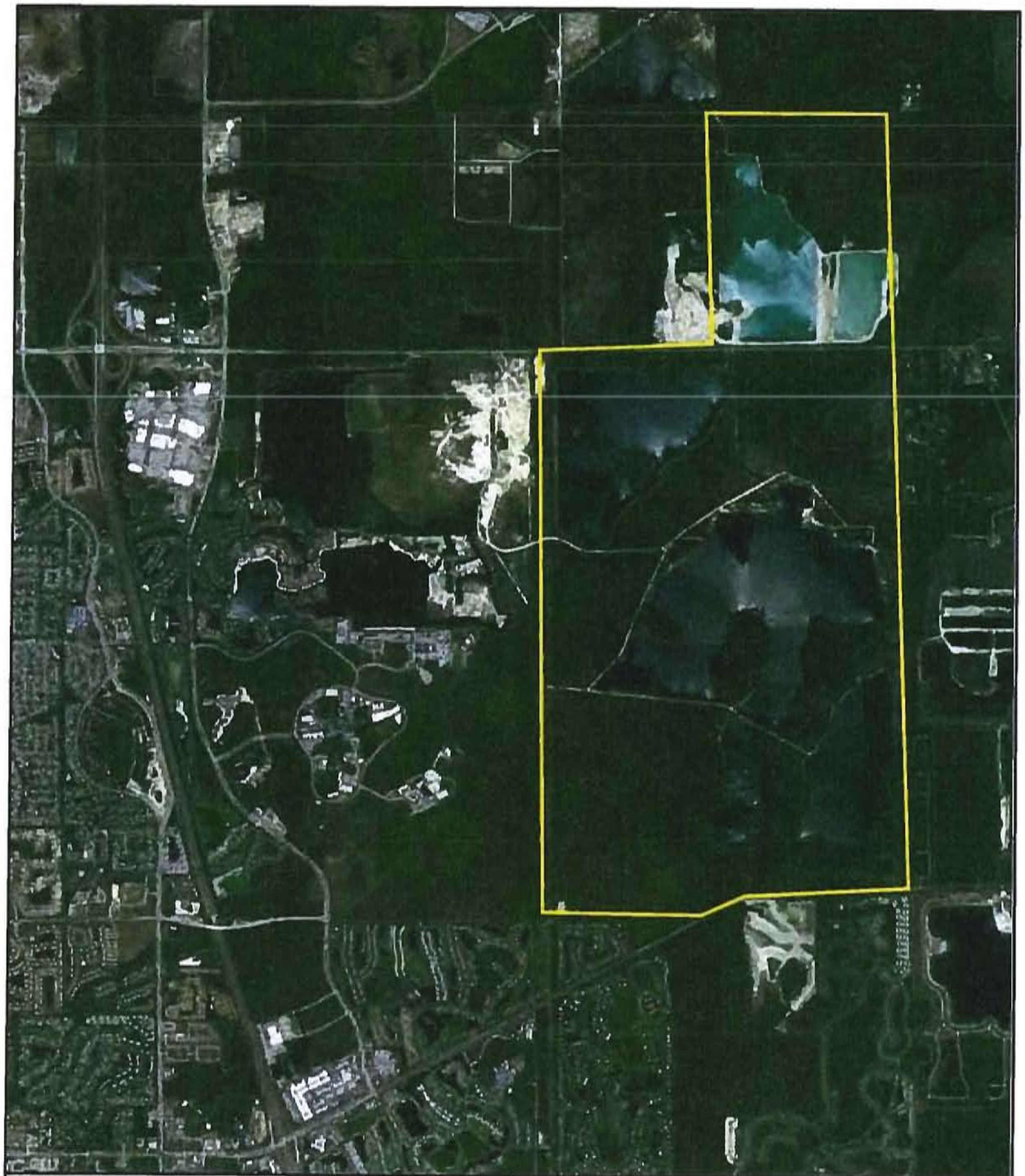


Figure 5. 2012 color aerial orthophotograph of the Alico East parcel.

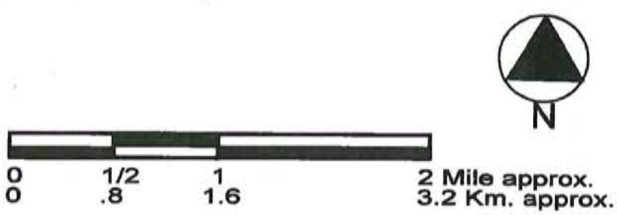


Figure 6. View northeast where the main north access road crosses the slough.

Figure 7. View southwest along eastern margin of recently quarried lake.

Figure 8. View east through hydric pine/cypress flatwoods.

Figure 9. View west at typical cypress slough on northern part of the parcel.

PREVIOUS RESEARCH

Archaeological studies in the project area include various road right-of-way surveys (Jones 1975, Almy 2002, Hutchinson 2000, Archaeological Consultants 2005,2006, 2008); power transmission lines (Janus Research 2005, Johnson 2011), cell tower surveys (Carlson 2001, Florida History LLC 2008) and surveys and assessments of individual parcels, notably Corkscrew Woods, Florida Gulf Coast University, Alico Estates, Airport Technology Center, Cypress Shadows, Florida Technology and Research Park, Bella Terra, Airport Exchange Park, University Village (in the present project parcel) with additional work in 2002, Cemex Fort Myers Mine, Green Meadows Wellfield Expansion, and Alico Airpark Center (Torp 1990, Carr 1995, Almy 1996, Horvath 2000, Almy 2003, Janus Research 2004, Archaeological Consultants 2005, Beriault 2005, Janus Research 1994 and 2000, Archaeological Consultants 2009, Beriault 2011, Carr 2013),

The Archaeological and Historical Conservancy has assessed several large parcels in the Estero/Alico Road area. In 1995, the AHC assessed the 760-acre Florida Gulf Coast University Parcel adjacent and west of the present project parcel locating two prehistoric sites (Carr 1995). Other projects by AHC in the general vicinity of the project parcel include: the 231-acre Airport Exchange Park Parcel to the immediate northwest of the project parcel (Beriault and Gordon 2005) and the 250-acre Alico Airpark Parcel (Carr 2013). A number of past AHC projects are adjacent to Corkscrew Road such as the 267-acre Standefer Parcel (Beriault 1998); 40-acre Nunez parcel (Beriault 1998b); the 640-acre Brown's Citrus Parcel (Carr and Beriault 1999); the 1000-acre Habitat Parcel with one newly reported archaeological site (Carr and Beriault, 1999b); and the 1366-acre Corkscrew Links parcel with one historic structure identified (Beriault 2003).

In 1994 Janus Research surveyed the 2500-acre University Lakes parcel (FDHR report No. 13836) adjacent and west of the project parcel (Janus Research 1994). They dug 58 shovel tests including testing several suspicious mounds which proved to be spoil piles from mining activity. All testing was negative for cultural material.

A survey, also by Janus Research was performed on a 5106-acre area called University Enhancement Community in 2002 (Janus Research 2002). This is now called the Alico East parcel which is the current project parcel. That report was not submitted for agency review and is attached here as an appendix. That assessment included 27 systematic and judgmental negative shovel tests dug within a medium probability area of the parcel and a pedestrian survey, particularly along the peripheries of the largest slough on the parcel (Janus Research 2002).

LITERATURE REVIEW

A search was requested on 8/29/13 with the Florida Division of Historic Resources for relevant archives and literature associated with the project area. This included, but was not limited to, site forms from the Master Site File in Tallahassee concerning previously recorded archaeological and historic sites within and immediately adjacent to the Alico

East parcel and reports for cultural resource conducted within one mile of the project parcel (Table 1).

Table 1. Literature Review Summary	
Previously Recorded Sites:	2 (8LL1843, 8LL1944)
Within Project Parcel	0
Within One Mile of Project Parcel	2
Previous Assessments:	21
In Project Parcel	1
Within One Mile of Project Parcel	20

A review of Florida site files resulted in determining that no previously-recorded archaeological or historic sites occur within the project parcel.

Table 2. Previously Recorded Sites Summary[1]

Site No.	Site Name	Site Type	References	In Survey Parcel	Outside of Parcel
8LL1843	Gulf Coast #1, Little Boar	Prehistoric Midden	*Carr, A Phase I Archaeological Survey and Assessment of the Gulf Coast University Property, Lee County, Florida, 1995*		X
8LL1844	Gulf Coast #2, Eagle Pond	Prehistoric Midden, Mound	*Carr, A Phase I Archaeological Survey and Assessment of the Gulf Coast University Property, Lee County, Florida, 1995*		X
Note: [1]Based on sites within one mile of the survey parcel.					

In addition, a review of the state report files conducted in the same area indicated twenty cultural resource assessments previously conducted within one mile of the Alico East parcel (Table 3).

Table 3. Previous Cultural Resource Assessments[1]

Survey No.	Date	Author	Title	In Parcel	Out of Parcel
2265	1990	Torp, Lyle C.	*Archaeological and Historical Survey of the Corkscrew woods Development in Lee County, Florida*		X
4042	1975	Jones, B. Calvin	*Annual Progress Report of the Cooperative Agreement for the Archaeological Salvage Program between the Florida Department of Transportation and the Division of Archives, History and Records Management, Florida Department of State, 1975*		X
4225	1995	Carr, Robert S.	*A Phase I Archaeological Survey and Assessment of the Gulf Coast University Property, Lee County, Florida*		X
5237	1996	Almy, Marion	*Cultural Resource Assessment Survey, Alico Estates, Lee County, Florida*		X

5939	2000	Hutchinson, Lee	*A Cultural Resources Assessment Survey of Interstate 75 at Alico Road Interchange Modification Report and Project Development and Environmental Study, Lee County, Florida*		X
6254	2000	Horvath, Beth	*A Cultural Resource Assessment Survey of the 190 Acre Airport Technology Center, Lee County, Florida*		X
7155	2002	Almy, Marion	*A Cultural Resource Assessment Survey I-75 from South of Bonita Beach Road to North of SR 78, Lee county, Florida*		X
7638	2001	Carlson, Betsy	*Cultural Resource Survey: Proposed Cell Tower Verizon #68914 Three Oaks Town Center, Lee County, Florida*		X
9112	2003	Almy, Marion	*Cultural Resource Assessment Survey Cypress Shadows, Lee County, Florida*		X
10588	2004	Janus Research	*Cultural Resources Assessment Survey of the Florida Gulf Coast Technology and Research Park, Lee County*		X
11044	2005	Archaeological Consultants, Inc.	*Cultural Resource Assessment Survey, Bella Terra Property, Lee County, Florida*		X
11297	2005	Beriault, John G.	*A Phase One Archaeological Survey of the Airport Exchange Park Parcel, Lee County, Florida*		X
12175	2005	Archaeological Consultants, Inc.	*Cultural Resources Assessment Proposed Pond Sites, Technical Memorandum, SR93 (I-75) from South of Corkscrew Road to South of Daniels Parkway, Lee County Florida FPID 406225-4-52-01; FAP 0755 0801 I*		X
13836	1994	Janus Research	*Cultural Resource Assessment Survey of the University Village Area, Lee County, Florida*	X	
NA	2002	Janus Research	*Cultural Resource Assessment Survey of the University Enhancement Community DRI, Lee County*	X	
14852	2006	Archaeological Consultants, Inc.	*Cultural Resources Assessment Survey CR 951 from Immokalee Road to Alico Road, Lee and Collier County, Florida*		X
15053	2008	Archaeological Consultants, Inc.	*A Cultural Resource Reconnaissance Survey Three Oaks Parkway and Oriole Road Extension, Lee County, Florida*		X
15723	2008	Florida History, LLC	*An Archaeological and Historical Survey of the 6FM1062E Verizon 3 Oaks Town Center Tower in Lee County, Florida*		X
17072	2009	Archaeological Consultants, Inc.	*A Cultural Resource Reconnaissance Survey, Cemex – Fort Myers Mine Phase 3C Expansion, Lee County, Florida*		X
18231	2011	Johnson, Robert E.	*A Cultural Resource Reconnaissance Survey of the Florida Power & Light Company Corkscrew Aerial Crossing Project, Lee County, Florida*		X
18700	2011	Beriault, John G.	*A Reconnaissance Cultural Resource Assessment of the Green Meadows Wellfield Expansion Parcel, Lee County, Florida*		X
	2013	Carr, Robert S. et al	*A Phase I Cultural Resources Assessment of the Alico Airpark Center Parcel Lee County, Florida.*		X
Note: [1]Based on assessments within one mile of the survey area					

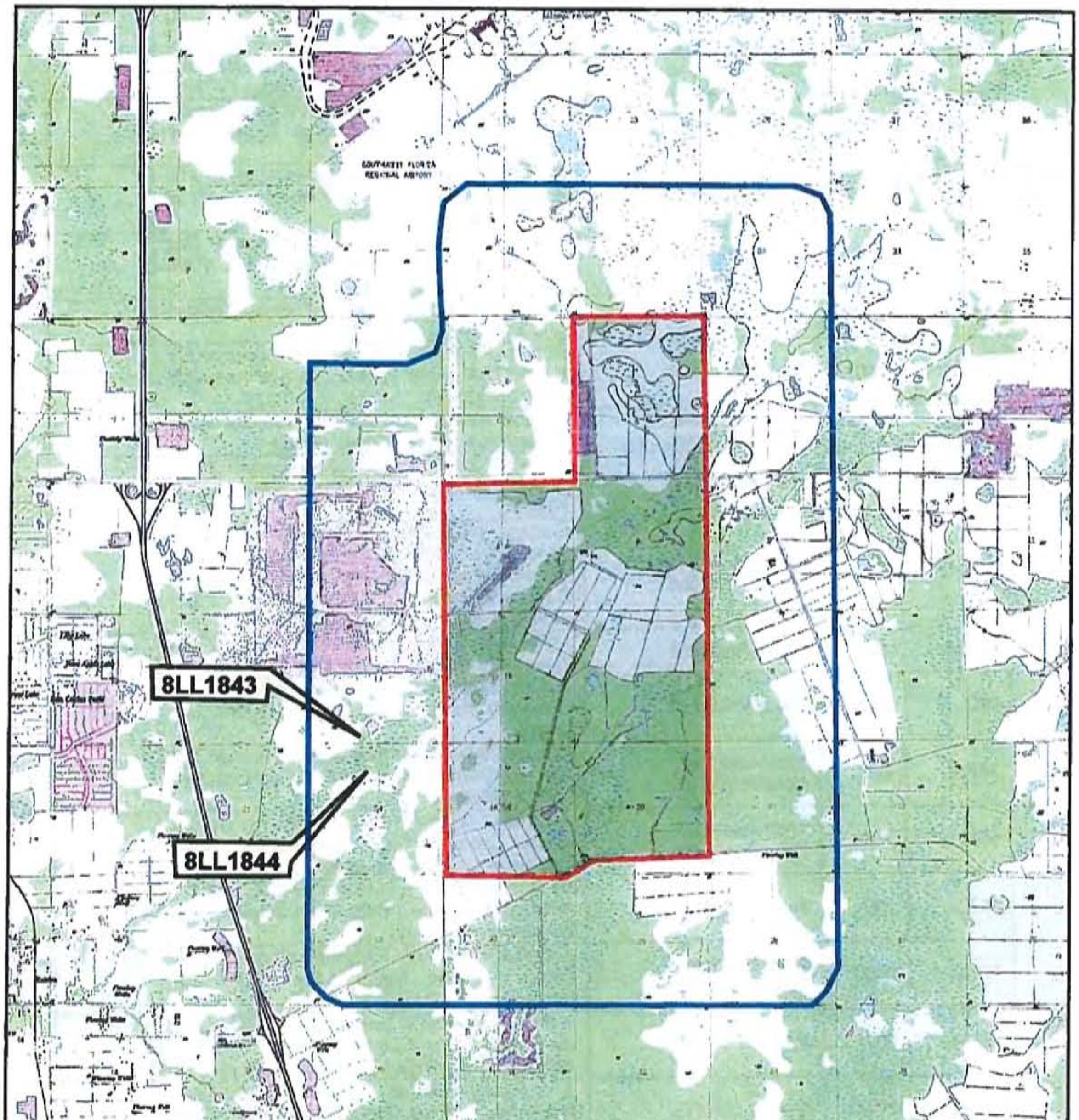


Figure 10. USGS map showing the locations of all previously-recorded sites within one mile of the project parcel.

= TRS SEARCH AREA

TOWNSHIP 46S, RANGE 26E, SECTIONS 5, 7, 8, 17, 18, 19, 20
USGS Maps: ALVA SW, REV. 1987
CORKSCREW NW, REV. 1987
ESTERO, REV. 1987

N

0 1/2 1 2 Miles approx.
0 .8 1.6 3.2 Km. approx.

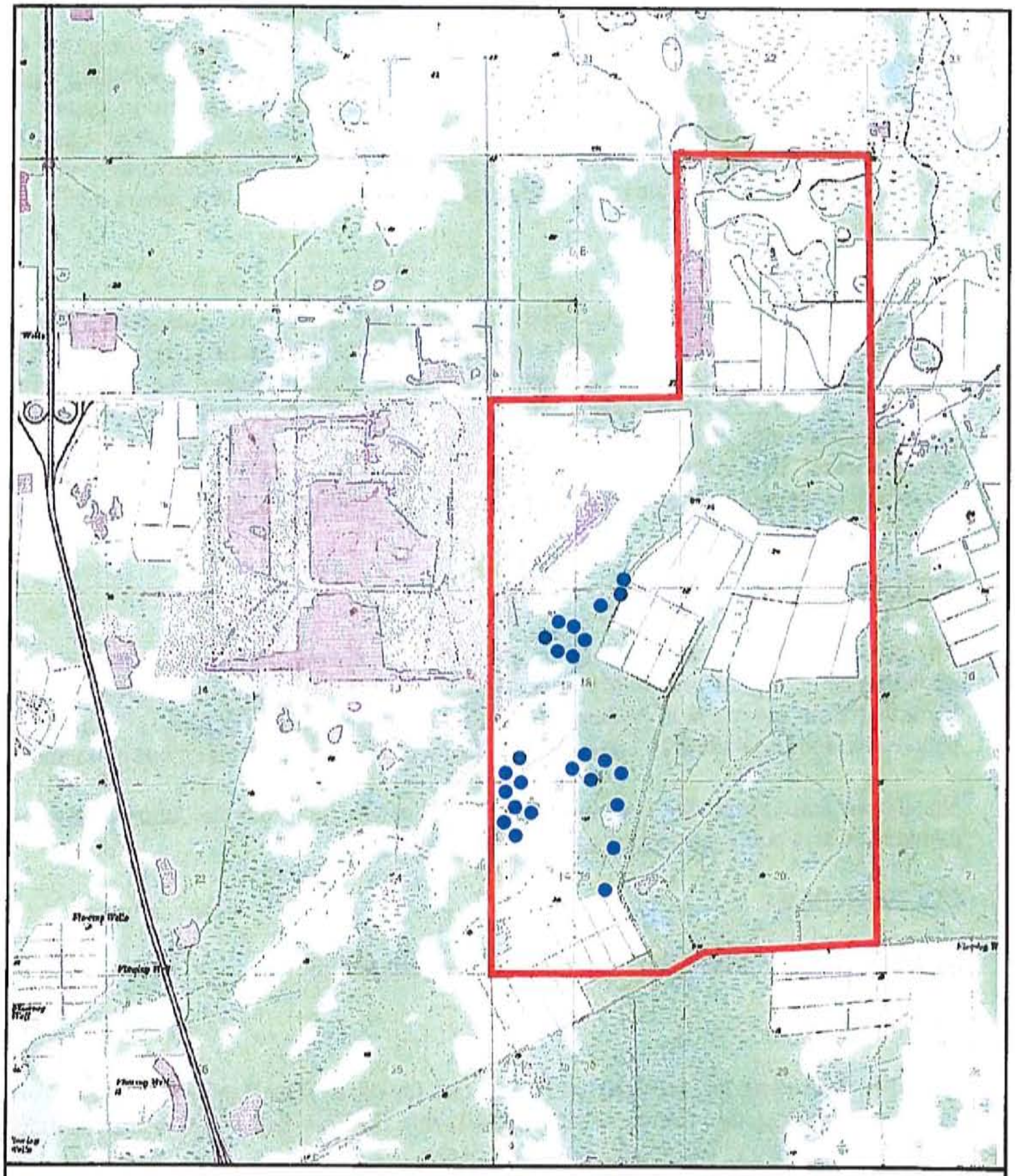


Figure 11. USGS map showing the locations of shovel tests dug by Janus in 2002.

● = SHOVEL TEST (NEGATIVE)

TOWNSHIP 46S, RANGE 26E, SECTIONS 5, 7, 8, 17, 18, 19, 20
USGS Maps: ALVA SW, REV. 1987
CORKSCREW NW, REV. 1987
ESTERO, REV. 1987

0	1/2	1	2 Miles approx.
0	.8	1.6	3.2 Km. approx.

N

METHODOLOGY

Prior to conducting fieldwork in the project parcel, relevant archives and literature were reviewed. This included, but was not limited to, studying previous archaeological reports for sites in Lee County, reviewing information from the Master Site File in Tallahassee concerning nearby sites, and examining USGS maps of the project area. Also, black and white as well as color aerial photographs of the project area, which could aid in revealing anthropogenic changes to the topography and floral communities, were interpreted.

RESEARCH DESIGN

The principal project goal was to update previous cultural resource assessments that had been conducted on the parcel and to determine whether any archaeological or historic sites occur on the parcel. This cultural resource survey incorporated the use of certain predictive models. These models are based on topographic and vegetative attributes that are associated with prehistoric and historic sites in interior Lee County. These models postulate that live oak, tropical hardwood, and cabbage palm hammocks in close proximity to sloughs and marshes are medium to high probability areas for archaeological sites.

FIELDWORK

The parcel was assessed by pedestrian and vehicular survey. Areas identified on aerial photographs as higher probability areas were ground truthed, including seven "targets" identified from a review of vintage aerial photographs of 1958 (Figure 3). Most of the parcel was flooded with 8-24 inches of standing water during the time of our assessment.

No shovel tests were dug for this assessment since the previous Janus assessment included 25 test holes, all negative for cultural materials.

COLLECTIONS

No archaeological or historical material was observed or collected.

INFORMANTS

Donald R. Schrotenboer, president of Real Estate for the Private Equity Group, LLC was interviewed during the course of this assessment. He was not aware of any cultural resources or hardwood hammocks on the property.

RESULTS AND CONCLUSIONS

This cultural resource assessment of the Alico East parcel resulted in no prehistoric or historic sites being identified. These results concur with the Janus findings of 1994 and 2002, when collectedly, all portions of the project parcel were subject to pedestrian survey and shovel testing with negative results for cultural resources.

Seven locations were identified on the 1958 aerial photograph (Figure 7) as potential features or natural areas associated with archaeological sites. All were ground truthed and were determined to have been destroyed by prior ground disturbing activities linked to quarry operations.

This assessment concurs with the findings of the two CRAS Surveys (1994 and 2002) by Janus Research that there are no significant archaeological or historical resources on the Alico East parcel.

The large size of the property affords the possibility that isolated archaeological material may occur on the parcel. If such materials are encountered during ground-disturbing activities then the consultant archaeologist and the Florida Division of Historic Resources should be notified. If human remains are found than the provisions of Florida Statute 872.05 will apply.

REFERENCES CITED

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1995 Cultural Resource Assessment Survey, Alico Estates, Lee County, Florida. Report #5237 on file, Florida Division of Historic Resources, Tallahassee, Florida.

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Almy, MM and JG Deming

1982 Cultural Resources Survey of the Emerald Lakes Tract in Northwest Collier County, Florida. Archaeological Consultants Inc., Sarasota FMSF #902.

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1986b Archaeological Assessment of Bretonne Park, Collier County, Florida Archaeological Consultants Inc., Sarasota.

1986c Archaeological Assessment of City Gate Commercial Park, Collier County, Florida. Archaeological Consultants Inc., Sarasota.

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Archaeological Consultants, Ins.

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Carr, Robert
1995 A Phase I Archaeological Survey and Assessment of the Gulf Coast University Property, Lee County, Florida. Report #4225 on file, Florida Division of Historic Resources, Tallahassee, Florida.

2013 A Phase I Cultural Resources Assessment of the Alico Airpark Center Parcel Lee County, Florida. AHC Technical Report on file, Davie, Florida.

Florida History, LLC
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Horvath, Beth
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Hutchinson, Lee
2000 A Cultural Resources Assessment Survey of Interstate 75 at Alico Road Interchange Modification Report and Project Development and Environmental Study, Lee County, Florida. Report #5939 on file, Florida Division of Historic Resources, Tallahassee, Florida.

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1994 Cultural Resource Assessment Survey of the University Village Area, Lee County, Florida. Report #13836 on file, Florida Division of Historic Resources, Tallahassee, Florida.

2002 Cultural Resource Assessment Survey of the University Enhancement Community DRI, Lee County. final report, St. Petersburg, Florida.

2004 Cultural Resources Assessment Survey of the Florida Gulf Coast Technology and Research Park, Lee County. Report #10588 on file, Florida Division of Historic Resources, Tallahassee, Florida.

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1975 Annual Progress Report of the Cooperative Agreement for the Archaeological Salvage Program between the Florida Department of Transportation and the Division of Archives, History and Records Management, Florida Department of State, 1975. Report #4042 on file, Florida Division of Historic Resources, Tallahassee, Florida.

Torp, Lyle C.
1990 Archaeological and Historical Survey of the Corkscrew woods Development in Lee County, Florida. Report #2265 on file Florida Division of Historic Resources, Tallahassee, Florida.

APPENDIX I: 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) **Old Alico – Phase I**

Report Title (exactly as on title page) A Cultural Resource Assessment of the Old Alico Parcel, Lee County, Florida

Report Author(s) (as on title page— individual or corporate; last names first) **Carr, Robert S.; Beriault, John G.**

Publication Date (year) **2013** Total Number of Pages in Report (count text, figures, tables, not site) **20 + 65 (Appendix II)**

Publication Information (Give series and no. in series, publisher and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*.)

AHC Technical Report #993

Supervisor(s) of Fieldwork (whether or not the same as author[s]; last name first) **Carr, Robert S.**

Affiliation of Fieldworkers (organization, city) **Archaeological and Historical Conservancy, Inc.**

Key Words/Phrases (Don't use the county, or common words like *archaeology, structure, survey, architecture*. Limit each word or phrase to 25 characters.) **Alico, Estero, Corkscrew**

Survey Sponsors (corporation, government unit, or person who is directly paying for fieldwork)

Name **Private Equity Group, LLC**

Address/Phone

Recorder of *Log Sheet* **Beriault, John G.** Date *Log Sheet* Completed **9-21-13**

Is this survey or project a continuation of a previous project? θ **No** **X Yes: Evaluation of Phase One Survey performed by Janus Research in 2002, never submitted to DHR** Previous survey #(s) (FMSF only)

Mapping

Counties (List each one in which field survey was done - do not abbreviate; use supplement sheet if necessary) **Lee**

USGS 1:24,000 Map(s) : Map Name/Date of Latest Revision (use supplement sheet if necessary): **Fort Myers SE, rev. 1987; Alva SW, rev. 1987; Corkscrew SW, rev. 1987; Estero SE, rev. 1987**

Description of Survey Area

Dates for Fieldwork: Start **9-4-13** End **9-4-13** Total Area Surveyed (fill in one) ______ hectares **5106** acres

Number of Distinct Tracts or Areas Surveyed **One**

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

Survey Log Sheet

Survey #________

Research and Field Methods

Types of Survey (check all that apply): X archaeological θ architectural X historical/archival θ underwater θ other:________

Preliminary Methods (4Check as many as apply to the project as a whole.)

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

Archaeological Methods (4Check as many as apply to the project as a whole.)

θ Check here if **NO** archaeological methods were used.

θ surface collection, controlled
θ surface collection, <u>un</u>controlled
X shovel test-1/4"screen
θ shovel test-1/8" screen
θ shovel test 1/16"screen
θ shovel test-unscreened
θ other screen shovel test (size:____)
θ water screen (finest size:____)
θ posthole tests
θ auger (size:____)
θ coring
θ test excavation (at least 1x2 M)
θ block excavation (at least 2x2 M)
θ soil resistivity
θ magnetometer
θ side scan sonar
θ unknown
θ other (describe): ________

Historical/Architectural Methods (4Check as many as apply to the project as a whole.)

θ Check here if **NO** historical/architectural methods were used.

θ building permits
θ commercial permits
θ interior documentation
θ demolition permits
X exposed ground inspected
θ local property records
θ neighbor interview
θ occupant interview
θ occupation permits
θ subdivision maps
θ tax records
θ unknown
θ other (describe): ________

Scope/Intensity/Procedures **Review of vintage and recent aerials, literature Review, then pedestrian GIS survey , the excavation of 27 shovel tests by Janus across is reported**

Survey Results (cultural resources recorded)

Site Significance Evaluated? θYes θ No   If *Yes*, circle NR-eligible/significant site numbers below.

Site Counts: Previously Recorded Sites 0________ **Newly Recorded Sites**) 0 ________

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

Newly Recorded Site #'s (Are you sure all are originals and not updates? Identify methods used to check for updates, i.e., researched Site File records. List site #'s without "8." Attach supplementary pages if necessary ________

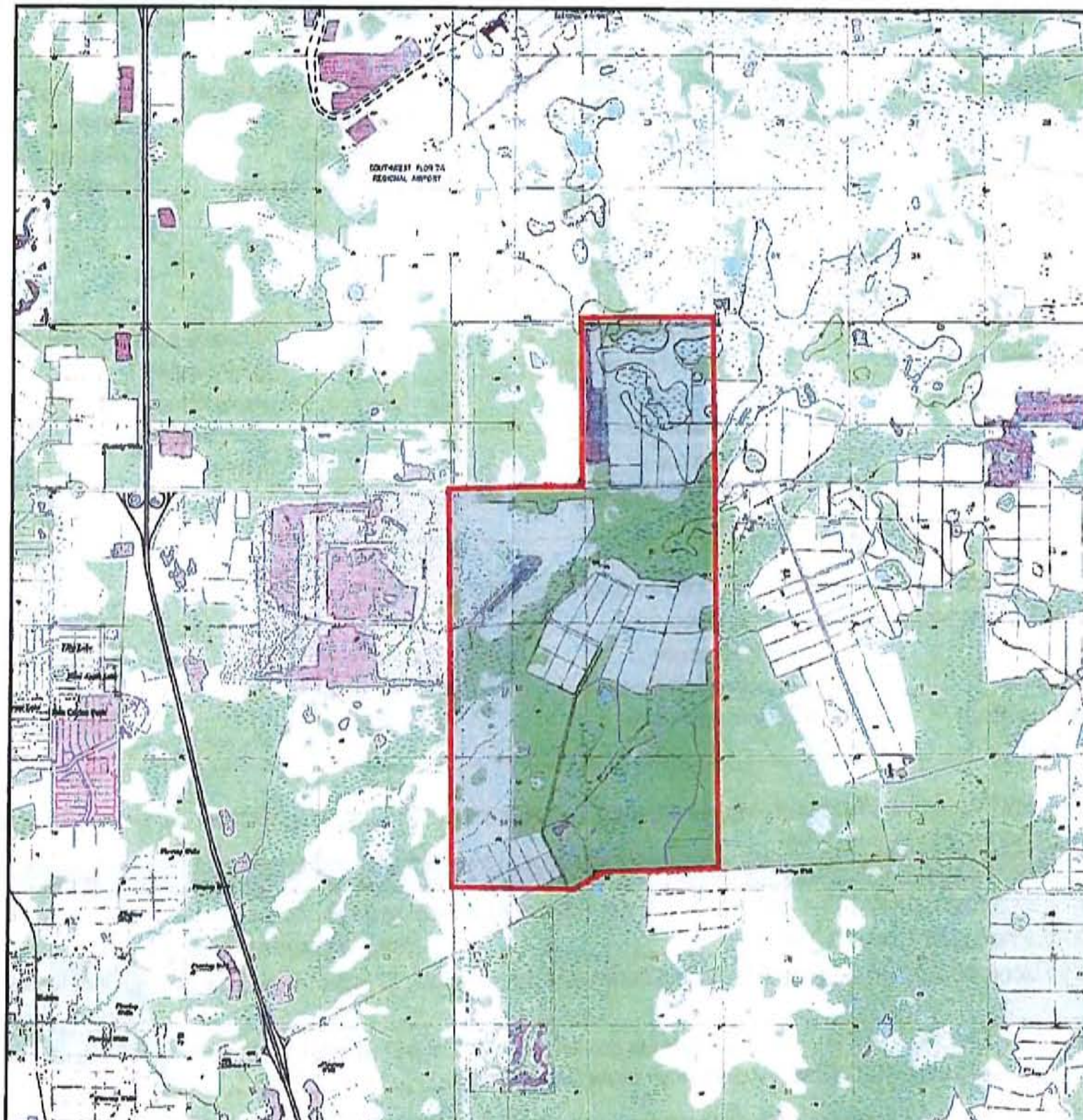
Site Form Used: X Site File Paper Form θ SmartForm II Electronic Recording Form

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

DO NOT USE   SITE FILE USE ONLY   DO NOT USE

BAR Related
θ 872   θ 1A32 #________
θ CARL   θ UW

BHP Related
θ State Historic Preservation Grant
θ Compliance Review: CRAT #________



USGS Map of the Alico East parcel.

N

TOWNSHIP 46S, RANGE 26E, SECTIONS 5, 7, 8, 17, 18, 19, 20
USGS MAPS: ALVA SW, REV. 1987
CORKSCREW NW, REV. 1987
ESTERO, REV. 1987

0 1/2 1 2 Mi. approx.
0 .8 1.6 3.2 Km. approx.

APPENDIX II: JANUS CULTURAL RESOURCE ASSESSMENT REPORT 2002

CULTURAL RESOURCE ASSESSMENT SURVEY OF THE UNIVERSITY ENHANCEMENT COMMUNITY DRI, LEE COUNTY

Prepared for:

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Final Report

November 2002

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INTRODUCTION

At the request of Ginn-LA Naples, Ltd. LLLP, and in cooperation with WilsonMiller, Janus Research conducted a cultural resource assessment survey (CRAS) of the University Enhancement Community DRI in Lee County, Florida. The purpose of this survey was to locate, identify, and bound any previously recorded or unrecorded cultural resources within the project area and to assess these resources in terms of their eligibility for listing in the *National Register of Historic Places (NRHP)*.

This survey was designed in compliance with Section 106 of the *National Historic Preservation Act* (*NHPA*) *of 1966* (as amended), as implemented by 36 CFR Part 800 (*Protection of Historic Properties*, revised January 2001); Chapter 267, *Florida Statutes*; and the minimum field methods, data analysis, and reporting standards embodied in the FDHR *Historical Preservation Compliance Review Program* (November 1990, Final Draft), Chapter 1A-46 (*Archaeological Report Standards and Guidelines*) of the *Florida Administrative Code*, and any pertinent Lee County concerns.

The University Enhancement Community DRI project area is situated on a parcel that lies east of Ben Hill Griffin Parkway, north of Corkscrew Road, and primarily south of Alico Road (Figure 1). It is located in Sections 1, 2, 11, 12, and 13 of Township 46 South, Range 25 East on the Estero USGS Quadrangle (1958 PR 1987) and Sections 5, 6, 7, 8, 17, 18, 19, and 20 of Township 46 South, Range 26 East on the Alva SW USGS Quadrangle (1958 PR 1987) and the Corkscrew NW USGS Quadrangle (1958 PR 1987) (Figure 2). The project area consists of approximately 5,106 acres, much of which has been heavily impacted by ongoing mining operations. A photograph of the project area is located in Appendix A.

A search of the Florida Master Site File (FMSF) revealed two previously recorded archaeological resources (8LL1843, 8LL1844) located within one mile of the project area. Site 8LL1843 is a midden while 8LL1844 is a mound, both of which are associated with the Glades culture. Neither site has been evaluated for its listing in the *NRHP*. However, neither site lies within or adjacent to the project area, and, therefore, neither site will be impacted by the proposed development.

The CRAS of the University Enhancement DRI project area identified no cultural resources. Therefore, the proposed development will not constitute an impact to any significant historic properties. No further work is recommended.

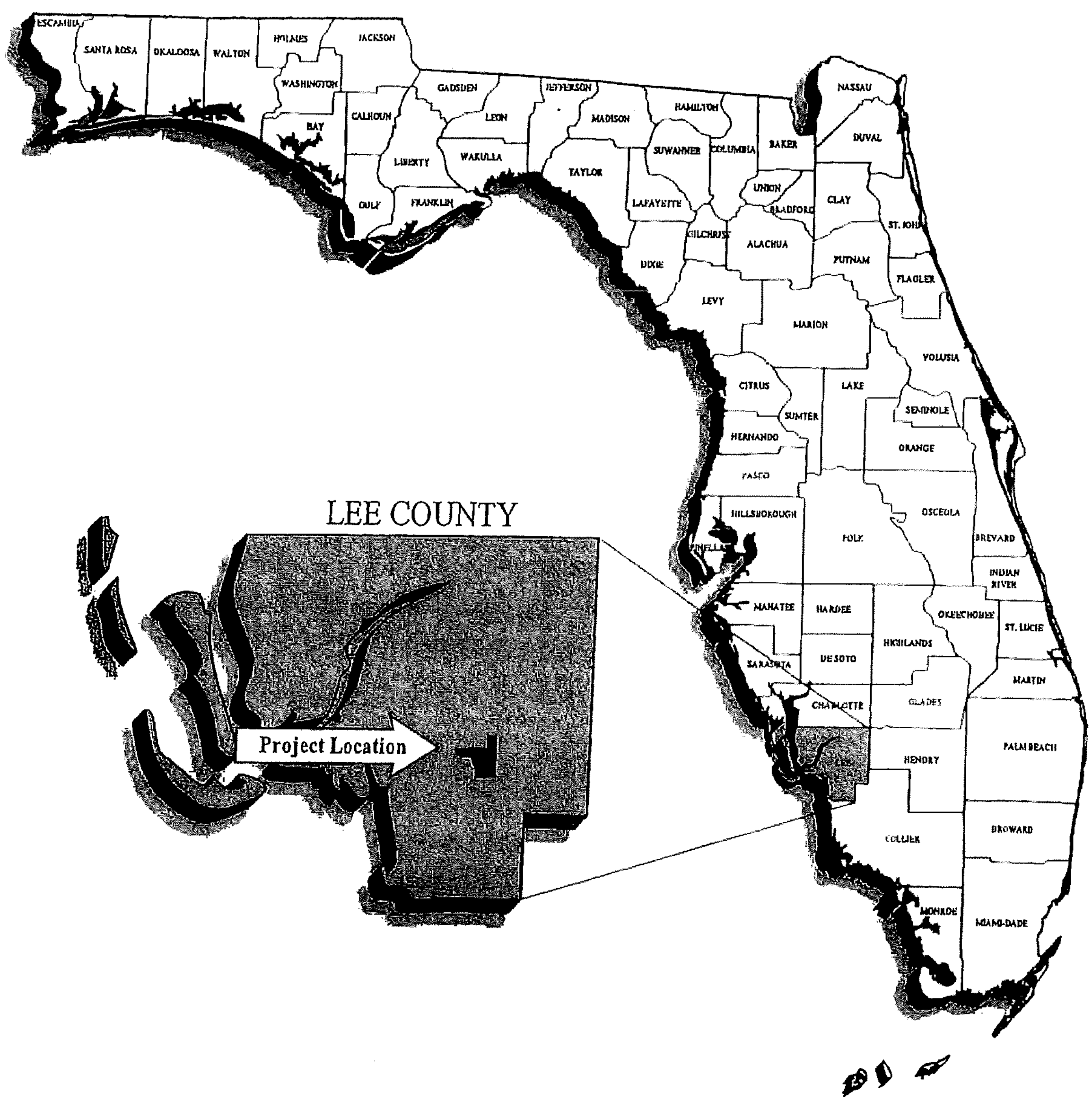

Figure 1: General Location of the Project Area

JANUS RESEARCH
ST. PETERSBURG · CORAL GABLES

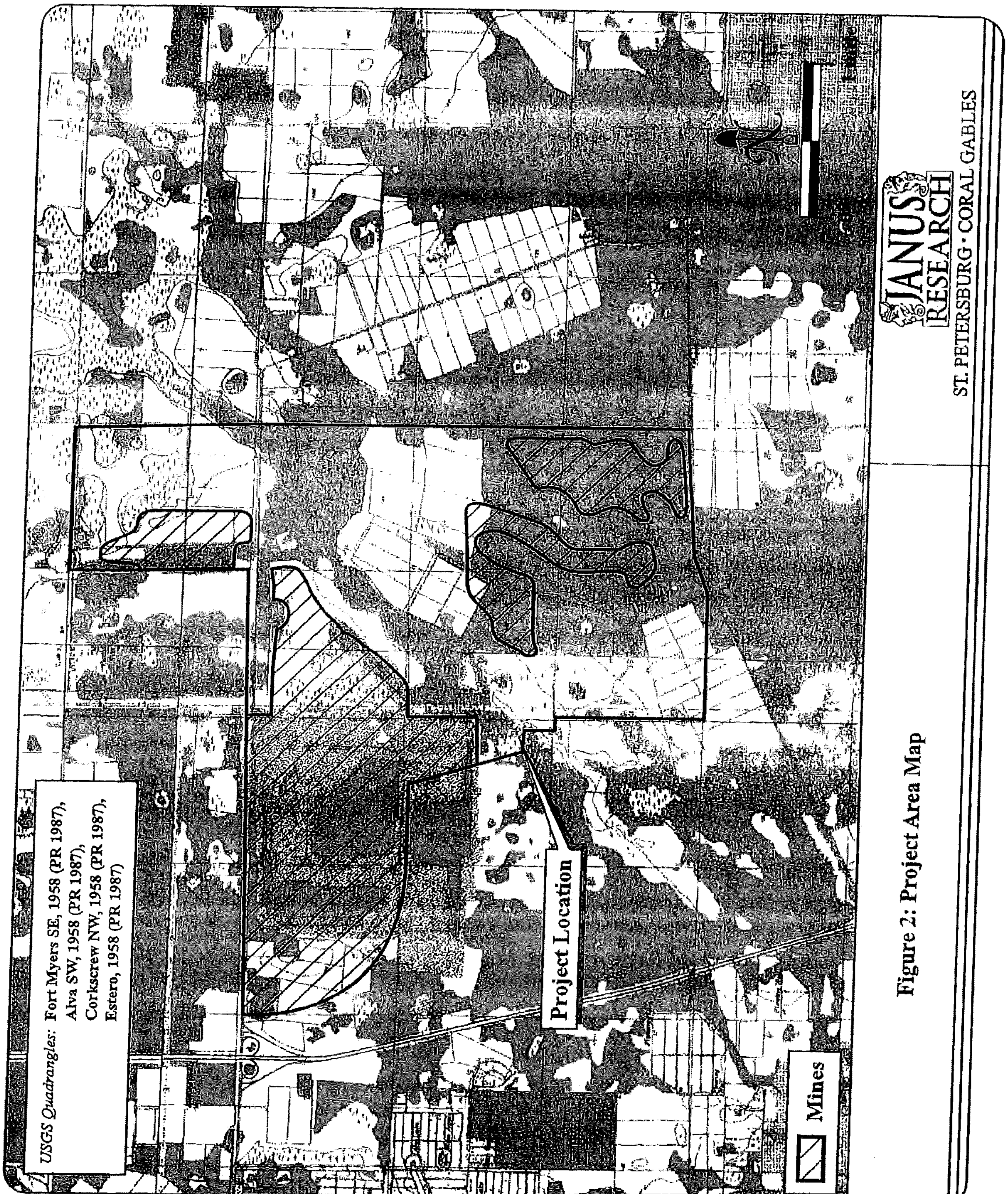

Figure 2: Project Area Map

ENVIRONMENTAL SETTING

Environmental and ecological factors through time had a direct influence on the choice of sites for occupation by pre-Columbian populations and early historic settlers. Thus, geologic, hydrologic, and meteorologic processes that may have affected the project area and its biotic resources are important elements in the formulation of a settlement/subsistence model for pre-Columbian and early historic peoples. Present day environmental variables are used to reconstruct past conditions that influenced early human occupation of the project area, and so are included in this study.

Paleo-Environment and Macro-Vegetational Change

Although a comprehensive paleoenvironmental reconstruction is beyond the scope of this report, a brief description of the large-scale climatic and hydrologic conditions that have occurred since 33,000 BP (years before present, i.e. radiocarbon dates are quoted in uncalibrated form and the present is taken as 1950 calendar years AD) is provided. This description is drawn primarily from the work of W. A. Watts (1969, 1971, 1975, 1980) and Watts and Hansen (1988). Carbone (1983) has promoted the reconstruction of local paleoenvironments, or small-scale environmental change, with an effort towards developing regional paleoenvironmental mosaic landscapes. Vegetation and animals (including humans) either adapt to local areas (micro-habitats) or move to preferred locations. The descriptions given here provide some indication of the ecological context of pre-Columbian groups at different times, in particular the environmental limitations. However, these descriptions are general and cannot be used to reconstruct the microhabitats of the project area.

Since the termination of the Pleistocene Epoch at the end of the Wisconsin glaciation, roughly 13,500 BP, Florida has undergone significant climatic and environmental change. Notable changes in climate, and subsequently in flora and fauna, required human groups to adapt to their surroundings. These adaptations resulted in cultural changes in their hunting/foraging strategies and seasonal migration patterns. Within the archaeological record, these changes can be observed by differences in settlement patterns, midden composition, refuse disposal patterns, and the kinds of stone tools or pottery made.

Paleobotanical evidence (Watts 1969, 1975, 1980; Watts and Stuiver 1980; Watts and Hansen 1988) has documented that the cypress swamp/mesic hammock environs that presently exist in the river basins of central Florida are recent phenomena (post-3000 BP). Prior to this time, the human groups inhabiting this region had adapted to environments that have no analogues on the Florida peninsula today (Wright 1971, 1981; Long 1974; Carbone 1983). Since the termination of the Wisconsin glaciation, the changes in North American climate and topography have been dramatic; both the environment and human exploitation of the environment have been in continual flux (Edwards and Merrill 1977).

Although Florida was not glaciated, the glacial conditions associated with the Laurentide ice sheet affected the paleoclimates of Florida. Paleobotanical evidence suggests that between 33,000 and 13,500 BP, Florida was dry, windy, and cool (Whitehead 1973). Pollen analyses from lake sediment cores performed by Watts (1969, 1971, 1975, 1980) suggest that a mosaic landscape of herb prairie and oak savanna covered central Florida at this time. Rosemary (*Ceratiola ericodes*), ragweed (*Ambrosia* sp.), grass species, and other composites covered the dune ridges. Scattered stands of sclerophyllous oak scrub grew in the lower, riparian areas. Pine species were rare in Florida 35,000 years ago (Watts 1975:345), but increased in abundance toward the end of the Pleistocene (Watts 1980:400). Drier conditions are suggested by hiatuses in lake sediment cores obtained from Mud Lake in north-central Florida (Watts 1969), Lake Louise in southern Georgia, Scott Lake in west-central Florida (Watts 1971), and Sheelar Lake in north-central Florida (Watts and Stuiver 1980).

These breaks in the sedimentary record are the result of lower average rainfall and the depressions of the Floridan Aquifer and surficial aquifer. A lower mean sea level was responsible for the depression of these aquifers. Perched shallow lakes dried, leaving only solution lakes with sufficient depth to tap the depressed Floridan Aquifer containing water. Examples of such solution lakes (cenotes or sinkholes) include Lake Anne in Highlands County (Watts 1975), Warm Mineral Springs (Clausen et al. 1975) and Little Salt Spring (Clausen et al. 1979) in Sarasota County, and Devil's Den in Levy County (Martin and Webb 1974). Evidence of cooler and drier conditions at the maximum of the Wisconsin Glaciation (18,500 BP) is also provided by Gates (1976). Using CLIMAP data, Gates has estimated the mean July temperature to be as much as 7° to 10°C cooler than present mean July temperatures.

By the early Holocene, roughly 13,500 BP, the climate in west-central Florida had warmed and it is likely that precipitation increased; as a result, the shallow, perched lake levels rose. Watts (1980:400) states that by 8400 BP, oak pollen frequency increased to its highest level, while the pollen from dune cover vegetation (primarily rosemary, ragweed, and grasses) decreased. Pines species became more common, but large areas of open prairie-like vegetation still remained (Watts 1980:400). Temperatures were probably warmer than present (Wright 1971; Watts 1975, 1980), and rainfall was probably greater relative to the preceding period (33,000 to 13,500 BP); however, conditions remained more arid than present.

Kukla (1969) has suggested that a series of minor climatic fluctuations occurred during the Holocene Epoch. He postulates that the Holocene began with a warming trend that lasted until about 4600 BP, reaching a post-glacial climatic optimum at roughly 6000 BP. Cooling trends are suggested for the periods 4600 to 4000 BP, 3450 to 2700 BP, 2100 to 1600 BP, and 750 to 600 BP (Kukla 1969:315). Associated with these cooler periods are drops in sea level from 2.5 to 4 m below present levels. Warming trends are suggested for the periods 4000 to 3450 BP, 2700 to 2100 BP, and 1600 to 750 BP. The most recent warming trend (1600 to 750 BP) is considered to have been slightly warmer than the others, and has been called the Little Climatic Optimum (Kukla 1969:316). A rise in sea levels to 0.5 m above present levels has been associated with this period.

After 5000 BP, the environment in central Florida began to take on a more modern appearance. Large stands of slash pine (*Pinus elliottii*) became established, probably at the expense of oak in the wetter, low-lying areas. Rainfall increased and sea level rose, creating wetter conditions. At Lake Annie, Watts (1980:400) reports that bald cypress (*Taxodium distichum*) pollen does not occur with any frequency until 2630 BP. The development of cypress swamps, bayheads, and mesic hammocks has occurred over the last 3,000 years.

The earliest inhabitants of Florida accessed a permanent water supply from a number of solution lakes and ponds and a seasonal water supply from perched water ponds. Shallow water ponds and rivers fed by the Floridan Aquifer were dry during this period due to insufficient rainfall and the depressed level of the Aquifer. Settlement appears to have been limited to areas around sinkholes that penetrated the Floridan Miocene age limestones (Clausen et al. 1975, 1979) or areas within the Central Gulf Coast Karst Region where both solution lakes and perched water were available (Dunbar and Waller 1983).

By 10,000 BP, the previously dry perched water systems began to retain water for longer periods of time as precipitation increased. By 8500 BP, the water levels in the perched water systems approached modern levels; however, the level of the Floridan Aquifer remained depressed due to lowered sea levels. Therefore, potable water was less restricted, but remained only seasonally available at perched water ponds and lakes and permanently available only in some deep sinkholes. During this period, the major rivers in central Florida, such as the Hillsborough, the Peace, and the Caloosahatchee rivers, probably flowed intermittently. For much of the period, these rivers were probably reduced to strings of discrete shallow ponds or pools.

By 6000 BP, the Floridan Aquifer reached modern levels (Dunbar 1982:98). This resulted in fresh water discharge from springs, and spring-fed rivers. Arid conditions caused many of the perched water ponds to dry; thereby, restricting potable water to the deeper springs, rivers, and sinkholes (Dunbar 1982:98). Between 6000 and 5000 BP, surface water was abundant, as the Floridan Aquifer was about 1.5 m above current levels (Dunbar 1982:101). Between 5000 to 2500 BP, the level of the Floridan Aquifer fluctuated 3 m, from 1.5 m above current levels at 5000 BP to 1.5 m below present levels at 4200 BP (Dunbar 1982:102). This probably resulted in a decreased surface discharge from the Aquifer, but increased rainfall maintained the levels in the perched water systems.

Beginning about 4000 BP, a series of lakes were formed along the interface of the sandy sediments of the central peninsula and the bare limestone bedrock of the distal end of the peninsula. Fibrous peat, deposited from sawgrass and other plant growth, accreted and formed a rising dike that slowed the drainage of water. This widened the area of the Everglades Trough by the erosion of sand deposits and the dissolution of limestone bedrock along the perimeter of these peat marshes. The accretion of fibrous peat continued and raised the water level in the peripheral lakes throughout the area that would later become the Florida Everglades. Lake Okeechobee, in the extreme northeast of the Everglades Trough, was one of these peripheral lakes. The rising dike of fibrous peat allowed Lake Okeechobee's shallow waters to expand over the surrounding lowlands (White 1970:79). Between 2500 and 250 BP, the level of the Floridan Aquifer rose. This rise, in combination with higher than present rainfall conditions, probably resulted in seasonal flooding of low-lying regions (Dunbar 1982:102). Potable water was abundant during this period. It is likely that pre-Columbian site location at this time was more dependent on the proximity of plant and animal resources than on the availability of water.

The climatic fluctuations that have occurred over the past 13,000 years have affected the way human groups were able to exploit the resources found within what is now Orange County, Florida. The Paleoindian and Early Archaic inhabitants would have found the area drier and access to water restricted, possibly only seasonally available at perched water ponds, or in solution lakes (sinkholes). The Florida peninsula was wider as sea level was as much as 49 m (160 ft) lower than present level (Milanich 1994:38). The continental shelf was exposed in what is now the Gulf of Mexico. Mixed forests of oak and pine probably dominated the lower, riparian areas and the higher, arid locations were covered with rosemary scrub and grass species.

The Holocene Climatic Optimum, a time of warmer and drier environmental conditions, occurred during the Middle Archaic period (6950 to 4950 BP). Pine species replaced oak as the dominant forest element (Watts 1975). This implies that the availability of acorns and the animals that fed on those acorns would have been more restricted. Water was more plentiful, but only in rivers and springs fed by the Floridan Aquifer or at sinkholes.

By Late Archaic times, the environment of the region approached present conditions. With the incipient development of the Everglades, Lake Okeechobee, Lake Kissimmee, swamps, wetlands, and other drainages, water was no longer the limiting factor to site and resource location. The choice of site location was probably more a matter of finding a reasonably dry spot rather than a nearby water supply (Almy 1976, 1978; Grange et al. 1979). Sea levels were still fluctuating, but were within one meter of current levels (Mörner 1969; Widmer 1983). Woodland Period culture groups exploited microhabitats that existed until modern logging, ranching, and land drainage practices were instituted.

Regional Environment

The project area is located within Caloosahatchee Valley physiographic province as defined by White (1970:Map 1-C). The Caloosahatchee Valley marks a major boundary between the Anastasia Formation and the Tamiami Formation to the south, and the Fort Thompson Formation to the east (White 1970:76). The Caloosahatchee River flows westward between the Caloosahatchee Incline to the north and the Immokalee Rise to the south. These areas of higher elevation were formed during periods of higher Pleistocene seas, when the Caloosahatchee Valley was a large tidal channel (Lane 1980).

The drainage characteristics of southern Florida are controlled largely by the underlying bedrock formations and the properties of surficial sediments. In western Lee County, the surface lithology is composed of undifferentiated deposits of sand, shell, and clay of

Pleistocene and Recent age. These deposits are underlain by limestones and marls of the Miocene age Tamiami Formation and the highly variable Anastasia Formation of Pleistocene age. Limestone is at or very near the surface throughout much of Lee County (Lane 1980). Exposures of silicified limestone, or chert, were often exploited by pre-Columbian peoples as a raw material source for the manufacture of stone tools; however, no significant outcrops of chert are known for southwest Florida (Upchurch et al. 1982:22; Lane 1980).

Water resources consist of both ground and surface water. The principal groundwater aquifer for all of Florida is the Floridan, which occurs under artesian conditions with slowly permeable clays and sands forming a confining layer that effectively prevents the vertical movement of water from the surficial to the groundwater aquifer. In the Bonita Springs region, the Floridan aquifer is composed of the Tampa Formation limestones and a limestone and shell mixture within the lower Hawthorne Formation (Klein 1954:22).

Secondary groundwater resources include the shallow aquifer that is semi-confined and contains water under artesian conditions. The water-table aquifer is unconfined and subject to atmospheric pressure. The shallow artesian aquifer is the main source of ground water for much of South Florida. There is, however, some confusion regarding the distinction between the water-table aquifer and the shallow aquifer. Lane (1980) considers the water-table, or unconfined, aquifer to be associated with the Tamiami Formation west of the Everglades. McCoy (1962:24) does not distinguish between the water-table and shallow aquifers, considering the shallow aquifer to be composed of the Pamlico sands, the Anastasia Formation, and the upper part of the Tamiami Formation; the same Formations that Klein (1954:15) associates with the unconfined, non-artesian, water-table aquifer. The confusion regarding aquifer designations may be due to the fact that in some areas the two freshwater aquifers appear to be interconnected to form a single hydrological unit (Klein 1954:18).

Almost 90 percent of South Florida is covered by surficial water, which is extremely sensitive to fluctuations in climate and weather. The region is susceptible to periods of both flooding and severe drought. Surface runoff, evapotranspiration, and vertical recharge of the aquifers are natural factors that operate to remove surface water from the peninsula. During pre-Columbian times, the availability of surface water would have been an important factor in the scheduling of aboriginal subsistence activities and the location of sites.

Physical Environment of the Project Area

The project area is characterized by low-lying flatlands with sloughs and intermittent streams. Elevation within the project area varies from 15 to 25 ft above mean sea level. Much of the northwestern portion of the project area has been subjected to phosphate mining. The remainder of the project area either lies in active row crops or in its natural habitat.

The project is located in an area characterized by the Immokalee-Pompano, Hallandale-Boca, Oldsmar-Malabar-Immokalee, and Isles-Boca-Pompano soil associations. These soil associations are described as flatwoods interspersed with depressions, sloughs, marshes and drainageways. Natural vegetation of these areas consists of South Florida slash pine, cypress, saw palmetto, pineland threeawn, and maidencane (USDA 1984:5–9).

Numerous researchers have successfully utilized drainage characteristics of soil in the formulation of site location predictive models. The soil types found within the project area and their drainage characteristics are presented in Table 1. Descriptions of these soil types also are provided below.

Table 1. Drainage Characteristics of Soil Types within the Project Area

Drainage Characteristic	Soil Type
Somewhat poorly drained	Matlacha gravelly fine sand
Poorly drained	Boca fine sand
	Eau Gallie sand
	Felda fine sand
	Felda fine sand, depressional
	Hallandale-Boca soil association
	Hallandale fine sand
	Immokalee-Pompano soil association
	Immokalee sand
	Isles-Boca-Pompano soil association
	Malabar fine sand
	Malabar fine sand, depressional
	Oldsmar-Malabar-Immokalee soil association
	Oldsmar sand
	Pineda fine sand
	Pompano fine sand
	Pompano fine sand, depressional
	Valkaria fine sand
	Valkaria fine sand, depressional
	Wabasso sand, limestone substratum
	Winder sand, depressional
Very poorly drained	Copeland sandy loam, depressional
	Floridana sand, depressional
	Pineda fine sand, depressional

Source: USDA 1984

Boca fine sand is a nearly level, poorly drained soil found on flatwoods. Slopes are smooth and range from 0–2%. Normally, the water table is within 10 inches of the surface for two to four months, and recedes below the limestone (found about 30 inches below the surface) for about six months. Natural vegetation includes saw palmetto, pineland threeawn, South Florida slash pine, and wax myrtle (USDA 1984:18–19).

Copeland sandy loam, depressional, is a low, nearly level, very poorly drained soil typically found in depressions. Slopes are concave and less than 1%. In normal years, the water table is above the surface for three to six months and 10–40 inches below the surface for about three to six months. Natural vegetation is cypress, wax myrtle, cabbage palm, fern, redroot, and other water-tolerant plants (USDA 1984:34–35).

Eau Gallie sand is a nearly level, poorly drained soil with smooth to convex slopes of less than 1%. It is found on flatwoods. In most years, the water table is within 10 inches of the surface for two to four months, and 10–40 inches below the surface for more than six months. Permeability is rapid in the surface and subsurface, but moderately slow or moderate in the subsoil. Natural vegetation includes saw palmetto, South Florida slash pine, chalky bluestem, pineland threeawn, and runner oak (USDA 1984:16).

Felda fine sand is a nearly level, poorly drained soil found on broad, nearly level sloughs. Slopes are smooth to concave and range from 0–2%. The water table is within 10 inches of the surface for two to four months, 10–40 inches below the surface for about six months, and recedes to a depth of more than 40 inches for about two months. During periods of high rainfall, the soil is covered by a shallow layer of slowly moving water for 7–30 days or more. Natural vegetation consists of cabbage palm, pineland threeawn, South Florida slash pine, wax myrtle, and maidencane (USDA 1984:18).

Felda fine sand, depressional, is a nearly level, poorly drained soil found in depressions. Slopes are concave and less than 1%. In most years, the soil is ponded for three to six months or more, and the water table is within a depth of 10–40 inches for four to six months. Natural vegetation includes bald cypress, wax myrtle, and water-tolerant grasses and weeds (USDA 1984:35).

Floridana sand, depressional, is a nearly level, very poorly drained soil occurring in depressions. Slopes are concave and less than 1%. Normally, the water table is above the surface for three to six months, and 10–40 inches below the surface during extended dry periods. Natural vegetation consists of St. Johnswort, pickerelweed, cypress, sedges, weeds, and other water-tolerant plants (USDA 1984:36).

The Hallandale-Boca soil association consists of nearly level, poorly drained, shallow to moderately deep sandy soils. Some are sandy throughout, while others have a loamy subsoil. They are found mainly on flatwoods interspersed with depressions, sloughs and drainageways. Native vegetation includes South Florida slash pine, saw palmetto, and pineland threeawn, while wetter areas have cypress (USDA 1984:5–6).

Hallandale fine sand is a nearly level, poorly drained soil that occurs on low, broad flatwoods areas. Slopes are smooth and range from 0–2%. The water table is less than 10 inches below the surface for one to three months out of the year, and recedes below the limestone for about seven months. Natural vegetation includes saw palmetto, pineland threeawn, bluestem, panicums, and South Florida slash pine (USDA 1984:14–15).

The Immokalee-Pompano soil association contains nearly level, poorly drained, deep Immokalee and Pompano soils that are sandy throughout, some with an organic-stained subsoil. It is found on flatwoods interspersed with depressions and marshes. Native vegetation includes South Florida slash pine, saw palmetto, and pineland threeawn on the flatwoods, while wetter areas have cypress and maidencane is found in the sloughs (USDA 1984:5).

Immokalee sand can be described as a nearly level, poorly drained soil typically occurring in flatwoods areas. Slopes are smooth to convex and range from 0–2%. In most years, the water table is within 10 inches for one to three months of the year, 10–40 inches below the surface for two to six months, and more than 40 inches during extended dry periods. Natural vegetation includes saw palmetto, fetterbush, pineland threeawn, and South Florida slash pine (USDA 1984:24–26).

The Isles-Boca-Pompano soil association consists of nearly level, poorly drained, deep and moderately deep, sandy soils, some with a loamy subsoil and some sandy throughout. It occurs in sloughs and depressions interspersed with slightly higher flatwoods. Native vegetation in the depressions is cypress, and includes South Florida slash pine, maidencane and sparse saw palmetto in the sloughs. Pineland threeawn is common in higher areas in the sloughs (USDA 1984:8).

Malabar fine sand is a nearly level, poorly drained soil occurring on sloughs. Slopes are smooth to concave and range from 0–1%. The water table is normally at a depth of less than 10 inches for two to four months, 10–40 inches for more than six months, and recedes to a depth of more than 40 inches during extended dry periods. During periods of high rainfall, the soil is covered by a shallow layer of slowly moving water for 7–30 days or more. Natural vegetation consists of pineland threeawn, wax myrtle, scattered saw palmetto, maidencane, panicums, and South Florida slash pine (USDA 1984:29).

Malabar fine sand, depressional, is a nearly level, poorly drained soil occurring in depressions. Slopes are concave and less than 1%. The soil is ponded for four to six months or more, and the water table is 10–40 inches below the surface for four to six months. Natural vegetation includes bald cypress, wax myrtle, St. Johnswort, and water-tolerant grasses (USDA 1984:34).

Matlacha gravelly fine sand is a nearly level, somewhat poorly drained soil formed by filling and earthmoving operations. Slopes are smooth to slightly convex and range from 0–2%. The depth to the water table varies depending on the amount of fill and the extent of artificial drainage. In most years, the water table is 24–36 inches below the surface of the fill material for two to four months, and more than 60 inches below the surface during extended dry periods. Natural vegetation includes South Florida slash pine and various scattered weeds (USDA 1984:41).

The Oldsmar-Malabar-Immokalee soil association consists of nearly level, poorly drained, deep, sandy soils—some with a sandy, organic-stained subsoil underlain by a loamy subsoil, some with just a loamy subsoil, and some with just a sandy, organic-stained subsoil. It is found on flatwoods interspersed with depressions and drainageways. Native vegetation consists of South Florida slash pine, saw palmetto, and pineland threeawn on the flatwoods, while wetter areas have cypress and maidencane is common in the sloughs (USDA 1984:7).

Oldsmar sand can be described as a nearly level, poorly drained soil that is typically found on low, broad flatwoods areas. Slopes are smooth to slightly convex and range from 0–2%. In most years, the water table is within 10 inches of the surface for one to three months, 10–40 inches below the surface for more than six months, and recedes to a depth of more than 40 inches during extended dry periods. Natural vegetation consists of saw palmetto, South Florida slash pine, pineland threeawn, and meadowbeauty (USDA 1984:27).

Pineda fine sand is a nearly level, poorly drained soil with smooth to slightly concave slopes that range from 0–1%. It is found on sloughs. In most years, the water table is within 10 inches of the surface for two to four months, 10–40 inches below the surface for more than six months, and recedes to a depth of more than 40 inches during extended dry periods. During periods of high rainfall, the soil is covered by slowly moving water for 7–30 days or more. Natural vegetation includes pineland threeawn, panicums, sedges, maidencane, wax myrtle, South Florida slash pine, and scattered clumps of saw palmetto (USDA 1984:23–24).

Pineda fine sand, depressional, is a nearly level, very poorly drained soil concave slopes of less than 1%. It is found in depressions. Under natural conditions, the soil is ponded for three to six months or more, and the water table is at a depth of 10–40 inches for four to six months. Natural vegetation consists of St. Johnswort, cypress, maidencane, and other water-tolerant grasses (USDA 1984:43).

Pompano fine sand is a nearly level, poorly drained soil with smooth to concave slopes that range from 0–1%. It is found on sloughs. In most years, the water table is within 10 inches of the surface for two to four months, 10–40 inches below the surface for about six months, and recedes to a depth of more than 40 inches for about three months. During periods of high rainfall, the soil is covered by slowly moving water for 7–30 days. Natural vegetation consists of pineland threeawn, scattered South Florida slash pine, bluestem, maidencane, and scattered saw palmetto (USDA 1984:17)

Pompano fine sand, depressional, is a nearly level, poorly drained soil with concave slopes of less than 1%. It is found in depressions. In most years, the water table is within 10 inches of the surface for two to four months, stands above the surface for about three months, and is 10–40 inches below the surface for more than five months. Natural vegetation includes St. Johnswort and wax myrtle (USDA 1984:24).

Valkaria fine sand is a nearly level, poorly drained soil with smooth to concave slopes that range from 0–1%. It is found on sloughs. In most years, the water table is at a depth of less than 10 inches of the surface for one to three months, 10–40 inches below the surface for about six months, and recedes to a depth of more than 40 inches for about three months. During periods of high rainfall, the soil is covered by slowly moving water for 7–30 days or more. Natural vegetation includes sparse saw palmetto, South Florida slash pine, melaleuca, and maidencane (USDA 1984:19).

Valkaria fine sand, depressional, is a nearly level, poorly drained soil with concave slopes of less than 1%. It is found in depressions. Normally, the water table is within 10 inches of the surface for about six months, ponded for about three months, and 10–40 inches below the surface for the rest of the year, except in extended dry periods. Native vegetation includes scrub willow, scattered cypress, and water-tolerant grasses (USDA 1984:32).

Wabasso sand, limestone substratum, is a nearly level, poorly drained soil on broad flatwoods. Slopes range from 0–2%. In most years, the water table is within 10 inches of the surface for one to three months, 10–40 inches below the surface for two to four months, and below the limestone during extended dry periods. Natural vegetation consists of saw palmetto, South Florida slash pine, dwarf huckleberry, cabbage palm, gallberry, and pineland threeawn (USDA 1984:33).

Winder sand, depressional, is a nearly level, poorly drained soil typically found in depressions. Slopes are concave and range from 0–1%. Normally, the water table is above the surface for three to six months, and 10–40 below the surface during extended dry periods. Natural vegetation consists of parrot-feather, cypress, St. Johnswort, pickerelweed, and other water-tolerant plants (USDA 1984:39)

PRECONTACT OVERVIEW

Precontact peoples have inhabited Florida for at least 14,000 years. The earliest cultural periods are pan-Florida in extent, while later cultures exhibited unique cultural traits. Jerald Milanich and Charles Fairbanks (1980) synthesized the earlier work of John Goggin (1947, 1949, 1952), Irving Rouse (1951), Ripley Bullen (1972), and others for central Florida. Recently, Milanich (1994) updated and revised much of the work he and Fairbanks presented earlier.

The University Enhancement Community DRI project area is located in the Caloosahatchee cultural region (Milanich 1994) (Figure 3). During later periods, this area was inhabited by the Calusa, who ranged from Charlotte Harbor south to the Ten Thousand Islands, and whose political influence extended inland along the Caloosahatchee River and included the Lake Okeechobee Basin. As a result of intermarriage with other tribes, their influence extended across most of South Florida.

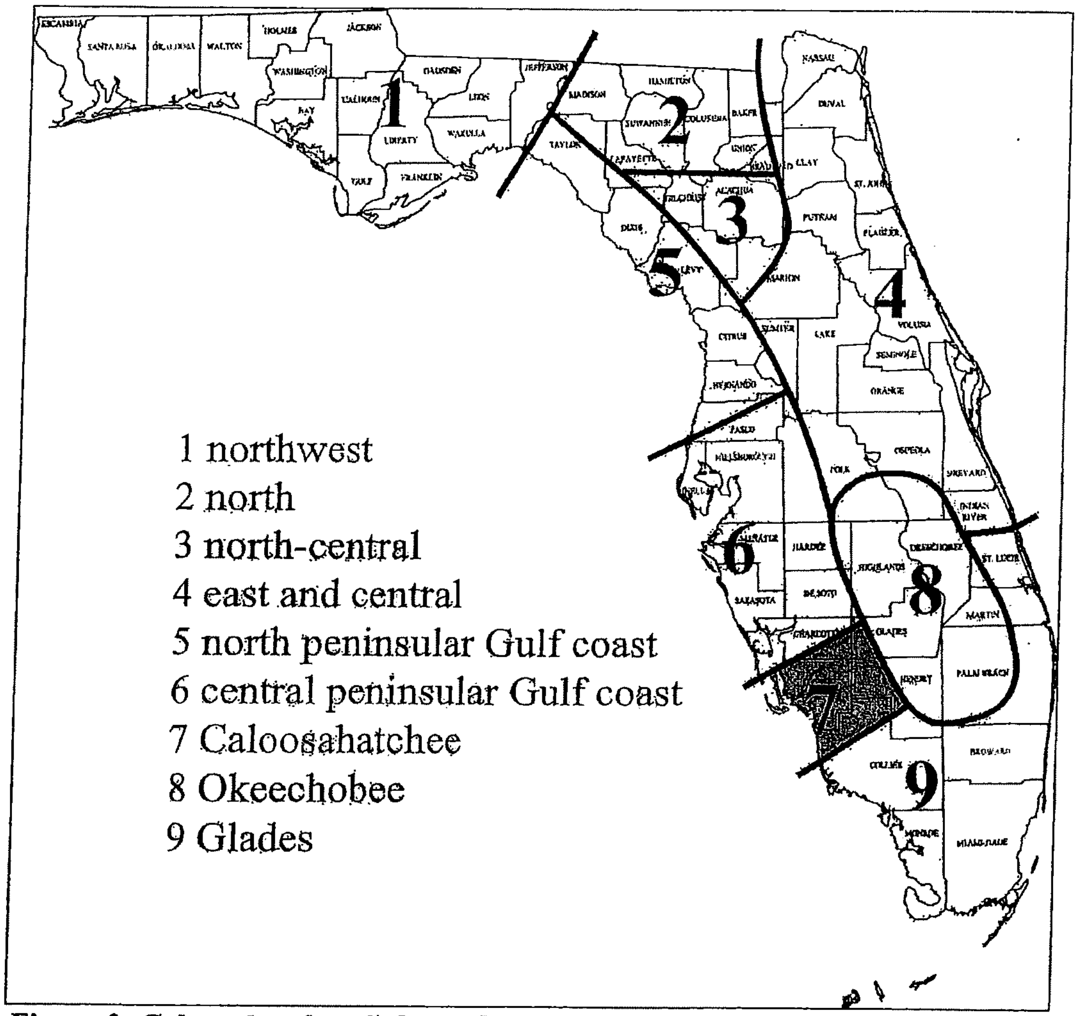

Figure 3: Caloosahatchee Cultural Region

Paleoindian Period (12,000–7500 BC)

The earliest period of precontact cultural development dates from 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 abundance in and along the Santa Fe, Silver, and Oklawaha Rivers (Dunbar and Waller 1983). The majority of these have been found at 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. Despite early claims to the contrary, present evidence strongly supports the contemporaneity of Paleoindians and these extinct mammals.

The climate of Florida during the late Pleistocene was cooler and drier than at present, and the level of the sea was as much as 160 ft lower (Milanich 1994:38-41). Rising sea levels are assumed to have inundated many coastal sites dating to the Paleoindian and Early Archaic periods (e.g., Ruppe 1980; Goodyear and Warren 1972; Goodyear et al. 1980; Dunbar et al. 1988). It is difficult to determine the dependence of Paleoindian groups on estuarine and littoral resources because little is known of these submerged archaeological sites.

The prevailing view of the Paleoindian culture, a view based on the uniformity of the known tool assemblage and the small size of most of the known sites, is that of a nomadic hunting and gathering existence, in which now-extinct Pleistocene megafauna were exploited. Settlement patterns were restricted by availability of fresh water and access to high-quality stone from which the specialized Paleoindian tool assemblages were made. Waller and Dunbar (1977) and Dunbar and Waller (1983), from their studies of the distribution of known Paleoindian sites and artifact occurrences, have shown that most sites of this time period are found near karst sinkholes or spring caverns. This suggests a somewhat more restricted settlement pattern than postulated for other Paleoindian groups in eastern North America. Paleoindian settlement appears to have been "tethered" to sources of fresh water such as rivers and springs (Daniel 1985:264; Daniel and Wisenbaker 1987:169) and to cryptocrystalline lithic sources (Goodyear 1979; Goodyear et al. 1983).

Excavations in Hillsborough County have contributed to the development of increasingly sophisticated models of early hunter-gatherer settlement (e.g., Daniel 1985; Chance 1983), which take into account the adaptive responses of human populations to both short and long-term environmental change. These models suggest that some Paleoindian groups may have practiced a more sedentary lifestyle than previously believed (Daniel and Wisenbaker 1987). For instance, evidence from the Harney Flats site in the Hillsborough River drainage basin indicates that Suwannee points were being manufactured from locally available materials (Daniel and Wisenbaker 1987). Although they noted that this was contrary to Gardner's (1977) argument that the availability and location of fine-grade cryptocrystalline materials dictated Paleoindian settlement, their results suggested that Paleoindian peoples, much like those of later cultures, moved about within defined, restricted territories.

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. Evidence from Harney Flats has provided information on the manufacturing process of Suwannee points: first, a blank was struck from a chert core; then, the blank was bifacially worked into a preform; finally, the preform was knapped into the finished point (Daniel and Wisenbaker 1987:44-53). Other points, including Simpson and Clovis points, are found in lesser numbers. Some of these, and other Paleoindian lanceolate points, were hafted by attaching them to an ivory shaft that was, in turn, attached to a wooden spear shaft (Milanich 1994:48-49).

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). Other stone tools include an oval, ground stone weight that was found at the Page/Ladson site from a stratum dated to 12,330 years ago (Dunbar et al. 1989:479). It is thought to represent a bola weight, which is a stone weight attached by a leather thong and thrown to bring down water birds and other game (Milanich 1994:51).

Dunbar et al. (1988) review of Paleoindian site/point locations in western Florida and results from excavations at the Harney Flats site revealed that 60 percent of the site clusters were located in and around mature karst river channels. In fact, 90 percent of all Paleoindian sites/points were located around karst depressions within Tertiary limestones. The most recent distribution maps of Paleoindian points in Florida show that 92 percent of Clovis and Suwannee projectile points are found in the region of Tertiary limestone features (Dunbar 1991).

Data on Paleoindian subsistence is scarce; although, such data is dramatic where encountered. The best evidence consists of the remains of a giant land tortoise recovered from the Little Salt Spring site in Sarasota County (Clausen et al. 1979). Although human skeletal remains were associated with extinct Pleistocene fauna at Devil's Den (Martin and Webb 1974), Milanich (1994) suggests that sloth, mastodon, mammoth, and bison probably formed part of the Paleoindian diet. There is very little information upon which to reconstruct the Paleoindian subsistence base. If, as Daniel and Wisenbaker (1987) suggested, there was seasonal movement along the river valleys, then not only is a seasonal littoral focus likely, but it also becomes likely that the majority of Paleoindian sites exist underwater (Dunbar 1988; Dunbar et al. 1988), rendering subsistence data for half of the Paleoindian year mostly inaccessible.

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 and biota. It is generally 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 after about 8000 BC in the late Paleoindian times with the onset of less arid conditions, which correlates with changes in projectile-point types, specifically a transition 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 found to be 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; Janus Research 1999:58-61). Although this patterning is largely based on evidence from Alachua and Marion Counties, there is no reason to believe that patterning is different elsewhere in interior northern Florida (Milanich 1994:64).

One Early Archaic wetland site that does not have a Paleoindian component is the Windover Pond site near Titusville in Brevard County. This site is a precontact cemetery consisting of over 160 burials in the natural peat deposits of what was, during the Early Archaic, a woody marsh (Stone et al. 1990:177). It is the most thoroughly excavated early precontact site in the East and Central archaeological area of Florida and has produced normally perishable items such as samples of cloth in which the dead were wrapped before burial, wood artifacts, preserved brain and other soft tissue, and samples of proteins and mitochondrial DNA. Radiocarbon dates indicate that the interments were made in discrete episodes of short duration between 6000 and 5000 BC. This indicates that a single social group used the pond to bury their dead in one small area, the location of which was somehow marked or memorized. Later, another group, probably the descendants of the first group, again used the pond for burial. After 5000 BC, increasingly wetter conditions most likely made it too difficult to bury people in the peat of the pond bottom (Doran and Dickel 1988).

With the wetter conditions that began about 8000 BC and the extinction of some of the Pleistocene animal species that helped to sustain earlier populations, Paleoindian subsistence strategies were no longer efficiently adapted to the Florida environment. As environmental conditions changed, surface water levels throughout the state increased and new locales became suitable for occupation. Early Archaic peoples might be viewed as a population changing from the nomadic Paleoindian subsistence pattern to the more sedentary coastal- and riverine-associated subsistence strategies of the Middle Archaic period.

Middle Archaic Period (5000–3000 BC)

Throughout the Middle Archaic, environmental and climatic conditions would become progressively more like modern conditions, which would appear by the end of the period, circa 3000 BC. During this period, rainfall increased, surface water became much less restricted and, as a result, vegetation patterns changed. 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. The Newnan point is the most distinctive and widespread in distribution (Bullen 1975:31). Other stemmed points of this period include the less common Alachua, Levy, Marion, and Putnam points (Bullen 1968; Milanich 1994). In addition to these stemmed points, the Middle Archaic lithic industry, as recognized in Florida, includes production of cores,.true blades, modified and unmodified flakes, ovate blanks, hammerstones, "hump-backed" unifacial scrapers, and sandstone "honing" stones (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. This technique was usually used in late stage tool production (Purdy 1971, 1981:78). However, Austin and Ste. Claire (1982:101-106) observed that, at the Tampa Palms site in Hillsborough County, very few thinning flakes were thermally altered. They noted that at this and other Archaic sites in the region, thermal alteration and the presence of silicified coral were correlated (Austin and Ste. Claire 1982:104; Daniel and Wisenbaker 1981, 1987). It is apparent that there was a preference for thermally altered coral for technological and aesthetic reasons; not only is it more easily worked, but also it may have been valued for its color and luster (Purdy 1971; Austin and Ste. Claire 1982:104). At the Harney Flats site, Daniel and Wisenbaker (1987:33-34) found a Middle Archaic component with corresponding increases in the amounts of silicified coral and heat-treated lithic material.

Middle Archaic settlement patterns are believed to have followed the Early Archaic patterns until after circa 3000 BC, when settlement patterns shifted toward coastal and riverine resources. Daniel (1985:265) postulated that a seasonal dichotomy existed between upland and lowland Middle Archaic sites in the Central Peninsular Gulf Coast archaeological area. According to his model, aggregate base camps were located along the upland boundaries of the Polk Uplands and were occupied during the fall and winter months. These upland sites are thought to be larger and contain a greater variety of functionally defined tools. These sites should also contain tools related to "maintenance" activities.

Dispersed residential camps were occupied in the Coastal Lowlands physiographic zone during the summer months. Daniel (1985) predicted these lowland sites would be smaller, more numerous, and exhibit a smaller number, and a more limited variety, of tool types. These sites are thought to contain tools related to "subsistence" activities. The lack of tool forms at these sites may also reflect an orientation towards activities that did not require the use of stone tools.

Middle Archaic sites are found in a variety of locations, including, for the first time, freshwater shell middens along the St. Johns River and the Atlantic Lagoon. Middle Archaic sites have been found in the Hillsborough River drainage northeast of Tampa Bay, along the southwestern Florida coast, and in South Florida locales such as Little Salt Spring in Sarasota County. In addition, Middle Archaic sites occurred throughout the forests of the interior of northern Florida (Milanich 1994:76).

Three common types of Middle Archaic sites are known in Florida (Bullen and Dolan 1959; Purdy 1975). The first are small, special-use camps, which appear archaeologically as scatters of lithic waste flakes and tools such as scrapers, points, and knives. These sites are numerous in river basins and along wetlands and probably represent sites of tool repair and food processing during hunting and gathering excursions (Milanich 1994:78).

The second common site type is the large base camp. This type of site may cover several acres or more, and contains several thousand or more lithic waste flakes and tools. A good example of this type of site is the Senator Edwards site in Marion County (Purdy 1975; Purdy and Beach 1980). One implication of this type of site is that a greater variety of tools were being used in this period than in the preceding one. It is possible that a more sedentary way of life led to the development of more specialized tools. Some of the tools indicate woodworking activity, possibly related to constructing more permanent houses (Milanich 1994:78–79).

The third common type of site is the quarry-related site that occurs in localities of chert outcrops. Chert deposits often outcrop along rivers or around lakes and wetlands as erosion cuts through the soil to the underlying limestone bed. The resulting outcrops provided opportunities for native peoples to quarry this raw material for stone tool production. Some of these sites have also produced evidence of late period tool production, including large flake blanks, bifacial thinning flakes, blades, and unifacial and bifacial tools (Milanich 1994:78–79; Purdy 1975).

Recently, a new site type has been identified in Hillsborough County. The West William site (8HI509) was identified as containing deposits of faunal remains, pit features, and structural remains, while lacking in the typical tool pattern commonly associated with upland sites (Austin et al. 2001:10). With these features, Austin et al. (2001:10) hypothesized that the site represents a seasonal congregation camp for the purpose of "social interaction, ceremonial feasting, and/or mate exchange."

Other less common site types include cave camps in northern Florida and wetland cemeteries. Examples of the latter site type include the slough burials at Little Salt Spring in Sarasota County (Clausen et al. 1979), the pond burials at the Bay West site in Collier County (Beriault et al. 1981), and the Republic Grove site in Hardee County (Wharton, Ballo, and Hope 1981). Like the Windover site of the Early Archaic peoples, these sites provide a glimpse of the range of objects used by Middle Archaic peoples such as antler, wood, and bone tools not preserved on land sites (Milanich 1994:82).

Although most of the Early and Middle Archaic cemeteries throughout peninsular Florida appear to have used aquatic environments, at least two exceptions are noted: the Tick Island and Gauthier sites. Interments at the Tick Island site, located in the St. Johns River basin, were made in an existing freshwater shell midden subsequently covered with a mound of sand (Bullen 1962). Over time, this process was repeated as other groups were interred. Later, post–Middle Archaic people re-used the site, depositing shell refuse on top of the burial area (A. K. Bullen 1972:166; Jahn and Bullen 1978).

The other unique Middle Archaic burial site is the Gauthier site, located in Brevard County about six miles from the coast. Interments were made by creating a shallow depression in the soil and laying bodies in it, at times, one on top of another. Artifacts found with the flexed burials include limestone throwing-stick weights, antler "triggers" from throwing sticks, projectile points, tubular *Busycon* shell beads, ornaments of bone, and worked shark teeth that had probably been hafted and used as knives or scrapers (Carr and Jones 1981).

Both of the sites described above contained artifacts securely dating the sites to the Middle Archaic period. It is possible that these two sites represent the development of new burial patterns which correlated with the end of the Middle Archaic period, at which time pond burials fell into disuse and were replaced with the new burial patterns (Milanich 1994:84).

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).

Orange Period

By about 2000 BC or slightly earlier, the firing of clay pottery was either invented in Florida or the technique diffused from coastal Georgia and South Carolina, where early dates for pottery have been obtained (Milanich 1994:86). At one time, it was thought that the earliest pottery-manufacturing culture in Florida was the Orange culture of the St. Johns region in northeast Florida. But additional evidence from southwest Florida indicates fired clay pottery from northeastern and southwestern Florida is comparable to the early dates from sites in Georgia and South Carolina (Division of Archives 1970; Cockrell 1970; Widmer 1974; McMichael 1982; Russo 1991).

The earliest ceramics in Florida were tempered with plant fibers such as palmetto fiber or Spanish moss. The first use of pottery is well dated to the period from circa 2000 BC to 1000 BC, making fiber-tempered pottery a convenient horizon across the state. Although at first undecorated, various techniques were used to apply surface decoration, starting sometime around 1650 BC, providing an important tool for differentiating sites dating to the second half of the Late Archaic, known as the Orange Period (2000–500 BC) (Milanich 1994:86, 94). Table 2 illustrates the Orange Period ceramic chronology.

Table 2. Orange Period Ceramic Chronology

Period	Dates
Orange 5	1000–500 BC
Orange 4	1250–1000 BC
Orange 3	1450–1250 BC
Orange 2	1650–1450 BC
Orange 1	2000[a]–1650 BC

Source: Milanich (1994) based on Bullen (1955, 1972)
[a] or slightly earlier

Riverine middens in the East and Central cultural region have produced artifacts that illustrate aspects of Late Archaic subsistence technology, such as the throwing stick, use of which is indicated by the presence of steatite throwing-stick weights and stemmed projectile points. Russo (1992:198) suggests that, along the coast, fine-mesh nets were also used to catch fish from the estuarine tidal creeks. Also common in these midden sites were picks and hammers made of shell, pins, points, and other tools made of bone (Milanich 1994:92–93).

Late Archaic period sites, such as middens adjacent to the Gulf and smaller sites back from the coast proper, have been identified in the Central Peninsular Gulf Coast region. The Interstate 75 archaeological surveys and excavations located several sites with Late Archaic components in the wetlands of the Hillsborough River drainage basin. One of these, the Wetherington Island site, is a re-used quarry first used in Early Archaic-times (Chance 1981, 1982). Other inland sites include the Deerstand, Ranch House, and Marita sites (Daniel 1982; Estabrook and Newman 1984).

Recently, a cluster of unique Late Archaic sites was identified in Pasco County (Estabrook et al. 2001). The sites within this cluster, referred to as the Enclave sites, contain freshwater midden remains and represent a rarely seen inland site type. The evidence recovered indicates a heavy reliance on aquatic resources and suggests that coastal dietary practices were carried into the interior (Estabrook et al. 2001).

Coastal sites appear much more common in this region and include the Culbreath Bayou, Canton Street (Bullen et al. 1978), and Apollo Beach (Warren 1968) sites. Many Late Archaic sites in the Central Peninsular Gulf Coast region are probably either inundated or were destroyed around the turn of the century. The once numerous shell middens of all periods were used to provide road materials for towns like Bradenton and Tampa (Milanich 1994:100–101).

As more research is completed and regional differences among Late Archaic peoples in Florida are recognized, it is apparent that specific regional manifestations must be defined. These manifestations will undoubtedly be recognized as closely linked to the post–500 BC regional cultures of the Formative period discussed below.

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.

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).

Caloosahatchee Cultural Region

The southwestern Florida coast from Charlotte Harbor south to just south of Estero Bay was a highly productive marine environment at this time, providing pre-Columbian inhabitants with a wide variety of fish and shellfish. It is believed they may have used the Caloosahatchee River to meet and trade with other cultures in adjacent regions (Milanich 1994:311).

According to ethnographic accounts, the Calusa domain was ruled by a single chief who resided in the capital city of Calos on Mound Key in Estero Bay near Fort Myers Beach (Goggin and Sturtevant 1964; Lewis 1978). Milanich and Fairbanks (1980:243) speculate that the complexity of the Calusa political system was tied to the necessity of maintaining exchange routes for the redistribution of food between coastal and interior locales. By exploiting the subsistence potential of the coast, as well as the wetlands and savannahs of the Okeechobee Basin, food surpluses could be created, stored, and moved from place to place as needed.

Calusa sites are located primarily along the coast and consist of two types: shell middens on the mainland, particularly around inlets, as well as offshore keys and islands; and larger sites combining shell middens with mounds, platforms, causeways, embankments, and plazas. Sites dating to this period are located on Useppa Island, Sanibel Island, Josslyn Island, Marco Island, Mound Key and Buck Key, among others, but excavation at sites attributable to the Calusa has occurred at comparatively few (e.g. Stirling 1935; Griffin 1949; Fradkin 1976).

Some sites, such as Mound Key and Pineland, on Pine Island, had artificial canals leading to them that are similar to those in the Okeechobee Basin. Man-made mounds of shell and earth on Mound Key likely were used as platforms for civic and ceremonial structures. Some of the middens on Mound Key are more than 20 ft thick.

Caloosahatchee sites also have been discovered inland along the Caloosahatchee River and on interior hammocks near freshwater marshes. Small, special-use camps have been found in interior areas, as well. The inland distribution of sites has made it difficult to separate the Caloosahatchee region from the Okeechobee region (Milanich 1994:314).

Widmer (1988) has proposed a model for Caloosahatchee culture development that includes a marine-oriented subsistence system. He believes the coastal economic system developed after about 700 BC, as that is when sea level changes provided optimum coastal conditions. He further suggests that by about AD 300, the need "for continuity in the maintenance and regulation of efficient coastal resource exploitation" led to the more complex political system of the region. Here it was especially necessary for chiefs to control access to and distribution of resources, as soils in the region are not productive, ruling out agriculture as a means of subsistence (Milanich 1994:317).

Post–500 BC sea level fluctuations would have had a great effect on Caloosahatchee settlement patterns (Widmer 1988). Variations in salinity would have affected fish and shellfish species available to the region's inhabitants, as well. Shell and bone tools discovered in this region are similar to those found in the Glades region (Marquardt 1992). Marquardt, along with Ann Cordell (1992), refined Widmer's ceramic chronologies, providing a radiocarbon dated sequence correlated with sea level data and settlement information (Table 3).

Table 3. Caloosahatchee Region Ceramic Chronology

Period	Dates	Distinguishing Characteristics
Caloosahatchee I	500 BC to AD 650	Thick, sand-tempered plain predominant; small amounts of St. Johns Plain and "Hopewellian" decorated pottery
Caloosahatchee IIa	AD 650–800	Belle Glade Plain appears; Glades Red; decrease in sand-tempered plain; spiculite sand-tempered plain appears; Weeden Island wares appear
Caloosahatchee IIb	AD 800–1200	Belle Glade Plain; Belle Glade Red; Weeden Island wares; thin, sand-tempered plain and spiculite sand-tempered plain
Caloosahatchee III	AD 1200–1350	St. Johns Check Stamped; Englewood ceramics; Belle Glade wares predominant; Glades Red; Grog-tempered plain appears; thin, sand-tempered plain and spiculite sand-tempered plain
Caloosahatchee IV	AD 1350–1500	Safety Harbor wares; Glades Tooled; Glades Red; Pinellas Plain; Grog-tempered plain; Belle Glade Plain diminishes; increase in spiculite sand-tempered plain

Source: Cordell 1992:168

The beginning of the Caloosahatchee I period (500 BC–AD 500 or 650) correlates to a sea level 2–3 ft lower than present in the Gulf of Mexico (Marquardt 1992), explaining some middens below the present-day water line. By 150–50 BC, seas began to rise until about AD 450 (Widmer 1986).

From about AD 400–900, sea levels fell again, the number and size of shell middens increased, shell tools became more diverse, and Columbia projectile points appeared. Belle Glade Plain pottery, a type found in the Okeechobee region at the same time, appeared in Caloosahatchee middens. These changes are associated with the Caloosahatchee II period (AD 500 or 650–1200). Burials in this period included both bundled secondary deposits and primary flexed. The appearance of Weeden Island and Safety Harbor pottery in village sites and mounds of this period could reflect growing contact between neighboring regions (Milanich 1994:319–320).

The appearance of St. Johns Check Stamped pottery in middens marked the beginning of the Caloosahatchee III period (AD 1200–1350). This could signal an expansion of political influence, although it is not certain the pottery came from the St. Johns region. Such an expansion could have resulted from higher water levels that may have reduced coastal catchment areas. Inhabitants continued to use sand burial mounds, and Safety Harbor pottery continued to be found in a number of them (Milanich 1994:321).

The Caloosahatchee IV period (AD 1350–1500) is marked by a decline in Belle Glade Plain pottery, leaving mostly undecorated and Glades Tooled pottery, similar to the types found in the Glades region at this time. The Calusa known to the early European explorers in this region had a political system much like that proposed for the pre-Columbian period (Milanich 1994:321).

HISTORICAL OVERVIEW

The intent of this section is to identify the possible locations of any historic sites within the cultural assessment project area and to provide a background for the determination of their historical potential. To this end, books, maps, and manuscripts located at the University of South Florida Special Collections Department, Florida Department of Environmental Protection, Division of State Lands, and the library at Janus Research were examined, and interviews with local informants were conducted.

European Contact and Colonial Period (ca. 1513–1821)

The earliest contact between the native populations and the Europeans occurred through slave hunting expeditions. "Slaving expeditions," which provided workers for the mines of Hispaniola and Cuba, were not recorded in official documents as the Spanish Crown prohibited the enslavement of Caribbean natives. Evidence of these slave raids comes from the familiarity with the Florida coast stated by navigators of the earliest official coastal reconnaissance surveys (Cabeza de Vaca 1542:Chapter 4). The hostile response of the native population to expeditions during the 1520s may confirm this hypothesis.

Official credit for the discovery of Florida belongs to Juan Ponce de León, whose voyage of 1513 took him along the eastern coast of the peninsula (Tebeau 1971:21). He is believed to have sailed as far north as the mouth of the St. Johns River before turning south, stopping in the Cape Canaveral area and possibly at Biscayne Bay. The expedition then continued southward, following the Florida Keys, making contact with the local Tequesta people en route before turning to the northwest, where they encountered the Calusa along the southwestern Gulf Coast. The Calusa inhabited the Gulf Coast area from Charlotte Harbor to the Ten Thousand Islands and their political influence extended inland along the Caloosahatchee River, including the Lake Okeechobee Basin, and through most of South Florida (Widmer 1983). Ponce de León was killed by the Calusa during his second voyage in 1521. They also were noted for capturing and mistreating shipwrecked sailors. One sailor who did survive, Hernando d'Escalante Fontaneda, managed to escape after living among them for 15 years. He later wrote an account of his experience and much of what we know today about the Calusa culture comes from his observations (Fontaneda 1945).

Calusa sites are located primarily along the coast and consist of two types: shell middens on the mainland particularly around inlets, as well as on offshore keys or islands; and larger sites combining shell middens with mounds, platforms, causeways, embankments, and plazas. Sites dating to this period are located on Useppa Island, Sanibel Island, Josslyn Island, Marco Island, Mound Key, and Buck Key among others (Griffin 1949; Fradkin 1976). Work by Bill Marquardt (1992) and others has provided a number of excavated sites on several of these islands and keys, adding considerable data about Calusa cultural systems.

Other Spanish explorers followed Juan Ponce de León, and over the next 50 years the Spanish government and private individuals financed expeditions hoping to establish a colony in "La Florida." In 1565, King Philip II of Spain licensed Pedro Menéndez de Avilés to establish a settlement in St. Augustine, Florida. Between 1565 and 1566, Menéndez sailed along the Florida coast placing crosses at various locations and leaving Spaniards "of marked religious zeal" to introduce Christianity to the Native American people (Gannon 1965:29). Settlements with associated missions were established at St. Augustine, San Mateo (Ft. Caroline) and Santa Elena, and smaller outposts and missions were located in Ais, Tequesta, Calusa, and Tocobaga territory (Gannon 1965:29).

According to ethnographic accounts, the vast domain of the Calusa was ruled by a single chief, Carlos, who resided in the main town located on Mound Key or Estero Island in Estero Bay near Fort Myers Beach (Goggin and Sturtevant 1964; Lewis 1978). This town site was known from Spanish documents as Estanapaca or Escampaba. Just to the north of this was another Calusa town called Juchi or Guchi (Hann 1991).

In 1566, Menéndez, attempted to contact all the leaders of the various native groups in Florida, and sailed into San Carlos Bay and met with Carlos. Menéndez established a garrison with a Christian mission at the Calusa village and left one of his captains in charge. Conflict between Carlos and the Spanish resulted in the death of the chief later that year and the elevation of Don Felipe to chief (Hann 1991). During some of the skirmishes, the Calusa used bows and arrows to attack the Spanish in their anchored ships, fighting from canoes. By 1568, the Calusa chief had managed to starve the Spanish into abandonment of the settlement (Hann 1991).

In 1567, Brother Francisco Villareal was sent to one of the large Tequesta villages located on Biscayne Bay. In 1568, a skirmish between the Spanish soldiers and the Tequesta Indians temporarily closed the mission. By the end of 1568, the Tequesta were willing to reopen the mission, largely due to the work of Don Diego, a Tequesta who had visited Spain. Despite zealous attempts, the native groups in Florida continued to resist conversion, and in 1572 Jesuit authorities decided to abandon their missionary efforts in Florida.

Undaunted, Menéndez turned his attention to another order, the Franciscans, and entreated them to send priests. The Franciscan mission effort was most successful in the northern areas of Florida. One possible reason may have been differences in Native American settlement patterns and economies. According to Milanich (1978:68), the failure of the Spanish missions among the southern Florida native populations was due partially to the groups' subsistence pattern, which required seasonal movement for maximum resource exploitation. Consequently, for the remainder of the First Spanish period (1565–1763), southern Florida was virtually ignored as the Spanish concentrated their efforts in the northern half of the peninsula.

Another attempt to build a mission in southeastern Florida took place nearly 150 years after the establishment of St. Augustine. Because it was in Spain's best interest to maintain control along the Florida coastline and alliances with the native groups inhabiting the coast, a missionary effort was supported in the Biscayne Bay area (Parks 1982:55–65). Father Joseph María Monaco and Joseph Xavier Alaña were sent from

Cuba in 1743, and arrived at a Native American village located at the mouth of the Miami River. The village did not appear any more receptive towards accepting Christianity than before. After Joseph Xavier Alaña conveyed this to the Governor of Cuba, the mission was closed, and the fort they had erected was destroyed to prevent its fall into hostile hands (Parks 1982:55–65). Although the Spanish were resigned to the fact that missionization and settlement of South Florida came at too high a price, they did strive to maintain good relations with the various native people who lived in the area.

By the beginning of the eighteenth century, the Native American population of South Florida had declined considerably as a result of disease, slave raids, intertribal warfare, and attacks from a new group of Native Americans, the Seminoles. The Seminoles, descendants of Creek Indians, moved into Florida during the early eighteenth century to escape the political and population pressures of the expanding American colonies to the north (Wright 1986:218).

During the eighteenth century, Cuban fishermen had established seasonal fishing camps or ranchos along the Gulf coast. These fishermen were engaged in catching mullet and drying them for sale in the Havana markets. By the early nineteenth century, Native Americans were often employed as workers in these "ranchos pescados," which is probably why they were called "Spanish Indians" in Anglo-American documents (Wright 1986:219).

By the end of the eighteenth century, the Seminoles had become the dominant Native American group in the state. Groups of fugitive African American slaves also had settled among the Seminoles by the early nineteenth century (Brown 1991:5–19). Armed conflict with pioneers, homesteaders, and eventually the United States Army resulted in the removal of most of the Seminoles from Florida. This action forced the withdrawal of the remaining Seminole population to the harsh environment of the Everglades and Big Cypress Swamp by the late nineteenth century.

The Territorial and Statehood Period (1821–1860)

In 1821, after several years of negotiations with Spain, the U.S. acquired Florida as a territory. The population of the territory at that time was still centered in the northern areas around Pensacola, St. Augustine, and Tallahassee. As more European-American settlers moved into the region, conflicts arose with the Seminole people over available land. Pressure began to bear upon the government to remove the Seminoles from northern Florida and relocate them farther south. The Treaty of Moultrie Creek (1823) restricted the Seminole people to approximately four million acres of land in the middle of the state, running south from Micanopy to just north of the Peace River (Mahon 1967:Rear foldout map). The Seminoles did not approve of this treaty because they were reluctant to move from their established homes to an area that they felt could not be cultivated. Other treaties soon followed such as Payne's Landing (1832) and Fort Gibson (1833), which called for Seminole emigration to the western territories (Mahon 1967:75–76, 82–83). These treaties fostered Seminole resentment of settlers that would culminate in the Second Seminole War in 1835.

During the Second Seminole War, the area around Lake Tohopekaliga was a Seminole stronghold. They kept their cattle in the woods around the lake and retreated into the cypress swamp west of the lake at the approach of soldiers (Mahon 1967; Sprague 1964; Moore-Willson 1935). Tohopekaliga means "Fort Site" and the lake was so named because the islands within the lake housed the forts and stockades of the Seminoles (Moore-Willson 1935:29).

In January 1837, General Jesup's men encountered the Seminoles near the "Great Cypress Swamp." The soldiers drove the Indians into the swamp, across the "Hatcheelusteell" and into even more dense swamp (Sprague 1964:172). On the 28th of January, the army "moved forward and occupied a strong position on Lake Tohopekaliga, within a few miles of the point at which the Cypress Swamp approaches it, where several hundred head of cattle were taken" (Sprague 1964:172). Hetherington (1980:3), citing Major Edward Keenan, a "noted authority on the Seminole Wars," believes that General Jesup's base camp was located in the vicinity of the present-day Kissimmee Airport. The "Great Cypress Swamp" and "Hatcheelustee Creek" referred to by Sprague (1964) are now called Reedy Creek Swamp and Reedy Creek (MacKay and Blake 1839; Mahon 1967:Rear fold out map; USGS Lake Tohopekaliga Quadrangle Map 1953; Hetherington 1980:3).

At the beginning of the Second Seminole War, the conflict was centered near the Withlacoochee region. In 1838, U.S. troops moved south to pursue the retreating Seminoles into the Lake Okeechobee and Everglades regions. Colonel Zachary Taylor was sent to the area between the Kissimmee River and Peace Creek. Colonel Persifor Smith and his volunteers were dispatched to the Caloosahatchee River, and U.S. Navy Lt. Levi N. Powell was assigned the task of penetrating the Everglades (Mahon 1967:219–220). Powell's detachment had several skirmishes with Seminole people near Jupiter Inlet. Powell established a depot on the Miami River and erected Fort Dallas in the approximate location of present-day downtown Miami. For three months, Fort Dallas was a base of operations as Powell led his men into the Everglades in search of the Seminoles (Gaby 1993:47).

The southwestern portion of Florida was virtually uninhabited by European-Americans until the mid-nineteenth century when U.S. soldiers entered the area in pursuit of the Seminoles. A number of small forts were established during the Second and Third Seminole Wars and a network of roads and trails connected one to another. Toward the close of the Second Seminole War (1842), a small stockade, Fort Harvie, was built on the Caloosahatchee River, site of present-day Fort Myers (Grismer 1949:56). At the war's conclusion, and after four months of service, the fort was abandoned as most of the Seminoles had been sent west and the few that remained were located in the Everglades.

A second fort was constructed on the site of the abandoned Fort Harvie in 1850, during the Third Seminole War. The site was located in present-day downtown Fort Myers and encompassed an area delineated by present-day Hough, Monroe and Second Streets. It was a sizable installation, containing as many as 57 structures within the wooden stockade and several structures, including a bathing pavilion and bowling alley, outside the fortified enclosure. Lumber and brick to build the fort were shipped from Pensacola and Apalachicola (Grismer 1949).

The fort was abandoned in 1858 at the end of the Third Seminole War; the last 125 Seminoles sent west embarked from Fort Myers. After its abandonment by the U.S. Army, Fort Myers was offered for public sale in 1859. Major James S. Evans from Virginia bought it and established a coffee and pineapple plantation. His tropical plantation was short-lived; he returned to Virginia upon the outbreak of the Civil War.

The Second Seminole War had a deleterious effect on new settlement in Florida. To encourage settlement in the middle portion of the territory after the war, the Armed Occupation Act of 1842 offered settlers 160 acres of land at no cost, provided they built a house, cleared five acres, planted crops, and resided on the land for five years. Any head of a family, or single man over 18 years of age and able to bear arms, was eligible to receive a homestead. This act, plus the end of the Second Seminole War, created a small wave of immigration by Anglo-American pioneers to central Florida. Most of these immigrants were Anglo-American farmers and cattle ranchers, or "crackers," from the southeastern United States (Gaby 1993).

Civil War and Post War Period (1860–1898)

With the beginning of the Civil War, cattle were needed to help feed the Confederate Army. Herds from as far south as central Florida were driven to railheads near the Georgia border. However, cattle ranchers discovered they could sell their herds in Cuba for a greater profit and began dealing with blockade-runners. The Union attempted to stop all shipping from Florida ports, but blockade-runners were too abundant. Cattle ranchers from all over Florida drove their cattle to Punta Rassa to be shipped to Cuba for payment in Spanish gold. Jacob Summerlin, a successful cattle rancher from the Fort Meade area, gave up his contract with the Confederate government to supply cattle and in 1863 teamed up with James McKay from the Tampa area. McKay, a successful and daring blockade-runner, supplied the schooners and Summerlin the cattle. It is not known how many cattle were shipped from the port during the Civil War. However, after the war as cattle continued to be shipped, it is reported that in the decade between 1870 and 1879 over 165,000 head were shipped (Grismer 1949).

Fort Myers went unused until 1863 when Jacob Summerlin, James McKay, and other cattlemen began shipping cattle to Cuba through Fort Myers. To end this blockade running, Union troops occupied Fort Myers in 1863. In the Fort Myers vicinity, cattlemen continued to drive herds north to the Confederate Army and south to Cuba. These men also served in the Cattle Guard Battalion to protect their beef from Union raids. Near the end of the war, Confederate troops, including the Cattle Guard Battalion, recaptured Fort Myers and the Union troops retreated to Punta Rassa.

The post-war economic conditions of much of the rest of the south contributed to changes in the economy of the Tampa Bay area and communities to the south along the Gulf Coast. An influx of poor farmers coinciding with the southward movement of cattle ranches made the economic stability of the area dependent upon reliable sources of overland freight transport. In 1866, three homesteads were settled with two more the following year. These families established some of the first orange groves and continued the cattle industry. Beginning about 1870, many settlers began to buy the land on which they had homesteaded for so many years in anticipation of the coming railroad (Hetherington 1980:86).

At the war's end, many people needed to rebuild and building materials in southern Florida were scarce. Many settlers raided Fort Myers taking the wood siding and beams to construct buildings. At this time, Manuel Gonzales staked claim to the fort's land and established a house there. Later, Gonzales would build many of the first houses in Fort Myers. In 1869, a telegraph line connecting Jacksonville to Punta Rassa, Key West and Havana, Cuba was established in the old barracks building at the fort. In the following years, other families settled in Fort Myers.

Many settlers used the overland cattle routes to reach the Fort Myers area. Of these settlers, the Hendrys had been familiar with Fort Myers during the wars and returned to establish a home. In the mid-1870s, Major James S. Evans returned to Fort Myers to reclaim the 160 acres he bought after the Third Seminole War. He allowed the settlers to stay and had the town platted and recorded in Key West, the county seat. The area had a slow, but steady growth during the years following the official establishment of the town of Fort Myers.

Much of the development in Fort Myers was around the old fort grounds, and consisted almost entirely of wood frame structures. People bought land along the Caloosahatchee River and farmed or started groves. During the 1870s, two general stores, a school, and a number of residential buildings were constructed. When the town was platted in 1876, the United States Post Office officially changed the town's name to Myers, to avoid confusion with Fort Myer, Virginia. Many local people continued to refer to their home as "Fort" Myers, but the name was not legally restored until 1901.

In the 1880s, interest in the resources of South Florida increased due in large part to people like Hamilton Disston and Henry B. Plant. By 1881, the State of Florida faced a financial crisis involving a title to public lands. On the eve of the Civil War, land had been pledged by the Internal Improvement Fund to underwrite railroad bonds. After the War, when the railroads failed, the land reverted to the State. Almost $1 million was needed by the state to pay off the principal and accumulated interest on the debt, thereby giving clear title.

Hamilton Disston, son of a wealthy Philadelphia industrialist, contracted with the State of Florida in two large land deals: the Disston Drainage Contract and the Disston Land Purchase. The Drainage Contract was an agreement between Disston and the State in which Disston and his associates agreed to drain and reclaim all overflow lands south of present-day Orlando and east of the Peace River in exchange for one-half the acreage that could be reclaimed and made fit for cultivation.

The Disston Land Purchase was an agreement between Disston and the State in which Disston agreed to purchase Internal Improvement Fund Lands at $0.25 an acre to satisfy the indebtedness of the fund. A contract was signed on June 1, 1881 for the sale of 4,000,000 acres for the sum of $1 million, the estimated debt owed by the Improvement Fund. Disston was allowed to select tracts of land in lots of 10,000 acres, up to 3,500,000 acres. The remainder was to be selected in tracts of 640 acres (Davis 1938:206–207). Before he could fulfill his obligation, Disston sold half of this contract to a British concern, the Florida Land and Mortgage Company, headed by Sir Edward James Reed (Tischendorf 1954:123).

Disston changed Florida from a wilderness of swamps, heat, and mosquitoes into an area ripe for investment. This enabled Henry B. Plant to move forward with his plans to open the west coast of Florida with a railroad-steamship operation called the Jacksonville, Tampa & Key West Railway. Through the Plant Investment Company, he bought up defunct rail lines such as the Silver Springs, Ocala & Gulf Railroad, Florida Transit and Peninsular Railroad, South Florida Railroad, and Florida Southern Railroad to establish his operation (Mann 1983:68; Harner 1973:18-23). In 1902, Henry Plant sold all of his Florida holdings to the Atlantic Coast Line, which would become the backbone of the southeast (Mann 1983:68).

During 1881 and 1882, channels were dug between the lake systems to the north and the Kissimmee River (Tebeau 1971:288). The Atlantic and Gulf Coast Canal and Okeechobee Land Company was responsible for opening up Lake Okeechobee to the Gulf of Mexico by dredging a channel to the Caloosahatchee River. Disston and his associates received 1,652,711 acres of land under the Drainage Contract, although they probably never permanently drained more than 50,000 acres (Tebeau 1971:280). Drainage operations began and the Florida Land and Improvement Company and Kissimmee Land Company were formed to help fulfill the drainage contract (Hetherington 1980:6).

Private land claims between 1881 and 1883 were probably squatters acquiring the land on which they lived prior to the land transfers under the Disston Land Purchase contract. The flurry of land transfers recorded in the early 1880s was mainly the result of two factors: large influxes of people as a result of the railroads, and the widespread unpopularity of the Disston Land Purchase and Drainage Contracts.

The Disston Land Purchase and Disston Drainage Contract were not very well liked among many of Florida's residents. They resented the $0.25 per acre price Disston paid under the land contract, as they were required to pay $1.25 per acre under the terms of the Homestead Act of 1876. Claims also were made that Disston was receiving title to lands that were not swamplands or wetlands (Tebeau 1971:278). Many residents bought up the higher, better-drained parcels of land for speculation, knowing that the surrounding wetlands and flatwoods would be deeded to Disston under the Land Purchase contract. Many hoped that their more desirable land purchases would increase in value.

By 1885, the population of Fort Myers was approximately 350, the *Fort Myers Press* was in operation, several pineapple plantations had established themselves, a number of hotels had sprung up, and people were beginning to settle upriver away from the former fort area. Many people grew crops such as cabbage, eggplant, and squash for the truck farming. In 1884, Lee County was created out of Monroe County, a new courthouse was constructed, a new newspaper—the *Tropic News*—was founded, and a severe freeze brought about the relocation of much of the citrus industry farther south, including the vicinity of Fort Myers. Fort Myers was incorporated in 1885 and became the county seat of the newly created Lee County in 1887. Thomas A. Edison visited Fort Myers in 1885 and was so delighted with the town that he moved to the banks of the Caloosahatchee River where he built his house and laboratory.

No historic trails, roads, homesteads, or forts from this time period are known to have existed within or adjacent to the project area (FDEP 1873 Plat Map). Figure 4 shows the project area on the 1873 plat map of Township 46 South, Range 25 East and Township 46 South, Range 26 East. Table 4 shows the historic property ownership in this area.

Table 4. Land Apportionment in the Project Area

Township 46 South, Range 25 East			
Section	**Portion Owned**	**Owner**	**Date of Deed or Sale**
1	All	Silver Springs Ocala & Gulf Railroad	March 20, 1888
2	All	Silver Springs Ocala & Gulf Railroad	March 20, 1888
11	All	Silver Springs Ocala & Gulf Railroad	March 30, 1883
12	All	Silver Springs Ocala & Gulf Railroad	March 30, 1883
13	All	Silver Springs Ocala & Gulf Railroad	March 30, 1883
Township 46 South, Range 26 East			
Section	**Portion Owned**	**Owner**	**Date of Deed or Sale**
5	All	Silver Springs Ocala & Gulf Railroad	October 2, 1888
6	E 1/2	Silver Springs Ocala & Gulf Railroad	October 2, 1888
	E 1/2 of NW 1/4	Silver Springs Ocala & Gulf Railroad	October 2, 1888
	W 1/2 of NW 1/4	Mary P. Dzialynski	November 12, 1885
	SW 1/4	Silver Springs Ocala & Gulf Railroad	October 2, 1888
7	All	Silver Springs Ocala & Gulf Railroad	October 2, 1888
8	All	Silver Springs Ocala & Gulf Railroad	October 2, 1888
17	All	Silver Springs Ocala & Gulf Railroad	October 2, 1888
18	All	Silver Springs Ocala & Gulf Railroad	October 2, 1888
19	All	Silver Springs Ocala & Gulf Railroad	October 2, 1888
20	All	Silver Springs Ocala & Gulf Railroad	October 2, 1888

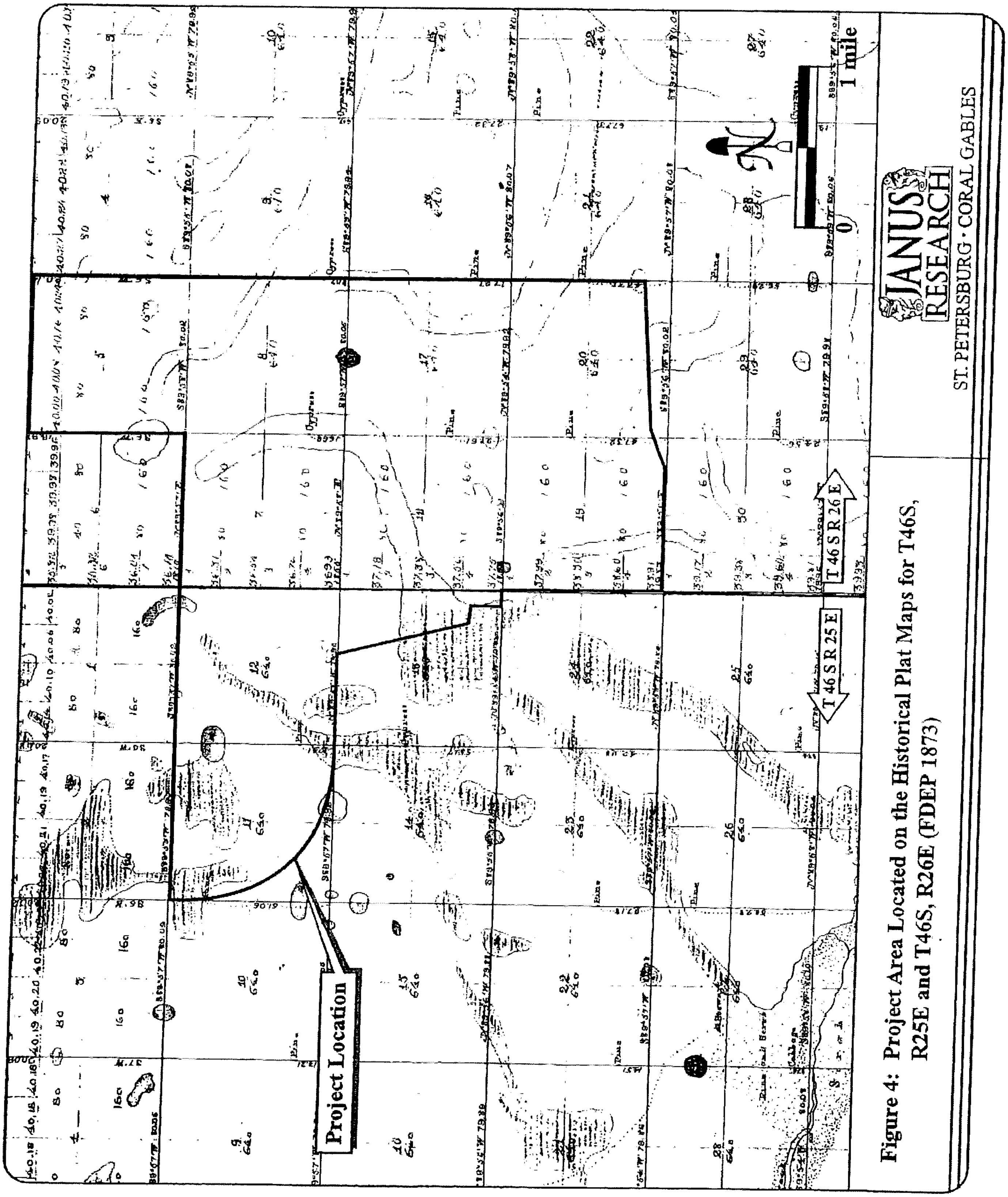

Figure 4: Project Area Located on the Historical Plat Maps for T46S, R25E and T46S, R26E (FDEP 1873)

Spanish-American War Period/Turn-of-the-Century (1898–1916)

At the turn-of-the-century, Florida's history was marked by the outbreak of the Spanish-American War in 1898. As Florida is the closest state to Cuba, American troops were stationed and deployed from the state's coastal cities. Harbors in Tampa, Pensacola, and Key West were improved as more ships were launched with troops and supplies. "The Splendid Little War" was short in duration, but evidence of the conflict remained in the form of improved harbors, expanded railroads, and military installations (Miller 1990).

In 1904, Governor Napoleon Bonaparte Broward initiated significant reforms in Florida's politics. Several of Broward's major issues included the Everglades drainage project, railroad regulation, and the construction of roads. During this time, railroads were constructed throughout the state and automobile use became more prevalent. Improved transportation in the state opened the lines to export Florida's agricultural and industrial products (Miller 1990). As various products such as fruits and vegetables were leaving the state, people were arriving in Florida. Some entered as new residents and others as tourists. Between 1900 and 1910, the state population increased from 528,542 residents to 752,619. At this time, St. Lucie and Palm Beach counties were established, indicative of the increasing numbers of people moving to the east coast of the state.

Rapid and widespread growth was the theme of this period in Florida history. Thousands of miles of railroad tracks were laid, including the Florida East Coast, Atlantic Coast Line, and Seaboard Air Line railroads. While agriculture, especially the citrus industry, had become the backbone of Florida's economy, manufacturing and industry began growing during the beginning of the century. Fertilizer production, boat building, and lumber and timber products were strong secondary industries (Weaver et al. 1996:3).

Between 1899 and 1910, Fort Myers grew to 2,000 residents. Fort Myers was in the midst of a "building boom" as a number of hotels, a power plant, several banks, and ice plants were constructed. The population of Fort Myers was just under 950 residents at the turn of the century and a number of residential developments arose such as Edgewood, Woodward Grove, and what came to be called Dean Park. Downtown streets were paved and the famous palms were planted along McGregor Boulevard.

Attracted by the area's reputation for good weather, hunting, and fishing, tourists visited the southwest Gulf coast, often living aboard their yachts near rail and telegraph heads like Fort Myers, Punta Gorda and Tampa (Tebeau 1966:168). Many nationally known visitors to the area, including Thomas Edison and Henry Ford, decided to stay and constructed winter homes in Fort Myers.

One visitor, Dr. Cyrus R. Teed, was somewhat famous in the Chicago area as the founder of "The College of Life" and the charismatic leader of this religious group. Teed's doctrines included a theory of the universe that maintained the earth was a hollow sphere with the sun in the center and life existing in the center. His group also practiced celibacy and maintained separate communal living facilities. Teed had taken the name "Koresh," the Hebrew translation for the Persian word for Cyrus (Herbert and Reeves 1977:5).

During the winter of 1894, Teed appeared in Lee County on a mission to find a new home for his followers. He was befriended by Gustave Damkohler, who was soon converted to Teed's pseudo-scientific religious theories. Damkohler gave Teed 300 acres of land near his homestead on the Estero River and Teed purchased another 1,000 acres with Koreshan Funds (Damkohler 1967). Colonists came to Estero the same winter and began erecting buildings. The settlement was called "New Jerusalem" and was an experiment in utopian communal living that emphasized usefulness and service to God and neighbor, and a denial of personal gain (Roper 1988).

The Koreshans were generally urban, middle class professionals who followed Teed to Florida and succeeded in creating a unique planned community out of the wilderness. They had pledged themselves to a celibate communal life after giving all of their assets to the group. Inspired by their religious fervor, the settlers quickly created a model self-sufficient agricultural and industrial commune. In 1903, the community had a population of 200. They operated a general store, a bakery, a publishing house, a machine shop, a concrete factory, boat building facilities, and a lumber mill that provided income to develop their commune. The Koreshans raised their own vegetables, had a small citrus grove, and raised cattle, hogs, chickens, and other livestock. They also conducted experiments in ornamental horticulture and published a newspaper, *The American Eagle* (Grismer 1949:189–190).

With Teeds' death in 1908, the Koreshan movement began a slow decline, and recruiting new members proved more and more difficult. Although the community continued to function, by the late 1940s it appeared that dissolution of the community was imminent (Michel n.d.). In 1961, in order to ensure preservation and perpetuation of Koreshan history, Koreshan Unity, Inc. transferred a portion of its holdings to the State of Florida, resulting in the Koreshan State Historic Site. The original Koreshan Unity, Inc. organization still exists in the form of the Koreshan Unity Foundation, but the last of the community's residents died in 1982 (Austin 1991).

World War I and Aftermath Period (1917–1920)

The World War I and Aftermath period of Florida's' history begins with the United States' entry into World War I in 1917. Wartime activity required the development of several training facilities in the state, and protecting the coastlines was a priority at this time. Although the conflict only lasted until November 1918, the economy was boosted greatly by the war. For example, the war brought industrialization to port cities such as Tampa and Jacksonville, where shipbuilding accelerated. These cities also functioned as supply depots and embarkation points. An indirect economic benefit of the war was an increase in agricultural production, as beef, vegetables, and cotton were in great demand (Miller 1990).

While Florida industrialization and agriculture flourished, immigration and housing development slowed during the war. Tourism increased as a result of the war in Europe, which forced Americans to vacation domestically. Tycoons such as Henry Flagler and Henry Plant were building the hotels and railroads for people desiring winter vacations in sunny Florida. These magnates took an interest in the improvements and promotion of Florida in an effort to bring in more tourist dollars. The end of the war marked a slight increase in population, and Flagler and Okeechobee counties were created at this time.

Florida Boom Period (1920–1930)

After World War I, Florida experienced unprecedented growth. Many people relocated to Florida during the war to work in wartime industries or were stationed in the state as soldiers. Bank deposits increased, real estate companies opened in many cities, and state and county road systems expanded quickly. Earlier land reclamation projects created thousands of new acres of land to be developed. Real estate activity increased steadily after the war's end and drove up property values. Prices on lots were inflated to appear more enticing to out-of-state buyers. Every city and town in Florida had new subdivisions platted and lots were selling and reselling for quick profits. Southeastern Florida, including cities such as Miami and Palm Beach, experienced the most activity, although the boom affected most communities in central and South Florida (Weaver et al. 1996:3).

Road building became a statewide concern as it shifted from a local to a state function. These roads made even remote areas of the state accessible and allowed the boom to spread. On a daily basis up to 20,000 people were arriving in the state. Besides the inexpensive property, Florida's legislative prohibition on income and inheritance taxes also encouraged more people to move into the state.

The next major expansion in the Fort Myers area occurred during the Florida Land Boom. A steady flow of people, mostly disillusioned would-be farmers from the Lake Okeechobee area, had settled in the area only a few years prior to the start of the Boom. Neighborhoods such as Seminole Park, Riverside Park, Edison Park, Valencia Terrace, Allen Park, and Alabama Groves, which are still prominent today, were founded at this time. Competition arose between Henry Plant's Coast Line Railroad and a new rail line, the Seaboard Railroad, which had three terminals in Fort Myers, all of which still stand today. The opening of the Tamiami Trail, linking Fort Myers with Tampa and Miami, further accelerated growth through southern Florida. Until the end of the Boom, land values rose sharply, and large numbers of people came to the Fort Myers area (Grismer 1949:221–232). Population increased from 3,600 in 1920 to more than 9,000 in 1930 (Godown and Rawchuck 1975:66).

The Boom period began to decline in August 1925, when the Florida East Coast Railway placed an embargo on freight shipments to South Florida. Ports and rail terminals were overflowing with unused building materials. In addition, northern newspapers published reports of fraudulent land deals in Florida. In 1926 and 1928, two hurricanes hit southeastern Florida, killing hundreds of people and destroying thousands of buildings. The collapse of the real estate market and the subsequent hurricane damage effectively ended the boom. The 1929 Mediterranean fruit fly infestation that devastated citrus groves throughout the state only worsened the recession (Weaver et al. 1996:4).

By the time the stock market collapsed in 1929, Florida was suffering from an economic depression. Construction activity had halted and industry dramatically declined. Subdivisions platted several years earlier remained empty and buildings stood on lots partially-finished and vacant (Weaver et al. 1996).

Depression and New Deal Period (1930–1940)

This era of Florida's history begins with the stock market crash of 1929. As previously discussed, there were several causes for the economic depression in Florida, including the grossly inflated real estate market, the hurricanes, and fruit fly infestation. During the Great Depression, Florida suffered significantly. Between 1929 and 1933, 148 state and national banks collapsed, more than half of the state's teachers were owed back pay, and a quarter of the residents were receiving public relief (Miller 1990).

As a result of hard economic times, President Franklin D. Roosevelt initiated several national relief programs. Important New Deal-era programs in Florida were the Works Progress Administration (WPA) and the Civilian Conservation Corps (CCC). The WPA provided jobs for professional workers and laborers, who constructed or improved many roads, public buildings, parks, and airports in Florida. The CCC improved and preserved forests, parks, and agricultural lands (Miller 1990).

Fort Myers suffered along with the rest of the state and nation, as development and growth came to a standstill. Unbelievably, some of the more elegant buildings and structures in Fort Myers were built during this time, including the Federal Building and the Edison Bridge. The Yacht Basin was a WPA project originally designated for Sarasota, but Mayor David Shapard succeeded in transferring the project to Fort Myers after he made a special trip to Washington. Construction began in 1936, and with the coming of World War II, the Coast Guard was stationed in the Yacht Basin.

The Depression affected most areas of the state's economy. Beef and citrus production declined, manufacturing slowed, and development projects were stopped. Even the railroad industry felt the pressures of the 1930s, and had to reduce service and let go some personnel. In addition, the increasing use of the automobile lessened the demand for travel by rail. Despite the Depression, tourism remained an integral part of the Florida economy during this period. New highways made automobile travel to Florida easy and affordable, and more middle-class families were able to vacation in the "Sunshine State" (Miller 1990).

World War II and the Post War Period (1940–1950)

From the end of the Great Depression until after the close of the post-war era, Florida's history was inextricably bound with World War II and its aftermath. It became one of the nation's major training grounds for the various military branches including the Army, Navy, and Air Force. Prior to this time, tourism had been the state's major industry and it was brought to a halt as tourist and civilian facilities, such as hotels and private homes, were placed into wartime service. The influx of thousands of servicemen and their families increased industrial and agricultural production in Florida, and also introduced these new residents to the warm weather and tropical beauty of Florida. More than 70,000 servicemen and women were stationed in the area. Shortly before the war, in 1940, the city airport was turned into Page Field. In January 1942, Buckingham Army Air Field was constructed to house the Flexible Gunnery Training School.

The cattle ranges located 10 miles outside of Fort Myers were ideal for Buckingham Army Air Field because of their open expanse (perfect for target ranges) and close proximity to the Gulf of Mexico (Williams 1991:1F). The City of Fort Myers and Lee County leased the 6,500-acre site to the government for $1 a year (Mitchell 1999:22). Buckingham Army Air Field expanded beyond the government owned land to encompass 44,240 acres (Buckingham Army Air Field 1945). Major Richard W. Duggan opened the airfield office in an old store building located in downtown Fort Myers, in the Collier Arcade, on May 5, 1942 (Board 1985:6E). On May 9, Base Commander Colonel Delmar T. Spivey arrived and began construction two weeks later (Orr 1995:47). The Army gave Colonel Spivey $10 million to build the Buckingham Flexible Gunnery Training School and 12 months to complete it (Brown n.d.). Buckingham Army Air Field would become the largest of the nation's six gunnery bases. A year later, it also housed the Army Air Corps Central Instructors School (CIS) (Orr 1995:47, 50).

General Walter H. Franck, Commander, 3rd Airforce, with 650 men of the 323rd Air Base Group and the 348th Material Group, arrived to supervise the construction of the Buckingham Flexible Gunnery Training School. The school trained gunners for B-17 bombers, known as the "Flying Fortress." The B-17's turrets held the finest machine guns for shooting down attacking enemy planes (Buckingham Army Air Field n.d.).

Building began on May 25, 1942 with buildings scheduled for completion within 75 days and others to be completed within 110 days. The construction process employed 3,000 to 3,500 military and construction men, and a majority of the buildings were in serviceable condition when the troops arrived (Buckingham Army Air Field n.d.; Board 1985:6E). Buckingham Army Air Field was designated a temporary base to be closed at the end of the war; therefore, most buildings were of simple construction. Oftentimes, they were constructed of tar paper over a wood frame

By the end of the year, water and sewage systems, hangars, barracks, shops, runways, gunnery ranges, a recreation hall, a mess hall, a chapel, a hospital, swimming pool, and theater were completed (Board and Bartlett 1985:161; Fritz 1963:163–64). In all, 700 buildings were constructed with a total floor space of nearly two million square feet (Williams 1991:1F). Formal base activation was July 5, 1942, training began on September 5, 1942, and the first gunners received their wings in October (Buckingham Army Air Field n.d.; Board 1985:6E). In addition to the Buckingham Flexible Gunnery Training School and CIS, the base served as one of many holding camps for prisoners of war. The POWs did various jobs around the base (Williams 1991:1F). These prisoners were some of the 10,000 prisoners deployed in 25 Florida camps between 1942 and 1946 (Langley 1999:28).

Training at Buckingham included the aerial gunnery course that lasted six weeks, five weeks of ground instruction, and one week in the air. At first, the men used .22 caliber rifles to practice shooting miniature airplane targets on a moving belt to learn sighting. Then 12-gauge shotguns were used to teach the soldiers the principles of lead and to shoot skeet while standing still. As training progressed, they also learned to shoot at a moving object from a moving base. The soldiers stood on the back of a moving truck and fired at clay pigeons emerging from traps along a mile-long track (Board 1985:6E; Brown n.d.).

An additional aspect of training was spending hours learning to maintain and manipulate the moving turrets in bombers. In these turrets, located in the training grounds, gunners tested their aim with .30- and .50-caliber machine guns by shooting at cloth targets flown from the back of jeeps. The jeeps were driven 25-30 mph on tracks behind earthworks erected to protect the jeeps and the drivers. In the last week of training, gunners boarded B-17s for aerial practice over the Gulf of Mexico (Board 1985:6E; Brown n.d.). This training included gunners shooting at a red windsock target attached to another plane (Orr 1995:46). Each week 500 trainees completed the six-week course and were shipped out to join B-17 bomber crews; about 50,000 gunners were trained at Buckingham Flexible Gunnery Training School during the war. During off-training hours, soldiers could be found at dances, mock drills down First Street, and in restaurants and bars in Fort Myers. They also enjoyed going to the beach (Brown n.d.). Local residents rented extra rooms to soldiers, and owners of winter homes opened them for wives and families of troops. Soldiers were invited to Sunday dinners in private residences (Orr 1995:50).

At the end of WWII, Buckingham Army Air Field was no longer needed. Edison College used it for a few years before the college closed (Fort Myers Historical Museum 1984:46). On June 27, 1947, The *Fort Myers News-Press* announced a sale at the airfield. Buildings ranging in size from 6 x 8 ft to 100 x 125 ft were to be removed and water pipes, lumber, and plumbing and electrical systems were offered for sale (Board and Colcord 1997). Remnants of the Buckingham Army Air Field buildings can be found throughout Lee County and include the old Fort Myers Lions Club, the Fort Myers High School basketball floor (transplanted from the airfield's gymnasium), and various buildings on Fort Myers Beach. The City and County used the Buckingham Army Air Field runways' tough underbase to build roads. After the base buildings and building materials were sold, any remnants were bulldozed underground (*Fort Myers News-Press* 1973:7A). A man from Tampa combed the firing ranges with huge magnets that gathered all wasted metal. All that remains are concrete piers and old foundations (Brown n.d.).

At the conclusion of World War II, Florida's economy was almost fully recovered. Tourism quickly rebounded and once again became a major source of the state's economy. Additionally, former military personnel found the local climate amenable and remained in Florida permanently after the war. These new residents greatly increased the population in the 1940s (Miller 1990).

FLORIDA MASTER SITE FILE SEARCH AND LITERATURE REVIEW

Evaluations of archaeological or historical site significance cannot be made without proper attention to the site's placement within the context of other sites in the area. Therefore, a consideration of these sites within the larger, regional settlement system is essential. A first approximation of settlement variability through time can be obtained by reviewing information regarding the known sites in the area.

The work of previous investigators was reviewed in order to gather information about the types of pre-Columbian and early historic period sites that could be expected to occur within the project area. In addition, a search of the pertinent literature and records of the surrounding region was conducted, including archaeological and historical assessments of other tracts of land near the project area. Cultural resource management surveys conducted within the general area include the surveys of the University Village Area (Janus Research 1995) and the Gulf Coast University Property (AHC 1995).

The State of Florida Division of Historical Resources (FDHR) was contacted about the location of known archaeological sites and historic structures within or near the project area. A search of the Florida Master Site File (FMSF) revealed two previously recorded archaeological resources (8LL1843, 8LL1844) located in the vicinity of the project area (Figure 5). However, no historic resources or archaeological sites have been previously recorded within or adjacent to the project corridor.

Site 8LL1843, the Gulf Coast #1 site, is located in Township 46 South, Range 25 East, Section 13 on the Estero USGS Quadrangle (1987). This site is a midden associated with the Glades culture. Site 8LL1843 has not been evaluated for eligibility for listing in the *NRHP*. This site lies approximately 2,600 ft west of the project area (see Figure 5).

Site 8LL1844, the Gulf Coast #2 site, is a mound associated with the Glades culture. It is located in Township 46 South, Range 25 East, Section 24 on the Estero USGS Quadrangle (1987). Site 8LL1844 has not been evaluated for eligibility for listing in the *NRHP*. This site lies approximately 1,500 ft west of the project area (see Figure 5).

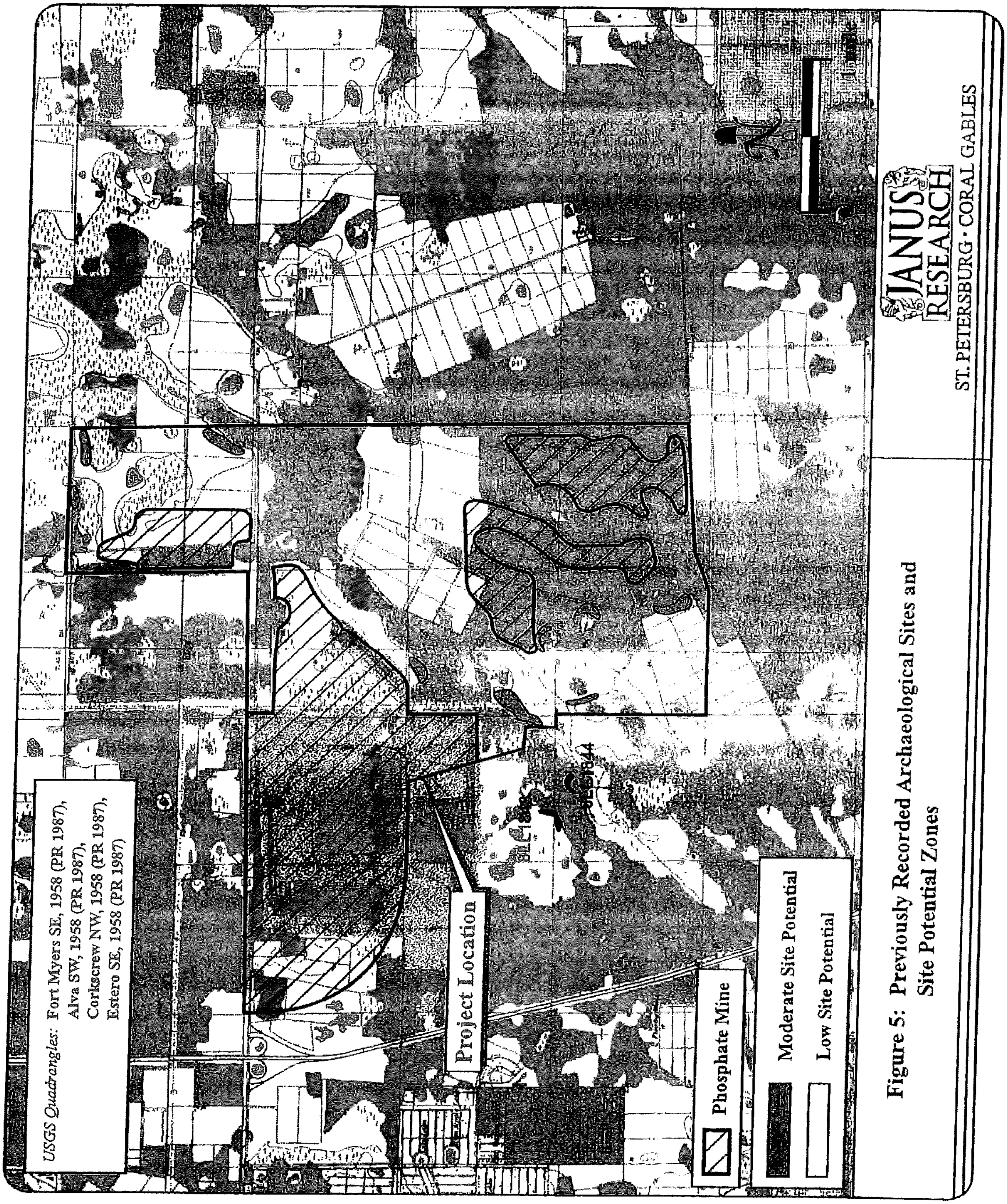

Figure 5: Previously Recorded Archaeological Sites and Site Potential Zones

PROJECT RESEARCH DESIGN AND SITE LOCATION MODEL

Among the fundamental concerns of students of prehistory and history is the relationship between human social groups and the environment. Interpretations of observed settlement patterns have often been dependent largely on the relationship between site location and the natural environment, with such interpretations sometimes tantamount to environmental determinism. Nevertheless, this assumed environmental-settlement relationship does appear to be valid when considering precontact hunter-gatherer and early historic societies with subsistence rather than market-oriented economies.

Several authors have proposed models for the subsistence-settlement patterns for the earliest periods of Florida's prehistory: the Paleoindian and the Archaic stages. These models are based on the aggregate assemblages of lithic chipping debris and discarded stone tools (Waller and Dunbar 1977; Goodyear 1979; Dunbar and Waller 1983; Chance 1983; Daniel 1985). The settlement models postulated for the earliest periods, the Paleoindian and Early Archaic, are pan-Florida and suggest a settlement pattern restricted by water availability and the availability of the high-quality stone from which the specialized Paleoindian and Early Archaic stone tools were made.

From their studies of the distribution of known Paleoindian sites and artifact occurrences, Waller and Dunbar (1977) and Dunbar and Waller (1983) have shown that most known sites of these time periods are found near karst sinkholes or spring caverns. This suggests a somewhat more restricted settlement pattern than postulated for other Paleoindian groups in eastern North America. Paleoindian and Early Archaic settlement appears to have been restricted, or "tethered," to sources of fresh water (Daniel 1985:264; Daniel and Wisenbaker 1987:169) and cryptocrystalline lithic sources (Goodyear 1979; Goodyear et al. 1983). There are no known sources for cryptocrystalline materials near the project area.

There is also one kind of Florida archaeological site occasionally found in wetland/swamp environments: human burial interments of the Archaic stage (8500 to 4000 years BP). The Bay West site in Collier County (Beriault et al. 1981), the Hazeltine site in Sarasota County (Clausen et al. 1979), the Republic Groves site in Hardee County (Wharton et al. 1981), and the Windover site in Brevard County (Doran and Dickel 1988), are noted examples of Archaic wetland burials. Beriault et al. (1981) suggested that Archaic wetland burials are more likely to occur adjacent to large, upland Archaic village sites. However, a recent evaluation of the geography of wetland burials suggests that their occurrence may be more a function of the local depositional environment, rather than the interments' proximity to other precontact sites (Purdy 1991).

Purdy (1991) has shown that certain environmental conditions must be present before wet sites will preserve. The sites appear to be associated with inundated anaerobic peat and mucks. Anaerobic peat deposits that are underlain by limestone tend to be alkaline, and are likely to preserve wood, bone, and faunal remains. Peat deposits underlain by sand or clay tend to be acidic, which will preserve wood, but will destroy bone (Purdy 1991:11). Alternating drying and wetting of the deposit will result in the decomposition (oxidation) of the peat into muck, and will also result in the destruction of any organic cultural artifacts deposited within it.

In southwestern Florida, a major research emphasis is the development of Calusa society, which is seen by some as a "response to the material conditions of habitation in the coastal region of southwest Florida, and as such [is] adaptive in nature" (Widmer 1983:439). In other words, it was possible for people to choose a relatively sedentary lifestyle due to the abundant and diverse natural resources of the coastal region. This, in turn, stimulated rapid population growth and organization to resolve disputes and redistribute food and other resources effectively (Widmer 1983:439–448).

An alternative, or supplementary, point of view is provided by William Marquardt (1984), who feels that social, cultural, and economic factors should be given equal weight in explaining the development of precontact societies. Accordingly, the social stratification, interregional warfare, and political hegemony that characterized Calusa society may be better understood by considering the dynamic relationships among human societies. In order to fully understand the complex factors that influenced the development of local chiefdom societies, it will be necessary to study sites in southwestern Florida using both ecological and sociocultural approaches.

A second major research emphasis that falls within the theoretical realm of cultural ecology is the study of precontact settlement and utilization of the interior portions of this region. Recent investigations by the National Park Service have shown that the Big Cypress Swamp has been occupied continuously from as early as the Late Archaic (ca. 2000 BC) with some sites indicating permanent habitation (Taylor 1980). Although the Big Cypress sites appear to represent a separate interior Glades adaptation, shell tools and other items of marine origin indicate interaction with the coastal zone. In another study of the region, Luer (1989:89–130) suggests that the Caloosahatchee River and canoe canals in the Charlotte Harbor and Lake Okeechobee areas were used for trade between the interior and the coast. The nature of this relationship as viewed from cultural, economic, and adaptive perspectives is of considerable interest to archaeologists.

In order to establish a specific ceramic chronology for the Caloosahatchee region, Ann Cordell (1992) analyzed the physical, mineralogical, technological, and formal properties of pottery recovered during the Southwest Florida Project. As a result of her analyses, a chronology was established for the region and local and non-local wares were identified. However, further questions regarding trade networks and pottery manufacturing origins have yet to be answered. For example, St. Johns wares and fiber-tempered pottery are considered to be non-local, but the areas from which these wares were obtained has not been confirmed.

Precontact Archaeological Site Location Model

Zones of archaeological site location are designated based on previous research conducted within the Caloosahatchee archaeological region. Considerable discussion about the validity of site predictive models and the various environmental variables that can be used abound in the archaeological literature (Grange and Williams 1979; Deming 1980; Piper et al. 1982; de Montmollin 1983). A brief synthesis of these works will be presented here; the reader is directed to any or all of these works for an extended background discussion on the variables employed in this study.

Four environmental factors are typically employed in predicting site locations: soil type (soil drainage), distance to fresh (potable) water, distance to hardwood hammocks, and topography. Because of the swampy environment and the poor drainage characteristics of the area, soil type and distance to fresh water are not as important as the topography of the project area and the occurrence of xerophytic hardwood hammocks in predicting site location.

Obviously, fresh water was an important resource for precontact populations. Fresh water is obtainable in any of the small wetlands that are located within and near the project area. During the Paleoindian and Early Archaic stages (14,000–6500 BC), access to fresh water would have been more restricted.

Hardwood hammocks (hydric, mesic, or xeric) provide a variety of resources that would have been exploited by the aboriginal inhabitants of this region. Hydric hardwood hammocks can contain abundant animal and plant life, particularly a variety of tubers. Mesic hardwood hammocks contain cabbage palms and other plants that produce edible portions. Other mesic hardwoods, such as ash and elm, are woods that are known to have been used for specific purposes, i.e., bows, canoes, mortars, and dart shafts (Newsom and Purdy 1983). Often, areas of higher relative elevation correspond with better-drained soils or the presence of hardwood hammocks (xeric and mesic).

Relative elevation is often the most difficult variable to quantify. This variable has greater potential to locate sites in poorly to somewhat poorly drained areas of flatwoods than it does in typically undulating sandhill scrub environments. A slight topographic rise within a flatwood area adjacent to a wetland slough has a much greater potential for containing a precontact archaeological site than does the summit of a large, well-drained sand hill; even when both are the highest elevations within their respective environments. Much of the project area consists of active phosphate mines. The remainder of the project area consists primarily of poorly drained flatwoods interspersed with sloughs and large wetlands. However, many of the flatwoods areas have been altered by drainage canals and agricultural activities. The site potential zones are presented in Figure 5.

Historic Archaeological Site Location Model

In Florida, historic period sites frequently co-occur with precontact archaeological sites. This is often the result of environmental conditions found desirable by both groups: better-drained upland knolls near transportation routes (i.e., historic trails and major rivers). Use of the land around the project area during the earliest historic periods (First Spanish, English, and Second Spanish) was probably limited; occupations from these periods would have been of such short duration that evidence of parties crossing the project vicinity is almost impossible to detect archaeologically. Furthermore, no such groups are known or suspected of having settled or camped within the project vicinity. As the project area formerly contained large areas of pine flatwoods, there is some potential for historic artifact scatters related to turpentine production.

METHODS

For this CRAS, the area immediately surrounding the project area underwent an archaeological survey and a visual inspection in an attempt to locate any potentially historic resources. As no pre-1954 or potentially historic resources were observed, a historic resource survey was not necessary. Had any such resources been identified, an architectural historian and one assistant would have conducted a historic resource survey.

Archaeological Survey Methods

The archaeological portion of the study included both surface and subsurface testing techniques. A total of 27 shovel tests were excavated during the course of this investigation. Shovel tests were placed systematically at 50-m (164-ft) intervals within moderate site potential zones. Shovel tests were placed judgmentally in low site potential zones. Testing was performed at the specified interval unless obvious ground disturbance or standing water was encountered. The field crew was instructed to place additional shovel tests in areas that appeared fit for sites, irrespective of the testing interval.

A pedestrian survey was conducted for the presence of historic and precontact artifacts. Furthermore, the peripheries of all wetland areas were walked or driven to identify any visible surface remains, such as a mound, foundation, or other structural evidence of human occupation or use of the area. When a potential site location was encountered, it was subjected to testing at the discretion of the project archaeologist. Additionally, a careful surface inspection was undertaken in areas of minimal vegetation and/or upturned soil such as drainage ditches, recent clearings, and animal burrows. All were carefully inspected for the presence of historic and precontact artifacts.

Standard archaeological methods for recording field data were followed throughout the project. The identification number, location, stratigraphic profile, and soil descriptions were recorded for every shovel test performed. Field notes also included a count provenience and description of any cultural materials encountered. Shovel tests are circular and roughly 50 cm (20 in) in diameter. They were dug to a minimum depth of 1 m (3.3 ft), unless excavation was inhibited by pit slumping due to the influx of water or by subsurface obstructions such as limestone bedrock or concreted clay. All excavated soil was screened through 6.4-mm (¼-in) hardware cloth suspended from portable wooden frames. The location of each shovel test was plotted on 1"=400' field aerials (see Appendix C). If cultural materials had been discovered during testing, measurements and careful notes would have been taken to record the level and context in which these materials were recovered. Had culturally carbonized material been recovered, a sample would have been taken for radiocarbon dating analysis.

In addition to surface inspection and subsurface testing, every attempt was made to contact and interview local informants. In many cases, local informants possess invaluable knowledge regarding nearby cultural resources that may be unavailable to the academic or professional Cultural Resource Management (CRM) communities; however, no local informants were available for interview in the vicinity of the study area.

RESULTS AND RECOMMENDATIONS

The CRAS of the University Enhancement Community DRI project area identified no cultural resources. Therefore, the proposed development will not constitute an impact to any significant historic properties. No further work is recommended.

Should construction activities uncover unexpected archaeological remains, it is recommended that activity in the immediate area of the remains be stopped until a professional archaeologist can evaluate the materials. In the event that human remains are found either during construction or maintenance activities, the provisions of Chapter 872, *Florida Statutes* (872.05), will apply. Chapter 872 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 (if the remains are less than 75 years old) or the State Archaeologist (if the remains are more than 75 years old). If human remains less than 75 years old are encountered, or if they are involved in a criminal investigation, the District Medical Examiner has jurisdiction. If the remains are determined to be more than 75 years of age, the State Archaeologist has jurisdiction in determining appropriate treatments and options for the remains.

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APPENDIX A:

PHOTOGRAPH OF PROJECT AREA

Photograph of Project Area

APPENDIX B:

SURVEY LOG SHEET

Ent D (FMSF only)__/__/__

Survey Log Sheet

Florida Master Site File
Version 2.0 9/97

Survey # (FMSF only)

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

Identification and Bibliographic Information

Survey Project (Name and project phase) CRAS of the University Enhancement Community DRI, Phase I

Report Title (exactly as on title page) Cultural Resource Assessment Survey of the University Enhancement DRI, Lee County

Report Author(s) (as on title page— individual or corporate; last names first) Janus Research

Publication Date (year) 2002 Total Number of Pages in Report (Count text, figures, tables, not site forms) 69

Publication Information (If relevant, series and no. in series, publisher, and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*: see *Guide to the Survey Log Sheet.*) Janus Research, 2935-1st Avenue North, St. Petersburg, FL 33713, (727) 821-7600.

Supervisor(s) of Fieldwork (whether or not the same as author[s]; last name first) John Whitaker

Affiliation of Fieldworkers (organization, city) Janus Research, St. Petersburg, FL

Key Words/Phrases (Don't use the county, or common words like *archaeology, structure, survey, architecture*. Put the most important first. Limit each word or phrase to 25 characters.) Rock mines, pine flatwoods

Survey Sponsors (corporation, government unit, or person who is directly paying for fieldwork)

Name Ginn-LA Naples Ltd. LLLP

Address/Phone 215 Celebration Place, Suite 200, Celebration, FL 34747

Recorder of *Log Sheet* John Whitaker Date *Log Sheet* Completed 10 / 23 / 02

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 - do not abbreviate; use supplement sheet if necessary) Lee

USGS 1:24,000 Map(s) : Map Name/Date of Latest Revision (use supplement sheet if necessary): Fort Myers SE (1958 PR 1987), Alva SW (1958 PR 1987), Corkscrew NW (1958 PR 1987), and Estero (1958 PR 1987).

Description of Survey Area

Dates for Fieldwork: Start 9 / 20 / 02 End 10 / 22 / 02 Total Area Surveyed (fill in one) ______ hectares 5,106 acres

Number of Distinct Tracts or Areas Surveyed 1

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

Survey Log Sheet of the Florida Master Site File

Research and Field Methods

Types of Survey (check all that apply): ☒ archaeological ☒ architectural ☐ historical/archival ☐ underwater ☐ other:______

Preliminary Methods (✔Check as many as apply to the project as a whole. If needed write others at bottom).

☐ Florida Archives (Gray Building) ☐ library research- *local public* ☐ local property or tax records ☒ windshield
☐ Florida Photo Archives (Gray Building) ☐ library-special collection - *nonlocal* ☐ newspaper files ☒ aerial photography
☒ FMSF site property search ☐ Public Lands Survey (maps at DEP) ☐ literature search
☒ FMSF survey search ☒ local informant(s) ☐ Sanborn Insurance maps
☐ other (describe) ______

Archaeological Methods (Describe the proportion of properties at which method was used by **writing in** the corresponding letter. Blanks are interpreted as "None.")

F(-ew: 0-20%), S(-ome: 20-50%); M(-ost: 50-90%); or A(-ll, Nearly all: 90-100%). If needed write others at bottom.

☐ Check here if **NO** archaeological methods were used.

___ surface collection, controlled
_x_ surface collection, uncontrolled
_x_ shovel test-1/4"screen
___ shovel test-1/8" screen
___ shovel test 1/16"screen
___ shovel test-unscreened
___ other (describe): ______
___ other screen shovel test (size: ___)
___ water screen (finest size: ___)
___ posthole tests
___ auger (size:___)
___ coring
___ test excavation (at least 1x2 M)
___ block excavation (at least 2x2 M)
___ soil resistivity
___ magnetometer
___ side scan sonar
___ unknown

Historical/Architectural Methods (Describe the proportion of properties at which method was used by writing in the corresponding letter. Blanks are interpreted as "None.")

F(-ew: 0-20%), S(-ome: 20-50%); M(-ost: 50-90%); or A(-ll, Nearly all: 90-100%). If needed write others at bottom.

☐ Check here if **NO** historical/architectural methods were used.

___ building permits
___ commercial permits
___ interior documentation
___ demolition permits
_x_ exposed ground inspected
___ local property records
___ neighbor interview
___ occupant interview
___ occupation permits
___ subdivision maps
___ tax records
___ unknown
___ other (describe): visually inspected all standing structures within and adjacent to property.

Scope/Intensity/Procedures 32 round shovel tests, 50 cm diameter, 1 meter deep when possible, at 50m and 100m intervals, screened through 1/4 inch mesh, no positives. Entire project area was subjected to a pedestrian survey.

Survey Results (cultural resources recorded)

Site Significance Evaluated? ☐Yes ☒No If *Yes*, circle NR-eligible/significant site numbers below.

Site Counts: Previously Recorded Sites 0 ______ Newly Recorded Sites 0

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

Newly Recorded Site #'s (Are you sure all are originals and not updates? Identify methods used to check for updates, ie, researched the FMSF records. List site #'s without "8." Attach supplementary pages if necessary.) ______

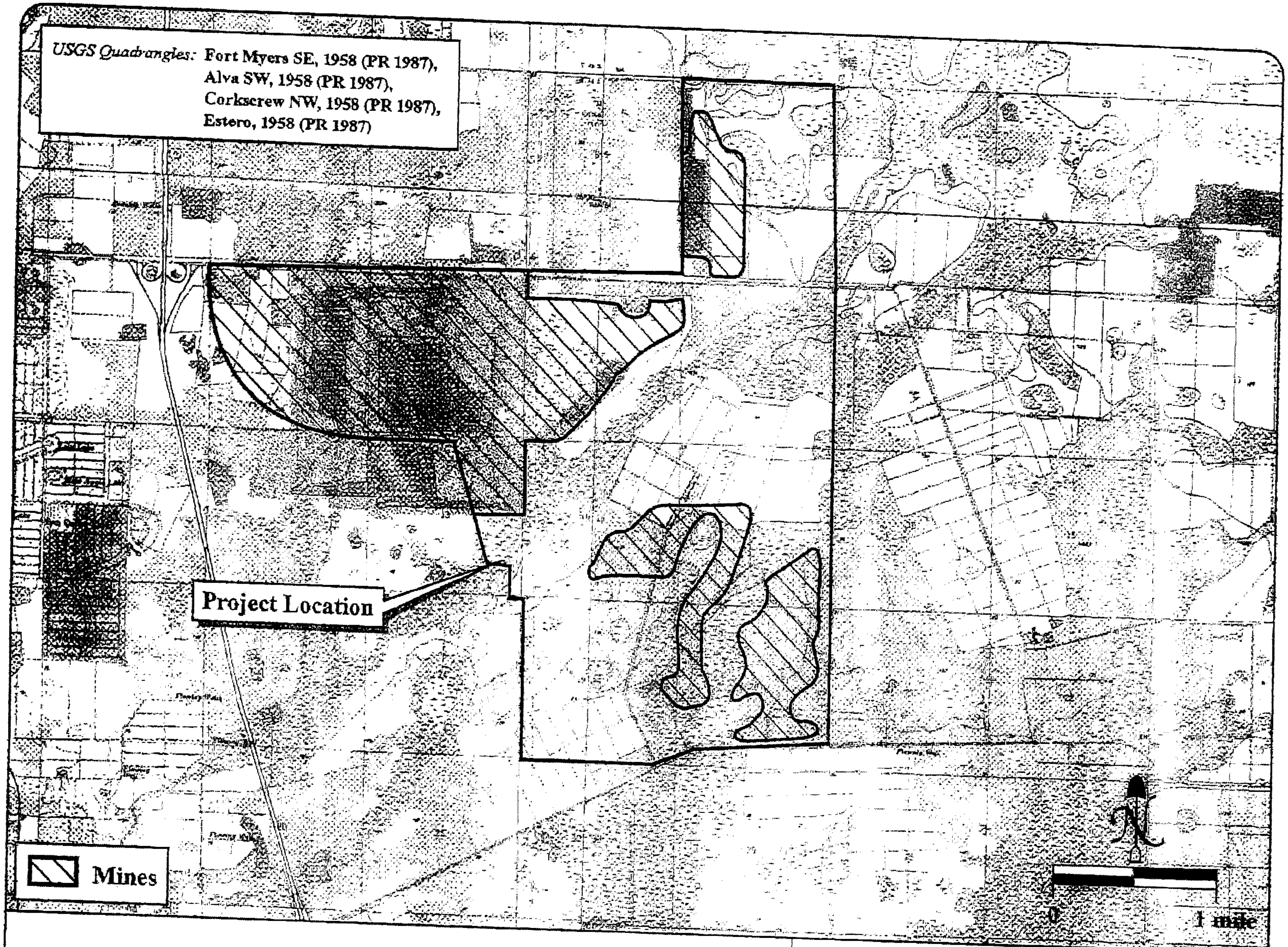
Site Form Used: ☐ SmartForm ☐ FMSF Paper Form ☒ Approved Custom Form: Attach copies of written approval from FMSF Supervisor.

DO NOT USE ------- SITE FILE USE ONLY ------- DO NOT USE

BAR Related
☐ 872 ☐ 1A32
☐ CARL ☐ UW

BHP Related
☐ State Historic Preservation Grant
☐ Compliance Review: CRAT #______

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

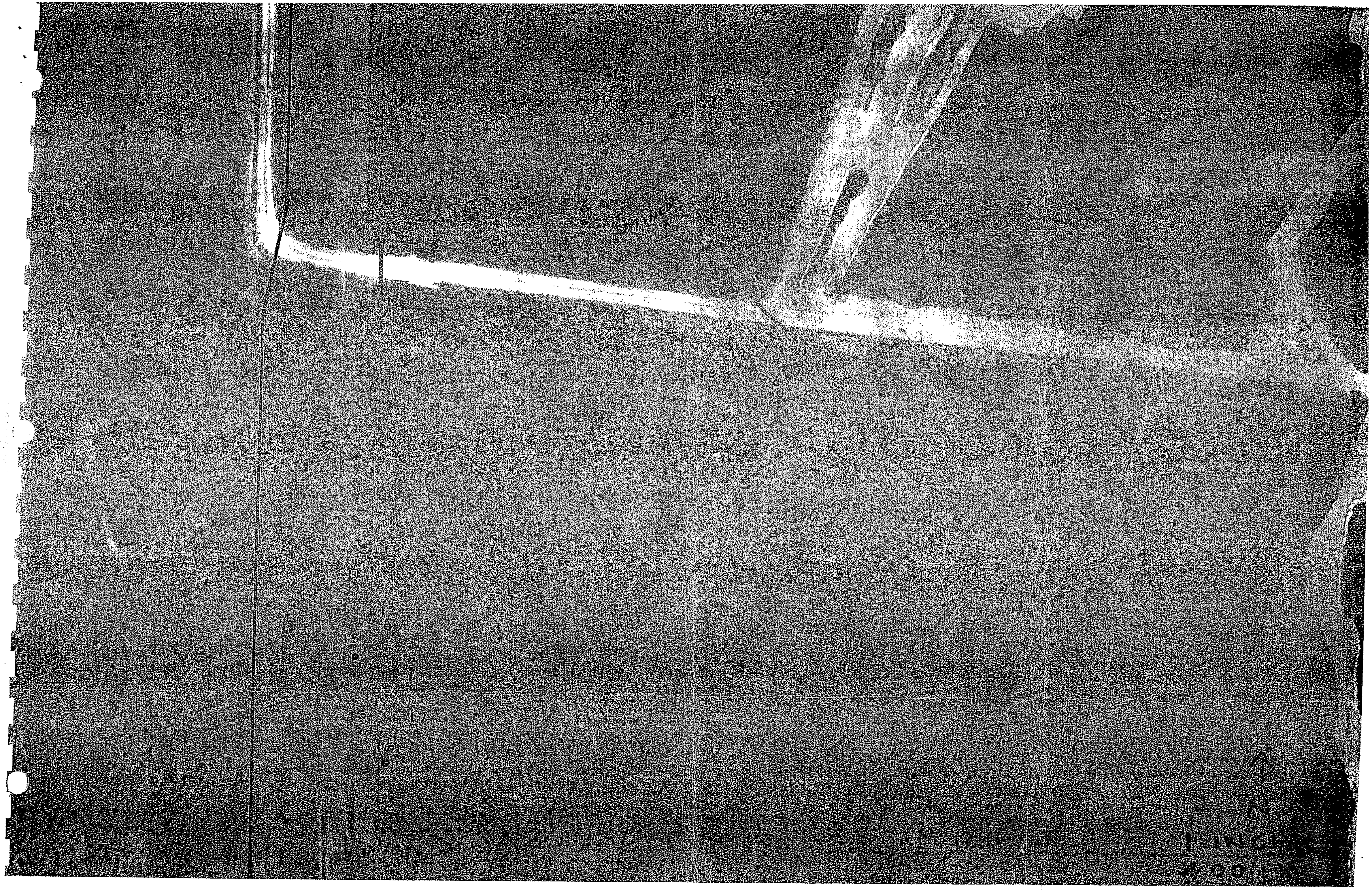


Project Area Map

JANUS RESEARCH
ST. PETERSBURG · CORAL GABLES

APPENDIX C:

FIELD AERIALS WITH SHOVEL TEST LOCATIONS


MINED