FPL

# COLLIER-ORANG

# 230-kV TRANSMISSION LIN

# APPLICATION

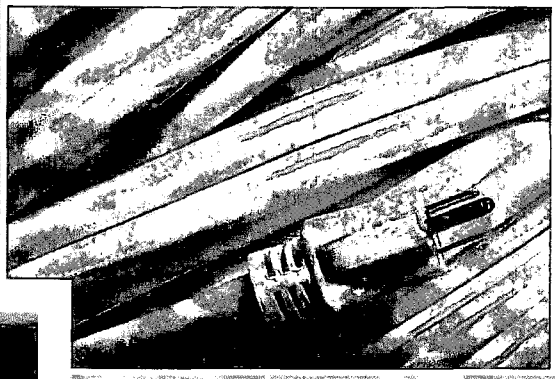
# CORRIDOR CERTIFIC

Prepared by:


ECT

Environmental Consulting & Technology, Inc.

3701 Northwest 98th Street
Gainesville, Florida 32606

ECT No. 020

April 2

# COLLIER-ORANGE RIVER #3 230-kV TRANSMISSION LINE PROJECT

# APPLICATION FOR CORRIDOR CERTIFICATION

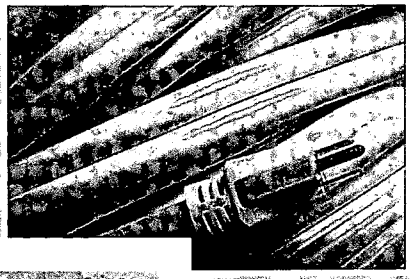
FPL

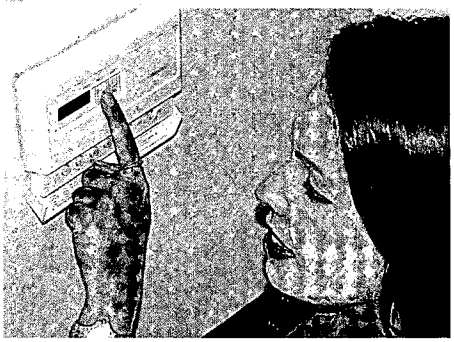
Prepared by:


ECT

Environmental Consulting & Technology, Inc.

3701 Northwest 98th Street
Gainesville, Florida 32606






DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 28 2003
SITING COORDINATION


ECT No. 020965-0200

April 2003

TABLE OF CONTENTS

| Section | | Page |
|---|---|---|
| | APPLICANT INFORMATION | vii |
| **1.0** | **PROJECT OVERVIEW** | **1-1** |
| | 1.1 PROJECT INTRODUCTION | 1-1 |
| | 1.1.1 OVERVIEW OF THE PROJECT | 1-1 |
| | 1.1.2 OVERVIEW OF THE NEED FOR THE C-OR #3 PROJECT | 1-4 |
| | 1.2 CORRIDOR LOCATION AND LAYOUT | 1-8 |
| | 1.3 TRANSMISSION LINE AND ROAD DESIGN CHARACTERISTICS | 1-8 |
| | 1.4 PROPOSED INTERMEDIATE SUBSTATIONS | 1-14 |
| | 1.5 COST PROJECTIONS | 1-18 |
| **2.0** | **BACKGROUND FEATURES OF THE PROPOSED CORRIDOR** | **2-1** |
| | 2.1 CORRIDOR SELECTION | 2-1 |
| | 2.1.1 PROJECT AND STUDY AREA DEFINITION | 2-2 |
| | 2.1.2 RESOURCE MAPPING AND ALTERNATIVE ROUTE DELINEATION | 2-4 |
| | 2.1.3 ALTERNATIVE ROUTE EVALUATION AND PREFERRED CORRIDOR SELECTION | 2-7 |
| | 2.1.3.1 Alternative Route Evaluation | 2-7 |
| | 2.1.3.2 Preferred Corridor Description | 2-11 |
| | 2.1.4 COMMUNITY OUTREACH PROGRAM | 2-17 |
| | 2.2 SOCIO-POLITICAL ENVIRONMENT OF THE CORRIDOR AREA | 2-18 |
| | 2.2.1 GOVERNMENTAL JURISDICTIONS | 2-18 |
| | 2.2.2 ZONING AND LAND USE PLANS | 2-23 |
| | 2.2.2.1 Land Use Plans | 2-23 |
| | 2.2.2.2 Zoning and Land Use Restrictions | 2-36 |
| | 2.2.3 EASEMENTS, TITLE, AGENCY WORKS | 2-44 |
| | 2.2.4 ARCHAEOLOGICAL AND HISTORIC SITES | 2-45 |

TABLE OF CONTENTS
(Continued, Page 2 of 3)

| Section | | Page |
|---|---|---|
| 2.3 | BIO-PHYSICAL ENVIRONMENT OF THE CORRIDOR AREA | 2-47 |
| 2.3.1 | LAND USE/VEGETATION | 2-47 |
| 2.3.1.1 | Land Use | 2-47 |
| 2.3.1.2 | Vegetation | 2-48 |
| 2.3.2 | AFFECTED WATERS AND WETLANDS | 2-52 |
| 2.3.3 | ECOLOGY | 2-64 |
| 2.3.3.1 | Plant Species | 2-65 |
| 2.3.3.2 | Wildlife Species | 2-69 |
| 2.3.4 | OTHER ENVIRONMENTAL FEATURES | 2-80 |
| **3.0** | **EFFECTS OF RIGHT-OF-WAY PREPARATION AND TRANSMISSION LINE CONSTRUCTION** | **3-1** |
| 3.1 | CONSTRUCTION TECHNIQUES | 3-1 |
| 3.1.1 | RIGHT-OF-WAY CLEARING AND ROAD CONSTRUCTION | 3-1 |
| 3.1.2 | LINE CONSTRUCTION | 3-3 |
| 3.1.3 | EROSION | 3-3 |
| 3.2 | IMPACT ON WATER BODIES AND USES | 3-4 |
| 3.3 | SOLID WASTES | 3-8 |
| 3.4 | CHANGES TO VEGETATION, WILDLIFE, AND AQUATIC LIFE | 3-9 |
| 3.4.1 | VEGETATION | 3-9 |
| 3.4.2 | WILDLIFE | 3-10 |
| 3.4.3 | AQUATIC LIFE | 3-12 |
| 3.4.4 | SUMMARY | 3-13 |
| 3.5 | IMPACT ON HUMAN POPULATIONS | 3-13 |
| 3.6 | IMPACT ON ARCHAEOLOGICAL AND HISTORIC SITES | 3-14 |

TABLE OF CONTENTS
(Continued, Page 3 of 3)

| Section | | Page |
|---|---|---|
| **4.0** | **ENVIRONMENTAL EFFECTS OF TRANSMISSION LINE RIGHT-OF-WAY MAINTENANCE AND POST-CONSTRUCTION IMPACTS** | **4-1** |
| 4.1 | MAINTENANCE TECHNIQUES | 4-1 |
| 4.2 | MULTIPLE USES | 4-2 |
| 4.3 | CHANGES IN SPECIES POPULATIONS | 4-3 |
| 4.4 | EFFECTS OF PUBLIC ACCESS | 4-5 |
| 4.5 | ELECTRIC AND MAGNETIC FIELD (EMF) EFFECTS | 4-5 |
| 4.5.1 | EMF RULE COMPLIANCE | 4-5 |
| 4.5.2 | AUDIBLE NOISE | 4-7 |
| 4.5.3 | RADIO AND TELEVISION INTERFERENCE | 4-8 |
| 4.5.4 | SAFETY | 4-9 |
| **5.0** | **VARIANCES, EXCEPTIONS, AND EXEMPTIONS** | **5-1** |
| **REFERENCES** | | **R-1** |

APPENDICES

APPENDIX A—FINAL ORDER ON NEED DETERMINATION
(To be provided when available)
APPENDIX B—COMMUNITY ADVISORY PANEL DESCRIPTION
APPENDIX C—AGENCY CONTACTS
APPENDIX D—FUTURE LAND USE MAPS
APPENDIX E—DIVISION OF HISTORIC RESOURCES LETTERS
APPENDIX F—EMF CALCULATIONS

# LIST OF ATTACHMENTS


| Attachment | | Page |
|---|---|---|
| 2-1 | Aerial Photographs | 2-81 |
| 2-2 | Future Land Use Maps | 2-93 |
| 2-3 | Zoning Maps | 2-105 |
| 2-4 | Land Use/Vegetation Maps | 2-117 |
| 2-5 | Listed Species Observations Maps | 2-129 |

# LIST OF TABLES


| Table | | Page |
|---|---|---|
| 2.1-1 | Study Area Resources Mapped | 2-6 |
| 2.1-2 | Alternative Route Identification Guidelines | 2-7 |
| 2.1-3 | Alternative Route Evaluation Criteria | 2-9 |
| 2.2-1 | Sound Levels by Receiving Land Use | 2-38 |
| 2.2-2 | Maximum Permissible Sound Levels by Zoning Classification | 2-41 |
| 2.2-3 | Maximum Unweighted Sound Pressure Levels—Day and Night Steady Sound (Unweighted db) | 2-41 |
| 2.2-4 | Maximum Vibration Levels | 2-42 |
| 2.2-5 | Possible Easements, Titles, Crossing Approvals Expected to Be Required for Transmission Line Construction in the Preferred Corridor | 2-45 |
| 2.3-1 | Surface Water Bodies within the Preferred Corridor | 2-54 |
| 2.3-2 | Protected Plant Species Known to Occur in Lee and Collier Counties and with the Potential for Occurrence in the Project Area | 2-66 |
| 2.3-3 | State or Federally Listed Wildlife Species Potentially Occurring within the Study Area | 2-71 |
| 4.5-1 | Maximum EMF Capable of Being Produced by the C-OR #3 Project | 4-7 |
| 4.5-2 | Maximum Audible Noise at the Edge of Right of-Way for the C-OR #3 Project | 4-8 |

# LIST OF FIGURES


| Figure | | Page |
|---|---|---|
| 1.1-1 | Location of Project Area | 1-2 |
| 1.1-2 | FPL Collier-Orange River #3 230-kV Transmission Line Project—Preferred Corridor Alignment | 1-3 |
| 1.1-3 | FPL Substation and Transmission System Configuration | 1-5 |
| 1.2-1 | Preferred Corridor Location and Existing Transmission Lines Greater than 115 kV Located within 5 Miles of the Corridor | 1-9 |
| 1.3-1 | Typical 90-ft Tangent Structure Vertical Configuration without Distribution Underbuild | 1-12 |
| 1.3-2 | Typical 90-ft Tangent Structure Vertical Configuration with Distribution/Communication Underbuild | 1-13 |
| 1.3-3 | Conductor Profile for Typical 650-ft Span 90-ft Tangent Structure Vertical Configuration | 1-15 |
| 1.3-4 | Conductor Profile for Typical 450-ft Span 90-ft Tangent Structure Vertical Configuration | 1-16 |
| 1.3-5 | Typical Access Road and Structure Pad Cross-Section | 1-17 |
| 2.1-1 | Collier-Orange River #3 230-kV Transmission Line Project Study Area | 2-5 |
| 2.1-2 | Collier-Orange River #3 230-kV Transmission Line Project Regional Screening and Alternative Routes | 2-8 |
| 2.1-3 | Collier-Orange River #3 230-kV Transmission Line Project—Alternative Routes | 2-12 |
| 2.1-4 | Conceptual Line Swap—Schematic | 2-15 |
| 2.2-1 | Governmental Jurisdictions | 2-19 |
| 3.1-1 | Typical Structure Pad Design with Existing Public Road Access | 3-4 |
| 3.1-2 | Typical Access Road and Structure Pad Design with No Existing Access Available | 3-5 |
| 3.1-3 | Typical Structure Pad Design with Existing Private Access Road Available | 3-6 |

# LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| °C | degree Celsius |
| ACSR | aluminum conductor steel reinforced |
| AM | amplitude-modulated |
| AW | alumoweld core |
| BMP | best management practice |
| CAP | community advisory panel |
| CARL | Conservation and Recreation Lands |
| Common Right-of-Way | Existing right-of-way between Orange River and Collier substations in which several existing transmission lines and other facilities are located |
| C-OR #3 Project | Collier-Orange River #3 230-kV transmission line project |
| CR | County Road |
| CREW | Corkscrew Regional Ecosystem Watershed |
| db | decibel |
| dBA | A-weighted decibels |
| DHR | Division of Historical Resources |
| DOT | Department of Transportation |
| DRI | development of regional impact |
| DRS | Density Rating System |
| E | endangered |
| ECT | Environmental Consulting & Technology, Inc. |
| ECWCD | East County Water Control District |
| EMF | electric and magnetic field |
| F.A.C. | Florida Administrative Code |
| F.S. | Florida Statutes |
| FAA | Federal Aviation Administration |
| FCC | Federal Communications Commission |
| FDACS | Florida Department of Agriculture and Consumer Services |
| FDEP | Florida Department of Environmental Protection |
| FDOT | Florida Department of Transportation |
| FFWCC | Florida Fish and Wildlife Conservation Commission |
| FGCU | Florida Gulf Coast University |
| Florida EMF Rule | Chapter 62-814, F.A.C. |
| FLUCFCS | Florida Land Use, Cover and Forms Classification System |
| FLUM | future land use map |
| FM | frequency-modulated |
| FPL | Florida Power & Light Company |
| ft | foot |

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued, Page 2 of 3)

| | |
|---|---|
| $ft^2$ | square foot |
| $ft^3$ | cubic foot |
| FWA | Flow Way Stewardship Area |
| General Permit | FDEP General Permit for the Construction and Maintenance of Electric Power Lines by Electric Utilities |
| HSA | Habitat Stewardship Area |
| Hz | Hertz |
| I-75 | Interstate 75 |
| kcmil | thousand circular mils |
| kV | kilovolt |
| kV/m | kilovolt per meter |
| LCEC | Lee County Electric Cooperative |
| LDC | Land Development Code |
| MCR | maximum current rating |
| mG | milliGauss |
| MSBU | municipal service benefit unit |
| MVA | megavolt-ampere |
| MW | megawatt |
| NERC | North American Electric Reliability Council |
| NESC | National Electrical Safety Code |
| NRPA | natural resource protection area |
| NWI | National Wetlands Inventory |
| PSC | Public Service Commission |
| PUD | planned unit development |
| RARE | roadless area review and evaluation |
| RLSAO | Rural Lands Stewardship Area Overlay |
| SCS | Soil Conservation Service |
| SFWMD | South Florida Water Management District |
| SOR | Save Our Rivers |
| SR | State Road |
| SRA | Stewardship Receiving Area |
| SSA | Stewardship Sending Area |
| SSC | species of special concern |

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued, Page 3 of 3)

| | |
|---|---|
| T | threatened |
| T(E/P) | threatened (experimental population) |
| T(S/A) | threatened due to similarity of appearance to a federally listed species |
| TLSA | Transmission Line Siting Act |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| WRA | Water Retention Area |

APPLICANT INFORMATION

Please supply the following information:

Applicant's Official Name **Florida Power & Light Company**

Address **700 Universe Boulevard, Juno Beach, Florida 33408**

Business entity (corporation, partnership, co-operative, name(s), owner(s), etc. **Corporation**

Name and Title of Chief Executive Officer(s) **Lewis Hay III, Chairman, President, and CEO, FPL Group, Inc.**

**Paul J. Evanson, President, Florida Power & Light Company**

Name, Title, address and phone numbers of official representatives responsible for obtaining certifications **Ms. Florette Braun, Principal Environmental Specialist; Florida Power & Light Company, 700 Universe Boulevard, Juno Beach, Florida 33408, 561/691-7059**

Corridor Location (counties crossed) **Lee and Collier Counties**

Incorporated Cities within the corridor (names) **City of Fort Myers**

Termination Points **Orange River Substation (Lee County) and Collier Substation (Collier County)**

Intermediate Substations **None**

Voltage **230 kilovolts (kV)**

Line Type (AC or DC) **AC**

Length of line and number of circuits **53.9 miles (1 circuit)**

Remarks (if any): _____

CHAPTER 1.0

# 1.0 PROJECT OVERVIEW

## 1.1 PROJECT INTRODUCTION

### 1.1.1 OVERVIEW OF THE PROJECT

The Collier-Orange River #3 230-kilovolt (kV) transmission line Project (C-OR #3 Project) is proposed by Florida Power & Light Company (FPL) for certification under the State of Florida Transmission Line Siting Act (TLSA), Sections 403.52 through 403.5365, Florida Statutes (F.S.). The line will connect the existing Collier substation near Naples in Collier County to the existing Orange River substation east of Fort Myers in Lee County (see Figure 1.1-1). The total length of the proposed transmission line corridor to be certified is approximately 53.9 miles (see Figure 1.1-2).

In this application, FPL is seeking certification of a corridor of variable width between the Collier and Orange River substations. The new transmission line will be located on a right-of-way somewhere within this corridor. The preferred corridor ranges in width from approximately 100 to 2,600 feet (ft) in areas where a new right-of-way will be required for the C-OR #3 Project. In some areas of the corridor, the C-OR #3 Project may be constructed along existing road or transmission line rights-of-way. In these areas, the corridor width ranges from 100 to 500 ft, varying with the width of the existing right-of-way.

The width of the new right-of-way to be located within the corridor will typically range from 15 to 60 ft. As provided in Section 403.522(10), F.S., once FPL acquires the property interests required for the C-OR #3 Project right-of-way, the boundaries of the certified corridor will narrow to only that land within the right-of-way. At that point, the remainder of the corridor will have no further legal significance related to this certification.

In one area of the C-OR #3 Project, an approximately 14-mile long 230-kV transmission line will be incorporated into the new line. Between the Orangetree substation, located on Immokalee Road (County Road [CR] 846) (see Figure 1.1-2), and the intersection of FPL's existing Collier-Orange River #1 and #2 transmission right-of-way (Common Right-of-Way), FPL proposes to incorporate into the C-OR #3 Project the Orangetree 230-kV transmission line scheduled to be placed in service by the end of 2003. In

# IMAGE QUALITY

AS YOU REVIEW THE NEXT FEW PAGES, PLEASE NOTE THAT THE ORIGINAL DOCUMENT WAS OF POOR QUALITY.

M:\ACAD\020965\study\projarea

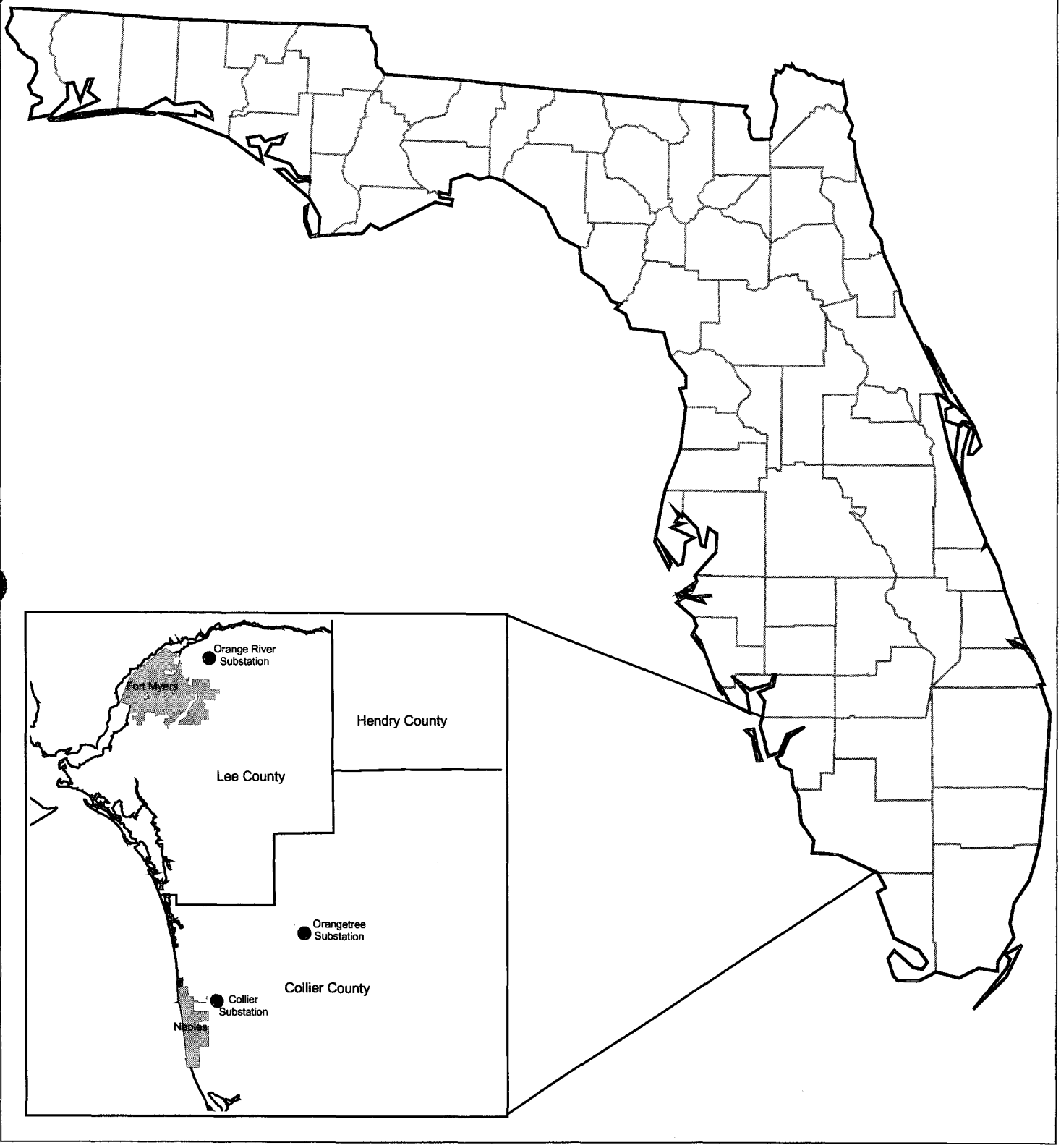



FIGURE 1.1-1.
LOCATION OF PROJECT AREA

Sources: FPL, 2003; ECT, 2003.

FPL

M:\ACAD\020965\substats\prefcor

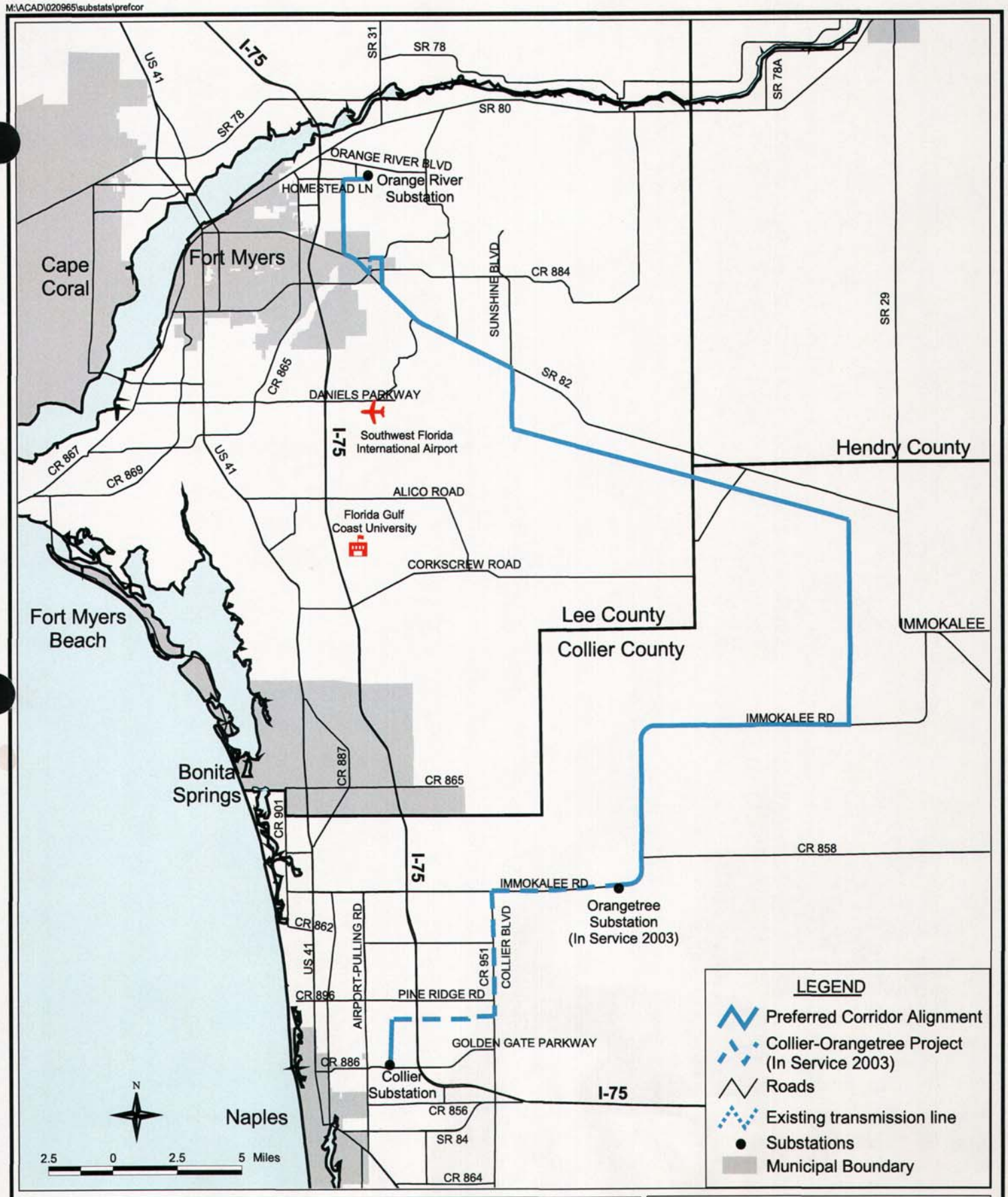



FIGURE 1.1-2.
FPL COLLIER - ORANGE RIVER #3 230-kV TRANSMISSION LINE PROJECT - PREFERRED CORRIDOR ALIGNMENT

Sources: FPL, 2003; ECT, 2003.

FPL

addition to minimizing the need for additional transmission line construction in this area, the incorporation of this transmission line segment into the C-OR #3 Project provides the desired *looping* of power sources into the Orangetree substation. In other words, once the C-OR #3 Project is in service, FPL will be able to route power into the Orangetree substation along two distinct paths, providing the needed reliability to this substation. Without incorporating the Orangetree 230-kV segment into the C-OR #3 Project, a separate and additional 230-kV transmission line into the Orangetree substation would be required to complete this loop.

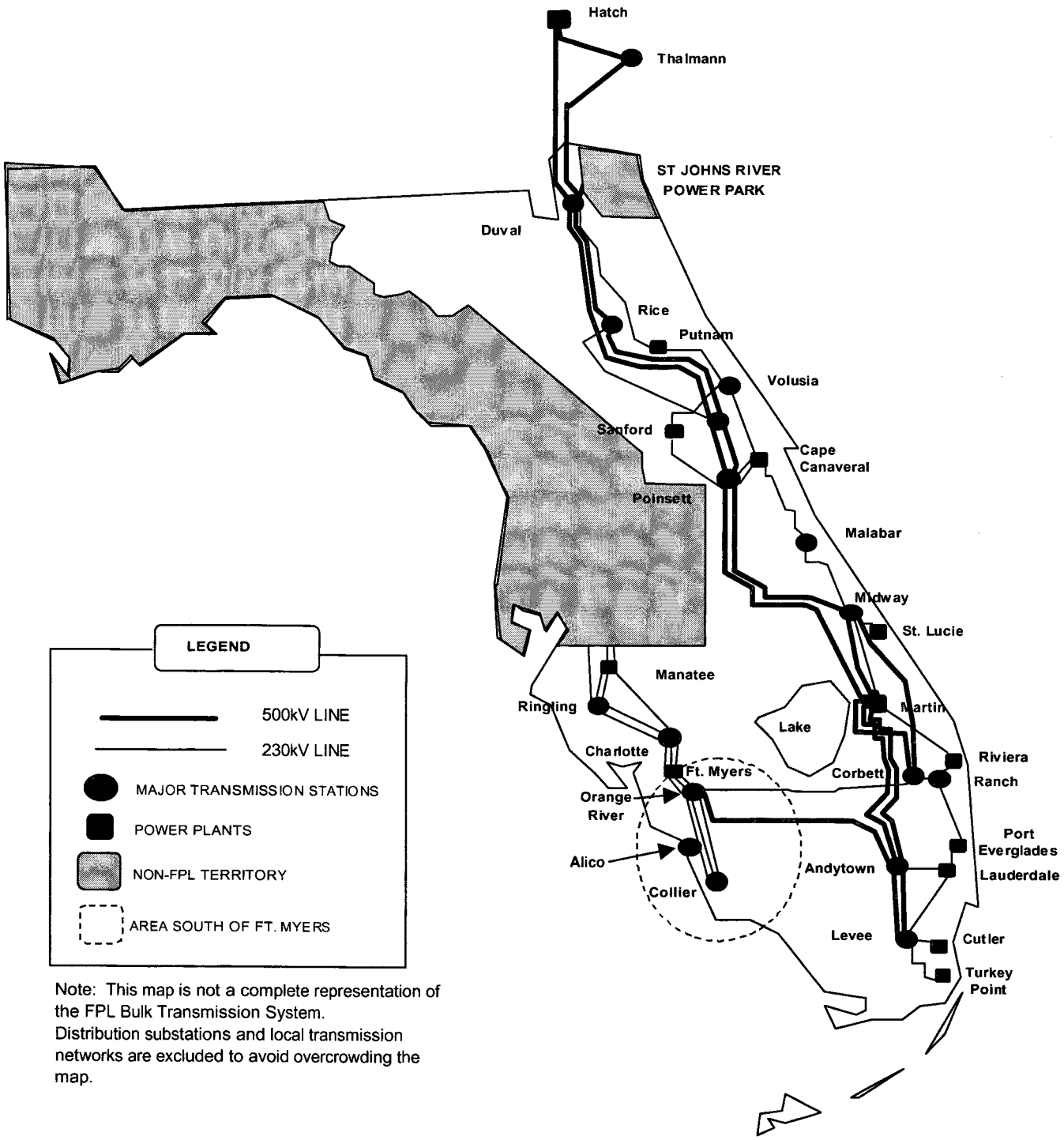
The scheduled in-service date for the C-OR #3 Project is December 2005.

### 1.1.2 OVERVIEW OF THE NEED FOR THE C-OR #3 PROJECT

The proposed 230-kV electrical transmission line between the Orange River and Collier substations is needed to meet the increased power needs of the future and provide safe, reliable, and low-cost electrical service.

Southwest Florida has been experiencing rapid growth. As a consequence, there has been a significant increase in the number of electric utility customers in Lee and Collier Counties. The load south of Fort Myers, including the Naples load center, is projected to continue to grow at an average rate of approximately 11,300 customers annually, representing a population increase of approximately 18,800 people, or 68 megawatts (MW), per year. In addition to the growth in population, the use of electrical devices—such as computers, televisions, and other small appliances—has increased the demand for electricity from FPL's current customers.

To meet the increase in customer demand, FPL has added electric generation at its Fort Myers and Sanford power plants. Additional generation is being built at Sanford, and yet more generation will be built at the Manatee and Martin power plants in the near future. These power plants supply electricity to Southwest Florida, as well as the remainder of the FPL service territory, through the transmission network. Figure 1.1-3 presents FPL's current transmission network, including the location of generating plants, transmission substations, and major transmission lines.




Note: This map is not a complete representation of the FPL Bulk Transmission System. Distribution substations and local transmission networks are excluded to avoid overcrowding the map.

FIGURE 1.1-3.

FPL SUBSTATION AND TRANSMISSION SYSTEM CONFIGURATION

Source: FPL, 2003.

FPL

FPL's analyses indicate that, without the C-OR #3 Project, a single contingency event (outage) along any one of three 230-kV transmission lines within the existing FPL Common Right-of-Way in Lee and Collier Counties during the 2005/2006 winter peak load could cause an outage for up to approximately 104,200 customers, representing approximately 173,200 people. Additionally, under 11 separate scenarios, overloads of thermal megavolt-amperes (MVA) facility ratings would occur, requiring interruption of service of 7,200 to 41,100 customers, representing approximately 12,000 to 68,300 people, depending on the specific outage.

Specifically, the need for the C-OR #3 Project is based on two primary factors:

- The need to serve the increasing load and customer base in the area south of Fort Myers, including the Naples load center, in a reliable manner consistent with North American Electric Reliability Council (NERC) transmission system standards.
- The need to enhance service reliability. The transmission line facilities on the existing Common Right-of-Way serve as the main feed of power for the Naples load center. In effect, Collier County and part of Lee County are an electrical *peninsula* where most of the existing transmission facilities providing power to serve the area south of Fort Myers are located on the same right-of-way. Placement of the new C-OR #3 Project within a geographically separate right-of-way from the existing Common Right-of-Way will reduce the number of customers that would lose power for an extended period of time in the event of a sustained outage of the transmission facilities on the Common Right-of-Way south of Orange River. It will also substantially enhance the efficient restoration of service to customers. Benefits of a geographic separation of the C-OR #3 Project from the existing Common Right-of-Way are most significant in the northern and central segments of the Common Right-of-Way.

Other benefits of the C-OR #3 Project, when constructed within the preferred corridor are:

- For safety and efficiency reasons, maintenance of one transmission line sometimes requires other transmission lines on a common right-of-way to be taken out of service during the maintenance period. To the extent the C-OR #3 Project is placed on a geographically separate right-of-way from the existing Common Right-of-Way, it will lessen the likelihood of multiple transmission facilities being unavailable during maintenance periods, thus mitigating the risks of an impact on reliability.
- FPL desires to have the potential to efficiently and effectively integrate and serve new distribution substations that will be needed to serve projected load growth in eastern Lee and Collier Counties. Current projections indicate the majority of new load growth is expected to occur east of the existing transmission facilities in the Common Right-of-Way through Collier and Lee Counties. To serve this new load, it will be necessary to site new distribution substations east of the existing transmission lines in areas already earmarked for development. The siting of these new substations in the future is expected to require transmission facilities to be rerouted and/or constructed east of the existing Common Right-of-Way to serve these substations from the transmission system. It may be possible to more efficiently integrate the new substations if the C-OR #3 Project is constructed in the preferred corridor, which is largely east of the existing Common Right-of-Way.
- FPL is interested in planning for the future and expects to need an additional transmission circuit to serve the area south of Fort Myers sometime within the next 10 to 15 years. To the extent FPL can establish a new right-of-way now, it could facilitate siting this additional line when the need materializes. Although FPL is only seeking certification of a single circuit at this time, there is sufficient space in some locations along the preferred corridor to accommodate the addition of a second circuit when needed in the future. The future need highlights an additional benefit of securing a geographically separate right-of-way where practicable, alternative routes remain available. Locating the additional future transmission line in such a separate right-of-

way would better distribute transmission capacity and thus further strengthen the reliability of FPL's service. This is in the long-term interest of FPL's customers.

A copy of the order entered by the Florida Public Service Commission (PSC) approving the need for the C-OR #3 Project pursuant to Section 403.537, F.S., will be filed as an amendment to this application (Appendix A) when it becomes available, likely in May 2003.

## 1.2 CORRIDOR LOCATION AND LAYOUT

Figure 1.2-1 illustrates the route for the preferred corridor for the FPL C-OR #3 Project at a scale of 1:126,720, or 1 inch equals 2 miles. The preferred corridor is depicted on Florida Department of Transportation (FDOT) highway maps, which also show major geographic features and roads. Also shown in Figure 1.2-1 are existing electric transmission lines of 115 kV or greater located within 5 miles of the preferred corridor, including the Orangetree 230-kV transmission line that is scheduled to go into service in December 2003.

## 1.3 TRANSMISSION LINE AND ROAD DESIGN CHARACTERISTICS

The proposed transmission line is to be constructed typically using single-circuit, unguyed concrete poles directly embedded into the ground. Figures 1.3-1 and 1.3-2 illustrate typical structures anticipated for use on the C-OR #3 Project. Special structures and conductor configurations may be required at specific locations, such as the crossings of major highway intersections, interchanges, or canals, to accommodate specific engineering considerations. Where the transmission line turns large angles or crosses other major linear facilities, the single-pole structure may require guys and anchors.

The three conductors of the proposed transmission line will typically be framed in a vertical configuration, as shown on Figures 1.3-1 and 1.3-2. Each conductor is anticipated to be one 1,431 thousand circular mils (kcmil), aluminum conductor, steel reinforced alumoweld core (ACSR/AW). The maximum current rating (MCR) for the line will be

M:\ACAD\020965\DOT\DOTtranslines.dwg

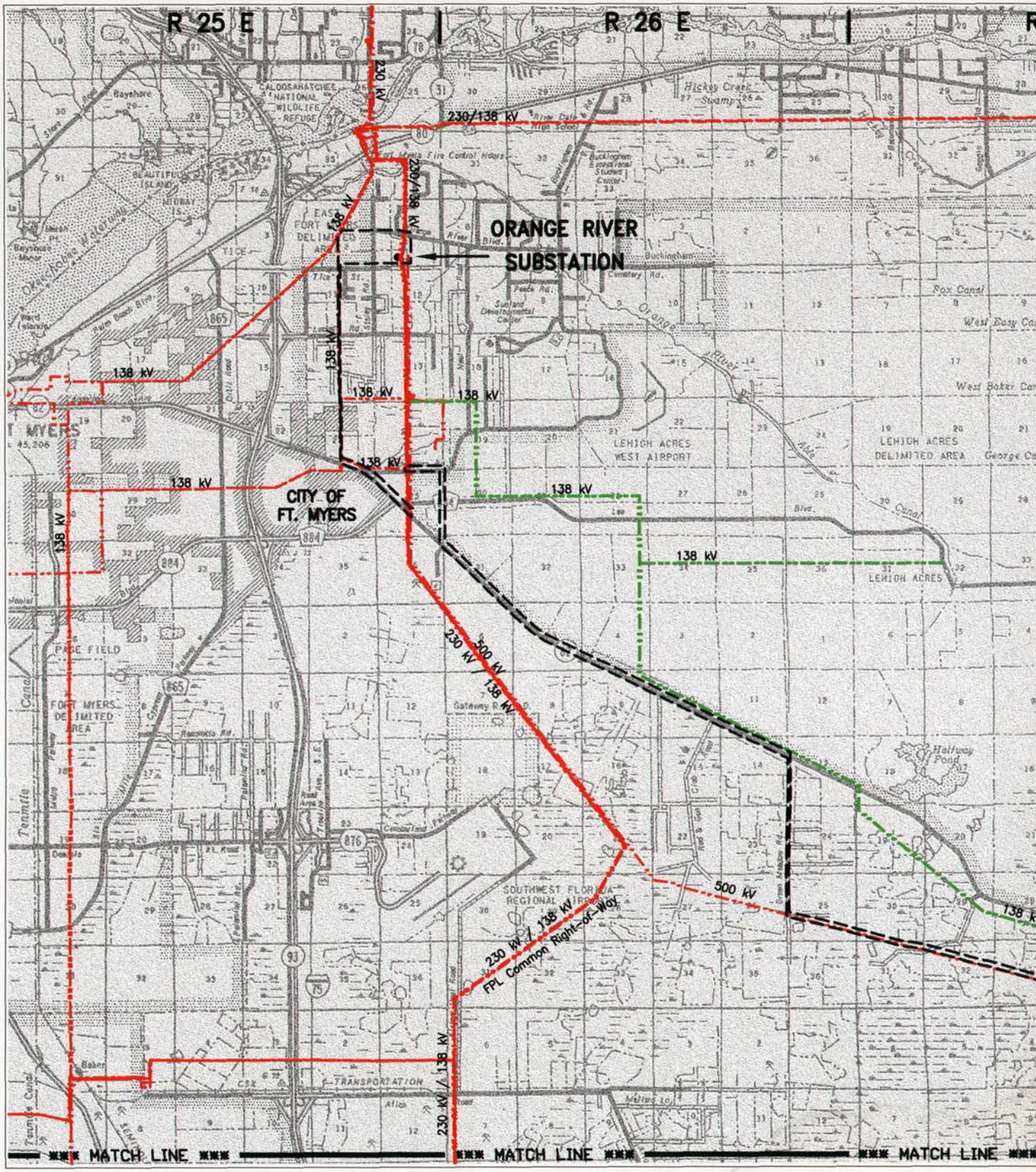



FIGURE 1.2-1. (1 OF 3)

PREFERRED CORRIDOR LOCATION AND EXISTING TRANSMISSION LINES GREATER THAN 115-kV LOCATE CORRIDOR

**Source: DOT, Lee County, August, 1989, and Collier County, October, 1993; FPL, 2003; LCEC, 2003; ECT, 2003.**

M:\ACAD\020965\DOT\DOTtranslines.dwg

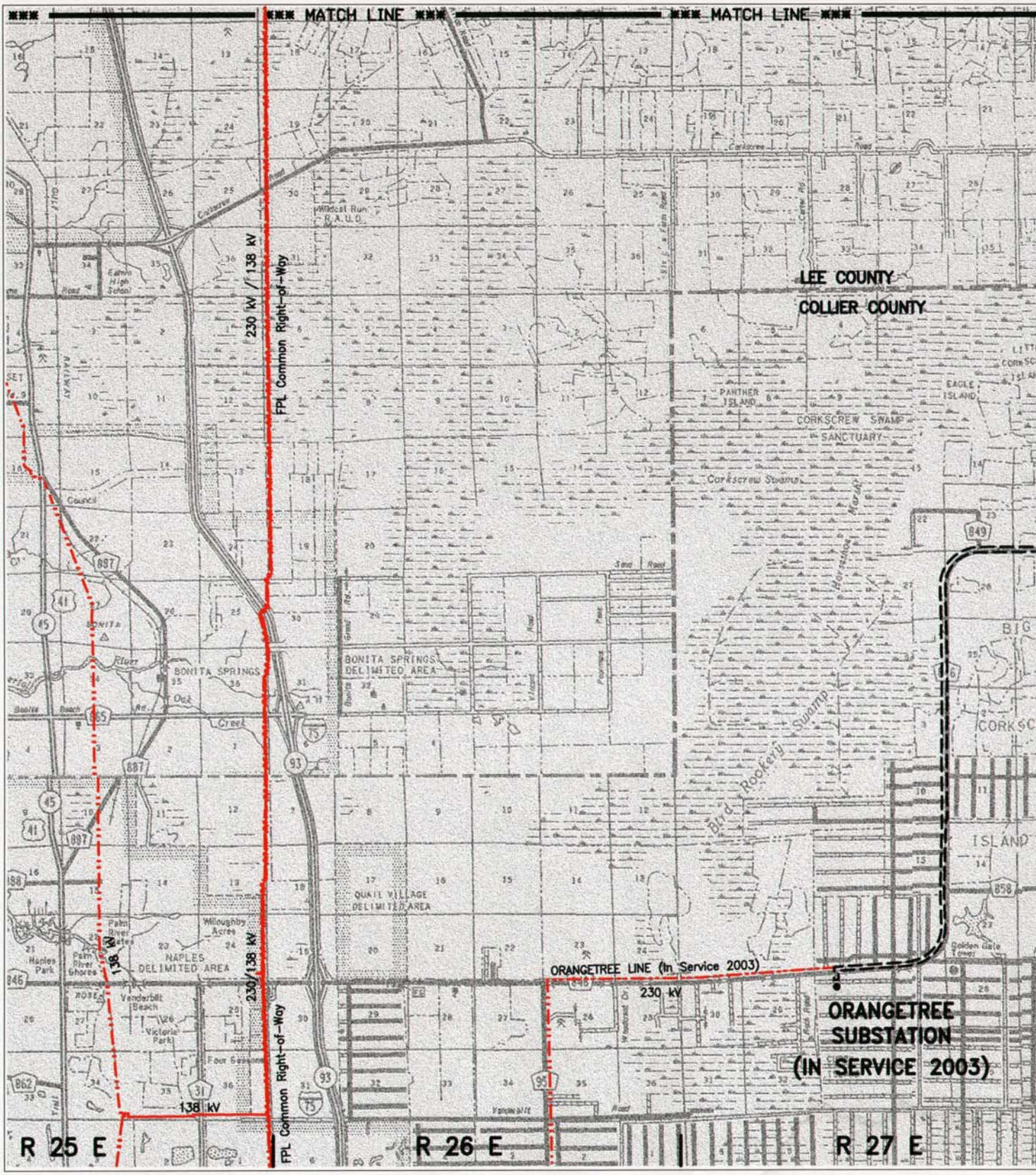



FIGURE 1.2-1. (2 OF 3)

PREFERRED CORRIDOR LOCATION AND EXISTING TRANSMISSION LINES GREATER THAN 115-kV LOCAT
CORRIDOR

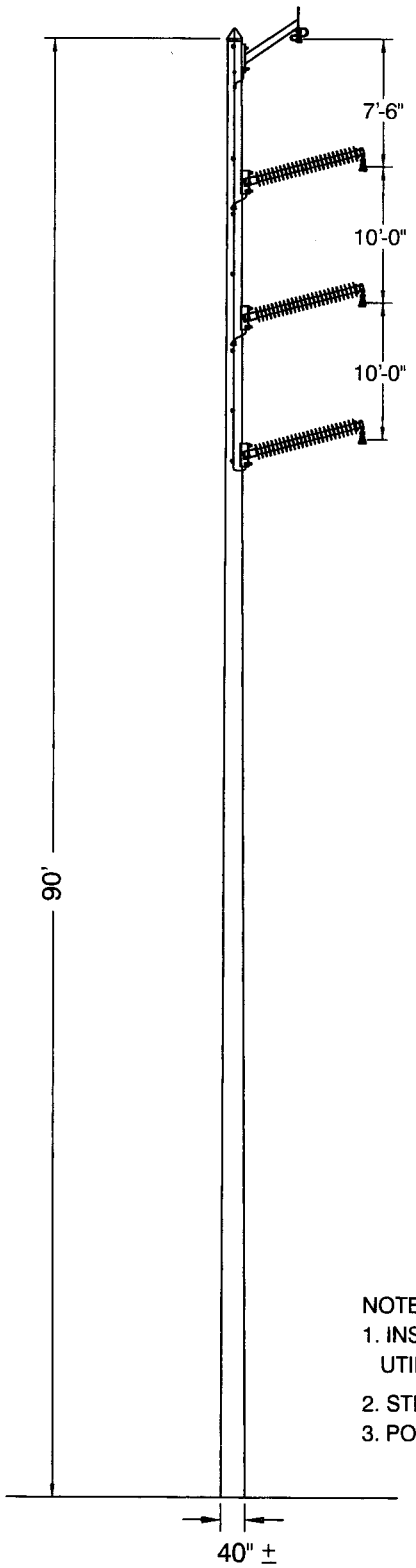
**Source: DOT, Lee County, August, 1989, and Collier County, October, 1993; FPL, 2003; LCEC, 2003; ECT, 2003.**

M:\ACAD\020965\DOT\DOTtranslines.dwg

FIGURE 1.2-1. (3 OF 3)

PREFERRED CORRIDOR LOCATION AND EXISTING TRANSMISSION LINES GREATER THAN 115-kV LOCATE
CORRIDOR

**Source: DOT, Lee County, August, 1989, and Collier County, October, 1993; FPL, 2003; LCEC, 2003; ECT, 2003.**




GRAPHIC SCALE

0 3 6 12

SCALE IN FEET

NOTES:

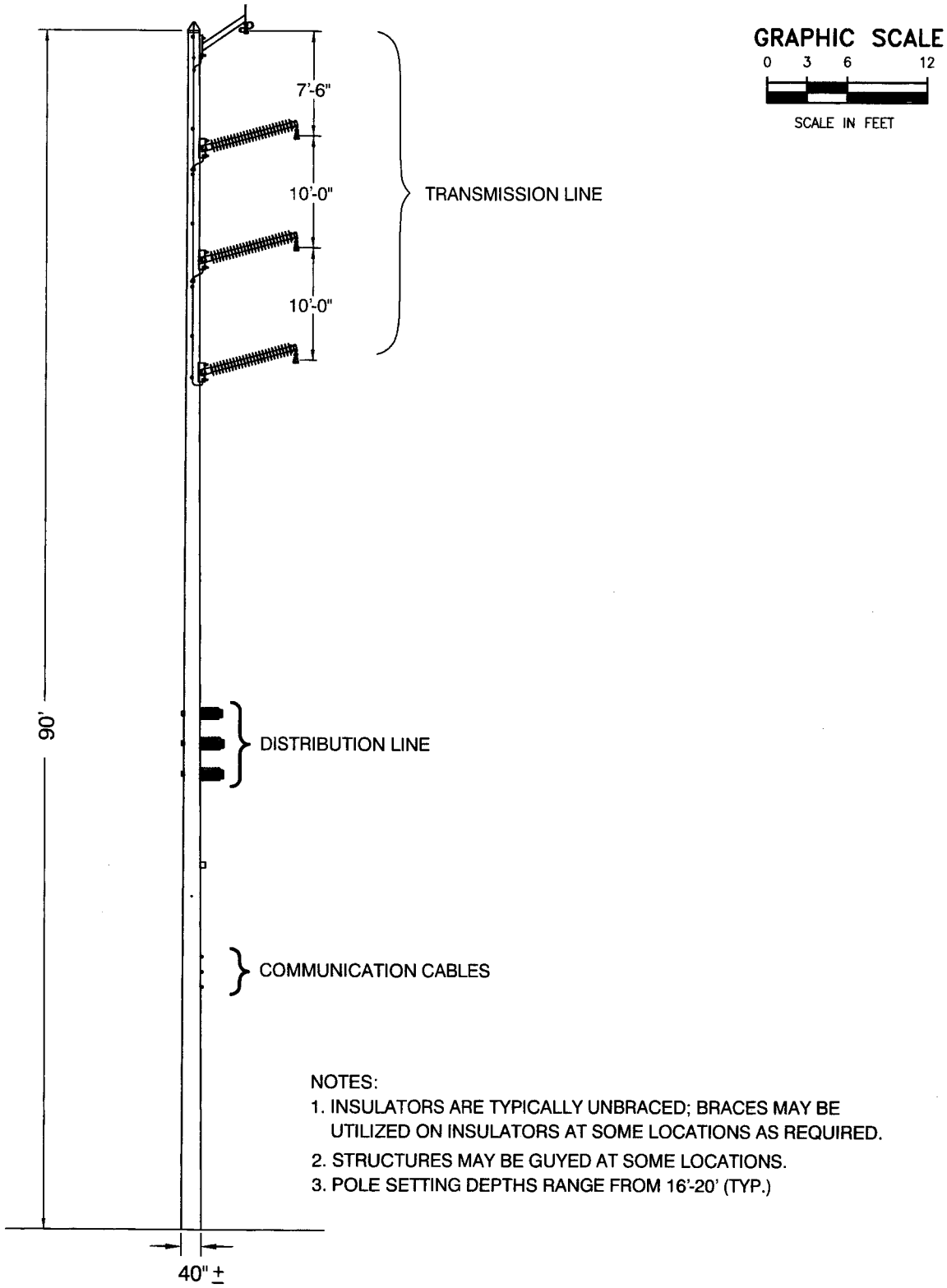
1. INSULATORS ARE TYPICALLY UNBRACED; BRACES MAY BE UTILIZED ON INSULATORS AT SOME LOCATIONS AS REQUIRED.
2. STRUCTURES MAY BE GUYED AT SOME LOCATIONS.
3. POLE SETTING DEPTHS RANGE FROM 16'-20' (TYP.)

FIGURE 1.3-1.

TYPICAL 90' TANGENT STRUCTURE VERTICAL CONFIGURATION WITHOUT DISTRIBUTION UNDERBUILD

**Source: FPL, 2003.**

FPL




NOTES:
1. INSULATORS ARE TYPICALLY UNBRACED; BRACES MAY BE UTILIZED ON INSULATORS AT SOME LOCATIONS AS REQUIRED.
2. STRUCTURES MAY BE GUYED AT SOME LOCATIONS.
3. POLE SETTING DEPTHS RANGE FROM 16'-20' (TYP.)

FIGURE 1.3-2.
TYPICAL 90' TANGENT STRUCTURE VERTICAL CONFIGURATION WITH DISTRIBUTION / COMMUNICATION UNDERBUILD

Source: FPL, 2003.

FPL

1,905 amperes. The MCR is the nominal value that would be expected to cause the conductor to reach its design temperature limit of 100 degrees Celsius (°C).

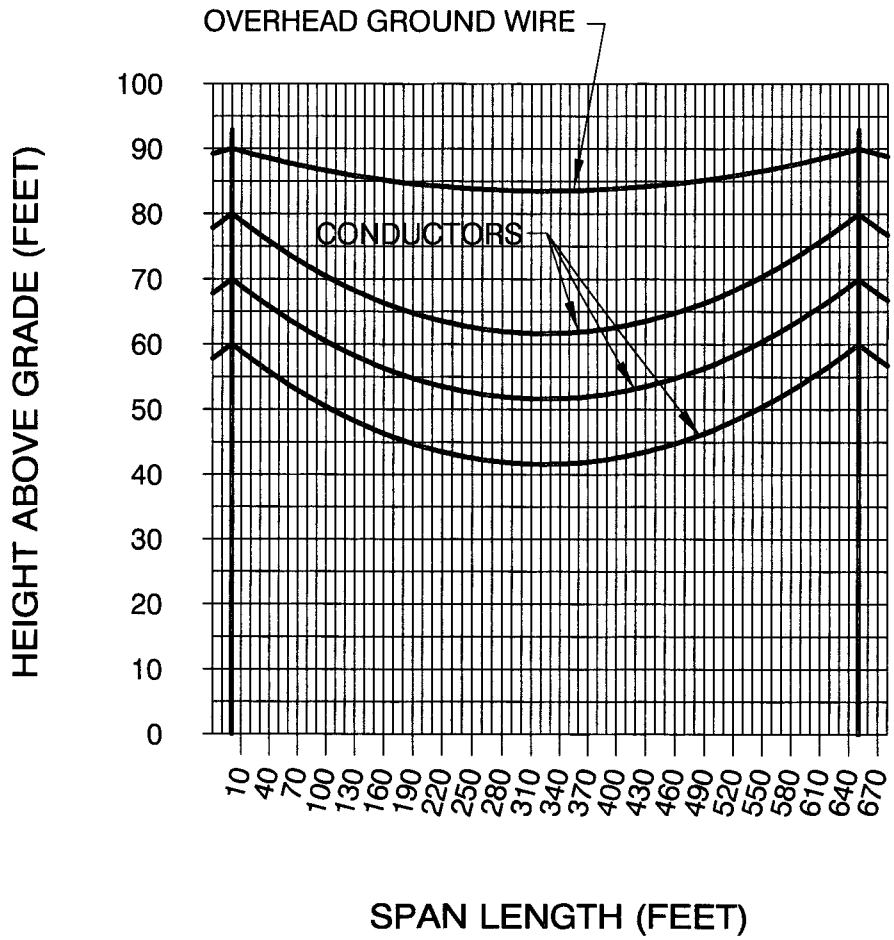
In some cases, the transmission line may also provide for other attachments such as electric distribution lines, communication facilities, or other utility equipment. While FPL is only seeking certification of a single circuit at this time, where sufficient space is available to accommodate the addition of a second circuit when needed in the future, the single-pole structures used for the C-OR #3 Project may be of sufficient strength to support a second circuit. Span lengths between structures will typically vary between 250 and 700 ft, depending on site-specific right-of-way widths and other design considerations. Figures 1.3-3 and 1.3-4 depict typical span profiles for the C-OR #3 Project.

Transmission line conductor vertical clearances will vary along the length of the line; however, in all instances, the clearances will comply with the National Electrical Safety Code (NESC) (Institute of Electrical and Electronics Engineers, Inc. [IEEE], 2002), as required by Section 366.04, F.S., and Florida PSC regulations. Clearances will also provide for operational requirements of regulatory agencies (U.S. Army Corps of Engineers [USACE], South Florida Water Management District [SFWMD], etc.).

Where available, existing roads and pads will be used for access and construction to the greatest extent practical. Improvements may be made to the existing roads or pads, depending on the existing conditions of these facilities. Where new access roads are constructed, they will be unpaved, constructed to approximately 6 inches above high water levels, 14 ft in top width, and constructed so as to efficiently access the pole locations while minimizing environmental impacts. Figure 1.3-5 shows a typical access road and structure pad cross-section.

## 1.4 PROPOSED INTERMEDIATE SUBSTATIONS

No new intermediate substations are proposed for certification as part of the C-OR #3 Project. However, as discussed in Section 1.1, the C-OR #3 Project will pass through the Orangetree substation, scheduled to go into service in December 2003. As discussed in Section 1.1, the Orangetree 230-kV transmission line will be integrated into the C-OR #3




NOTE:

THIS PROFILE ASSUMES A SPAN LENGTH OF 650' AND POLE HEIGHTS 90' ABOVE GRADE. MIDSPAN CLEARANCES ALONG THE LINE WILL VARY DEPENDING ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN STRUCTURES.

SCALE

1" = 200' HORIZONTAL

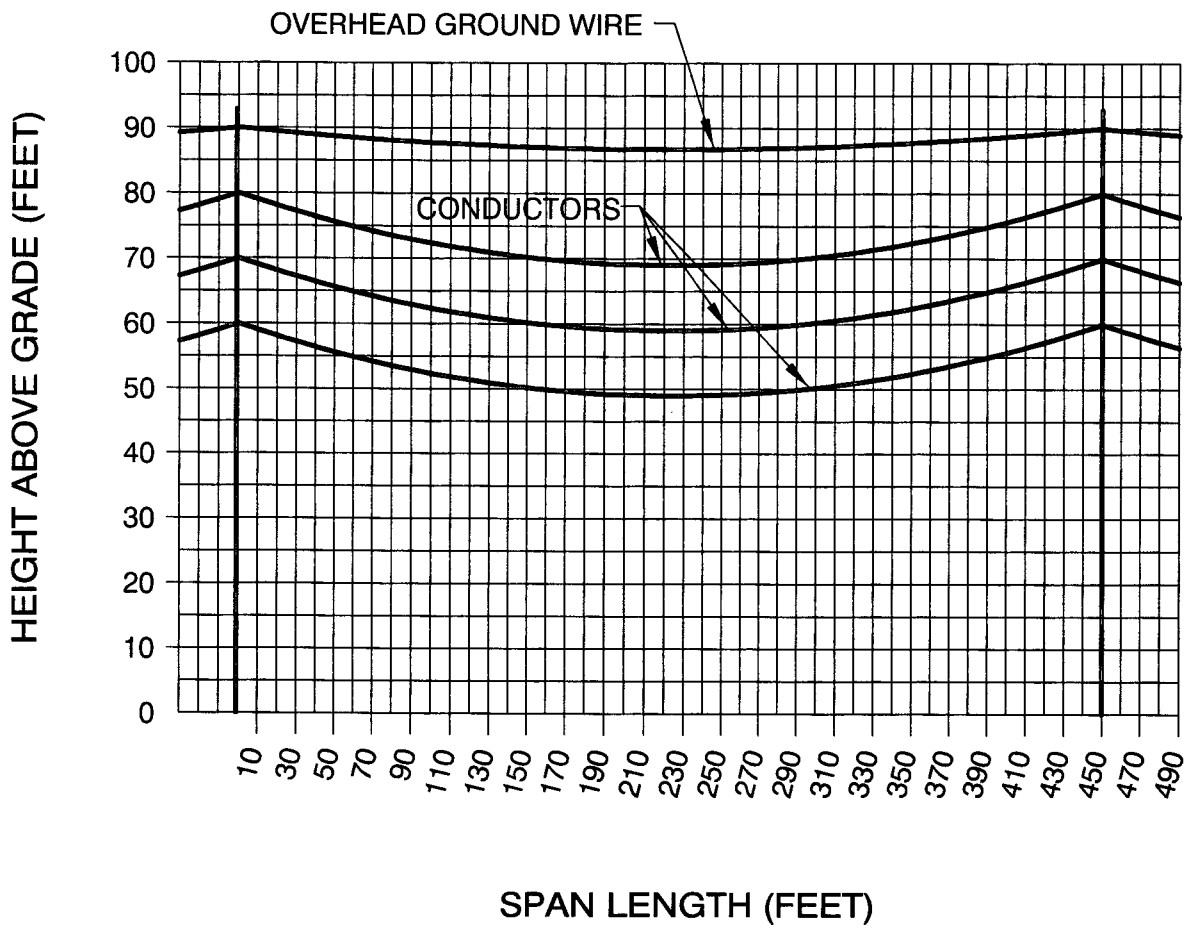
1" = 30' VERTICAL

FIGURE 1.3-3.

CONDUCTOR PROFILE FOR TYPICAL 650' SPAN 90' TANGENT STRUCTURE VERTICAL CONFIGURATION

**Source: FPL, 2003.**

FPL




NOTE:

THIS PROFILE ASSUMES A SPAN LENGTH OF 450' AND POLE HEIGHTS 90' ABOVE GRADE. MIDSPAN CLEARANCES ALONG THE LINE WILL VARY DEPENDING ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN STRUCTURES.

SCALE

1" = 100' HORIZONTAL

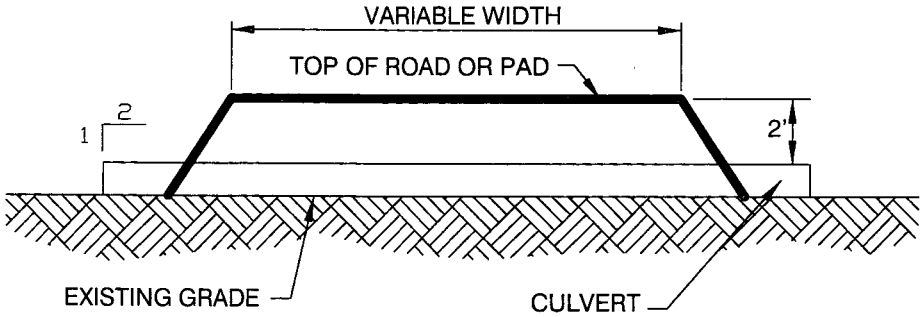
1" = 30' VERTICAL

FIGURE 1.3-4.

CONDUCTOR PROFILE FOR TYPICAL 450' SPAN 90' TANGENT STRUCTURE VERTICAL CONFIGURATION

Source: FPL, 2003.

FPL




**NOTES:**

1. HEIGHT OF ROAD/PAD VARIES, MINIMUM 6" OVER MEAN OR SEASONAL HIGH WATER.
2. SPACING, DIAMETER AND LENGTH OF CULVERTS AS REQUIRED TO MAINTAIN FLOW. A MINIMUM OF 2' OF COVER IS REQUIRED OVER THE CULVERT.
3. ACCESS ROADS/PADS TO BE BUILT ONLY WHERE EXISTING ACCESS IS UNAVAILABLE.
4. TYPICAL ROAD IS 14 FT. TOP-WIDTH. FOR TYPICAL STRUCTURE PAD DIMENSIONS, SEE FIGURES 3.1-1 THROUGH 3.1-3.

FIGURE 1.3-5.

TYPICAL ACCESS ROAD AND STRUCTURE PAD CROSS-SECTION

**Source: FPL, 2003.**

FPL

Project, and, as such, the Orangetree substation will be connected to the C-OR #3 Project. But, since the Orangetree substation goes into service in December 2003, it is not technically an intermediate substation and will not be certified under this application.

## 1.5 COST PROJECTIONS

The exact location of the transmission line and the number and types of structures necessary will be determined following certification of the corridor. The approximate costs are projections based on comparable lines of similar voltage elsewhere in the FPL system. The actual cost of the line may vary from these generalized average costs depending on the ultimate locations of structures, cost of right-of-way, and other site-specific conditions.

Estimated per-mile cost for transmission line construction, including right-of-way acquisition, right-of-way clearing, access road construction, mitigation, and line construction, is approximately $430,000 per mile, or a total construction cost of approximately $23 million. Additional costs of approximately $1.5 million will be required at the Collier and Orange River substation terminals. The estimated total project costs (2003 dollars) are estimated to be approximately $24 to $25 million.

CHAPTER 2.0

# 2.0 BACKGROUND FEATURES OF THE PROPOSED CORRIDOR

## 2.1 CORRIDOR SELECTION

The preferred corridor for the FPL C-OR #3 Project was selected by a multidisciplinary team consisting of experts in land use, engineering, and the environment from the following entities:

- The consulting firm of Environmental Consulting & Technology, Inc. (ECT), and their subcontractors, Consensus Builders, Inc., McNeal Consulting Services, Inc., and Heidi Smith Communications, Inc.
- Representatives from FPL, including Environmental Services, Transmission Projects, Transmission Operations and Planning, External Affairs, Real Estate, Regulatory Affairs, and Corporate Communications, among others.
- FPL environmental and land use legal counsel, Hopping Green & Sams, PA.

The objective of the corridor selection study was to select a certifiable corridor that balances land use/socioeconomic, environmental, engineering, and cost considerations. Corridor selection methods were designed to be:

- Integrative of multidisciplinary siting criteria.
- Rational and objective in decision-making.
- Sensitive to social and environmental conditions.
- Responsive to regulatory requirements.
- Reflective of community concerns and issues.
- Capable of accurate documentation and verification.

The corridor selection process consisted of three major tasks: (1) project and study area definition, (2) resource mapping and alternative route delineation, and (3) evaluation of alternative routes and selection of the preferred corridor. A summary description of each of these major tasks is presented in the following subsections. The licensing team was assisted throughout this process by members of the public who participated in a public outreach program developed specifically for this project. This program is also summarized in Section 2.1.4.

### 2.1.1 PROJECT AND STUDY AREA DEFINITION

Chapter 1.0 of this application defined the C-OR #3 Project and addressed the need for this new line in Southwest Florida. FPL determined that a single-circuit, 230-kV transmission line on a single-pole structure is required to meet this need. The C-OR #3 Project must provide an additional electrical connection between FPL's existing Orange River substation east of Fort Myers, Lee County, to FPL's existing Collier substation, east of Naples, Collier County. Another important consideration for the C-OR #3 Project was that the new corridor should maintain independence (geographical separation) from FPL's Common Right-of-Way to the greatest extent practicable. This separation would enhance reliability of the transmission system into Southwest Florida.

Another factor significant to the C-OR #3 Project was the FPL project already underway to construct a distribution substation called Orangetree along CR 846 (Immokalee Road) northeast of the Collier substation. The Orangetree substation will be placed in service in late 2003 to serve the electric distribution needs in this developing area. It was recognized that added system benefits would be realized if the transmission line proposed for connecting to the Orangetree substation could be incorporated into the route of the C-OR #3 Project. Reliability of service to customers served from the Orangetree substation would be enhanced because electricity could be delivered to the substation along two separate paths. Without incorporating the Orangetree 230-kV transmission line into the C-OR #3 Project, a separate and additional 230-kV transmission line from the Orangetree substation would have been required to complete this loop. Moreover, incorporation of this segment of line into the C-OR #3 Project would minimize the length of new line that must be built for the C-OR #3 Project. Approximately 14 miles of additional transmission line construction could be avoided if the transmission line to Orangetree substation could be incorporated into the new route. So, it was recognized that while Orangetree is not a required intermediate substation for the C-OR #3 Project, there would be added benefits if it could be incorporated into the C-OR #3 Project.

The study area was originally delineated based on the following criteria:

- The study area must include the Orange River and Collier substations as well as the Orangetree substation. Potential approaches from all directions to all substations must be available. While it was not known at the time the study area was delineated whether the preferred corridor would incorporate any of the planned Orangetree line, the potential to incorporate a portion of this line was recognized as a siting opportunity, and this substation was included within the study area.
- The northern boundary was determined to be the Caloosahatchee River in Fort Myers, which is a natural boundary. The river is north of the Orange River substation, and it would be impractical for FPL to cross the river twice with the C-OR #3 Project.
- The western boundary was a line generally running due north along the western side of Airport-Pulling Road (CR 31) in Naples and at least 1 mile west of Interstate 75 (I-75). This western boundary allowed for potential corridors paralleling I-75 on either side but avoided extensive development farther west and provided for separation from the existing Common Right-of-Way.
- The southern boundary was an east-west line generally following State Road (SR) 84 in Naples and south of I-75. This allowed for access to the Collier substation from the south, if necessary.
- The eastern boundary was generally a north-south line 1 mile east of the Lee/Hendry County line from the Caloosahatchee River south to the southern boundary of the study area. One mile is the maximum corridor width allowed under the TLSA and allowed for a corridor to follow the county line on either side. This eastern boundary allowed opportunities to approach the Orangetree substation from any direction and provided the opportunity to minimize the crossing of conservation lands.

After analysis of the original study area had begun, a number of participants in the community outreach program suggested that FPL consider expanding the study area to include agricultural areas further east, toward Immokalee, to provide for evaluation of more

easterly route options, which could avoid the environmentally sensitive Corkscrew Swamp system. Based on those suggestions, the study area was expanded to just west of Immokalee. Figure 2.1-1 presents the final revised study area chosen for the C-OR #3 Project.

### 2.1.2 RESOURCE MAPPING AND ALTERNATIVE ROUTE DELINEATION

The objective of resource mapping was to identify various siting constraints and siting opportunities within the study area. The FPL licensing team used a technique of overlay mapping through the use of computer mapping software programs such as AutoCAD® and ArcView®. Use of computer mapping allowed the team flexibility in adding new information as it became available and modifying coverages to analyze certain opportunities or constraints. Table 2.1-1 presents a listing of the type of resources mapped. Once these resources were mapped, the team developed guidelines for identification of alternative routes. Table 2.1-2 presents these guidelines.

# IMAGE QUALITY

AS YOU REVIEW THE NEXT GROUP OF IMAGES, PLEASE NOTE THAT THE ORIGINAL DOCUMENTS WERE OF POOR QUALITY.

M:\ACAD\020965\substats\tranline

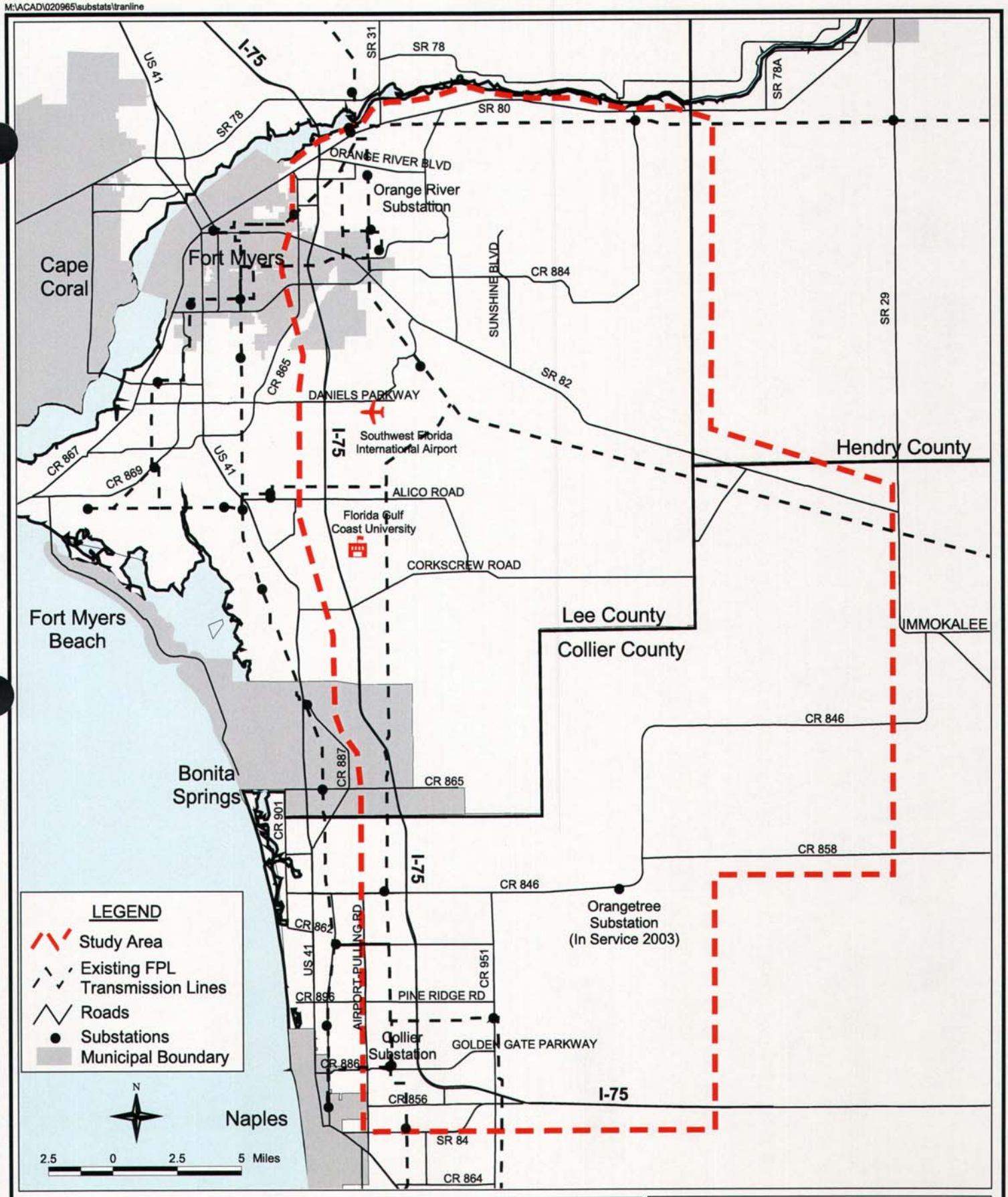



FIGURE 2.1-1.
COLLIER - ORANGE RIVER #3 230-kV TRANSMISSION LINE PROJECT STUDY AREA

Sources: FPL, 2003; ECT, 2003.

FPL

**Table 2.1-1. Study Area Resources Mapped**

| Category | Resource |
|---|---|
| Base map information | • Highways, roads, streets<br>• County boundaries<br>• City boundaries<br>• Railroads, airports<br>• Existing and proposed FPL substations<br>• Existing FPL transmission lines<br>• Water bodies, rivers, streams, canals |
| Land use information | • Existing and proposed development<br>• Planned unit developments (PUDs) and developments of regional impact (DRIs)<br>• Property boundaries<br>• Existing school properties<br>• National parks, wildlife refuges, estuarine sanctuaries, landmarks, or historical sites<br>• State parks, preserves, Areas of Critical State Concern, Conservation and Recreation Lands (CARL), Save Our Rivers (SOR) lands, aquatic preserves<br>• SFWMD-owned lands and Corkscrew Regional Ecosystem Watershed (CREW) lands<br>• Lee County 2020 lands, parks, and recreation areas, mitigation lands<br>• Collier County parks<br>• Private designated wetland mitigation areas<br>• Privately owned environmental preserves/sanctuaries |
| Environmental information | • Listed federal and state species and unique habitats, U.S. Fish and Wildlife Service (USFWS)-designated critical habitats<br>• Wetlands as delineated on USFWS National Wetlands Inventory (NWI) maps |

Source: ECT, 2003.

**Table 2.1-2. Alternative Route Identification Guidelines**

- Maximize collocation with other linear features (roads, canals, section lines, pipelines, Lee County Electric Cooperative [LCEC] transmission lines, FPL transmission lines [other than the Common Right-of-Way], etc.)
- Follow property lines where practicable
- Minimize crossing of constraints identified as a result of regional screening (e.g., environmentally sensitive lands and planned or existing development)
- Avoid airports and private airstrips consistent with Federal Aviation Administration (FAA) and other applicable regulations
- Follow disturbed alignments (ditches, roads) through wetlands, where practicable
- Minimize crossing of existing transmission lines

Source: ECT, 2003.

Based on the results of the alternative route identification, an original total of 64 route segments was identified, comprising 2,192 potential alternative route alignments. Due to certain siting complexities in the southern portion of the study area (see Section 2.1.3.1), an additional 11 alternative route segments were added. This yielded a total of 3,784 potential routes studied (Figure 2.1-2). Each of these routes was then evaluated as described in the following Section 2.1.3.

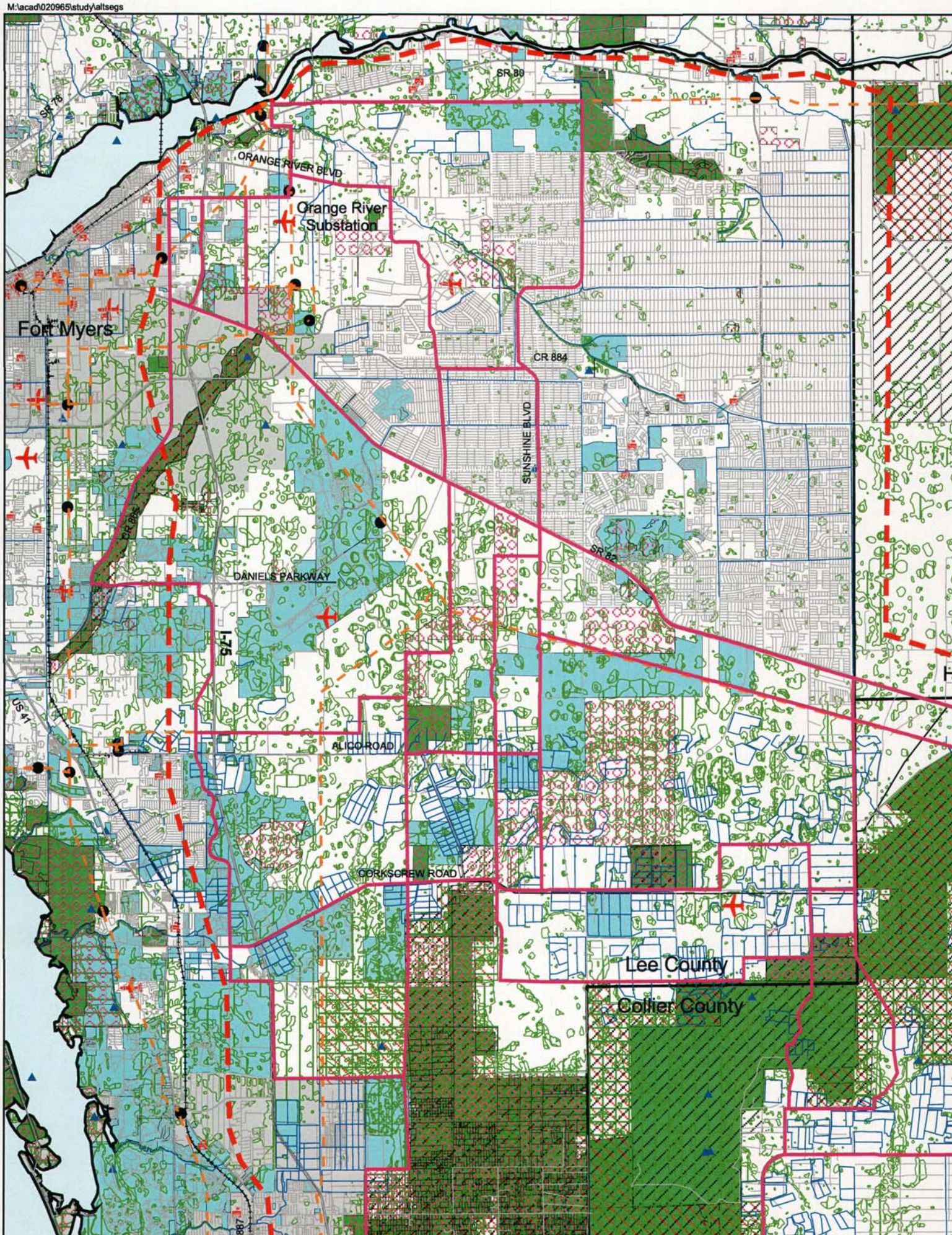
### 2.1.3 ALTERNATIVE ROUTE EVALUATION AND PREFERRED CORRIDOR SELECTION

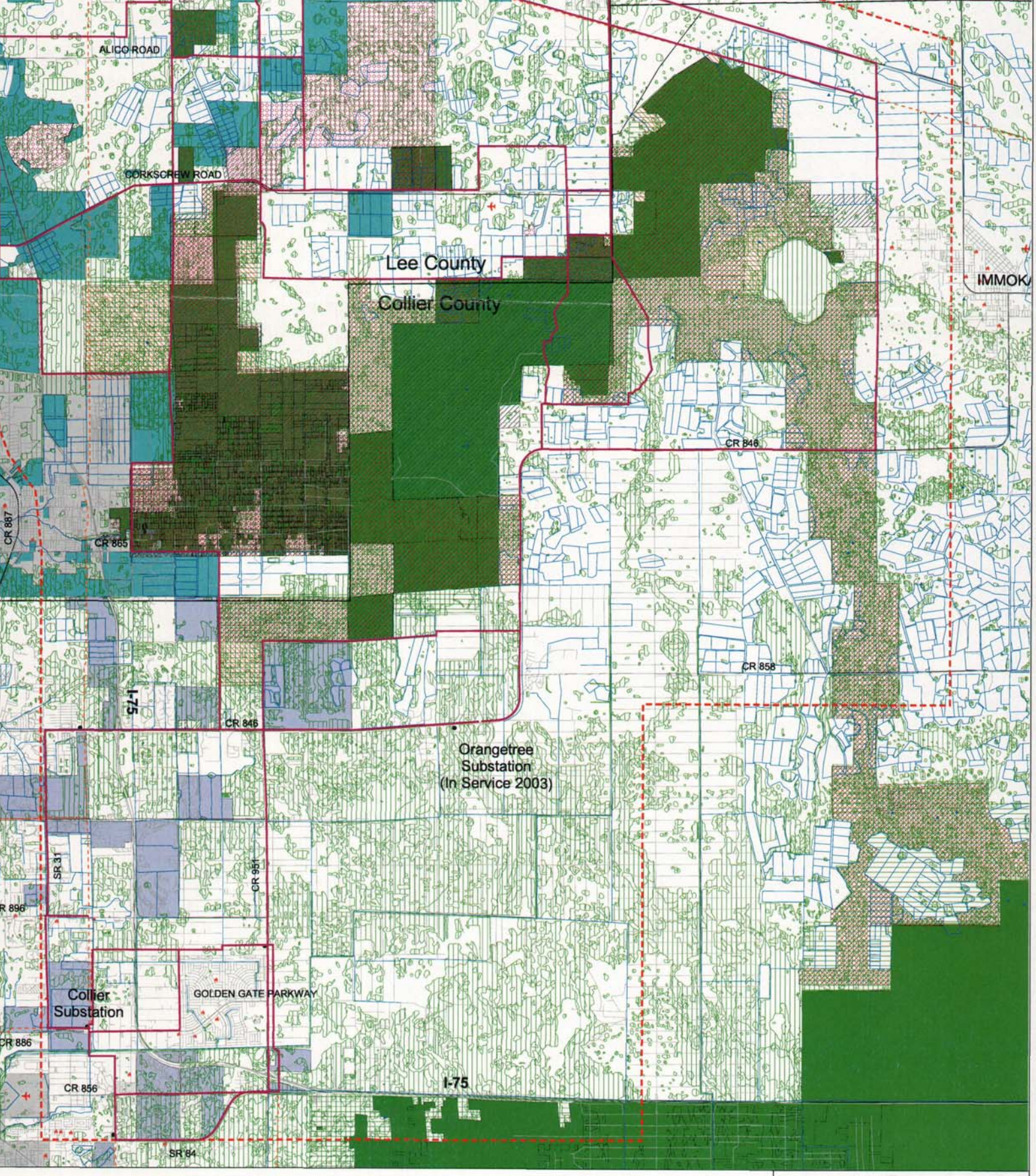
The objective of this task was to evaluate, in detail, the routes identified and ultimately select a preferred corridor.

#### 2.1.3.1 Alternative Route Evaluation

This exercise involved a systematic, quantifiable evaluation of each route segment using environmental, land use, and cost/engineering criteria. The criteria used in this evaluation are presented in Table 2.1-3. These criteria are based on application of accepted transmission line siting factors utilized on projects across Florida.

M:\acad\020965\study\altsegs






kV TRANSMISSION PROJECT REGIONAL SCREENING AND

ee County, 2003; Collier County, 2003; and ECT, 2003.

FPL

JOINT EX. # 8

**Table 2.1-3. Alternative Route Evaluation Criteria**

- Number of homes within 100 ft of the centerline of the route
- Length of forested wetlands impacted (cleared/filled)
- Length of herbaceous wetlands impacted (cleared/filled)
- Length of forested upland habitats impacted (cleared)
- Length of line through parks, recreation areas, or other designated conservation lands
- Number of school properties within 100 ft of the centerline of the route
- Length of new right-of-way required by the transmission line (i.e., where collocation with existing linear facilities is not possible)
- Number of parcels/lots crossed
- Number of eagle nests or wading bird rookeries within 0.5 mile of the centerline of the route
- Construction costs

Source: ECT, 2003.

Data used to apply these criteria came from the regional screening map data, recent digital aerial photography for the study area, input from agencies and local governments, ground surveys of routes, and input from the extensive community outreach program. Each segment was then analyzed for each of the criteria listed in Table 2.1-3, and the value for each criterion recorded by segment.

The relative weight (importance) of each criterion to be used in the alternative route evaluation was then established by a multidisciplinary team.

The routes were ranked according to their weighted composite score on all criteria with the lowest score being the best. This score represented the potential for impacting all the resources found in the vicinity of the route.

The weights and scores from the alternative route evaluation were also examined in sensitivity analyses to determine whether the ranking of the alternatives would change. Sensitivity analyses were performed to determine whether and to what extent the rank order of alternatives changed as a result of changes in criteria weights, ways of measuring crite-

ria, the number of criteria, or the introduction of a new criterion. In this way, the use of sensitivity analysis integrated well with public outreach.

The licensing team then further qualitatively evaluated the top-ranked alternatives. This evaluation included analyses of site-specific siting issues, development of preferred corridor widths, additional input from the community advisory panel (CAP), and feedback and comments received at agency meetings, community open houses, and meetings with area residents. Throughout this continuing qualitative evaluation process, the licensing team developed route options on which community input was received.

From the open houses, FPL learned that the short segment of the C-OR #3 Project that would connect from the end of the Orangetree transmission line to the Collier substation had several qualitative issues to resolve. Foremost was the fact that many of the roadways FPL was following with proposed routes were scheduled for widening projects. Many of the projects were on different schedules than FPL's C-OR #3 Project, and property acquisition was not complete, thus presenting difficulties in determining an appropriate location for the C-OR #3 Project. Because of this, additional routes were identified in this area and received the same quantitative and qualitative analysis as the other routes. Qualitative criteria used to evaluate routes included:

- Ability to collocate within existing road or transmission/distribution line rights-of-way.
- Setbacks from homes or schools.
- Crossing of roads or other transmission lines.
- Potential compatibility with proposed road widening projects.

FPL presented an alignment for its preferred route to the public and received substantial negative feedback from the community on the southern segment of the proposed route that connected the Orangetree line to the Collier substation. Like the rest of the C-OR #3 Project, this segment was proposed to maintain a geographic separation from the existing Common Right-of-Way. As a result of this community feedback, the licensing team continued to qualitatively evaluate the appropriate balance between the land use and cost considerations and the benefits of geographic separation in the approximately 2-mile

segment of the Common Right-of-Way immediately north of the Collier substation. Additional analysis showed that reliability of electric service to FPL's customers in Southwest Florida would be within reasonable limits if the southernmost 2-mile segment of the C-OR #3 Project was located within the Common Right-of-Way, as distinguished from the reliability concerns associated with its placement in the northern and central portions of the Common Right-of-Way. It was determined that, on balance, locating the C-OR #3 Project on the southernmost approximately 2-mile segment of the existing Common Right-of-Way would be appropriate.

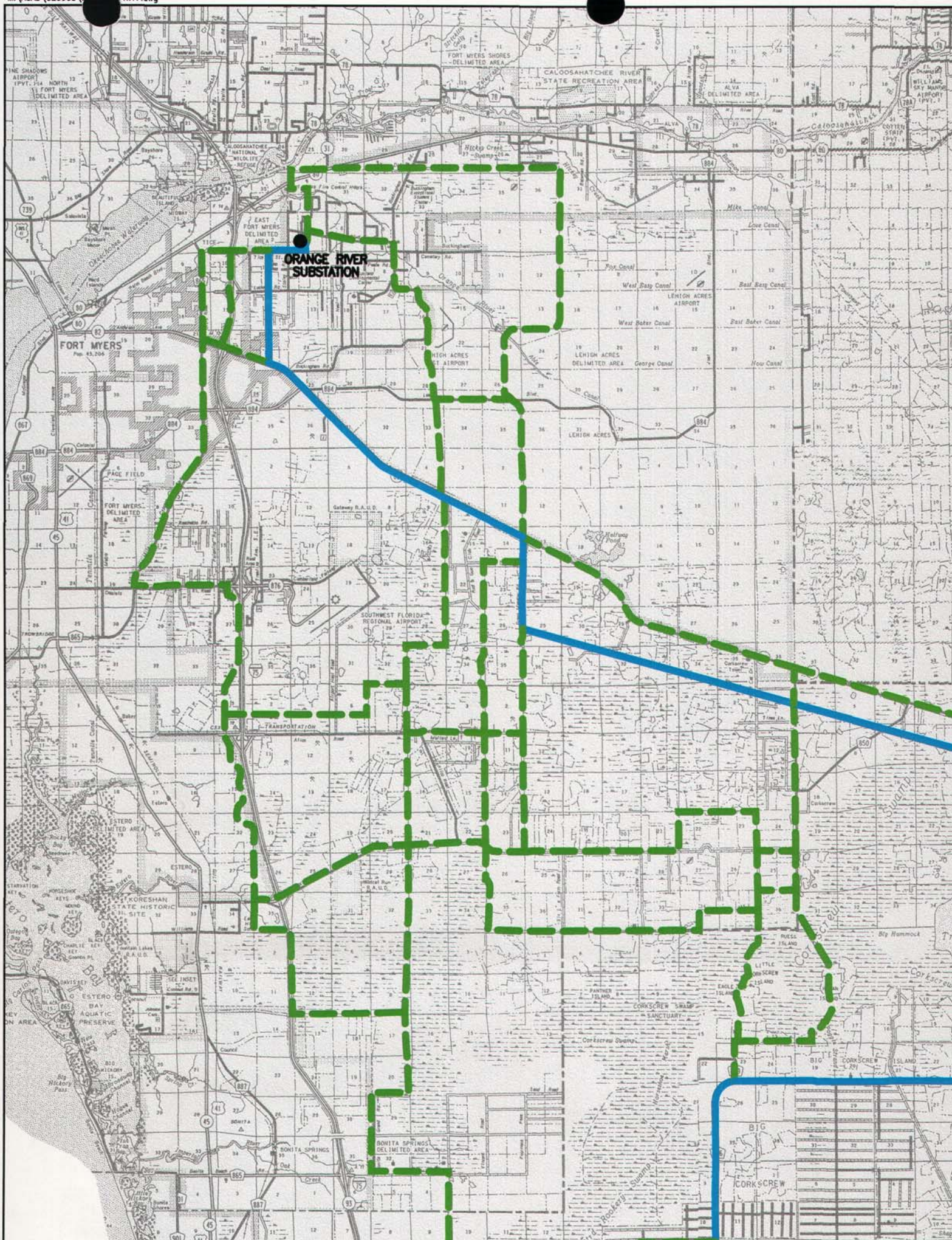
Figure 2.1-3 presents a map showing the routes evaluated for the C-OR #3 Project. After evaluation of the identified routes in this area and significant public input, a preferred route for certification was selected (see Figure 2.1-3).

Finally, certain minor modifications were made to the route to improve its suitability. In anticipation of preparing this application, the corridor was either widened or narrowed in certain areas to give FPL an appropriate amount of flexibility in accommodating site-specific constraints or taking advantage of certain opportunities. The preferred corridor is shown on recent aerial photographs at a scale of 1:24,000 in Attachment 2-1 at the end of this chapter. Through ground truthing, the project team verified that data contained on the aerial photographs are representative of the route area and current within 12 months of filing.

#### 2.1.3.2 Preferred Corridor Description

Approximately 95 percent of the preferred corridor will provide collocation opportunities with existing transmission line or road rights-of-way. The minimum corridor width proposed is 100 ft, while the maximum is 2,600 ft. Generally the preferred corridor width ranges from 100 to 500 ft. The widest corridor segment is proposed in an area near the Orange River substation where the existing Strayhorn Ranch Airport to the south requires FPL to have flexibility in meeting FAA and Lee County tall structure clearances for airports.

M:\ACAD\020965\D 11x17.dwg



The design of the proposed transmission line will allow construction adjacent to existing roadways. Where sharing of existing road or transmission line rights-of-way can occur, this reduces land requirements of the C-OR #3 Project, minimizes the need for new access roads, follows existing linear features in the landscape, and thereby minimizes environmental, land use, and engineering cost impacts. Consequently, the opportunity to collocate with existing rights-of-way was a significant criterion in selecting the preferred corridor.

The following describes the preferred corridor starting at the Orange River substation and proceeding south to the Collier substation.

**Orange River Substation to SR 82**

The preferred corridor exits the substation to the west generally paralleling Homestead Lane/Tice Street. In this area, the corridor is approximately 2,600 ft wide and is located north of the existing road. This width allows FPL flexibility in meeting necessary tall structure clearances from Strayhorn Ranch Airport south of Homestead Lane. Approximately 1 mile west of the substation, the corridor turns south and will be located on an existing FPL transmission line right-of-way all the way to SR 82, a distance of approximately 3 miles. In this area, the corridor encompasses the existing FPL right-of-way, which is 100 ft wide or 160 ft wide.

**SR 82 to Sunshine Boulevard**

The preferred corridor will parallel and include both sides of SR 82 to its intersection with Sunshine Boulevard, a distance of a total of approximately 7.5 miles. This corridor section is generally 500 ft wide along SR 82 to allow the possibility of utilizing either side of FDOT's right-of-way.

Along this section at the intersection with FPL's Common Right-of-Way between Buckingham Road and Colonial Boulevard/Lee Boulevard (CR 884), the corridor contains a lateral segment that traverses due east along Buckingham Road from the existing Common Right-of-Way. This segment extends along Buckingham Road approximately

2,500 ft to a section line and then traverses south along the west side of the section line to SR 82 again. This section of the corridor is 400 ft wide.

This section's configuration allows for a line *swap* to help meet FPL's separation criteria from the Common Right-of-Way. A line swap is a construction configuration of two intersecting transmission lines in such a way that they do not cross each other. Figure 2.1-4 depicts a schematic diagram of a conceptual line swap.

**SR 82/Sunshine Boulevard Intersection to FPL's 500-kV Transmission Line Right-of-Way**

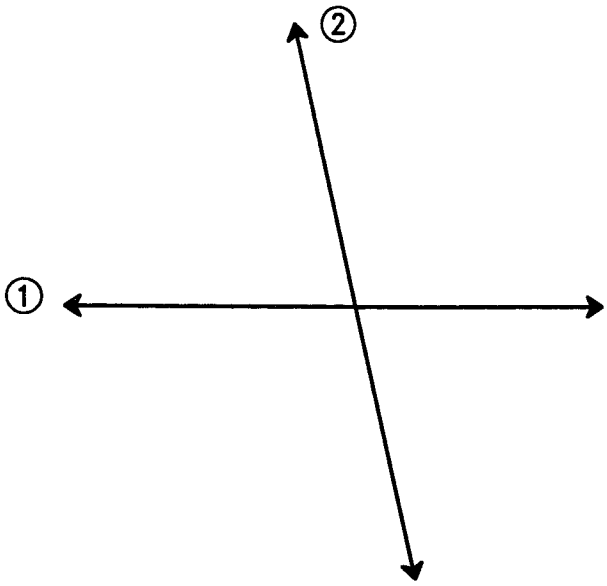
This approximately 2-mile section of the preferred corridor is centered on an existing private road (Green Meadows Road). A new right-of-way will be required here. The corridor follows a gravel road due south in this section and is proposed to be 200 ft wide to allow flexibility in right-of-way placement on either side of that road.

**FPL 500-kV Transmission Line Right-of-Way**

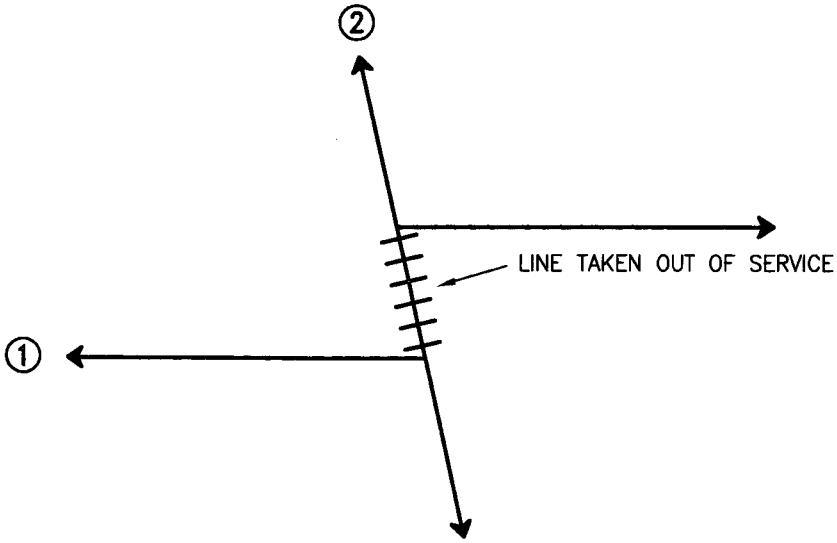
The preferred corridor turns southeastward at the existing 500-kV transmission line right-of-way. This right-of-way is 330 ft wide and contains the FPL Andytown-Orange River 500-kV transmission line. The preferred corridor is 400 ft wide to include the existing FPL easement plus 70 ft to the north for this approximately 13-mile section of the route.

**FPL 500-kV Transmission Line Right-of-Way to Immokalee Road (CR 846)**

Approximately 2 miles west of the intersection of SR 82 and SR 29, the corridor turns south following section lines and an existing LCEC 138-kV transmission line for approximately 6 miles south. Approximately 2 miles north of Immokalee Road (CR 846), the LCEC right-of-way turns east and the preferred corridor continues south to Immokalee Road. This section of the corridor lies approximately 2 miles west of the town of Immokalee. The LCEC transmission right-of-way is approximately 100 ft wide in this vicinity. FPL's preferred corridor width along this segment is 200 to 300 ft when following the LCEC line (the narrow width occurs to avoid existing development north of Lake Trafford Road). The corridor expands to 500 ft wide for the last 2 miles of this section, where the LCEC right-of-way is not available to parallel.




TRANSMISSION LINE 1 CROSSING TRANSMISSION LINE 2




TRANSMISSION LINE 1 "SWAPPED" WITH TRANSMISSION LINE 2
THE TWO LINES DO NOT CROSS.

FIGURE 2.1-4.

CONCEPTUAL LINE SWAP - SCHEMATIC

**Source: FPL, 2003.**

FPL

**Immokalee Road to Orangetree Substation**

The preferred corridor follows the Immokalee Road (CR 846) alignment, turning west, south, and west again for 15 miles to the Orangetree substation location. For most of this stretch, the corridor is proposed to be 400 ft wide centered along Immokalee Road, allowing collocation along the road right-of-way. At a point approximately 2 miles northeast of the Orangetree substation, while the corridor continues to include both sides of Immokalee Road, it is narrowed on the east side to exclude developing areas. In this area, the corridor remains at a width of 300 ft to allow FPL flexibility in entering the substation property.

**Utilization of a Planned 230-kV Transmission Line from the Orangetree Substation to FPL Common Right-of-Way (2003 in-service; not part of this certification)**

The 14-mile Orangetree 230-kV line, scheduled to be in service by the end of 2003, will be incorporated into the C-OR #3 Project. Certification is not being sought for this segment of the line.

The Orangetree transmission line that will be incorporated into the C-OR #3 Project exits the Orangetree substation and follows Immokalee Road westward approximately 5 miles to CR 951 along the north side of the Immokalee Road right-of-way.

The Orangetree line then turns south at CR 951 and follows CR 951 southward for approximately 4.5 miles. Just north of Green Boulevard, the line turns west following an existing FPL transmission right-of-way for approximately 4 miles to the FPL Common Right-of-Way, where it connects to an existing transmission line.

**New Line Segment from the Existing FPL Right-of-Way to Collier Substation**

The final portion of the preferred corridor for which FPL is seeking certification is an approximately 2-mile segment within the existing FPL Common Right-of-Way adjacent to Livingston Road from the tie-in of the Orangetree line to the Collier substation. This section of corridor is proposed to be 250 ft wide and is wholly contained within FPL's existing 405-ft wide Common Right-of-Way. The corridor follows the west side of Livingston Road. FPL proposes to build the C-OR #3 Project within the easternmost 250 ft of the available existing easement.

### 2.1.4 COMMUNITY OUTREACH PROGRAM

Considerable effort was made by FPL to inform and involve the public during the corridor selection process. FPL used direct mail, open house public meetings, newspaper advertisements, a C-OR #3 Project web page, and a toll-free telephone number to share information and provide an opportunity for interested persons to learn more about the C-OR #3 Project and express their views.

Initially, information was mailed to nearly 29,000 households and businesses in the C-OR #3 Project study area. Included in the initial mailing was a letter, fact sheet, map of the study area, questionnaire, and postage paid envelope for returning the questionnaire. More than 1,500 people completed and returned the questionnaire. Through those responses, FPL's Project team was able to learn which of the route selection criteria the respondents thought were more important. The questionnaire also generated information on respondents' concerns and ways FPL might address their concerns.

Three open houses were held, one in the Lehigh Acres area of Lee County and two in the Naples area. These open houses were attended by more than 200 people. During the open houses, visitors were able to talk directly with members of the FPL Project team, learn about the C-OR #3 Project and the routes that were being considered, view maps and aerial photographs of the routes being evaluated, ask questions, review information provided about the C-OR #3 Project and FPL on display boards and in brochures, and express their views. A total of 86 people filled out comment forms at the open houses. FPL staff also made notes of their conversations with visitors so comments, information, and suggestions as well as questions could be recorded and shared with all C-OR #3 Project team members.

In addition, FPL formed a community advisory panel (CAP) consisting of 24 citizens from both Lee and Collier Counties to assist in the routing of the proposed new transmission line. The CAP was asked to share their knowledge of the community and their perspectives to help the FPL team find a preferred route, suggest ideas for appropriately minimizing impacts of the C-OR #3 Project, and make recommendations on effective

ways to communicate with the community. Panel members were drawn from a wide range of neighborhood and community groups and institutions. They met three times between January and March 2003 to learn about FPL's plans and to share their views. Appendix B contains the CAP description.

FPL representatives also met with numerous community groups, homeowner associations, and property owners upon request to discuss the C-OR #3 Project routing analysis.

Numerous local, state, and federal agency contacts were made throughout the corridor selection process to not only collect relevant data and maps but to seek input on route selection issues. Appendix C provides a list of agency contacts for the C-OR #3 Project.

The FPL Project team incorporated what they learned through the community outreach program into the corridor selection. Members of the public who participated through the various components of the program were able to suggest the following to the FPL Project team:

- Places to consider or avoid in routing.
- Other linear facilities to consider for collocation with the transmission line.
- Which evaluation criteria should be treated as more important.
- Specific routes to evaluate.
- Unique or important features or characteristics of the study area, consideration of which should be given in route selection.
- Ways to effectively communicate with the public regarding the C-OR #3 Project.

## 2.2 SOCIO-POLITICAL ENVIRONMENT OF THE CORRIDOR AREA

### 2.2.1 GOVERNMENTAL JURISDICTIONS

The preferred corridor is located in Lee and Collier Counties and also crosses a small portion of the city of Fort Myers. Attachments 2-2 and 2-3 depict the current city boundaries for Fort Myers where crossed by the preferred corridor. Figure 2.2-1 shows the preferred corridor at a scale of 1:126,720 or 1 inch equals 2 miles in relation to other governmental jurisdictions within 0.5 mile of the edge of the preferred corridor. As the

M:\ACAD\020965\DOT\GovermentJurisd.dwg

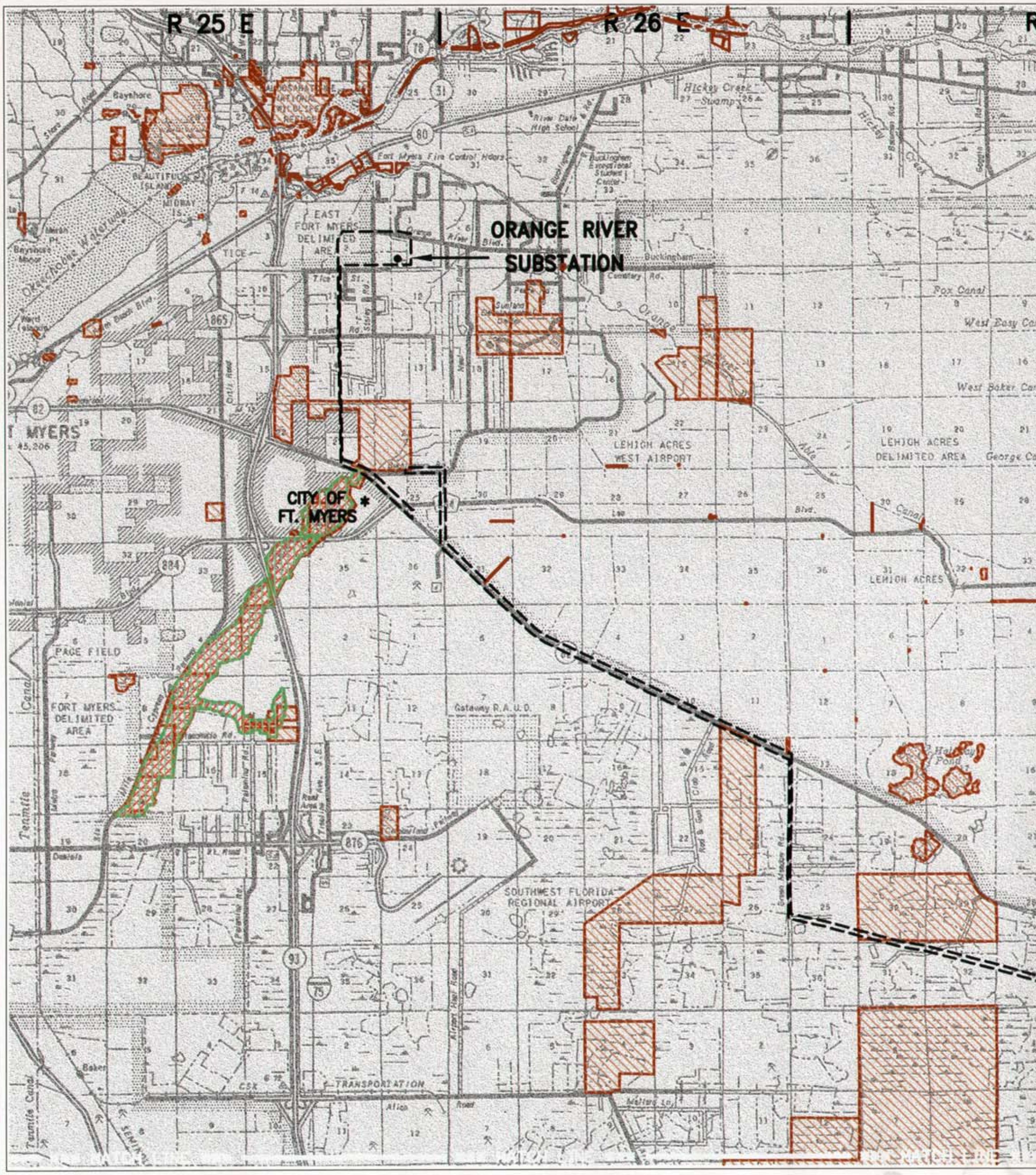



FIGURE 2.2-1. (1 OF 3)

GOVERNMENTAL JURISDICTIONS

*NOTE : UPDATED CITY BOUNDARIES OF FT. MYERS AND NAPLES CAN BE FOUND ON ZONING MAPS IN ATTACHMENT 2–3.

Sources: DOT, Lee County, August, 1989, and Collier County, October, 1993; Lee County, 2002; SFWMD, 2002; FNAI, 2003; ECT, 2003.

M:\ACAD\020965\DOT\GovermentJurisd.dwg

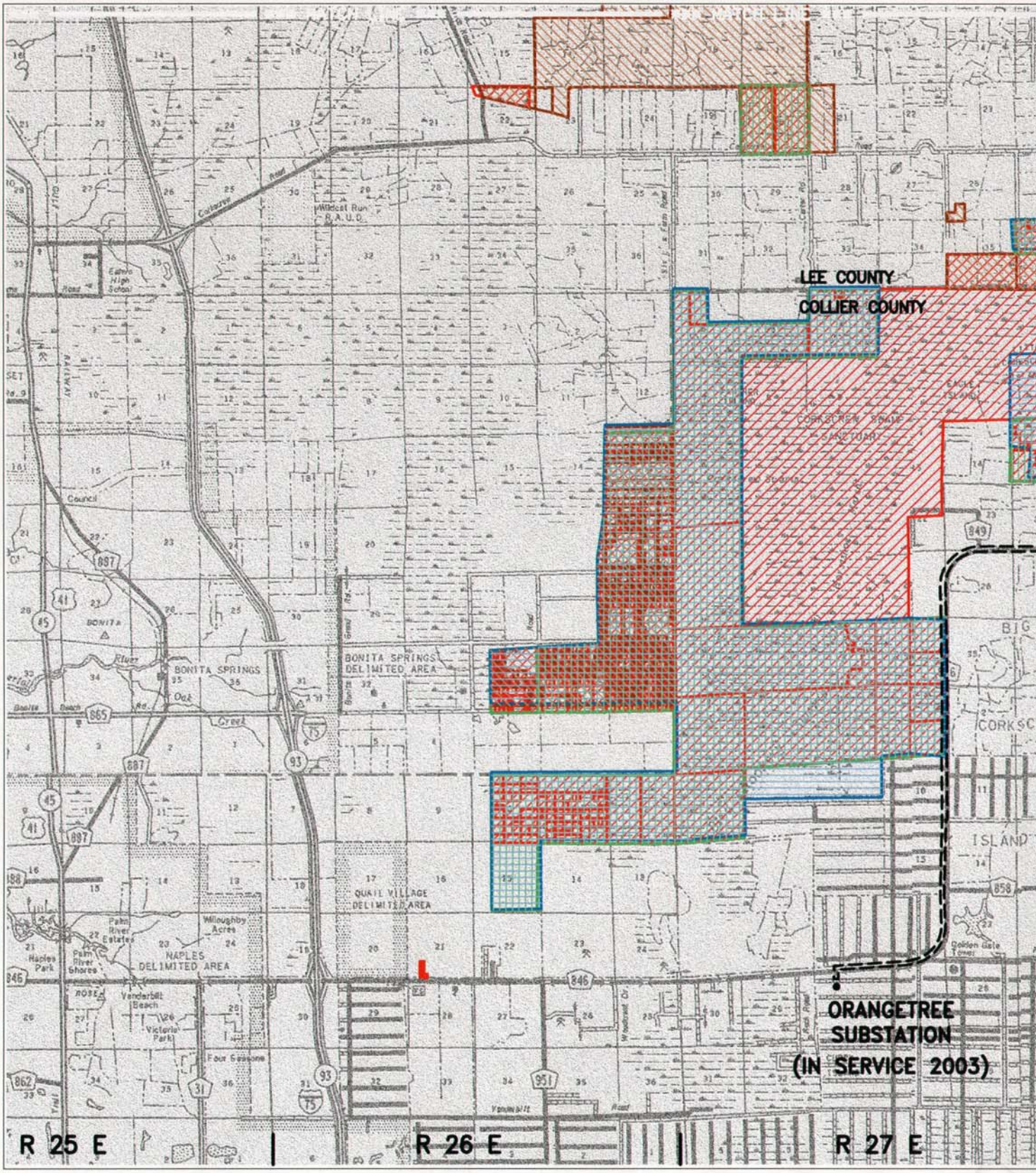



FIGURE 2.2-1. (2 OF 3)

GOVERNMENTAL JURISDICTIONS

Sources: DOT, Lee County, August, 1989, and Collier County, October, 1993; Lee County, 2002; SFWMD, 2002; FNAI, 2003; ECT, 2003.

M:\ACAD\020965\DOT\GovermentJurisd.dwg

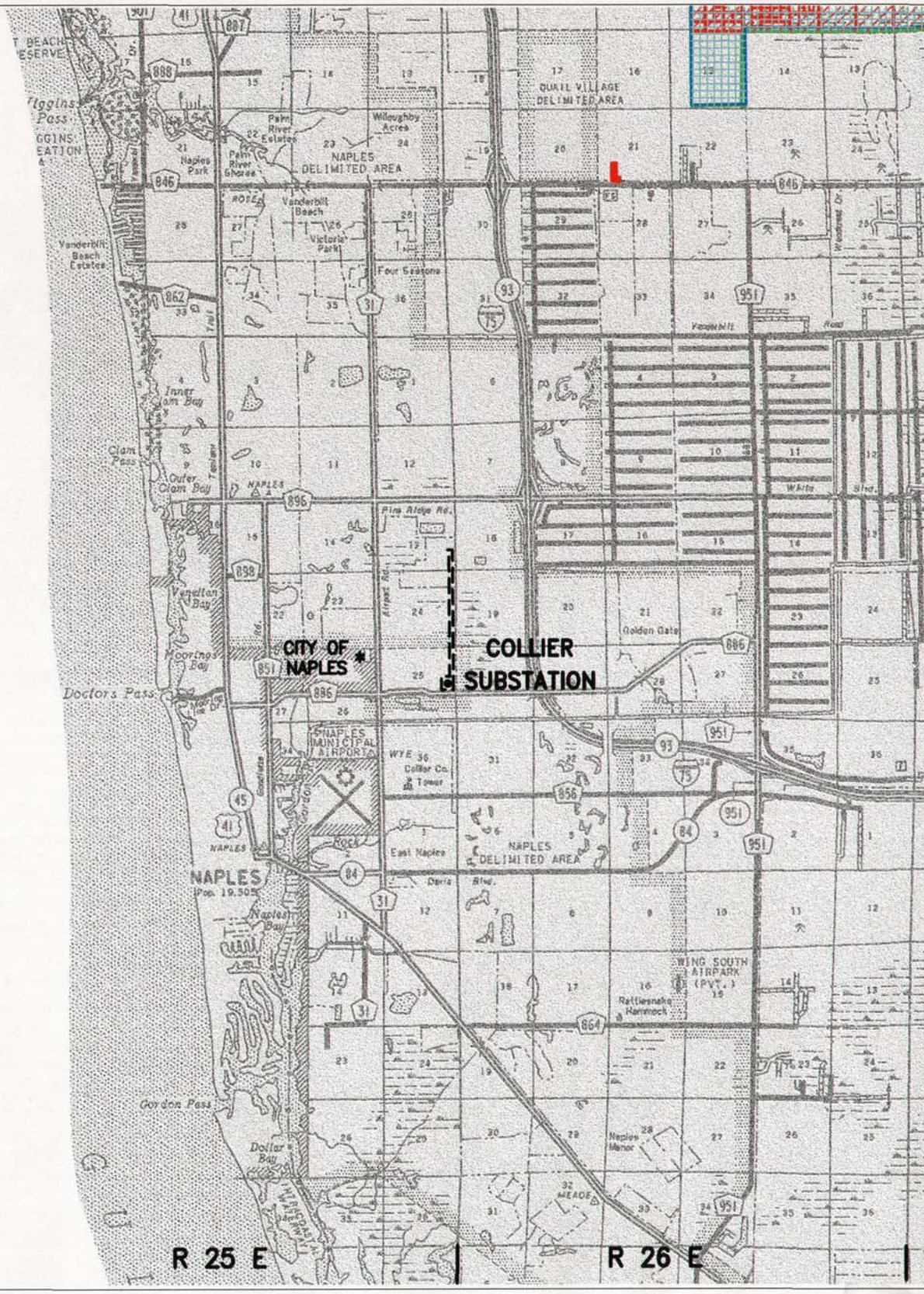



FIGURE 2.2-1. (3 OF 3)

GOVERNMENTAL JURISDICTIONS

*NOTE : UPDATED CITY BOUNDARIES OF FT. MYERS AND NAPLES CAN BE FOUND ON ZONING MAPS IN ATTACHMENT 2–3.

Sources: DOT, Lee County, August, 1989, and Collier County, October, 1993; Lee County, 2002; SFWMD, 2002; FNAI, 2003; ECT, 2003.

corridor leaves the Orange River substation and goes south toward the Collier substation, it comes within 0.5 mile of the following existing or proposed conservation lands:

- SFWMD-Owned Lands—These include lands associated with the Corkscrew Swamp system and are found in the following locations:
  - Along the south side of FPL's existing Andytown-Orange River 500-kV transmission right-of-way.
  - Along the north and south sides of Lake Trafford Road in the Immokalee area.
  - Along Immokalee Road where the preferred corridor intersects it and turns westward.
  - Bird Rookery Swamp along the west side of Immokalee Road northeast of the Orangetree substation.
- Lee County 2020 Lands—Several of these designations occur along the preferred corridor and include the following:
  - Lands on both sides of FPL's existing 138-kV transmission right-of-way from Homestead Lane to SR 82.
  - Lands associated with Six-Mile Cypress Slough Preserve south of SR 82.
  - Lands on both sides of the preferred corridor along SR 82 and Green Meadows Road.
  - Lands both north and south of FPL's existing Andytown-Orange River 500-kV transmission line right-of-way.
- SOR Lands—These existing or proposed designations are found in the following locations:
  - Along the Six-Mile Cypress Slough Preserve south of SR 82.
  - Associated with Corkscrew Swamp just south of FPL's existing Andytown-Orange River 500-kV transmission line.
  - Associated with Corkscrew Swamp south of Lake Trafford Road in the Immokalee area.
  - Associated with Corkscrew Swamp where the preferred corridor intersects Immokalee Road and turns westward.

  - Associated with Bird Rookery Swamp located west of Immokalee Road and northeast of the Orangetree substation area.
- Florida Forever Lands—These are found in the following locations:
  - Associated with the Corkscrew Swamp system south of FPL's existing Andytown-Orange River 500-kV transmission line.
  - Associated with Corkscrew Swamp west of the corridor and south of Lake Trafford Road in the Immokalee area.
  - Associated with the Corkscrew Swamp where the preferred corridor intersects Immokalee Road and turns westward.
  - Associated with Bird Rookery Swamp west of Immokalee Road and northeast of the Orangetree substation area.

The following federal, state, and local jurisdictional areas were researched, and none were found to occur within 0.5 mile of the edge of the preferred corridor:

- National parks.
- National forests.
- National wildlife refuges.
- National seashores.
- National wilderness areas.
- National memorials.
- National monuments.
- Properties in the national register of historic places.
- Natural landmarks.
- Marine sanctuaries.
- Roadless area review and evaluation (RARE) areas.
- State parks.
- State forests.
- Areas of critical state concern.
- State archaeological landmarks.
- State aquatic preserves.
- Indian reservations.
- Military installations.

## 2.2.2 ZONING AND LAND USE PLANS

### 2.2.2.1 Land Use Plans

The preferred corridor crosses a part of the city of Fort Myers and unincorporated areas of Lee and Collier Counties. The Local Government Comprehensive Planning and Land Development Regulation Act of 1985 (Chapter 163, F.S.) requires all counties and municipalities within the state to prepare comprehensive plans. Attachment 2-2 at the end of this chapter shows the location of the preferred corridor in relation to the adopted land

use plans of the three local governments affected. Appendix D contains reproductions of relevant portions of the two counties' and city of Fort Myers future land use maps.

Due to differences in the electronic format of maps in Collier County, it was not possible to show only those portions of the Collier County future land use map included in the preferred corridor. Not all the categories in the legend on Attachment 2-2 for Collier County are actually included in the preferred corridor, but are provided to help the reader understand what is shown. Also, the boundaries of the preferred corridor shown in relation to the boundaries of future land use categories, as shown on the maps in Attachment 2-2, are approximate. For an accurate understanding of the location of the preferred corridor in relation to existing features, see the aerial photographs in Attachment 2-1 and the preferred corridor description in Section 2.1.3.2.

The following lists the future land use categories crossed by the preferred corridor:

- **Lee County**:
  - Future urban areas:
    - > Central urban.
    - > Urban community.
    - > Outlying suburban.
    - > Industrial development.
    - > Public facilities.
  - New community:
    - > New community.
  - Non-urban areas:
    - > Rural community preserve.
    - > Density reduction/ground water resource.
  - Wetlands:
    - > Wetlands.
- **Collier County**:
  - Urban designations:
    - > Mixed use district:
      - — Urban residential subdistrict.

> Urban commercial district:

— Mixed use activity center subdistrict.
— Livingston Road/Eatonwood Lane Commercial Infill Subdistrict.
— Livingston Road Commercial Infill Subdistrict.

- Agricultural/rural designation:

> Agricultural/rural mixed use district:
> Rural settlement area district.

- Estates designation.
- Immokalee area master plan:

> Residential designation:

— Low residential district.

- **City of Fort Myers**:
  - Low-density single-family, A.
  - Mixed use, M.U.
  - General commercial, B-1.
  - Intensive commercial, B-2.
  - Recreation and Open Space, REC.

Descriptions of the future land use categories crossed by the corridor in the three jurisdictions are provided in the following subsections.

**Lee County**

- Future Urban Areas:
  - Central Urban—This future land use category is best described as areas of the urban core of the county and includes a portion of Lehigh Acres. These areas are most heavily settled and have or will have the greatest range and highest levels of urban service—water, sewer, roads, schools, etc. Residential, commercial, public and quasi-public, and limited light industrial land uses will continue to predominate in the Central Urban area. This category has a standard density range from four dwelling units per acre to 10 dwelling units per acre, and a maximum density of 15 dwelling units per acre.
  - Urban Community—This category is best characterized by a mixture of relatively intense commercial and residential uses. Included among

them are parts of Lehigh Acres. They have a distinctly urban character and should be developed at slightly lower densities. Predominant land uses will be residential, commercial, public and quasi-public, and limited light industry. Standard density ranges from one dwelling unit per acre to six dwelling units per acre, with a maximum of 10 dwelling units per acre.

- Outlying Suburban—This land use category is characterized by its peripheral location in relation to established urban areas. In general, these areas are rural in nature or contain existing low-density development. Some, but not all, have the requisite infrastructure for higher density development in planning or in place. Higher densities, commercial development greater than neighborhood centers, and industrial land uses are not permitted. The standard density range is one dwelling unit per acre to three dwelling units per acre. Bonus densities are not allowed. In the outlying area in North Fort Myers east of I-75 and in the Buckingham area, the maximum density permitted is two dwelling units per acre.
- Industrial Development—These areas play an important role in strengthening the county's economic base and will become increasingly important as the county grows in size and urban complexity. To a great extent, these are the areas to which Lee County must look for expanded job opportunities, investments and production opportunities, and a balanced and sufficient tax base. These areas have special location requirements that are more stringent than those for residential areas, including transportation needs; industrial levels of water, sewer, fire protection and other urban services; and locations that are convenient for employees to reach. Industrial areas are to be reserved mainly for industrial uses, manufacturing, research, properly buffered recreational uses, and office complexes specifically related to industrial uses. New mineral extraction activities and fill dirt operations must be approved through the industrial planned development process.

Retail or wholesale sale of products manufactured or processed on the premises may be allowed at a ratio of 1 square foot ($ft^2$) of commercial uses to 10 $ft^2$ of industrial use in association with a planned development. Ancillary minor retail commercial uses intended to support the surrounding industrial land uses may not exceed 30,000 $ft^2$ per development and, at build out, may not exceed more than 10 percent of the total acreage of the lands designated Industrial Development areas in each community. Residential uses other than bona fide caretaker residences are not permitted in the category, except as provided in Chapter XIII of the comprehensive plan.

- Public Facilities—These areas include publicly owned lands within the county such as public schools, parks, airports, and other governmental facilities. The allowable uses within these areas are determined by the entity owning each such parcel and the local government having zoning and permitting jurisdiction.

- New Community:
  - New Community—This designation is for areas that are suitable for development of large-scale multiuse communities developed pursuant to an overall master plan. This category is also considered a Future Urban area. These lands are capable of being planned as a cohesive unit to achieve better conservation of environmental resources and initiate area-wide surface water management. They must be located such that the major impacts of the development are internalized and/or alleviated by infrastructure that exists or will be funded privately. New Community areas will be developed as freestanding economic units and will not impose negative impacts on the county. Residential density will not exceed six dwelling units per gross acre and must have at least the following characteristics:
    - The land will be developed under a cohesive master plan.
    - Expenses for facilities or services will be internalized through a special taxing district.

> Population, recreation, open space, educational, office, and research facilities are distributed in an orderly and attractive manner.
> Environmentally sensitive lands are protected.
> The development is free-standing with a range of land uses (e.g., a full mix of housing types for a range of household incomes, industrial and office employment centers, and community facilities such as fire departments, schools, law enforcement officers, public recreation areas, health care facilities, and community commercial areas).
> Offsite impacts must be mitigated.
> Onsite levels of service must meet the countywide standards contained in the comprehensive land use plan.

- Non-Urban Areas:
  - Rural Community Preserve—These areas were established following special studies of Lee County's intact rural communities. Special design approaches are to be used within these areas to maintain the existing rural character. These areas are not to be programmed to receive urban type capital improvements. Lands within this category are not intended to be converted to Future Urban areas. They are to remain permanently rural in character and use. They are restricted to low-density residential uses, agricultural uses, and minimal nonresidential uses that are needed to serve the rural community. Maximum density is one dwelling unit per acre.

    The preferred corridor specifically crosses the Buckingham Community Preserve, which is intended to manage the future growth in the Buckingham area, preserve the existing agricultural land use pattern, diversify the choice of housing for Lee County by maintaining and enhancing the historic rural character, and protect the unique historical and environmental values of the Buckingham community. The land use designation is Rural Community Preserve, with Public Facilities designated as appropriate. No land will be changed to a more intense

land use than Rural Community Preserve, including Public Facilities, unless a finding of overriding public necessity is determined by the Board of County Commissioners.

- Density Reduction/Groundwater Resource—These areas include upland areas that provide substantial recharge to the aquifers most suitable for future well field development. They also are the most favorable locations for physical withdrawal of water from those aquifers. Only minimal public facilities exist or are programmed. Land uses must be compatible with maintaining surface and ground water levels at their historic levels. Permitted land uses include agriculture, mineral or limestone extraction and related activities, conservation uses, public-owned gun range facilities, private recreational facilities, and residential uses at a maximum density of one dwelling unit per 10 acres. Individual residential parcels may contain up to 2 acres of wetlands without losing the right to have a dwelling unit, provided that no alterations are made to those wetland areas.

- Wetlands:
  - Wetlands—Wetlands are designated on the FLUM as those lands identified as Wetlands in accordance with Section 373.019(17), F.S., through the use of the unified state delineation methodology described in Chapter 17-340, Florida Administrative Code (F.A.C.), as ratified and amended in Section 373.4211, F.S. Permitted uses consist of very low-density residential uses and recreational uses that will not adversely affect the ecological functions of wetlands. All development in Wetlands must be consistent with Goal 84 of the comprehensive plan. The maximum density is one dwelling unit per 20 acres except as otherwise provided in Table 1(a) and Chapter XIII of the comprehensive plan.

**Collier County**

I. **Urban Designations**—The Urban Designated areas will accommodate the majority of population growth and the new intensive land uses to be located

within them. These areas include residential uses and a variety of nonresidential uses. The Urban Designated area, which includes Immokalee and Marco Island, represents less than 10 percent of Collier County's land area.

- Mixed Use—This district represents approximately 116,000 acres and is intended to accommodate a variety of residential and nonresidential uses, including mixed–use developments such as PUDs. Certain industrial and commercial uses are also allowed subject to criteria:
  - Urban Residential—The purpose of this subdistrict is to provide for higher densities in an area with fewer natural resource constraints and where existing and planned public facilities are concentrated. This subdistrict comprises approximately 93,000 acres and 80 percent of the Urban Mixed Use district. Maximum eligible residential density shall be determined through the Density Rating System (DRS), but shall not exceed 16 dwelling units per acre except in accordance with the Transfer of Development Rights Section of the Land Development Code (LDC).
- Urban Commercial—This district is intended to accommodate new commercial zoning; a variety of residential uses, including higher densities for properties not located within the Urban Coastal Fringe or Urban Residential Fringe subdistricts; and a variety of nonresidential uses:
  - Mixed Use Activity Center—This concept is designed to concentrate new commercial zoning in locations where traffic impacts can readily be accommodated, avoid strip and disorganized patterns of commercial development, and create focal points within the community. There are 19 centers that comprise approximately 3,000 acres. The mix of land uses includes a full array of commercial uses, residential uses, institutional uses, and hotel/motel uses at a density consistent with the LDC.
  - Livingston Road/Eatonwood Lane Commercial Infill Subdistrict—This subdistrict consists of 12.5 acres located on the west side of Livingston Road, south of Pine Ridge Road, and north of

Eatonwood Lane. It allows professional and medical offices and indoor self-storage facilities to serve surrounding residential areas within a convenient travel distance to the subject property. The maximum allowed development intensities include 91,000 ft2 of professional or medical office use in buildings containing maximum height of 35 ft or 200,000 ft2 of indoor self-storage.

- Livingston Road Commercial Infill Subdistrict—This subdistrict consists of 6 acres located on the west side of Livingston Road and south of Eatonwood Lane. It allows professional and medical offices to serve surrounding residential areas within a convenient travel distance to the subject property. Noncommercial indoor storage by occupants of the buildings is also a permitted use. The subdistrict is designed to be compatible with neighboring commercial and residential uses through development standards and other considerations. The maximum allowed development intensities include a maximum of 52,500 ft2 of professional or medical office use in buildings containing a maximum of three stories, which could include two stories over parking, and a maximum height of 50 ft.

II. **Agricultural/Rural Designation**—The Agricultural/Rural land use designation is for those areas that are remote from the existing development pattern, lack public facilities and services, are environmentally sensitive, or are in agricultural production. Urbanization is not promoted, and most allowable land uses are of low density to maintain the rural character of the area. While commercial and industrial development is prohibited, electric transmission and distribution facilities are expressly allowed.

- Agricultural/Rural Mixed Use—The purpose of this district is to protect and encourage agricultural activities, conserve and preserve environmentally sensitive areas, and provide for low-density residential development and other uses identified under the Agricultural/Rural designation. These services generally lack public facilities and ser-

vices. Urbanization is not promoted; therefore, most allowable land uses are of low intensity in an effort to maintain and promote the rural character of these lands. Residential uses are allowed as listed in the following:

- Low-density residential dwelling units, at a maximum of one dwelling unit per 5 gross acres.
- Dormitories, duplexes, and other types of staff housing as may be incidental and in support of conservation uses.
- Group housing uses subject to the following density/intensity limitations:
  - Family care facilities: one unit per 5 acres.
  - Group care facilities: maximum floor area to lot size ratio not to exceed 0.45.
- Staff housing as may be incidental and in support of safety service facilities and essential services.
- Farm labor housing limited to 10 acres in any single location:
  - Single family/duplex/mobile home: 11 dwelling units per acre.
  - Multifamily/dormitory: 22 dwelling units/beds per acre.
- Sporting and recreational camps within the lodging component shall not exceed one cabin/lodging unit per 5 gross acres, which may be achieved by clustering.

- Rural Settlement Area—This district consists of Sections 13, 14, 23, 24, and a portion of Section 22, Township 48 South, Range 27 East, which was zoned and platted between 1967 and 1970. In settlement of a lawsuit pertaining to the permitted uses of this property, this property has been vested for the types of land uses specified in the PUD by Settlement zoning granted in the agreement January 27, 1986. Known as the Orange Tree PUD, the uses allowed include residential, earth mining, commercial, agricultural, community facility, community uses, education uses, religious facilities, golf course, open space and recreational uses, and essential service uses.

III. **Estates Designation**—This category encompasses the Golden Gates Estates Subdivision and has its siting criteria and development standards defined in the Golden Gate Area Master Plan. This designation is characterized by low-density semirural residential lots with limited opportunities for other land uses. Typical lots are 2.25 acres in size; however, there are some nonconforming lots as small as 1.14 acres. Intensifying residential density shall not be permitted. Nonresidential uses include conditional and essential services; parks, open space, and recreational uses; group housing as defined in the LDC; and schools and school facilities where mutually acceptable with community centers, parks, and libraries.

IV. **Immokalee Area Master Plan**—This is a master plan of the Immokalee area that was developed to specifically address the quality of life, natural beauty, environmental quality, stable neighborhoods, small-town character, and its status as the urban hub for the surrounding agriculture region. The policies in the Immokalee Area Master Plan, Future Land Use, create standards and permitted uses for each district and subdistrict. These shall supersede Policies 1.1 and 1.3 in the Collier County Future Land Use Element of the growth management plan.

- Residential Designation—This designation is intended to accommodate a variety of residential uses including single-family, duplexes, multifamily, and mobile homes, which does not preclude seasonal, temporary, and migrant farm worker housing.
    - Low Residential District—The purpose of this district is to provide for a low-density residential district. Residential dwellings shall be limited to single-family structures and duplexes. Multifamily dwellings shall be permitted provided they are within a PUD. Mobile home development shall be permitted in the form of mobile home subdivisions or parks and as a mobile home overlay and defined by the LDC. A density less than or equal to four dwelling units per gross acre is permitted.

V. **Other Overlays and Special Features**—In addition to the Immokalee Master Plan, there are two additional overlays crossed by the preferred corridor.

- Rural Lands Stewardship Area Overlay (RLSAO)—Except for the area of the Immokalee Master Plan, the preferred corridor crosses the RLSAO once it enters the county at the north end until it enters the Estates designation along Immokalee Road. The Immokalee Master Plan is excluded from the RLSAO. The RLSAO is an incentive-based program that rewards owners for voluntarily agreeing to protect important natural or agricultural features. For example, the program compensates property owners for preserving environmentally sensitive lands, open space, and/or certain types of agricultural operations. Compensation to the property owner occurs through the awarding of stewardship credits that can then be used in receiving areas that will require the credits in order to be developed. Stewardship credits are created for lands identified as Stewardship Sending Areas (SSAs). These lands include Flow Way Stewardship Areas (FWAs), Habitat Stewardship Areas (HSAs), and Water Retention Areas (WRAs). The RLSAO contains policies to direct incompatible land uses away from FWAs, HSAs, and WRAs to protect wetlands, upland habitats, and listed species within the RLSAO. The program compensates property owners for preserving environmentally sensitive lands, open space, and/or certain types of agricultural operations. Once a land owner has voluntarily designated property as an SSA, the designation is considered perpetual and cannot be removed.
- Natural Resource Protection Area (NRPA)—The only location where the corridor crosses an NRPA is along the west side of Immokalee Road for a short distance. The purpose of the NRPA program is to direct incompatible land uses away from significant environmental systems that exist at a landscape scale, contain large systems of connected wetland and upland habitats, and support a wide variety of listed species. The following areas have been mapped and identified as NRPAs—CREW lands, Belle Meade, and South Golden Gate Estates. Within these areas, only agriculture and directly related uses and one

single-family dwelling unit per parcel or lot created prior to June 22, 1999, shall be allowed.

**City of Fort Myers**

- Low-Density Single-Family, A—This category allows for a maximum density of 6.22 residential units per acre. All single family uses and, as a conditional use, uses that complement single-family neighborhoods may be permitted in this land use.
- Mixed Use, M.U. (maximum density 25 residential units/acre)—Newly developing areas may initially be designated as mixed use to allow market forces a substantial influence on the final character of the area. Mixed uses must be developed as a PUD designed to cluster uses in an integrated, cohesive fashion and pursuant to the growth management code and future land use standards. Any use allowed in the residential, professional office, general commercial, and industrial areas may be allowed in mixed use areas, provided such uses comply with the locational criteria specified for those categories and meet the following composition: 30-percent low- and medium-density residential, 20-percent medium- and high-density multifamily residential, 40-percent commercial and professional office, and 10-percent recreational and open space.
- General Commercial, B-1 (less than 1.0 floor area to lot size ratio except in the Central Business District)—This area of the future land use map is designated to allow the following uses: hotels, motels, offices, retail stores and shops, wearing apparel, food and drink consumption, food sales stores, department stores, personal services, theatres, radio and television stations and studios, funeral homes, schools, pick up stations, shoe and leather repair shops, shelter homes, those uses allowed in high-density multifamily districts, and other similar uses.
- Intensive Commercial, B-2 (less than 1.0 floor area to lot size ratio except in the Central Business District)—This more intensive use district allows for the following uses, in addition to those uses allowed in the general commercial areas: service stations, automobile/truck sales, servicing and repairing,

public garages, dry cleaners, printing plants, bakeries, terminals and depots, commercial amusements, repair shops, construction companies, mini-warehouses, and other similar uses.

- Recreation and Open Space, REC—The objective of this land use category is to provide adequate and usable open space and facilities for both active and passive recreation needs distributed equitably throughout the community.

#### 2.2.2.2 Zoning and Land Use Restrictions

Zoning within the preferred corridor is shown at a scale of 1:24,000 in Attachment 2-3 at the end of this chapter. The preferred corridor crosses the following zoning districts:

- **Lee County Zoning Districts:**

| | |
|---|---|
| AG-2 | Agricultural - 2 |
| C-2 | Commercial - 2 |
| CF-2 | Community Facilities - 2 |
| CFPD | Community Facilities Planned Development |
| CPD | Commercial Planned Development |
| IG | General Industrial |
| IL | Industrial-Light |
| IPD | Industrial Planned Development |
| MHPD | Mobile Home Planned Development |
| PUD | Planned Unit Development |
| RM-2 | Residential Multi-Family - 2 |
| RPD | Residential Planned Development |
| RS-1 | Residential Single Family -1 |

- **Collier County Zoning Districts:**

| | |
|---|---|
| A | Rural Agricultural |
| A-MHO | Rural Agricultural - Mobile Home Overlay |
| C-2 | Commercial Convenience |
| E | Estates |
| PUD | Planned Unit Development |
| RSF-5 | Residential Single-Family-5 |

- **City of Fort Myers Zoning Districts:**

| | |
|---|---|
| A | Low-Density Single-Family |
| B-1 | General Commercial |
| B-2 | Intensive Commercial |
| MU | Mixed Use |
| REC | Recreation and Open Space |

Provisions of each local government's land development regulations applicable to the lands crossed by the preferred corridor are discussed in the following subsections.

**Lee County—Land Development Code**

Under the definitions in Section 34-2 of the Zoning Code, "Essential Services means the erection, construction, alteration or maintenance by a public or private utility company for the purpose of furnishing adequate service by such company for the public health, safety or general welfare, of electrical and communication cables, poles and wires, ...." Essential services in the nature of the C-OR #3 Project are permitted in all zoning districts per Section 34-1612, *Permitted Uses*.

Moreover, pursuant to Section 34-1617, *Essential Services* are exempt from the property regulations that set forth minimum lot size, area, and dimensions.

An exemption from Article V, *Tree Protection*, is provided in Section 14-377, *Exemptions from Article*, stating that the removal of trees by a duly constituted electrical company is allowed "...provided such removal is limited to those areas necessary for maintenance of existing lines or facilities or in the construction of new lines or facilities in furtherance of providing utility service to its customers, and provided further that such removal is conducted to avoid any unnecessary damage or removal of trees."

<u>CODE OF ORDINANCES</u>

CHAPTER 24 1/4, NOISE CONTROL; SECTION 24 1/4-2, DECLARATION OF NECESSITY

In Chapter 24 1/4, Section 24 1/4-2, Lee County finds that the making and creation of excessive, unnecessary, or unusually loud noises within the unincorporated area of Lee County is a condition that has existed for some time, and such excessive unnecessary, unnatural, or unusually loud noises that are prolonged, unusual, and unnatural in their time, place, and use effect are a detriment to the public health, comfort, convenience, safety, welfare, and prosperity of the residents of Lee County. The necessity in the public interest for the following provisions and prohibitions is declared as a matter of legislative determination and public policy, and it is further declared that the following provisions and prohibitions are in pursuance of and for the purpose of securing and promoting the

public health, comfort, safety, welfare, and repose of Lee County and its inhabitants (Ordinance 93-15, § 2, 4-21-93).

SECTION 24 1/4-4, NOISE DISTURBANCE PROHIBITED

Section 24 1/4-4 states that no person shall make, continue, or cause to be made or continued any noise disturbance in accordance with the terms set forth in this chapter (Ordinance 93-15, § 4, 4-21-93).

SECTION 24 1/4-5, SOUND LEVELS BY RECEIVING LAND USE

(a) Maximum Permissible Sound Levels by Receiving Land Use—No person shall operate or cause to be operated any source of sound in such a manner as to create a sound level that exceeds the limits set forth for the receiving land use category in Table 2.2-1 when measured at or within the property line of the receiving land use, as specified in Lee County Code of Noise Enforcement Practices, which establish uniform guidelines for measuring and recording sound levels for the enforcement of this chapter.

**Table 2.2-1. Sound Levels by Receiving Land Use**

| Land Use Category | Time | Sound Level Limit (dBA) |
|---|---|---|
| Residential, public space, agricultural or institutional | 7 a.m. to 10 p.m.<br>10 p.m. to 7 a.m. | 66<br>55 |
| Commercial or business | 7 a.m. to 10 p.m.<br>10 p.m. to 7 a.m. | 72<br>65 |
| Manufacturing or industrial | At all times | 75 |

Source: Lee County Code of Ordinances, Chapter 24 1/4, Noise Control, 1996.

(b) Correction for Character of Sound—

(1) For any source of sound that emits a pure tone, the maximum sound level limits set forth in Table 2.2-1 shall be reduced by 5 A-weighted decibels (dBA).

(2) For any source of impulsive sound that is of short duration with an abrupt onset, the maximum sound level limits set forth in Table 2.2-1 shall be increased by 10 dBA from 7 a.m. to 10 p.m.

(c) Specific Prohibitions—In addition to the general prohibitions set out in Table 2.2-1, the following specific acts are declared to be in violation of this chapter:

(1) Multifamily Dwellings—In the case of multifamily dwelling units, it shall be unlawful to create or permit to be created any noise that exceeds 50 dBA during the hours between 7 a.m. to 10 p.m. or 45 dBA during the hours between 10 p.m. and 7 a.m. daily, measured from a neighbor's dwelling within such multifamily dwelling unit.

(2) Construction Noise—No person shall operate or permit to be operated any power-driven construction equipment without a muffler or other noise-reduction device at least as effective as that recommended by the manufacturer or provided as original equipment. Construction equipment that must be operated near a residentially zoned area on a 24-hour-per-day basis (i.e., pumps, well tips, generators, etc.) shall be shielded by a barrier to reduce the noise during the hours of 6 p.m. to 7 a.m. unless the unshielded noise level is less than 55 dBA measured at the closest adjacent residentially zoned property line.

A waiver or exception to the noise levels listed in Table 2.2-1 may be permitted by the granting of a waiver under circumstances in which the activity creating the noise is of such importance to the public welfare, health, or safety that the activity cannot be shut down, even though its noise levels exceed those given in Table 2.2-1.

**Collier County—Land Development Code**

Collier County includes electric facilities within the definition of essential services. As discussed in the following subsections, Collier County, in Section 2.6.9.3, *Applicability*, provides that district regulations do not apply to linear electric facilities (i.e., structures supporting lines or cables).

DIVISION 6, SUPPLEMENTAL DISTRICT REGULATIONS

SECTION 2.6.9, ESSENTIAL SERVICES.

Essential services are defined as services designed and operated to provide water, sewer, gas, electricity, cable television, or communications to the general public by providers that have been approved and authorized according to the laws having appropriate jurisdiction and governmental facilities. Essential services are allowed in any zoning district subject to the conditions in the following paragraphs.

Section 2.6.9.1, *Permitted Uses*—The following uses are allowed as permitted uses:
"a. In every zoning district: water lines, sewer lines, gas lines, telephone lines, telephone switching stations, cable television, electrical transmission and distribution lines, substations...."

Section 2.6.9.3, *Applicability of District Regulations*—Under this subsection, "where structures are involved other than structures supporting lines or cables, such structures shall comply with the regulation for the district in which they are located...."

CODE OF LAWS AND ORDINANCES

In Article IV, *Noise*, Section 54-81 through 54-94 of the Collier Noise Ordinance, Collier County regulates, eliminates, or restricts noise level emissions at decibel (db) levels or frequencies and intensities that are contrary to the public welfare, constitute a nuisance to the public at large, and degrade the quality of life. Exceptions to this ordinance include construction operations that have building permits or any other noise resulting from activities of a temporary duration permitted by law and for which a license, permit, or waiver has been granted. The maximum permissible sound and vibration levels by zoning classification dictate that no sound shall violate any sound standard unless the offending sound exceeds the then-existing ambient sound level by at least 5 dBA for Table 2.2-2 or 5 db unweighted for Table 2.2-3 at the sound-affected site. No person shall operate or cause to be operated any source of sound from any use occupancy in such a manner as to create a sound level that exceeds the limits set forth for the use category in Tables 2.2-2 and 2.2-3. Sounds should be measured at or beyond the property boundary of the site, usually at a distance of greater than 50 ft.

**Table 2.2-2. Maximum Permissible Sound Levels by Zoning Classification**

| Zoning/Use at the Location of the Sound-Affected Site or Unit | Time of Day or Night | Sound Level Limit (dBA) |
|---|---|---|
| Residential | 7 a.m. to 10 p.m.<br>After 10 p.m. to 6:59 a.m. | 60<br>55 |
| Commercial or tourist | 7 a.m. to 10 p.m.<br>After 10 p.m. to 6:59 a.m. | 65<br>60 |
| Manufacturing or industrial | At all times | 75 |
| Agricultural | At all times | 75 |

Source: Collier County Noise Ordinance (Article IV), 1991

**Table 2.2-3. Maximum Unweighted Sound Pressure Levels—Day and Night Steady Sound (Unweighted db)**

| Octave Band Center Frequency (Hz) | Residential Site or Unit | Tourist or Commercial Site or Unit | Manufacturing, Industrial, or Agricultural Site or Unit |
|---|---|---|---|
| 31.5 | Day 69—Night 64 | Day 74—Night 69 | 84 |
| 63 | Day 69—Night 64 | Day 74—Night 69 | 84 |
| 125 | Day 66—Night 61 | Day 71—Night 66 | 81 |
| 250 | Day 62—Night 57 | Day 67—Night 62 | 77 |
| 500 | Day 58—Night 53 | Day 63—Night 58 | 73 |
| 1,000 | Day 53—Night 48 | Day 58—Night 53 | 68 |
| 2,000 | Day 49—Night 44 | Day 54—Night 49 | 64 |
| 4,000 | Day 46—Night 41 | Day 51—Night 46 | 61 |
| 8,000 | Day 42—Night 37 | Day 47—Night 42 | 57 |
| dBA | 60 55 | 65 60 | 75 |

Note: The dBA row is for comparison purposes only.

Source: Collier County Noise Ordinance (Article IV), 1991.

It is a violation to operate, permit, or suffer operation or use of any industrial, manufacturing, and/or commercial device, facility, operation, or process that causes any vibrations that exceed the applicable displacement(s) in inches specified in Table 2.2-4 at the property boundary of or within any vibration-affected site or unit in residential or tourist

residential use or zoning anywhere in unincorporated Collier County. Steady state vibrations are continuous or occur in discrete pulses more frequently than 100 impulses per minute. Discrete pulses that do not exceed 100 impulses per minute must not cause displacement in excess of twice the applicable values in Table 2.2-4.

**Table 2.2-4. Maximum Vibration Levels**

| Frequency of Steady State Vibration Displacement Cycles Per Second (inch) | Frequency of Impact Vibration Displacement Cycles Per Second (inch) |
|---|---|
| Less than 10 (0.0004) | Less than 10 0.0006 |
| 10 through 19 (0.0002) | 10 through 19 0.0003 |
| 20 through 29 (0.0001) | 20 through 29 0.0002 |
| 30 through 39 (0.0001) | 30 through 39 0.0001 |
| 40 through 49 (0.0001) | 40 through 49 0.0001 |
| 50 and over (0.0001) | 50 and over 0.0001 |

Source: Collier County Noise Ordinance (Article IV), 1991.

### City of Fort Myers—Growth Management Code

The land use regulations for Fort Myers are a part of the growth management code in the Fort Myers Code of Ordinances. In Article I, Section 20-1, *Definitions*, the code makes a clear distinction that the following operations or uses shall not be taken to involve development:

> "Work by any utility and other persons engaged in the distribution or transmission of gas or water for the purpose of inspecting, repairing, renewing or constructing on established rights-of-way any sewers, mains, pipes, cables, utility tunnels, power lines, towers, poles, tracts or the like."

Thus, the land use regulations do not provide development standards or requirements for the construction of new electric power lines.

CODE OF ORDINANCES

In Article V, *Noise*, Sec. 11-151, of the Fort Myers Code of Ordinances, Fort Myers deems it shall be unlawful for any person to make, cause to be made, or to permit to be made, in the city, noises or sounds that are audible beyond the premises of such person upon which such noise or sounds are made. Such noise or sounds are declared to be nui-

sances and their abatement is ordered. Any acts declared to be loud, disturbing, and unnecessary noises, such as the operation of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist, or other device that creates loud or unusual noise, except between the hours of 7 a.m. and 7 p.m., Monday through Saturday shall be in violation of this article. Specifically for construction, repair, or demolition of buildings in or adjacent to residential areas (Code 1963, § 23-19; Ordinance 3063, § 1, 4-15-02), the following apply:

- Weekdays—The erection, demolition, alteration, or repair of any building, or any excavation within a residential area or property abutting a residential area, other than between the hours of 7 a.m. and 7 p.m., Monday through Saturday, inclusive, is prohibited.
- Sundays and holidays—The erection, demolition, alteration, or repair of any building or any excavation on Sundays or on New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, or Christmas Day within a residential area or on property abutting a residential area, except during a time of extreme emergency duly declared, is prohibited.
- Special types of construction where ordinary and necessary trade and engineering practices or an emergency requires the continuous operation of pumps, well points, dredges, draglines, and other machinery or devices of a like nature during the otherwise prohibited hours shall require a permit, and such operation shall not constitute a violation of this section.
- The restriction on erection, demolition, alteration, or repair or other excavation as outlined in this section in or adjacent to residential areas shall be limited to activities requiring permits and shall not apply to routine household maintenance.
- Work performed to address or prevent a public emergency including traffic control is exempt from the provisions of this section.

SECTION 11-154, EXEMPTIONS

In Section 11-154, Exemptions, the code allows an exemption for the operation of warning or emergency devices such as sirens, horns, and bells when used for their intended purpose, noises resulting from equipment or operations incidental to the installation,

maintenance, or repairs of facilities or restoration of services such as public utilities, public refuse collection, and/or public sanitation or any emergency activities in the public interest (Code 1963, § 23-22; Ordinance 3063, § 4, 4-15-02).

### 2.2.3 EASEMENTS, TITLE, AGENCY WORKS

Easements will be necessary for the transmission line to cross lands under the jurisdiction of the Board of Trustees of the Internal Improvement Trust Fund, or, more likely, SOR lands or Florida Forever tracts included within the corridor. Approvals may also be required by USFWS or the administering local government. Lands owned or under the jurisdiction of SFWMD or various water control districts will also require easements or crossing approvals.

Approvals for crossing or use of state road rights-of-way must be granted pursuant to FDOT regulations. Approvals of crossings or use of county maintained road rights-of-way must be granted pursuant to the requirements of the two respective counties. This is particularly noteworthy since so much of the preferred corridor assumes collocation with road rights-of-way. All crossings of state roads will conform to specifications contained in FDOT's Utility Accommodation Manual (1999).

Permits are also normally required to cross or collocate with canals or other facilities of various water control districts or works of the district as under the jurisdiction of SFWMD. Such works may include structures, impoundments, wells, streams, canals, or other watercourses officially adopted by SFWMD's governing board.

Additionally, FPL may require easements or at least approvals from LCEC for crossing or collocation with their existing transmission line easements.

Table 2.2-5 presents a list of potential lands, roads, canals, or works of the district for which crossing approvals would normally be required.

**Table 2.2-5. Possible Easements, Titles, Crossing Approvals Expected to Be Required for Transmission Line Construction in the Preferred Corridor**

| Facility | Agency | Approval |
|---|---|---|
| Roads | | |
| Homestead Lane/Tice Street | Lee County DOT | Right-of-way use and/or crossing permit |
| Staley Road | Lee County DOT | Right-of-way use and/or crossing permit |
| SR 82 | FDOT | Right-of-way use and/or crossing permit |
| Buckingham Road | Lee County DOT | Right-of-way use and/or crossing permit |
| Colonial Boulevard Extension (CR 884) | Lee County DOT | Right-of-way use and/or crossing permit |
| Lake Trafford Road (CR 890) | Collier County Transportation Department | Right-of-way use and/or crossing permit |
| Immokalee Road (CR 846) | Collier County Transportation Department | Right-of-way use and/or crossing permit |
| Water Bodies | | |
| Unnamed canals north of SR 82 | East County Water Control District | Use and/or crossing permit |
| Golden Gate Canal System | Big Cypress Basin Water Control District | Use and/or crossing permit |
| Unnamed canals east of CR 846 | Big Cypress Basin Water Control District | Use and/or crossing permit |
| Unnamed canal crosses CR 846 | Big Cypress Basin Water Control District | Use and/or crossing permit |
| Conservation Lands | | |
| SFWMD-owned<br>CREW Trust<br>SOR Lands<br>Florida Forever<br>2020 Lands | Owning agency (may include SFWMD, Board of Trustees of the Internal Improvement Trust Fund, USFWS, or local governments) | Easement or permit |
| Other | | |
| LCEC 138-kV transmission easement along SR 82 and east of Lake Trafford | LCEC | Easement consent agreement, and/or crossing approvals |

Source: ECT, 2003.

## 2.2.4 ARCHAEOLOGICAL AND HISTORIC SITES

The Florida Department of State, Division of Historical Resources (DHR), was contacted to determine whether any known archaeological or historic sites occurred along the preferred corridor. They were sent the preferred corridor delineated on U.S. Geological Survey (USGS) 1:24,000-scale topographic maps. A request was made for them to determine if the corridor contained any sites listed or eligible for listing in the National Register of Historic Places or any sites of historic or archaeological significance found in their master site file.

DHR found that no known cultural or historic sites/structures exist along much of the corridor; however, this may be due to a lack of surveys in much of the areas. They did report known resources near the preferred corridor for the following areas:

- Lee County, Township 44 South, Range 25 East, Section 1—Near the Orange River substation, three historic standing structures are found. Two are along Orange River Boulevard and the third is along Staley Road.
- Lee County, Township 44 South, Range 25 East, Section 24—One archaeological site and one historic farmstead are located north of Buckingham Road outside the preferred corridor.
- Collier County, Township 46 South, Range 29 East, Section 31—An archaeological site is recorded possibly on the preferred corridor just south of Lake Trafford Road near Immokalee.
- Collier County, Township 48 South, Range 27 East, Section 22—An archaeological site is located along the south side of Immokalee Road within the preferred corridor just east of Orangetree substation.

Regarding the historic structures in Lee County, the preferred corridor includes a small portion of Orange River Boulevard and Staley Road. In the event the right-of-way is placed in these locations within the corridor, no structures would be crossed, demolished, or relocated.

DHR will review the preferred corridor and make an assessment as to potential impacts on these known or other potential sites. They may also request a cultural resources assessment be performed along certain areas of the proposed right-of-way once selected and acquired. The DHR requests that distribution of information/maps on locations of known sites be limited due to potential vandalism. Therefore, this application does not depict the precise location of those resources discussed.

Appendix E contains a copy of DHR's responses to the requested master site file search.

## 2.3 BIO-PHYSICAL ENVIRONMENT OF THE CORRIDOR AREA

### 2.3.1 LAND USE/VEGETATION

The existing land use and vegetation cover types were identified for the preferred corridor and 0.5 mile adjacent to either side of the preferred corridor. These land use/cover classes were characterized according to the Florida Land Use, Cover and Forms Classification System (FLUCFCS) (FDOT, 1999) Categories II and III and were identified using recent aerial photography, FLUCFCS land use/cover mapping performed in 1995 and acquired from the Florida Geographic Data Library (2002), NWI maps, and USGS quadrangle maps. The various land use/vegetation types along the preferred corridor are shown in Attachments 2-1 (aerial photographs) and 2-4 (land use/vegetation) at the end of this chapter, and descriptions of the major land use and vegetation cover classes along the corridor are provided in the following subsections.

#### 2.3.1.1 Land Use

Land use classes along the route consist of residential, commercial, industrial, recreational, educational, governmental, and agricultural. According to the FLUCFCS, these categories include (111) low-density residential, (121) medium-density residential, (122) mobile home park, (133) low-rise apartment building, (142) commercial wholesale and services, (150) industrial, (156) other heavy industry, (160) mining, (171) educational facilities, (172) religious facilities, (175) governmental facilities, (181) swimming beach, (182) recreational golf course, (190) urban open land, (211) improved pasture, (212) unimproved pasture, (214) row crops, (221) citrus groves, (243) ornamental nurseries, (743) disturbed lands, (831) electric power facilities, (832) electric power lines, and (835) solid waste disposal facilities. Of these land use classes, the agricultural land uses dominate.

The improved and unimproved pasture land uses are typically used for cattle grazing and have a dominant cover of pasture grasses such as bahia grass (*Paspalum notatum*), Bermuda grass (*Cynodon dactylon*), and carpet grass (*Axonopus furcatus*), among others. Depending on the degree of improvement, old field species such as dog fennel (*Eupatorium capillifolium*), goldenrods (*Solidago* spp.), dollarweed (*Hydrocotyle umbellata*), blackberry (*Rubus* spp.), and other composites, among others, as well as occasional shrubs of saw palmetto (*Serenoa repens*), wax myrtle (*Myrica cerifera*), Brazilian pepper

(*Schinus terebinthifolius*), or paw paw (*Asimina reticulata*) often inhabit these communities. Various types of citrus and row crops of watermelon, tomatoes, cucumbers, squash, peppers, and potatoes are produced commonly in the area of the preferred corridor. There are no areas classified as prime farmland in Lee or Collier County.

In addition to agricultural lands, (190) urban open land is the other dominant land use type along the preferred corridor. This land use type primarily represents areas that have been partially cleared and developed with infrastructure for future residential uses. Large portions of these partially developed lands are not yet established with residential housing. Residential, commercial, and industrial developments make up a relatively small portion of the corridor, as do recreational, religious, educational, governmental, and waste disposal facilities. Small areas of ornamental nurseries and gravel mining operations are also present along the corridor. Finally, several long segments of the preferred route follow within or adjacent to an existing electric transmission line or road easement, so these land use types are also prevalent.

#### 2.3.1.2 Vegetation

The preferred corridor, for most of its route, will be located within or adjacent to existing rights-of-way. These rights-of-way are in various stages of vegetative successional growth depending on the degree of maintenance. In addition to the mowed rights-of-way, a variety of natural communities will be traversed or are located within 0.5 mile adjacent to the preferred corridor. These vegetation cover classes include (310) herbaceous rangeland, (329) shrub and brush rangeland, (411) upland pine flatwood forest, (434) mixed hardwood/pine forest, (439) other hardwood forest, (610) wetland hardwood forest, (621) cypress-dominated forested wetland, (630) mixed hardwood/pine-forested wetland, (640) vegetated nonforested wetland, and (641) freshwater marsh. Although not technically a *land use* or surface water feature, (500) water is also included and described in this section. The dominant vegetation types are described in the following subsections.

**Upland Communities**

There are five dominant upland communities within or adjacent to the preferred corridor. These communities consist of both natural and altered states of forest and rangeland.

**Herbaceous Rangeland (310)**

Herbaceous rangeland or dry prairie occurs in a couple of locations within the preferred corridor. It is dominated by upland grasses such as bahia grass, crab grasses (*Digitaria* spp.), finger grasses (*Eustachys* spp.), broomsedges (*Andropogon* spp.), and love grasses (*Eragrostis* spp.), as well as other old-field herbaceous species like dog fennel, golden-rods, blackberry, and goat weed (*Scoparia dulcis*). Herbaceous rangelands generally lack any significant canopy cover, but may have scattered shrubs or small trees of species such as wax myrtle, salt bush (*Baccharis halimifolia*), Brazilian pepper, saw palmetto, and upland oaks (*Quercus* spp.).

**Shrub and Brush Rangeland (329)**

Shrub and brush rangeland occurs in a few places within the preferred corridor. This community is dominated by shrub cover, often has a distinct ground stratum similar to the herbaceous dry prairie, and lacks a predominance of tree canopy cover. Typical shrub species include saw palmetto, wax myrtle, salt bush, and Brazilian pepper. Small pine (*Pinus* spp.), oak, or cabbage palm (*Sabal palmetto*) trees may be scattered throughout this community.

**Upland Pine Flatwoods (411)**

The upland pine flatwoods community is especially dominant along the preferred corridor. It is characterized by a prevalence of pine trees that may vary in age. The dominant pine tree in Southwest Florida is slash pine (*Pinus elliottii*). Occasional stands or individuals of sand pine (*Pinus clausa*) or longleaf pine (*Pinus palustris*) may also be present as well. In addition to the pines, cabbage palm, saw palmetto, wax myrtle, gallberry (*Ilex glabra*), rust berry (*Lyonia* spp.), paw paw, and a variety of flatwoods grasses are also present. Finally, invasive exotic species, such as Brazilian pepper and melaleuca (*Melaleuca quinquenervia*) have become established within many disturbed pine flatwood areas in South Florida.

**Mixed Hardwood/Pine Forest (434)**

This forest community comprises several small to large tracts along the preferred corridor. It is not dominated by either pines or hardwoods, rather both comprise a significant component of the canopy. Most temperate hardwood species do not inhabit the forested communities of South Florida, so the hardwood component of the canopy is primarily live oak (*Quercus virginiana*), water oak (*Q. nigra*), and laurel oak (*Q. laurifolia*). Cabbage palm, red maple (*Acer rubrum*), and common persimmon (*Diospyros virginiana*) also may occur here. Slash pine, sand pine, or longleaf pine are intermixed. Shrubs typically consist of saw palmetto or wax myrtle.

**Other Hardwood Forest (439)**

This classification is used to describe upland forest communities not dominated by the typical mix of hardwood or pine species.

**Wetland Communities**

Numerous wetlands are present within or adjacent to the preferred corridor, which is to be expected considering the prevalence of wetlands in South Florida. However, since the preferred corridor follows mainly along existing cleared linear facilities, many of the wetlands along the route have been previously cleared, ditched/drained, and some are maintained on a routine basis.

**Water (500)**

The (500) water category typically includes canals and roadside ditches along the preferred corridor. Many of the canals and roadside ditches along the route will contain vegetation species similar to the fresh water marshes. Typical species within the ditches include cattails (*Typha* spp.), spatterdock (*Nuphar lutea*), willow (*Salix caroliniana*), primrose willow (*Ludwigia peruviana*), arrowheads (*Sagittaria* spp.), paragrass (*Urochloa mutica*), water lettuce (*Pistia stratiotes*), and pickerelweed (*Pontedaria cordata*), among others.

**Wetland Hardwood Forest (610)**

There are a few large tracts of wetland hardwood forests where the preferred corridor follows the existing FPL transmission line along the northern edge of the Corkscrew Swamp. This community is dominated by hardwood tree species such as laurel oak, willow, pop ash (*Fraxinus caroliniana*), black gum (*Nyssa sylvatica*), red maple, cabbage palm, swamp bay (*Persea palustris*), sweet bay (*Magnolia virginiana*), common persimmon, and swamp dogwood (*Cornus foemina*), among others. Common shrub species include elderberry (*Sambucus canadensis*), button bush (*Cephalanthus occidentalis*), and dahoon holly (*Ilex cassine*). A variety of sedges, rushes, ferns, and epiphytes are also important components of this swamp type. Melaleuca can overtake these forested wetlands, replacing the native species and, in extreme cases, ultimately form a dense monoculture.

**Cypress-Dominated Forested Wetland (621)**

Cypress-dominated wetlands are one of the most prevalent wetland types along the preferred corridor. They occur in depressions in the landscape. Dome or pond cypress wetlands occupy circular depressions, and strands form in linear depressions formed from slow water flow. These wetlands usually are seasonally to semipermanently flooded. However, many of them are ditched and have an altered hydrologic regime. A major feature of the corridor study area is the Corkscrew Swamp ecosystem, which contains large expanses of relatively undisturbed cypress wetlands. Typical vegetation species include bald cypress (*Taxodium distichum*), pond cypress (*Taxodium ascendens*), black gum, slash pine, cabbage palm, swamp bay, red maple, dahoon holly, willow, cat briers (*Smilax* spp.), swamp fern (*Blechnum serrulatum*), fire flag (*Thalia geniculata*), and various bromeliads and orchids, among others. Melaleuca and Brazilian pepper, both invasive exotic species, often invade cypress swamps and displace the native species. Some of these swamps have become completely overrun by the invasive species and are pure stands of melaleuca or Brazilian pepper.

**Mixed Wetland Forest (630)**

Mixed wetland forest also occurs along the preferred corridor. This community includes wetlands in which the canopy is not predominantly hardwood or coniferous species. Rather, this community has a relatively equal mix of the two tree categories. Common

species in this community include laurel oak, water oak, American elm (*Ulmus americana*), slash pine, cabbage palm, swamp bay, and willow.

**Vegetated Nonforested Wetlands (640)**

This community type is frequent along the preferred corridor and includes both shrub-dominated wetlands and fresh water marshes. Fresh water marshes are described in the following paragraph (641), so this discussion focuses on shrub-dominated wetlands. Along the preferred corridor, shrub wetlands occur most frequently in areas that have been previously cleared such as within rights-of-way not routinely maintained or former wet pastureland. Typical species in these wetlands include wax myrtle, elderberry, willow, primrose willow, Brazilian pepper, salt bush, melaleuca, cabbage palm, swamp bay, and dahoon holly.

**Fresh Water Marsh (641)**

Fresh water marsh wetlands are common along the preferred corridor. These marshes typically exhibit a distinct vegetation zonation pattern based largely on the depth and duration of flooding. Typical species along the upper rim of the wetland include cordgrass (*Spartina bakeri*), soft rush (*Juncus effusus*), spike rush (*Eleocharis* spp.), maidencane (*Panicum hemitomon*), torpedo grass (*Panicum repens*), and various sedges, among others. In the center of the wetland, where water is deeper and present for a longer duration, vegetation species such as sawgrass (*Cladium jamaicense*), fire flag, pickerelweed, bladderworts (*Utricularia* spp.), and arrowheads dominate. Occasional shrubs of willow, Brazilian pepper, and wax myrtle can sometimes be found in and around these wetlands.

### 2.3.2 AFFECTED WATERS AND WETLANDS

The preferred corridor lies within the Southern or Distal physiographic zone. This area is characterized by low topographic relief, flat terrain, and a high water table. Changes in a few vertical inches will cause a distinct change to surface water drainage patterns and hence vegetative communities. Surface water flow in this area is primarily through overland sheetflow to marshes, sloughs, and cypress strands. Urban and agricultural land development activities through the years have resulted in numerous manmade levees (roads, berms, and dikes), ditches, and canals that have disrupted the natural sheetflow. With the

exception of the Caloosahatchee River just north and outside of the study area, there are no major incised creeks or rivers in the area.

The average annual precipitation in Lee and Collier Counties is approximately 54 inches. Most of the rainfall occurs in the summer months of June through September. Extremes in duration and intensity occur. Afternoon thunderstorms produce high-intensity, short-duration events. Tropical storms or hurricanes can produce high-intensity, moderate-duration events. Tropical depressions typically produce low-intensity but prolonged duration rainfall events.

Soils within the study area are typically level to nearly level, poorly drained to very poorly drained sandy soils. Some have loamy subsurface layers. The Natural Resources Conservation Service classifies many of the soils in the study area as hydric.

Surface water bodies and wetlands crossed by or within the preferred corridor were identified using 1:24,000 USGS topographic quadrangle maps, recent aerial photographs (1999 to 2002), and NWI maps.

Pursuant to the provisions of Section 62-302.400, F.A.C., the preponderance of surface waters, marshes, sloughs, flow ways and canals crossed by the corridor would be classified as Class III waters, Recreation, Propagation, and Maintenance of Healthy, Well-Balanced Population of Fish and Wildlife. There are no Special Protection, Outstanding Florida Waters, nor Outstanding National Resource Waters within the limits of the proposed corridor. Roadside ditches and swales would not have been classified, while agricultural ditches and canal systems are classified as Class IV waters pursuant to Rule 62-302.400(12)(a), F.A.C.

**Water Bodies**

Table 2.3-1 provides a list of the water bodies found within the preferred corridor. As noted, there are no natural creeks or rivers crossed by the preferred corridor. Rather, the vast majority of these water bodies are intermittent agricultural or roadside ditches in addition to natural and manmade ponds, wet prairies, sloughs, manmade ditches, or canals

**Table 2.3-1. Surface Water Bodies within the Preferred Corridor**

| Water Body | Receiving Water | Comments |
|---|---|---|
| **Orange River Substation to SR 82** | | |
| Unnamed ditch | Orange River | Intermittent agricultural ditch |
| Unnamed ditch | Orange River | Intermittent agricultural ditch north of Homestead Lane |
| Unnamed ditch | Orange River | Intermittent agricultural ditch north of Homestead Lane |
| Unnamed ditch | Orange River | Intermittent agricultural ditch north of Homestead Lane |
| Unnamed ditch | Orange River | Intermittent roadside ditch just north of Homestead Lane |
| Unnamed pond | Orange River | Small pond within forested wetland, north of Homestead Lane |
| Unnamed pond | Orange River | Pond at edge of forested wetland, north of Homestead Lane |
| Unnamed borrow pond | Orange River | Large borrow pond north of Homestead Lane |
| Unnamed borrow pond | Orange River | Small borrow pond west of FPL transmission line |
| Unnamed borrow pond | Orange River | Borrow pond west of FPL transmission line |
| Unnamed borrow pond | Orange River | Borrow pond west of FPL transmission line |
| Unnamed ditch | Six Mile Cypress Slough | Intermittent agricultural ditch |
| Unnamed ditch | Six Mile Cypress Slough | Intermittent agricultural ditch |
| Unnamed ditch | Six Mile Cypress Slough | Intermittent agricultural ditch |
| Unnamed ditch | Six Mile Cypress Slough | Intermittent agricultural ditch |
| Unnamed ditch | Six Mile Cypress Slough | Intermittent agricultural ditch |
| Unnamed ditch | Six Mile Cypress Slough | Intermittent agricultural ditch |
| Unnamed ditch | Six Mile Cypress Slough | Intermittent agricultural ditch |
| Unnamed borrow pond | Six Mile Cypress Slough | Large borrow pond associated with mining activities on east side of FPL transmission line |
| **SR 82** | | |
| Unnamed ditch | Six Mile Cypress Slough | Intermittent roadside drainage system runs parallel to north and south side of SR 82 |
| Unnamed ditch | Six Mile Cypress Slough | Intermittent agricultural drainage ditch ties into SR 82 drainage system |
| Unnamed ditch | Six Mile Cypress Slough | Intermittent agricultural ditch south of SR 82 |
| Unnamed borrow pond | Six Mile Cypress Slough | Very small borrow pond south of SR82 |
| Unnamed ditch | Six Mile Cypress Slough | Manmade ditch encircling old firing range south of SR 82 |
| Unnamed canal | Six Mile Cypress Slough | Manmade ditch encircling old firing range south of SR 82 |

**Table 2.3-1. Surface Water Bodies within the Preferred Corridor (Continued, Page 2 of 7)**

| Water Body | Receiving Water | Comments |
|---|---|---|
| Unnamed borrow pond | Six Mile Cypress Slough | Small borrow pond south of SR 82 (excavated wet prairie) |
| Unnamed ditch | Six Mile Cypress Slough | Manmade ditch encircling old firing range south of SR 82 |
| Unnamed ditch | Estero River Basin | Intermittent agricultural ditches south of SR 82 |
| Unnamed ditch | Estero River Basin | Manmade ditch encircling old firing range south of SR 82 |
| Unnamed borrow pond | Estero River Basin | Small borrow pond associated with a wetland south of SR 82 |
| Unnamed ditch | Estero River Basin | Manmade ditch encircling old firing range south of SR 82 |
| Unnamed ditch | Estero River Basin | Intermittent agricultural ditches south of SR 82 |
| Unnamed canal | Orange River | ECWCD canal runs northeast on north side of SR 82 |
| Unnamed ditch | Orange River | ECWCD intermittent ditch north of SR 82 |
| Unnamed ditch | Orange River | Intermittent ditch connects to ECWCD system north of SR 82 |
| **Green Meadows Road** | | |
| Unnamed ditch | Estero River Basin | Intermittent roadside ditch runs parallel to east and west side of Green Meadows Road |
| Unnamed ditch | Estero River Basin | Intermittent roadside ditch to side street |
| **FPL 500-kV Transmission Line** | | |
| Unnamed borrow pond | Estero River Basin | Borrow pond beneath transmission line |
| Unnamed ditch | Estero River Basin | Intermittent roadside ditch runs parallel to FPL transmission line access road |
| Unnamed borrow pond | Estero River Basin | Borrow pond within transmission line right-of-way |
| Unnamed borrow pond | Estero River Basin | Borrow pond within transmission line right-of-way |
| Unnamed ditch | Estero River Basin | Intermittent agricultural ditch |
| Unnamed borrow pond | Imperial River Basin | Borrow pond within transmission line right-of-way |
| Unnamed borrow pond | Imperial River Basin | Borrow pond within transmission line right-of-way |
| Unnamed borrow pond | Imperial River Basin | Borrow pond within transmission line right-of-way |
| Unnamed borrow pond | Imperial River Basin | Borrow pond within transmission line right-of-way |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |

**Table 2.3-1. Surface Water Bodies within the Preferred Corridor (Continued, Page 3 of 7)**

| Water Body | Receiving Water | Comments |
|---|---|---|
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed borrow pond | Imperial River Basin | Borrow pond just south of FPL corridor |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Imperial River Basin | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |

**Table 2.3-1. Surface Water Bodies within the Preferred Corridor (Continued, Page 4 of 7)**

| Water Body | Receiving Water | Comments |
|---|---|---|
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent roadside ditch to CR 850 |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Carson's Gully | Corkscrew Swamp | Intermittent 50-ft wide drainage ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| **LCEC Transmission Line/ Section Line** | | |
| Unnamed ditch | Corkscrew Swamp | Intermittent roadside ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |

**Table 2.3-1. Surface Water Bodies within the Preferred Corridor (Continued, Page 5 of 7)**

| Water Body | Receiving Water | Comments |
|---|---|---|
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent roadside drainage ditch adjacent to Lake Trafford Road |
| Unnamed ditch | Corkscrew Swamp | Intermittent roadside drainage ditch adjacent to Lake Trafford Road |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| **Immokalee Road (CR 846)** | | |
| Unnamed ditch | Corkscrew Swamp | Roadside ditch system for CR 846 |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |

**Table 2.3-1. Surface Water Bodies within the Preferred Corridor (Continued, Page 6 of 7)**

| Water Body | Receiving Water | Comments |
|---|---|---|
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Golden Gate Canal system | Corkscrew Swamp | Canal runs north-south across corridor |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed borrow pond | Corkscrew Swamp | Borrow pond south of CR 846 |
| Unnamed borrow pond | Corkscrew Swamp | Borrow pond north of CR 846 |
| Unnamed borrow pond | Corkscrew Swamp | Borrow pond south of CR 846 |
| Unnamed borrow pond | Corkscrew Swamp | Borrow pond south of CR 846 |
| Unnamed borrow pond | Corkscrew Swamp | Borrow pond east of CR 846 |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Bird Rookery Swamp | Corkscrew Swamp | Intermittent slough system |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |

**Table 2.3-1. Surface Water Bodies within the Preferred Corridor (Continued, Page 7 of 7)**

| Water Body | Receiving Water | Comments |
|---|---|---|
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed ditch | Corkscrew Swamp | Intermittent agricultural ditch |
| Unnamed canal | Corkscrew Swamp | Canal east of CR 846 |
| Unnamed canal | Corkscrew Swamp | Canal east of CR 846 |
| Unnamed borrow pit | Corkscrew Swamp | Borrow pond east of CR 846 |
| Unnamed canal | Corkscrew Swamp | Runs north-south across corridor |
| **Common Right-of-Way to Collier Substation** | | |
| Unnamed ditch | Gordon River | Agricultural ditch runs east-west across corridor |

Source: ECT, 2003.

that border roadsides, other manmade features such as former aircraft target ranges along SR 82, and agricultural improvements.

Many of the ditches and roadside swales crossed or within the corridor are intermittent, carrying water only during the rainy summer season. These intermittent ditches are neither navigable nor generally used for recreational purposes. There are several larger perennial canals within the urbanized portion of the preferred corridor in the Golden Gate area of Collier County. These systems are not generally considered navigable pursuant to the federal definition.

There are no water bodies located within the preferred corridor that cannot be spanned; therefore, no structures will be located within water bodies of the state.

That portion of the study area located north of SR 82 generally drains via roadside swale and/or ditch systems and natural wetland conveyance systems in a northerly direction toward the Orange River. That portion of the study area south of SR 82 generally drains via unnamed wetlands systems and remnant agricultural conveyances southerly toward the upper portion of the Six Mile Cypress Slough system. The Six Mile Cypress Slough system flows south-southwesterly to its intersection with the Ten Mile Canal, which flows southerly into the northern portion of Estero Bay.

Southeasterly along the preferred corridor on SR 82 within Townships 44 and 45 South and Ranges 26 and 27 East, lands north of SR 82 are generally within the limits of the East County Water Control District (ECWCD), a Chapter 298, F.S., drainage district. Lands within this jurisdiction, generally drain to the north and west outfalling to the Orange River via the ECWCD canal system. The ECWCD includes some developed lands south of SR 82. Lands south of SR 82 outside the jurisdiction of the ECWCD generally drain via limited roadside swale and/or ditch systems to adjacent wetland systems in a south-southwesterly direction. These unnamed wetlands sheetflow southwesterly or southerly and flow either into the Estero River, the Flint Pen Strand, or the Corkscrew Swamp. The Estero River outfalls directly to Estero Bay, while the Flint Pen Strand out-

falls into the Corkscrew Swamp prior to its connection with Estero Bay via various outfall routes including the Imperial River.

Lands located within the preferred corridor as it traverses Township 46 South, Range 28 East (section along FPL's 500-kV right-of-way) will generally drain southerly into the upper reaches of the Corkscrew Swamp via existing agricultural ditches and sloughs. As the corridor approaches the east range line of Range 28 East, it is proposed to turn south along the range line (LCEC transmission corridor). Along this alignment, in the northern one-third of Township 47, Range 28 East, the preferred corridor will cross a large cypress wetland system in the study area. This unnamed slough provides drainage for the area south and east of the town of Immokalee and flows westerly into Lake Trafford. South of the unnamed slough, the preferred corridor passes through the Baucom Cypress Strand, a tributary to the Corkscrew Swamp Slough system that flows northwesterly toward the Corkscrew Swamp system. After crossing Baucom Strand, the proposed corridor intersects Immokalee Road (CR 846), at which point the corridor turns west along CR 846. The corridor then crosses the lower portion of the Corkscrew Swamp (locally known as upper Camp Keais Strand), which, during times of higher stages (peak rainy season), flows southerly to the lower Camp Keais Strand and onto the Catherine Island system. Historically during times of lower stages, Camp Keais Strand flows northerly to the Corkscrew Swamp system. However, crossing of these wetland systems will occur along Immokalee Road, which has already disturbed the wetlands.

From this point, the preferred corridor follows Immokalee Road westerly and then southerly to the Orangetree substation. Along this reach, drainage is generally north to south or east to west and is generally normal to the alignment of Immokalee Road toward the Corkscrew Swamp or associated Bird Rookery Swamp.

The southern end of the route along the Common Right-of-Way and south of Pine Ridge Road to the Collier substation is within the Gordon River drainage basin. Here, water flows in a south-southwesterly direction through cypress sloughs, freshwater marshes, and a series of county-operated canals to the Gordon River.

## Wetlands

Given the shallow ground water table, flat topography, and hydric soil conditions, there are numerous wetlands within or adjacent to the preferred corridor. As described in Section 2.3.1, these wetland types include fresh water marshes, wet pine flatwoods, hydric hammocks, and cypress strands or domes. The hydrologic regime of these wetlands varies from semipermanently flooded to seasonally flooded, depending on their landscape position and the extent of drainage improvements within the immediate area. Extensive agricultural ditch/canal development in the eastern portion of the study area and urban improvements in the western portion have severely altered the natural hydrologic regime of many of the wetlands. Also, since the preferred corridor follows within or adjacent to existing linear facilities, most of these wetlands have been previously disturbed by vegetation clearing, ditching and culverting practices, and construction.

Isolated and connected fresh water marshes, hydric flatwoods, cypress strands or domes, and occasionally wet hardwood hammocks dot the corridor for its entire length. Several of these wetlands are named and have regional significance. The northern part of the preferred corridor as it runs adjacent to SR 82 traverses the very northern edge of Six Mile Cypress Swamp, a locally important wetland ecosystem. Also, the preferred corridor (along the FPL and LCEC rights-of-way near Immokalee and along Immokalee Road) runs through the northern and eastern edges of Corkscrew Swamp, but not within the boundaries of Audubon Corkscrew Swamp Sanctuary. Further along Immokalee Road, the corridor runs adjacent to the eastern boundary of the Bird Rookery Swamp, the southern edge of Poggie Strand, and the western edge of Horsepen Strand.

Since the preferred corridor follows primarily along existing linear facilities, many of the wetlands and other water bodies that will be crossed have already been impacted by previous development such as filling and culverting at the proposed point of crossing. This will minimize disturbance associated with construction since the area has already been impacted. Limited construction for the placement of poles may be required in jurisdictional wetlands, however. Detailed design information will be provided to the appropriate regulatory agencies to demonstrate that drainage patterns and characteristics are not further altered from the predevelopment condition.

### 2.3.3 ECOLOGY

An area including the preferred corridor and 1,500 ft beyond either edge of the corridor was evaluated for the potential presence of listed plant or wildlife species. Listed species include those with a designation of endangered, threatened, species of special concern, or commercially exploited that are regulated by USFWS, the Florida Department of Agriculture and Consumer Services (FDACS), or the Florida Fish and Wildlife Conservation Commission (FFWCC). Attachment 2-5 located at the end of this chapter depicts the known listed species observations on and along the preferred corridor.

The selection criteria that determined the specific species to be discussed in this application included their known or expected occurrence in the preferred corridor study area as residents, migrants, or transients based on previous identifications in Lee or Collier Counties and the presence of suitable habitat within the preferred corridor. The lists of plant and animal species identified as potentially occurring within or adjacent to the preferred corridor are presented in the following subsections.

The probability of occurrence of these species was based on known locations for such species, recent and historical reports of occurrence in the scientific literature, and the presence of suitable habitat as shown on land use and land cover maps, NWI maps, and recent aerial photographs. Since the specific locations of many plant species are not known or mapped and most vertebrates, particularly birds, have extensive ranges and show significant daily and/or seasonal movement and distribution patterns, the ecology section addresses their probability of occurrence in the preferred corridor primarily based on suitable habitat and range. This represents a more conservative approach resulting in more diverse species inventories than solely depending on field observations.

In addition to the probability for occurrence, the potential for impacts due to right-of-way clearing, construction, and maintenance or other concerns such as the presence of ecologically unique or valuable habitats were evaluated for the species identified as potentially occurring in or adjacent to the preferred corridor. Individual discussions of the species are presented in the following subsections.

#### 2.3.3.1 Plant Species

Approximately 120 regulated plant species are known to occur within Lee or Collier Counties within habitats similar to those found within the study area. However, due to the rarity of most species and the disturbed condition of most of the habitats crossed by the preferred corridor, only 22 species are considered to have a high likelihood for occurrence within the preferred corridor. These species are listed in Table 2.3-2. None of these species appear on any protected species list other than the FDACS list. Of the 22 species listed by FDACS, 5 are listed as endangered, 13 are listed as threatened, and 4 are listed as commercially exploited by FDACS. Given the known range of these species and the presence of potential habitat on or adjacent to the preferred corridor, there is a possibility that some or all of these species could occur on or near the corridor. Brief descriptions of these species are provided in the following paragraphs.

**Ferns and Fern Allies**

Three species of ferns and one fern ally, nodding club-moss, were identified as species of concern that could potentially occur within the study area. All of the fern and fern-like species of concern typically inhabit wetland habitats.

Two true ferns (cinnamon and royal fern) and the nodding club-moss are classified as commercially exploited by FDACS. The giant sword fern is classified as a threatened species by FDACS. The fern/fernlike species listed as commercially exploited are fairly common throughout Florida, occur in a variety of wetland habitats, and are expected along the preferred corridor. Although slightly rarer, the giant sword fern could also be present. However, given their range in habitat, these species would be expected to persist in the corridor following the construction of the transmission line.

**Lilies, Orchids, and Bromeliads**

A total of 13 of the listed plant species are lilies, orchids, or bromeliads. Of these species, two are lilies, six are orchids, and five are bromeliads.

**Table 2.3-2. Protected Plant Species Known to Occur in Lee and Collier Counties and with the Potential for Occurrence in the Project Area**

| Common Name | Scientific Name | Designated Status | | Preferred Habitat |
|---|---|---|---|---|
| | | USFWS | FDACS | |
| Many flowered grasspink | *Calopogon multiflorus* | — | E | Damp pinelands and meadows |
| Pine lily | *Lilium catesbaei* | — | T | Wet flatwoods and bogs |
| Nodding club-moss | *Lycopodium cernuum* | — | C | Wetland flatwoods, pond margins, bogs, and hammocks |
| Lowland loosestrife | *Lythrum flagellare* | — | E | Low open ground, swamps, and thickets |
| Giant sword fern | *Nephrolepis biserrata* | — | T | Mesic hammocks, roadsides, clearings, and swamps |
| Sleeping beauty waterlily | *Nymphaea jamesoniana* | — | E | Shallow ponds, canals, and sloughs |
| Cinnamon fern | *Osmunda cinnamomea* | — | C | Swamps, bogs, marshes |
| Royal fern | *Osmunda regalis* | — | C | Swamps, bogs, marshes |
| Blueflower butterwort | *Pinguicula caerulea* | — | T | Pine flatwoods, ditches, and roadsides |
| Yellow-flowered butterwort | *Pinguicula lutea* | — | T | Pine flatwoods, seepage bogs, ditches, and roadsides |
| Rose pogonia | *Pogonia ophioglossoides* | — | T | Sphagnum bogs, meadows, swamps, pine savannas, pine flatwoods, and prairies |
| Giant orchid | *Pteroglossaspsis ecristata* | — | T | Sand pine scrub, sandhill, and pine rockland |
| Lace-lip ladies tresses | *Spiranthes laciniata* | — | T | Shores, swamps, marshes, flatwoods, and wet sandy soil |
| Giant spiral ladies tresses | *Spiranthes longilabris* | — | T | Prairies, flatwoods, marshes, and sandy bogs |
| Little ladies tresses | *Spiranthes tuberosa* | — | T | Open pine-palmetto woods and pine flatwoods |
| Inflated and reflexed wild pine | *Tillandsia balbisiana* | — | T | Hammocks, cypress swamp, pineland, and scrubs; epiphytic |
| Cardinal airplant | *Tillandsia fasciculata var. densispica* | — | E | Hammocks, cypress swamp, and pinelands; epiphytic |
| Banded wild-pine | *Tillandsia flexuosa* | — | T | Hammocks and cypress swamps; epiphytic |
| Giant wild pine | *Tillandsia utriculata* | — | E | Hammocks, cypress swamp, and pineland; epiphytic |
| Leather leaf airplant | *Tillandsia variabilis* | — | T | Hammocks and swamps; epiphytic |
| Coontie | *Zamia spp.* | — | C | Oak hammocks, pinelands, and shell middens |
| Rain lily | *Zephyranthes simpsonii* | — | T | Wet flatwoods and meadows |

Note: E = endangered.
T = threatened.
C = commercially exploited.

Source: ECT, 2003.

The rain lily is listed as threatened by FDACS and is a large lily that grows solitarily or clumped. It has long leaves and white to pinkish purple flowers. Its may be found growing in wet flatwoods or unimproved wet pastures along the route. It is possible for the rain lily to coexist with the transmission line, once built, in wet areas with periodically maintained herbaceous cover, similar to wet pasture. The pine lily is also listed as threatened by FDACS. Pine lily is a perennial herb with alternate leaves and orange-pink flowers with darker freckles. This lily grows in wet flatwoods and bogs. Pine lily could potentially persist in the transmission line easement if native shrub layers are not disturbed during clearing or maintenance.

There are three species of ladies tresses (*Spiranthes* spp.) listed as threatened in the study area. Lace-lip ladies tresses is a terrestrial herb up to 24 inches tall with up to 50 white flowers spiraled in a single row on the inflorescence. The flowers have a yellowish lip that is lace-like at the tip. Giant spiral ladies tresses is also a terrestrial plant up to 24 inches tall with up to 30 whitish flowers slightly spiraled to secund in the inflorescence. The flowers have a yellowish lip that is fringed at the tip. Finally, little ladies tresses is a smaller terrestrial herb up to 12 inches tall with up to 30 snow white flowers in single rank, spiraled or secund on a very slender stem. If present along the corridor, these ladies tresses would most likely be found in pine flatwood habitats. They could coexist in the transmission line easement in areas where shrubs do not over shade the understory layer.

The other terrestrial orchids under review also typically inhabit flatwoods habitats. Many flowered grasspink is a terrestrial orchid listed as an endangered species by FDACS. This orchid grows up to 24 inches tall and has up to 15 deep-rose flowers. Rose pogonia is often found growing with many flowered grasspink. This terrestrial orchid is listed as threatened by FDACS. It grows up to 14 inches tall and has one to three pink to whitish flowers. Another terrestrial orchid listed as threatened by FDACS is the giant orchid. This orchid can grow up to more than 5 ft tall and has two to four linear-lanceolate leaves at the base. The orchid can produce up to 30 yellow-green flowers with maroon lips. These orchids could be expected to coexist in the transmission line easement with the advent of a proper maintenance program.

There are five listed bromeliads (epiphytes of the genus *Tillandsia*) that could potentially occur along the route, given the presence of their preferred habitat. Weevils, in addition to habitat destruction and overharvesting, threaten all five bromeliad species. Three of the bromeliad species are listed as threatened: banded wild pine, inflated reflexed wild pine, and leatherleaf airplant. Banded wild pine has spirally twisted leaves and loosely branched flower spikes. Inflated and reflexed wild pine has a basal rosette of slightly bulbous, gray leaves that are less than 0.5 inch wide at the base and taper to a twisted, recurved tip with violet flowers and bright red bracts. Leatherleaf airplant has an urn-shaped rosette of basal leaves that are soft, silvery-gray. The flowers are also characterized as violet petals with reddish bracts. Although listed as endangered, the last two *Tillandsia* species, namely giant wild pine and cardinal airplant, are more common than the previously referenced bromeliads. Giant wild pine is the largest *Tillandsia* species with rosettes of leaves up to more than 6 ft tall. It produces zig-zagging tall flower stalks. Finally, cardinal airplant, an epiphyte with a large rosette of gray-green leaves, brown-banded at the base with long attenuated tips, produces flower stalks covered with red bracts. Given that most of the preferred corridor has been previously cleared for existing linear facilities, suitable mature cypress habitat for epiphytic bromeliad species is expected to be limited. However, some of these species could occur in cypress strands adjacent to the cleared corridors. Cardinal airplant was seen growing on cypress trees along portions of the preferred corridor. It is unlikely the epiphytic bromeliad species would inhabit the cleared and maintained transmission line given they grow attached to tree trunks. However, they could persist adjacent to the transmission line where suitable habitat is available.

## Other Plant Species

### Lowland Loosestrife

Lowland loosestrife is listed as endangered by FDACS. It is a small, perennial herb with a creeping rhizome and sprawling stems. It produces lavender to purple solitary flowers in the leaf axils. It grows on low, open ground, swamps, and thickets. It is possible that this species could occur within or adjacent to the preferred corridor. Since this species

does well in open habitats, it is possible that lowland loosestrife could coexist with the new transmission line.

**Butterworts**

There are two butterworts that could potentially occur along pine flatwoods, ditches, and roadsides on the preferred corridor. Blueflower butterwort is listed as threatened by FDACS. It is a terrestrial, insectivous plant with a basal rosette, yellowish green leaves, and deep to pale violet flowers. Yellow-flowered butterwort is also listed as threatened by FDACS. This insectivous plant is similar to blueflower butterwort but produces yellow flowers. Both species could potentially coexist within a new transmission line.

**Sleeping Beauty Waterlily**

Sleeping beauty waterlily is listed as endangered by FDACS and has been previously identified along the preferred corridor as indicated in Attachment 2-5 located at the end of this chapter. This waterlily has a floating emergent leaf and produces white or yellow flowers at night (flowers closing around noon). This aquatic lily occurs in shallow ponds, canals, and sloughs. The new corridor should pose no threat to Sleeping beauty waterlily due to the fact the transmission line will have the ability to avoid or span the aquatic habitats within which the plant is found.

**Coontie**

Coontie is a cycad or primitive palm and is listed as commercially exploited by FDACS. It is a low-growing, fernlike shrub with dark shiny green leaves that are pinnately compound and arching. It has distinctive large reddish-brown cones borne at ground level. Coontie occur in a variety of well-drained sites including oak hammocks, pinelands, and shell middens. It is possible that coontie species could coexist in drier portions of the new transmission line if maintenance procedures allow for shrub development.

#### 2.3.3.2 Wildlife Species

The presence or potential for occurrence of wildlife species within a given area is primarily related to the presence of suitable habitat for cover, feeding, and reproduction. In general, the type and quality of wildlife habitats vary with vegetation type and structure, sur-

rounding land use, and hydrology. For this reason, wildlife habitat types can frequently be equated with vegetation community types.

To determine the vegetation community (i.e., habitat) types intersected by the preferred corridor, land use and land cover classification maps were obtained from SFWMD. These maps identified the natural community systems as well as developed lands in various stages of disturbance. Using the SFWMD classification (see Section 2.3.1), the community systems identified in the corridor which serve as the principal wildlife habitat types include pine and wet prairies, pine flatwoods, forested uplands, and wetlands such as cypress domes and mixed hardwood swamp. Habitats such as improved pasture, agricultural lands (truck crops and citrus groves), transportation rights-of-way, landscaped residential development, and golf courses are of relatively lower value to wildlife due to the limited diversity of niches, which is reflected in the lower wildlife species diversities in such habitats.

Developed areas such as residential, commercial, and industrial areas offer little habitat value to native vegetation and wildlife. Such areas occur primarily in the northern section (Fort Myers/Orange River substation area) and southern section (Collier substation area). In contrast, the undeveloped habitats in and along the preferred corridor include a variety of upland and wetland communities representing a wide range of habitat values for specific plant and wildlife species. Areas of relatively high habitat value within the preferred corridor area include: (1) the pine, swamp, and wet prairie communities dominating the FPL 500-kV transmission easement portion of the corridor; and (2) the freshwater marshes and cypress swamp and mixed hardwood swamp associations along the eastern and southern edges of the Corkscrew Swamp system.

The status and potential for occurrence of species recommended for study (i.e., species listed as endangered, threatened, or of special concern) in the Collier-Orange River study area were determined by a habitat analysis, literature survey, agency contacts, and ground surveys. A total of 35 vertebrate species, including 4 reptiles and amphibians, 23 birds, and 8 mammals, was identified as species occurring or possibly occurring in the study area (see Table 2.3-3). The status and potential for occurrence of these vertebrate species

**Table 2.3-3. State or Federally Listed Wildlife Species Potentially Occurring within the Study Area**

| Common Name | Scientific Name | Designated Status | | Likelihood of Occurrence within Preferred Corridor |
|---|---|---|---|---|
| | | USFWS | FFWCC | |
| **Amphibian** | | | | |
| Gopher frog | *Rana capito* | — | SSC | Moderate in areas of gopher tortoise burrows |
| **Reptiles** | | | | |
| American alligator | *Alligator misissippiensis* | T(S/A) | SSC | Likely in wetlands |
| Eastern indigo snake | *Drymarchon corais couperi* | T | T | Likely in suitable habitats; documented occurrence on corridor |
| Gopher tortoise | *Gopherus polyphemus* | — | SSC | Likely in xeric habitat such as roadsides |
| **Birds** | | | | |
| American oystercatcher | *Haematopus palliatus* | — | SSC | Unlikely; coastal species |
| Bald eagle | *Haliaeetus leucocephalus* | T | T | Likely in suitable habitats along corridor |
| Black skimmer | *Rynchops niger* | — | SSC | Unlikely; coastal species |
| Brown pelican | *Pelecanus occidentalis* | — | SSC | Unlikely; coastal species |
| Cape Sable seaside sparrow | *Ammodramus maritimus mirabilis* | E | E | Populations limited to southern Everglades/Big Cypress Swamp; unlikely in corridor vicinity |
| Crested caracara | *Caracara plancus* | T | T | Low-moderate; could be present along the eastern portions of the route |
| Florida burrowing owl | *Speotyto cunicularia floridana* | — | SSC | Moderate in open lands along corridor |
| Florida grasshopper sparrow | *Ammodramus savannarum* | E | E | Low; range is east of corridor area |
| Florida sandhill crane | *Grus canadensis pratensis* | — | T | Likely in suitable marshes and pastures along the corridor |
| Florida scrub jay | *Aphelocoma c. coerulescens* | T | T | Low; scrub habitat is minimal along corridor |
| Least tern | *Sterna albifrons* | — | T | Unlikely; tends to nest along the coast in sandy areas; however, one reported occurrence 0.5 mile north of the preferred corridor near Pine Ridge Road |
| Limpkin | *Aramus guarauna* | — | SSC | Low; no large slow-moving water courses cross the corridor |
| Little blue heron | *Egretta caerulea* | — | SSC | Likely in suitable wetlands along the corridor |
| Red-cockaded woodpecker | *Picoides borealis* | E | T | Moderate in areas of older pine flatwoods |
| Reddish egret | *Egretta rufescens* | — | SSC | Unlikely; prefers coastal habitats |
| Roseate spoonbill | *Ajaia ajaja* | — | SSC | Moderate for foraging in inland wetlands |

**Table 2.3-3. State or Federally Listed Wildlife Species Potentially Occurring within the Study Area (Continued, Page 2 of 2)**

| Common Name | Scientific Name | Designated Status | | Likelihood of Occurrence within Preferred Corridor |
|---|---|---|---|---|
| | | USFWS | FFWCC | |
| Snail kite | *Rostrhamus sociabilis plumbeus* | E | E | Unlikely; prefers large marshes to the south and east of study area |
| Snowy egret | *Egretta thula* | — | SSC | Likely in suitable wetlands along the corridor |
| Southeastern American kestrel | *Falco sparverius paulus* | — | T | Likely in open land habitats along the corridor |
| Tricolored heron | *Egretta tricolor* | — | SSC | Likely in suitable wetlands along the corridor |
| White ibis | *Eudocimus albus* | — | SSC | Likely in suitable wetlands along the corridor |
| Whooping crane | *Grus americana* | T(E/P) | SSC | Unlikely; only experimental populations have been reintroduced to Florida |
| Wood stork | *Mycteria americana* | E | E | Likely in suitable wetlands along corridor |
| **Mammals** | | | | |
| Florida black bear | *Ursus americanus floridanus* | — | T | Likely along larger swamp portions near the route; several observations exist for the corridor area |
| Florida mastiff bat | *Eumops glaucinus floridanus* | — | E | Unlikely; primarily known from Miami area |
| Florida mouse | *Podomys floridanus* | — | SSC | Low; at southern end of its range in Florida |
| Florida panther | *Felis concolor coryi* | E | E | Likely; panthers occur in Corkscrew Swamp and several observations exist for the corridor area |
| Mangrove fox squirrel | *Sciurus niger avicennia* | — | T | Likely in suitable habitats along corridor |
| Sherman's fox squirrel | *Sciurus niger shermani* | — | SSC | Unlikely; more northern species; mangrove fox squirrel is more likely to occur |
| Short-tailed shrew | *Blarina carolinensis shermani* | — | SSC | Likely in suitable habitat |
| Southern mink | *Mustela vison mink* | — | T | Moderate in wetlands along southern portion of corridor |

Note:
E = endangered.
T = threatened.
T(S/A) = threatened due to similarity in appearance to a federally listed species.
T(E/P) = threatened (experimental population).
SSC = species of special concern.

Sources: FFWCC, 2003.
ECT, 2003.

in and along the preferred corridor are summarized in Table 2.3-3 and discussed in the following paragraphs.

## Amphibians

### Gopher Frog (*Rana capito*)

The gopher frog is a species of special state concern as identified by FFWCC. This amphibian is typically considered a commensal species to the gopher tortoise. Therefore, habitat requirements tend to be xeric upland habitats that support gopher tortoise populations. Therefore, along the preferred corridor wherever xeric habitats are found, there is a moderate likelihood this species may be present.

## Reptiles

### American Alligator (*Alligator mississippiensis*)

The alligator is listed as threatened due to similarity of appearance by USFWS and a species of special concern by FFWCC. However, this reptile would almost certainly be present in wetlands and water bodies along the preferred corridor.

### Eastern Indigo Snake (*Drymarchon corais couperi*)

This distinctive large, black snake can occur in suitable habitats throughout Florida. It has a wide range of habitat preferences and prey species. Often considered as a gopher tortoise commensal, it can be found in xeric habitats, but also uses more mesic habitats as well. It is likely to be found along the preferred corridor. One recorded observation exists within the preferred corridor near the Orange River substation. The indigo is listed as a threatened species by both USFWS and FFWCC.

### Gopher Tortoise (*Gopherus polyphemus*)

The gopher tortoise's range in Florida extends into Lee County and coastal Collier County. It is likely to be found in xeric habitats along the preferred corridor. Since it prefers burrows in sunny locations, xeric habitats along existing road or transmission line rights-of-way may be particularly suited to this species. The gopher tortoise is currently listed as a species of special concern by FFWCC.

## Birds

**American Oystercatcher (*Haemotopus palliatus*)**

This unusual looking bird is listed as a species of special concern by FFWCC. It is a shorebird and, as such, prefers beaches and tidal mudflats. Therefore, it is unlikely to occur along the preferred corridor.

**Bald Eagle (*Haliaeetus leucocephalus*)**

The bald eagle is currently listed as threatened by both USFWS and FFWCC. The eagle is making a comeback in population numbers in the United States, and, in Florida, eagle nests are becoming more common. Although no eagle nests are known to occur within 0.5 mile of the preferred corridor, according to FFWCC records, it could be observed throughout the study area. It is likely to occur along the preferred corridor.

**Black Skimmer (*Rynchops niger*)**

Another unusual looking shore bird, the black skimmer is currently listed as a species of special concern by FFWCC. It feeds with its scissor-like bill, skimming coastal waters. It does congregate occasionally on large inland lakes, but since none occur along the preferred corridor, this bird is unlikely to occur on the preferred corridor.

**Brown Pelican (*Pelecanus occidentalis*)**

The brown pelican is listed as a species of special concern by FFWCC. This bird is a coastal dwelling bird but may be occasionally observed flying over inland areas. However, it is unlikely the pelican would be found along the preferred corridor.

**Cape Sable Seaside Sparrow (*Ammodramus maritimus mirabilis*)**

This secretive bird is listed as endangered by both USFWS and FFWCC. It resides in a small range of extreme southwestern Florida in brackish marshes. Its range and known limited habitat make this bird unlikely to occur along the preferred corridor.

**Crested Caracara (*Caracara plancus*)**

The caracara is a large distinctive hawk-like bird preferring open rangeland habitats scattered with cabbage palms. Its range is generally more central Florida than the FPL study

area. However, there may be a low-moderate likelihood of occurrence along the more eastern stretches of the preferred corridor. The bird is currently listed as threatened by both USFWS and FFWCC.

**Florida Burrowing Owl (*Speotyto cunicularia*)**

The small Florida burrowing owl is listed as a species of special concern by FFWCC. It is most common in central Florida and lives in burrows in sandy soils associated with cattle pastures, prairies, and sandhills. It has a moderate likelihood of occurrence along open habitats along the preferred corridor.

**Florida Grasshopper Sparrow (*Ammodramus savannarum*)**

This federally and state listed endangered bird is typically known from central Florida pastures and rangeland around Lake Okeechobee. It is believed the bird is adapting to cattle pastures and may be more prevalent than originally thought. Given that its primary range is east of the FPL study area and rangeland habitats are minimal along the preferred corridor, there is a low likelihood this species occurs on the preferred corridor.

**Florida Sandhill Crane (*Grus canadensis pratensis*)**

This large bird is listed as threatened by FFWCC. It commingles with the greater sandhill crane, which migrates to Florida. Sandhills prefer shallow marshes for nesting and wet prairies and pastures for foraging. It is likely to occur along portions of the preferred corridor.

**Florida Scrub Jay (*Aphelocoma c. coerulescens*)**

Florida scrub jays are a bluish-grey bird with specific habitat requirements. They like open oak scrub habitats with minimal canopy cover. This bird is currently listed as threatened by both USFWS and FFWCC. Due to the limited potential oak scrub habitat along the preferred corridor, the likelihood of occurrence for this species is deemed low.

**Least Tern (*Sterna albifrons*)**

This small bird is listed as threatened by FFWCC. It is typically a coastal species, nesting on gravel or sandy areas such as beaches, roads, or parking lots. While colonies have

been reported inland in Florida, its likelihood along the preferred corridor is generally considered unlikely.

**Limpkin (*Aramus guarauna*)**

The secretive limpkin is listed as a species of special concern and is found in suitable habitats throughout most of the state. It prefers large, slow-moving watercourses, which are absent from the preferred corridor. Therefore, its likelihood of occurrence is low.

**Little Blue Heron (*Egretta caerula*)**

This wading bird is listed as a species of special concern by FFWCC and is found in suitable wetlands throughout Florida. They prefer freshwater habitats for foraging. This heron is likely to be found in suitable habitats along the preferred corridor.

**Red-Cockaded Woodpecker (*Picoides borealis*)**

This small woodpecker is listed as endangered by USFWS and threatened by FFWCC. It has very specific habitat requirements—old age pine (usually longleaf or slash) that is infected with red-heart disease. In south Florida, the birds have adapted to the smaller south Florida pines and could be found in suitable habitats throughout Lee and Collier Counties. However, given older pine communities are limited along the preferred corridor, this bird's likelihood of occurrence is moderate.

**Reddish Egret (*Egretta rufescens*)**

This russet colored wading bird is also listed as a species of special concern by FFWCC. However, this bird prefers coastal habitats for nesting and foraging and is rarely seen inland. Therefore, its likelihood of occurrence along the preferred corridor is unlikely.

**Roseate Spoonbill (*Ajaia ajaja*)**

Primarily a coastal species, this conspicuous bird occasionally forages in inland marshes and roadside ditches. However, it would not be expected to nest in inland freshwater wetlands. The bird is listed as a species of special concern by FFWCC, and there is a moderate likelihood it could be found foraging in marshes and ditches along the preferred corridor.

**Snail Kite (*Rostrhamus sociabilis*)**

Often called the Everglades kite, this grey hawk is listed as endangered by USFWS and FFWCC. Its habitat requirements are also very specific. It prefers freshwater marsh systems with distinct vegetation profiles. Since its primary food source is the apple snail, hydrological regime is critical to both the food source and nesting of this bird. It is unlikely to occur in the marsh systems along the preferred corridor since its typical range is more south and east of the study area.

**Snowy Egret (*Egretta thula*)**

Snowy egrets, like the other wading birds, are listed as a species of special concern by FFWCC. This bird is widely distributed in Florida in both fresh and saltwater systems. It is likely to occur in wetlands along the preferred corridor.

**Southeastern American Kestrel (*Falco sparverius paulus*)**

This subspecies of the American kestrel is a common resident of open land habitats throughout Florida. The more northern subspecies migrates here in the winter months, but the southeastern kestrel breeds here in summer. Since it prefers open habitats for foraging, it is commonly seen alongside road and transmission line rights-of-way. It is listed as threatened by FFWCC and is likely to be found along the preferred corridor.

**Tricolored Heron (*Egretta tricolor*)**

The tricolored heron (formerly called Louisiana heron) is a species of special concern as listed by FFWCC. It likes estuarine habitats, but can be found foraging in almost any wetland system. It is likely to be found along the preferred corridor.

**White Ibis (*Eudocimus albus*)**

The white ibis is actually one of the most common wading birds in Florida, but it is listed as a species of special concern by FFWCC. Large flocks of this bird are seen foraging in shallow marshes. The white ibis is likely to occur along the preferred corridor.

**Whooping Crane (*Grus americana*)**

This large bird is being reintroduced to Florida in experiments conducted by USFWS and FFWCC. It is currently listed as a threatened (experimental population) species by USFWS and species of special concern by FFWCC. No concentrations of the birds are using habitats near the preferred corridor, so occurrence of this species is deemed unlikely.

**Wood Stork (*Mycteria americana*)**

The wood stork is an endangered species according to both USFWS and FFWCC. This large bird prefers nesting in cypress swamps, and some of the largest nesting areas in Florida occur in the Corkscrew Swamp Sanctuary north of Immokalee Road. Great steps were taken in corridor selection to avoid known wood stork colonies. However, they almost certainly would be found foraging in marshes and ditches along the preferred corridor.

**Wading Bird Colony**

FFWCC records indicate one wading bird colony currently exists within 1,500 ft of the preferred corridor. It is located south of the FPL 500-kV right-of-way just west of the preferred corridor's turn to the south (see Attachment 2-5, Sheet 5). This colony, however, was listed as unoccupied in 2002.

**Mammals**

**Florida Black Bear (*Ursus americanus floridanus*)**

The Florida black bear is currently listed as threatened by FFWCC. This large mammal is known to occur in the study area and prefers large swamps and dense thickets. There would be a likelihood of occurrence of the animal along the preferred corridor in appropriate habitats. Several bear observations and even bear kills on Immokalee Road have been documented for the preferred corridor area. The fact the preferred corridor follows existing linear facilities would minimize impacts to the bear's habitat.

**Florida Mastiff Bat (*Eumops glaucinus floridanus*)**

This large bat is currently listed as endangered by FFWCC. It is primarily known to occur in the Miami area, although one colony has been reported in Charlotte County north of the FPL study area. Based on its scarcity in Florida and the study area, it is unlikely to occur along the preferred corridor.

**Florida Mouse (*Podomys floridanus*)**

The Florida mouse is also recognized as a commensal to the gopher tortoise, commonly found residing in tortoise burrows. The species is listed as a species of special concern by FFWCC. Its range in Florida is north of the FPL study area, although gopher tortoises may exist within the preferred corridor. Its likelihood of occurrence is deemed low.

**Florida Panther (*Felis concolor coryi*)**

One of the rarest mammals in Florida, the panther is listed by USFWS and FFWCC as endangered. This large cat prefers almost any isolated vegetation communities of south Florida. Many of the known animals are found southeast of the study area, although few individuals do occur in Corkscrew Swamp. Although the preferred corridor follows existing rights-of-way much of the way, the panther's range in this area give it a likelihood of occurrence along the corridor. Panther observations (primarily crossing roads such as Immokalee Road) occur along the preferred corridor.

**Mangrove Fox Squirrel (*Sciurus niger avicennia*)**

This subspecies of fox squirrel is listed as threatened by FFWCC. Its habitat preference seems to be dense hardwood cypress stands in Lee and Collier Counties. It feeds on slash pine cones. It should be considered likely to occur in suitable habitats along the preferred corridor.

**Sherman's Fox Squirrel (*Sciurus niger shermani*)**

This other subspecies of fox squirrel is more likely to occur north of the study area. It is unlikely to occur along the preferred corridor. The species is listed as a species of special concern by FFWCC.

**Short-Tailed Shrew (*Blarina carolinensis shermani*)**

This small mammal is listed as a species of special concern by FFWCC. It resides in dense grassy areas along ditches and in mesic hammocks. Since its range and habitat requirements are included along the preferred corridor, it is likely this species may be present.

**Southern Mink (*Mustela vison mink*)**

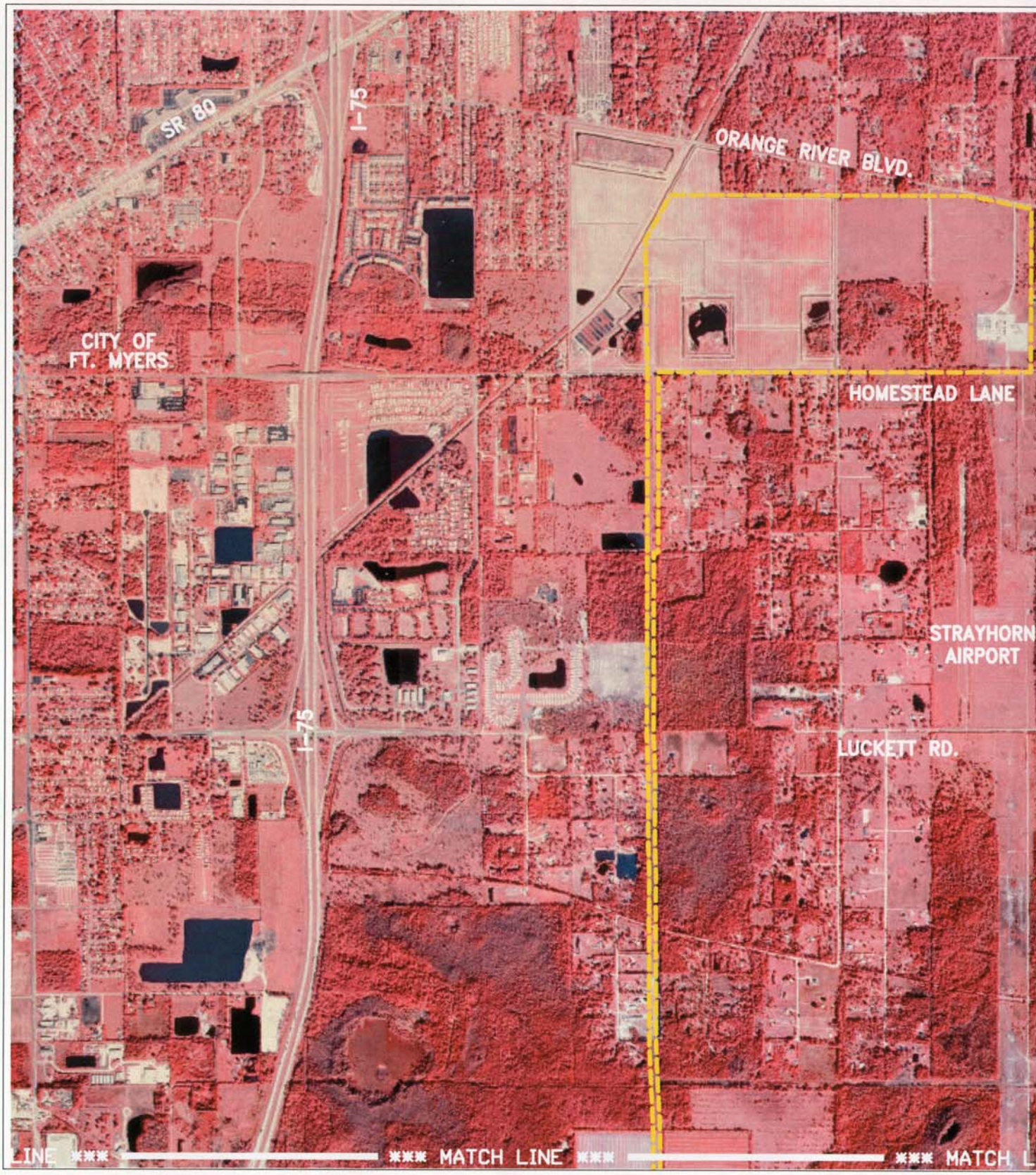
This animal is listed as a threatened species by FFWCC. It is known to occur in the Everglades and Big Cypress Swamp systems of southern Collier County. It has a moderate to low likelihood of occurrence along the preferred corridor.

### 2.3.4 OTHER ENVIRONMENTAL FEATURES

Relevant environmental information regarding the biological and water resources within and near the C-OR #3 Project transmission line preferred corridor is presented in the preceding subsections. No additional information has been determined necessary to describe environmental characteristics of this corridor.

ATTACHMENT 2-1

M:\ACAD\020965\AIRMAPS\MAP1_12.dwg \\ 1_12

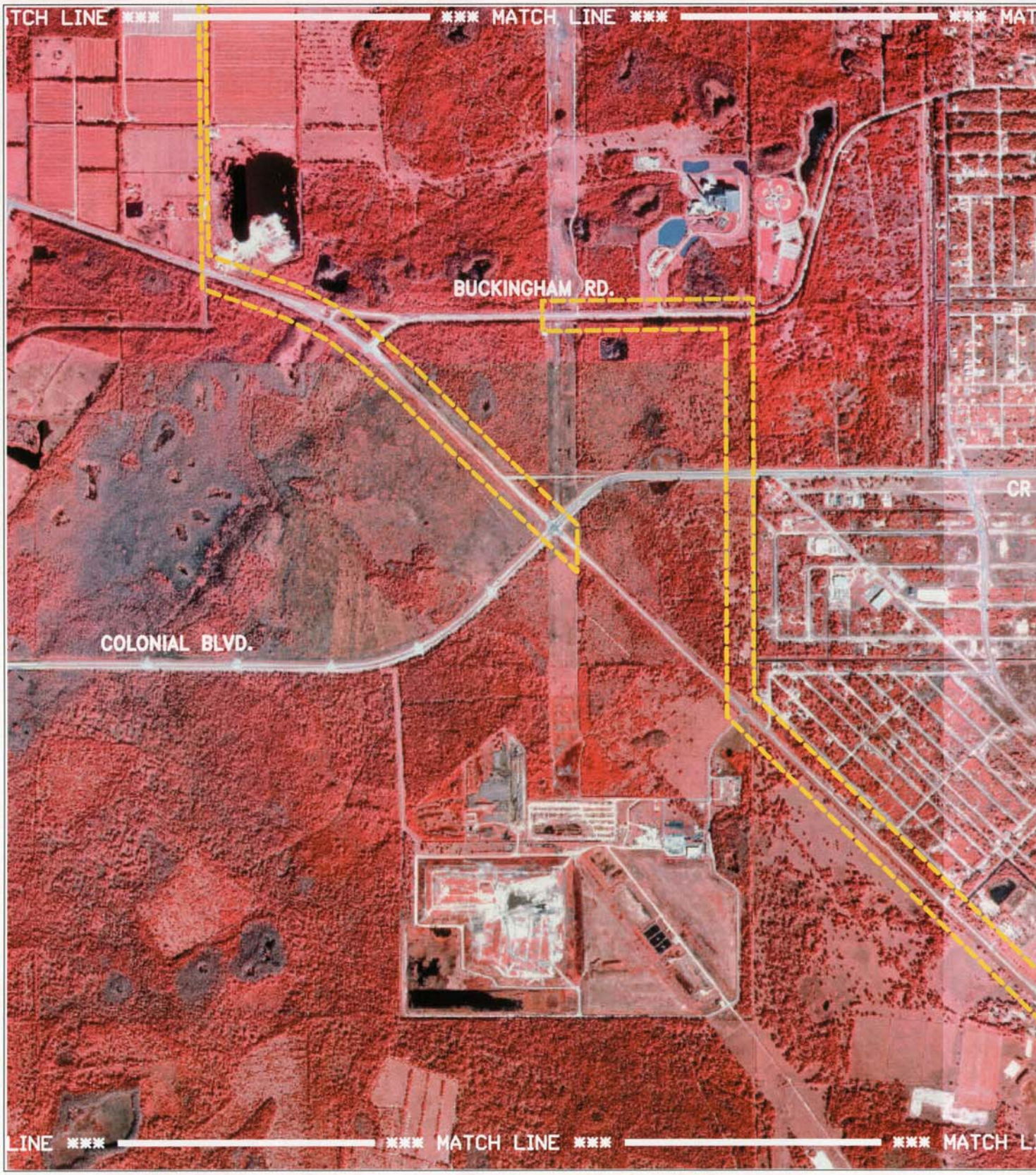



ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 1 OF 12

**Source: FDEP, 1999; ECT, 2003.**

M:\ACAD\020965\AIRMAPS\MAP1_12.dwg \\ 2_12




ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 2 OF 12

**Source: FDEP, 1999; ECT, 2003.**

M:\ACAD\020965\AIRMAPS\MAP1_12.dwg \\ 3_12

ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 3 OF 12

Source: FDEP, 1999; ECT, 2003.

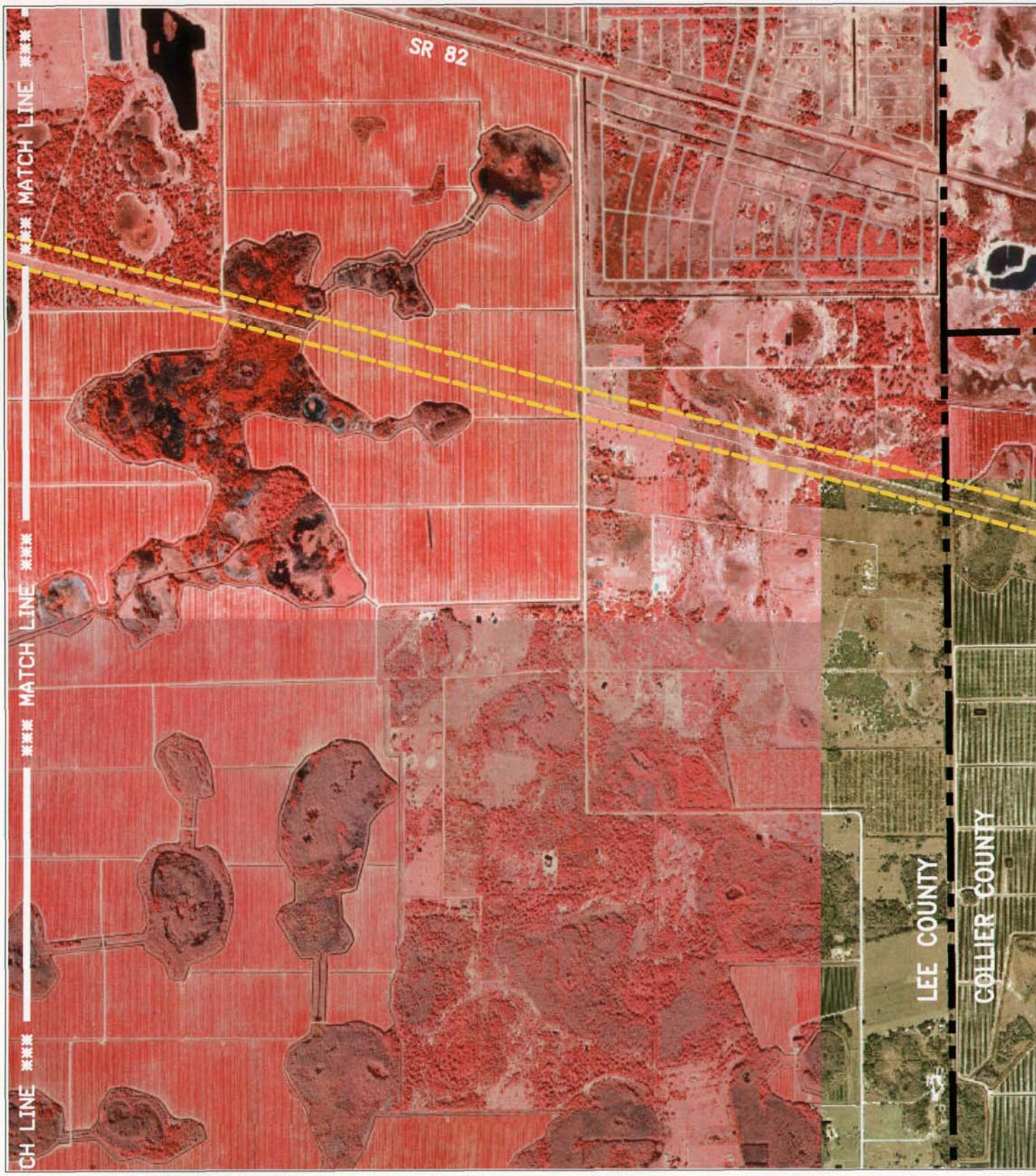
M:\ACAD\020965\AIRMAPS\MAP1_12.dwg \\ 4_12

ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 4 OF 12

**Source: FDEP, 1999; ECT, 2003.**

M:\ACAD\020965\AIRMAPS\MAP1_12.dwg \\ 5_12




ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 5 OF 12

**Source: FDEP, 1999; Collier County Property Appraiser's Office, 2002; ECT, 2003.**

M:\ACAD\020965\AIRMAPS\MAP1_12.dwg // 6_12

ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 6 OF 12

**Source: Collier County Property Appraiser's Office, 2002; ECT, 2003.**

M:\ACAD\020965\AIRMAPS\MAP1_12.dwg \\ 7_12

ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 7 OF 12

**Source: Collier County Property Appraiser's Office, 2002; ECT, 2003.**

M:\ACAD\020965\AIRMAPS\MAP1_12.dwg \\ 8_12

ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 8 OF 12

Source: Collier County Property Appraiser's Office, 2002; ECT, 2003.

M:\ACAD\020965\AIRMAPS\MAP1_12.dwg \\ 9_12

ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 9 OF 12

**Source: Collier County Property Appraiser's Office, 2002; ECT, 2003.**

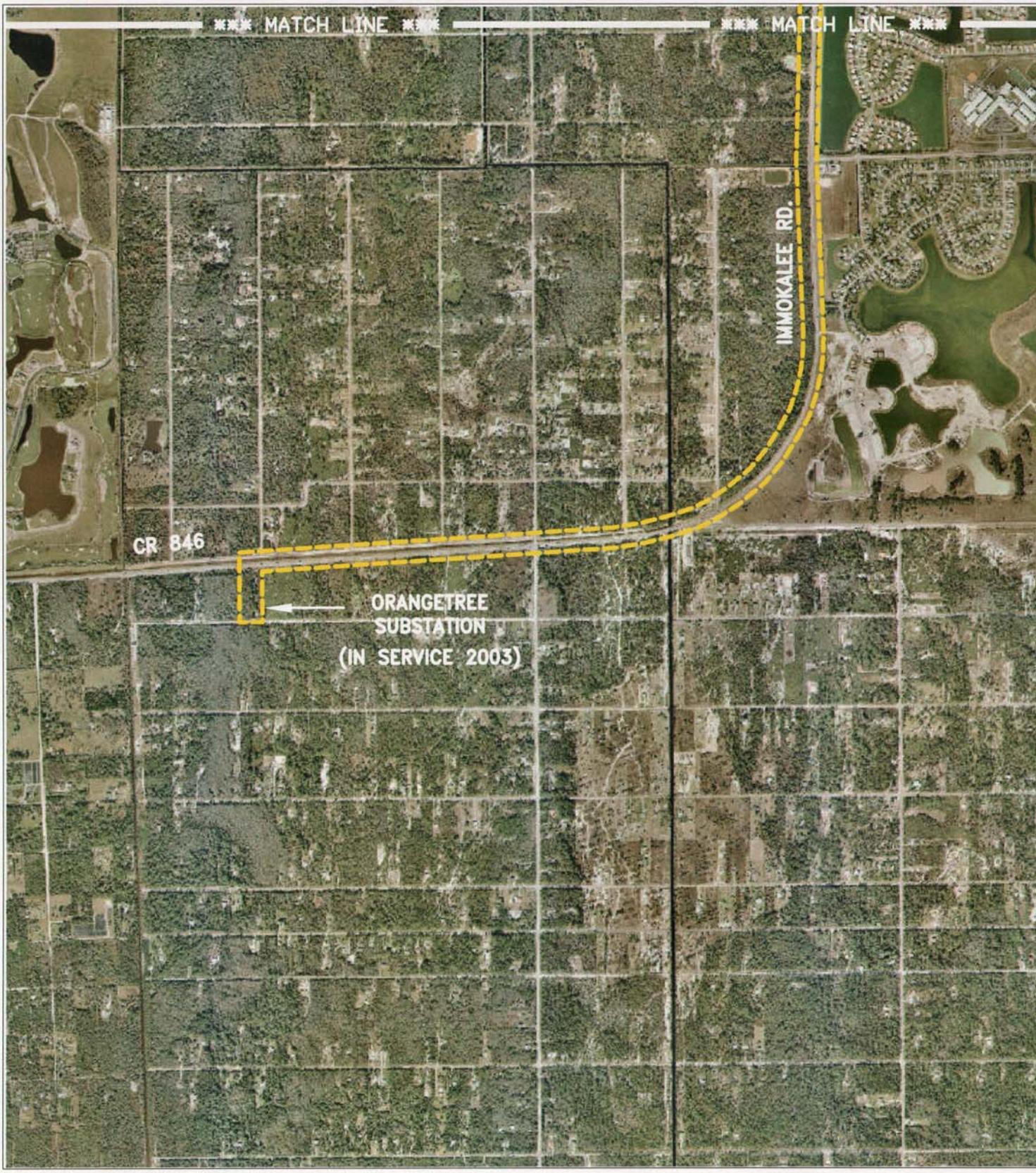
M:\ACAD\020965\AIRMAPS\MAP1_12.dwg // 10_12

ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 10 OF 12

**Source: Collier County Property Appraiser's Office, 2002; ECT, 2003.**

M:\ACAD\020965\AIRMAPS\MAP1_12.dwg \\ 11_12

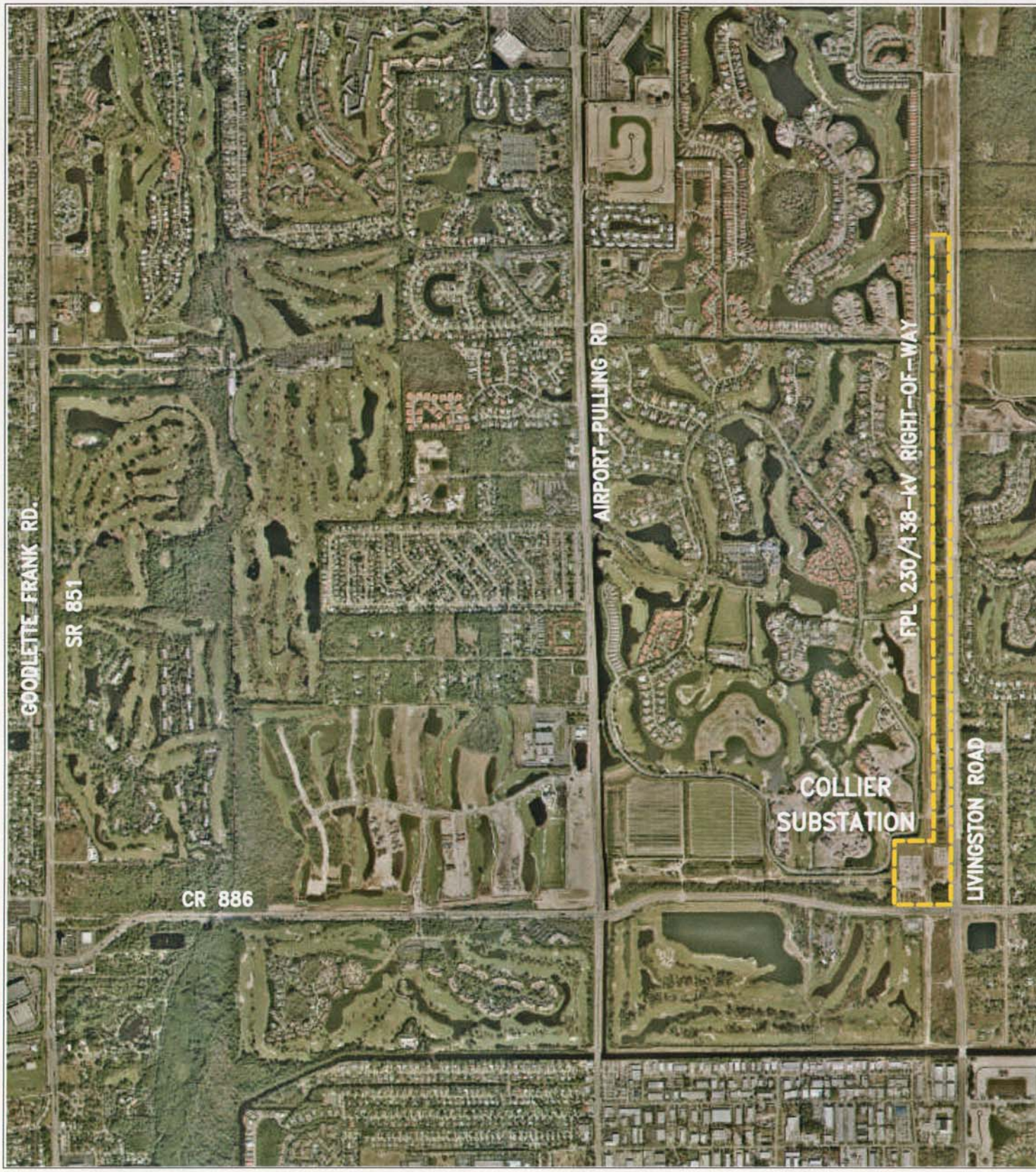



ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 11 OF 12

**Source: Collier County Property Appraiser's Office, 2002; ECT, 2003.**

M:\ACAD\020965\airmaps\MAP1_12.dwg \\ 12_12

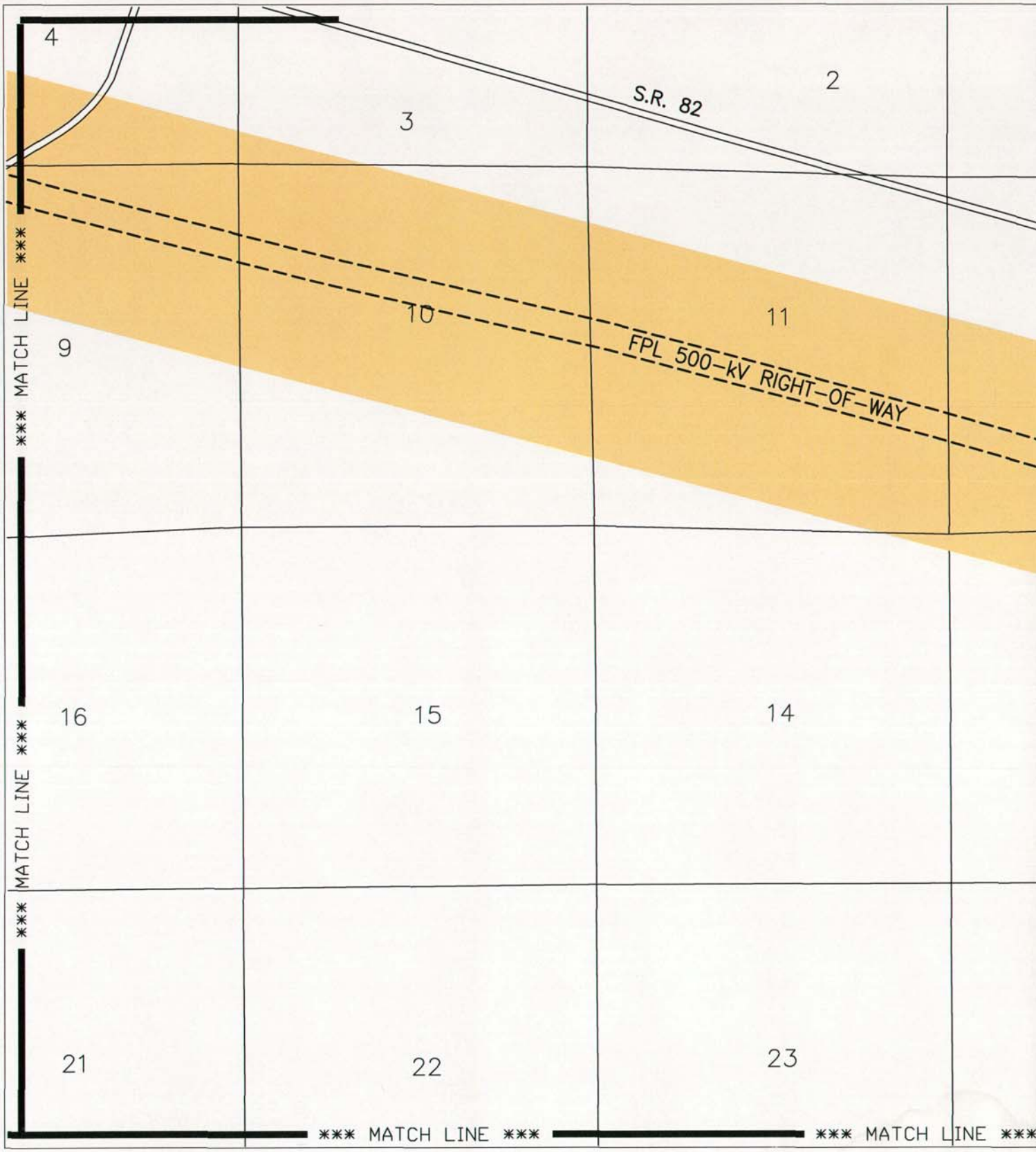



ATTACHMENT 2-1.

AERIAL PHOTOGRAPH : MAP 12 OF 12

**Source: Collier County Property Appraiser's Office, 2002; ECT, 2003.**

M:\ACAD\020965\ZONE\ZONEcol.dwg

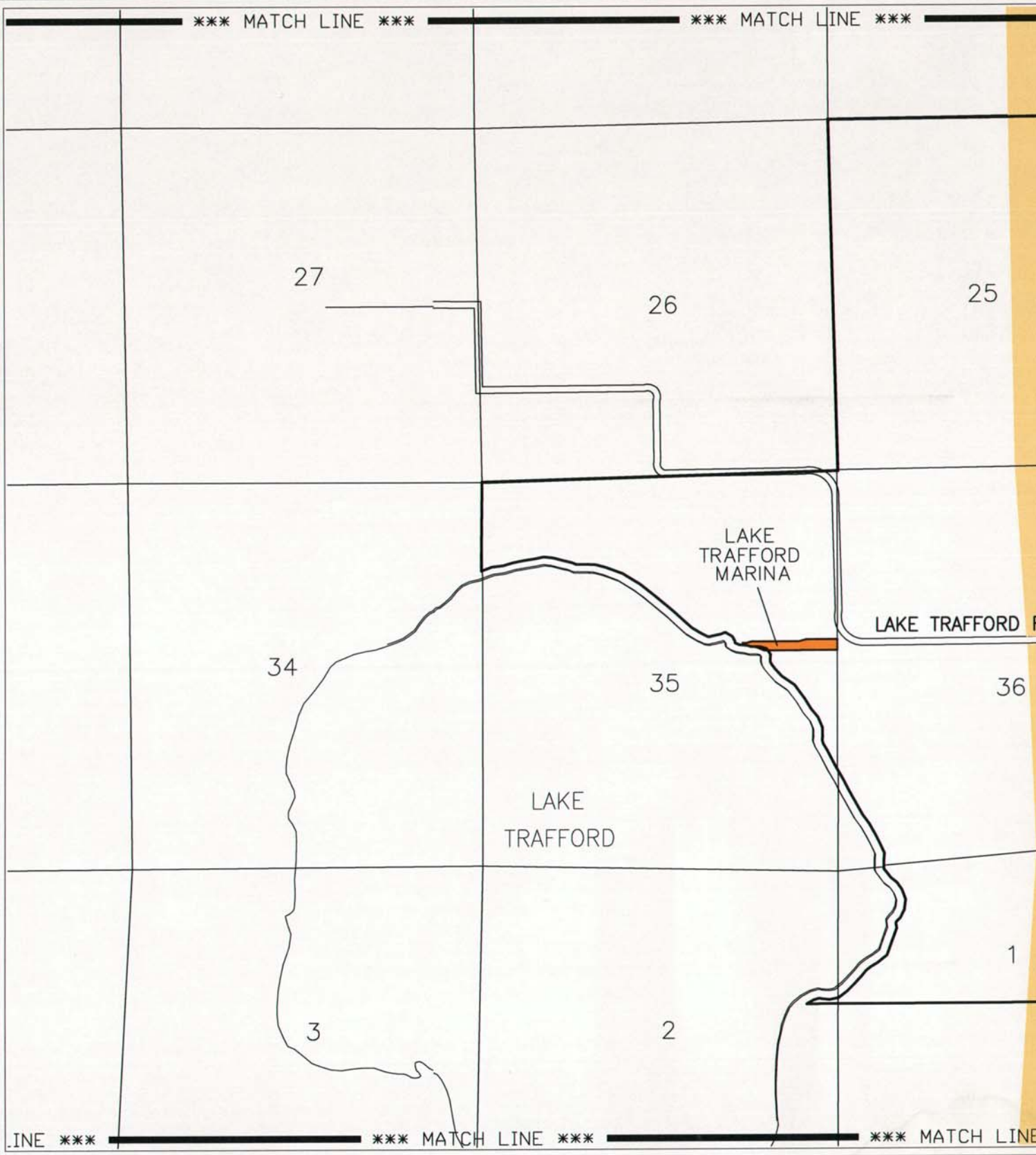



ATTACHMENT 2-3.

ZONING : MAP 6 OF 12

**Sources: Collier County, 2003; ECT, 2003.**

M:\ACAD\020965\ZONE\ZONEcol.dwg




ATTACHMENT 2-3.

ZONING : MAP 7 OF 12

**Sources: Collier County, 2003; ECT, 2003.**

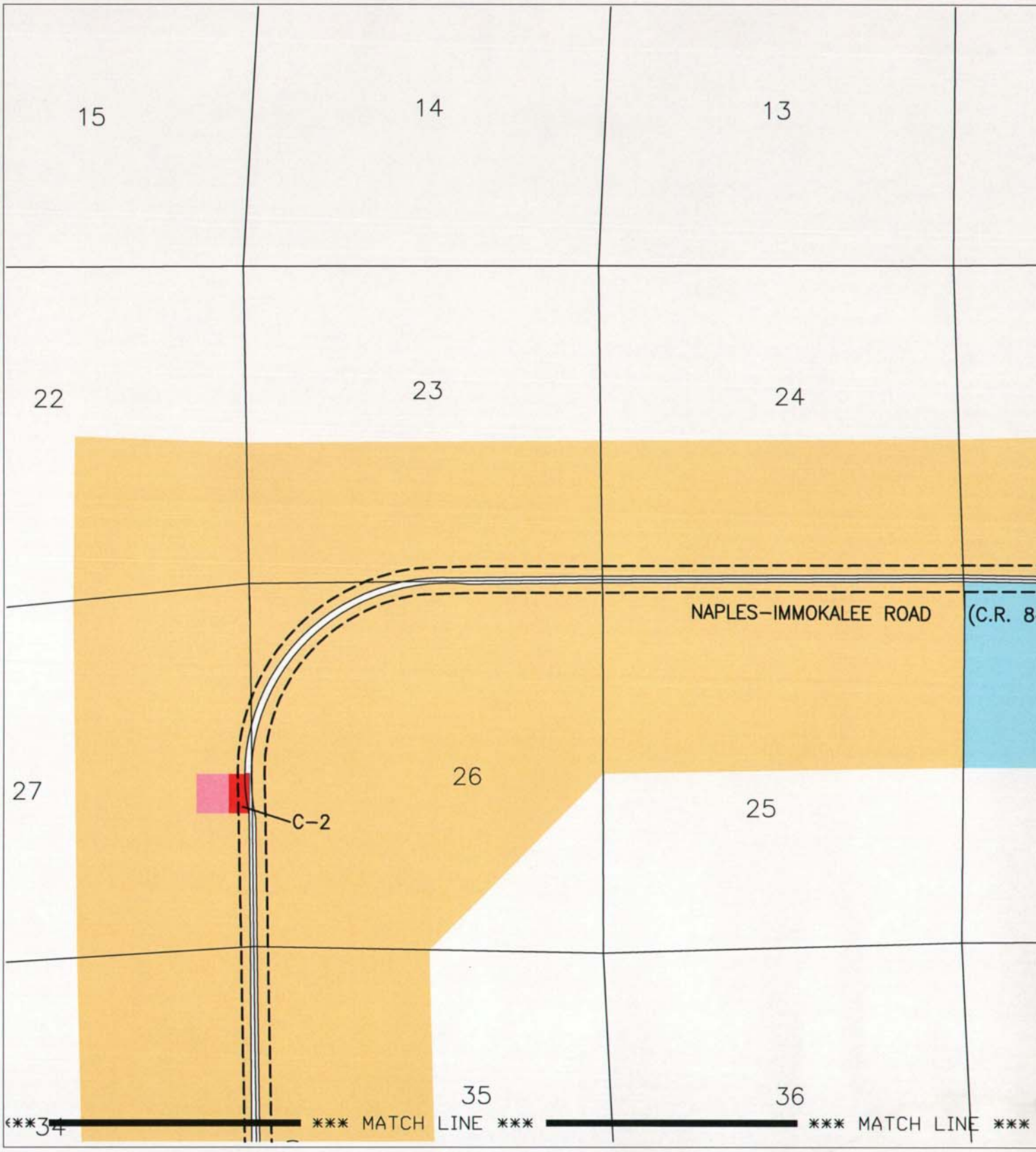
M:\ACAD\020965\ZONE\ZONEcol.dwg

ATTACHMENT 2-3.

ZONING : MAP 8 OF 12

**Sources: Collier County, 2003; ECT, 2003.**

M:\ACAD\020965\ZONE\ZONEcol.dwg

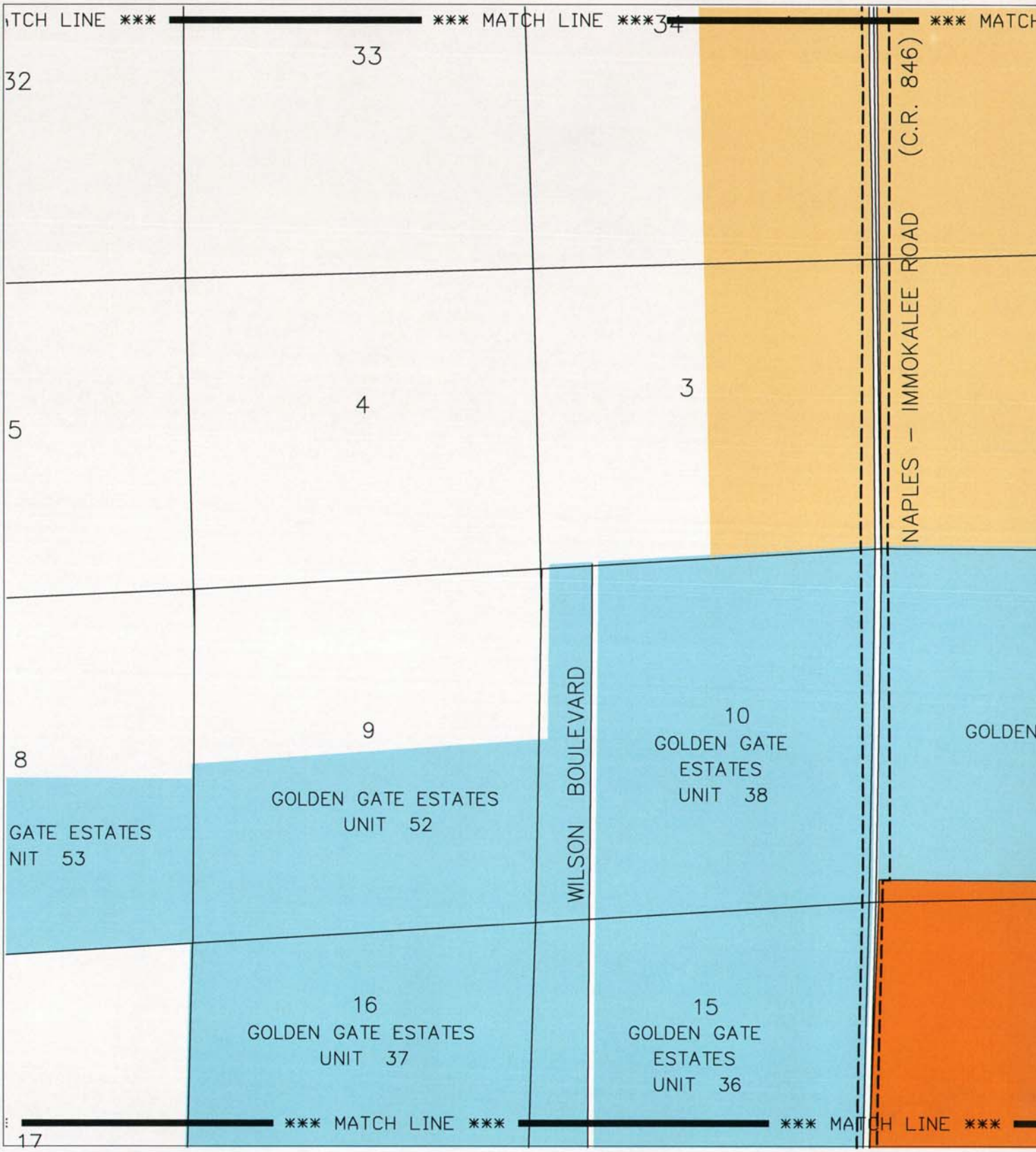



ATTACHMENT 2-3.

ZONING : MAP 9 OF 12

**Sources: Collier County, 2003; ECT, 2003.**

M:\ACAD\020965\ZONE\ZONEcol.dwg

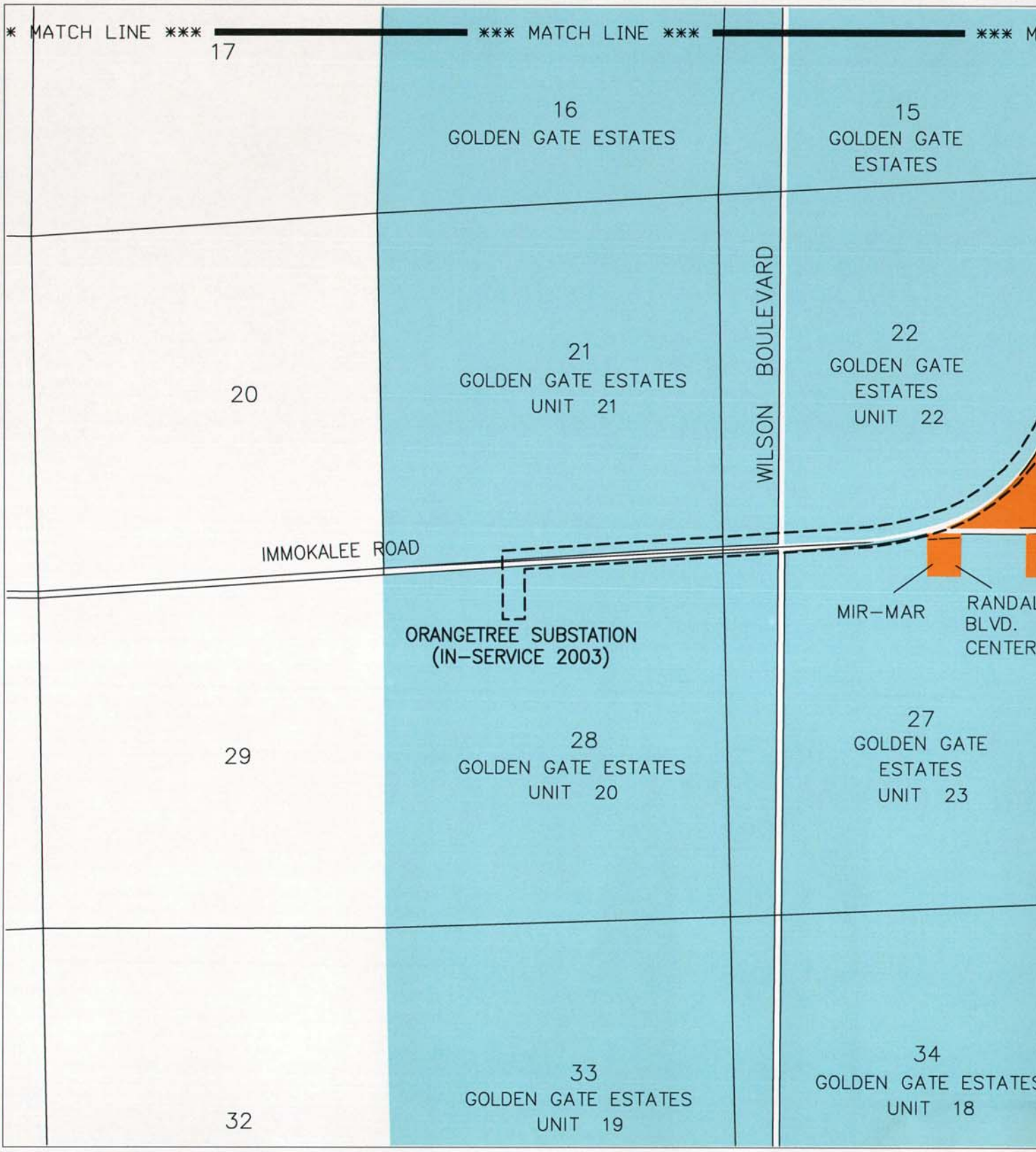



ATTACHMENT 2-3.

ZONING : MAP 10 OF 12

**Sources: Collier County, 2003; ECT, 2003.**

M:\ACAD\020965\ZONE\ZONEcol.dwg

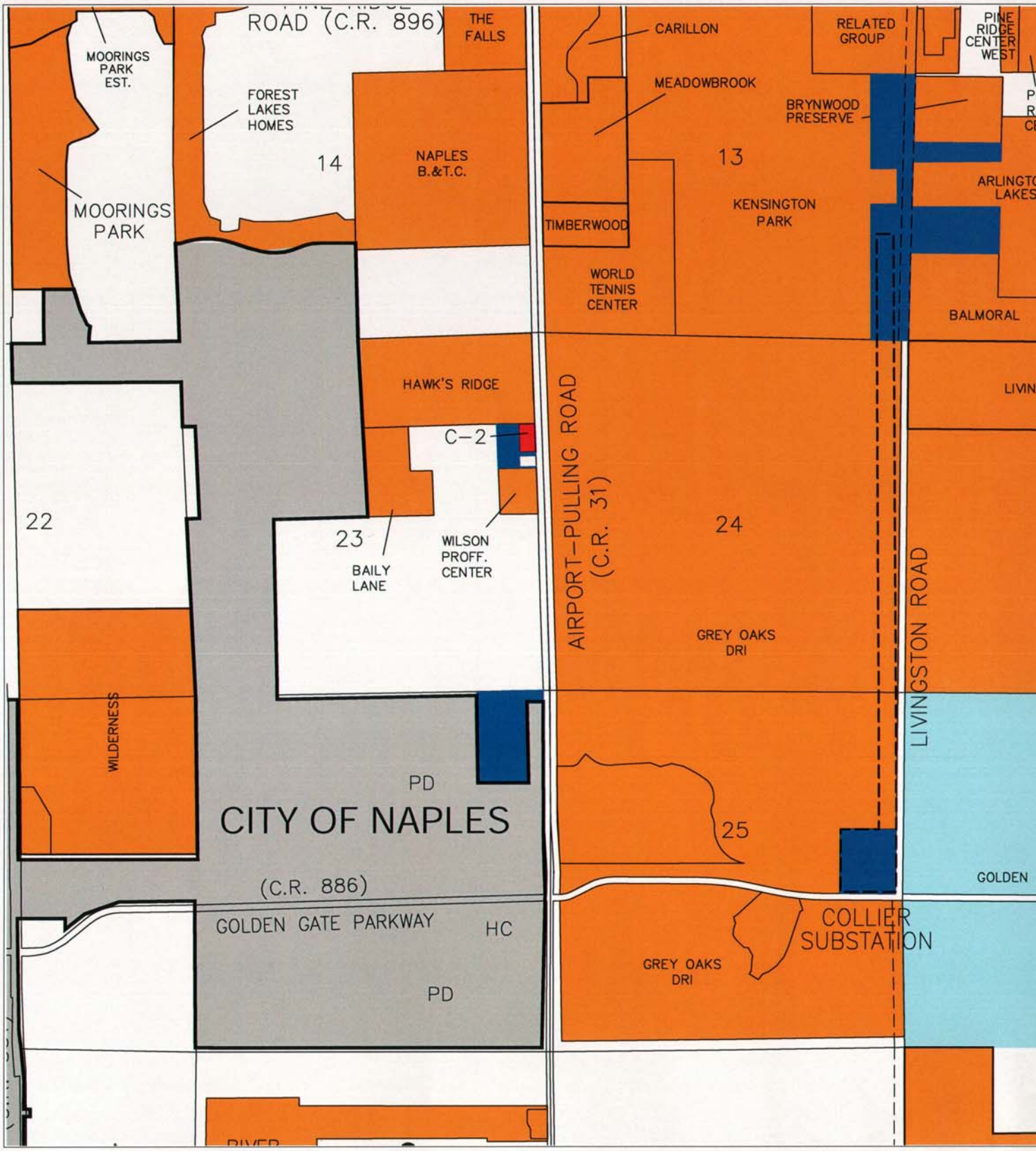



ATTACHMENT 2-3.

ZONING : MAP 11 OF 12

**Sources: Collier County, 2003; ECT, 2003.**

M:\ACAD\020965\ZONE\ZONEcolS.dwg



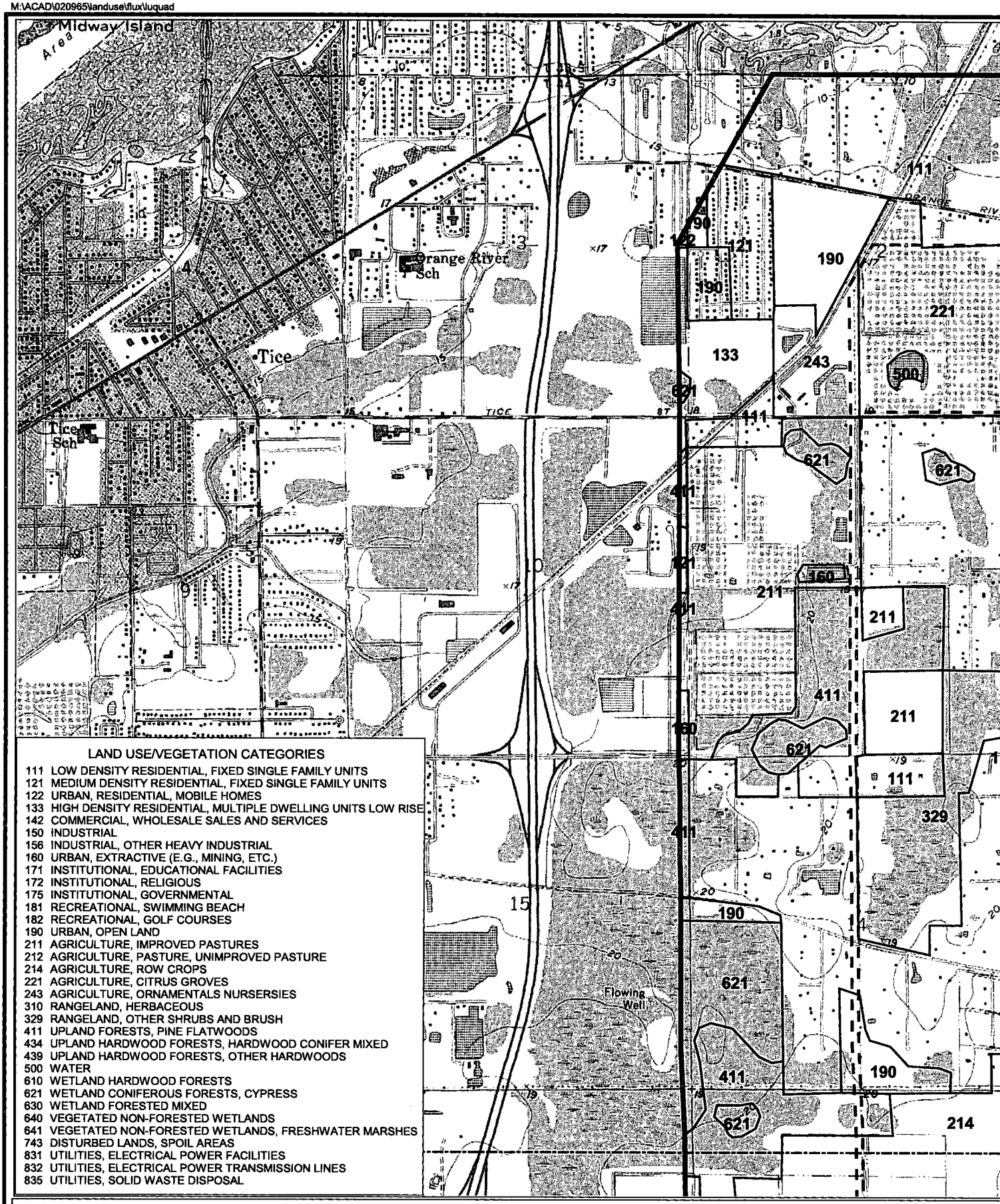

ATTACHMENT 2-3.

ZONING : MAP 12 OF 12

**Sources: Collier County, 2003; ECT, 2003.**

ATTACHMENT 2-4

M:\ACAD\020965\landuse\flux\luquad

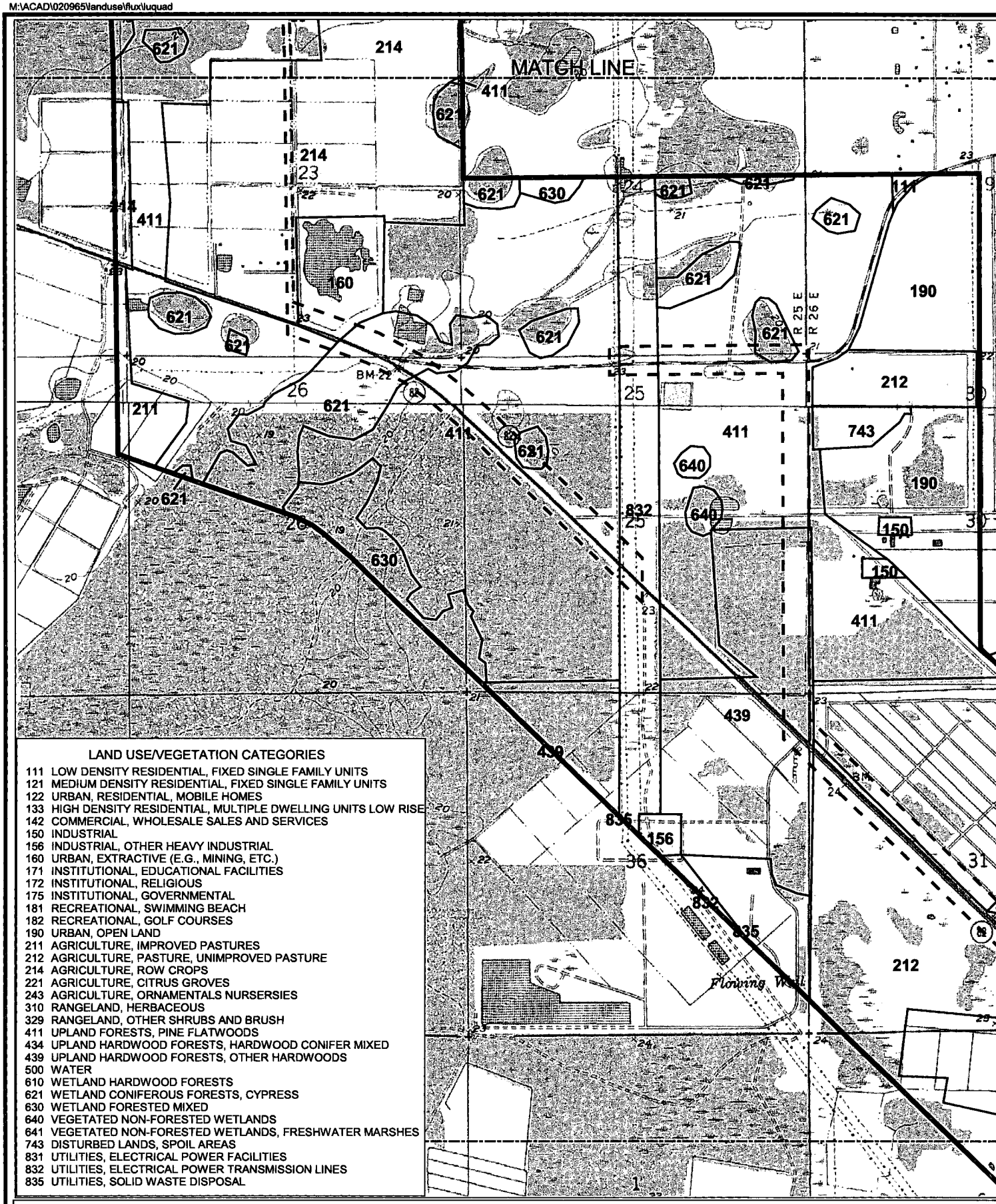



ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 1 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad




LAND USE/VEGETATION CATEGORIES

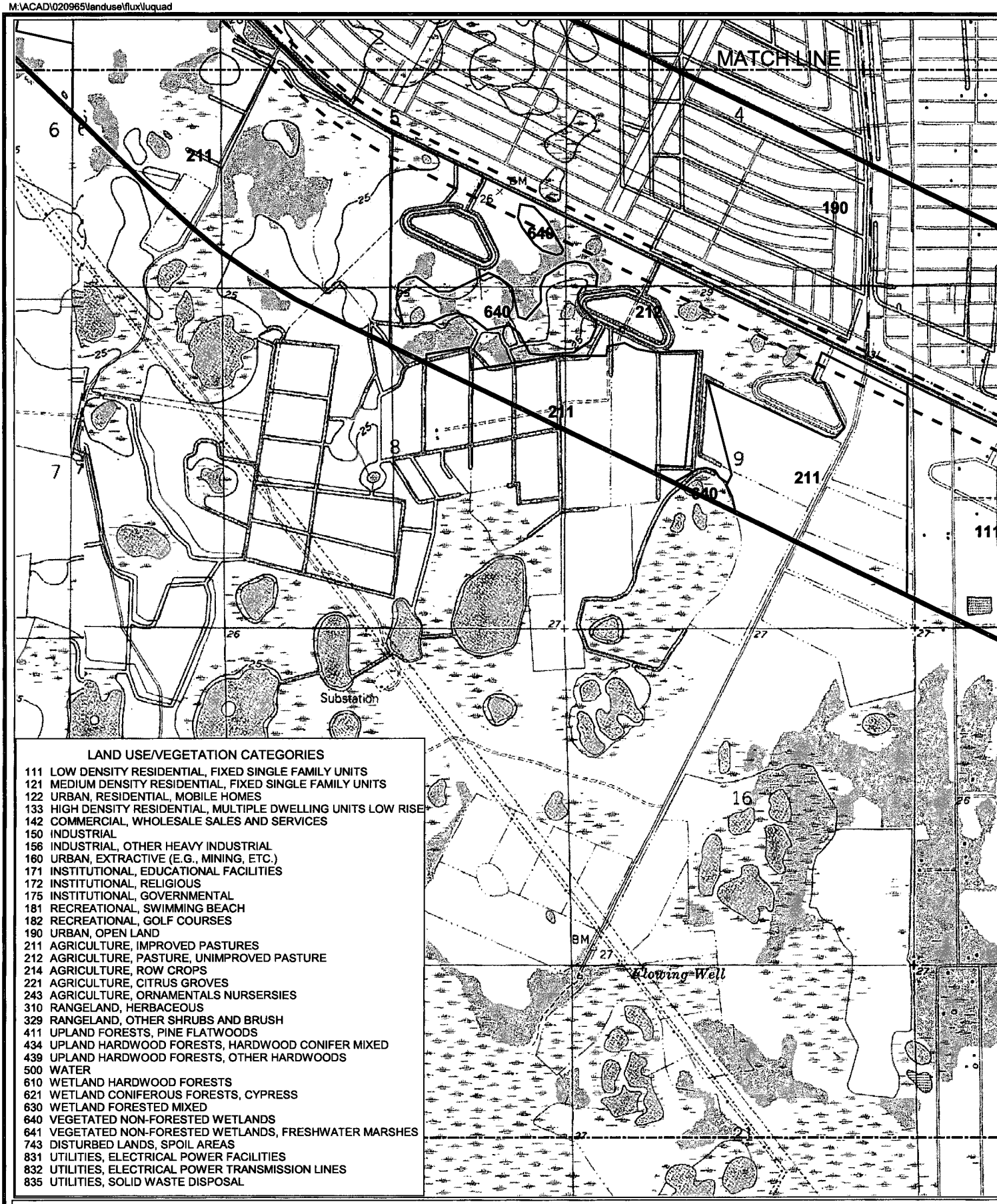
111 LOW DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
121 MEDIUM DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
122 URBAN, RESIDENTIAL, MOBILE HOMES
133 HIGH DENSITY RESIDENTIAL, MULTIPLE DWELLING UNITS LOW RISE
142 COMMERCIAL, WHOLESALE SALES AND SERVICES
150 INDUSTRIAL
156 INDUSTRIAL, OTHER HEAVY INDUSTRIAL
160 URBAN, EXTRACTIVE (E.G., MINING, ETC.)
171 INSTITUTIONAL, EDUCATIONAL FACILITIES
172 INSTITUTIONAL, RELIGIOUS
175 INSTITUTIONAL, GOVERNMENTAL
181 RECREATIONAL, SWIMMING BEACH
182 RECREATIONAL, GOLF COURSES
190 URBAN, OPEN LAND
211 AGRICULTURE, IMPROVED PASTURES
212 AGRICULTURE, PASTURE, UNIMPROVED PASTURE
214 AGRICULTURE, ROW CROPS
221 AGRICULTURE, CITRUS GROVES
243 AGRICULTURE, ORNAMENTALS NURSERSIES
310 RANGELAND, HERBACEOUS
329 RANGELAND, OTHER SHRUBS AND BRUSH
411 UPLAND FORESTS, PINE FLATWOODS
434 UPLAND HARDWOOD FORESTS, HARDWOOD CONIFER MIXED
439 UPLAND HARDWOOD FORESTS, OTHER HARDWOODS
500 WATER
610 WETLAND HARDWOOD FORESTS
621 WETLAND CONIFEROUS FORESTS, CYPRESS
630 WETLAND FORESTED MIXED
640 VEGETATED NON-FORESTED WETLANDS
641 VEGETATED NON-FORESTED WETLANDS, FRESHWATER MARSHES
743 DISTURBED LANDS, SPOIL AREAS
831 UTILITIES, ELECTRICAL POWER FACILITIES
832 UTILITIES, ELECTRICAL POWER TRANSMISSION LINES
835 UTILITIES, SOLID WASTE DISPOSAL

ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 2 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad




LAND USE/VEGETATION CATEGORIES

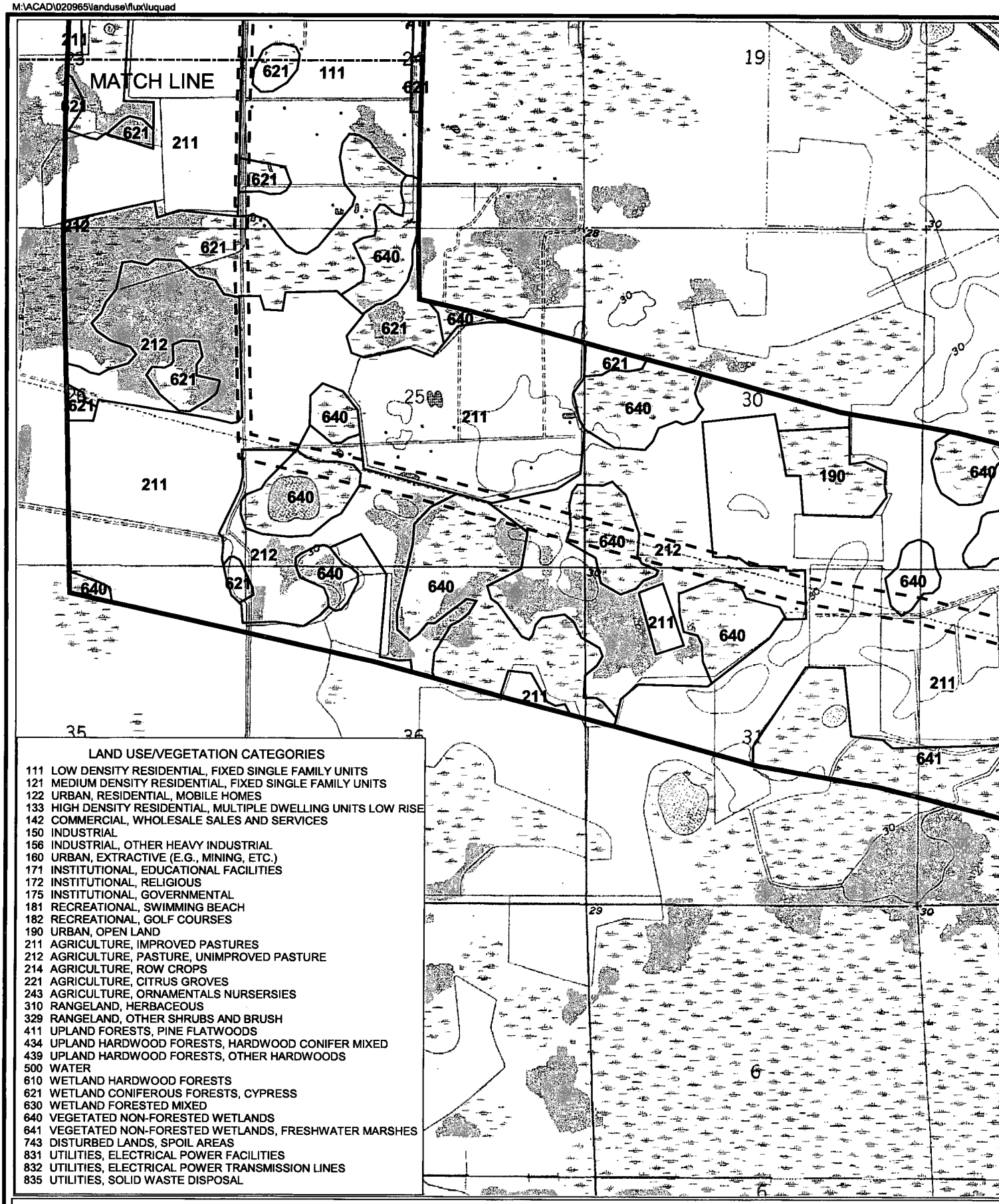
111 LOW DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
121 MEDIUM DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
122 URBAN, RESIDENTIAL, MOBILE HOMES
133 HIGH DENSITY RESIDENTIAL, MULTIPLE DWELLING UNITS LOW RISE
142 COMMERCIAL, WHOLESALE SALES AND SERVICES
150 INDUSTRIAL
156 INDUSTRIAL, OTHER HEAVY INDUSTRIAL
160 URBAN, EXTRACTIVE (E.G., MINING, ETC.)
171 INSTITUTIONAL, EDUCATIONAL FACILITIES
172 INSTITUTIONAL, RELIGIOUS
175 INSTITUTIONAL, GOVERNMENTAL
181 RECREATIONAL, SWIMMING BEACH
182 RECREATIONAL, GOLF COURSES
190 URBAN, OPEN LAND
211 AGRICULTURE, IMPROVED PASTURES
212 AGRICULTURE, PASTURE, UNIMPROVED PASTURE
214 AGRICULTURE, ROW CROPS
221 AGRICULTURE, CITRUS GROVES
243 AGRICULTURE, ORNAMENTALS NURSERSIES
310 RANGELAND, HERBACEOUS
329 RANGELAND, OTHER SHRUBS AND BRUSH
411 UPLAND FORESTS, PINE FLATWOODS
434 UPLAND HARDWOOD FORESTS, HARDWOOD CONIFER MIXED
439 UPLAND HARDWOOD FORESTS, OTHER HARDWOODS
500 WATER
610 WETLAND HARDWOOD FORESTS
621 WETLAND CONIFEROUS FORESTS, CYPRESS
630 WETLAND FORESTED MIXED
640 VEGETATED NON-FORESTED WETLANDS
641 VEGETATED NON-FORESTED WETLANDS, FRESHWATER MARSHES
743 DISTURBED LANDS, SPOIL AREAS
831 UTILITIES, ELECTRICAL POWER FACILITIES
832 UTILITIES, ELECTRICAL POWER TRANSMISSION LINES
835 UTILITIES, SOLID WASTE DISPOSAL

ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 3 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad

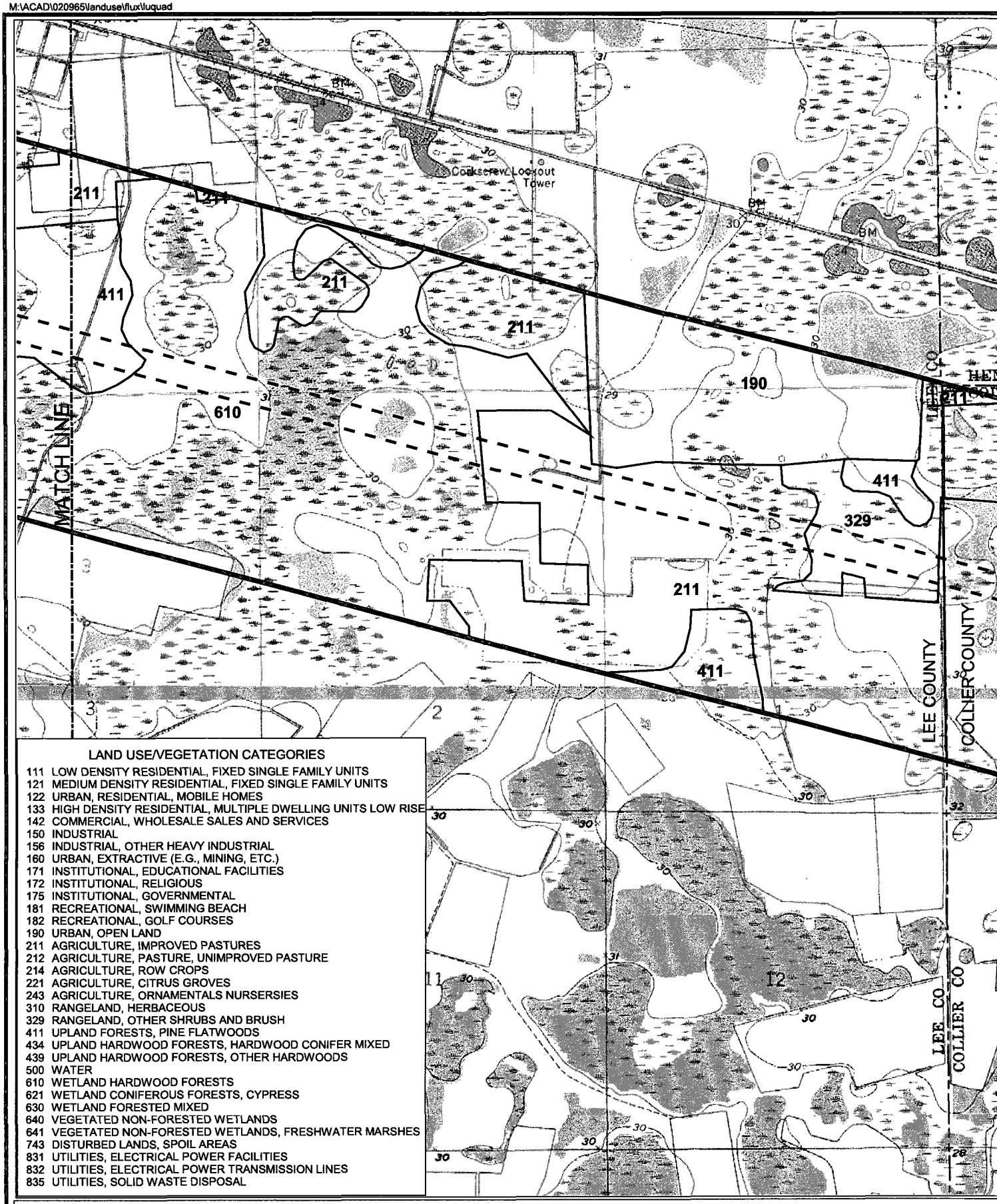



ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 4 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad




LAND USE/VEGETATION CATEGORIES

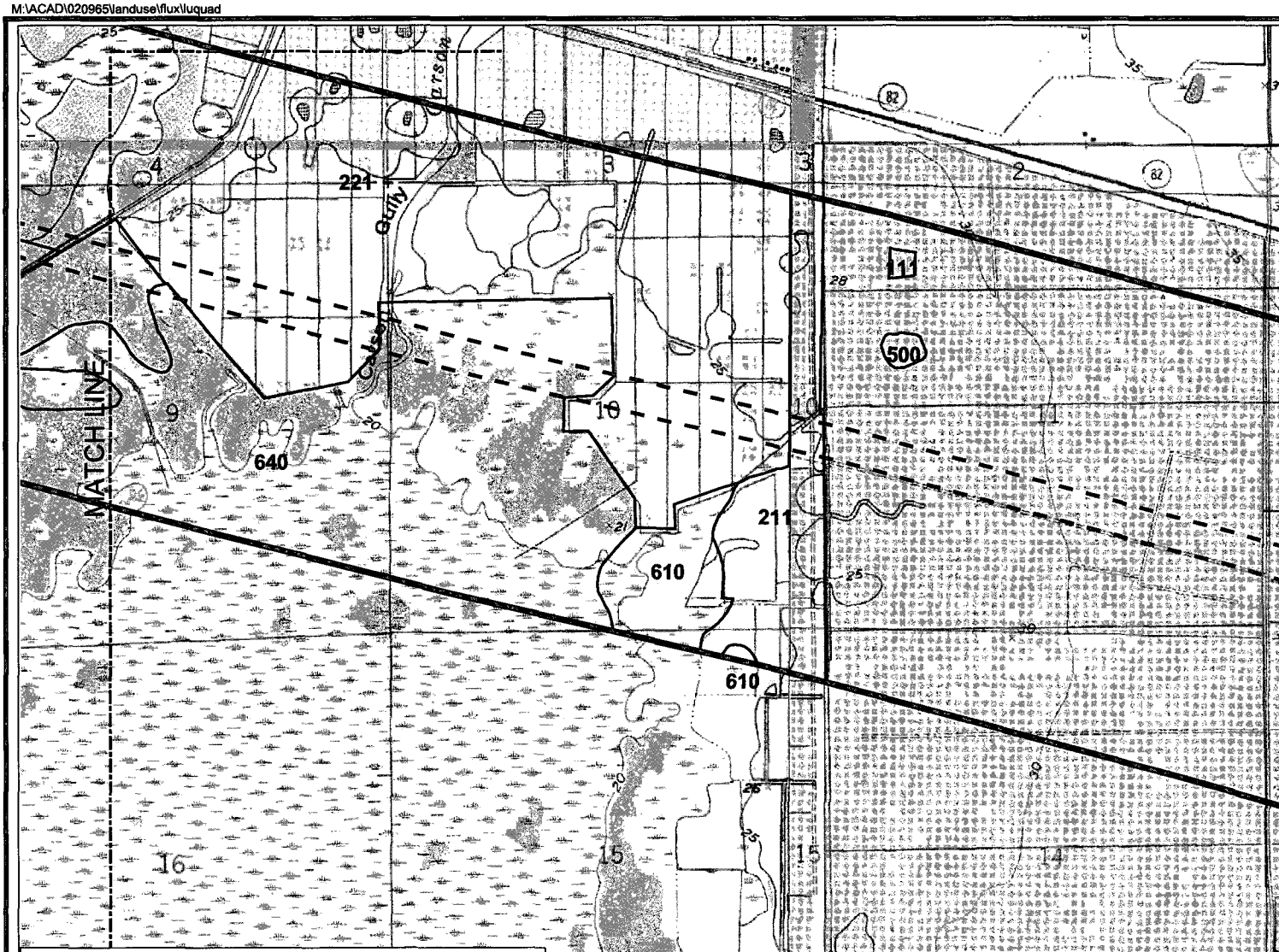
111 LOW DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
121 MEDIUM DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
122 URBAN, RESIDENTIAL, MOBILE HOMES
133 HIGH DENSITY RESIDENTIAL, MULTIPLE DWELLING UNITS LOW RISE
142 COMMERCIAL, WHOLESALE SALES AND SERVICES
150 INDUSTRIAL
156 INDUSTRIAL, OTHER HEAVY INDUSTRIAL
160 URBAN, EXTRACTIVE (E.G., MINING, ETC.)
171 INSTITUTIONAL, EDUCATIONAL FACILITIES
172 INSTITUTIONAL, RELIGIOUS
175 INSTITUTIONAL, GOVERNMENTAL
181 RECREATIONAL, SWIMMING BEACH
182 RECREATIONAL, GOLF COURSES
190 URBAN, OPEN LAND
211 AGRICULTURE, IMPROVED PASTURES
212 AGRICULTURE, PASTURE, UNIMPROVED PASTURE
214 AGRICULTURE, ROW CROPS
221 AGRICULTURE, CITRUS GROVES
243 AGRICULTURE, ORNAMENTALS NURSERSIES
310 RANGELAND, HERBACEOUS
329 RANGELAND, OTHER SHRUBS AND BRUSH
411 UPLAND FORESTS, PINE FLATWOODS
434 UPLAND HARDWOOD FORESTS, HARDWOOD CONIFER MIXED
439 UPLAND HARDWOOD FORESTS, OTHER HARDWOODS
500 WATER
610 WETLAND HARDWOOD FORESTS
621 WETLAND CONIFEROUS FORESTS, CYPRESS
630 WETLAND FORESTED MIXED
640 VEGETATED NON-FORESTED WETLANDS
641 VEGETATED NON-FORESTED WETLANDS, FRESHWATER MARSHES
743 DISTURBED LANDS, SPOIL AREAS
831 UTILITIES, ELECTRICAL POWER FACILITIES
832 UTILITIES, ELECTRICAL POWER TRANSMISSION LINES
835 UTILITIES, SOLID WASTE DISPOSAL

ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 5 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad




LAND USE/VEGETATION CATEGORIES

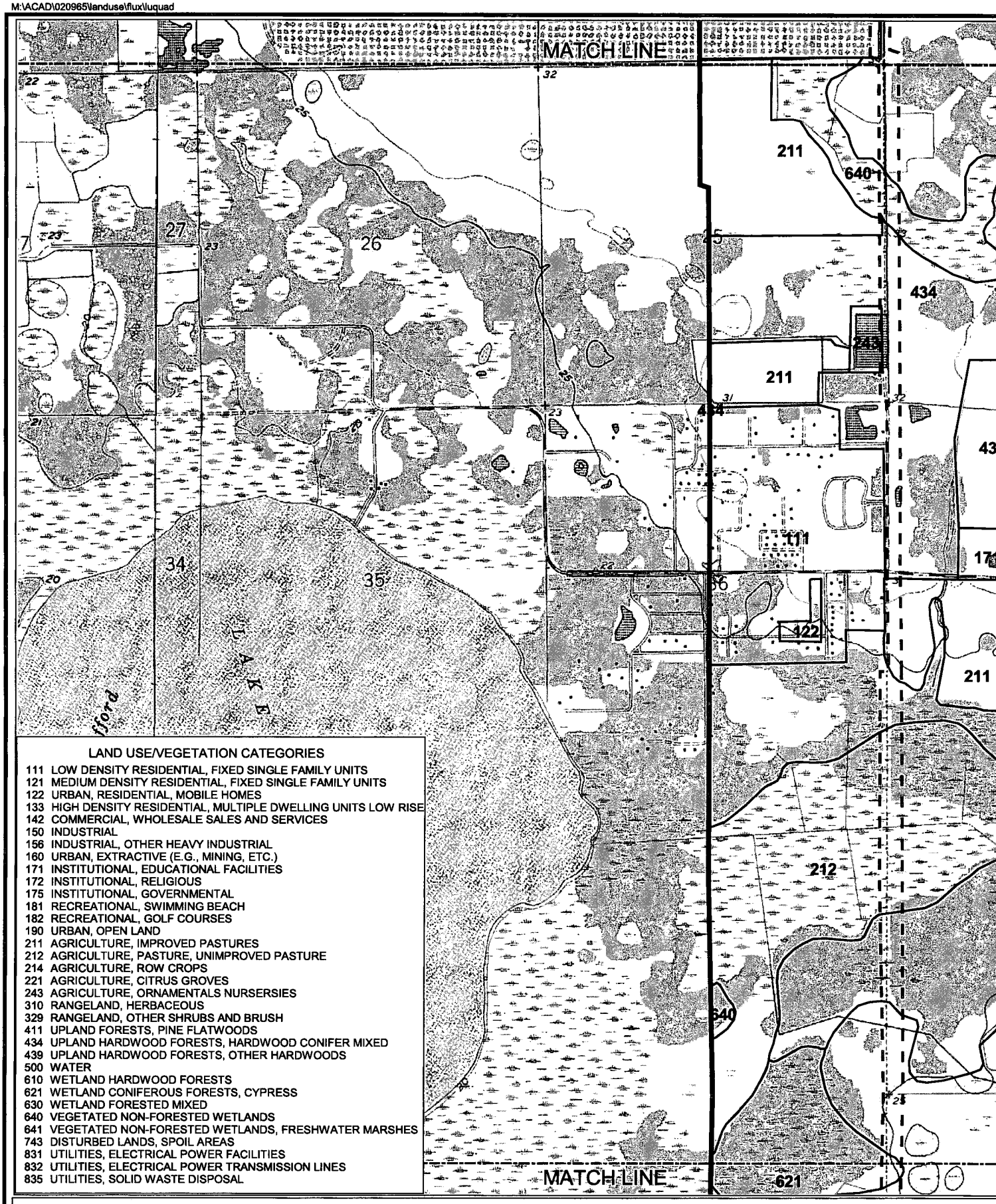
111 LOW DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
121 MEDIUM DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
122 URBAN, RESIDENTIAL, MOBILE HOMES
133 HIGH DENSITY RESIDENTIAL, MULTIPLE DWELLING UNITS LOW RISE
142 COMMERCIAL, WHOLESALE SALES AND SERVICES
150 INDUSTRIAL
156 INDUSTRIAL, OTHER HEAVY INDUSTRIAL
160 URBAN, EXTRACTIVE (E.G., MINING, ETC.)
171 INSTITUTIONAL, EDUCATIONAL FACILITIES
172 INSTITUTIONAL, RELIGIOUS
175 INSTITUTIONAL, GOVERNMENTAL
181 RECREATIONAL, SWIMMING BEACH
182 RECREATIONAL, GOLF COURSES
190 URBAN, OPEN LAND
211 AGRICULTURE, IMPROVED PASTURES
212 AGRICULTURE, PASTURE, UNIMPROVED PASTURE
214 AGRICULTURE, ROW CROPS
221 AGRICULTURE, CITRUS GROVES
243 AGRICULTURE, ORNAMENTALS NURSERSIES
310 RANGELAND, HERBACEOUS
329 RANGELAND, OTHER SHRUBS AND BRUSH
411 UPLAND FORESTS, PINE FLATWOODS
434 UPLAND HARDWOOD FORESTS, HARDWOOD CONIFER MIXED
439 UPLAND HARDWOOD FORESTS, OTHER HARDWOODS
500 WATER
610 WETLAND HARDWOOD FORESTS
621 WETLAND CONIFEROUS FORESTS, CYPRESS
630 WETLAND FORESTED MIXED
640 VEGETATED NON-FORESTED WETLANDS
641 VEGETATED NON-FORESTED WETLANDS, FRESHWATER MARSHES
743 DISTURBED LANDS, SPOIL AREAS
831 UTILITIES, ELECTRICAL POWER FACILITIES
832 UTILITIES, ELECTRICAL POWER TRANSMISSION LINES
835 UTILITIES, SOLID WASTE DISPOSAL

ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 6 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad

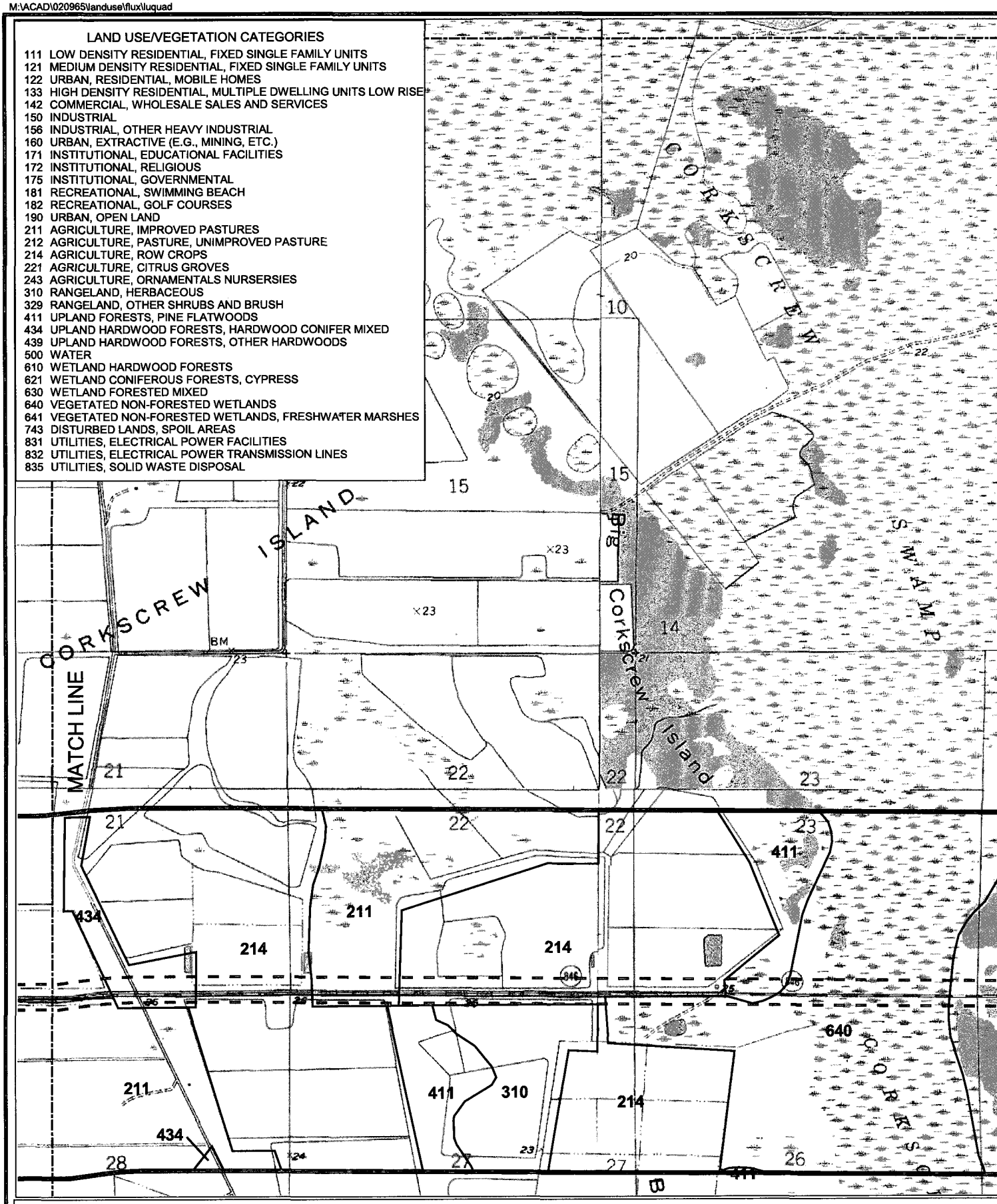



ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 7 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad

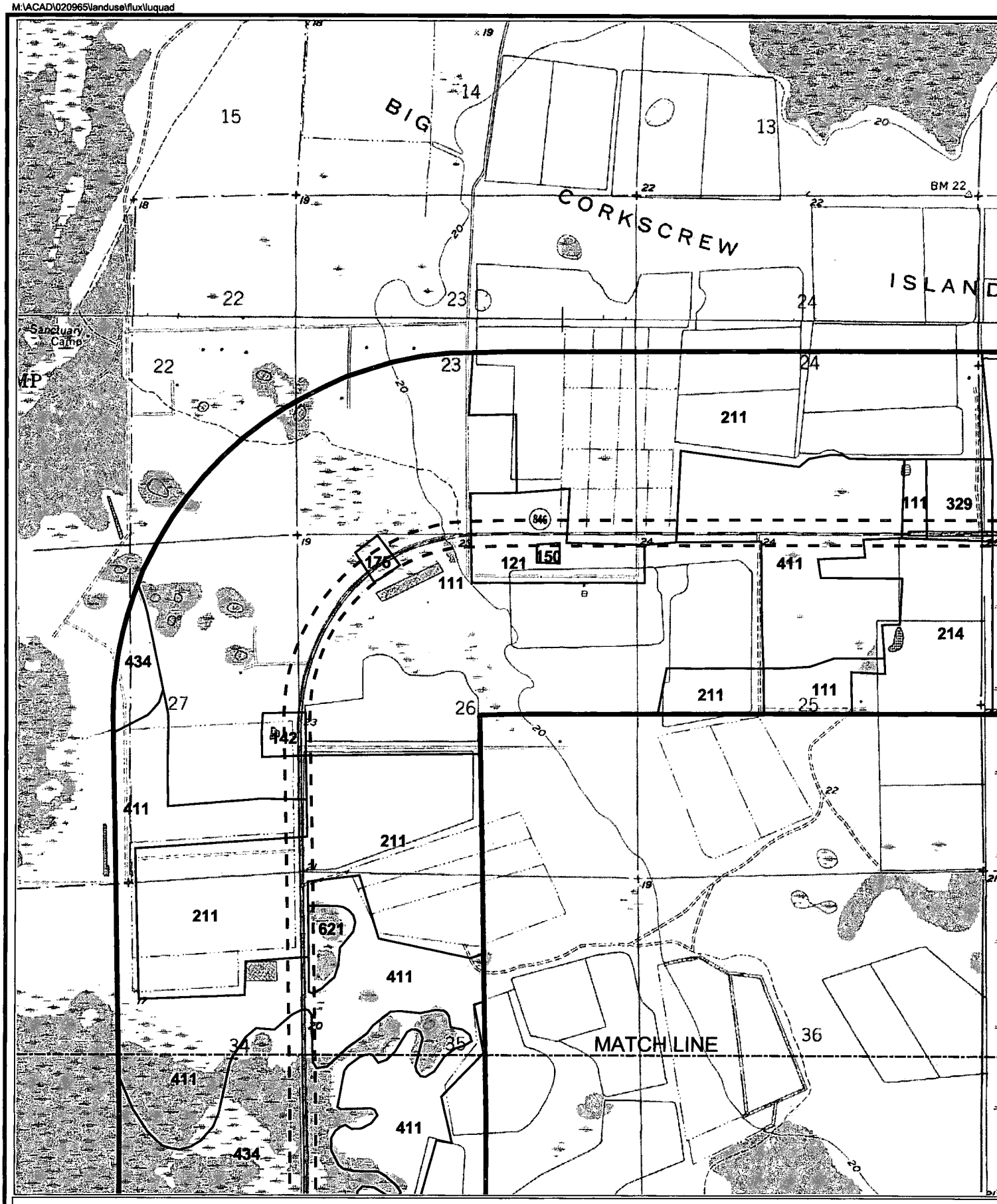



ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 8 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad

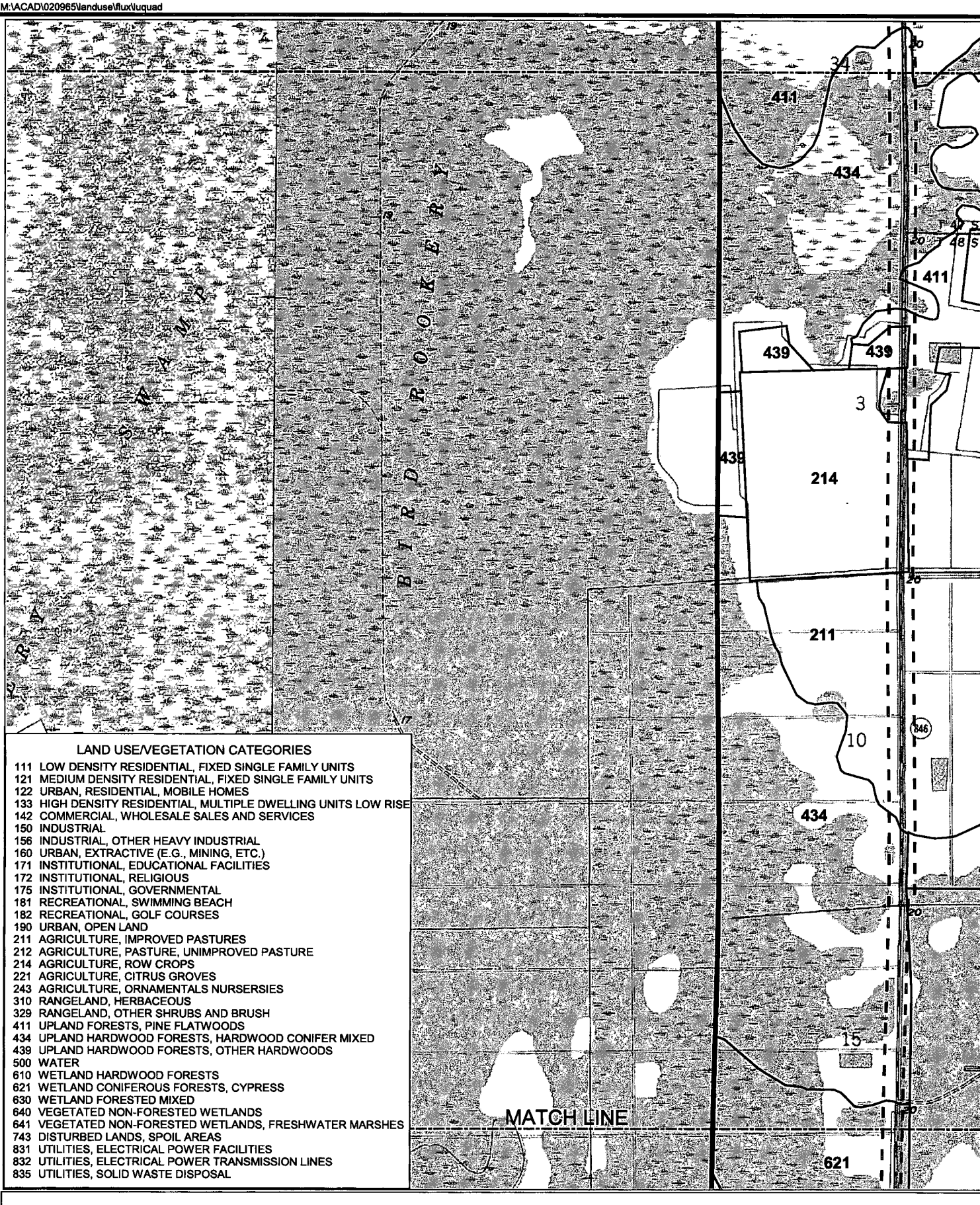



ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 9 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad




LAND USE/VEGETATION CATEGORIES

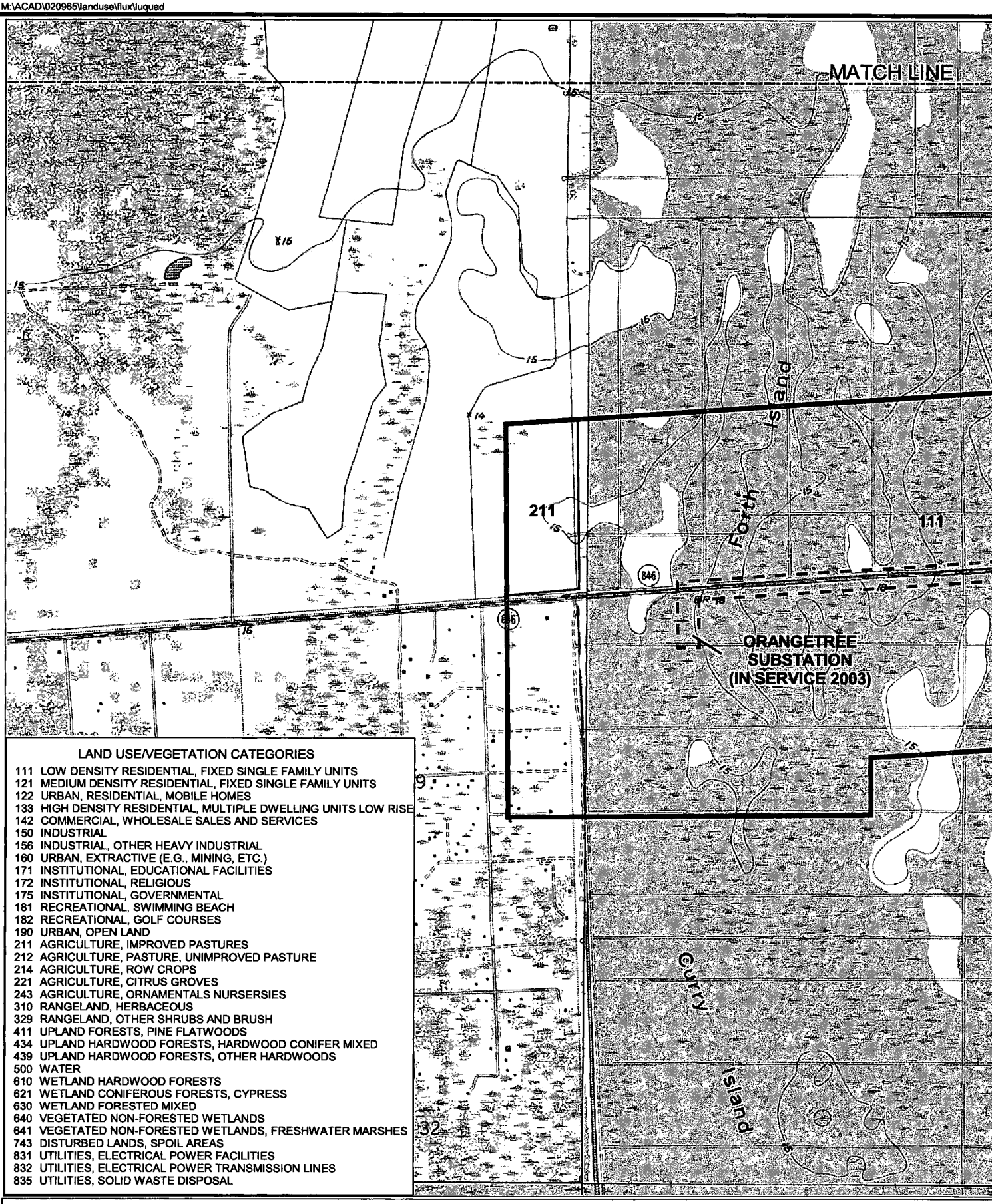
111 LOW DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
121 MEDIUM DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
122 URBAN, RESIDENTIAL, MOBILE HOMES
133 HIGH DENSITY RESIDENTIAL, MULTIPLE DWELLING UNITS LOW RISE
142 COMMERCIAL, WHOLESALE SALES AND SERVICES
150 INDUSTRIAL
156 INDUSTRIAL, OTHER HEAVY INDUSTRIAL
160 URBAN, EXTRACTIVE (E.G., MINING, ETC.)
171 INSTITUTIONAL, EDUCATIONAL FACILITIES
172 INSTITUTIONAL, RELIGIOUS
175 INSTITUTIONAL, GOVERNMENTAL
181 RECREATIONAL, SWIMMING BEACH
182 RECREATIONAL, GOLF COURSES
190 URBAN, OPEN LAND
211 AGRICULTURE, IMPROVED PASTURES
212 AGRICULTURE, PASTURE, UNIMPROVED PASTURE
214 AGRICULTURE, ROW CROPS
221 AGRICULTURE, CITRUS GROVES
243 AGRICULTURE, ORNAMENTALS NURSERSIES
310 RANGELAND, HERBACEOUS
329 RANGELAND, OTHER SHRUBS AND BRUSH
411 UPLAND FORESTS, PINE FLATWOODS
434 UPLAND HARDWOOD FORESTS, HARDWOOD CONIFER MIXED
439 UPLAND HARDWOOD FORESTS, OTHER HARDWOODS
500 WATER
610 WETLAND HARDWOOD FORESTS
621 WETLAND CONIFEROUS FORESTS, CYPRESS
630 WETLAND FORESTED MIXED
640 VEGETATED NON-FORESTED WETLANDS
641 VEGETATED NON-FORESTED WETLANDS, FRESHWATER MARSHES
743 DISTURBED LANDS, SPOIL AREAS
831 UTILITIES, ELECTRICAL POWER FACILITIES
832 UTILITIES, ELECTRICAL POWER TRANSMISSION LINES
835 UTILITIES, SOLID WASTE DISPOSAL

ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 10 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad




LAND USE/VEGETATION CATEGORIES

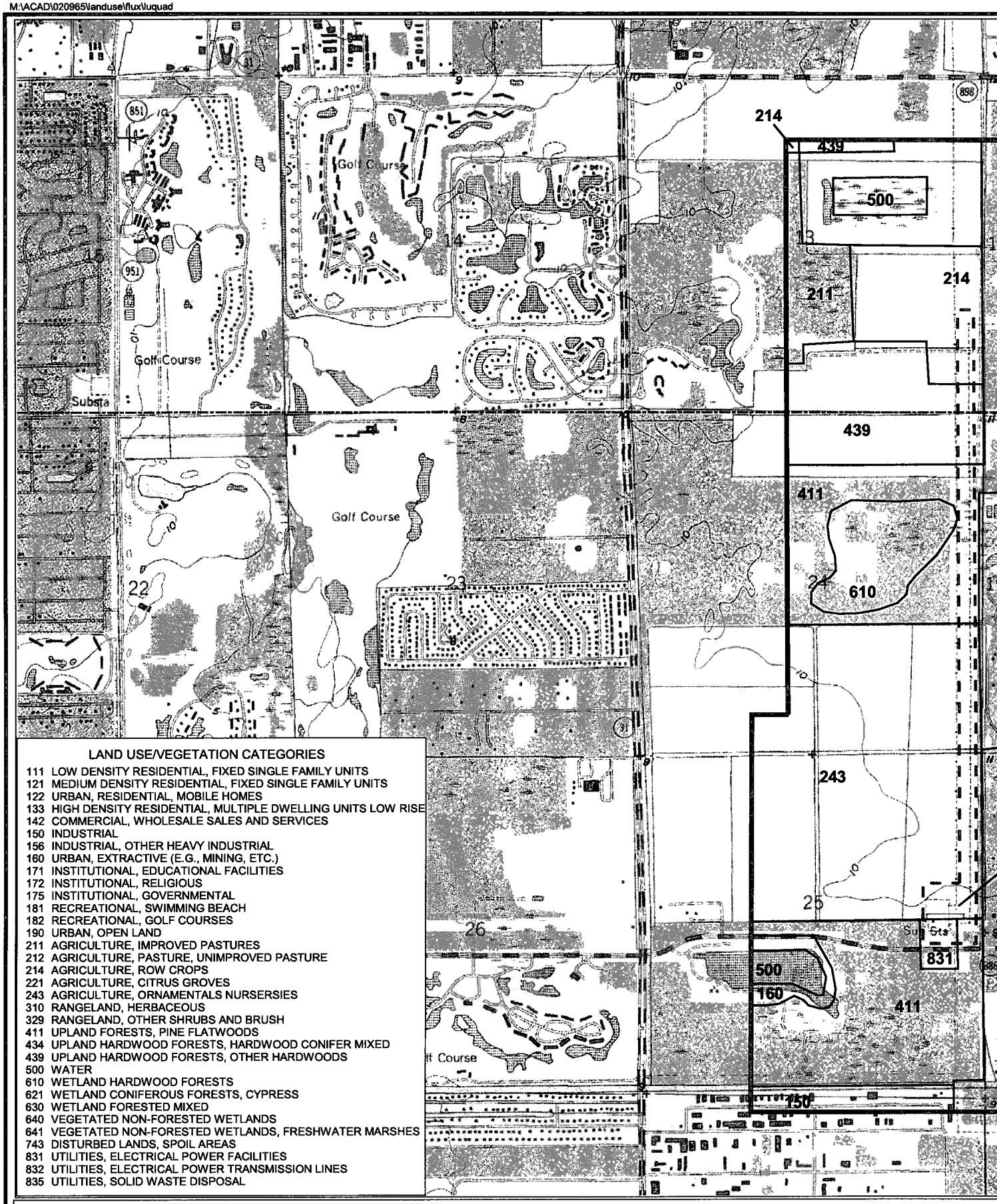
111 LOW DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
121 MEDIUM DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
122 URBAN, RESIDENTIAL, MOBILE HOMES
133 HIGH DENSITY RESIDENTIAL, MULTIPLE DWELLING UNITS LOW RISE
142 COMMERCIAL, WHOLESALE SALES AND SERVICES
150 INDUSTRIAL
156 INDUSTRIAL, OTHER HEAVY INDUSTRIAL
160 URBAN, EXTRACTIVE (E.G., MINING, ETC.)
171 INSTITUTIONAL, EDUCATIONAL FACILITIES
172 INSTITUTIONAL, RELIGIOUS
175 INSTITUTIONAL, GOVERNMENTAL
181 RECREATIONAL, SWIMMING BEACH
182 RECREATIONAL, GOLF COURSES
190 URBAN, OPEN LAND
211 AGRICULTURE, IMPROVED PASTURES
212 AGRICULTURE, PASTURE, UNIMPROVED PASTURE
214 AGRICULTURE, ROW CROPS
221 AGRICULTURE, CITRUS GROVES
243 AGRICULTURE, ORNAMENTALS NURSERSIES
310 RANGELAND, HERBACEOUS
329 RANGELAND, OTHER SHRUBS AND BRUSH
411 UPLAND FORESTS, PINE FLATWOODS
434 UPLAND HARDWOOD FORESTS, HARDWOOD CONIFER MIXED
439 UPLAND HARDWOOD FORESTS, OTHER HARDWOODS
500 WATER
610 WETLAND HARDWOOD FORESTS
621 WETLAND CONIFEROUS FORESTS, CYPRESS
630 WETLAND FORESTED MIXED
640 VEGETATED NON-FORESTED WETLANDS
641 VEGETATED NON-FORESTED WETLANDS, FRESHWATER MARSHES
743 DISTURBED LANDS, SPOIL AREAS
831 UTILITIES, ELECTRICAL POWER FACILITIES
832 UTILITIES, ELECTRICAL POWER TRANSMISSION LINES
835 UTILITIES, SOLID WASTE DISPOSAL

ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 11 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

M:\ACAD\020965\landuse\flux\luquad




LAND USE/VEGETATION CATEGORIES

111 LOW DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
121 MEDIUM DENSITY RESIDENTIAL, FIXED SINGLE FAMILY UNITS
122 URBAN, RESIDENTIAL, MOBILE HOMES
133 HIGH DENSITY RESIDENTIAL, MULTIPLE DWELLING UNITS LOW RISE
142 COMMERCIAL, WHOLESALE SALES AND SERVICES
150 INDUSTRIAL
156 INDUSTRIAL, OTHER HEAVY INDUSTRIAL
160 URBAN, EXTRACTIVE (E.G., MINING, ETC.)
171 INSTITUTIONAL, EDUCATIONAL FACILITIES
172 INSTITUTIONAL, RELIGIOUS
175 INSTITUTIONAL, GOVERNMENTAL
181 RECREATIONAL, SWIMMING BEACH
182 RECREATIONAL, GOLF COURSES
190 URBAN, OPEN LAND
211 AGRICULTURE, IMPROVED PASTURES
212 AGRICULTURE, PASTURE, UNIMPROVED PASTURE
214 AGRICULTURE, ROW CROPS
221 AGRICULTURE, CITRUS GROVES
243 AGRICULTURE, ORNAMENTALS NURSERSIES
310 RANGELAND, HERBACEOUS
329 RANGELAND, OTHER SHRUBS AND BRUSH
411 UPLAND FORESTS, PINE FLATWOODS
434 UPLAND HARDWOOD FORESTS, HARDWOOD CONIFER MIXED
439 UPLAND HARDWOOD FORESTS, OTHER HARDWOODS
500 WATER
610 WETLAND HARDWOOD FORESTS
621 WETLAND CONIFEROUS FORESTS, CYPRESS
630 WETLAND FORESTED MIXED
640 VEGETATED NON-FORESTED WETLANDS
641 VEGETATED NON-FORESTED WETLANDS, FRESHWATER MARSHES
743 DISTURBED LANDS, SPOIL AREAS
831 UTILITIES, ELECTRICAL POWER FACILITIES
832 UTILITIES, ELECTRICAL POWER TRANSMISSION LINES
835 UTILITIES, SOLID WASTE DISPOSAL

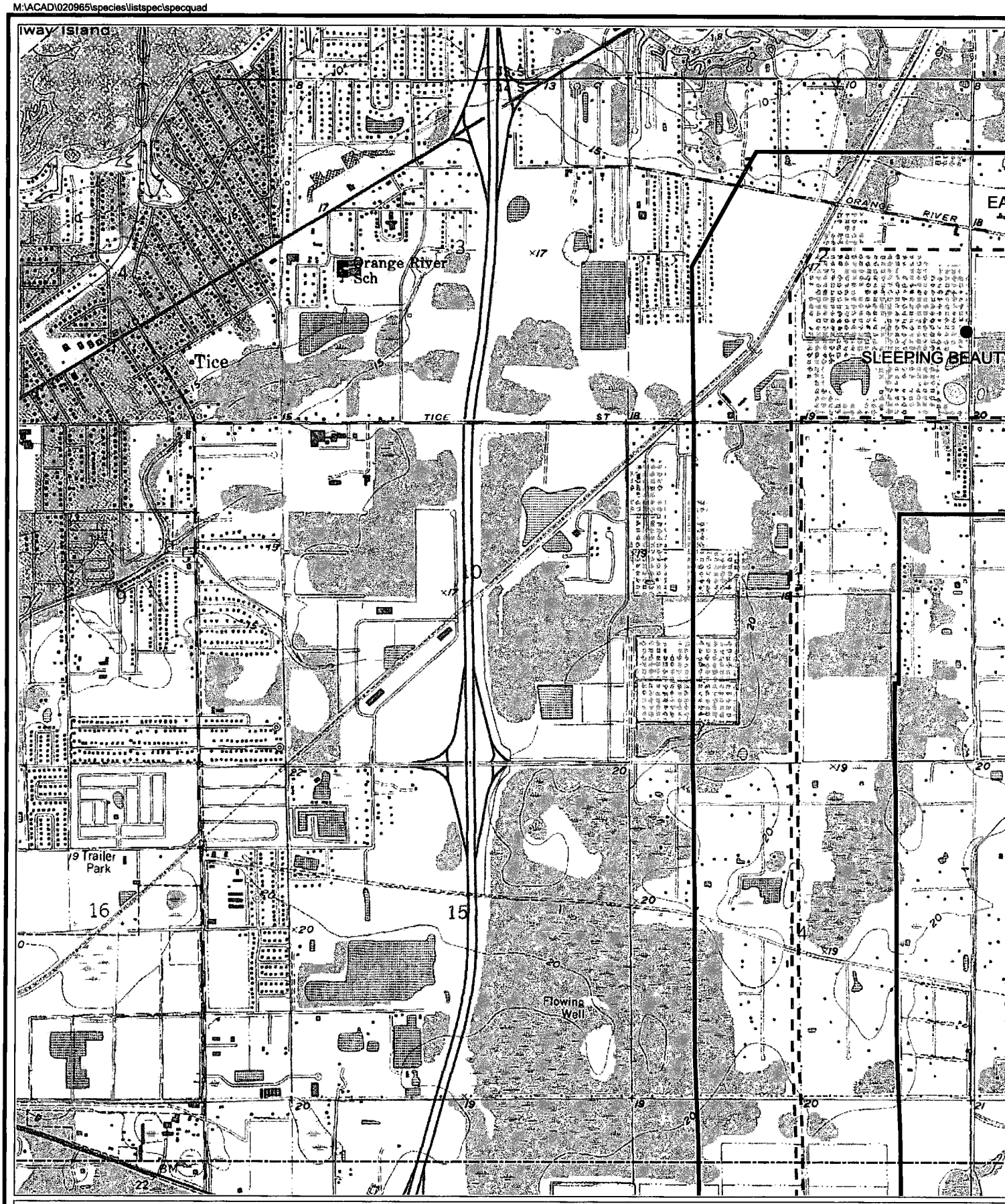
ATTACHMENT 2-4.

LAND USE/VEGETATION : MAP 12 OF 12

Sources: SFWMD as found in Florida Geographic Data Library, 2002; ECT, 2003.

ATTACHMENT 2-5

M:\ACAD\020965\species\listspec\specquad

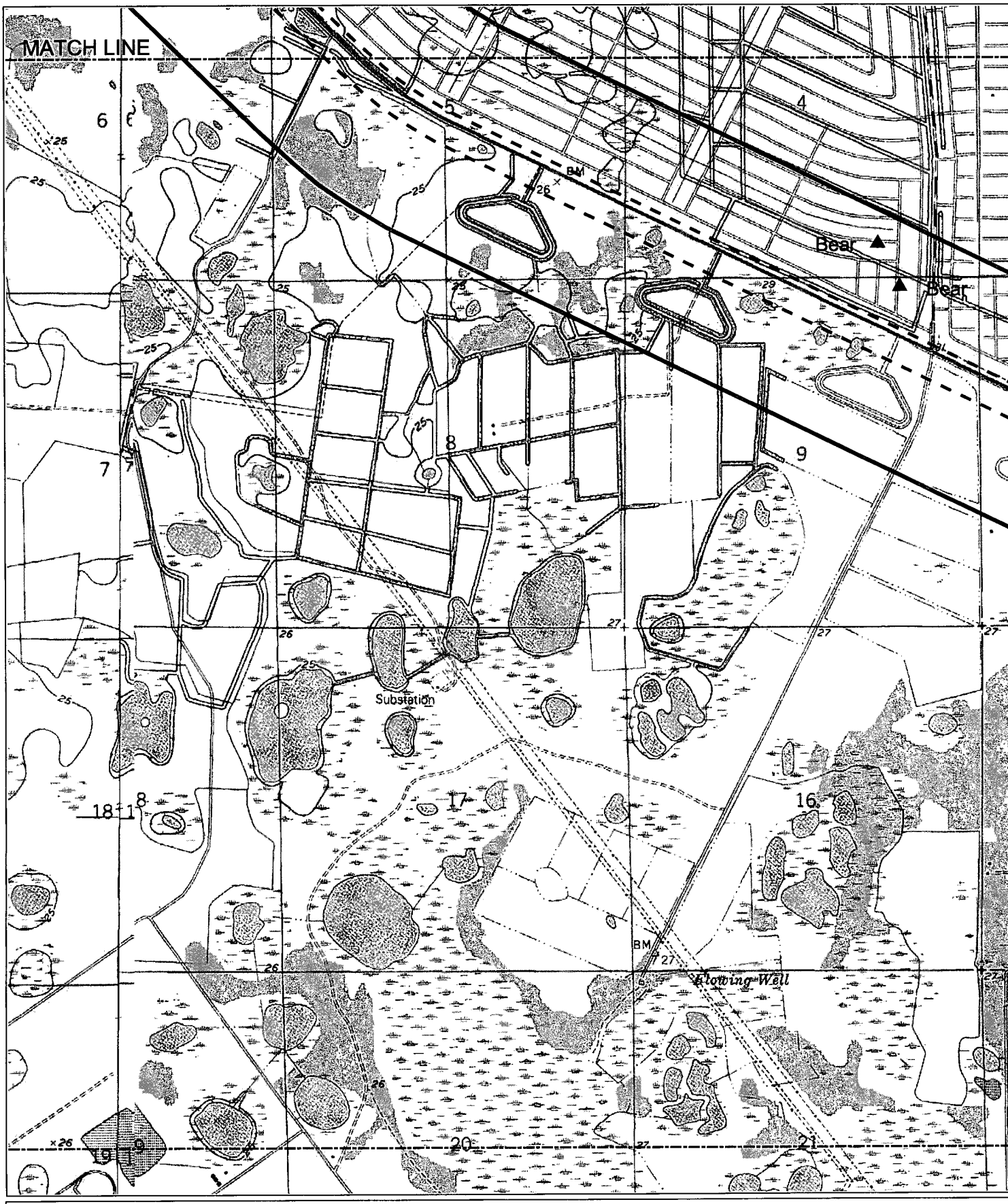



ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 1 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

M:\ACAD\020965\species\listspec\specquad

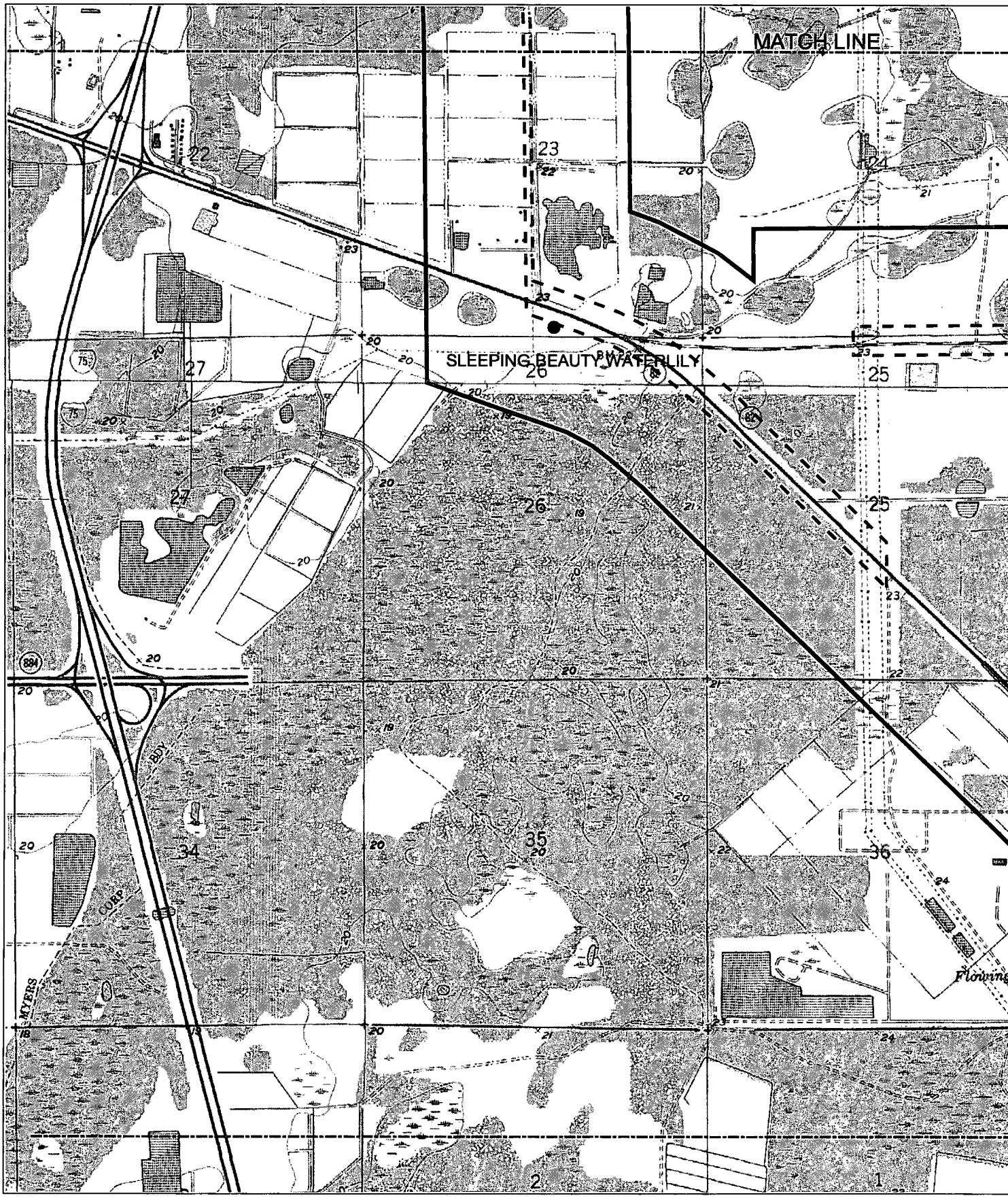



ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 3 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

M:\ACAD\020965\species\listspec\specquad

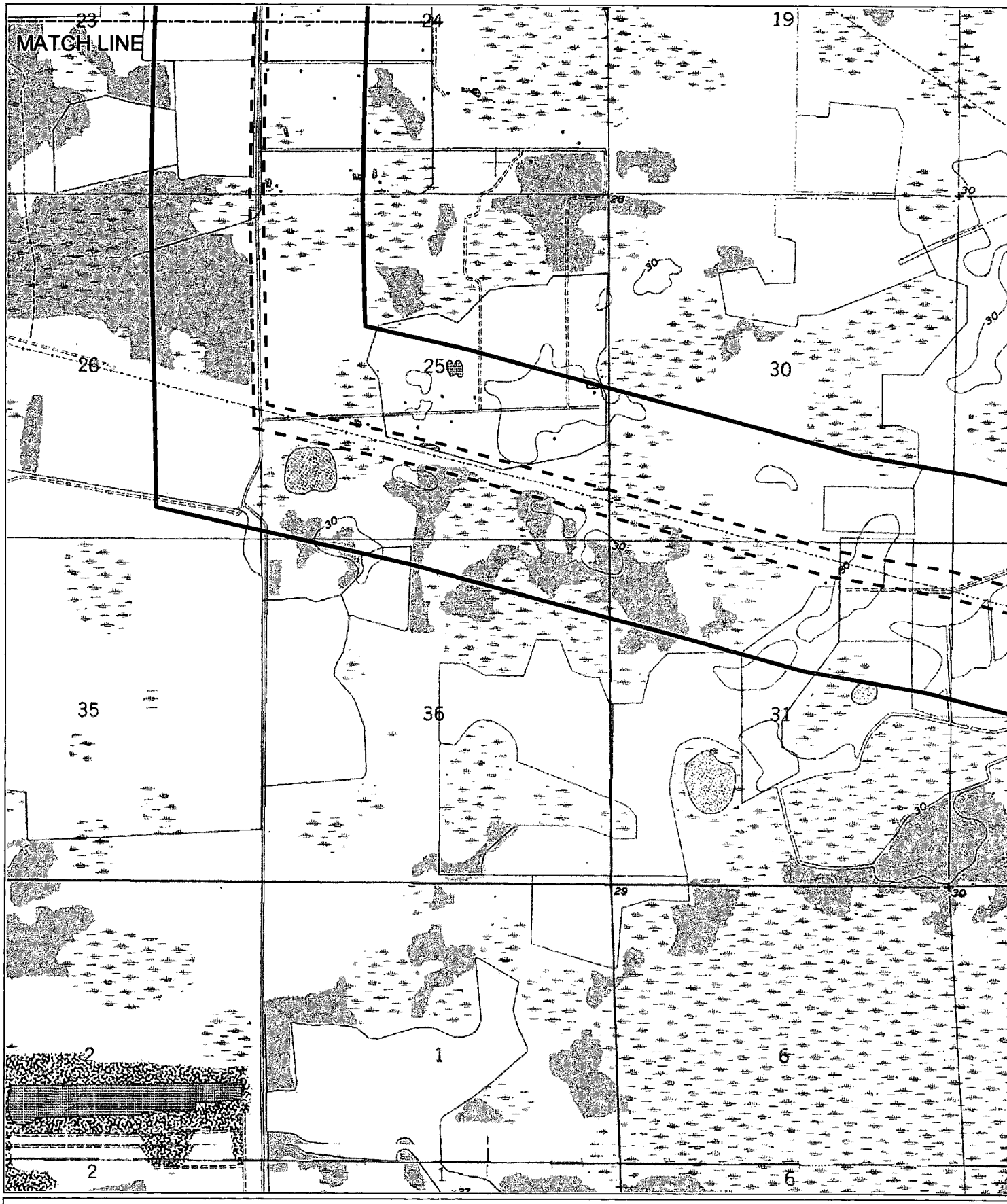



ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 2 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

M:\ACAD\020965\species\listspec\specquad




ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 4 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

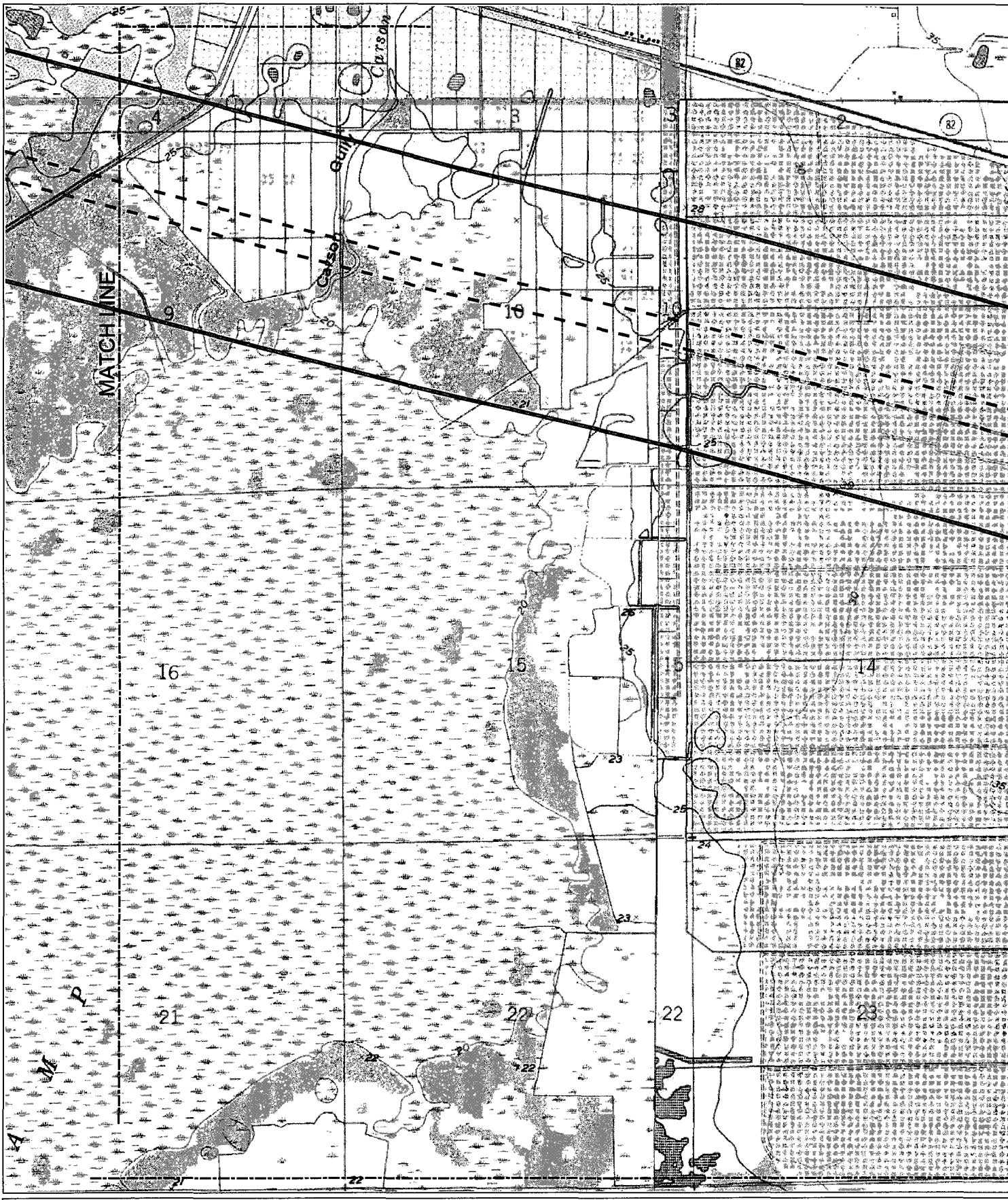
M:\ACAD\020965\species\listspec\specquad

ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 5 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

M:\ACAD\020965\species\listspec\specquad




ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 6 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

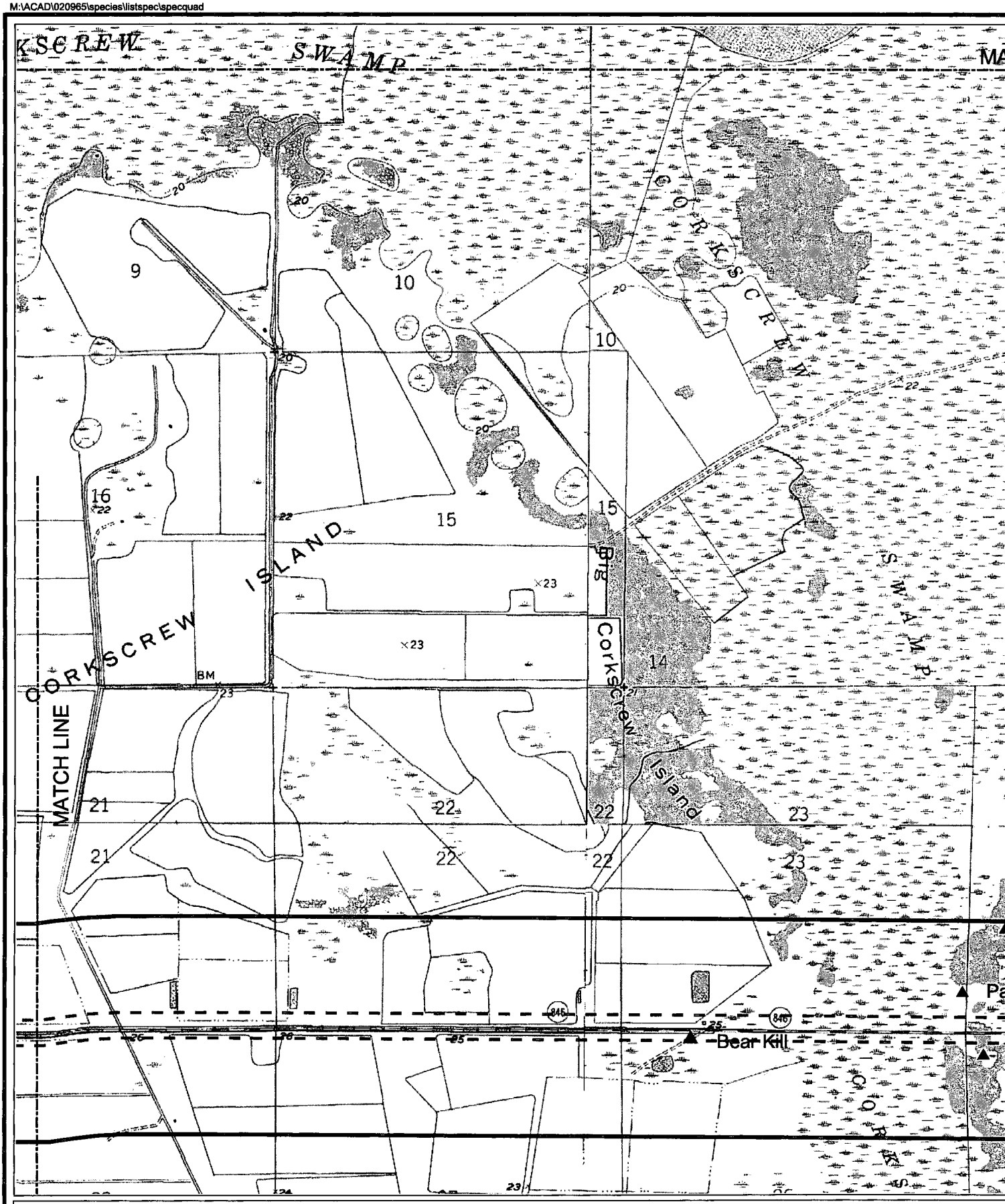
M:\ACAD\020965\species\listspec\specquad

ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 7 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

M:\ACAD\020965\species\listspec\specquad

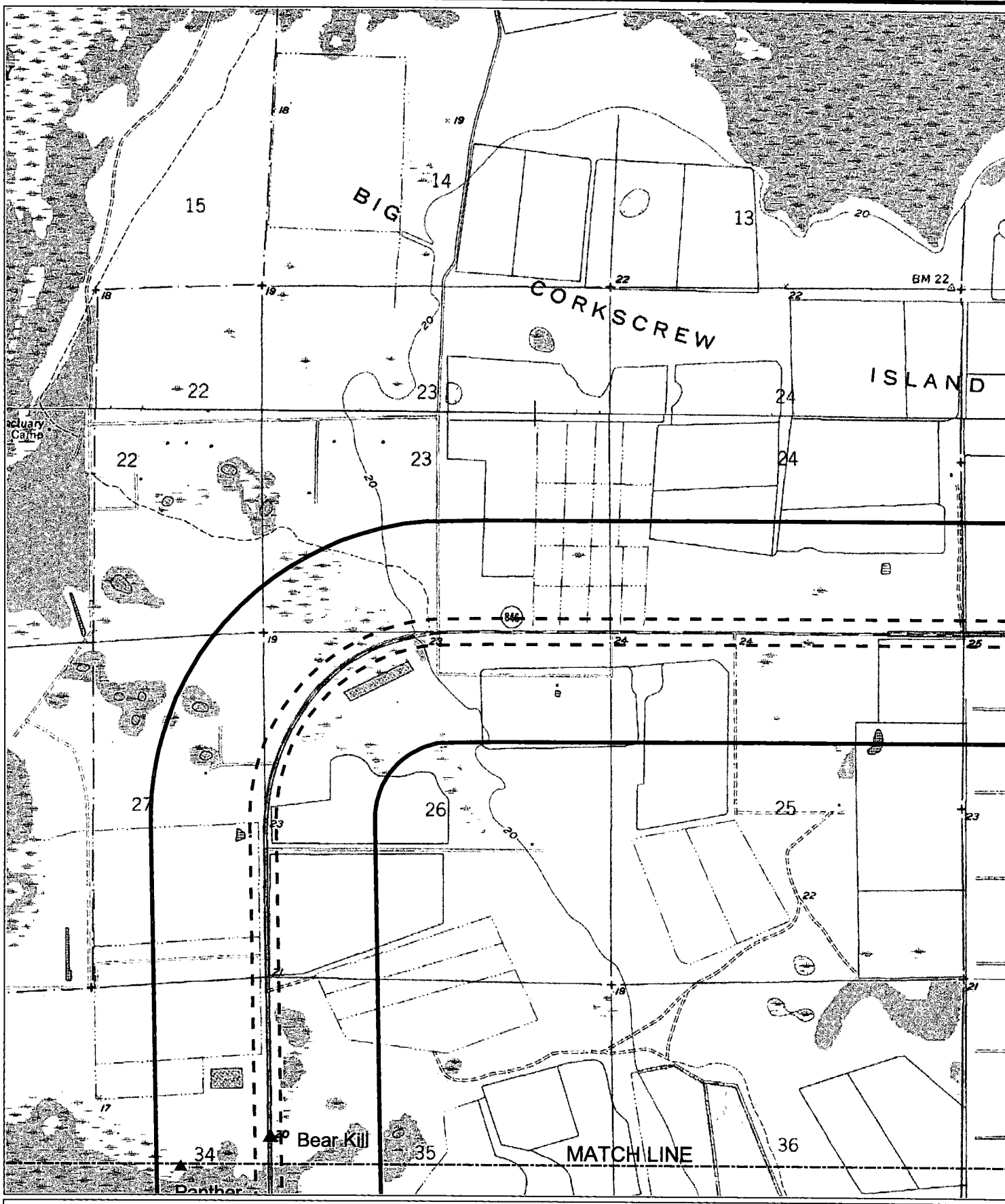



ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 8 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

M:\ACAD\020965\species\listspec\specquad

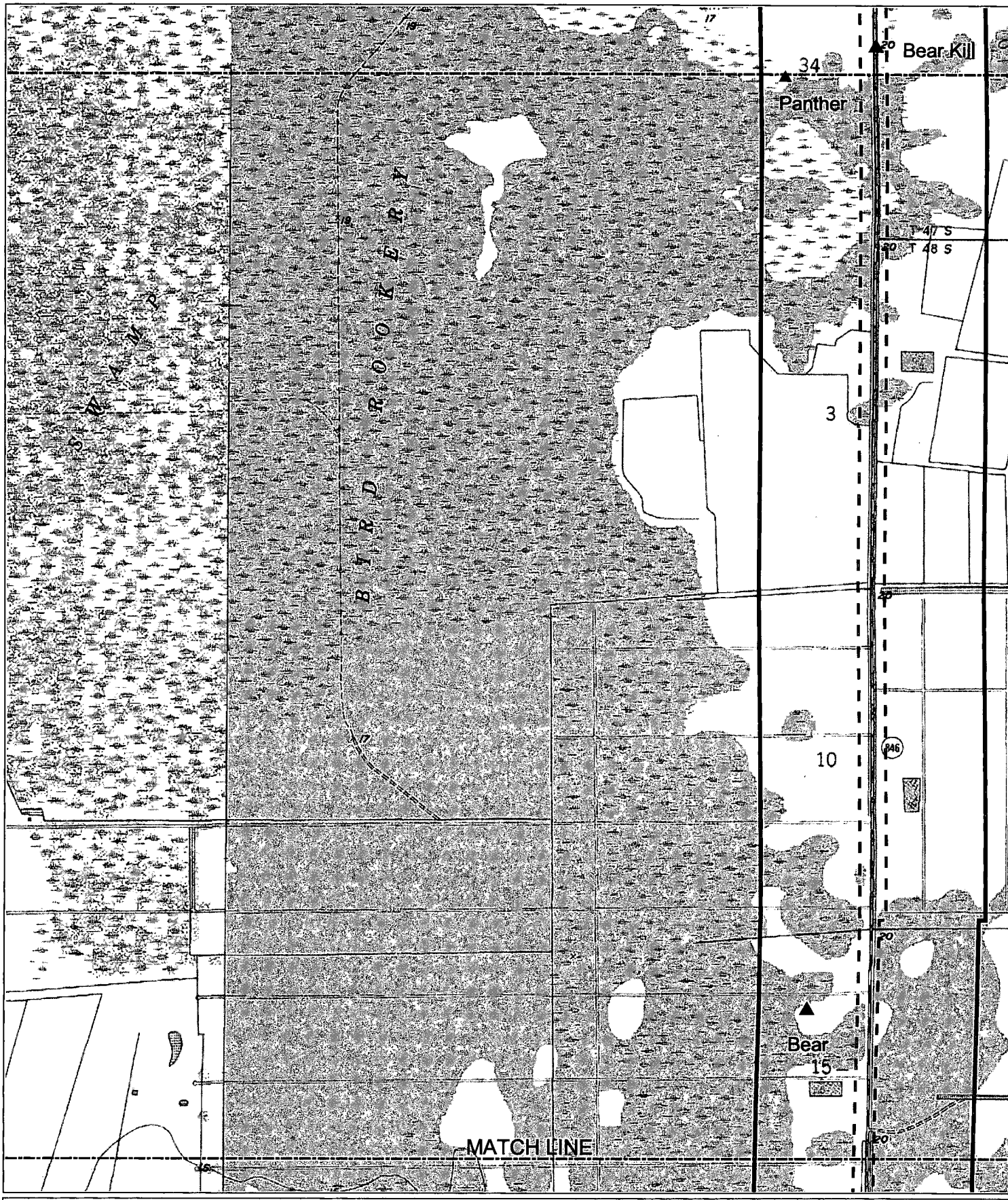



ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 9 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

M:\ACAD\020965\species\listspec\specquad

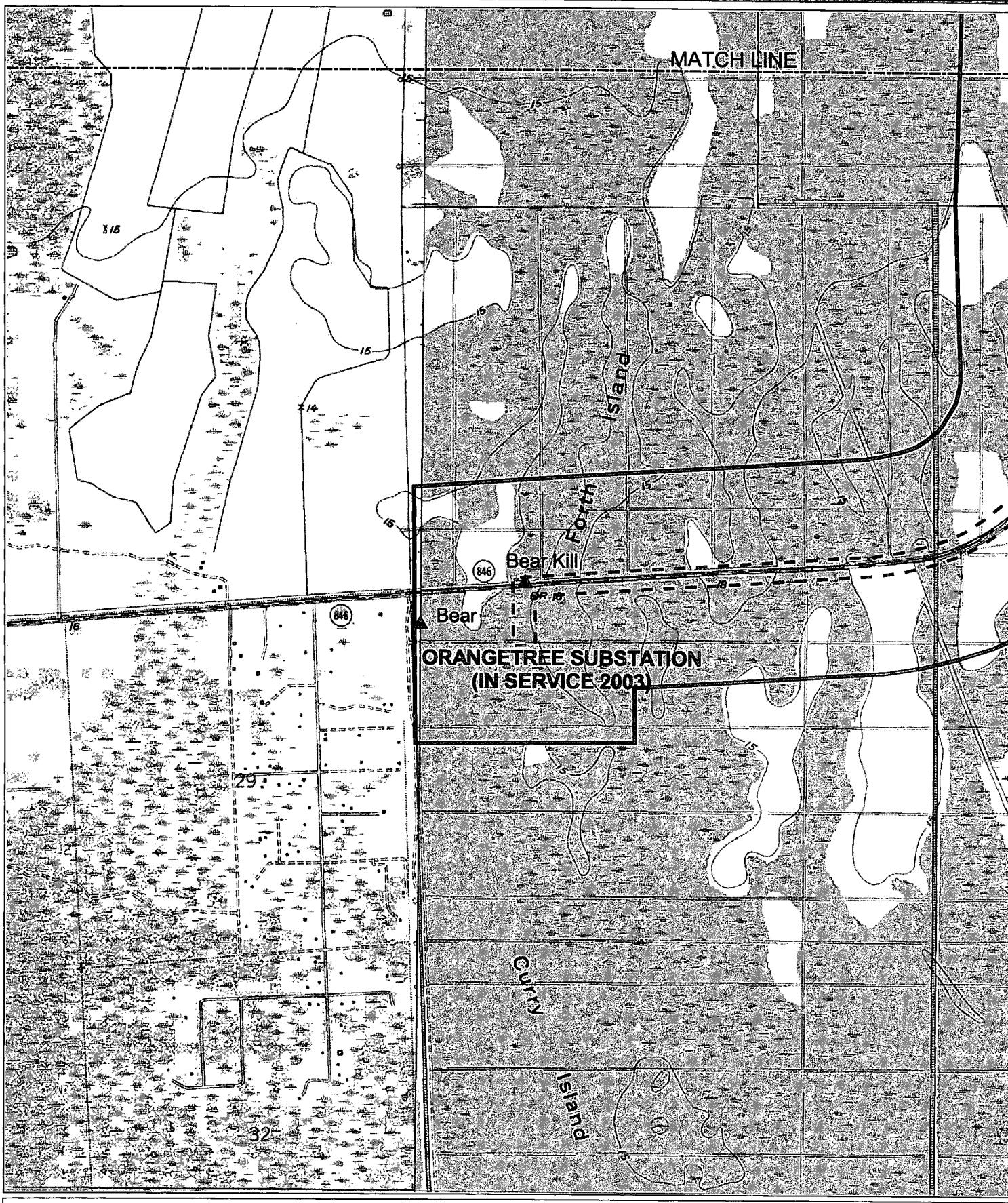



ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 10 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

M:\ACAD\020965\species\listspec\specquad

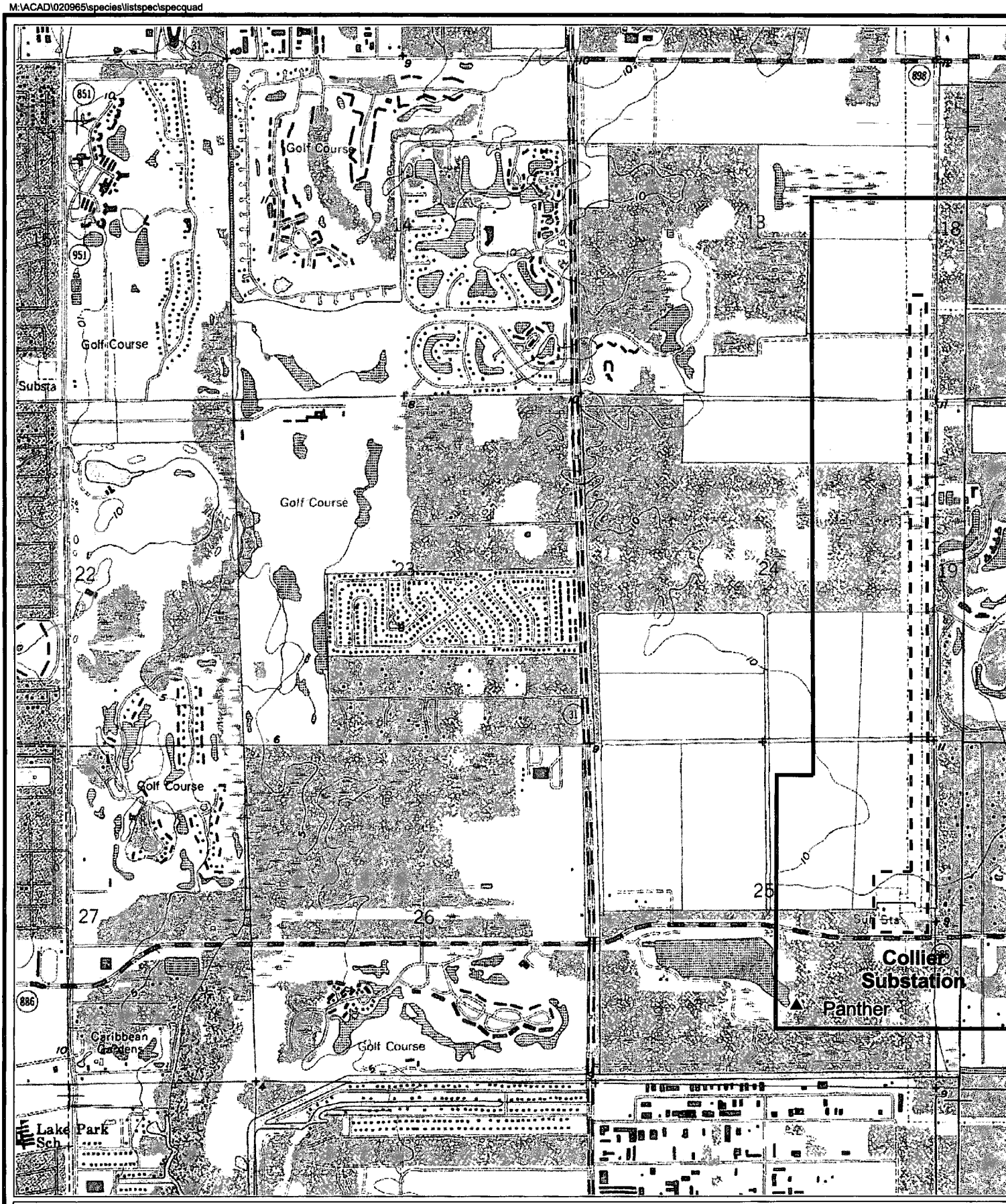



ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 11 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

M:\ACAD\020965\species\listspec\specquad




ATTACHMENT 2-5.

LISTED SPECIES OBSERVATIONS : MAP 12 OF 12

Sources: Florida Geographic Data Library, 2002; FNAI, 2003; FFWCC, 2003; ECT, 2003.

# CHAPTER 3.0

# 3.0 EFFECTS OF RIGHT-OF-WAY PREPARATION AND TRANSMISSION LINE CONSTRUCTION

## 3.1 CONSTRUCTION TECHNIQUES

Construction phases will consist of right-of-way clearing, access road construction (where necessary), line construction, and restoration. Construction phases generally will be performed sequentially along the right-of-way such that activities in any one area will be short-term.

### 3.1.1 RIGHT-OF-WAY CLEARING AND ROAD CONSTRUCTION

Minimal right-of-way clearing is anticipated for this transmission line due to the location of much of the corridor along previously disturbed areas and the expectation of collocation with other linear facilities where practicable. Where clearing is required, it will generally occur in the area between the structures and the area lying within 20 ft of either side of the conductors. All trees and shrubs whose mature height could exceed 14 ft will be cleared in this area. Depending on the density of trees to be cut and the restrictions on clearing in wetlands, the machinery required for clearing will include bulldozers, shearing machinery, and chainsaws. An additional minimal amount of clearing/mowing may be required for installation of the anchors required for guyed structures.

To the greatest extent practical, the construction and maintenance of the proposed transmission line will comply with the requirements for environmental protection and limiting conditions of the Florida Department of Environmental Protection (FDEP) General Permit for the Construction and Maintenance of Electric Power Lines by Electric Utilities (General Permit), Section 62-341.620, F.A.C. FPL recognizes this General Permit is not applicable to TLSA projects. However, by striving to meet the terms and conditions of the General Permit, FPL will ensure the construction of the C-OR #3 Project will have minimal impacts to water resources, both individually and cumulatively per Rule 62-341.201(1), F.A.C. This includes the use of turbidity screens and erosion control devices, where required, to minimize construction impacts to wetlands and water bodies and ensure that state water quality standards for turbidity are met.

Access roads are needed to provide efficient and safe ingress and egress to the structures in a cost-effective manner. Access roads will be used for construction, routine maintenance, and to repair any damage to transmission facilities that may occur on rare occasions. Since the preferred corridor parallels existing roads and other linear features for much of its length, new access roads will be required only in some rural or undeveloped areas or where access from nearby roads is not already available.

The construction of all access roads will be completed with clean fill from sources outside the transmission line right-of-way. Figure 1.3-5 previously illustrated a typical cross-section of an access road.

New roads will be sited in such a way as to minimize traversal of wetlands. The access roads will have a top width of 14 ft and will be offset from the centerline of the structures.

A few areas along the preferred corridor (e.g., Immokalee Road) cross cypress sloughs associated with the Corkscrew Swamp system. In these areas, access is anticipated to be from the existing roadway. Some cypress tree removal may be required for conductor clearances. However, filling of wetlands in these areas is expected to be minimal and limited to the pads and transmission structures themselves.

In other areas such as along FPL's Andytown-Orange River 500-kV right-of-way, an existing access road will be used, but may have to be supplemented with finger roads to access certain structures associated with the C-OR #3 Project.

Two areas are currently known as requiring a new continuous access road. One will be the north/south run of the corridor from Buckingham Road to SR 82, a distance of approximately 1 mile. Another will be the southern section of the corridor running west of Immokalee just north of Immokalee Road. This is a 2-mile portion of the preferred corridor where no existing linear facilities are available for collocation. Access roads may also be required in other locations where access is not available.

Figures 3.1-1 through 3.1-3 present plan and profile views of typical rights-of-way access proposed for the C-OR #3 Project.

### 3.1.2 LINE CONSTRUCTION

To install the transmission line structures, a digger truck will auger a hole approximately 16 to 20 ft deep, and the concrete single pole will be embedded directly into the hole. (Taller poles, site-specific geography, or poor subsurface conditions may require additional setting depths.) The structures will be framed and erected using cranes and other support-type vehicles. Once the structures are set, various wire-pulling equipment will be used to install the conductors and the overhead ground wire. Support ground vehicles may include bulldozers, trailers, and light trucks.

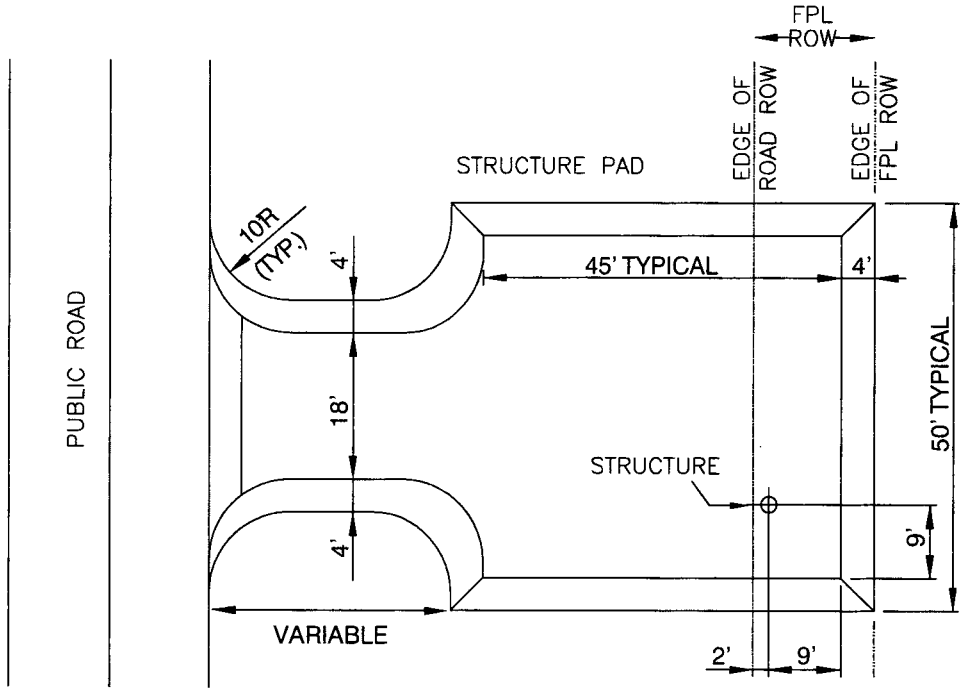
### 3.1.3 EROSION

Construction will be performed so as to minimize disturbance to the natural ground cover. The use of construction mats and low-pressure rubber-tired or nontracked vehicles, where appropriate, will minimize the potential for erosion. Turbidity screens and erosion control devices will be used, where required, to minimize impacts to wetlands and water bodies and ensure that state water quality standards for turbidity are met.

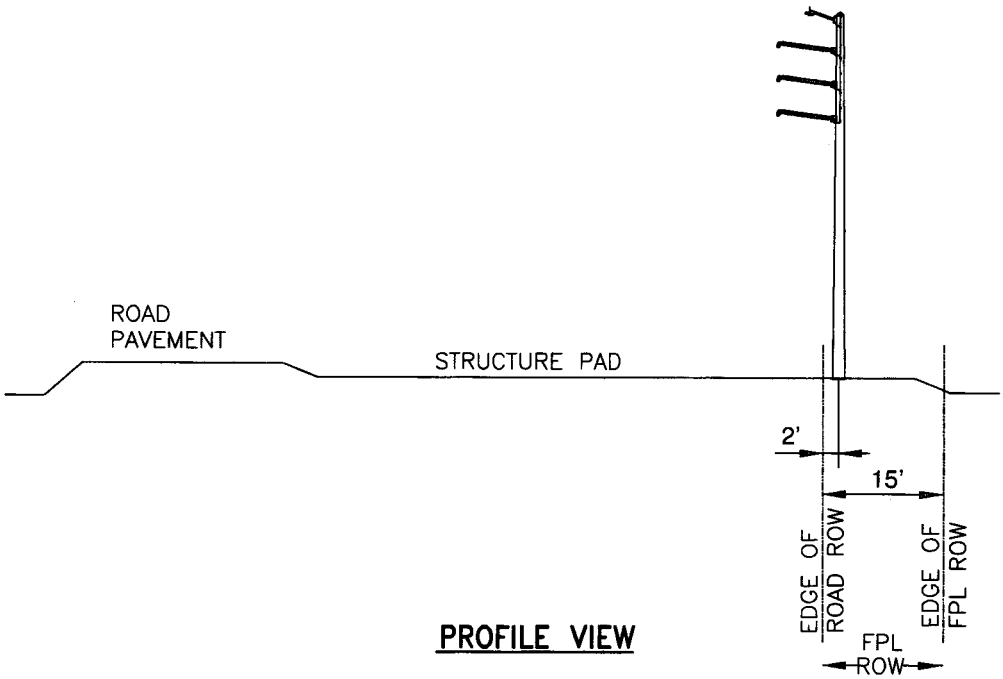
With the exception of access roads (where required) and small working areas around the structures (structure pads), low-lying vegetation (shrubs, grasses, ferns, etc.) will be allowed to remain. Past experience shows that disturbed ground cover reestablishes itself quickly, which reduces the erosion potential. The impacts of land clearing will be reduced in forested wetlands by leaving the root mat of most trees in place to minimize potential for erosion and impacts to water quality. Fast-growing and exotic vegetation such as Brazilian pepper or melaleuca will be cut at ground level and the stumps treated with an approved herbicide to prevent regrowth. Again, FPL's use of existing rights-of-way for the C-OR #3 Project will minimize the amount of new clearing required and, therefore, potential erosion during transmission line construction.

IMAGE QUALITY

AS YOU REVIEW THE NEXT FEW PAGES, PLEASE NOTE THAT THE ORIGINAL DOCUMENT WAS OF POOR QUALITY.




**PLAN VIEW**



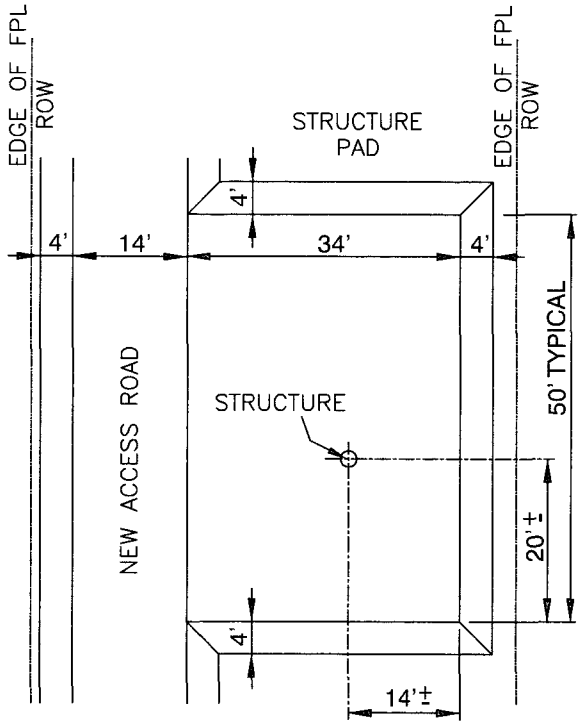

**PROFILE VIEW**

**NOT TO SCALE**

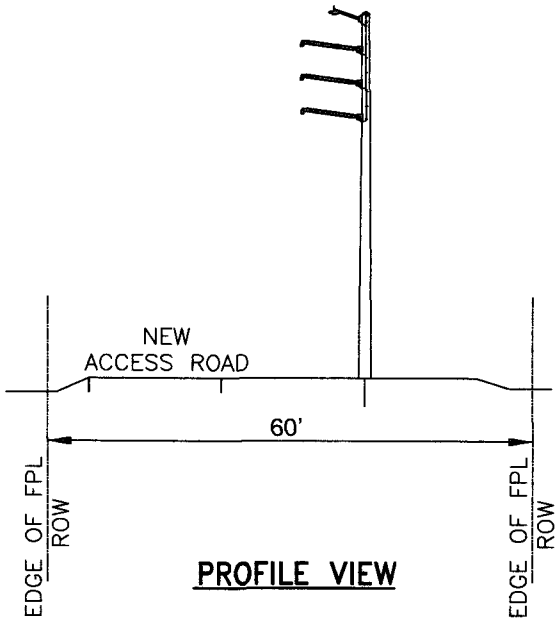
FIGURE 3.1-1.
TYPICAL STRUCTURE PAD DESIGN WITH EXISTING PUBLIC ROAD ACCESS

**Source: FPL, 2003.**

FPL




PLAN VIEW




PROFILE VIEW

NOT TO SCALE

FIGURE 3.1-2.
TYPICAL ACCESS ROAD AND STRUCTURE PAD DESIGN WITH NO EXISTING ACCESS AVAILABLE
Source: FPL, 2003.

FPL

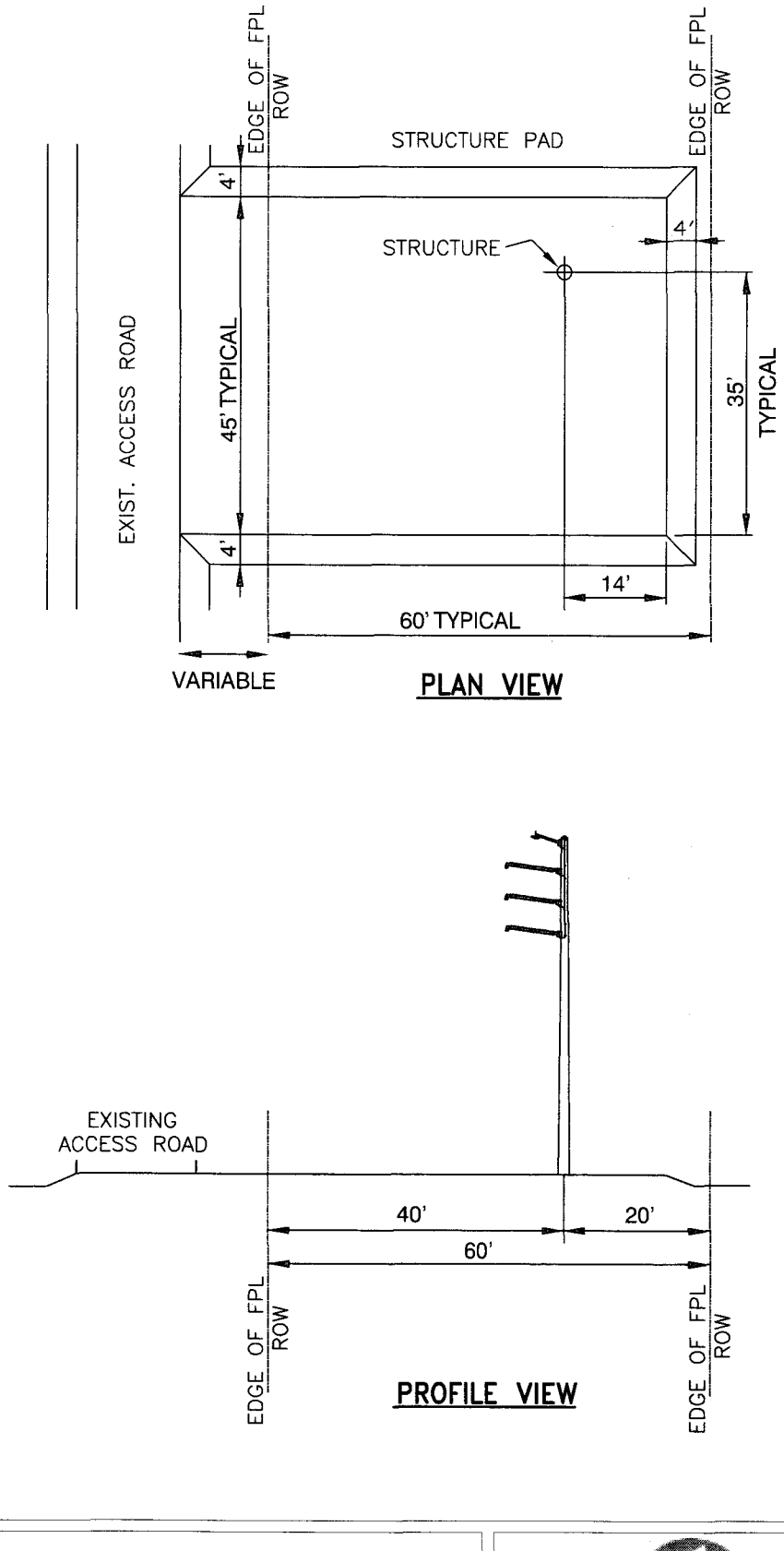



FIGURE 3.1-3.
TYPICAL STRUCTURE PAD DESIGN WITH EXISTING PRIVATE ACCESS ROAD AVAILABLE
**Source: FPL, 2003.**

FPL

## 3.2 IMPACT ON WATER BODIES AND USES

The new transmission line will cross some wetland areas. Most of these wetlands have been previously impacted by an existing linear facility (road or transmission line). Impacts to these wetlands will be minimized to the extent possible by limiting construction to an existing cleared right-of-way, using existing access roads where available, or locating the new right-of-way immediately adjacent to the existing clearing so only supplemental clearing is needed. Further, construction techniques and culverting within these wetlands will comply with standards established by FDEP.

Water quality along and adjacent to the construction site will be preserved by the implementation of various appropriate best management practices (BMPs) to control the quantity and quality of runoff from the construction site.

Land clearing activities are described in Section 3.1. To the extent possible, native vegetation will be left in place to reduce erosion. However, some vegetation will be disturbed by the construction of the transmission line. The impacts of land clearing will be reduced in forested wetlands by leaving the root mat of most trees in place to minimize potential for erosion and impacts to water quality. Fast-growing and exotic vegetation such as Brazilian pepper or melaleuca will be cut at ground level and the stumps treated with an approved herbicide to prevent regrowth.

Disturbed areas will be allowed to revegetate as each section of the transmission line is completed. Upon completion of construction, disturbed areas will be seeded and mulched to control erosion on steep slopes (e.g., at canal crossings).

The construction of the transmission line should not require ground water withdrawal, dewatering, or relocation of any water bodies.

The construction will not create any new connections to waters of the state. Since none of the canals along the right-of-way are considered navigable, there should be no impacts to navigation from this transmission line.

As noted in previous sections, the study area has characteristically flat terrain with little topographic relief. The predominant conveyance in this and similarly situated regions is typically via manmade ditches and minor canals interconnected to natural ponds and sloughs. These type systems do not lend themselves to evaluation by gauging stations. As such, Soil Conservation Service (SCS) methods will be used to evaluate runoff characteristics for culvert crossings and access way designs.

Upon delineation of the final right-of-way and determination of the location of roads and structures, FPL will provide required detailed information related to activities in waters and wetlands. Figure 1.3-5 shows a cross-section of a typical access road and structure pad. Figures 3.1-1 through 3.1-3 illustrate plan and profile views of typical access road and structure pad layouts.

Where available, existing roads and access ways will be used to limit the need for fill to the maximum extent possible. In these instances, most structure pads will be located and constructed to allow access to the structure from the existing road, thus minimizing the need for new and additional impacts.

Depending on site-specific circumstances, roads in wetland areas may be permanent or temporary. For permanent roads, the construction has been previously described (see Section 3.1.1). Temporary access roads may be used in some wetland areas. Most temporary access roads will be constructed in a manner similar to permanent access roads. Alternatively, the contractor may employ either matting or geotextile fabric covered with temporary fill. Crossings of existing drainage swales, ditches or canals will require installation of appropriately sized culverts. Culverts used for wetland system and canal/ditch crossings will be sized and located to accommodate up- or downstream flow regimes.

## 3.3 SOLID WASTES

Solid waste generated from right-of-way preparation and line construction generally consists of cleared vegetation and construction-related debris. It is expected that most solid waste generated by the C-OR #3 Project will be disposed in compliance with local land-

fill regulations. Any proposed onsite chipping or burning will be performed in compliance with all local and state regulations.

Due to FPL's predominant use of existing cleared rights-of-way, it is anticipated cleared vegetation debris will be minimal.

## 3.4 CHANGES TO VEGETATION, WILDLIFE, AND AQUATIC LIFE

Impacts on terrestrial and aquatic systems and species associated with transmission line right-of-way preparation and construction depend primarily on the location of the selected right-of-way and, to a lesser degree, on clearing and construction techniques.

Through a systematic, environmentally responsive corridor selection process, the crossing of major terrestrial, wetland, and aquatic systems was minimized or avoided to restrict any potential impacts to sensitive habitats and/or endangered and threatened species associated with transmission line construction and maintenance. Approximately 51 miles (95 percent) of the preferred corridor include the opportunity to follow existing road and transmission line rights-of-way. Where possible in these areas, the proposed transmission line will share existing rights-of-way. In these already altered areas, it is not anticipated that transmission line construction or maintenance will have any significant impact on vegetation, wildlife, or aquatic life. The remaining areas that could be potentially crossed by the 230-kV transmission line within the preferred corridor include a number of natural and disturbed upland and wetland community types as well as various types of urban developments. An evaluation of potential and expected impacts on vegetation and wildlife components is presented in the following paragraphs.

### 3.4.1 VEGETATION

As discussed, 95 percent of the total length of the preferred corridor allows placement of the proposed 230-kV transmission line within or along existing transmission line or road rights-of-way. Much of the right-of-way will therefore be able to take advantage of existing disturbances (roads, urban development, land impacted by agriculture, and other transmission lines).

Because many of the existing rights-of-way are already cleared and maintained, construction associated with the 230-kV transmission line should not pose any significant additional adverse changes to vegetation in these areas. Limited permanent alterations will be associated with structure pad installation and additional right-of-way maintenance.

Types of impacts to the existing vegetation communities crossed by the preferred corridor associated with construction are addressed in Section 3.1, Construction Techniques. A permanent alteration of limited areas of upland and wetland communities will result from right-of-way clearing and access road and structure pad construction. In areas of the corridor with collocation opportunities with existing roads or other transmission lines, forested wetlands may have already been impacted. Limited additional clearing of trees directly adjacent to the existing rights-of-way will be required, and these areas of the right-of-way will subsequently be maintained in a low-growing, early successional state. Adjoining tracts of woodlands will remain intact and provide habitat for forest species. In addition, adjacent communities should not be affected by structure pad and road construction since erosion control measures and proper culverting will be used.

Construction practices in wetlands will retain the vegetative root mat in the right-of-way in areas that are not filled for road or structure pad construction, thereby minimizing impacts to wetlands. Impacts to wetlands will vary depending on the wetland system through which the transmission line is routed. The shift in wetland composition will vary with the type of the original overstory, and soil alterations resulting from construction activities. Outside of areas where filling may be necessary for roads or structure pads, small freshwater marsh/wet prairie systems crossed by the transmission line will not be affected by construction activities since no clearing will be required, and proper culverting will maintain the existing hydroperiod.

### 3.4.2 WILDLIFE

Specific impacts to terrestrial and aquatic animals due to transmission line construction vary by species and depend primarily on the extent of habitat alteration and continued availability of such habitat after construction. The preferred corridor crosses no federally designated critical habitat. In addition, no aquatic habitats critical to the continued re-

gional presence of important species will be affected. The collocation with existing road and transmission line rights-of-way will minimize habitat losses and creation of barriers to animals' movements.

Individual small burrowing mammals (e.g., rodents), reptiles, or amphibians may be lost during right-of-way clearing. Such individual losses, however, will not affect local or regional populations. No losses of medium-sized or large mammals, birds, or other mobile species due to direct impacts or habitat alterations are expected because of the mobility of these animals. Therefore, no adverse impacts are expected to local or regional populations of game species, species of special concern or commercial importance, or threatened or endangered species occurring or potentially occurring within the right-of-way area.

No significant impacts to resident birds or migratory species are expected since the preferred corridor does not include major staging, breeding, or wintering areas for social, migratory species (e.g., waterfowl, shorebirds, passerines). Local disturbance or displacement of wildlife due to construction noise will be minor and short-term since construction activities in any one location will be intermittent and are not expected to last more than a few weeks. Also, the location of the preferred corridor along major highways and existing transmission line rights-of-way will further limit the potential for wildlife disturbance since individuals in local areas will already be habituated to traffic noise.

The potential construction impacts on listed species documented for the preferred corridor are discussed in the following paragraphs.

The Florida panther's range includes the entire study area, and several observations have been made for this animal along the preferred corridor, primarily along Immokalee Road. Clearing required to collocate along Immokalee Road will result in an insignificant removal of forested habitat along this corridor. Minimal new access into undisturbed panther habitat will occur as a result of the C-OR #3 Project. FPL's narrow right-of-way requirements will not significantly increase the panther's exposure at existing road crossings.

The Florida black bear, like the panther, has been observed along the preferred corridor. Similarly to the panther, bears have been observed and killed along Immokalee Road. Clearing for the transmission line will not significantly decrease suitable habitat for this animal nor increase its exposure along road crossings.

The one wading bird colony located along the preferred corridor is approximately 1,000 ft south of the preferred corridor and FPL's existing 500-kV transmission right-of-way. No additional clearing will occur on the south side of FPL's easement, so impacts to this colony should not occur as a result of the C-OR #3 Project. This colony was last documented (2002) as inactive.

The eastern indigo snake, observed near the Orange River substation, will not be affected by transmission line construction since this is a mobile species and highly adaptive. It would be expected to utilize most habitats created as a result of transmission line clearing and construction.

### 3.4.3 AQUATIC LIFE

Impacts on aquatic systems and species are expected to be minor to nonexistent since the proposed corridor avoids major lakes, rivers, and streams. For any ditches, canals, or wetlands that are crossed, the construction of the transmission line may involve installation of culverts and placement of fill resulting in temporary increases in turbidity and silt deposition. Such impacts will be local and temporary and are not expected to adversely affect aquatic resources. Appropriate control measures such as staked hay bales and silt curtains will minimize or eliminate siltation resulting from stormwater runoff. Transmission line and access road (if necessary) construction in wetland areas will use methods such as proper culverting and erosion control as necessary to minimize any significant disruption to the aquatic ecosystem or resultant changes in species composition.

### 3.4.4 SUMMARY

In summary, the majority of the proposed 230-kV transmission line will be situated within or adjacent to existing rights-of-way. This alignment significantly minimizes the crossing of natural or undisturbed systems.

The principal impacts from right-of-way clearing and construction of the C-OR #3 Project will be the removal of a limited amount of canopy vegetation and tall, woody vegetation along right-of-way sections crossing mature forested habitats where previously cleared areas will be slightly widened. Because of the collocation of major portions of the proposed corridor along existing rights-of-way, this impact is expected to be minimal and will not result in significant population changes in protected species compositions or in the regional status of ecologically unique or valuable habitats. The clearing and subsequent maintenance of the right-of-way vegetation will provide new habitat for additional species of wildlife. Local displacement of wildlife may occur during periods of construction activities. Such displacement is expected to be temporary and will not affect the local or regional status of important species.

## 3.5 IMPACT ON HUMAN POPULATIONS

Transmission line construction occurs as a series of tasks generally accomplished in sequence by different specialized crews. Tasks include clearing the right-of-way, constructing access roads, preparing foundations (if necessary), assembling and erecting support structures, stringing conductors, and cleanup activities. Construction of the transmission line is expected to take approximately 13 months. Crew sizes vary depending on the task and usually range in size from 6 to 12 members. Although several crews may work simultaneously along the length of a line, the duration of a crew's activities in any one area will be quite short (usually 1 to 2 days, with a few tasks such as wire pulling and setup locations taking 1 to 2 weeks). Inconveniences experienced by residents near the transmission line will be primarily confined to noise from machinery used intermittently at various locations along the right-of-way during construction and minor traffic disruptions due to use of heavy equipment along road rights-of-way. Most of the construction and associated noise-producing activities are intermittent in nature and will take place only during normal daylight working hours.

Population density in the vicinity of the preferred corridor varies. Population density remains relatively low throughout most of the length of the corridor. The more populated areas crossed by the corridor occur near Orange River and Collier substations at the northern and southern ends of the corridor along Tice Drive and SR 82 in Lee County and along Livingston Road in Collier County. Along portions of SR 82 between CR 884 and Sunshine Boulevard, the corridor is adjacent to several developments, primarily north of SR 82. There are also scattered homes near the corridor as it passes by Lake Trafford and along Immokalee Road. These areas are predominately rural in character with intermittent lower density residential or estate types of housing. Impacts to the human population attributable to certification and construction of the C-OR #3 Project in these locations will be minimal due to the avoidance of most existing development by the preferred corridor, the collocation with existing linear facility rights-of-way where feasible, and the short duration of construction activities in any one location.

## 3.6 IMPACT ON ARCHAEOLOGICAL AND HISTORIC SITES

Every attempt will be made to avoid the known cultural resources along or within the preferred corridor. This can be accomplished with alignment of the actual right-of-way and pole and pad placement. No structures will be crossed by the eventual right-of-way, so impacts to historic standing structures near Orange River substation will not occur.

If requested by DHR, an archaeological site assessment survey will be conducted of archaeologically sensitive areas (as determined by DHR and the survey archaeologist retained by FPL) within the eventual right-of-way, and the report of the survey will be submitted to DHR for review. If any sites within the right-of-way are determined to be significant, DHR will be consulted regarding appropriate procedures for either preservation or excavation of the significant site(s).

If unforeseen archaeological finds are discovered during construction, DHR will be notified. Following a determination of the importance of such finds, FPL will work with DHR to assess mitigation measures necessary to minimize adverse impacts.

# CHAPTER 4.0

# 4.0 ENVIRONMENTAL EFFECTS OF TRANSMISSION LINE RIGHT-OF-WAY MAINTENANCE AND POST-CONSTRUCTION IMPACTS

## 4.1 MAINTENANCE TECHNIQUES

Safe and reliable operation of the new line will be maintained through regular inspection of the poles, conductors, insulators, access areas, and vegetation in the right-of-way. The inspections will consist of ground patrols (truck) and/or aerial (airplane/helicopter) patrols. Transmission lines normally require minimal maintenance; however, the line will be inspected on a regular basis to look for problems caused by weather, vandalism, etc.

FPL will manage the right-of-way by a variety of methods, including trimming, mowing, and the use of approved herbicides, targeting species that are incompatible with the safe operation, maintenance, and access to the transmission system. This allows a broad diversity of vegetation growth, which enhances wildlife use potential.

Fire, as a management tool, is also used by the landowner in certain conservation and mitigation areas along the preferred corridor. In these areas, FPL will coordinate with the appropriate management agency to ensure FPL's maintenance practices do not promote spread of fire and, at the same time, ensure prescribed fires do not jeopardize transmission system operation. FPL vegetation managers will monitor fuel loading and reduce it when it threatens the operation of the line.

The exact manner in which maintenance will be performed will depend on the location, type of terrain, and surrounding environment. Vegetation removal is minimized consistent with safe and reliable operation of the line. For example, fast-growing vegetation species and other vegetation whose mature height could exceed 14 ft in height will be cut or removed from the area between the structures lying within 20 ft of either side of the conductors to avoid interference with the conductor clearance. Other species are generally allowed to remain, resulting in a shrubby and herbaceous cover within the right-of-way. FPL's right-of-way maintenance program is very site-specific, and a maintenance

*prescription* is often detailed down to the pole spans. Each area of the right-of-way will be addressed based on site-specific vegetation and habitat. Endangered or threatened species, if present, are considered and accommodated in the maintenance program.

Use of herbicides for vegetation control will be selective, and application will occur primarily around the transmission structure base. Application of these herbicides will meet federal, state, and local regulations. Due to the selective nature of vegetation cutting, the restricted use of herbicides, and the infrequent occurrence of maintenance activities, the potential effects on wildlife and water quality will be minimal. FPL will also control the spread of nuisance or exotic plants (melaleuca or Brazilian pepper) within the right-of-way through the use of approved herbicides and other removal techniques.

As a result of this maintenance program FPL rights-of-way are generally conducive to use by local wildlife. The open effect is attractive to certain raptors, songbirds, and small mammals and the lower growing vegetation provides forage for deer and a multitude of other species. Open land or marsh dwelling wildlife should be unaffected by existence of the transmission line and maintained right-of-way.

## 4.2 MULTIPLE USES

FPL rights-of-way are frequently used for other purposes compatible with the operation and maintenance of power lines. Multiple use of a transmission line right-of-way typically includes grazing, citrus farming, agricultural operations, controlled landscaping, recreational uses such as golf courses and hiking/biking trails, and other compatible activities that do not interfere with FPL's full use of the right-of-way and the function of the transmission line facilities. In most cases, FPL obtains an easement for the construction, maintenance, and operation of its transmission line, as well as the rights of ingress and egress to that line, from another party who retains the fee-simple interest in the property. The easement may provide for acceptable use of the right-of-way by the fee owner for activities that do not interfere with FPL's full use of its easement and the function of the transmission line facilities.

In some cases, FPL may purchase the fee interest in the right-of-way. If FPL owns the right-of-way, all rights to the property will be held by FPL. If a party wishes to use the company-owned property, a license agreement may be negotiated, allowing for activities that do not interfere with FPL's full use of the right-of-way and the function of the transmission line facilities.

## 4.3 CHANGES IN SPECIES POPULATIONS

The status and potential for occurrence of important species in and along the preferred FPL C-OR #3 Project corridor are discussed in Section 2.3.3. The absence of significant impacts to important species is not coincidental as efforts were made during the corridor selection study to avoid potentially sensitive habitats as much as possible. The avoidance of ecologically unique or valuable habitats was achieved primarily through placement on, or collocation with, existing transmission rights-of-way and collocation with transportation rights-of-way.

Changes in local species populations are not expected as a result of transmission line presence and maintenance. Displacement of individuals from the immediate right-of-way area that may occur during construction activities will be temporary. These displaced species are expected to reinhabit the right-of-way areas after construction. Habitat use will decline during actual construction due to noise and human presence. Such avoidance behavior will enable wildlife to escape direct impacts from construction activities, although some losses of individual vertebrates (e.g., rodents, amphibians) may occur during right-of-way clearing. No animal or plant species are expected to be permanently displaced out of the C-OR #3 Project area as a result of this transmission line.

Due to necessary maintenance practices in the right-of-way, a decrease in structural diversity will occur in formerly forested areas (i.e., permanent loss of a tree canopy layer). However, this will be offset by an increase in species diversity as additional shrubs and herbs colonize the right-of-way in response to increased sunlight and decreased competition due to canopy removal. Since most of the preferred corridor is collocated with existing rights-of-way or follows previously disturbed lands, clearing of canopy vegetation will be minimal. In those portions of the preferred corridor where clearing is necessary,

only a relatively narrow strip of canopy will be lost. In these areas, clearing of overstory vegetation and subsequent maintenance requirements will not result in the loss of entire tracts or significant portions of regional wildlife habitat types.

In nonforested systems, such as marshes and shrub swamps, maintenance clearing or alteration may not be necessary. In many instances, these community types can be spanned, thereby eliminating the need to affect structural or functional habitat characteristics and wildlife use.

In some areas of the country and in some circumstances, there may be the potential for bird mortality due to collision with conductors or overhead static wires. A survey of literature shows that wading birds such as herons, egrets, and cranes can be vulnerable to powerline collisions due to their large size, long wing span, and flocking behavior. While such collisions are rare, they sometimes occur where there is a busy flyway and the wing spans of these large birds exceed the spacing of the wires. In the case of the C-OR #3 Project, due to the configuration of the conductors, the corridor's distance from known active colony or nesting areas, and its proximity to existing residential, transportation, and agricultural developments and existing rights-of-way, collision losses along the proposed transmission line are expected to be insignificant and incidental. The preferred corridor does not cross or adjoin known sandhill crane nesting areas or wading bird colonies and will not affect the status of existing feeding areas. In much of the length of the preferred corridor, the new C-OR #3 Project will be constructed next to busy roadways or existing transmission structures. These two existing disturbances contribute to having low likelihood of wading bird concentrations and, therefore, low likelihood of possible collisions.

Additionally, much of the literature (e.g., California Energy Commission, 1995) pertaining to avian mortality due to collisions with tall structures is for migratory birds colliding with communication towers and their guy wires. In these situations, the communication towers are lighted at night, which may contribute to migrating birds being attracted to these structures in dark or inclement weather. These structures are also much taller than FPL's proposed transmission structures.

In summary, FPL's route selection process has minimized potential exposure to large numbers of wading birds and, therefore, will minimize potential collisions with the structures and wires. No large concentrations of birds (roosts, active rookeries, staging areas, etc.) are known to exist within the preferred corridor. Therefore, no change in the local population of wading birds or any avian group is expected to occur because of transmission line presence and maintenance activities. No ecologically unique or sensitive habitat types will be lost in the study area, and, as a result, no significant impacts to protected indigenous species populations are expected.

## 4.4 EFFECTS OF PUBLIC ACCESS

It is FPL's policy to provide locked gates at the point where the transmission line access road intersects previously fenced property. Since FPL will install locked gates at any location that is currently fenced, no increased vehicle access is anticipated following construction except by FPL personnel performing routine maintenance. Where the structures are placed adjacent to an existing roadway, maintenance of the line would have no additional impact on public access to the adjacent properties. No impacts to environmentally sensitive areas or resident wildlife populations from additional public access are expected.

## 4.5 ELECTRIC AND MAGNETIC FIELD (EMF) EFFECTS

### 4.5.1 EMF RULE COMPLIANCE

The C-OR #3 Project complies with the Florida EMF regulations specified in Section 62-814, F.A.C. (the Florida EMF Rule). The strength of the magnetic field under a transmission line is primarily a function of the amount of current carried by the line and the height of the conductors above the ground. The electric field is primarily a function of the voltage impressed on the line and conductor height above the ground. Consequently, the electric field near the transmission line is relatively constant over time, but the magnetic field fluctuates depending on customer demand for power.

The electric and magnetic fields produced by the proposed transmission line were calculated in accordance with the requirements of Section 62-814.460, F.A.C. The fields asso-

ciated with the new transmission line comply with the standards set forth in the Florida EMF Rule, as demonstrated in Table 4.5-1. Although the current carried by the transmission line will vary throughout the day, the value used in the calculations is the maximum quantity of electric current that can be continuously carried on the conductors, as required by Chapter 62-814, F.A.C. Since the preferred corridor contains several existing transmission lines with which the C-OR #3 Project may be collocated, the fields associated with the existing lines in those locations were included in the calculations, where appropriate.

Table 4.5-1 presents the maximum EMF that can be produced by the proposed transmission line under maximum operating conditions. These fields comply with FDEP rule requirements for new 230-kV lines. Appendix F provides data depicting the maximum electric and magnetic fields at maximum operating conditions for each of the typical line configurations, both on the right-of-way and laterally under the line, until attenuation of the electric field to 1 kilovolt per meter (kV/m). As shown in Appendix F and Table 4.5-1, attenuation of the electric field to 1 kV/m is achieved within the right-of-way for all configurations except on the 500-kV side of the existing Andytown-Orange River 500-kV right-of-way. In the event additional configurations are required by the detailed design of the transmission line after certification, FPL will submit the EMF compliance demonstrations to FDEP at least 90 days prior to the start of construction.

**Table 4.5-1. Maximum EMF Capable of Being Produced by the C-OR #3 Project**

| Right-of-Way Configuration | Electric Field (kV/m) On Right-of-Way | Electric Field (kV/m) Edge of Right-of-Way | Magnetic Field (mG) at MCR* on Edge of Right-of-Way |
|---|---|---|---|
| Proposed 60-ft right-of-way (cross-country) | 3.1 | 0.5 | 114.3 |
| Proposed 15-ft right-of-way, adjacent to public road right-of-way | 2.3 | 1.0 | 118.7 |
| C-OR #3 Project on Alico-Fort Myers #1 138-kV, 100-ft right-of-way | 2.8 | 0.6 | 108.7 |
| C-OR #3 Project on Alico-Fort Myers #1 138-kV, 160-ft right-of-way | 2.4 | 0.9 | 84.9 |
| C-OR #3 Project, 60-ft right-of-way adjacent to LCEC 138-kV, 100-ft right-of-way | 3.1 | 0.6 | 101.4 |
| C-OR #3 Project on Common Right-of-Way, 405 ft right-of-way | 3.7 | 0.4 | 71.5 |
| *Florida EMF rule limit for new 230-kV lines* | *8.0‡* | *2.0‡* | *150.0‡* |
| C-OR #3 Project on Andytown-Orange River 330-ft right-of-way (500-kV side/230-kV side)† | 11.9† | 3.0/0.7† | 179.5/70.6† |
| *Florida EMF Rule limit for lines on Andytown-Orange River 500-kV right-of-way* | *11.9†* | *3.0†* | *250.0‡* |

*The maximum current rating (MCR) for the Collier-Orange River #3 230-kV line is 1,905 amperes per phase.
†Pursuant to Rule 62-814.470(1)(c), F.A.C., the electric and magnetic field levels on the Andytown-Orange River 500-kV right-of-way that are higher than the limit for new lines may not be exceeded by the placement of the new transmission line on that right-of-way.
‡These standard field levels are established in Rule 62-814.450(3), F.A.C.

Note: The field levels of the proposed transmission line shown in this table are based on the single-circuit, 230-kV transmission line configuration that resulted in the highest fields, even though structural configurations with lower fields may be employed for some portions of the line. The transmission line will generally operate at a level well under the MCR.

Sources: EzEMF software program developed through Florida Coordinating Group and accepted by FDEP.
FPL, 2003.

## 4.5.2 AUDIBLE NOISE

The audible noise associated with a transmission line is generated by either corona from the conductors or from gap-type discharges. Corona is an ionization process that occurs when there is an irregularity on the surface of the conductor, such as buildup from fog, water droplets, significant particulate matter, etc. Corona activity at the surface of the conductors produces a low-level audible noise that is a slight humming sound. Under wet conditions, higher noise levels are experienced than would occur under dry conditions. However, the background noise from various sources (inclement weather, traffic, construction activity, etc.) has the effect of masking transmission line noise.

During fair weather and under normal operating conditions, the audible noise levels calculated for the proposed transmission line designs will be less than the ambient outdoor noise levels. Table 4.5-2 presents the maximum audible noise levels that could be produced by the proposed transmission line.

**Table 4.5-2. Maximum Audible Noise at the Edge of Right of-Way for the C-OR #3 Project**

| Right-of-Way Configuration | L50* (dbA) |
|---|---|
| Proposed 60-ft right-of-way (cross-country) | 44.4 |
| Proposed 15-ft right-of-way, adjacent to public road right-of-way | 44.6 |
| C-OR #3 Project on Alico-Fort Myers #1 138-kV, 100-ft right-of-way | 44.8 |
| C-OR #3 Project on Alico-Fort Myers #1 138-kV, 160-ft right-of-way | 42.7 |
| C-OR #3 Project, 60-ft right-of-way adjacent to LCEC 138-kV, 100-ft right-of-way | 44.5 |
| C-OR #3 Project on Common Right-of-Way, 405-ft right-of-way | 43.6 |
| C-OR #3 Project on Andytown-Orange River 330-ft right-of-way (500-kV side/230-kV side) | 46.3/42.7 |

*Maximum audible noise occurs during rain or other wet weather conditions. Noise levels will be lower during dry weather conditions.

Sources: Corona and Field Effects Program, Version 3, Bonneville Power Authority.
FPL, 2003.

Less than 10 percent of the time, when the conductors are wet from rainfall or heavy fog, the transmission line noise will increase. During wet conditions, the median (L50) A-weighted sound pressure level of the transmission line noise will range from 42.7 to 44.8 dBA at the edge of the right-of-way, depending on the right-of-way cross-section configuration. The noise level produced by the transmission line will comply with all applicable noise ordinances in Collier and Lee Counties (see Tables 2.2-1 and 2.2-2 for applicable limits).

### 4.5.3 RADIO AND TELEVISION INTERFERENCE

Electrical noise in the radio frequency range can also be produced by corona, potentially causing interference in some radio signals. No interference is expected to occur for frequency-modulated (FM) radio or facilities using FM communication systems, including business or public service communications. Receipt of signals from most amplitude-modulated (AM) radio broadcasting stations in the area are not expected to experience

any interference from the proposed transmission line. The audio portion of a television signal is FM; therefore, no interference with the audio signal should occur as a result of the proposed transmission line.

With television stations meeting the minimum requirements for Grade A service (as defined by the Federal Communications Commission [FCC]), there is a potential for interference with the video portion of the signal out to a distance of up to approximately 35 ft from the edge of the right-of-way during the worst foul weather conditions only. This possible interference is limited to Channels 2, 4, and 5.

Cable television service will be unaffected by the proposed transmission line. Telephone service will also be unaffected by the proposed transmission line.

### 4.5.4 SAFETY

As required by the Florida PSC in Section 25-6.0345, F.A.C., the proposed transmission line will comply with all requirements of the National Electrical Safety Code (NESC) (2002 edition). The purpose of this code is, among other things, the practical safeguarding of persons during the installation, operation, and maintenance of electric lines and associated equipment.

FPL standards require that fences and gates either crossing or parallel and within transmission line rights-of-way be grounded to mitigate shock hazards. FPL will provide this grounding as part of its construction activities.

CHAPTER 5.0

# 5.0 VARIANCES, EXCEPTIONS, AND EXEMPTIONS

No known variances, exceptions, or exemptions from applicable state and local standards or local ordinances are required for the certification, construction, maintenance, and operation of the C-OR #3 Project.

# REFERENCES

# REFERENCES

California Energy Commission. 1995. Avian Collision and Electrocution: An Annotated Bibliography. Publication No. P700-95-001.

City of Fort Myers Comprehensive Plan. Adopted February 13, 1989. Updated through June 6, 2002.

Code of Laws and Ordinances of Collier County, Florida. 1994. Updated through Supplement No.13.

Code of Ordinances, City of Fort Myers, Florida. Adopted June 3, 1991. Updated through February 3, 2003.

Collier County Growth Management Plan. Adopted January 10, 1989. Updated February 18, 2003.

Collier County Land Development Code, Collier County, Florida. Adopted October 30, 1991. Updated through Supplement No. 14.

Florida Department of Transportation (FDOT). 1999. Utility Accommodation Manual. Document No. 710-020-001-d.

FDOT. 1999. Florida Land Use, Cover and Forms Classification System (FLUCFCS). Third Edition.

Florida Fish and Wildlife Conservation Commission (FFWCC). 2003. Digital files for listed species in FPL study area. Prepared by Jim Beever, FFWCC, Punta Gorda.

Florida Game and Fresh Water Fish Commission (FGFWFC). 1997. Florida's Endangered Species, Threatened Species, and Species of Special Concern—Official Lists.

Godfrey, R.K., and Wooten, J.W. 1979. Aquatic and Wetland Plants of Southeastern United States Monocotyledons. The University of Georgia Press, Athens, Georgia.

Godfrey, R.K., and Wooten, J.W. 1981. Aquatic and Wetland Plants of Southeastern United States Dicotyledons. The University of Georgia Press, Athens, Georgia.

Institute of Electrical and Electronics Engineers, Inc. (IEEE). 2002. National Electrical Safety Code (NESC). New York, New York.

Land Development Code, Lee County, Florida. Adopted April 20, 1994. Updated through Supplement No. 3.

Lee County Code of Ordinances, Lee County, Florida. Adopted January 3, 1996.

Meyers, R.L., and Ewel, J.E.1990. Ecosystems of Florida. University of Central Florida Press. Orlando, Fl.

Nelson, G. 1994. The Trees of Florida. Pineapple Press, Inc. Sarasota, Florida.

Nelson, G. 1996. The Shrubs and Woody Vines of Florida. Pineapple Press, Inc. Sarasota, Florida.

The Lee Plan 2000 Codification as Amended through December 2000, Lee County, Florida. Adopted January 1, 1989.

Tobe, J.D., Burks, K.C., Cantrell, R.W., Garland, M.A., Sweeley, M.E., Hall, D.W., Wallace, P., Anglin, G., Nelson, G., Cooper, J.R., Bickner, D., Gilbert, K., Aymond, N., Greenwood, K., and Raymond, N. 1998. Florida Wetland Plants: An Identification Manual. FDEP. Tallahassee, Florida.

U.S. Army Corps of Engineers (USACE). 1999. Draft Environmental Impact Statement on Improving the Regulatory Process in Southwest Florida. Jacksonville District.

U.S. Department of Agriculture (USDA). 1984. Soil Survey of Lee County, Florida.

USDA. 1998. Soil Survey of Collier County Area, Florida.

Wunderlin, R.P. 1998. Guide to the Vascular Plants of Florida. University of Florida Press. Gainesville, FL.

**MAP DATA SOURCES:**

Collier County Property Appraisers Office. 2002. Digital files for:

- 2002 aerial photography
- Property boundaries
- Future land use map
- Zoning map
- PUD map
- PUD, industrial/commercial
- DRI map

Florida Department of Environmental Protection (FDEP). 1999. Digital aerial photography for Lee and Hendry Counties.

Florida Department of Transportation (FDOT). 2002. Florida aeronautical chart.

FDOT. 1989. Lee County highway map.

FDOT. 1993. Collier County highway map.

Florida Fish & Wildlife Conservation Commission (FFWCC). 2003. Marisa Visel, Tallahassee; endangered/threatened species data for state, CD version.

Florida Geographic Data Library (FGDL). 2002. Digital files for:

- Wetlands (NWI)
- Canals/streams/rivers/lakes
- Roads/highways
- County boundaries
- City boundaries
- Airports/heliports
- Schools
- Land use/land cover (FLUCFCS III)

Florida Natural Areas Inventory (FNAI). 2002:

- Florida Managed Area (FLMA)—File: Federal, state, local, privately managed lands
- Florida Forever/Board of Trustees (FFBOT) Environmental Lands, 2002—File: FDEP Managed lands
- Element Occurrences (EO) quadrangle—File listed species/high quality habitats by quadrangle

Florida Power & Light Company (FPL). 2002. Digital files for:

- Existing transmission lines
- Existing/proposed substations
- Existing streets

Lee County Electric Cooperative (LCEC). 2003. 138-kV transmission line maps for Lee/Collier Counties.

Lee County Property Appraiser. 2002. Digital files for:

- Property boundaries
- Zoning map
- Future land use map
- Planned development map

South Florida Water Management District (SFWMD). 2002. Digital files for:

- CREW lands
- SOR lands
- District rights-of-way
- CERP boundaries

U.S. Fish & Wildlife Service (USFWS). Brian Luprick; Map of Wildlife Refuges in Collier County

U.S. Geological Survey (USGS). Digital 1:24,000 scale quadrangle maps

## WEB SITES:

| | |
|---|---|
| Areas of Critical State Concern | www.dca.state.fl.us/fdcp/DCP/ACSC/acsc.jpg |
| Austin, D.F. 1997. Adaptations in Fakahatchee | www.fau.edu/divdept/science/envsci/fakahatchee.htm |
| Collier County | www.co.collier.fl.us//parks |
| Collier County School Board | www.floridasmart.com/education/county/collier.htm |
| Conservation and Recreation Lands (CARL) | www.tfn.net/NatureConserv/stories/manage.html |
| County parks or special management areas established by law | www1.leegov.com/power/facilities.asp |
| CREW Wildlife and Environmental Area | www.aaof.com/gfb.htm |
| Estuarine Sanctuaries | www.sanctuaries.nos.noaa.gov/welcome.html |
| Indian Reservations | www.osec.doc.gov/eda/pdf/15Florida.pdf |
| Marine Sanctuaries | www.sanctuaries.nos.noaa.gov/oms/oms.html |
| Military Installations | www.floridadefense.org/ EconomicImpactsofMilitaryBaseActivityinFlorida1997.pdf |
| National Forests | www.fs.fed.us/recreation/map/state_list.shtml#Florida |
| National Historic Landmarks | tps.cr.nps.gov/nhl/result.cfm |
| National Memorials | ads.specificclick.com/pop_code;gid=17,pid=499,bid=2 |
| National Monuments | www.wilderness.org/standbylands/plantool/index.cfm |
| National Parks | www.governmentguide.com/ govsite.adp?bread=*Main&url=http%3A// www.governmentguide.com/ams/clickThruRedirect.adp %3F55076483%2C16920155%2Chttp%3A//www.nps.gov/ |
| National Seashores | www.floridasmart.com/attractions/outdoors_seashores.htm |
| National Wilderness Areas | www.wilderness.net/nwps/maps/fl_map.cfm |
| Orchids | www.orchids.org |

| | |
|---|---|
| Outstanding Florida Waters | www.dep.state.fl.us/water/surfacewater/ofwfs.htm#designation |
| Properties in the National Register of Historic Places | www.cr.nps.gov/nr/ about.htm |
| Roadless Area Review and Evaluation (RARE) Areas | fs.jorge.com/archives/History_National/WildernessAndRARE.htm |
| State Aquatic Preserves | www.dep.state.fl.us/coastal/sites/southwest/ |
| State Archaeological Landmarks or Landmark Zones | www.ibsgwatch.imagedjinn.com/sites/florida.htm |
| State Forests | www.fl-dof.com/state_forests/index.html |
| State Game Management Areas | wildflorida.org/hunting/ |
| State Parks | www.dep.state.fl.us/parks/district4/map.htm |

# APPENDIX A

# APPENDIX A

# FINAL ORDER ON NEED DETERMINATION

***(To be provided when available)***

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

| | |
|---|---|
| In re: Petition for determination of need for Collier-Orange River 230 kV transmission line in Collier, Hendry, and Lee Counties, by Florida Power & Light Company. | DOCKET NO. 030084-EI<br>ORDER NO. PSC-03-0551-FOF-EI<br>ISSUED: April 28, 2003 |

The following Commissioners participated in the disposition of this matter:

LILA A. JABER, Chairman
J. TERRY DEASON
BRAULIO L. BAEZ
RUDOLPH "RUDY" BRADLEY
CHARLES M. DAVIDSON

ORDER DETERMINING NEED FOR ELECTRICAL TRANSMISSION LINE

APPEARANCES:

KENNETH A. HOFFMAN, ESQUIRE, Rutledge, Ecenia, Purnell & Hoffman, P.A., P. O. Box 551, Tallahassee, Florida 32302, and R. WADE LITCHFIELD, ESQUIRE, Florida Power & Light Company, Senior Attorney, 700 Universe Boulevard, Juno Beach, Florida 33408-0420
On behalf of Florida Power & Light Company.

ROBERT SCHEFFEL WRIGHT, ESQUIRE, Landers & Parsons, P.A., 310 West College Avenue, Tallahassee, Florida 32302
On behalf of Barron Collier Companies.

LAWRENCE D. HARRIS, ESQUIRE, and WM. COCHRAN KEATING IV, ESQUIRE, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850
On behalf of the Florida Public Service Commission.

DOCUMENT NUMBER-DATE
03884 APR 28 8
FPSC-COMMISSION CLERK

BY THE COMMISSION:

I. CASE BACKGROUND

Pursuant to the provisions of Section 403.537, Florida Statutes, and Florida Administrative Code Rules 25-22.075 and 25-22.076, Florida Power & Light Company (FPL) filed a petition to determine need for its proposed Collier-Orange River #3 230kV transmission line (the transmission line) and supporting testimony on February 26, 2003. Portions of FPL's petition and supporting testimony were filed as confidential information (Document Nos. 01963-03, 01965-03, and 01968-03). FPL filed a request for confidential classification of that information on March 19, 2003.

On March 19, 2003, Barron Collier Companies (Barron Collier) filed a petition to intervene in this proceeding. Barron Collier was granted intervenor status by Order No. PSC-03-0414-PCO-EI, issued March 25, 2003.

On April 7, 2003, FPL and Barron Collier filed a stipulation that addressed: (1) the parties' rights to propose alternate corridors for the Transmission Line at the site certification hearing held subsequent to this Commission's need determination proceeding; and (2) the Siting Board's ultimate authority to determine the most appropriate corridor route. On April 8, 2003, just prior to our public hearing on FPL's petition, Barron Collier filed a notice of voluntary withdrawal from this proceeding contingent upon our approval of the stipulation.

On April 8, 2003, we conducted a public hearing to address FPL's petition. Notice of the April 8, 2003, public hearing and the filing of the petition was given in accordance with applicable statutes and rules. Notice was provided to those persons requesting notice, to counties and regional planning councils in whose jurisdiction the transmission line could be placed, by publication in the Florida Administrative Weekly, and in newspapers of general circulation no later than twenty (20) days prior to the date of the hearing.

At the outset of our April 8 hearing, we accepted FPL and Barron Collier's stipulation and acknowledged Barron Collier's voluntary withdrawal from this proceeding. The terms of the

stipulation are reflected in the findings set forth in part II of this Order.

Also at the outset of our April 8 hearing, we granted FPL's March 19 request for confidential classification of specified portions of its petition and supporting testimony. Our specific findings on this request are set forth below in part III of this Order.

Consistent with the stipulation, FPL, at our April 8 hearing, clarified its petition to indicate that it was requesting this Commission make three specific findings:

A. There is a need for the Collier-Orange River #3 transmission line, with the starting point at FPL's Orange River substation and the ending point at FPL's Collier substation;

B. The construction and operation of the Collier-Orange River #3 transmission line will enhance electric system reliability and integrity and will improve the availability of low-cost electrical energy within the State of Florida to assure the economic well-being of the citizens of the state; and

C. The location of the Collier-Orange River #3 transmission line on a right-of-way that is geographically diverse from the existing common transmission right-of-way between the Orange River and Collier substations will enhance electric system reliability, integrity, and restoration of service more than location of the line on the existing common right-of-way. However, under the Transmission Line Siting Act, the Siting Board could determine that the location of all or a portion of the Collier-Orange River #3 transmission line on the existing common right-of-way has the least impacts regarding the criteria in Section 403.529(4), Florida Statutes. The final determination of the most appropriate corridor route, considering all of the factors specified in Section 403.529, Florida Statutes, will be made by the Governor and Cabinet sitting as the Siting Board under the Transmission Line Siting Act.

We have jurisdiction over this matter pursuant to Section 403.537, Florida Statutes.

## II. ANALYSIS AND FINDINGS

As provided in Section 403.537, Florida Statutes, we are required to take the following into account in determining the need for a proposed transmission line subject to our review under Florida's Transmission Line Siting Act (Sections 403.52-403.5365, Florida Statutes):

> [T]he need for electric system reliability and integrity; the need for abundant, low-cost electrical energy to assure the economic well-being of the citizens of this state; the appropriate starting and ending point of the line; and other matters within [our] jurisdiction deemed relevant to the determination of need.

### A. Need for Electric System Reliability and Integrity

Southwest Florida has experienced substantial growth that is forecasted to continue into the future. The principal bulk transmission link into the region south of Ft. Myers is an existing 230 kV connection between the Orange River substation, just east of Ft. Myers, and the Collier substation adjacent to Naples. Thus, the area south of Ft. Myers, including Naples, is considered an electrical peninsula. FPL's planning studies indicate that additional transmission capability will be needed by December, 2005, between Ft. Myers and Naples to alleviate potential overloads and low voltage conditions from a single contingency event.[1] If FPL does not add new transmission capability in the region by that time, overloads ranging from 102% to 124% of the thermal line rating are forecasted under eleven separate single contingencies. Depending on the specific outage, between 7,200 and 41,100 electric

---

[1] A single contingency event involves the loss of a single element, such as a transmission line or generating unit, within an electrical system. A multiple contingency event involves the loss of all lines in a transmission corridor or all generating units at a single plant site.

customers could experience service interruption in violation of North American Electric Reliability Council (NERC) Transmission System Standards.

The proposed Collier-Orange River #3 transmission line entails the construction of approximately 80 miles of 230 kV transmission line from the existing Orange River substation in Lee County to the existing Collier Substation in Collier County. The single contingency violations identified by FPL would be satisfied by construction of this line whether such construction is in a new right-of-way or within the existing Collier-Orange River corridor. However, construction of the new line within the existing corridor would leave the Naples load center vulnerable to a multiple contingency event affecting the existing corridor. FPL's proposal to build the Collier-Orange River #3 transmission line in a new corridor would mitigate the impacts of such an event, enhancing electric system reliability, integrity, and restoration of service. In making this finding, we are cognizant that pursuant to Florida law any party to the site certification hearing for this transmission line may propose an alternate corridor for the line and that the Transmission Line Siting Board will make the final corridor selection upon consideration of the factors and criteria specified in Section 403.529, Florida Statues.

B. Need for Abundant, Low-Cost Electrical Energy to Assure the Economic Well-Being of the Citizens of This State

The net present value cost of the project proposed by FPL in a new right-of-way is estimated at between $32 million and $57 million, subject to final right-of-way routing and conditions of certification by the Transmission Line Siting Board. By mitigating the forecasted single contingency violation for 2005, the line would assure the economic well-being of the citizens of this state by minimizing the region's exposure to single-contingency events.

FPL evaluated five alternatives to the proposed Collier-Orange River #3 project. Four of these alternatives were transmission projects in the Ft. Myers-Naples region, while one alternative was the construction of new generation near the Naples load center. One of the alternatives, the placement of the Collier-Orange River #3 transmission line in the existing common right-of-way, was the least cost alternative with an estimated net present value cost of $25 million. As discussed previously, this alternative alleviates

single contingency overloads. However, this alternative is not optimal due to concerns with serving an electrical peninsula via a single corridor and the inability for future expansion of FPL's transmission system to the east of the existing corridor. The other four alternatives were either more costly (estimated net present value costs between $101 million and $138 million) or did not meet undervoltage and thermal overload conditions under all single contingency events.

C. Appropriate Starting and Ending Points

The Collier substation is adjacent to the Naples load center, while the Orange River substation is adjacent to FPL's Ft. Myers generating station. In addition, the Orange River substation is connected to the rest of FPL's electric system via existing 500 kV and 230 kV transmission lines. Thus, the Collier and Orange River electrical substations are the appropriate starting and ending points for the needed transmission line.

D. Conclusions

Based on the foregoing, we find that FPL's proposed Collier-Orange River #3 transmission line is needed taking into account the need for electric system reliability and integrity in Southwest Florida and the need to provide abundant, low-cost electrical energy to assure the economic well-being of the citizens of the State, particularly in Southwest Florida. Further, we find that the Collier and Orange River electrical substations are the appropriate starting and ending points for the needed transmission line.

III. OTHER PROCEDURAL MATTERS

As noted above, FPL filed a request for confidential classification of specified portions of its petition and supporting testimony, which we granted at the outset of our April 8 hearing. Specifically, FPL sought confidential treatment for information from Exhibit A to its petition, from the prefiled direct testimony of William R. Schoneck, and from the prefiled direct testimony of C. Martin Mennes, as follows:

Exhibit A to FPL's Petition (Document No. 01963-03)

a. Page 2, lines 15-19, through page 3, line 1 (first word), line 2 (last word) and lines 3, 4 and portion of line 5;
b. Page 5, lines 4-7;
c. Page 15, lines 16-19;
d. Page 16, line 18, through Page 18, line 2;
e. Page 22, lines 7-11;
f. Attachment 1a;
g. Attachment 4;
h. Attachment 6;
i. Attachment 8;
j. Appendix A (pages A.2 through A.35); and
k. Appendix B (pages B.1 through B.24).

Prefiled Direct Testimony of William R. Schoneck (Document No. 01965-03)
a. Page 14, lines 1-18

Prefiled Direct Testimony of C. Martin Mennes (Document No. 01968-03)
a. Page 4, lines 7-17;
b. Page 6, lines 18-23; and
c. Page 7, line 21, through Page 8, line 5.

FPL asserted that this information pertains to security measures, systems, or procedures, and thus constitutes proprietary confidential business information pursuant to Section 366.093(3)(c), Florida Statutes. FPL further relied on Federal Energy Regulatory Commission (FERC) Order 630, issued February 21, 2003, which protects from public disclosure documents relating to critical energy infrastructure. FPL stated that this information provides details regarding the specific configuration of FPL's transmission facilities and the length and magnitude of potential outages depending on the occurrence of certain severe or catastrophic events. FPL asserted that such detailed information should be protected inasmuch as it relates to the transmission of energy, could be useful to a person planning an attack on critical infrastructure, and does not simply give the location of the infrastructure.

To memorialize our decision granting FPL's request at the outset of our April 8 hearing, we hereby find that the information identified above satisfies the requirements of Section 366.093(3)(c), Florida Statutes, and is therefore entitled to

confidential classification. Pursuant to Section 366.093(4), Florida Statutes, this information is granted confidential status for a period of 18 months from the date of this Order. At the conclusion of the 18 month period, the confidential information will no longer be exempt from Section 119.07(9), Florida Statutes, unless FPL or another affected person shows, and the Commission finds, that the records continue to contain proprietary confidential business information.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that Florida Power & Light Company's Petition to Determine Need for the Collier-Orange River #3 Transmission Line, as clarified by Florida Power & Light Company at the April 8, 2003, public hearing, is hereby granted. It is further

ORDERED that Florida Power & Light Company's proposed Collier-Orange River #3 230kV Transmission Line is determined to be needed taking into account the factors set forth in Section 403.537, Florida Statutes. It is further

ORDERED that the withdrawal of the Barron Collier Companies as an intervenor in these proceedings is acknowledged. It is further

ORDERED that Florida Power & Light Company's Request for Confidential Classification of Document Nos. 01963-03, 01965-03, and 01968-03, is granted as set forth in the body of this Order. It is further

ORDERED that the information for which confidential classification is granted herein shall be declassified eighteen (18) months from the date of issuance of this Order in the absence of a renewed request for confidentiality. It is further

ORDERED that this Order will be the only notification by the Commission to the parties concerning the expiration of the confidentiality time period. It is further

ORDERED that this docket is closed.

By ORDER of the Florida Public Service Commission this 28th day of April, 2003.

BLANCA S. BAYÓ, Director
Division of the Commission Clerk
and Administrative Services

By: Kay Flynn
Kay Flynn, Chief
Bureau of Records and Hearing Services

( S E A L )

LDH/WCK

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Any party adversely affected by the Commission's final action granting Florida Power & Light Company's Petition to Determine Need and determining need for the proposed Collier-Orange River #3 line may request: 1) reconsideration of the decision by filing a motion

for reconsideration with the Director, Division of the Commission Clerk and Administrative Services, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, within five (5) days of the issuance of this order in the form prescribed by Rule 25-22.060, Florida Administrative Code; or 2) judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Director, Division of the Commission Clerk and Administrative Services and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days after the issuance of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.

Any party adversely affected by the Commission's decision to grant Florida Power & Light Company's Request for Confidential Classification and to close the docket, which is preliminary, procedural or intermediate in nature, may request: (1) reconsideration within 10 days pursuant to Rule 25-22.0376, Florida Administrative Code; or (2) judicial review by the Florida Supreme Court, in the case of an electric, gas or telephone utility, or the First District Court of Appeal, in the case of a water or wastewater utility. A motion for reconsideration shall be filed with the Director, Division of the Commission Clerk and Administrative Services, in the form prescribed by Rule 25-22.060, Florida Administrative Code. Judicial review of a preliminary, procedural or intermediate ruling or order is available if review of the final action will not provide an adequate remedy. Such review may be requested from the appropriate court, as described above, pursuant to Rule 9.100, Florida Rules of Appellate Procedure.

# APPENDIX B

# APPENDIX B

# COMMUNITY ADVISORY PANEL DESCRIPTION

(Issued with the permission of the Community Advisory Panel members on February 4, 2003.)

# FPL Collier-Orange River Community Advisory Panel

FPL's project team for the Collier-Orange River transmission line project has convened a group of about 20 citizens to assist them in the routing of the proposed new transmission line. The Community Advisory Panel will not be asked or expected to endorse or support any route selected by FPL. They are being asked to share their knowledge of the community and their perspectives to help the FPL team: (1) find a preferred route, (2) minimize the impacts of the project as best they can, and (3) find the best ways to communicate with the community. Panel members were drawn from a wide range of neighborhood and community groups and institutions. Their names are provided in the following list:

- Dick Anderson, Southwest Florida Council for Environment Education.
- Mike Bauer, Florida Audubon Society.
- Vince Barraco, Bonita Bay Group.
- Karen Bishop, PMS Inc. of Naples.
- Kathy Prosser, Conservancy of Southwest Florida.
- Bill Burdette, Buckingham.
- Ed Burke, Cypress Chase Three Oaks.
- Tim Byal, Miromar.
- Terrence Dolan, WCI Communities.
- Jack Fenwick, FGCU.
- John Gibbons, Lehigh Acres.
- Ron Hamel, Gulf Citrus Growers Association.
- Bill Horner, Lee County Port Authority.
- Ron Inge, Florida Rock Industries.
- Nancy Keefer, Bonita Springs Chamber of Commerce.
- Dave Kistel, Lee Memorial Hospital.
- Marietta Mudgett, Greater Fort Myers Chamber of Commerce.
- Billy Murphy, Citrus Grower (Hendry County).
- Johnny Nocera, Greater Naples Chamber of Commerce.
- Nancy Anne Payton, Florida Wildlife Federation.
- Neno Spagna, Golden Gate Estates Area Civic Association.
- Nathan Stout, Lehigh Acres Chamber of Commerce.
- Vernon Wheeler, Quality Engineering representing Grey Oaks.
- Donald J. York, Greater Naples Chamber of Commerce.

The Community Advisory Panel is expected to meet three times between January and April 2003 to learn about FPL's plans and share their views. FPL's project team expects to select a route for the proposed transmission line by the beginning of April 2003.

# APPENDIX C

# APPENDIX C

# AGENCY CONTACTS

## APPENDIX C

## AGENCY CONTACTS

| Date | Contact Name(s) | Agency | Subject |
|---|---|---|---|
| 11/12/02 | Don Deberry | Lee Co. DOT | Information on CR 951 expansion project |
| 11/13/02 | Reggie Bradley | FDOT | Digital aerials |
| 11/14/02 | Mike Deason | Collier Co. Prop Appraisers | Digital aerials for Collier Co. |
| 11/14/02 | Marisa Visel | FFWCC | CD of listed species locations |
| 11/14/02 | Fred Karuga | FDOT | FL aeronautical chart |
| 11/14/02 | Jennifer Moser | Collier Co. | Co. conservation areas map |
| 11/14/02 | Tim Billings | Collier Co. | Co. AutoCAD® files for zoning (Collier Co. map, future land use map, PUD map, and PUD-commercial and industrial zoning map) |
| 11/14/02 | Helena McMullen | Lee Co. Prop Appraisers | Conservation lands, zoning, incorporation, areas, land use, planned development, arterial required access road map |
| 11/15/02 | Brady Harrison | FDEP | Map of state parks/conservation areas |
| 11/15/02 | Brian Luprick | USFWS | Map of wildlife refuges in Collier Co. |
| 11/20/02 | Bob Barron | USACE | Draft EIS on improving the regulatory process in Southwest Florida Lee and Collier Counties, July 1999 |
| 11/21/02 | Office receptionist | Hendry Co. | Hendry Co. soil survey |
| 11/21/02 | Office receptionist | Lee Co. | Lee Co. soil survey |
| 11/21/02 | Office receptionist | Collier Co. | Collier Co. soil survey |
| 11/22/02 | Frank Razem | SFWMD | Maps of SFWMD lands |
| 11/22/02 | Rebecca Studer | Collier Co. Prop Appraisers | Digital aerial photographs |

## APPENDIX C

## AGENCY CONTACTS
(Continued, Page 2 of 7)

| Date | Contact Name(s) | Agency | Subject |
|---|---|---|---|
| 12/10/02 | Kathi Smith | Fort Myers Zoning | Zoning maps |
| 12/10/02 | Judi Kensington-Korf | Hendry Co. Administration | Collect documents |
| 12/10/02 | Clyde Aiken | Hendry Co. Planning | Collect documents |
| 12/10/02 | Jackie Blakey | Hendry Co. Zoning | Collect documents |
| 12/10/02 | Wayne Daltry | SMART Growth, Lee Co. | CAP suggestions |
| 12/10/02 | Barbara Barnes-Buchanan | City of Bonita Springs | Comprehensive plan |
| 12/11/02 | Gary Cochran | FFWCC | Project introductory meeting |
| | Brian Barnett | FFWCC | |
| | Buck Oven | FDEP | |
| | Scott Gorland | DEP | |
| | Paul Darst | FDCA | |
| 12/12/02 | Barbara Barnes-Buchanan | City of Bonita Springs | Comprehensive plan |
| 12/13/02 | Larry Lawrence | Collier Co. Prop Appraisers | Digital property boundary data |
| 12/16/02 | Jim Beever | FFWCC | Project introductory meeting |
| | Susan Coughanour | SFWMD | |
| | Jim Golden | SFWMD | |
| | Jacque Rippe | SFWMD | |
| | Ellen Linblad | CREW Trust | |
| | Joe Quinty | Collier Co. Transportation | |
| | Dusty Perkins | USFWS | |
| | Paul O'Connor | Lee Co. Planning | |
| | Matt Noble | Lee Co. Planning | |
| | Jim Lavender | Lee Co. Public Works | |
| | Rick Joyce | Lee Co. Environmental | |
| | Don Deberry | Lee Co. DOT | |
| | Saeed Kazemi | City of Fort Myers | |
| | Judi Kensington-Korf | Hendry Co. Administration | |
| | Marisa Moor | SWFRPC | |
| 12/16/02 | Matt Noble<br>Brandy Gonzales | Lee Planning | Collect documents |
| 12/16/02 | David Weeks | Collier Planning | Collect documents |

## APPENDIX C

## AGENCY CONTACTS
(Continued, Page 3 of 7)

| Date | Contact Name(s) | Agency | Subject |
|---|---|---|---|
| 12/16/02 | Joyce Ernst | Collier Planning | Collect documents |
| 12/16/02 | Amanda Metz | Collier Planning | Collect documents |
| 12/17/02 | Marsha Kendall | Collier Planning | Collect documents |
| 12/18/02 | Don DeBerry | Lee Co. DOT | Three Oaks Parkway |
| 12/19/02 | Don DeBerry | Lee Co. DOT | Rights-of-way |
| 12/19/02 | Marsha Kendall | Collier Planning | Collect documents |
| 12/23/02 | Larry Lawrence | Collier Co. Prop Appraisers | Digital property boundary data |
| 12/23/02 | Bob Kuwalla | FFWCC | Data coverage of listed species, current eagle nest/wading bird rookery locations |
| 12/23/02 | Helena McMullen | Lee Co. Prop Appraisers office | Conservation lands 2020 map |
| 12/23/02 | Ralph Bischel | Hendry Co. Property Appriasers | Property boundary maps, land use, and zoning maps |
| 12/23/02 | Co. Zoning staff | Hendry Co. Zoning | Zoning/land use maps |
| 12/23/02 | David Burr | SWFRPC | Estero Bay management plan |
| 01/02/03 | David Burr | SWFRPC | Estero Bay management plan |
| 01/02/03 | Heather Stafford | FDEP | Land management plan for state buffers in Estero Bay |
| 01/03/03 | Pamela Amons | FDEP | State conservation easements |
| 01/07/03 | Lynda Riley | Lee Co. Division of Co. Lands | Lee Co. mitigation lands |
| 01/07/03 | Jamie McCormick | Lee Co. Port Authority | Map of Lee Co. airport mitigation lands |
| 01/27/03 | Don DeBerry | Lee Co. DOT | Gunnery and Buckingham Roads |
| 01/27/03 | Bill Horner | SWF International Airport | Strayhorn Airport |
| 01/27/03 | Don Scott | Collier Co. Transportation | Right-of-way maps |

## APPENDIX C

## AGENCY CONTACTS
(Continued, Page 4 of 7)

| Date | Contact Name(s) | Agency | Subject |
|---|---|---|---|
| 01/28/03 | Brandy Gonzales | Lee Co. Planning | Data on Seminole-Gulf Railroad |
| 01/28/03 | Bill Horner | Lee Co. Port Authority | Strayhorn Airport information |
| 01/28/03 | Brandy Gonzales | Lee Co. Planning | Seminole Gulf Railroad |
| 01/29/03 | Terry Beacham | FDOT | Strayhorn Airport information |
| 01/29/03 | Brandy Gonzales | Lee Co. Planning | Lee future school sites |
| 01/29/03 | Marilyn Hernandez | Collier Co. Schools | Future school sites |
| 01/29/03 | Terry Beacham | FDOT | Strayhorn Ranch Airport |
| 01/29/03 | Bill Horner | Lee Co. Port Authority | Strayhorn Ranch Airport |
| 01/30/03 | Andy Vanisek | FDOT | Right-of-way information for Collier Co. roads |
| 01/30/03 | Sarah Clarke | FDOT | Right-of-way information on state roads |
| 01/30/03 | Don Scott<br>Joe Quinty<br>Kevin Hendricks | Collier Co. Transportation | Right-of-way information on Collier Co. roads |
| 01/30/03 | Sarah Clarke | FDOT | SR 80, SR 82, and SR 84 rights-of-way |
| 01/30/03 | Andy Vanisek | FDOT | SR 82 |
| 01/31/03 | Stephanie Keyes | Lee Co. Schools | Future school sites |
| 02/05/03 | Sarah Clarke | FDOT | I-75/Golden Gate Parkway right-of-way maps |
| 02/06/03 | Jacque Rippe | SFWMD | Meeting to discuss primary routes |
| 02/06/03 | Allison Eldridge | FDOT | Poinciana Elementary |
| 02/07/03 | Allison Eldridge | FDOT | I-75/Golden Gate Parkway right-of-way maps |
| 02/11/03 | Brian Toune | FDOT | SR 82 |

## APPENDIX C

## AGENCY CONTACTS
(Continued, Page 5 of 7)

| Date | Contact Name(s) | Agency | Subject |
|---|---|---|---|
| 02/11/03 | Brandy Gonzales | Lee Co. Planning | PUDs |
| 02/11/03 | Mike Convery | FDOT | SR 82 |
| 02/13/03 | David Crawford<br>Dusty Perkins<br>Bob Rutledge<br>Don Scott<br>Joseph Quinty<br>Lucy Blair | SWFRPC<br>USFWS<br>Collier Co. Transportation<br>Collier Co. Transportation<br>Collier Co. Transportation<br>FDEP | C-OR Project Transmission line project agency meeting |
| 02/13/03 | Allison Eldridge | FDOT | I-75/Golden Gate Parkway right-of-way maps |
| 02/13/03 | David Weeks | Collier Co. Planning | PUDs |
| 02/13/03 | Brandy Gonzales | Lee Co. Planning | PUDs |
| 02/13/03 | Margaret Lawson | Lee DOT | Green Meadows Road |
| 02/14/03 | Allison Eldridge | FDOT | I-75/Golden Gate Parkway right-of-way maps |
| 02/17/03 | Helena McMullen | Lee Co. Prop Appraisers office | Incorporated City zoning for Lee Co. |
| 02/18/03 | Melody Raycolt | USFWS | Critical habitat for Florida panther |
| 02/18/03 | Burt Beyers | USFWS | Critical habitat for Florida panther |
| 02/18/03 | John Kasbahm | USFWS | Critical habitat for Florida panther |
| 02/19/03 | Amy Bavin | City of Fort Myers | Zoning/land use maps |
| 02/21/03 | Don Scott | Collier Co. Transportation | CR 951 road widening plans |
| 02/24/03 | Joe Quinty | Collier Co. Transportation | Right-of-way widths for county roads |
| 02/24/03 | Marilyn Hernandez | Collier Co. Schools | Poinciana Elementary |
| 02/24/03 | Susan Overstreet | Naples Planning | Comprehensive plan |

## APPENDIX C

## AGENCY CONTACTS
(Continued, Page 6 of 7)

| Date | Contact Name(s) | Agency | Subject |
|---|---|---|---|
| 02/25/03 | Ron Lee | Naples Planning | Grey Oaks |
| 02/25/03 | Susan Fabrini | Naples Building | Zoning maps |
| 02/25/03 | Susan Overstreet | Naples Planning | Comprehensive plan |
| 02/26/03 | Mike Johnson | Collier Co. Schools | Poinciana Elementary |
| 02/27/03 | Joe Bacheler | USACE | Discussion of TLSA coordination/404 permitting |
| 02/27/03 | Frank Cavaliero | Community School | Naples Community School |
| 02/27/03 | Howard Yamataki | Lee Co. | Prime farmland |
| 02/28/03 | Frederick Gaske | DHR | Master site file search for candidate corridors |
| 03/03/03 | Charles Bleam | FDOT | SR 84 expansion drawings |
| 03/03/03 | Sarah Clarke | FDOT | SR 84 right-of-way |
| 03/03/03 | Charles Bleam | FDOT | SR 84 right-of-way |
| 03/05/03 | Skip Bergman | USACE | Navigable waters |
| 03/10/03 | Joe Quinty | Collier Co. Transportation | Goodlette-Frank Road right-of-way |
| 03/10/03 | Charles Bleam | FDOT | SR 84 and I-75 right-of-way |
| 03/10/03 | Kevin Hendricks | Collier Co. Transportation | Goodlette-Frank Road right-of-way |
| 03/11/03 | Rick Cantrell | FDEP, Fort Myers | Discussion of TLSA coordination ERP review |
| 03/11/03 | Patrick Gensler | DHR | Master site file review |
| 03/14/03 | Patrick Gensler | DHR | Master site file review |
| 03/24/03 | Amanda Metz | Collier Co. Zoning | Zoning maps |
| 03/24/03 | Tim Billings | Collier Co. Graphics | Zoning maps |

## APPENDIX C

## AGENCY CONTACTS
(Continued, Page 7 of 7)

| Date | Contact Name(s) | Agency | Subject |
|---|---|---|---|
| 03/26/03 | Receptionist | Collier Co. | Zoning maps |
| 03/26/03 | Brian Keller | Collier Co. Zoning | Zoning maps |

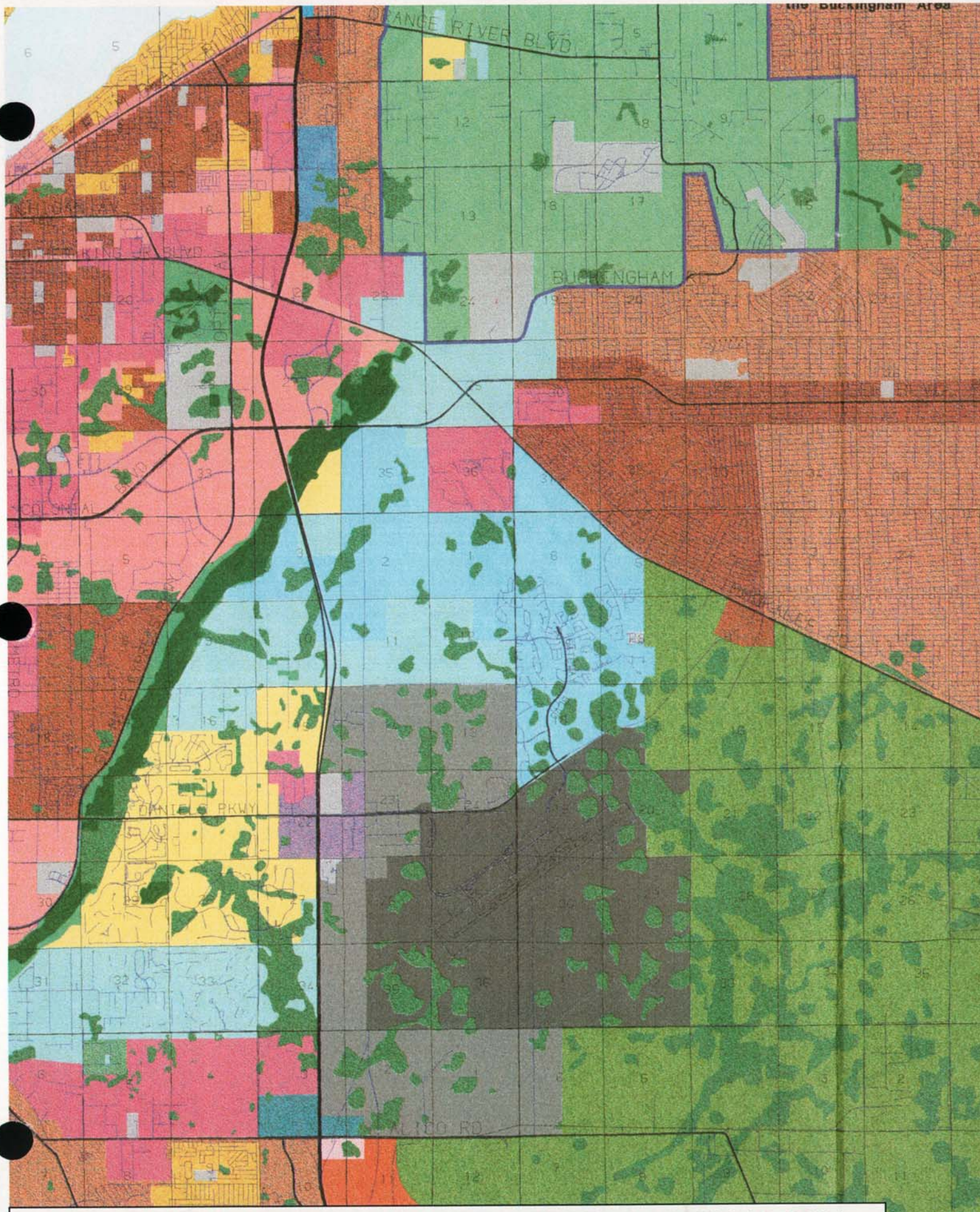
# APPENDIX D

# APPENDIX D

# FUTURE LAND USE MAPS

# IMAGE QUALITY

AS YOU REVIEW THE NEXT GROUP OF IMAGES, PLEASE NOTE THAT THE ORIGINAL DOCUMENTS WERE OF POOR QUALITY.

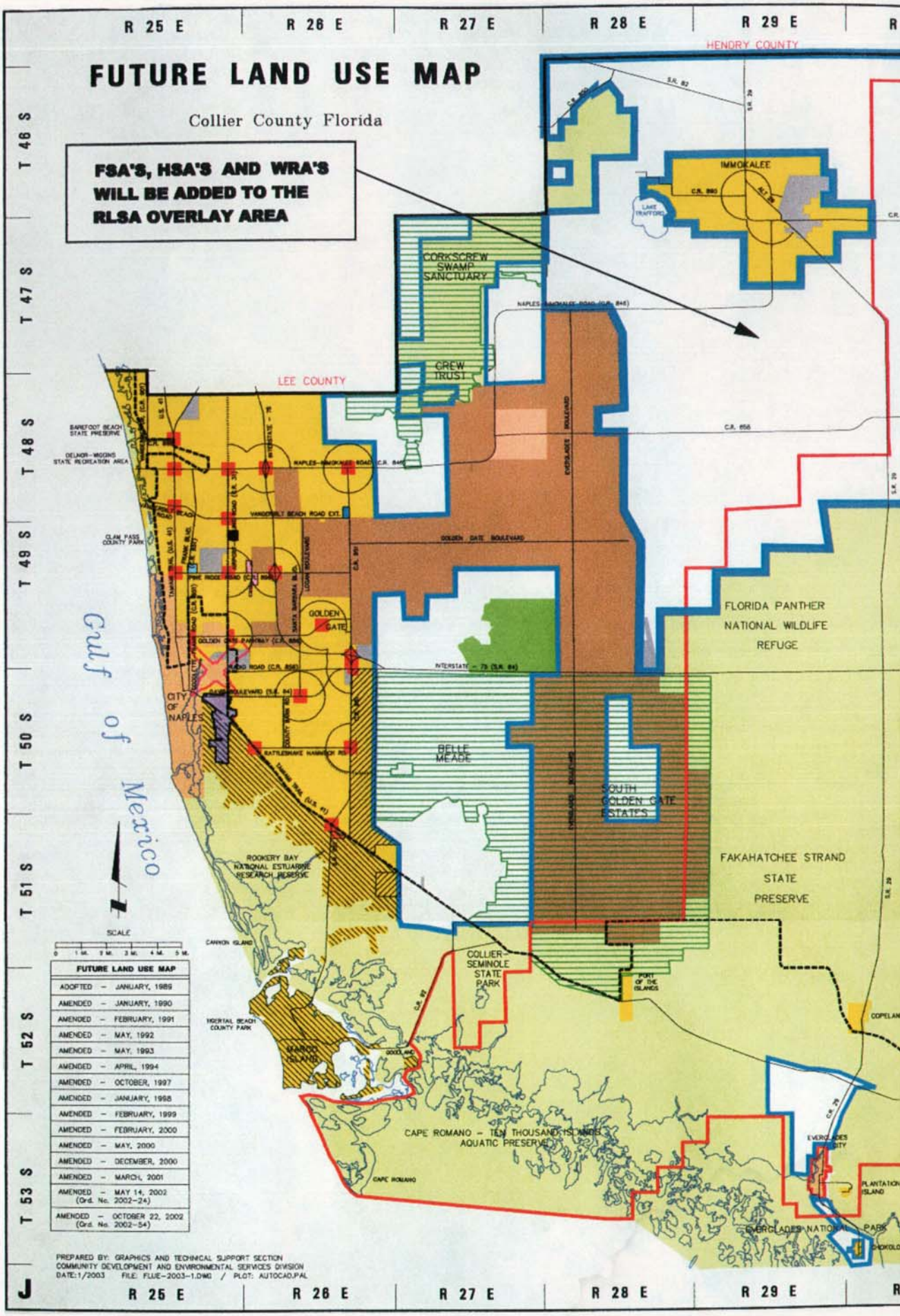



LEE COUNTY FUTURE LAND USE MAP—FEBRUARY 13, 2001

# FUTURE LAND USE MAP

Collier County Florida

**FSA'S, HSA'S AND WRA'S WILL BE ADDED TO THE RLSA OVERLAY AREA**

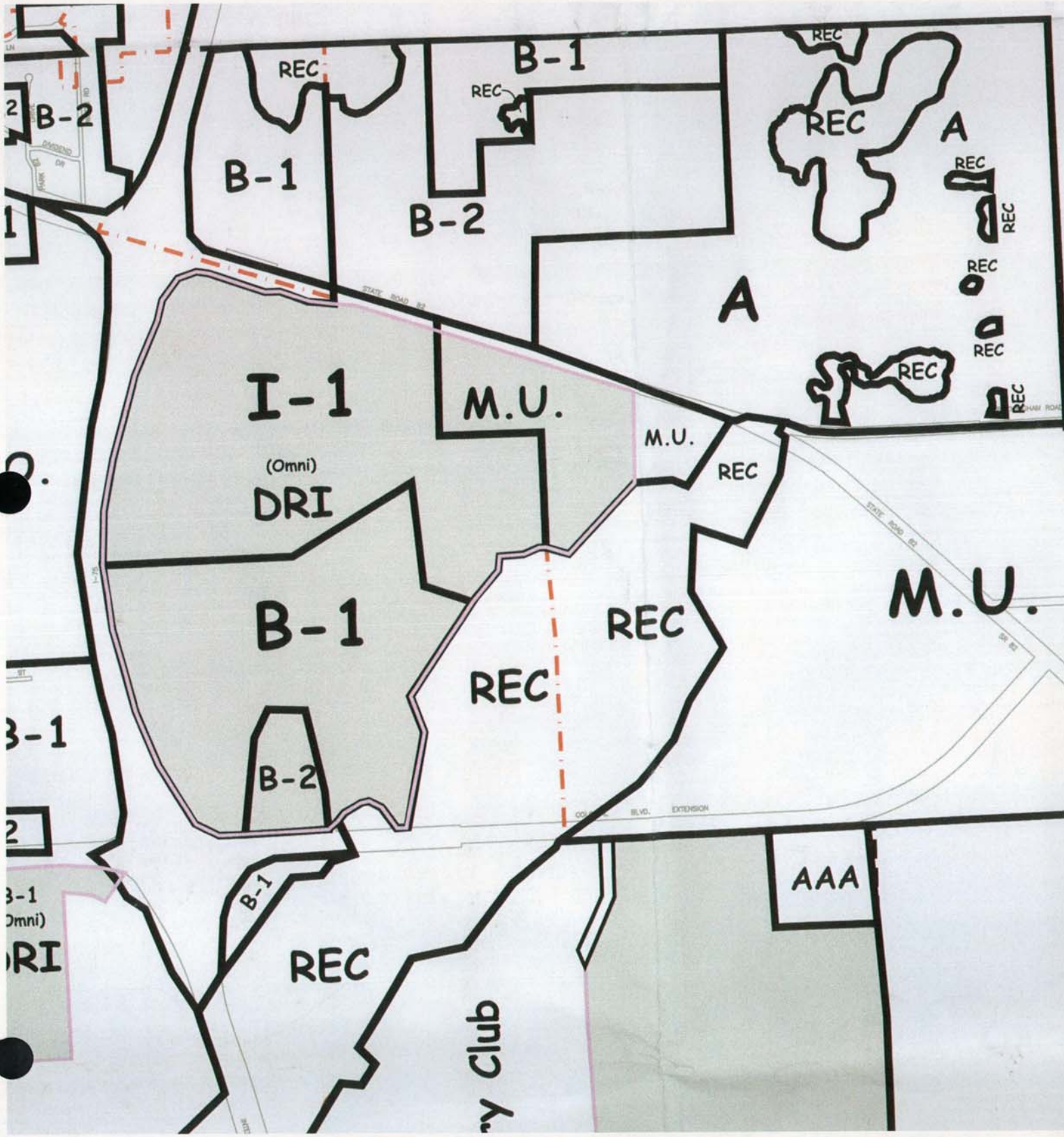



| FUTURE LAND USE MAP |
|---|
| ADOPTED – JANUARY, 1989 |
| AMENDED – JANUARY, 1990 |
| AMENDED – FEBRUARY, 1991 |
| AMENDED – MAY, 1992 |
| AMENDED – MAY, 1993 |
| AMENDED – APRIL, 1994 |
| AMENDED – OCTOBER, 1997 |
| AMENDED – JANUARY, 1998 |
| AMENDED – FEBRUARY, 1999 |
| AMENDED – FEBRUARY, 2000 |
| AMENDED – MAY, 2000 |
| AMENDED – DECEMBER, 2000 |
| AMENDED – MARCH, 2001 |
| AMENDED – MAY 14, 2002 (Ord. No. 2002-24) |
| AMENDED – OCTOBER 22, 2002 (Ord. No. 2002-54) |

PREPARED BY: GRAPHICS AND TECHNICAL SUPPORT SECTION
COMMUNITY DEVELOPMENT AND ENVIRONMENTAL SERVICES DIVISION
DATE:1/2003 FILE: FLUE-2003-1.DWG / PLOT: AUTOCAD.PAL

J

# FORT MYERS FUTURE LAND USE MAP—SEPTEMBER 17, 2001



# APPENDIX E

# APPENDIX E

# DIVISION OF HISTORICAL RESOURCES LETTERS

DIVISIONS OF FLORIDA DEPARTMENT OF STATE
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

MEMBER OF THE FLORIDA CABINET
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists no previously recorded cultural resources or surveys in the following parcels:

**T47S, R28E, Sections 1, 12, 13, 19-24**
In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites, unrecorded historically important structures, or both.**
- **As you may know, state and federal laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review of cultural resources. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone: 850-245-6440
State SunCom: 205-6440
Fax line: 850-245-6439
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

**DIVISIONS OF FLORIDA DEPARTMENT OF STATE**
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

**MEMBER OF THE FLORIDA CABINET**
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists no previously recorded cultural resources or surveys in the following parcels:

**T46S, R27E, Sections 1-3**
In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites, unrecorded historically important structures, or both.**
- **As you may know, state and federal laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review of cultural resources. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone: 850-245-6440
State SunCom: 205-6440
Fax line: 850-245-6439
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

**DIVISIONS OF FLORIDA DEPARTMENT OF STATE**
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

**MEMBER OF THE FLORIDA CABINET**
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists no previously recorded cultural resources or surveys in the following parcels:

**T45S, R27E, Sections 30-35**
In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites, unrecorded historically important structures, or both.**
- **As you may know, state and federal laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review of cultural resources. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone: 850-245-6440
State SunCom: 205-6440
Fax line: 850-245-6439
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

**DIVISIONS OF FLORIDA DEPARTMENT OF STATE**
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

**MEMBER OF THE FLORIDA CABINET**
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists no previously recorded cultural resources or surveys in the following parcels:

**T45S, R26E, Sections 4-6, 9-11, 13, 14, 23-26**
In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites, unrecorded historically important structures, or both.**
- **As you may know, state and federal laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review of cultural resources. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone: 850-245-6440
State SunCom: 205-6440
Fax line: 850-245-6439
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

**DIVISIONS OF FLORIDA DEPARTMENT OF STATE**
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

**MEMBER OF THE FLORIDA CABINET**
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists no previously recorded cultural resources or surveys in the following parcels:

**T44S, R26E, Section 31**
In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites, unrecorded historically important structures, or both.**
- **As you may know, state and federal laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review of cultural resources. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone: 850-245-6440
State SunCom: 205-6440
Fax line: 850-245-6439
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

**DIVISIONS OF FLORIDA DEPARTMENT OF STATE**
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

**MEMBER OF THE FLORIDA CABINET**
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists no previously recorded cultural resources or surveys in the following parcels:

**T47S, R27E, Sections 23, 24, 26, 27, 34**
In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites, unrecorded historically important structures, or both.**
- **As you may know, state and federal laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review of cultural resources. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone: 850-245-6440
State SunCom: 205-6440
Fax line: 850-245-6439
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

**DIVISIONS OF FLORIDA DEPARTMENT OF STATE**
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

**MEMBER OF THE FLORIDA CABINET**
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
Glenda E. Hood
Secretary of State
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists one previously recorded archaeological site, no historical standing structures, and one field surveys in the following parcels of Collier County:

**T46S, R28E Sec. 5,6,8-13, 24, 25,36**

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone 850-245-6440, Fax: 850-245-6439
State SunCom: 205-6440
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

CULTURAL RESOURCES REPORT

| SITEID | FORMNO | T-R-S | CR | SITENAME | NRLIST | SURVEY | LOCATION | |
|---|---|---|---|---|---|---|---|---|
| CR00725 | MELD | 46S/28E/36 | AR | BURIED TIN | | 2934 | Map: IMMO 37EE | Culture: Sitetype |

1 site(s) evaluated; 1 form(s) evaluated.
Print date: 3/11/2003 9:25:04 AM

46S
28E
5, 6, 8, 9, 10, 11, 12, 13, 24, 25, 36

SURVEY REPORT

| SURVNO | TITLE | |
|---|---|---|
| 2934 | AN ARCHAEOLOGICAL SURVEY OF COLLIER COUNTY, FLORIDA: PHASE I [COLLIER COUNTY, FLORIDA]. | CARR, ROBERT S |

1 records printed.
Print date: 3/11/2003 9:25:15 AM

DIVISIONS OF FLORIDA DEPARTMENT OF STATE
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

MEMBER OF THE FLORIDA CABINET
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
Glenda E. Hood
Secretary of State
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists one previously recorded archaeological site, four historical standing structures, and one field surveys in the following parcels of Lee County:

**T44S, R25E Sec. 1,2,11,12,14,23,24,25,26,36**

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone 850-245-6440, Fax: 850-245-6439
State SunCom: 205-6440
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

| SITEID | FORMNO | T-R-S | CR | SITENAME | NRLIST | SURVEY | LOCATION | |
|---|---|---|---|---|---|---|---|---|
| LL01025 | MELD | 44S/25E/1 | SS | 368 ORANGE RIVER BLVD. | | | 368 ORANGE RIVER BLVD, BUCKING | Uses: |
| LL01027 | MELD | 44S/25E/1 | SS | ORANGE RIVER BLVD | | | ORANGE RIVER BLVD, BUCKINGHAM | Uses: |
| LL01031 | MELD | 44S/25E/1 | SS | 376 STALEY RD | | | 376 STALEY RD, BUCKINGHAM | Uses: |
| LL01441 | MELD | 44S/25E/24 | AR | BUCKINGHAM ROAD | | 2611 | Map: FMY 35BB | Cultu Sitet |
| LL01442 | MELD | 44S/25E/24 | SS | BUCKINGHAM ROAD FARMSTEAD COMPLEX | | 2611 | NONE < 2 MILES | Uses: Built |

5 site(s) evaluated; 5 form(s) evaluated.
Print date: 3/10/2003 4:23:30 PM

44 S

25 E

1, 2, 11, 13, 14,

| SURVNO | TITLE |
| --- | --- |
| 2611 | CULTURAL RESOURCE ASSESSMENT SURVEY OF THE PROPOSED LEE COUNTY RESOURCE RECOVERY SITE F, LEE COUNTY FL AUSTIN, ROBERT ORIDA. |

1 records printed.
Print date: 3/10/2003 4:25:41 PM

CULTURAL RESOURCES REPORT

| SITEID | FORMNO | T-R-S | CR | SITENAME | NRLIST | SURVEY | LOCATION | |
|---|---|---|---|---|---|---|---|---|
| CR00228 | MELD | 49S/25E/12 | AR | CYPRESS CROSSING | | | Map: NAPN | Culture<br>Sitetype |

39BB

1 site(s) evaluated; 1 form(s) evaluated.
Print date: 3/11/2003 9:44:00 AM

49S 25E 11, 12, 14, 23, 25, 26

**DIVISIONS OF FLORIDA DEPARTMENT OF STATE**
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

**MEMBER OF THE FLORIDA CABINET**
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
Glenda E. Hood
Secretary of State
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists ~~three~~ 2 pg. previously recorded archaeological sites, ~~no~~ 1 pg historical standing structures, and two field surveys in the following parcels of Collier County:

**T46S, R29E Sec. 18, 19, 30, 31**

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone 850-245-6440, Fax: 850-245-6439
State SunCom: 205-6440
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

CULTURAL RESOURCES REPORT

| SITEID | FORMNO | T-R-S | CR | SITENAME | NRLIST | SURVEY | LOCATION | |
|---|---|---|---|---|---|---|---|---|
| CR00703 | 200203 | 47S/29E/6 | AR | WILLIAMS MOUND #1 | Eligib | 7228 | Map: IMMO | Culture: Sitetype |
| CR00704 | MELD | 46S/29E/31 | AR | WILLIAMSON SITE 2 | | 2458 | Map: IMMO | Culture: Sitetype |
| CR00829 | 200204 | 46S/29E/31 | ~~AR~~ SS | ARROWHEAD PARCEL | | 7228 | Map: IMMO | |

3 site(s) evaluated; 3 form(s) evaluated.
Print date: 3/11/2003 9:25:44 AM

46S, 29E, 18, 19, 30, 31

SURVEY REPORT

| SURVNO | TITLE | |
|---|---|---|
| 2458 | AN ARCHAEOLOGICAL AND HISTORICAL SURVEY OF PART OF THE WILLIAMSON PROPERTY [COLLIER COUNTY, FLORIDA]. | CARR, ROBERT S. |
| 7228 | AN ARCHAEOLOGICAL AND HISTORICAL ASSESSMENT OF THE ARROWHEAD PARCEL, COLLIER COUNTY, FLORIDA | BERIAULT, JOHN |

2 records printed.
Print date: 3/11/2003 9:25:49 AM

**DIVISIONS OF FLORIDA DEPARTMENT OF STATE**
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

**MEMBER OF THE FLORIDA CABINET**
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
Glenda E. Hood
Secretary of State
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists seven previously recorded archaeological sites, no historical standing structures, and two field surveys in the following parcels of Collier County:

**T48S, R27E Sec. 2,3,10,11,14,15,19-23, 27-30**

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone 850-245-6440, Fax: 850-245-6439
State SunCom: 205-6440
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

| SITEID | FORMNO | T-R-S | CR | SITENAME | NRLIST | SURVEY | LOCATION | |
|---|---|---|---|---|---|---|---|---|
| CR00755 | 199403 | 48S/27E/20 | AR | PIPER #1 | | 3948 Map: CSSW | | Culture Sitetyp |
| CR00756 | 199403 | 48S/27E/18 | AR | PIPER #2 | | 3948 Map: CSSW | 38CC | Culture Sitetyp |
| CR00759 | 199403 | 48S/27E/19 | AR | PIPER #5 | Eligib | 3948 Map: CSSW | | Culture Sitetyp |
| CR00760 | 199404 | 48S/27E/19 | AR | PIPER #6 | Eligib | 3948 Map: CSSW | | Culture Sitetyp |
| CR00761 | 199404 | 48S/27E/19 | AR | PIPER #7 | | 3948 Map: CSSW | | Culture Sitetyp |
| CR00763 | 199404 | 48S/27E/19 | AR | PIPER #9 | | 3948 Map: CSSW | | Culture Sitetyp |
| CR00823 | 200108 | 48S/27E/22 | AR | LEE TIDEWATER CYPRESS LOGGING TRAM | | 6608 Map: CSSE | | |

7 site(s) evaluated; 7 form(s) evaluated.
Print date: 3/11/2003 9:43:18 AM

48S, 27E, 2, 3, 10, 14, 15, 19, 20, 21, 22, 23, 27, 28, 29, 30

| SURVNO | TITLE | |
|---|---|---|
| 3948 | A PHASE II: ARCHAEOLOGICAL SURVEY AND ASSESSMENT OF THE PIPER PARCEL [COLLIER COUNTY, FLORIDA]. | CARR, ROBERT |
| 6608 | AN ARCHAEOLOGICAL SURVEY OF THE COUNTY ROAD 846 (IMMOKALEE ROAD) EXPANSION, COLLIER BOULEVARD (C.R. 951) TO OIL WELL ROAD (C.R. 858), COLLIER COUNTY, FLORIDA | BERIAULT, JOH |

2 records printed.
Print date: 3/11/2003 9:45:21 AM

DIVISIONS OF FLORIDA DEPARTMENT OF STATE
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

MEMBER OF THE FLORIDA CABINET
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
Glenda E. Hood
Secretary of State
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists two previously recorded archaeological sites, no historical standing structures, and two field surveys in the following parcels of Collier County:

**T47S, R29E Sec. 6,7,18,19**

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone 850-245-6440, Fax: 850-245-6439
State SunCom: 205-6440
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

| SITEID | FORMNO | T-R-S | CR | SITENAME | NRLIST | SURVEY | LOCATION | |
|---|---|---|---|---|---|---|---|---|
| CR00703 | 200203 | 47S/29E/6 | AR | WILLIAMS MOUND #1 | Eligib | 7228 | Map: IMMO | Culture:<br>Sitetype |
| CR00828 | 200203 | 47S/29E/6 | AR | CREEK BEND MIDDEN | Eligib | 7228 | Map: IMMO | Culture:<br>Sitetype |

2 site(s) evaluated; 2 form(s) evaluated.
Print date: 3/11/2003 9:26:53 AM

| SURVNO | TITLE | |
|---|---|---|
| 2458 | AN ARCHAEOLOGICAL AND HISTORICAL SURVEY OF PART OF THE WILLIAMSON PROPERTY [COLLIER COUNTY, FLORIDA]. | CARR, ROBERT S |
| 7228 | AN ARCHAEOLOGICAL AND HISTORICAL ASSESSMENT OF THE ARROWHEAD PARCEL, COLLIER COUNTY, FLORIDA | BERIAULT, JOHN |

2 records printed.
Print date: 3/11/2003 9:30:13 AM

DIVISIONS OF FLORIDA DEPARTMENT OF STATE
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

MEMBER OF THE FLORIDA CABINET
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
Glenda E. Hood
Secretary of State
DIVISION OF HISTORICAL RESOURCES

March 11, 2003

Phil Simpson
ECT, Inc.
3701 NW 98th St.
Gainesville, Fl. 32606

Dear Mr. Simpson:

In response to your inquiry of March 10th, 2003, the Florida Master Site File lists one previously recorded archaeological site, no historical standing structures, and no field surveys in the following parcels of Collier County:

**T49S, R25E Sec. 11,12,14,23,25,26**

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Patrick Gensler
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone 850-245-6440, Fax: 850-245-6439
State SunCom: 205-6440
Email: *fmsfile@mail.dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

APPENDIX F

# APPENDIX F

# EMF CALCULATIONS

**Proposed 60-ft Right-of-Way**
**(Cross-Country)**

# *Florida Department of Environmental Protection*

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

# Report on Compliance with Electric and Magnetic Field (EMF) Standards

## Agent/Facility Information

**Collier-Orange River #3 230kV TLSA EMF X-Sections**
Name of Transmission Line/InterestPoint

**January 01, 2005**
Date of Proposed Construction

**Florida Power and Light Co.**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Facility (Utility) Owner

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Professional Engineer

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Authorized Agent

Signature of Authorized Agent

Date

Signature and Seal of Professional Engineer

Date

## Field Strength Information

### Transmission Lines

| Cross Section | Right-of-Way (ROW) Width (ft) | Maximum Calculated Fields and Distance From ROW Left | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Electric** | | | | **Magnetic** | |
| | | Within ROW | | At Edge of ROW | | At Edge of ROW | |
| | | (kV/m) | (ft) | (kV/m) | (ft) | (mG) | (ft) |
| Single Ckt, 1x1431 | 60 | **3.1** | 30 | **0.5** | 0 | **114.3** | 60 |

### Substations

None

Details for CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV 60 ft R/W**

| Circuit Name | Rated Voltage | New/Existing |
|---|---|---|
| Ckt1 | 230 kV | **NEW CIRCUIT** |

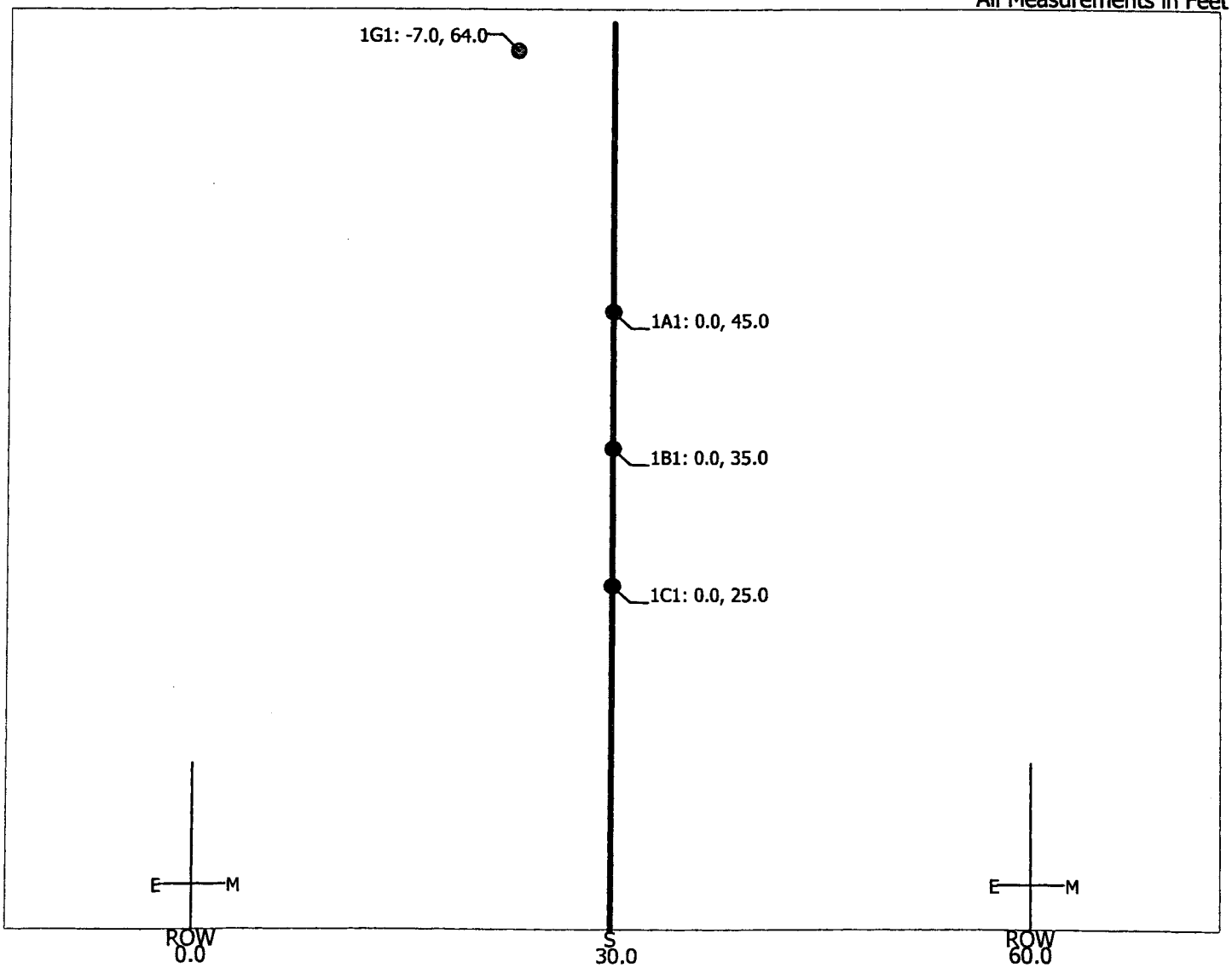
| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 1A1 | 30.00 | 0.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| 1B1 | 30.00 | 0.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| 1C1 | 30.00 | 0.00 | 25.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| 1G1 | 23.00 | -7.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

Points of Interest

None

**Phase Configuration**

All Measurements in Feet



# Electric and Magnetic Field Effects

## Collier-Orange River #3 230kV TLSA EMF X-Sections

Units: **English** Physical System: **4** Conductors (**3** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV 60 ft R/W**

| Circuit Name | Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|---|
| Ckt1 | 1A1 | 30.00 | 0.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| Ckt1 | 1B1 | 30.00 | 0.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| Ckt1 | 1C1 | 30.00 | 0.00 | 25.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| Ckt1 | 1G1 | 23.00 | -7.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|
| **0.00** | **0.45** | **114.26** |
| **60.00** | **0.43** | **114.26** |
| -4.00 | 0.27 | 100.04 |
| -3.00 | 0.31 | 103.39 |
| -2.00 | 0.36 | 106.88 |
| -1.00 | 0.40 | 110.50 |
| 0.00 | 0.45 | 114.26 |
| 1.00 | 0.51 | 118.16 |
| 2.00 | 0.57 | 122.21 |
| 3.00 | 0.63 | 126.40 |
| 4.00 | 0.70 | 130.74 |
| 5.00 | 0.77 | 135.23 |
| 6.00 | 0.85 | 139.87 |
| 7.00 | 0.93 | 144.65 |
| 8.00 | 1.02 | 149.57 |
| 9.00 | 1.12 | 154.62 |
| 10.00 | 1.22 | 159.80 |
| 11.00 | 1.32 | 165.09 |
| 12.00 | 1.43 | 170.47 |
| 13.00 | 1.54 | 175.94 |
| 14.00 | 1.66 | 181.46 |
| 15.00 | 1.78 | 187.00 |
| 16.00 | 1.91 | 192.55 |
| 17.00 | 2.03 | 198.05 |
| 18.00 | 2.16 | 203.47 |
| 19.00 | 2.29 | 208.76 |
| 20.00 | 2.41 | 213.88 |
| 21.00 | 2.53 | 218.76 |
| 22.00 | 2.64 | 223.34 |
| 23.00 | 2.75 | 227.57 |
| 24.00 | 2.85 | 231.39 |
| 25.00 | 2.93 | 234.74 |
| 26.00 | 3.01 | 237.57 |
| 27.00 | 3.07 | 239.82 |
| 28.00 | 3.11 | 241.46 |
| 29.00 | 3.13 | 242.46 |
| 30.00 | 3.14 | 242.79 |
| 31.00 | 3.13 | 242.46 |
| 32.00 | 3.11 | 241.46 |
| 33.00 | 3.06 | 239.82 |
| 34.00 | 3.00 | 237.57 |
| 35.00 | 2.93 | 234.74 |
| 36.00 | 2.84 | 231.39 |
| 37.00 | 2.74 | 227.57 |
| 38.00 | 2.63 | 223.34 |
| 39.00 | 2.52 | 218.76 |
| 40.00 | 2.40 | 213.88 |
| 41.00 | 2.27 | 208.76 |
| 42.00 | 2.15 | 203.47 |
| 43.00 | 2.02 | 198.05 |
| 44.00 | 1.89 | 192.55 |
| 45.00 | 1.77 | 187.00 |
| 46.00 | 1.64 | 181.46 |
| 47.00 | 1.53 | 175.94 |
| 48.00 | 1.41 | 170.47 |
| 49.00 | 1.30 | 165.09 |
| 50.00 | 1.20 | 159.80 |
| 51.00 | 1.10 | 154.62 |
| 52.00 | 1.00 | 149.57 |
| 53.00 | 0.91 | 144.65 |
| 54.00 | 0.83 | 139.87 |
| 55.00 | 0.75 | 135.23 |
| 56.00 | 0.68 | 130.74 |
| 57.00 | 0.61 | 126.40 |
| 58.00 | 0.54 | 122.21 |
| 59.00 | 0.49 | 118.16 |
| 60.00 | 0.43 | 114.26 |
| 61.00 | 0.38 | 110.50 |
| 62.00 | 0.33 | 106.88 |
| 63.00 | 0.29 | 103.39 |
| 64.00 | 0.25 | 100.04 |

**Proposed 15-ft Right-of-Way**
**(Adjacent to Public Road Right-of-Way)**

# *Florida Department of Environmental Protection*

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

# Report on Compliance with Electric and Magnetic Field (EMF) Standards

## Agent/Facility Information

**Collier-Orange River #3 230kV TLSA EMF X-Sections**
Name of Transmission Line/InterestPoint

**January 01, 2005**
Date of Proposed Construction

**Florida Power and Light Co.**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Facility (Utility) Owner

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Professional Engineer

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Authorized Agent

Signature of Authorized Agent

Signature and Seal of Professional Engineer

Date

Date

## Field Strength Information

### Transmission Lines

| Cross Section | Right-of-Way (ROW) Width (ft) | Maximum Calculated Fields and Distance From ROW Left | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Electric** | | | | **Magnetic** | |
| | | Within ROW | | At Edge of ROW | | At Edge of ROW | |
| | | (kV/m) | (ft) | (kV/m) | (ft) | (mG) | (ft) |
| Single Ckt, 1x1431 | 73 | **2.3** | 50 | **1.0** | 73 | **118.7** | 73 |

### Substations

None

Details for CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV_15ft Easement+**

Ckt1
Circuit Name

230 kV
Rated Voltage

**NEW CIRCUIT**
New/Existing

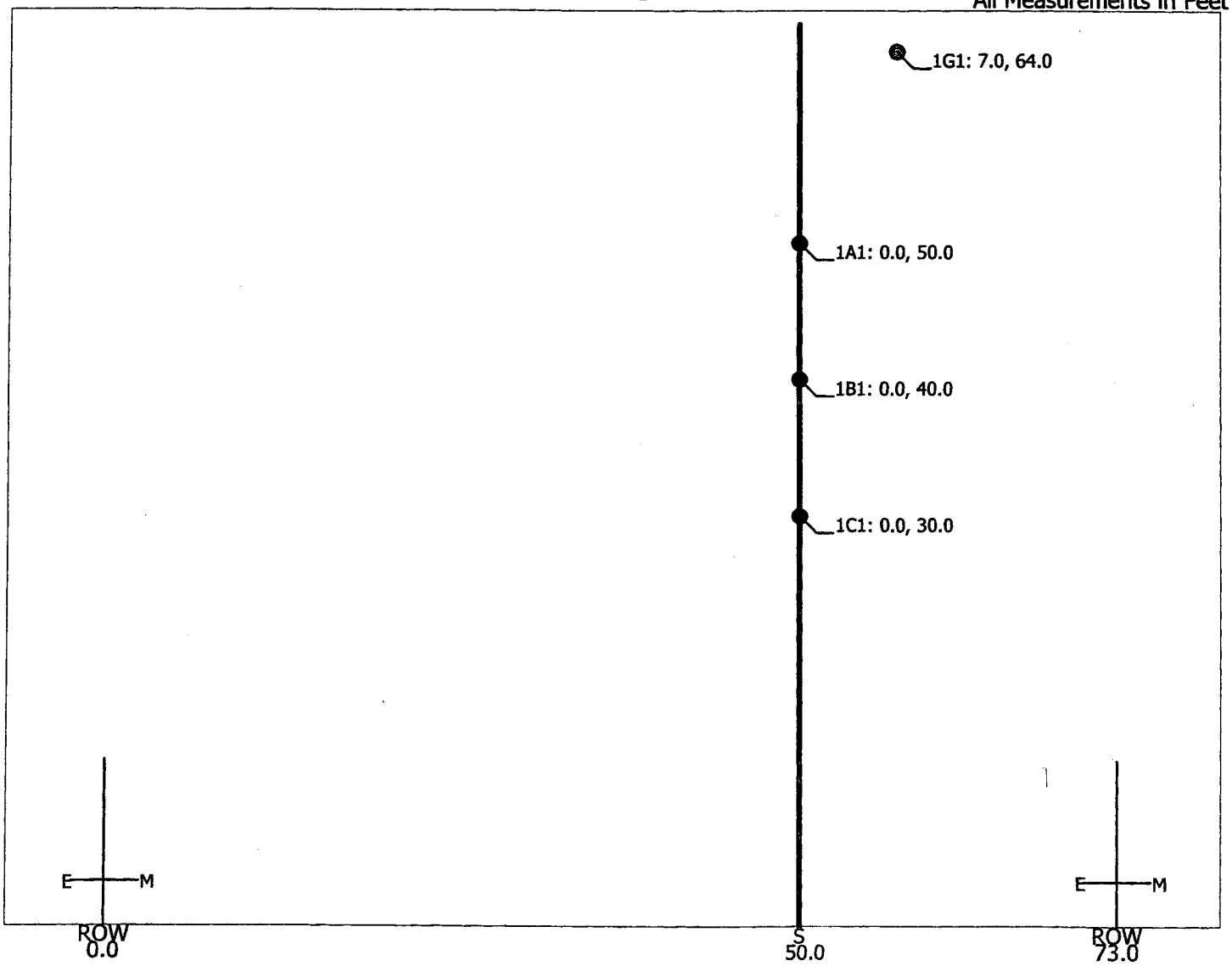
| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 1A1 | 50.00 | 0.00 | 50.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| 1B1 | 50.00 | 0.00 | 40.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| 1C1 | 50.00 | 0.00 | 30.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| 1G1 | 57.00 | 7.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

Points of Interest

None

## Phase Configuration

All Measurements in Feet



# Electric and Magnetic Field Effects

## Collier-Orange River #3 230kV TLSA EMF X-Sections

Units: **English** Physical System: **4** Conductors (**3** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

### CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV_15ft Easement+r**

| Circuit Name | Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|---|
| Ckt1 | 1A1 | 50.00 | 0.00 | 50.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| Ckt1 | 1B1 | 50.00 | 0.00 | 40.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| Ckt1 | 1C1 | 50.00 | 0.00 | 30.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| Ckt1 | 1G1 | 57.00 | 7.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|
| **0.00** | **0.04** | **55.88** |
| **73.00** | **0.95** | **118.65** |
| -4.00 | 0.06 | 50.38 |
| -3.00 | 0.05 | 51.68 |
| -2.00 | 0.05 | 53.03 |
| -1.00 | 0.04 | 54.43 |
| 0.00 | 0.04 | 55.88 |
| 1.00 | 0.04 | 57.37 |
| 2.00 | 0.05 | 58.92 |
| 3.00 | 0.06 | 60.52 |
| 4.00 | 0.08 | 62.17 |
| 5.00 | 0.09 | 63.89 |
| 6.00 | 0.11 | 65.65 |
| 7.00 | 0.12 | 67.48 |
| 8.00 | 0.14 | 69.38 |
| 9.00 | 0.16 | 71.33 |
| 10.00 | 0.19 | 73.35 |
| 11.00 | 0.21 | 75.44 |
| 12.00 | 0.24 | 77.60 |
| 13.00 | 0.27 | 79.82 |
| 14.00 | 0.30 | 82.12 |
| 15.00 | 0.33 | 84.49 |
| 16.00 | 0.37 | 86.94 |
| 17.00 | 0.40 | 89.46 |
| 18.00 | 0.44 | 92.05 |
| 19.00 | 0.49 | 94.73 |
| 20.00 | 0.53 | 97.47 |
| 21.00 | 0.58 | 100.29 |
| 22.00 | 0.63 | 103.18 |
| 23.00 | 0.69 | 106.15 |
| 24.00 | 0.74 | 109.18 |
| 25.00 | 0.80 | 112.28 |
| 26.00 | 0.86 | 115.44 |
| 27.00 | 0.93 | 118.65 |
| 28.00 | 1.00 | 121.91 |
| 29.00 | 1.07 | 125.21 |
| 30.00 | 1.14 | 128.55 |
| 31.00 | 1.22 | 131.90 |
| 32.00 | 1.29 | 135.27 |
| 33.00 | 1.37 | 138.62 |
| 34.00 | 1.45 | 141.96 |
| 35.00 | 1.53 | 145.26 |
| 36.00 | 1.62 | 148.50 |
| 37.00 | 1.70 | 151.67 |
| 38.00 | 1.77 | 154.74 |
| 39.00 | 1.85 | 157.69 |
| 40.00 | 1.93 | 160.49 |
| 41.00 | 2.00 | 163.12 |
| 42.00 | 2.06 | 165.56 |
| 43.00 | 2.12 | 167.78 |
| 44.00 | 2.18 | 169.76 |
| 45.00 | 2.23 | 171.47 |
| 46.00 | 2.27 | 172.90 |
| 47.00 | 2.30 | 174.04 |
| 48.00 | 2.32 | 174.86 |
| 49.00 | 2.34 | 175.35 |
| 50.00 | 2.34 | 175.52 |
| 51.00 | 2.34 | 175.35 |
| 52.00 | 2.33 | 174.86 |
| 53.00 | 2.30 | 174.04 |
| 54.00 | 2.27 | 172.90 |
| 55.00 | 2.23 | 171.47 |
| 56.00 | 2.19 | 169.76 |
| 57.00 | 2.13 | 167.78 |
| 58.00 | 2.07 | 165.56 |
| 59.00 | 2.01 | 163.12 |
| 60.00 | 1.94 | 160.49 |
| 61.00 | 1.87 | 157.69 |
| 62.00 | 1.79 | 154.74 |
| 63.00 | 1.71 | 151.67 |
| 64.00 | 1.63 | 148.50 |
| 65.00 | 1.55 | 145.26 |
| 66.00 | 1.47 | 141.96 |
| 67.00 | 1.39 | 138.62 |
| 68.00 | 1.32 | 135.27 |
| 69.00 | 1.24 | 131.90 |
| 70.00 | 1.17 | 128.55 |
| 71.00 | 1.09 | 125.21 |
| 72.00 | 1.02 | 121.91 |
| 73.00 | 0.95 | 118.65 |
| 74.00 | 0.89 | 115.44 |
| 75.00 | 0.83 | 112.28 |
| 76.00 | 0.77 | 109.18 |
| 77.00 | 0.71 | 106.15 |

# C-OR #3 Project on Alico-Fort Myers #1
# 138-kV, 100-ft Right-of-Way

# *Florida Department of Environmental Protection*

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

# Report on Compliance with Electric and Magnetic Field (EMF) Standards

## Agent/Facility Information

**Collier-Orange River #3 230kV TLSA EMF X-Sections**
Name of Transmission Line/InterestPoint

**January 01, 2005**
Date of Proposed Construction

**Florida Power and Light Co.**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Facility (Utility) Owner

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Professional Engineer

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Authorized Agent

Signature of Authorized Agent

Signature and Seal of Professional Engineer

Date

Date

## Field Strength Information

### Transmission Lines

| Cross Section | Right-of-Way (ROW) Width (ft) | Maximum Calculated Fields and Distance From ROW Left | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Electric** | | | | **Magnetic** | |
| | | Within ROW | | At Edge of ROW | | At Edge of ROW | |
| | | (kV/m) | (ft) | (kV/m) | (ft) | (mG) | (ft) |
| Single Ckt, 1x1431 | 100 | **2.8** | 71 | **0.6** | 0 | **108.7** | 100 |

### Substations

None

Details for CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV 100ft A-F#1 r/v**

C-O#3 (Circuit Name) | 230 kV (Rated Voltage) | **NEW CIRCUIT** (New/Existing)

| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 1A1 | 70.00 | -10.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| 1B1 | 70.00 | -10.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| 1C1 | 70.00 | -10.00 | 25.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| 1G1 | 77.00 | -3.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

A-F1_138 (Circuit Name) | 138 kV (Rated Voltage) | **Existing Circuit** (New/Existing)

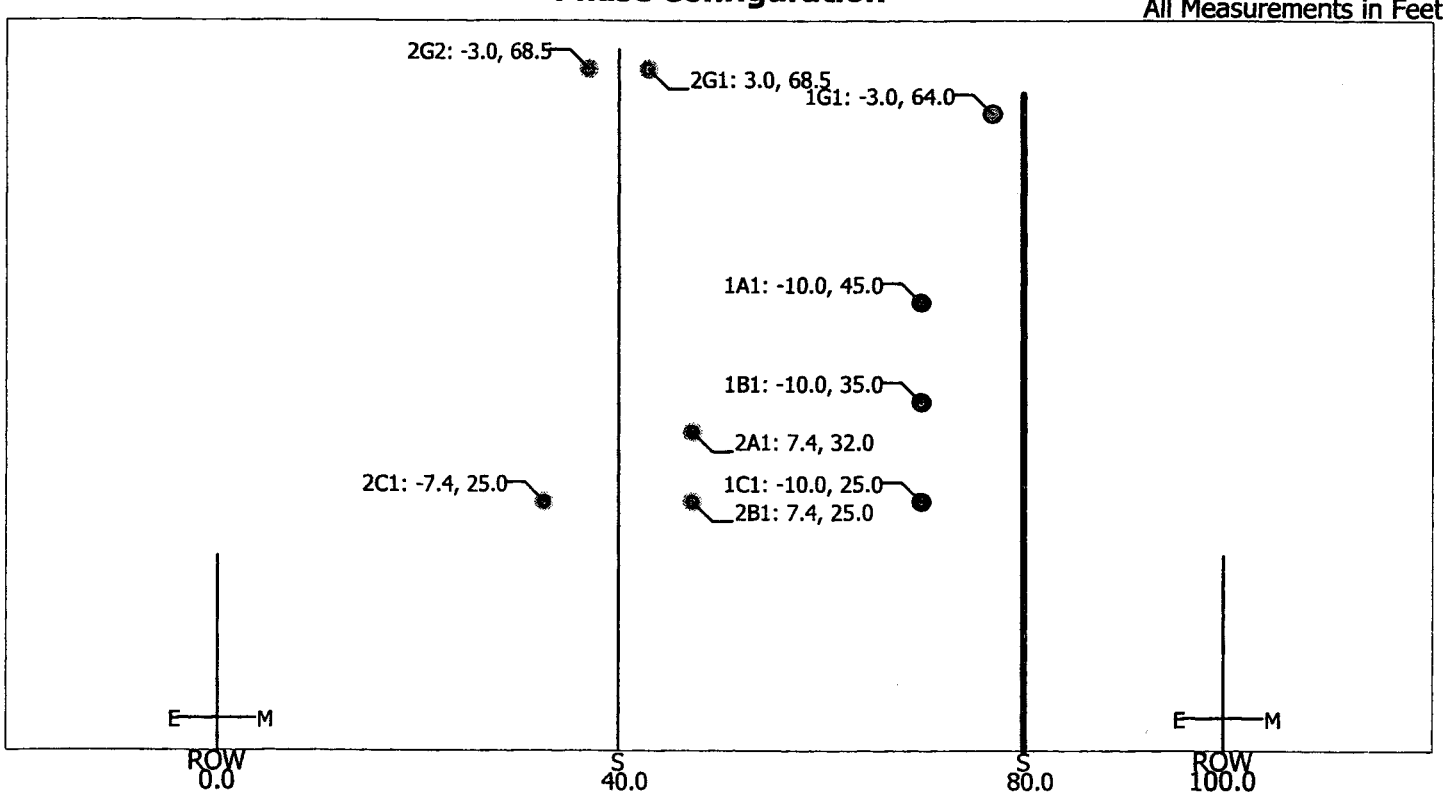
| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 2A1 | 47.40 | 7.40 | 32.00 | 1 | 0.93 | 0.00 | 148.0 | 0 | 1060 |
| 2B1 | 47.40 | 7.40 | 25.00 | 1 | 0.93 | 0.00 | 148.0 | 120 | 1060 |
| 2C1 | 32.60 | -7.40 | 25.00 | 1 | 0.93 | 0.00 | 148.0 | 240 | 1060 |
| 2G1 | 43.00 | 3.00 | 68.50 | 1 | 0.31 | 0.00 | 0.0 | 0 | 0 |
| 2G2 | 37.00 | -3.00 | 68.50 | 1 | 0.31 | 0.00 | 0.0 | 0 | 0 |

Points of Interest

None

## Phase Configuration

All Measurements in Feet



# Electric and Magnetic Field Effects

## Collier-Orange River #3 230kV TLSA EMF X-Sections

Units: **English** Physical System: **9** Conductors (**6** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV 100ft A-F#1 r/w**

| Circuit Name | Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|---|
| C-O#3 | 1A1 | 70.00 | -10.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| C-O#3 | 1B1 | 70.00 | -10.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| C-O#3 | 1C1 | 70.00 | -10.00 | 25.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| C-O#3 | 1G1 | 77.00 | -3.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |
| A-F1_138 | 2A1 | 47.40 | 7.40 | 32.00 | 1 | 0.93 | 0.00 | 148.0 | 0 | 1060 |
| A-F1_138 | 2B1 | 47.40 | 7.40 | 25.00 | 1 | 0.93 | 0.00 | 148.0 | 120 | 1060 |
| A-F1_138 | 2C1 | 32.60 | -7.40 | 25.00 | 1 | 0.93 | 0.00 | 148.0 | 240 | 1060 |
| A-F1_138 | 2G1 | 43.00 | 3.00 | 68.50 | 1 | 0.31 | 0.00 | 0.0 | 0 | 0 |
| A-F1_138 | 2G2 | 37.00 | -3.00 | 68.50 | 1 | 0.31 | 0.00 | 0.0 | 0 | 0 |

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0.00** | **0.56** | **62.61** | 23.00 | 1.62 | 106.75 | 52.00 | 1.53 | 105.83 | 81.00 | 2.10 | 176.90 |
| **100.00** | **0.40** | **108.68** | 24.00 | 1.66 | 107.89 | 53.00 | 1.56 | 103.96 | 82.00 | 1.99 | 173.89 |
| -4.00 | 0.46 | 56.43 | 25.00 | 1.70 | 108.79 | 54.00 | 1.60 | 102.36 | 83.00 | 1.87 | 170.63 |
| -3.00 | 0.48 | 57.90 | 26.00 | 1.73 | 109.43 | 55.00 | 1.66 | 101.44 | 84.00 | 1.76 | 167.19 |
| -2.00 | 0.50 | 59.42 | 27.00 | 1.75 | 109.79 | 56.00 | 1.72 | 101.93 | 85.00 | 1.64 | 163.59 |
| -1.00 | 0.53 | 60.99 | 28.00 | 1.76 | 109.87 | 57.00 | 1.79 | 104.59 | 86.00 | 1.53 | 159.87 |
| 0.00 | 0.56 | 62.61 | 29.00 | 1.77 | 109.69 | 58.00 | 1.87 | 109.47 | 87.00 | 1.42 | 156.08 |
| 1.00 | 0.59 | 64.28 | 30.00 | 1.76 | 109.30 | 59.00 | 1.96 | 115.81 | 88.00 | 1.31 | 152.23 |
| 2.00 | 0.62 | 66.00 | 31.00 | 1.75 | 108.80 | 60.00 | 2.06 | 122.83 | 89.00 | 1.21 | 148.36 |
| 3.00 | 0.66 | 67.77 | 32.00 | 1.73 | 108.32 | 61.00 | 2.16 | 130.08 | 90.00 | 1.11 | 144.48 |
| 4.00 | 0.69 | 69.59 | 33.00 | 1.70 | 108.05 | 62.00 | 2.26 | 137.29 | 91.00 | 1.02 | 140.63 |
| 5.00 | 0.73 | 71.46 | 34.00 | 1.67 | 108.15 | 63.00 | 2.36 | 144.28 | 92.00 | 0.93 | 136.81 |
| 6.00 | 0.77 | 73.38 | 35.00 | 1.63 | 108.65 | 64.00 | 2.46 | 150.95 | 93.00 | 0.85 | 133.03 |
| 7.00 | 0.81 | 75.34 | 36.00 | 1.58 | 109.49 | 65.00 | 2.55 | 157.21 | 94.00 | 0.77 | 129.32 |
| 8.00 | 0.85 | 77.35 | 37.00 | 1.54 | 110.54 | 66.00 | 2.63 | 162.99 | 95.00 | 0.69 | 125.67 |
| 9.00 | 0.90 | 79.39 | 38.00 | 1.50 | 111.67 | 67.00 | 2.70 | 168.23 | 96.00 | 0.63 | 122.10 |
| 10.00 | 0.94 | 81.48 | 39.00 | 1.46 | 112.77 | 68.00 | 2.75 | 172.88 | 97.00 | 0.56 | 118.61 |
| 11.00 | 0.99 | 83.59 | 40.00 | 1.43 | 113.75 | 69.00 | 2.79 | 176.89 | 98.00 | 0.50 | 115.21 |
| 12.00 | 1.04 | 85.72 | 41.00 | 1.40 | 114.54 | 70.00 | 2.81 | 180.26 | 99.00 | 0.45 | 111.90 |
| 13.00 | 1.09 | 87.87 | 42.00 | 1.39 | 115.12 | 71.00 | 2.82 | 182.95 | 100.00 | 0.40 | 108.68 |
| 14.00 | 1.15 | 90.02 | 43.00 | 1.38 | 115.43 | 72.00 | 2.81 | 184.97 | 101.00 | 0.35 | 105.54 |
| 15.00 | 1.20 | 92.16 | 44.00 | 1.38 | 115.46 | 73.00 | 2.78 | 186.32 | 102.00 | 0.31 | 102.51 |
| 16.00 | 1.26 | 94.28 | 45.00 | 1.39 | 115.20 | 74.00 | 2.74 | 187.02 | 103.00 | 0.27 | 99.56 |
| 17.00 | 1.31 | 96.36 | 46.00 | 1.40 | 114.63 | 75.00 | 2.68 | 187.10 | 104.00 | 0.23 | 96.71 |
| 18.00 | 1.37 | 98.38 | 47.00 | 1.42 | 113.76 | 76.00 | 2.60 | 186.59 | | | |
| 19.00 | 1.42 | 100.32 | 48.00 | 1.44 | 112.61 | 77.00 | 2.52 | 185.54 | | | |
| 20.00 | 1.48 | 102.15 | 49.00 | 1.46 | 111.20 | 78.00 | 2.43 | 183.99 | | | |
| 21.00 | 1.53 | 103.85 | 50.00 | 1.48 | 109.56 | 79.00 | 2.32 | 182.00 | | | |
| 22.00 | 1.58 | 105.40 | 51.00 | 1.50 | 107.74 | 80.00 | 2.22 | 179.62 | | | |

# C-OR #3 Project on Alico-Fort Myers #1
# 138-kV, 160-ft Right-of-Way

# *Florida Department of Environmental Protection*

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

# Report on Compliance with Electric and Magnetic Field (EMF) Standards

## Agent/Facility Information

**Collier-Orange River #3 230kV TLSA EMF X-Sections**
Name of Transmission Line/InterestPoint

**January 01, 2005**
Date of Proposed Construction

**Florida Power and Light Co.**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Facility (Utility) Owner

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Professional Engineer

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Authorized Agent

Signature of Authorized Agent

Signature and Seal of Professional Engineer

Date

Date

## Field Strength Information

### Transmission Lines

| Cross Section | Right-of-Way (ROW) Width (ft) | Maximum Calculated Fields and Distance From ROW Left | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Electric** | | | | **Magnetic** | |
| | | Within ROW | | At Edge of ROW | | At Edge of ROW | |
| | | (kV/m) | (ft) | (kV/m) | (ft) | (mG) | (ft) |
| Single Ckt, 1x1431 | 160 | **2.4** | 72 | **0.9** | 0 | **84.9** | 0 |

### Substations

None

# Details for CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV 100ft A-F#1 r/w**

C-O#3 — Circuit Name | 230 kV — Rated Voltage | **NEW CIRCUIT** — New/Existing

| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 1A1 | 70.00 | -10.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| 1B1 | 70.00 | -10.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| 1C1 | 70.00 | -10.00 | 25.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| 1G1 | 77.00 | -3.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

A-F1_138 — Circuit Name | 138 kV — Rated Voltage | **Existing Circuit** — New/Existing

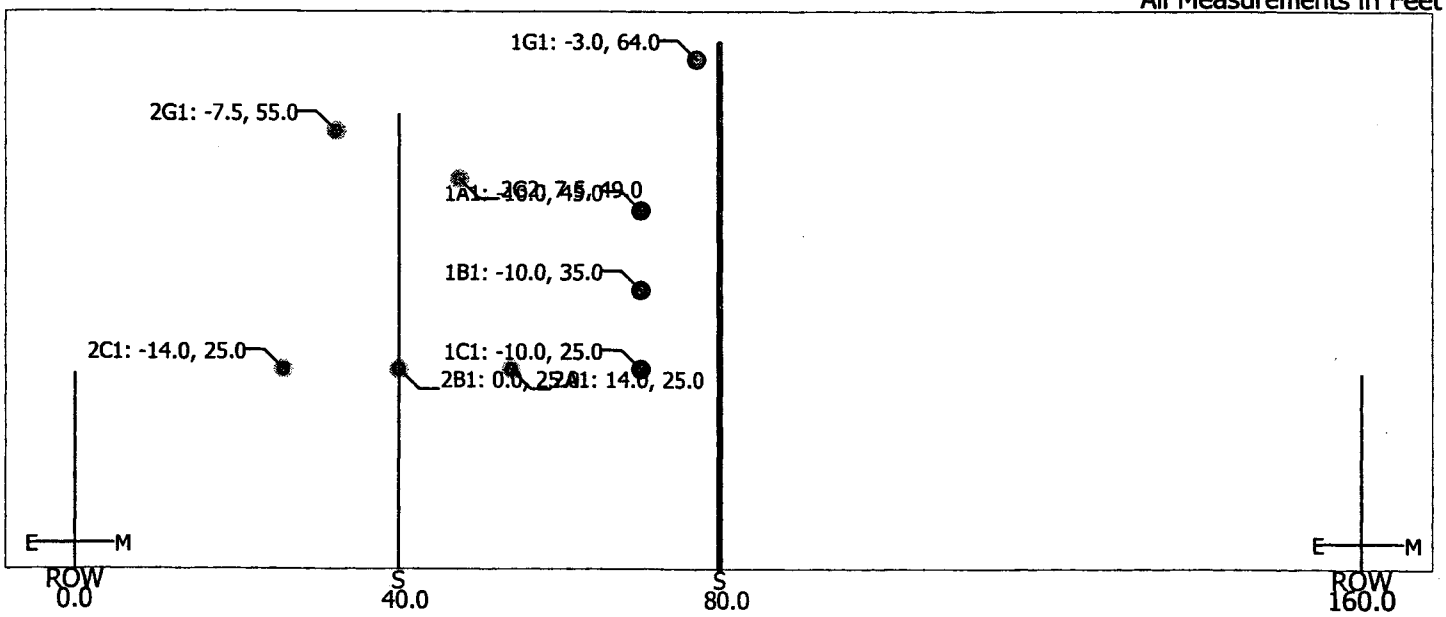
| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 2A1 | 54.00 | 14.00 | 25.00 | 1 | 0.93 | 0.00 | 148.0 | 0 | 1060 |
| 2B1 | 40.00 | 0.00 | 25.00 | 1 | 0.93 | 0.00 | 148.0 | 120 | 1060 |
| 2C1 | 26.00 | -14.00 | 25.00 | 1 | 0.93 | 0.00 | 148.0 | 240 | 1060 |
| 2G1 | 32.50 | -7.50 | 55.00 | 1 | 0.31 | 0.00 | 0.0 | 0 | 0 |
| 2G2 | 47.50 | 7.50 | 49.00 | 1 | 0.31 | 0.00 | 0.0 | 0 | 0 |

Points of Interest

None

## Phase Configuration

All Measurements in Feet



# Electric and Magnetic Field Effects

## Collier-Orange River #3 230kV TLSA EMF X-Sections

Units: **English** Physical System: **9** Conductors (**6** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV 100ft A-F#1 r/w**

| Circuit Name | Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|---|
| C-O#3 | 1A1 | 70.00 | -10.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| C-O#3 | 1B1 | 70.00 | -10.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| C-O#3 | 1C1 | 70.00 | -10.00 | 25.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| C-O#3 | 1G1 | 77.00 | -3.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |
| A-F1_138 | 2A1 | 54.00 | 14.00 | 25.00 | 1 | 0.93 | 0.00 | 148.0 | 0 | 1060 |
| A-F1_138 | 2B1 | 40.00 | 0.00 | 25.00 | 1 | 0.93 | 0.00 | 148.0 | 120 | 1060 |
| A-F1_138 | 2C1 | 26.00 | -14.00 | 25.00 | 1 | 0.93 | 0.00 | 148.0 | 240 | 1060 |
| A-F1_138 | 2G1 | 32.50 | -7.50 | 55.00 | 1 | 0.31 | 0.00 | 0.0 | 0 | 0 |
| A-F1_138 | 2G2 | 47.50 | 7.50 | 49.00 | 1 | 0.31 | 0.00 | 0.0 | 0 | 0 |

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0.00** | **0.90** | **84.85** | 23.00 | 1.90 | 158.31 | 52.00 | 0.37 | 101.40 | 81.00 | 1.85 | 134.28 |
| **160.00** | **0.12** | **22.89** | 24.00 | 1.88 | 160.17 | 53.00 | 0.43 | 101.26 | 82.00 | 1.75 | 132.41 |
| -4.00 | 0.74 | 75.02 | 25.00 | 1.86 | 161.67 | 54.00 | 0.50 | 101.54 | 83.00 | 1.65 | 130.36 |
| -3.00 | 0.78 | 77.34 | 26.00 | 1.83 | 162.78 | 55.00 | 0.59 | 102.17 | 84.00 | 1.55 | 128.15 |
| -2.00 | 0.82 | 79.75 | 27.00 | 1.78 | 163.48 | 56.00 | 0.70 | 103.13 | 85.00 | 1.45 | 125.81 |
| -1.00 | 0.86 | 82.25 | 28.00 | 1.73 | 163.75 | 57.00 | 0.81 | 104.42 | 86.00 | 1.35 | 123.36 |
| 0.00 | 0.90 | 84.85 | 29.00 | 1.67 | 163.61 | 58.00 | 0.93 | 106.00 | 87.00 | 1.25 | 120.83 |
| 1.00 | 0.95 | 87.55 | 30.00 | 1.61 | 163.04 | 59.00 | 1.07 | 107.86 | 88.00 | 1.15 | 118.24 |
| 2.00 | 0.99 | 90.35 | 31.00 | 1.54 | 162.08 | 60.00 | 1.20 | 109.98 | 89.00 | 1.06 | 115.61 |
| 3.00 | 1.04 | 93.24 | 32.00 | 1.47 | 160.73 | 61.00 | 1.34 | 112.31 | 90.00 | 0.97 | 112.95 |
| 4.00 | 1.09 | 96.24 | 33.00 | 1.40 | 159.02 | 62.00 | 1.48 | 114.82 | 91.00 | 0.89 | 110.29 |
| 5.00 | 1.15 | 99.33 | 34.00 | 1.32 | 156.98 | 63.00 | 1.62 | 117.46 | 92.00 | 0.81 | 107.64 |
| 6.00 | 1.20 | 102.52 | 35.00 | 1.25 | 154.65 | 64.00 | 1.75 | 120.19 | 93.00 | 0.73 | 105.00 |
| 7.00 | 1.26 | 105.80 | 36.00 | 1.18 | 152.06 | 65.00 | 1.87 | 122.93 | 94.00 | 0.66 | 102.38 |
| 8.00 | 1.32 | 109.16 | 37.00 | 1.12 | 149.25 | 66.00 | 1.99 | 125.65 | 95.00 | 0.60 | 99.80 |
| 9.00 | 1.37 | 112.61 | 38.00 | 1.05 | 146.25 | 67.00 | 2.09 | 128.26 | 96.00 | 0.53 | 97.25 |
| 10.00 | 1.43 | 116.12 | 39.00 | 0.99 | 143.09 | 68.00 | 2.18 | 130.72 | 97.00 | 0.48 | 94.75 |
| 11.00 | 1.49 | 119.69 | 40.00 | 0.92 | 139.80 | 69.00 | 2.25 | 132.96 | 98.00 | 0.42 | 92.30 |
| 12.00 | 1.55 | 123.30 | 41.00 | 0.86 | 136.39 | 70.00 | 2.30 | 134.95 | 99.00 | 0.37 | 89.91 |
| 13.00 | 1.60 | 126.93 | 42.00 | 0.79 | 132.87 | 71.00 | 2.34 | 136.63 | 100.00 | 0.33 | 87.56 |
| 14.00 | 1.66 | 130.57 | 43.00 | 0.73 | 129.22 | 72.00 | 2.36 | 137.98 | 101.00 | 0.29 | 85.28 |
| 15.00 | 1.71 | 134.18 | 44.00 | 0.66 | 125.45 | 73.00 | 2.35 | 138.97 | 102.00 | 0.25 | 83.05 |
| 16.00 | 1.75 | 137.74 | 45.00 | 0.60 | 121.56 | 74.00 | 2.34 | 139.58 | 103.00 | 0.21 | 80.88 |
| 17.00 | 1.80 | 141.22 | 46.00 | 0.53 | 117.53 | 75.00 | 2.30 | 139.83 | 104.00 | 0.18 | 78.76 |
| 18.00 | 1.83 | 144.58 | 47.00 | 0.47 | 113.45 | 76.00 | 2.25 | 139.71 | 105.00 | 0.15 | 76.71 |
| 19.00 | 1.86 | 147.79 | 48.00 | 0.41 | 109.45 | 77.00 | 2.19 | 139.24 | 106.00 | 0.13 | 74.72 |
| 20.00 | 1.88 | 150.80 | 49.00 | 0.37 | 105.94 | 78.00 | 2.12 | 138.43 | 107.00 | 0.11 | 72.78 |
| 21.00 | 1.90 | 153.59 | 50.00 | 0.34 | 103.45 | 79.00 | 2.04 | 137.32 | 108.00 | 0.09 | 70.90 |
| 22.00 | 1.90 | 156.10 | 51.00 | 0.34 | 102.04 | 80.00 | 1.95 | 135.92 | 109.00 | 0.07 | 69.08 |

# Electric and Magnetic Field Effects

## Collier-Orange River #3 230kV TLSA EMF X-Sections

Units: **English** Physical System: **9** Conductors (**6** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

### CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV 100ft A-F#1 r/w**

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|
| 110.00 | 0.06 | 67.31 |
| 111.00 | 0.07 | 65.59 |
| 112.00 | 0.07 | 63.93 |
| 113.00 | 0.08 | 62.32 |
| 114.00 | 0.09 | 60.76 |
| 115.00 | 0.10 | 59.25 |
| 116.00 | 0.10 | 57.78 |
| 117.00 | 0.11 | 56.36 |
| 118.00 | 0.12 | 54.99 |
| 119.00 | 0.12 | 53.66 |
| 120.00 | 0.13 | 52.37 |
| 121.00 | 0.13 | 51.12 |
| 122.00 | 0.14 | 49.91 |
| 123.00 | 0.14 | 48.73 |
| 124.00 | 0.14 | 47.60 |
| 125.00 | 0.15 | 46.50 |
| 126.00 | 0.15 | 45.43 |
| 127.00 | 0.15 | 44.39 |
| 128.00 | 0.15 | 43.39 |
| 129.00 | 0.15 | 42.42 |
| 130.00 | 0.15 | 41.48 |
| 131.00 | 0.15 | 40.56 |
| 132.00 | 0.16 | 39.67 |
| 133.00 | 0.16 | 38.81 |
| 134.00 | 0.16 | 37.98 |
| 135.00 | 0.16 | 37.17 |
| 136.00 | 0.16 | 36.38 |
| 137.00 | 0.15 | 35.62 |
| 138.00 | 0.15 | 34.88 |
| 139.00 | 0.15 | 34.16 |
| 140.00 | 0.15 | 33.46 |
| 141.00 | 0.15 | 32.78 |
| 142.00 | 0.15 | 32.12 |
| 143.00 | 0.15 | 31.48 |
| 144.00 | 0.15 | 30.86 |
| 145.00 | 0.15 | 30.25 |
| 146.00 | 0.15 | 29.66 |
| 147.00 | 0.14 | 29.09 |
| 148.00 | 0.14 | 28.53 |
| 149.00 | 0.14 | 27.99 |
| 150.00 | 0.14 | 27.46 |
| 151.00 | 0.14 | 26.95 |
| 152.00 | 0.14 | 26.45 |
| 153.00 | 0.14 | 25.96 |
| 154.00 | 0.13 | 25.48 |
| 155.00 | 0.13 | 25.02 |
| 156.00 | 0.13 | 24.57 |
| 157.00 | 0.13 | 24.13 |
| 158.00 | 0.13 | 23.71 |
| 159.00 | 0.13 | 23.29 |
| 160.00 | 0.12 | 22.89 |
| 161.00 | 0.12 | 22.49 |
| 162.00 | 0.12 | 22.10 |
| 163.00 | 0.12 | 21.73 |
| 164.00 | 0.12 | 21.36 |

# C-OR #3 Project, 60-ft Right-of-Way Adjacent to LCEC 138-kV, 100-ft Right-of-Way

# *Florida Department of Environmental Protection*

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

# Report on Compliance with Electric and Magnetic Field (EMF) Standards

## Agent/Facility Information

**Collier-Orange River #3 230kV TLSA EMF X-Sections**
Name of Transmission Line/InterestPoint

**January 01, 2005**
Date of Proposed Construction

**Florida Power and Light Co.**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Facility (Utility) Owner

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Professional Engineer

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Authorized Agent

Signature of Authorized Agent

Signature and Seal of Professional Engineer

Date

Date

## Field Strength Information

### Transmission Lines

| Cross Section | Right-of-Way (ROW) Width (ft) | Maximum Calculated Fields and Distance From ROW Left | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Electric** | | | | **Magnetic** | |
| | | Within ROW | | At Edge of ROW | | At Edge of ROW | |
| | | (kV/m) | (ft) | (kV/m) | (ft) | (mG) | (ft) |
| Single Ckt, 1x1431 | 160 | **3.1** | 30 | **0.6** | 160 | **101.4** | 0 |

### Substations

None

## Details for CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV 60 ft next to Lee**

Ckt1 (Circuit Name) | 230 kV (Rated Voltage) | **NEW CIRCUIT** (New/Existing)

| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 1A1 | 30.00 | 0.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| 1B1 | 30.00 | 0.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| 1C1 | 30.00 | 0.00 | 25.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| 1G1 | 23.00 | -7.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

LEECOOP (Circuit Name) | 138 kV (Rated Voltage) | **Existing Circuit** (New/Existing)

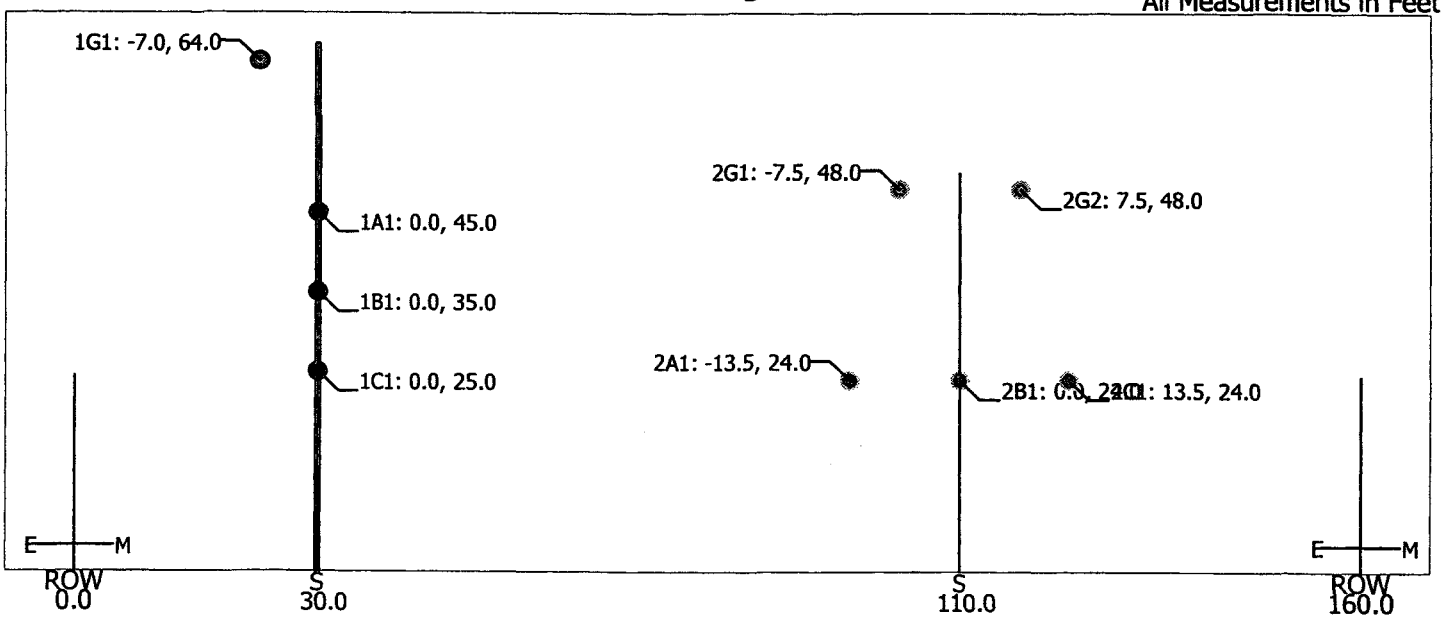
| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 2A1 | 96.50 | -13.50 | 24.00 | 1 | 1.11 | 0.00 | 148.0 | 0 | 1145 |
| 2B1 | 110.00 | 0.00 | 24.00 | 1 | 1.11 | 0.00 | 148.0 | 120 | 1145 |
| 2C1 | 123.50 | 13.50 | 24.00 | 1 | 1.11 | 0.00 | 148.0 | 240 | 1145 |
| 2G1 | 102.50 | -7.50 | 48.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |
| 2G2 | 117.50 | 7.50 | 48.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

Points of Interest

None

### Phase Configuration

All Measurements in Feet



# Electric and Magnetic Field Effects

## Collier-Orange River #3 230kV TLSA EMF X-Sections

Units: **English** Physical System: **9** Conductors (**6** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV 60 ft next to Lee**

| Circuit Name | Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|---|
| Ckt1 | 1A1 | 30.00 | 0.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| Ckt1 | 1B1 | 30.00 | 0.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| Ckt1 | 1C1 | 30.00 | 0.00 | 25.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| Ckt1 | 1G1 | 23.00 | -7.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |
| LEECOOP | 2A1 | 96.50 | -13.50 | 24.00 | 1 | 1.11 | 0.00 | 148.0 | 0 | 1145 |
| LEECOOP | 2B1 | 110.00 | 0.00 | 24.00 | 1 | 1.11 | 0.00 | 148.0 | 120 | 1145 |
| LEECOOP | 2C1 | 123.50 | 13.50 | 24.00 | 1 | 1.11 | 0.00 | 148.0 | 240 | 1145 |
| LEECOOP | 2G1 | 102.50 | -7.50 | 48.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |
| LEECOOP | 2G2 | 117.50 | 7.50 | 48.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0.00** | **0.44** | **101.39** | 23.00 | 2.70 | 210.18 | 52.00 | 0.77 | 179.56 | 81.00 | 1.60 | 186.88 |
| **160.00** | **0.55** | **59.95** | 24.00 | 2.80 | 214.50 | 53.00 | 0.67 | 176.81 | 82.00 | 1.66 | 190.77 |
| -4.00 | 0.26 | 88.68 | 25.00 | 2.88 | 218.46 | 54.00 | 0.58 | 174.24 | 83.00 | 1.73 | 194.88 |
| -3.00 | 0.30 | 91.66 | 26.00 | 2.95 | 222.01 | 55.00 | 0.50 | 171.84 | 84.00 | 1.79 | 199.20 |
| -2.00 | 0.34 | 94.78 | 27.00 | 3.00 | 225.11 | 56.00 | 0.42 | 169.63 | 85.00 | 1.85 | 203.69 |
| -1.00 | 0.39 | 98.02 | 28.00 | 3.04 | 227.71 | 57.00 | 0.35 | 167.61 | 86.00 | 1.90 | 208.34 |
| 0.00 | 0.44 | 101.39 | 29.00 | 3.07 | 229.79 | 58.00 | 0.30 | 165.79 | 87.00 | 1.95 | 213.11 |
| 1.00 | 0.49 | 104.90 | 30.00 | 3.07 | 231.32 | 59.00 | 0.26 | 164.17 | 88.00 | 2.00 | 217.96 |
| 2.00 | 0.55 | 108.55 | 31.00 | 3.06 | 232.29 | 60.00 | 0.30 | 162.76 | 89.00 | 2.03 | 222.84 |
| 3.00 | 0.61 | 112.35 | 32.00 | 3.02 | 232.71 | 61.00 | 0.34 | 161.55 | 90.00 | 2.06 | 227.72 |
| 4.00 | 0.68 | 116.29 | 33.00 | 2.98 | 232.58 | 62.00 | 0.39 | 160.56 | 91.00 | 2.07 | 232.53 |
| 5.00 | 0.75 | 120.38 | 34.00 | 2.91 | 231.92 | 63.00 | 0.45 | 159.79 | 92.00 | 2.08 | 237.23 |
| 6.00 | 0.83 | 124.62 | 35.00 | 2.83 | 230.77 | 64.00 | 0.50 | 159.24 | 93.00 | 2.07 | 241.75 |
| 7.00 | 0.91 | 129.01 | 36.00 | 2.74 | 229.17 | 65.00 | 0.56 | 158.92 | 94.00 | 2.05 | 246.06 |
| 8.00 | 1.00 | 133.55 | 37.00 | 2.63 | 227.15 | 66.00 | 0.62 | 158.82 | 95.00 | 2.02 | 250.09 |
| 9.00 | 1.09 | 138.24 | 38.00 | 2.52 | 224.78 | 67.00 | 0.68 | 158.95 | 96.00 | 1.97 | 253.80 |
| 10.00 | 1.19 | 143.06 | 39.00 | 2.40 | 222.10 | 68.00 | 0.74 | 159.32 | 97.00 | 1.91 | 257.17 |
| 11.00 | 1.29 | 148.01 | 40.00 | 2.27 | 219.15 | 69.00 | 0.80 | 159.92 | 98.00 | 1.85 | 260.15 |
| 12.00 | 1.40 | 153.09 | 41.00 | 2.13 | 216.01 | 70.00 | 0.86 | 160.77 | 99.00 | 1.77 | 262.73 |
| 13.00 | 1.51 | 158.27 | 42.00 | 2.00 | 212.71 | 71.00 | 0.93 | 161.86 | 100.00 | 1.68 | 264.90 |
| 14.00 | 1.63 | 163.54 | 43.00 | 1.86 | 209.29 | 72.00 | 0.99 | 163.21 | 101.00 | 1.58 | 266.68 |
| 15.00 | 1.75 | 168.89 | 44.00 | 1.73 | 205.82 | 73.00 | 1.05 | 164.80 | 102.00 | 1.49 | 268.06 |
| 16.00 | 1.87 | 174.27 | 45.00 | 1.59 | 202.31 | 74.00 | 1.12 | 166.66 | 103.00 | 1.39 | 269.08 |
| 17.00 | 2.00 | 179.68 | 46.00 | 1.46 | 198.82 | 75.00 | 1.19 | 168.77 | 104.00 | 1.29 | 269.76 |
| 18.00 | 2.12 | 185.06 | 47.00 | 1.34 | 195.37 | 76.00 | 1.25 | 171.14 | 105.00 | 1.19 | 270.14 |
| 19.00 | 2.25 | 190.38 | 48.00 | 1.21 | 191.98 | 77.00 | 1.32 | 173.78 | 106.00 | 1.10 | 270.25 |
| 20.00 | 2.37 | 195.60 | 49.00 | 1.09 | 188.69 | 78.00 | 1.39 | 176.67 | 107.00 | 1.02 | 270.13 |
| 21.00 | 2.49 | 200.68 | 50.00 | 0.98 | 185.51 | 79.00 | 1.46 | 179.82 | 108.00 | 0.95 | 269.80 |
| 22.00 | 2.60 | 205.55 | 51.00 | 0.87 | 182.46 | 80.00 | 1.53 | 183.23 | 109.00 | 0.90 | 269.28 |

# Electric and Magnetic Field Effects

## Collier-Orange River #3 230kV TLSA EMF X-Sections

Units: **English** Physical System: **9** Conductors (**6** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

### CrossSection: **Single Ckt, 1x1431- Collier-Orange River #3 230kV 60 ft next to Lee C**

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|
| 110.00 | 0.87 | 268.59 |
| 111.00 | 0.87 | 267.72 |
| 112.00 | 0.91 | 266.66 |
| 113.00 | 0.97 | 265.39 |
| 114.00 | 1.04 | 263.87 |
| 115.00 | 1.12 | 262.07 |
| 116.00 | 1.22 | 259.95 |
| 117.00 | 1.31 | 257.47 |
| 118.00 | 1.41 | 254.61 |
| 119.00 | 1.51 | 251.34 |
| 120.00 | 1.60 | 247.64 |
| 121.00 | 1.68 | 243.50 |
| 122.00 | 1.76 | 238.94 |
| 123.00 | 1.83 | 233.97 |
| 124.00 | 1.89 | 228.61 |
| 125.00 | 1.93 | 222.90 |
| 126.00 | 1.96 | 216.89 |
| 127.00 | 1.98 | 210.63 |
| 128.00 | 1.99 | 204.17 |
| 129.00 | 1.99 | 197.56 |
| 130.00 | 1.97 | 190.86 |
| 131.00 | 1.95 | 184.13 |
| 132.00 | 1.91 | 177.42 |
| 133.00 | 1.87 | 170.76 |
| 134.00 | 1.82 | 164.21 |
| 135.00 | 1.77 | 157.79 |
| 136.00 | 1.71 | 151.53 |
| 137.00 | 1.66 | 145.45 |
| 138.00 | 1.59 | 139.57 |
| 139.00 | 1.53 | 133.90 |
| 140.00 | 1.47 | 128.46 |
| 141.00 | 1.41 | 123.23 |
| 142.00 | 1.35 | 118.24 |
| 143.00 | 1.28 | 113.46 |
| 144.00 | 1.23 | 108.90 |
| 145.00 | 1.17 | 104.56 |
| 146.00 | 1.11 | 100.43 |
| 147.00 | 1.06 | 96.49 |
| 148.00 | 1.01 | 92.75 |
| 149.00 | 0.96 | 89.20 |
| 150.00 | 0.91 | 85.82 |
| 151.00 | 0.87 | 82.60 |

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|
| 152.00 | 0.82 | 79.55 |
| 153.00 | 0.78 | 76.65 |
| 154.00 | 0.74 | 73.89 |
| 155.00 | 0.71 | 71.27 |
| 156.00 | 0.67 | 68.78 |
| 157.00 | 0.64 | 66.41 |
| 158.00 | 0.61 | 64.15 |
| 159.00 | 0.58 | 62.00 |
| 160.00 | 0.55 | 59.95 |
| 161.00 | 0.52 | 58.00 |
| 162.00 | 0.50 | 56.14 |
| 163.00 | 0.48 | 54.37 |
| 164.00 | 0.45 | 52.67 |

# C-OR #3 Project on Common Right-of-Way, 405-ft Right-of-Way

# *Florida Department of Environmental Protection*

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

# Report on Compliance with Electric and Magnetic Field (EMF) Standards

## Agent/Facility Information

**Collier - Orange River #3 230kv in 405 ft R/W**
Name of Transmission Line/InterestPoint

**January 01, 2005**
Date of Proposed Construction

**Florida Power and Light Co.**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Facility (Utility) Owner

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Professional Engineer

**Phillip S. Givens**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Authorized Agent

Signature of Authorized Agent

Signature and Seal of Professional Engineer

Date

Date

## Field Strength Information

### Transmission Lines

| Cross Section | Right-of-Way (ROW) Width (ft) | Maximum Calculated Fields and Distance From ROW Left | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Electric** | | | | **Magnetic** | |
| | | Within ROW | | At Edge of ROW | | At Edge of ROW | |
| | | (kV/m) | (ft) | (kV/m) | (ft) | (mG) | (ft) |
| C-O#3 in C-O#2 R/W | 405 | **3.7** | 92 | **0.4** | 0 | **71.5** | 405 |

### Substations

None

# Details for CrossSection: **C-O#3 in C-O#2 R/W- Collier-Orange River #3 in Naples--230 corrid**

coll or#2 — Circuit Name | 230 kV — Rated Voltage | **NEW CIRCUIT** — New/Existing

| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 4A1 | 150.30 | -8.70 | 42.60 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| 4B1 | 150.30 | -8.70 | 32.60 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| 4C1 | 150.30 | -8.70 | 22.60 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| 4G1 | 156.00 | -3.00 | 72.00 | 1 | 0.60 | 0.00 | 0.0 | 0 | 0 |

C-O#3 — Circuit Name | 230 kV — Rated Voltage | **NEW CIRCUIT** — New/Existing

| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 6A1 | 300.00 | -10.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| 6B1 | 300.00 | -10.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| 6C1 | 300.00 | -10.00 | 25.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| 6G1 | 307.00 | -3.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

ALI-COLL — Circuit Name | 138 kV — Rated Voltage | **Existing Circuit** — New/Existing

| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 1A1 | 69.00 | 14.00 | 21.00 | 1 | 1.20 | 0.00 | 148.0 | 0 | 1495 |
| 1B1 | 55.00 | 0.00 | 21.00 | 1 | 1.20 | 0.00 | 148.0 | 120 | 1495 |
| 1C1 | 41.00 | -14.00 | 21.00 | 1 | 1.20 | 0.00 | 148.0 | 240 | 1495 |
| 1G1 | 62.00 | 7.00 | 49.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |
| 1G2 | 48.00 | -7.00 | 49.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |

ali-coll — Circuit Name | 230 kV — Rated Voltage | **Existing Circuit** — New/Existing

| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 2A1 | 131.00 | 16.00 | 36.60 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1625 |
| 2B1 | 131.00 | 16.00 | 22.60 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1625 |
| 2C1 | 115.00 | 0.00 | 22.60 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1625 |
| 2G1 | 122.00 | 7.00 | 69.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |

coll-oran — Circuit Name | 230 kV — Rated Voltage | **Existing Circuit** — New/Existing

| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 3A1 | 99.00 | -16.00 | 22.60 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1625 |
| 3B1 | 99.00 | -16.00 | 36.60 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1625 |
| 3C1 | 115.00 | 0.00 | 36.60 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1625 |
| 3G1 | 108.00 | -7.00 | 69.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |

| CAP-COLL | 138 kV | **Existing Circuit** |
|---|---|---|
| Circuit Name | Rated Voltage | New/Existing |

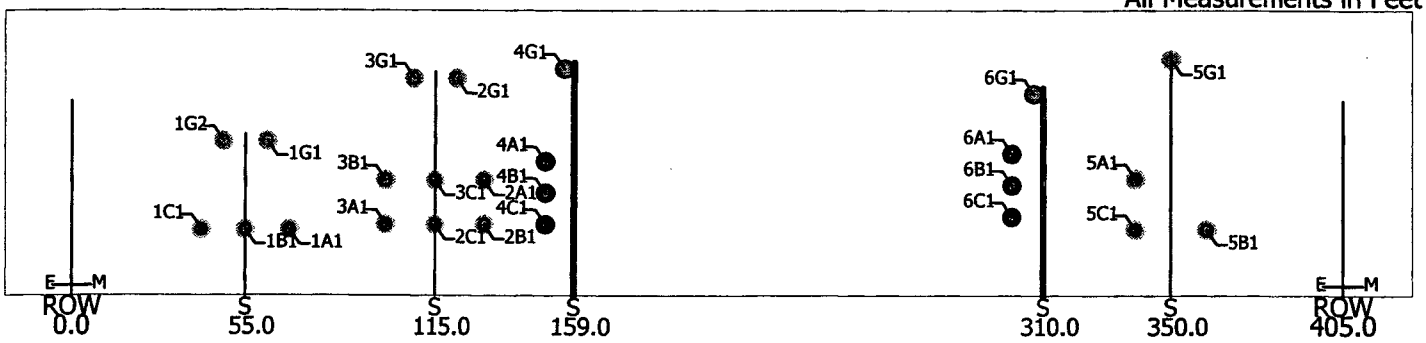
| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 5A1 | 339.00 | -11.00 | 37.00 | 1 | 1.20 | 0.00 | 148.0 | 0 | 1495 |
| 5B1 | 361.00 | 11.00 | 21.00 | 1 | 1.20 | 0.00 | 148.0 | 120 | 1495 |
| 5C1 | 339.00 | -11.00 | 21.00 | 1 | 1.20 | 0.00 | 148.0 | 240 | 1495 |
| 5G1 | 350.00 | 0.00 | 75.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |

Points of Interest

None

## Phase Configuration

All Measurements in Feet



# Electric and Magnetic Field Effects

## Collier - Orange River #3 230kv in 405 ft R/W

Units: **English** Physical System: **25** Conductors (**18** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **C-O#3 in C-O#2 R/W- Collier-Orange River #3 in Naples--230 corridor**

| Circuit Name | Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|---|
| ALI-COLL | 1A1 | 69.00 | 14.00 | 21.00 | 1 | 1.20 | 0.00 | 148.0 | 0 | 1495 |
| ALI-COLL | 1B1 | 55.00 | 0.00 | 21.00 | 1 | 1.20 | 0.00 | 148.0 | 120 | 1495 |
| ALI-COLL | 1C1 | 41.00 | -14.00 | 21.00 | 1 | 1.20 | 0.00 | 148.0 | 240 | 1495 |
| ALI-COLL | 1G1 | 62.00 | 7.00 | 49.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |
| ALI-COLL | 1G2 | 48.00 | -7.00 | 49.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |
| ali-coll | 2A1 | 131.00 | 16.00 | 36.60 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1625 |
| ali-coll | 2B1 | 131.00 | 16.00 | 22.60 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1625 |
| ali-coll | 2C1 | 115.00 | 0.00 | 22.60 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1625 |
| ali-coll | 2G1 | 122.00 | 7.00 | 69.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |
| coll-oran | 3A1 | 99.00 | -16.00 | 22.60 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1625 |
| coll-oran | 3B1 | 99.00 | -16.00 | 36.60 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1625 |
| coll-oran | 3C1 | 115.00 | 0.00 | 36.60 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1625 |
| coll-oran | 3G1 | 108.00 | -7.00 | 69.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |
| coll or#2 | 4A1 | 150.30 | -8.70 | 42.60 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| coll or#2 | 4B1 | 150.30 | -8.70 | 32.60 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| coll or#2 | 4C1 | 150.30 | -8.70 | 22.60 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| coll or#2 | 4G1 | 156.00 | -3.00 | 72.00 | 1 | 0.60 | 0.00 | 0.0 | 0 | 0 |
| CAP-COLL | 5A1 | 339.00 | -11.00 | 37.00 | 1 | 1.20 | 0.00 | 148.0 | 0 | 1495 |
| CAP-COLL | 5B1 | 361.00 | 11.00 | 21.00 | 1 | 1.20 | 0.00 | 148.0 | 120 | 1495 |
| CAP-COLL | 5C1 | 339.00 | -11.00 | 21.00 | 1 | 1.20 | 0.00 | 148.0 | 240 | 1495 |
| CAP-COLL | 5G1 | 350.00 | 0.00 | 75.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |
| C-O#3 | 6A1 | 300.00 | -10.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| C-O#3 | 6B1 | 300.00 | -10.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| C-O#3 | 6C1 | 300.00 | -10.00 | 25.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| C-O#3 | 6G1 | 307.00 | -3.00 | 64.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0.00** | **0.44** | **69.07** | 7.00 | 0.63 | 88.87 | 20.00 | 1.31 | 154.91 | 33.00 | 2.41 | 291.67 |
| **405.00** | **0.42** | **71.45** | 8.00 | 0.67 | 92.37 | 21.00 | 1.38 | 162.43 | 34.00 | 2.47 | 305.23 |
| -4.00 | 0.36 | 60.59 | 9.00 | 0.70 | 96.06 | 22.00 | 1.46 | 170.43 | 35.00 | 2.52 | 318.91 |
| -3.00 | 0.38 | 62.55 | 10.00 | 0.74 | 99.98 | 23.00 | 1.54 | 178.90 | 36.00 | 2.56 | 332.60 |
| -2.00 | 0.39 | 64.62 | 11.00 | 0.79 | 104.12 | 24.00 | 1.63 | 187.88 | 37.00 | 2.58 | 346.15 |
| -1.00 | 0.41 | 66.79 | 12.00 | 0.83 | 108.52 | 25.00 | 1.72 | 197.37 | 38.00 | 2.58 | 359.42 |
| 0.00 | 0.44 | 69.07 | 13.00 | 0.88 | 113.18 | 26.00 | 1.81 | 207.40 | 39.00 | 2.56 | 372.26 |
| 1.00 | 0.46 | 71.47 | 14.00 | 0.93 | 118.12 | 27.00 | 1.90 | 217.96 | 40.00 | 2.53 | 384.51 |
| 2.00 | 0.48 | 74.00 | 15.00 | 0.98 | 123.37 | 28.00 | 1.99 | 229.06 | 41.00 | 2.47 | 396.06 |
| 3.00 | 0.51 | 76.67 | 16.00 | 1.04 | 128.94 | 29.00 | 2.08 | 240.68 | 42.00 | 2.40 | 406.78 |
| 4.00 | 0.54 | 79.48 | 17.00 | 1.10 | 134.85 | 30.00 | 2.17 | 252.80 | 43.00 | 2.31 | 416.59 |
| 5.00 | 0.57 | 82.44 | 18.00 | 1.17 | 141.14 | 31.00 | 2.25 | 265.38 | 44.00 | 2.20 | 425.45 |
| 6.00 | 0.60 | 85.57 | 19.00 | 1.24 | 147.81 | 32.00 | 2.33 | 278.36 | 45.00 | 2.09 | 433.33 |

# Electric and Magnetic Field Effects

## Collier - Orange River #3 230kv in 405 ft R/W

Units: **English** Physical System: **25** Conductors (**18** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **C-O#3 in C-O#2 R/W- Collier-Orange River #3 in Naples--230 corridor**

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 46.00 | 1.97 | 440.24 | 88.00 | 3.65 | 369.34 | 130.00 | 3.27 | 286.56 | 172.00 | 0.82 | 151.07 |
| 47.00 | 1.85 | 446.25 | 89.00 | 3.68 | 371.91 | 131.00 | 3.32 | 280.51 | 173.00 | 0.72 | 146.26 |
| 48.00 | 1.74 | 451.42 | 90.00 | 3.70 | 375.37 | 132.00 | 3.35 | 274.08 | 174.00 | 0.63 | 141.63 |
| 49.00 | 1.64 | 455.87 | 91.00 | 3.72 | 379.60 | 133.00 | 3.37 | 267.35 | 175.00 | 0.55 | 137.17 |
| 50.00 | 1.56 | 459.73 | 92.00 | 3.73 | 384.45 | 134.00 | 3.37 | 260.45 | 176.00 | 0.47 | 132.89 |
| 51.00 | 1.51 | 463.14 | 93.00 | 3.73 | 389.77 | 135.00 | 3.36 | 253.52 | 177.00 | 0.40 | 128.80 |
| 52.00 | 1.47 | 466.26 | 94.00 | 3.72 | 395.38 | 136.00 | 3.34 | 246.75 | 178.00 | 0.34 | 124.88 |
| 53.00 | 1.46 | 469.24 | 95.00 | 3.69 | 401.10 | 137.00 | 3.31 | 240.36 | 179.00 | 0.29 | 121.13 |
| 54.00 | 1.47 | 472.19 | 96.00 | 3.64 | 406.73 | 138.00 | 3.27 | 234.61 | 180.00 | 0.24 | 117.55 |
| 55.00 | 1.50 | 475.19 | 97.00 | 3.58 | 412.08 | 139.00 | 3.24 | 229.79 | 181.00 | 0.19 | 114.14 |
| 56.00 | 1.53 | 478.29 | 98.00 | 3.49 | 416.99 | 140.00 | 3.22 | 226.17 | 182.00 | 0.16 | 110.89 |
| 57.00 | 1.59 | 481.43 | 99.00 | 3.39 | 421.27 | 141.00 | 3.20 | 223.99 | 183.00 | 0.13 | 107.80 |
| 58.00 | 1.66 | 484.54 | 100.00 | 3.27 | 424.80 | 142.00 | 3.20 | 223.33 | 184.00 | 0.12 | 104.85 |
| 59.00 | 1.74 | 487.50 | 101.00 | 3.14 | 427.43 | 143.00 | 3.21 | 224.08 | 185.00 | 0.12 | 102.05 |
| 60.00 | 1.85 | 490.14 | 102.00 | 3.00 | 429.08 | 144.00 | 3.24 | 225.96 | 186.00 | 0.13 | 99.39 |
| 61.00 | 1.97 | 492.29 | 103.00 | 2.85 | 429.66 | 145.00 | 3.27 | 228.59 | 187.00 | 0.14 | 96.87 |
| 62.00 | 2.11 | 493.79 | 104.00 | 2.72 | 429.13 | 146.00 | 3.30 | 231.56 | 188.00 | 0.16 | 94.47 |
| 63.00 | 2.25 | 494.49 | 105.00 | 2.60 | 427.47 | 147.00 | 3.33 | 234.53 | 189.00 | 0.17 | 92.20 |
| 64.00 | 2.40 | 494.25 | 106.00 | 2.51 | 424.68 | 148.00 | 3.36 | 237.21 | 190.00 | 0.19 | 90.04 |
| 65.00 | 2.55 | 492.97 | 107.00 | 2.45 | 420.77 | 149.00 | 3.38 | 239.40 | 191.00 | 0.21 | 88.01 |
| 66.00 | 2.70 | 490.59 | 108.00 | 2.43 | 415.79 | 150.00 | 3.38 | 240.94 | 192.00 | 0.22 | 86.08 |
| 67.00 | 2.84 | 487.08 | 109.00 | 2.46 | 409.82 | 151.00 | 3.36 | 241.75 | 193.00 | 0.24 | 84.25 |
| 68.00 | 2.96 | 482.45 | 110.00 | 2.51 | 402.94 | 152.00 | 3.32 | 241.76 | 194.00 | 0.25 | 82.53 |
| 69.00 | 3.08 | 476.75 | 111.00 | 2.57 | 395.30 | 153.00 | 3.27 | 240.96 | 195.00 | 0.26 | 80.91 |
| 70.00 | 3.18 | 470.07 | 112.00 | 2.64 | 387.04 | 154.00 | 3.19 | 239.38 | 196.00 | 0.27 | 79.37 |
| 71.00 | 3.26 | 462.55 | 113.00 | 2.70 | 378.39 | 155.00 | 3.10 | 237.04 | 197.00 | 0.28 | 77.93 |
| 72.00 | 3.33 | 454.34 | 114.00 | 2.75 | 369.60 | 156.00 | 2.99 | 234.02 | 198.00 | 0.29 | 76.57 |
| 73.00 | 3.38 | 445.64 | 115.00 | 2.79 | 360.95 | 157.00 | 2.87 | 230.38 | 199.00 | 0.30 | 75.30 |
| 74.00 | 3.42 | 436.63 | 116.00 | 2.82 | 352.74 | 158.00 | 2.74 | 226.21 | 200.00 | 0.30 | 74.10 |
| 75.00 | 3.45 | 427.52 | 117.00 | 2.83 | 345.24 | 159.00 | 2.60 | 221.59 | 201.00 | 0.31 | 72.98 |
| 76.00 | 3.47 | 418.52 | 118.00 | 2.82 | 338.63 | 160.00 | 2.45 | 216.60 | 202.00 | 0.32 | 71.94 |
| 77.00 | 3.49 | 409.81 | 119.00 | 2.82 | 332.96 | 161.00 | 2.30 | 211.33 | 203.00 | 0.32 | 70.96 |
| 78.00 | 3.49 | 401.57 | 120.00 | 2.80 | 328.14 | 162.00 | 2.14 | 205.85 | 204.00 | 0.32 | 70.06 |
| 79.00 | 3.50 | 393.97 | 121.00 | 2.80 | 324.01 | 163.00 | 1.99 | 200.23 | 205.00 | 0.33 | 69.22 |
| 80.00 | 3.50 | 387.14 | 122.00 | 2.80 | 320.35 | 164.00 | 1.84 | 194.53 | 206.00 | 0.33 | 68.44 |
| 81.00 | 3.51 | 381.19 | 123.00 | 2.82 | 316.91 | 165.00 | 1.69 | 188.81 | 207.00 | 0.33 | 67.73 |
| 82.00 | 3.52 | 376.23 | 124.00 | 2.86 | 313.51 | 166.00 | 1.55 | 183.11 | 208.00 | 0.34 | 67.07 |
| 83.00 | 3.53 | 372.31 | 125.00 | 2.92 | 309.96 | 167.00 | 1.41 | 177.47 | 209.00 | 0.34 | 66.48 |
| 84.00 | 3.55 | 369.49 | 126.00 | 2.99 | 306.13 | 168.00 | 1.28 | 171.92 | 210.00 | 0.34 | 65.94 |
| 85.00 | 3.57 | 367.80 | 127.00 | 3.06 | 301.93 | 169.00 | 1.15 | 166.49 | 211.00 | 0.34 | 65.45 |
| 86.00 | 3.60 | 367.23 | 128.00 | 3.14 | 297.28 | 170.00 | 1.03 | 161.20 | 212.00 | 0.34 | 65.02 |
| 87.00 | 3.62 | 367.76 | 129.00 | 3.21 | 292.15 | 171.00 | 0.92 | 156.05 | 213.00 | 0.35 | 64.64 |

# Electric and Magnetic Field Effects

## Collier - Orange River #3 230kv in 405 ft R/W

Units: **English** Physical System: **25** Conductors (**18** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **C-O#3 in C-O#2 R/W- Collier-Orange River #3 in Naples--230 corridor**

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 214.00 | 0.35 | 64.32 | 256.00 | 0.19 | 96.02 | 298.00 | 3.20 | 242.98 | 340.00 | 2.48 | 399.01 |
| 215.00 | 0.35 | 64.04 | 257.00 | 0.17 | 98.17 | 299.00 | 3.25 | 241.81 | 341.00 | 2.39 | 409.66 |
| 216.00 | 0.35 | 63.81 | 258.00 | 0.16 | 100.42 | 300.00 | 3.27 | 239.88 | 342.00 | 2.29 | 419.29 |
| 217.00 | 0.35 | 63.63 | 259.00 | 0.15 | 102.77 | 301.00 | 3.28 | 237.19 | 343.00 | 2.17 | 427.85 |
| 218.00 | 0.35 | 63.50 | 260.00 | 0.13 | 105.23 | 302.00 | 3.27 | 233.79 | 344.00 | 2.04 | 435.34 |
| 219.00 | 0.35 | 63.42 | 261.00 | 0.12 | 107.79 | 303.00 | 3.25 | 229.71 | 345.00 | 1.92 | 441.76 |
| 220.00 | 0.35 | 63.38 | 262.00 | 0.11 | 110.46 | 304.00 | 3.21 | 225.02 | 346.00 | 1.79 | 447.15 |
| 221.00 | 0.35 | 63.39 | 263.00 | 0.12 | 113.24 | 305.00 | 3.16 | 219.81 | 347.00 | 1.67 | 451.54 |
| 222.00 | 0.35 | 63.44 | 264.00 | 0.14 | 116.15 | 306.00 | 3.09 | 214.17 | 348.00 | 1.58 | 454.97 |
| 223.00 | 0.35 | 63.54 | 265.00 | 0.17 | 119.17 | 307.00 | 3.02 | 208.22 | 349.00 | 1.53 | 457.47 |
| 224.00 | 0.34 | 63.69 | 266.00 | 0.20 | 122.32 | 308.00 | 2.94 | 202.08 | 350.00 | 1.54 | 459.05 |
| 225.00 | 0.34 | 63.88 | 267.00 | 0.24 | 125.60 | 309.00 | 2.86 | 195.89 | 351.00 | 1.61 | 459.74 |
| 226.00 | 0.34 | 64.11 | 268.00 | 0.28 | 129.00 | 310.00 | 2.78 | 189.82 | 352.00 | 1.72 | 459.52 |
| 227.00 | 0.34 | 64.39 | 269.00 | 0.32 | 132.54 | 311.00 | 2.69 | 184.03 | 353.00 | 1.85 | 458.37 |
| 228.00 | 0.34 | 64.72 | 270.00 | 0.37 | 136.21 | 312.00 | 2.61 | 178.71 | 354.00 | 1.99 | 456.26 |
| 229.00 | 0.34 | 65.09 | 271.00 | 0.43 | 140.02 | 313.00 | 2.52 | 174.05 | 355.00 | 2.14 | 453.16 |
| 230.00 | 0.34 | 65.51 | 272.00 | 0.49 | 143.97 | 314.00 | 2.45 | 170.25 | 356.00 | 2.28 | 449.01 |
| 231.00 | 0.34 | 65.98 | 273.00 | 0.55 | 148.05 | 315.00 | 2.38 | 167.46 | 357.00 | 2.41 | 443.79 |
| 232.00 | 0.33 | 66.49 | 274.00 | 0.62 | 152.27 | 316.00 | 2.32 | 165.83 | 358.00 | 2.53 | 437.49 |
| 233.00 | 0.33 | 67.05 | 275.00 | 0.70 | 156.62 | 317.00 | 2.27 | 165.45 | 359.00 | 2.64 | 430.08 |
| 234.00 | 0.33 | 67.66 | 276.00 | 0.78 | 161.10 | 318.00 | 2.22 | 166.35 | 360.00 | 2.72 | 421.60 |
| 235.00 | 0.33 | 68.32 | 277.00 | 0.87 | 165.69 | 319.00 | 2.19 | 168.53 | 361.00 | 2.79 | 412.10 |
| 236.00 | 0.32 | 69.03 | 278.00 | 0.96 | 170.41 | 320.00 | 2.17 | 171.95 | 362.00 | 2.83 | 401.66 |
| 237.00 | 0.32 | 69.79 | 279.00 | 1.06 | 175.22 | 321.00 | 2.17 | 176.56 | 363.00 | 2.86 | 390.37 |
| 238.00 | 0.32 | 70.60 | 280.00 | 1.16 | 180.12 | 322.00 | 2.17 | 182.30 | 364.00 | 2.86 | 378.37 |
| 239.00 | 0.32 | 71.47 | 281.00 | 1.27 | 185.10 | 323.00 | 2.18 | 189.11 | 365.00 | 2.84 | 365.80 |
| 240.00 | 0.31 | 72.39 | 282.00 | 1.38 | 190.12 | 324.00 | 2.20 | 196.95 | 366.00 | 2.80 | 352.80 |
| 241.00 | 0.31 | 73.36 | 283.00 | 1.50 | 195.17 | 325.00 | 2.23 | 205.78 | 367.00 | 2.75 | 339.54 |
| 242.00 | 0.30 | 74.40 | 284.00 | 1.62 | 200.22 | 326.00 | 2.27 | 215.56 | 368.00 | 2.68 | 326.15 |
| 243.00 | 0.30 | 75.49 | 285.00 | 1.75 | 205.22 | 327.00 | 2.32 | 226.23 | 369.00 | 2.60 | 312.78 |
| 244.00 | 0.29 | 76.64 | 286.00 | 1.88 | 210.15 | 328.00 | 2.37 | 237.75 | 370.00 | 2.51 | 299.54 |
| 245.00 | 0.29 | 77.86 | 287.00 | 2.02 | 214.95 | 329.00 | 2.42 | 250.05 | 371.00 | 2.42 | 286.53 |
| 246.00 | 0.28 | 79.14 | 288.00 | 2.15 | 219.58 | 330.00 | 2.47 | 263.03 | 372.00 | 2.32 | 273.84 |
| 247.00 | 0.27 | 80.49 | 289.00 | 2.28 | 223.97 | 331.00 | 2.52 | 276.59 | 373.00 | 2.22 | 261.53 |
| 248.00 | 0.27 | 81.91 | 290.00 | 2.41 | 228.08 | 332.00 | 2.57 | 290.60 | 374.00 | 2.12 | 249.66 |
| 249.00 | 0.26 | 83.40 | 291.00 | 2.54 | 231.84 | 333.00 | 2.61 | 304.91 | 375.00 | 2.01 | 238.26 |
| 250.00 | 0.25 | 84.96 | 292.00 | 2.67 | 235.17 | 334.00 | 2.64 | 319.36 | 376.00 | 1.91 | 227.35 |
| 251.00 | 0.24 | 86.60 | 293.00 | 2.78 | 238.03 | 335.00 | 2.65 | 333.77 | 377.00 | 1.82 | 216.94 |
| 252.00 | 0.23 | 88.31 | 294.00 | 2.89 | 240.33 | 336.00 | 2.65 | 347.95 | 378.00 | 1.72 | 207.04 |
| 253.00 | 0.22 | 90.11 | 295.00 | 2.99 | 242.03 | 337.00 | 2.64 | 361.73 | 379.00 | 1.63 | 197.63 |
| 254.00 | 0.21 | 91.99 | 296.00 | 3.08 | 243.06 | 338.00 | 2.60 | 374.93 | 380.00 | 1.54 | 188.72 |
| 255.00 | 0.20 | 93.96 | 297.00 | 3.15 | 243.39 | 339.00 | 2.55 | 387.40 | 381.00 | 1.46 | 180.27 |

# Electric and Magnetic Field Effects

## Collier - Orange River #3 230kv in 405 ft R/W

Units: **English** Physical System: **25** Conductors (**18** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **C-O#3 in C-O#2 R/W- Collier-Orange River #3 in Naples--230 corridor**

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|
| 382.00 | 1.38 | 172.28 |
| 383.00 | 1.30 | 164.73 |
| 384.00 | 1.23 | 157.60 |
| 385.00 | 1.16 | 150.85 |
| 386.00 | 1.10 | 144.49 |
| 387.00 | 1.04 | 138.47 |
| 388.00 | 0.98 | 132.79 |
| 389.00 | 0.93 | 127.42 |
| 390.00 | 0.88 | 122.35 |
| 391.00 | 0.83 | 117.55 |
| 392.00 | 0.79 | 113.01 |
| 393.00 | 0.75 | 108.71 |
| 394.00 | 0.71 | 104.64 |
| 395.00 | 0.67 | 100.79 |
| 396.00 | 0.64 | 97.13 |
| 397.00 | 0.61 | 93.66 |
| 398.00 | 0.58 | 90.37 |
| 399.00 | 0.55 | 87.25 |
| 400.00 | 0.53 | 84.28 |
| 401.00 | 0.50 | 81.45 |
| 402.00 | 0.48 | 78.77 |
| 403.00 | 0.46 | 76.21 |
| 404.00 | 0.44 | 73.77 |
| 405.00 | 0.42 | 71.45 |
| 406.00 | 0.40 | 69.24 |
| 407.00 | 0.39 | 67.12 |
| 408.00 | 0.37 | 65.11 |
| 409.00 | 0.36 | 63.18 |

# C-OR #3 Project on Andytown-Orange River
# 330-ft Right-of-Way

# *Florida Department of Environmental Protection*

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

# Report on Compliance with Electric and Magnetic Field (EMF) Standards

## Agent/Facility Information

**Andytown-O'Rvr 500kV line+1x230kV**
Name of Transmission Line/InterestPoint

**February 04, 2003**
Date of Proposed Construction

**Florida Power and Light Co.**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Facility (Utility) Owner

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Professional Engineer

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Authorized Agent

Signature of Authorized Agent

Date

Signature and Seal of Professional Engineer

Date

## Field Strength Information

### Transmission Lines

| Cross Section | Right-of-Way (ROW) Width (ft) | Maximum Calculated Fields and Distance From ROW Left | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Electric** | | | | **Magnetic** | |
| | | Within ROW | | At Edge of ROW | | At Edge of ROW | |
| | | (kV/m) | (ft) | (kV/m) | (ft) | (mG) | (ft) |
| 330 ft Corridor | 330 | **11.9** | 120 | **2.9** | 0 | **179.5** | 0 |

### Substations

None

Details for CrossSection: **330 ft Corridor- Andytown-O'Rvr #1 +C-O#3 230kV**

| Circuit Name | Rated Voltage | New/Existing |
|---|---|---|
| C-O#3 | 230 kV | **NEW CIRCUIT** |

| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 3A1 | 303.00 | -10.00 | 55.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| 3B1 | 303.00 | -10.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| 3C1 | 303.00 | -10.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| 3G1 | 310.00 | -3.00 | 79.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

| Circuit Name | Rated Voltage | New/Existing |
|---|---|---|
| A-O#1 | 500 kV | **Existing Circuit** |

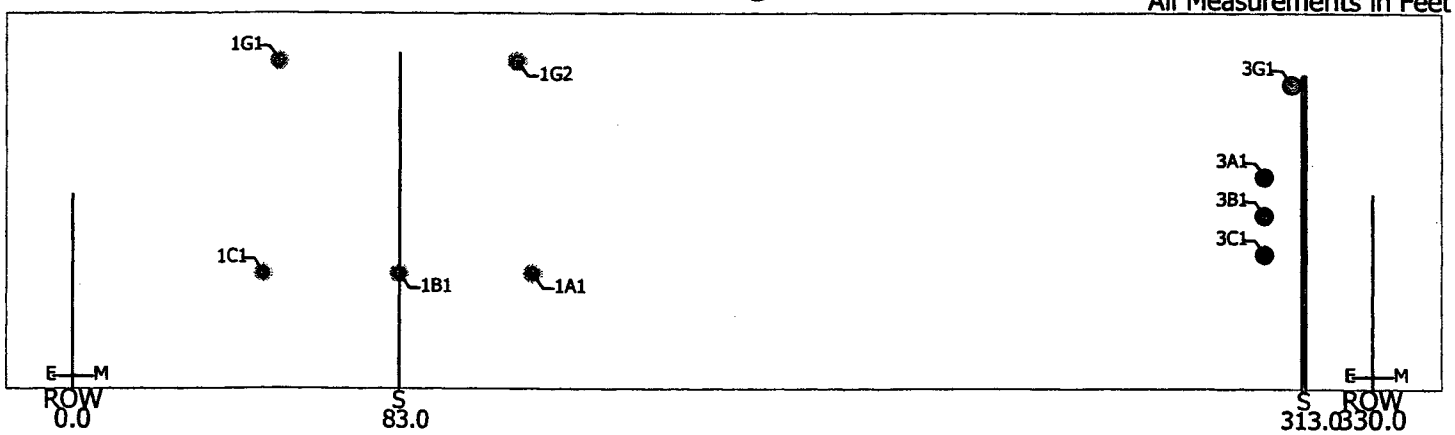
| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 1A1 | 117.00 | 34.00 | 30.00 | 3 | 1.22 | 18.00 | 550.0 | 0 | 3060 |
| 1B1 | 83.00 | 0.00 | 30.00 | 3 | 1.22 | 18.00 | 550.0 | 120 | 3060 |
| 1C1 | 49.00 | -34.00 | 30.00 | 3 | 1.22 | 18.00 | 550.0 | 240 | 3060 |
| 1G1 | 53.00 | -30.00 | 85.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |
| 1G2 | 113.00 | 30.00 | 85.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |

Points of Interest

None

**Phase Configuration**

All Measurements in Feet



# *Florida Department of Environmental Protection*

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

# Report on Compliance with Electric and Magnetic Field (EMF) Standards

## Agent/Facility Information

**Andytown-O'Rvr 1 +1x230kV Expanded r/w**
Name of Transmission Line/InterestPoint

**February 04, 2003**
Date of Proposed Construction

**Florida Power and Light Co.**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Facility (Utility) Owner

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Professional Engineer

**Martin A. Hernandez**
PO Box 14000, Juno Beach, FL 33408-0420
Name and Address of Authorized Agent

Signature of Authorized Agent

Date

Signature and Seal of Professional Engineer

Date

## Field Strength Information

### Transmission Lines

| Cross Section | Right-of-Way (ROW) Width (ft) | Maximum Calculated Fields and Distance From ROW Left | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Electric** | | | | **Magnetic** | |
| | | Within ROW | | At Edge of ROW | | At Edge of ROW | |
| | | (kV/m) | (ft) | (kV/m) | (ft) | (mG) | (ft) |
| 330 ft Corridor | 650 | **11.9** | 270 | **0.1** | 0 | **22.0** | 0 |

### Substations

None

## Details for CrossSection: **330 ft Corridor- Andytown-O'Rvr #1 +C-O#3 230kV**

C-O#3 — Circuit Name | 230 kV — Rated Voltage | **NEW CIRCUIT** — New/Existing

| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 3A1 | 453.00 | -10.00 | 55.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| 3B1 | 453.00 | -10.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| 3C1 | 453.00 | -10.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| 3G1 | 460.00 | -3.00 | 79.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

A-O#1 — Circuit Name | 500 kV — Rated Voltage | **Existing Circuit** — New/Existing

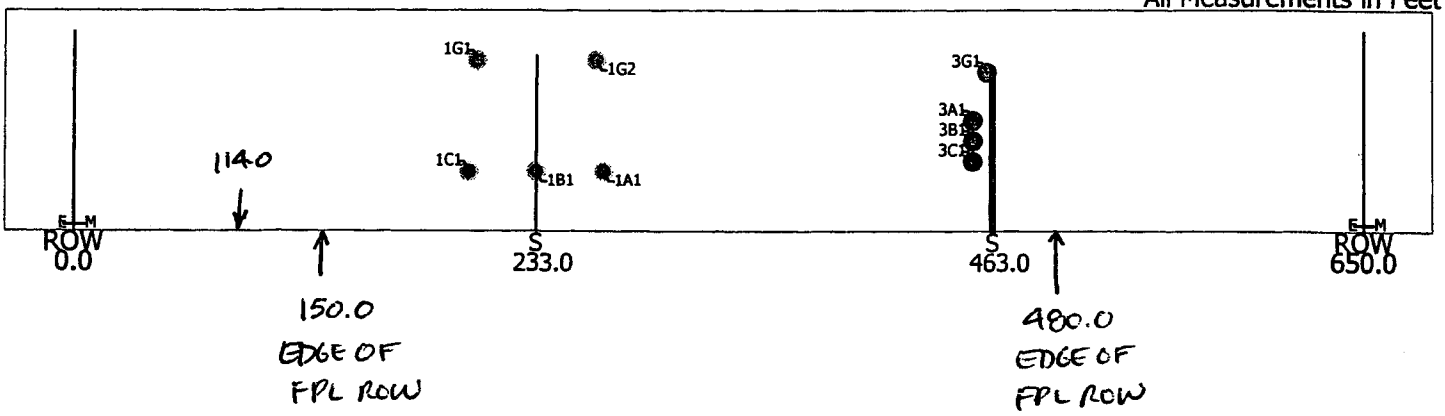
| Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|
| 1A1 | 267.00 | 34.00 | 30.00 | 3 | 1.22 | 18.00 | 550.0 | 0 | 3060 |
| 1B1 | 233.00 | 0.00 | 30.00 | 3 | 1.22 | 18.00 | 550.0 | 120 | 3060 |
| 1C1 | 199.00 | -34.00 | 30.00 | 3 | 1.22 | 18.00 | 550.0 | 240 | 3060 |
| 1G1 | 203.00 | -30.00 | 85.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |
| 1G2 | 263.00 | 30.00 | 85.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |

### Points of Interest

| Point Of Interest **Name** | Maximum Calculated Fields and Distance from Left ROW: Distance (ft) | **Electric** (kV/m) | **Magnetic** (mG) |
|---|---|---|---|
| Left R/W line | 150 | **2.9** | **179.5** |
| Right R/W Line | 480 | **0.7** | **70.6** |

## Phase Configuration

All Measurements in Feet




1 kV/m ELECTRIC
FIELD REACHED
AT 114.0

# Electric and Magnetic Field Effects

## Andytown-O'Rvr 1 +1x230kV Expanded r/w

Units: **English** Physical System: **9** Conductors (**6** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **330 ft Corridor- Andytown-O'Rvr #1 +C-O#3 230kV**

| Circuit Name | Id | Dist From Left ROW (ft) | Dist From Circuit CL (ft) | Minimum Height (ft) | SubConductors # of | SubConductors Diameter (in) | SubConductors Spacing (in) | Maximum Voltage (kV) | Angle (Degrees) | MCR (Amps) |
|---|---|---|---|---|---|---|---|---|---|---|
| A-O#1 | 1A1 | 267.00 | 34.00 | 30.00 | 3 | 1.22 | 18.00 | 550.0 | 0 | 3060 |
| A-O#1 | 1B1 | 233.00 | 0.00 | 30.00 | 3 | 1.22 | 18.00 | 550.0 | 120 | 3060 |
| A-O#1 | 1C1 | 199.00 | -34.00 | 30.00 | 3 | 1.22 | 18.00 | 550.0 | 240 | 3060 |
| A-O#1 | 1G1 | 203.00 | -30.00 | 85.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |
| A-O#1 | 1G2 | 263.00 | 30.00 | 85.00 | 1 | 0.36 | 0.00 | 0.0 | 0 | 0 |
| C-O#3 | 3A1 | 453.00 | -10.00 | 55.00 | 1 | 1.43 | 0.00 | 246.0 | 0 | 1905 |
| C-O#3 | 3B1 | 453.00 | -10.00 | 45.00 | 1 | 1.43 | 0.00 | 246.0 | 120 | 1905 |
| C-O#3 | 3C1 | 453.00 | -10.00 | 35.00 | 1 | 1.43 | 0.00 | 246.0 | 240 | 1905 |
| C-O#3 | 3G1 | 460.00 | -3.00 | 79.00 | 1 | 0.38 | 0.00 | 0.0 | 0 | 0 |

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0.00** | **0.12** | **21.99** | 21.00 | 0.16 | 26.60 | 50.00 | 0.26 | 35.81 | 79.00 | 0.44 | 50.83 |
| **650.00** | **0.05** | **7.36** | 22.00 | 0.17 | 26.85 | 51.00 | 0.26 | 36.21 | 80.00 | 0.45 | 51.51 |
| L ROW **150.00** | **2.95** | **179.50** | 23.00 | 0.17 | 27.11 | 52.00 | 0.27 | 36.62 | 81.00 | 0.46 | 52.20 |
| PL ROW **480.00** | **0.65** | **70.60** | 24.00 | 0.17 | 27.38 | 53.00 | 0.27 | 37.03 | 82.00 | 0.47 | 52.91 |
| -4.00 | 0.12 | 21.25 | 25.00 | 0.17 | 27.64 | 54.00 | 0.28 | 37.45 | 83.00 | 0.48 | 53.63 |
| -3.00 | 0.12 | 21.43 | 26.00 | 0.18 | 27.91 | 55.00 | 0.28 | 37.88 | 84.00 | 0.49 | 54.36 |
| -2.00 | 0.12 | 21.61 | 27.00 | 0.18 | 28.19 | 56.00 | 0.29 | 38.31 | 85.00 | 0.50 | 55.11 |
| -1.00 | 0.12 | 21.80 | 28.00 | 0.18 | 28.46 | 57.00 | 0.29 | 38.76 | 86.00 | 0.51 | 55.88 |
| 0.00 | 0.12 | 21.99 | 29.00 | 0.18 | 28.75 | 58.00 | 0.30 | 39.21 | 87.00 | 0.53 | 56.66 |
| 1.00 | 0.12 | 22.18 | 30.00 | 0.19 | 29.03 | 59.00 | 0.30 | 39.66 | 88.00 | 0.54 | 57.46 |
| 2.00 | 0.13 | 22.37 | 31.00 | 0.19 | 29.33 | 60.00 | 0.31 | 40.13 | 89.00 | 0.55 | 58.28 |
| 3.00 | 0.13 | 22.57 | 32.00 | 0.19 | 29.62 | 61.00 | 0.31 | 40.61 | 90.00 | 0.56 | 59.11 |
| 4.00 | 0.13 | 22.77 | 33.00 | 0.20 | 29.92 | 62.00 | 0.32 | 41.09 | 91.00 | 0.57 | 59.97 |
| 5.00 | 0.13 | 22.97 | 34.00 | 0.20 | 30.23 | 63.00 | 0.33 | 41.58 | 92.00 | 0.59 | 60.84 |
| 6.00 | 0.13 | 23.17 | 35.00 | 0.20 | 30.53 | 64.00 | 0.33 | 42.08 | 93.00 | 0.60 | 61.73 |
| 7.00 | 0.13 | 23.38 | 36.00 | 0.21 | 30.85 | 65.00 | 0.34 | 42.59 | 94.00 | 0.61 | 62.64 |
| 8.00 | 0.14 | 23.59 | 37.00 | 0.21 | 31.17 | 66.00 | 0.35 | 43.11 | 95.00 | 0.63 | 63.57 |
| 9.00 | 0.14 | 23.80 | 38.00 | 0.21 | 31.49 | 67.00 | 0.35 | 43.64 | 96.00 | 0.64 | 64.52 |
| 10.00 | 0.14 | 24.02 | 39.00 | 0.22 | 31.82 | 68.00 | 0.36 | 44.18 | 97.00 | 0.66 | 65.49 |
| 11.00 | 0.14 | 24.24 | 40.00 | 0.22 | 32.16 | 69.00 | 0.37 | 44.73 | 98.00 | 0.67 | 66.48 |
| 12.00 | 0.14 | 24.46 | 41.00 | 0.22 | 32.49 | 70.00 | 0.37 | 45.29 | 99.00 | 0.69 | 67.50 |
| 13.00 | 0.15 | 24.68 | 42.00 | 0.23 | 32.84 | 71.00 | 0.38 | 45.86 | 100.00 | 0.70 | 68.54 |
| 14.00 | 0.15 | 24.91 | 43.00 | 0.23 | 33.19 | 72.00 | 0.39 | 46.44 | 101.00 | 0.72 | 69.61 |
| 15.00 | 0.15 | 25.14 | 44.00 | 0.23 | 33.55 | 73.00 | 0.39 | 47.03 | 102.00 | 0.74 | 70.70 |
| 16.00 | 0.15 | 25.38 | 45.00 | 0.24 | 33.91 | 74.00 | 0.40 | 47.63 | 103.00 | 0.75 | 71.81 |
| 17.00 | 0.15 | 25.61 | 46.00 | 0.24 | 34.28 | 75.00 | 0.41 | 48.25 | 104.00 | 0.77 | 72.96 |
| 18.00 | 0.16 | 25.86 | 47.00 | 0.25 | 34.65 | 76.00 | 0.42 | 48.87 | 105.00 | 0.79 | 74.13 |
| 19.00 | 0.16 | 26.10 | 48.00 | 0.25 | 35.03 | 77.00 | 0.43 | 49.51 | 106.00 | 0.81 | 75.32 |
| 20.00 | 0.16 | 26.35 | 49.00 | 0.26 | 35.42 | 78.00 | 0.44 | 50.17 | 107.00 | 0.83 | 76.55 |

# Electric and Magnetic Field Effects

## Andytown-O'Rvr 1 +1x230kV Expanded r/w

Units: **English** Physical System: **9** Conductors (**6** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **330 ft Corridor- Andytown-O'Rvr #1 +C-O#3 230kV**

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 108.00 | 0.85 | 77.81 | 150.00 | 2.95 | 179.50 | 192.00 | 11.60 | 565.48 | 234.00 | 9.32 | 631.13 |
| 109.00 | 0.87 | 79.10 | 151.00 | 3.05 | 183.94 | 193.00 | 11.72 | 577.90 | 235.00 | 9.27 | 632.80 |
| 110.00 | 0.90 | 80.42 | 152.00 | 3.16 | 188.53 | 194.00 | 11.81 | 589.97 | 236.00 | 9.19 | 635.49 |
| 111.00 | 0.92 | 81.78 | 153.00 | 3.27 | 193.28 | 195.00 | 11.86 | 601.61 | 237.00 | 9.07 | 639.02 |
| 112.00 | 0.94 | 83.16 | 154.00 | 3.39 | 198.21 | 196.00 | 11.89 | 612.75 | 238.00 | 8.94 | 643.17 |
| 113.00 | 0.97 | 84.59 | 155.00 | 3.52 | 203.31 | 197.00 | 11.87 | 623.34 | 239.00 | 8.78 | 647.76 |
| 114.00 | 0.99 | 86.05 | 156.00 | 3.65 | 208.59 | 198.00 | 11.82 | 633.32 | 240.00 | 8.60 | 652.59 |
| 115.00 | 1.02 | 87.55 | 157.00 | 3.78 | 214.07 | 199.00 | 11.73 | 642.63 | 241.00 | 8.42 | 657.53 |
| 116.00 | 1.05 | 89.09 | 158.00 | 3.92 | 219.75 | 200.00 | 11.61 | 651.25 | 242.00 | 8.23 | 662.45 |
| 117.00 | 1.07 | 90.67 | 159.00 | 4.07 | 225.64 | 201.00 | 11.45 | 659.13 | 243.00 | 8.05 | 667.26 |
| 118.00 | 1.10 | 92.29 | 160.00 | 4.22 | 231.74 | 202.00 | 11.26 | 666.25 | 244.00 | 7.88 | 671.90 |
| 119.00 | 1.13 | 93.96 | 161.00 | 4.38 | 238.07 | 203.00 | 11.03 | 672.60 | 245.00 | 7.73 | 676.30 |
| 120.00 | 1.16 | 95.67 | 162.00 | 4.55 | 244.63 | 204.00 | 10.78 | 678.18 | 246.00 | 7.61 | 680.42 |
| 121.00 | 1.20 | 97.43 | 163.00 | 4.72 | 251.43 | 205.00 | 10.51 | 682.99 | 247.00 | 7.53 | 684.22 |
| 122.00 | 1.23 | 99.23 | 164.00 | 4.90 | 258.49 | 206.00 | 10.21 | 687.04 | 248.00 | 7.50 | 687.68 |
| 123.00 | 1.27 | 101.09 | 165.00 | 5.08 | 265.80 | 207.00 | 9.90 | 690.35 | 249.00 | 7.52 | 690.77 |
| 124.00 | 1.30 | 103.00 | 166.00 | 5.28 | 273.38 | 208.00 | 9.59 | 692.95 | 250.00 | 7.60 | 693.45 |
| 125.00 | 1.34 | 104.96 | 167.00 | 5.48 | 281.24 | 209.00 | 9.27 | 694.86 | 251.00 | 7.73 | 695.71 |
| 126.00 | 1.38 | 106.98 | 168.00 | 5.69 | 289.38 | 210.00 | 8.95 | 696.12 | 252.00 | 7.90 | 697.50 |
| 127.00 | 1.42 | 109.06 | 169.00 | 5.91 | 297.81 | 211.00 | 8.65 | 696.75 | 253.00 | 8.12 | 698.81 |
| 128.00 | 1.46 | 111.20 | 170.00 | 6.13 | 306.55 | 212.00 | 8.36 | 696.80 | 254.00 | 8.38 | 699.60 |
| 129.00 | 1.50 | 113.40 | 171.00 | 6.36 | 315.59 | 213.00 | 8.11 | 696.29 | 255.00 | 8.66 | 699.84 |
| 130.00 | 1.55 | 115.66 | 172.00 | 6.60 | 324.94 | 214.00 | 7.89 | 695.26 | 256.00 | 8.97 | 699.50 |
| 131.00 | 1.59 | 118.00 | 173.00 | 6.85 | 334.61 | 215.00 | 7.71 | 693.74 | 257.00 | 9.28 | 698.53 |
| 132.00 | 1.64 | 120.40 | 174.00 | 7.10 | 344.59 | 216.00 | 7.58 | 691.76 | 258.00 | 9.60 | 696.91 |
| 133.00 | 1.69 | 122.88 | 175.00 | 7.36 | 354.90 | 217.00 | 7.51 | 689.34 | 259.00 | 9.92 | 694.60 |
| 134.00 | 1.75 | 125.43 | 176.00 | 7.63 | 365.53 | 218.00 | 7.49 | 686.51 | 260.00 | 10.23 | 691.57 |
| 135.00 | 1.80 | 128.06 | 177.00 | 7.90 | 376.48 | 219.00 | 7.52 | 683.30 | 261.00 | 10.53 | 687.80 |
| 136.00 | 1.86 | 130.77 | 178.00 | 8.17 | 387.74 | 220.00 | 7.60 | 679.73 | 262.00 | 10.80 | 683.27 |
| 137.00 | 1.92 | 133.57 | 179.00 | 8.45 | 399.30 | 221.00 | 7.72 | 675.83 | 263.00 | 11.05 | 677.97 |
| 138.00 | 1.98 | 136.46 | 180.00 | 8.73 | 411.15 | 222.00 | 7.87 | 671.64 | 264.00 | 11.28 | 671.88 |
| 139.00 | 2.04 | 139.44 | 181.00 | 9.02 | 423.28 | 223.00 | 8.04 | 667.20 | 265.00 | 11.47 | 665.02 |
| 140.00 | 2.11 | 142.51 | 182.00 | 9.30 | 435.66 | 224.00 | 8.22 | 662.56 | 266.00 | 11.63 | 657.39 |
| 141.00 | 2.18 | 145.69 | 183.00 | 9.58 | 448.27 | 225.00 | 8.41 | 657.78 | 267.00 | 11.75 | 649.02 |
| 142.00 | 2.25 | 148.96 | 184.00 | 9.85 | 461.08 | 226.00 | 8.60 | 652.96 | 268.00 | 11.84 | 639.93 |
| 143.00 | 2.32 | 152.35 | 185.00 | 10.12 | 474.06 | 227.00 | 8.78 | 648.21 | 269.00 | 11.89 | 630.18 |
| 144.00 | 2.40 | 155.85 | 186.00 | 10.38 | 487.16 | 228.00 | 8.93 | 643.67 | 270.00 | 11.91 | 619.80 |
| 145.00 | 2.48 | 159.47 | 187.00 | 10.63 | 500.34 | 229.00 | 9.07 | 639.50 | 271.00 | 11.89 | 608.86 |
| 146.00 | 2.57 | 163.21 | 188.00 | 10.86 | 513.55 | 230.00 | 9.18 | 635.92 | 272.00 | 11.83 | 597.41 |
| 147.00 | 2.66 | 167.08 | 189.00 | 11.08 | 526.73 | 231.00 | 9.27 | 633.12 | 273.00 | 11.74 | 585.52 |
| 148.00 | 2.75 | 171.08 | 190.00 | 11.28 | 539.82 | 232.00 | 9.32 | 631.31 | 274.00 | 11.62 | 573.26 |
| 149.00 | 2.85 | 175.22 | 191.00 | 11.45 | 552.76 | 233.00 | 9.33 | 630.62 | 275.00 | 11.47 | 560.70 |

# Electric and Magnetic Field Effects

## Andytown-O'Rvr 1 +1x230kV Expanded r/w

Units: **English** Physical System: **9** Conductors (**6** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **330 ft Corridor- Andytown-O'Rvr #1 +C-O#3 230kV**

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 276.00 | 11.30 | 547.91 | 318.00 | 2.81 | 182.28 | 360.00 | 0.89 | 95.51 | 402.00 | 0.29 | 91.46 |
| 277.00 | 11.10 | 534.96 | 319.00 | 2.71 | 178.38 | 361.00 | 0.87 | 94.69 | 403.00 | 0.27 | 92.12 |
| 278.00 | 10.89 | 521.90 | 320.00 | 2.63 | 174.62 | 362.00 | 0.85 | 93.91 | 404.00 | 0.26 | 92.80 |
| 279.00 | 10.66 | 508.81 | 321.00 | 2.54 | 170.99 | 363.00 | 0.83 | 93.16 | 405.00 | 0.24 | 93.53 |
| 280.00 | 10.41 | 495.74 | 322.00 | 2.46 | 167.49 | 364.00 | 0.82 | 92.45 | 406.00 | 0.23 | 94.29 |
| 281.00 | 10.15 | 482.73 | 323.00 | 2.38 | 164.11 | 365.00 | 0.80 | 91.79 | 407.00 | 0.21 | 95.09 |
| 282.00 | 9.88 | 469.85 | 324.00 | 2.31 | 160.85 | 366.00 | 0.78 | 91.15 | 408.00 | 0.20 | 95.92 |
| 283.00 | 9.61 | 457.12 | 325.00 | 2.24 | 157.70 | 367.00 | 0.76 | 90.56 | 409.00 | 0.18 | 96.79 |
| 284.00 | 9.33 | 444.59 | 326.00 | 2.17 | 154.66 | 368.00 | 0.75 | 90.00 | 410.00 | 0.17 | 97.69 |
| 285.00 | 9.05 | 432.28 | 327.00 | 2.10 | 151.72 | 369.00 | 0.73 | 89.48 | 411.00 | 0.16 | 98.63 |
| 286.00 | 8.77 | 420.22 | 328.00 | 2.04 | 148.88 | 370.00 | 0.72 | 88.99 | 412.00 | 0.15 | 99.60 |
| 287.00 | 8.49 | 408.43 | 329.00 | 1.98 | 146.14 | 371.00 | 0.70 | 88.54 | 413.00 | 0.15 | 100.61 |
| 288.00 | 8.21 | 396.94 | 330.00 | 1.92 | 143.50 | 372.00 | 0.69 | 88.12 | 414.00 | 0.16 | 101.65 |
| 289.00 | 7.93 | 385.74 | 331.00 | 1.87 | 140.94 | 373.00 | 0.67 | 87.74 | 415.00 | 0.18 | 102.72 |
| 290.00 | 7.66 | 374.85 | 332.00 | 1.81 | 138.47 | 374.00 | 0.66 | 87.39 | 416.00 | 0.20 | 103.82 |
| 291.00 | 7.40 | 364.27 | 333.00 | 1.76 | 136.08 | 375.00 | 0.64 | 87.07 | 417.00 | 0.22 | 104.95 |
| 292.00 | 7.14 | 354.02 | 334.00 | 1.71 | 133.78 | 376.00 | 0.63 | 86.79 | 418.00 | 0.25 | 106.11 |
| 293.00 | 6.89 | 344.08 | 335.00 | 1.66 | 131.55 | 377.00 | 0.62 | 86.55 | 419.00 | 0.28 | 107.30 |
| 294.00 | 6.64 | 334.46 | 336.00 | 1.62 | 129.40 | 378.00 | 0.60 | 86.33 | 420.00 | 0.31 | 108.51 |
| 295.00 | 6.40 | 325.16 | 337.00 | 1.57 | 127.32 | 379.00 | 0.59 | 86.16 | 421.00 | 0.35 | 109.75 |
| 296.00 | 6.17 | 316.17 | 338.00 | 1.53 | 125.32 | 380.00 | 0.58 | 86.01 | 422.00 | 0.38 | 111.00 |
| 297.00 | 5.95 | 307.49 | 339.00 | 1.49 | 123.38 | 381.00 | 0.57 | 85.90 | 423.00 | 0.42 | 112.28 |
| 298.00 | 5.73 | 299.11 | 340.00 | 1.45 | 121.51 | 382.00 | 0.55 | 85.82 | 424.00 | 0.46 | 113.56 |
| 299.00 | 5.52 | 291.02 | 341.00 | 1.41 | 119.70 | 383.00 | 0.54 | 85.78 | 425.00 | 0.51 | 114.86 |
| 300.00 | 5.32 | 283.22 | 342.00 | 1.37 | 117.95 | 384.00 | 0.53 | 85.77 | 426.00 | 0.55 | 116.17 |
| 301.00 | 5.13 | 275.69 | 343.00 | 1.34 | 116.27 | 385.00 | 0.52 | 85.79 | 427.00 | 0.60 | 117.47 |
| 302.00 | 4.94 | 268.44 | 344.00 | 1.30 | 114.64 | 386.00 | 0.50 | 85.85 | 428.00 | 0.65 | 118.78 |
| 303.00 | 4.76 | 261.44 | 345.00 | 1.27 | 113.08 | 387.00 | 0.49 | 85.94 | 429.00 | 0.70 | 120.07 |
| 304.00 | 4.59 | 254.70 | 346.00 | 1.24 | 111.56 | 388.00 | 0.48 | 86.06 | 430.00 | 0.75 | 121.36 |
| 305.00 | 4.43 | 248.20 | 347.00 | 1.21 | 110.11 | 389.00 | 0.46 | 86.22 | 431.00 | 0.81 | 122.62 |
| 306.00 | 4.27 | 241.94 | 348.00 | 1.18 | 108.70 | 390.00 | 0.45 | 86.42 | 432.00 | 0.86 | 123.86 |
| 307.00 | 4.12 | 235.91 | 349.00 | 1.15 | 107.34 | 391.00 | 0.44 | 86.64 | 433.00 | 0.92 | 125.07 |
| 308.00 | 3.97 | 230.09 | 350.00 | 1.12 | 106.04 | 392.00 | 0.43 | 86.91 | 434.00 | 0.97 | 126.23 |
| 309.00 | 3.83 | 224.48 | 351.00 | 1.10 | 104.78 | 393.00 | 0.41 | 87.20 | 435.00 | 1.03 | 127.35 |
| 310.00 | 3.70 | 219.08 | 352.00 | 1.07 | 103.58 | 394.00 | 0.40 | 87.54 | 436.00 | 1.09 | 128.41 |
| 311.00 | 3.57 | 213.87 | 353.00 | 1.04 | 102.42 | 395.00 | 0.39 | 87.90 | 437.00 | 1.14 | 129.40 |
| 312.00 | 3.44 | 208.85 | 354.00 | 1.02 | 101.30 | 396.00 | 0.37 | 88.30 | 438.00 | 1.20 | 130.32 |
| 313.00 | 3.33 | 204.01 | 355.00 | 1.00 | 100.23 | 397.00 | 0.36 | 88.74 | 439.00 | 1.26 | 131.16 |
| 314.00 | 3.21 | 199.34 | 356.00 | 0.97 | 99.20 | 398.00 | 0.35 | 89.21 | 440.00 | 1.31 | 131.90 |
| 315.00 | 3.11 | 194.84 | 357.00 | 0.95 | 98.22 | 399.00 | 0.33 | 89.72 | 441.00 | 1.37 | 132.54 |
| 316.00 | 3.00 | 190.50 | 358.00 | 0.93 | 97.27 | 400.00 | 0.32 | 90.27 | 442.00 | 1.42 | 133.06 |
| 317.00 | 2.90 | 186.32 | 359.00 | 0.91 | 96.37 | 401.00 | 0.30 | 90.85 | 443.00 | 1.47 | 133.47 |

# Electric and Magnetic Field Effects

## Andytown-O'Rvr 1 +1x230kV Expanded r/w

Units: **English** Physical System: **9** Conductors (**6** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **330 ft Corridor- Andytown-O'Rvr #1 +C-O#3 230kV**

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) | Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 444.00 | 1.51 | 133.74 | 486.00 | 0.42 | 59.04 | 528.00 | 0.11 | 21.41 | 570.00 | 0.10 | 12.61 |
| 445.00 | 1.56 | 133.88 | 487.00 | 0.39 | 57.32 | 529.00 | 0.11 | 21.04 | 571.00 | 0.10 | 12.49 |
| 446.00 | 1.59 | 133.88 | 488.00 | 0.36 | 55.65 | 530.00 | 0.11 | 20.69 | 572.00 | 0.10 | 12.38 |
| 447.00 | 1.63 | 133.72 | 489.00 | 0.33 | 54.04 | 531.00 | 0.11 | 20.34 | 573.00 | 0.10 | 12.27 |
| 448.00 | 1.66 | 133.41 | 490.00 | 0.30 | 52.48 | 532.00 | 0.12 | 20.01 | 574.00 | 0.10 | 12.16 |
| 449.00 | 1.69 | 132.94 | 491.00 | 0.28 | 50.97 | 533.00 | 0.12 | 19.69 | 575.00 | 0.10 | 12.06 |
| 450.00 | 1.71 | 132.31 | 492.00 | 0.25 | 49.52 | 534.00 | 0.12 | 19.39 | 576.00 | 0.10 | 11.95 |
| 451.00 | 1.72 | 131.52 | 493.00 | 0.23 | 48.12 | 535.00 | 0.12 | 19.09 | 577.00 | 0.10 | 11.85 |
| 452.00 | 1.73 | 130.57 | 494.00 | 0.21 | 46.77 | 536.00 | 0.12 | 18.80 | 578.00 | 0.10 | 11.75 |
| 453.00 | 1.74 | 129.46 | 495.00 | 0.19 | 45.47 | 537.00 | 0.12 | 18.52 | 579.00 | 0.10 | 11.65 |
| 454.00 | 1.74 | 128.19 | 496.00 | 0.17 | 44.22 | 538.00 | 0.12 | 18.24 | 580.00 | 0.09 | 11.56 |
| 455.00 | 1.73 | 126.77 | 497.00 | 0.15 | 43.01 | 539.00 | 0.12 | 17.98 | 581.00 | 0.09 | 11.46 |
| 456.00 | 1.72 | 125.21 | 498.00 | 0.13 | 41.84 | 540.00 | 0.12 | 17.72 | 582.00 | 0.09 | 11.37 |
| 457.00 | 1.70 | 123.51 | 499.00 | 0.12 | 40.72 | 541.00 | 0.12 | 17.48 | 583.00 | 0.09 | 11.28 |
| 458.00 | 1.68 | 121.68 | 500.00 | 0.11 | 39.65 | 542.00 | 0.12 | 17.24 | 584.00 | 0.09 | 11.19 |
| 459.00 | 1.65 | 119.74 | 501.00 | 0.09 | 38.61 | 543.00 | 0.12 | 17.00 | 585.00 | 0.09 | 11.10 |
| 460.00 | 1.62 | 117.69 | 502.00 | 0.08 | 37.61 | 544.00 | 0.12 | 16.78 | 586.00 | 0.09 | 11.02 |
| 461.00 | 1.59 | 115.55 | 503.00 | 0.07 | 36.65 | 545.00 | 0.12 | 16.56 | 587.00 | 0.09 | 10.93 |
| 462.00 | 1.55 | 113.32 | 504.00 | 0.07 | 35.72 | 546.00 | 0.12 | 16.35 | 588.00 | 0.09 | 10.85 |
| 463.00 | 1.50 | 111.02 | 505.00 | 0.06 | 34.83 | 547.00 | 0.12 | 16.14 | 589.00 | 0.09 | 10.77 |
| 464.00 | 1.46 | 108.66 | 506.00 | 0.06 | 33.98 | 548.00 | 0.12 | 15.94 | 590.00 | 0.09 | 10.69 |
| 465.00 | 1.41 | 106.26 | 507.00 | 0.06 | 33.15 | 549.00 | 0.12 | 15.74 | 591.00 | 0.09 | 10.61 |
| 466.00 | 1.36 | 103.81 | 508.00 | 0.06 | 32.36 | 550.00 | 0.12 | 15.55 | 592.00 | 0.09 | 10.53 |
| 467.00 | 1.31 | 101.34 | 509.00 | 0.06 | 31.59 | 551.00 | 0.11 | 15.37 | 593.00 | 0.08 | 10.45 |
| 468.00 | 1.26 | 98.86 | 510.00 | 0.06 | 30.86 | 552.00 | 0.11 | 15.19 | 594.00 | 0.08 | 10.38 |
| 469.00 | 1.21 | 96.36 | 511.00 | 0.07 | 30.15 | 553.00 | 0.11 | 15.01 | 595.00 | 0.08 | 10.30 |
| 470.00 | 1.15 | 93.87 | 512.00 | 0.07 | 29.47 | 554.00 | 0.11 | 14.84 | 596.00 | 0.08 | 10.23 |
| 471.00 | 1.10 | 91.40 | 513.00 | 0.07 | 28.81 | 555.00 | 0.11 | 14.67 | 597.00 | 0.08 | 10.15 |
| 472.00 | 1.05 | 88.94 | 514.00 | 0.08 | 28.18 | 556.00 | 0.11 | 14.51 | 598.00 | 0.08 | 10.08 |
| 473.00 | 0.99 | 86.50 | 515.00 | 0.08 | 27.57 | 557.00 | 0.11 | 14.35 | 599.00 | 0.08 | 10.01 |
| 474.00 | 0.94 | 84.10 | 516.00 | 0.09 | 26.99 | 558.00 | 0.11 | 14.20 | 600.00 | 0.08 | 9.94 |
| 475.00 | 0.89 | 81.74 | 517.00 | 0.09 | 26.42 | 559.00 | 0.11 | 14.05 | 601.00 | 0.08 | 9.88 |
| 476.00 | 0.84 | 79.42 | 518.00 | 0.09 | 25.88 | 560.00 | 0.11 | 13.90 | 602.00 | 0.08 | 9.81 |
| 477.00 | 0.79 | 77.14 | 519.00 | 0.09 | 25.36 | 561.00 | 0.11 | 13.76 | 603.00 | 0.08 | 9.74 |
| 478.00 | 0.74 | 74.91 | 520.00 | 0.10 | 24.85 | 562.00 | 0.11 | 13.62 | 604.00 | 0.08 | 9.68 |
| 479.00 | 0.70 | 72.73 | 521.00 | 0.10 | 24.37 | 563.00 | 0.11 | 13.48 | 605.00 | 0.08 | 9.61 |
| 480.00 | 0.65 | 70.61 | 522.00 | 0.10 | 23.90 | 564.00 | 0.11 | 13.35 | 606.00 | 0.08 | 9.55 |
| 481.00 | 0.61 | 68.54 | 523.00 | 0.10 | 23.44 | 565.00 | 0.11 | 13.22 | 607.00 | 0.08 | 9.48 |
| 482.00 | 0.57 | 66.52 | 524.00 | 0.11 | 23.01 | 566.00 | 0.10 | 13.09 | 608.00 | 0.07 | 9.42 |
| 483.00 | 0.53 | 64.57 | 525.00 | 0.11 | 22.59 | 567.00 | 0.10 | 12.97 | 609.00 | 0.07 | 9.36 |
| 484.00 | 0.49 | 62.67 | 526.00 | 0.11 | 22.18 | 568.00 | 0.10 | 12.84 | 610.00 | 0.07 | 9.30 |
| 485.00 | 0.46 | 60.83 | 527.00 | 0.11 | 21.79 | 569.00 | 0.10 | 12.72 | 611.00 | 0.07 | 9.24 |

# Electric and Magnetic Field Effects

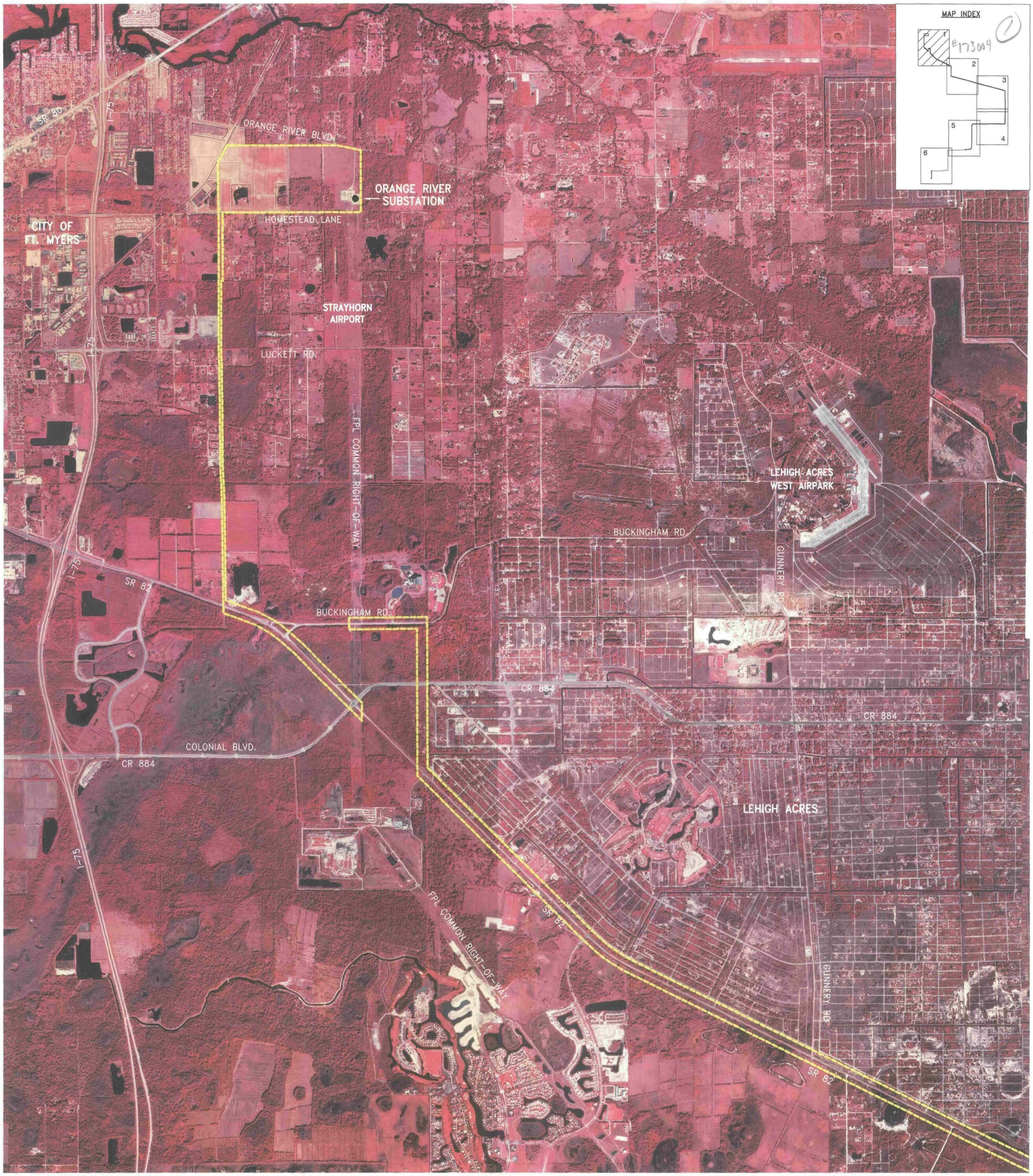
## Andytown-O'Rvr 1 +1x230kV Expanded r/w

Units: **English** Physical System: **9** Conductors (**6** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

## CrossSection: **330 ft Corridor- Andytown-O'Rvr #1 +C-O#3 230kV**

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|
| 612.00 | 0.07 | 9.18 |
| 613.00 | 0.07 | 9.12 |
| 614.00 | 0.07 | 9.06 |
| 615.00 | 0.07 | 9.01 |
| 616.00 | 0.07 | 8.95 |
| 617.00 | 0.07 | 8.90 |
| 618.00 | 0.07 | 8.84 |
| 619.00 | 0.07 | 8.79 |
| 620.00 | 0.07 | 8.73 |
| 621.00 | 0.07 | 8.68 |
| 622.00 | 0.07 | 8.63 |
| 623.00 | 0.07 | 8.58 |
| 624.00 | 0.07 | 8.52 |
| 625.00 | 0.07 | 8.47 |
| 626.00 | 0.06 | 8.42 |
| 627.00 | 0.06 | 8.37 |
| 628.00 | 0.06 | 8.33 |
| 629.00 | 0.06 | 8.28 |
| 630.00 | 0.06 | 8.23 |
| 631.00 | 0.06 | 8.18 |
| 632.00 | 0.06 | 8.13 |
| 632.99 | 0.06 | 8.09 |
| 633.99 | 0.06 | 8.04 |
| 634.99 | 0.06 | 8.00 |
| 635.99 | 0.06 | 7.95 |
| 636.99 | 0.06 | 7.91 |
| 637.99 | 0.06 | 7.86 |
| 638.99 | 0.06 | 7.82 |
| 639.99 | 0.06 | 7.78 |
| 640.99 | 0.06 | 7.73 |
| 641.99 | 0.06 | 7.69 |
| 642.99 | 0.06 | 7.65 |
| 643.99 | 0.06 | 7.61 |
| 644.99 | 0.06 | 7.57 |
| 645.99 | 0.06 | 7.52 |
| 646.99 | 0.05 | 7.48 |
| 647.99 | 0.05 | 7.44 |
| 648.99 | 0.05 | 7.40 |
| 649.99 | 0.05 | 7.36 |
| 650.99 | 0.05 | 7.33 |
| 651.99 | 0.05 | 7.29 |
| 652.99 | 0.05 | 7.25 |

| Dist From RowLeft (ft) | Electric Field (kV/m) | Magnetic Field (mG) |
|---|---|---|
| 653.99 | 0.05 | 7.21 |
| 654.99 | 0.05 | 7.17 |




M:\ACAD\020965\airmaps\Aerial_all.dwg \ P1 04/29/03

FPL COLLIER-ORANGE RIVER 230-kV TRANSMISSION LINE PROJECT

USGS QUADS: FT. MYERS, FT. MYERS SE, OLGA, AND ALVA SW, FLORIDA, 1999.

LEGEND:

- PREFERRED CORRIDOR
- TRANSMISSION LINE TO BE IN SERVICE 2003
- FPL SUBSTATION

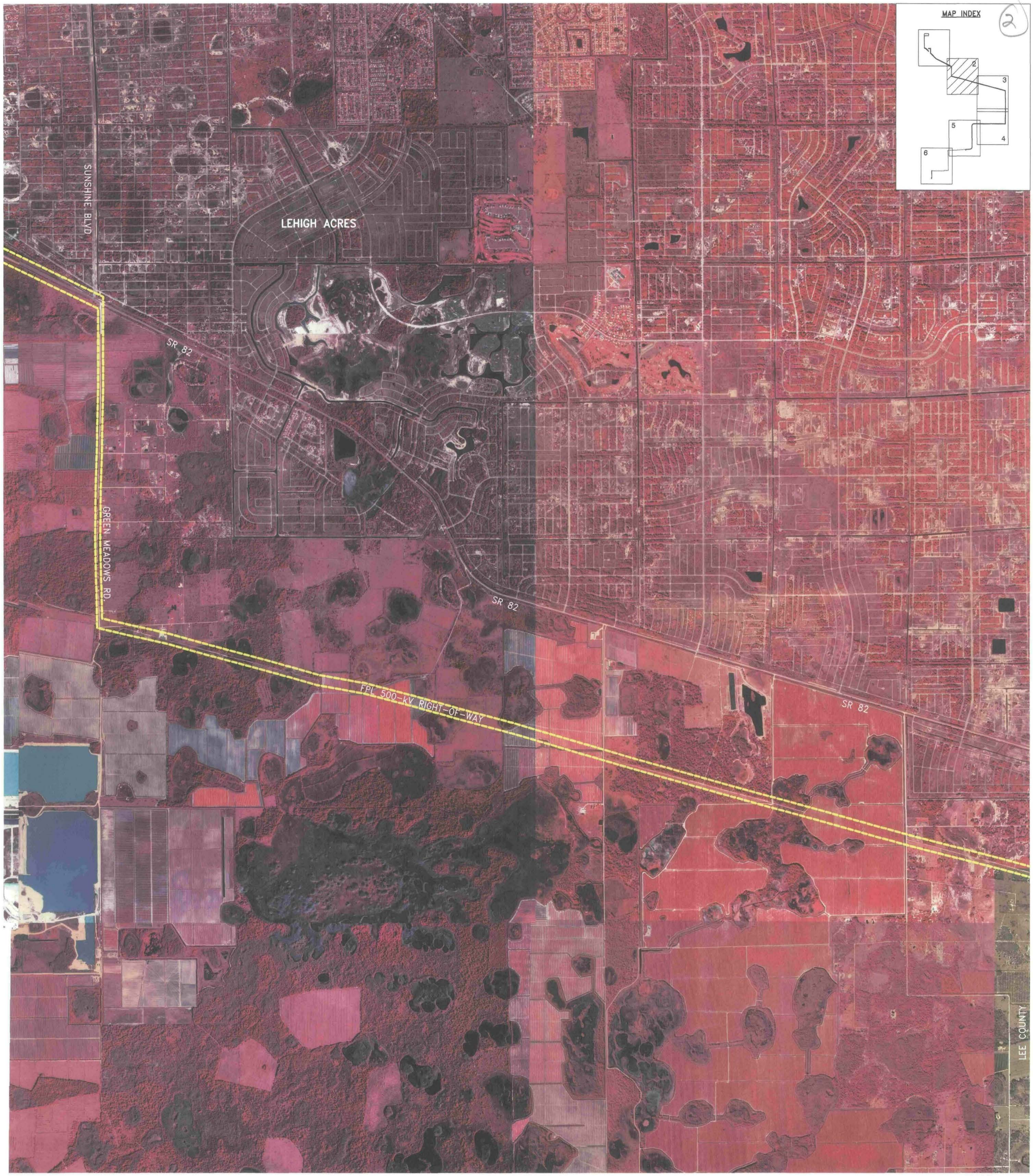
GRAPHIC SCALE

0 1000 2000 4000

SCALE IN FEET

N

FPL




M:\ACAD\020965\airmaps\Aerial_all.dwg \ P2 04/29/03

FPL COLLIER-ORANGE RIVER 230-kV TRANSMISSION LINE PROJECT

USGS QUADS: ALVA SW, ALVA SE, CORKSCREW NW, CORKSCREW, FLORIDA, 1999.

LEGEND:

PREFERRED CORRIDOR

TRANSMISSION LINE TO BE IN SERVICE 2003

FPL SUBSTATION

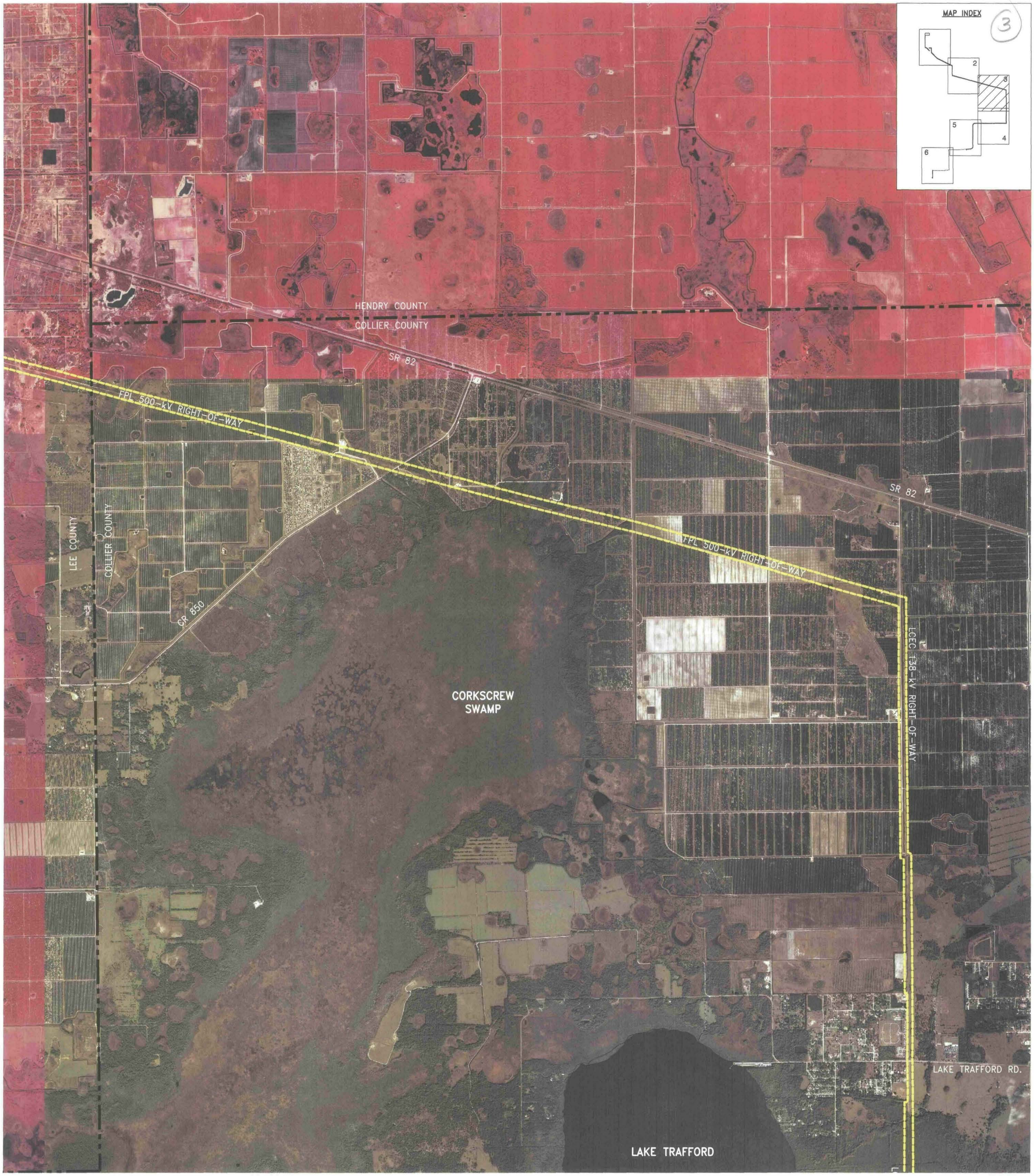
GRAPHIC SCALE

0 1000 2000 4000

SCALE IN FEET

N

FPL




M:\ACAD\020965\airmaps\Aerial_all.dwg \ P3 04/29/03

FPL COLLIER-ORANGE RIVER 230-kV TRANSMISSION LINE PROJECT

USGS QUADS: ALVA SE, CORKSCREW, IMMOKALEE, FELDA, FLORIDA, 1999.

LEGEND:

PREFERRED CORRIDOR

TRANSMISSION LINE TO BE IN SERVICE 2003

FPL SUBSTATION

GRAPHIC SCALE

0 1000 2000 4000

SCALE IN FEET

N

FPL

(4)

FPL COLLIER-ORANGE RIVER 230-kV TRANSMISSION LINE PROJECT

USGS QUADS: CORKSCREW SE, CORKSCREW, AND IMMOKALEE SW, FLORIDA, 1999.

LEGEND:

PREFERRED CORRIDOR

TRANSMISSION LINE TO BE IN SERVICE 2003

FPL SUBSTATION

GRAPHIC SCALE

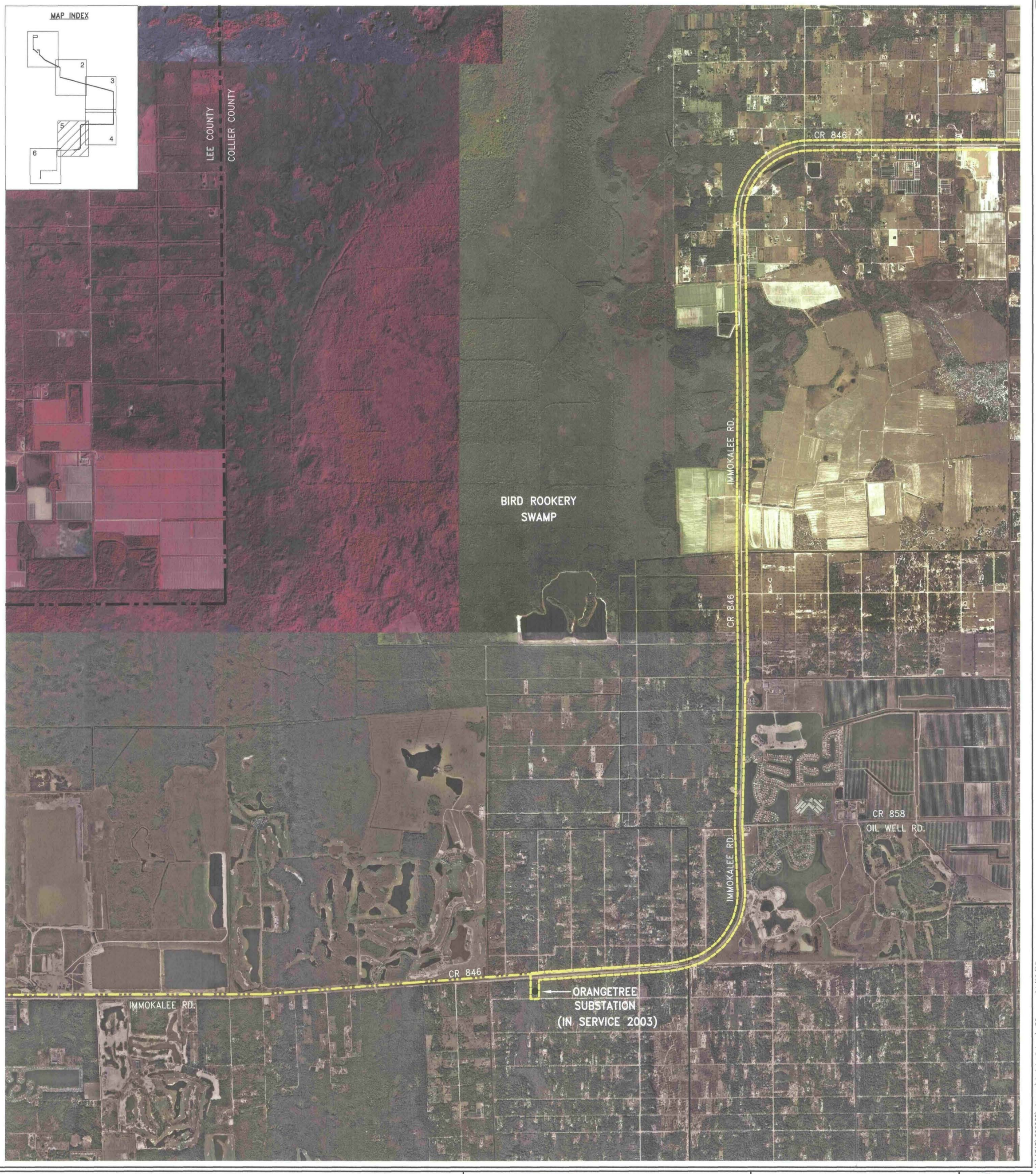
0 1000 2000 4000

SCALE IN FEET

N

FPL

M:\ACAD\020965\airmaps\Aerial_all.dwg \ P4 04/29/03




# FPL COLLIER-ORANGE RIVER 230-kV TRANSMISSION LINE PROJECT

USGS QUADS: CORKSCREW SW AND CORKSCREW SE, FLORIDA, 1999.

LEGEND:

- PREFERRED CORRIDOR
- TRANSMISSION LINE TO BE IN SERVICE 2003
- FPL SUBSTATION

GRAPHIC SCALE

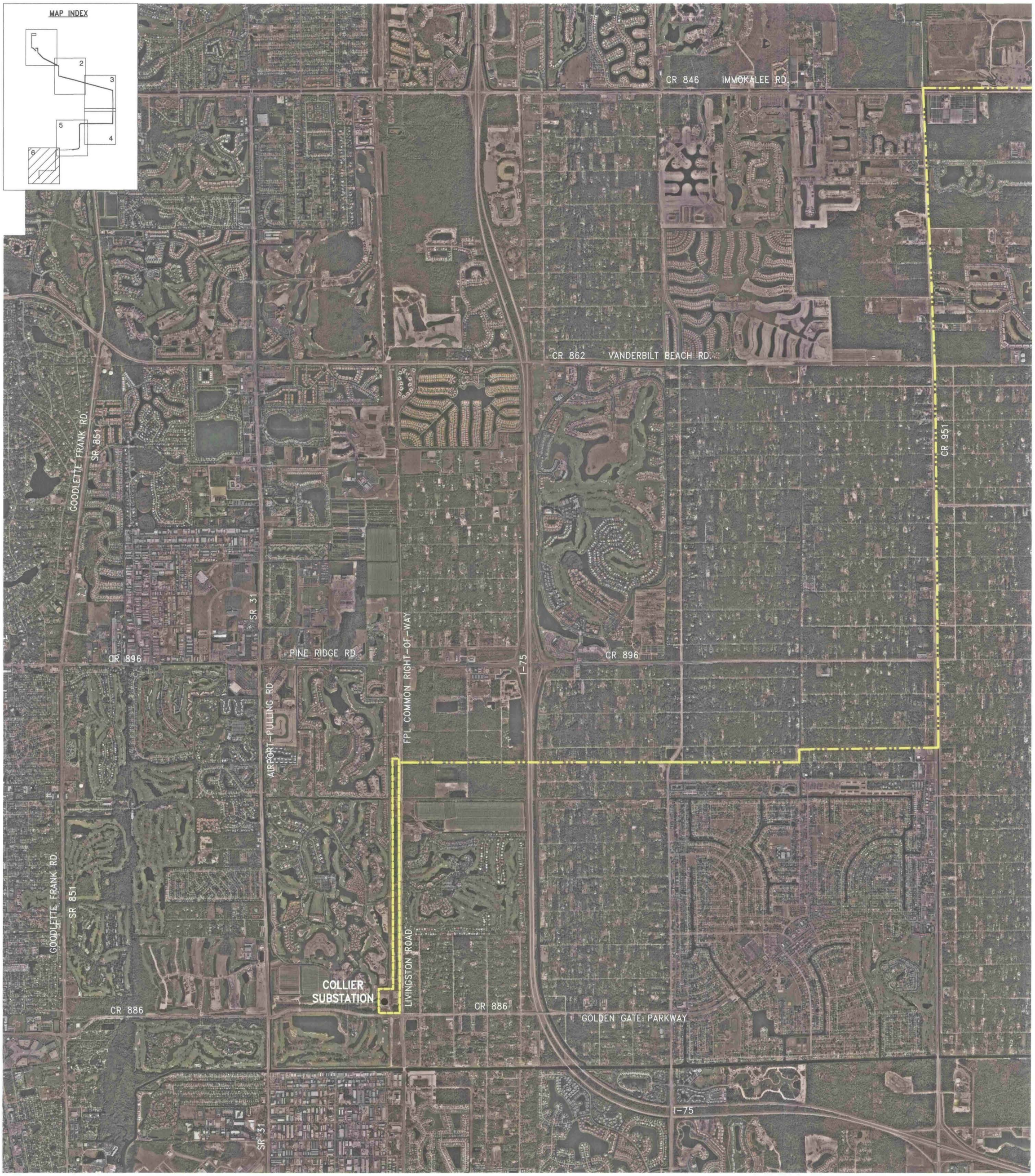
0 1000 2000 4000

SCALE IN FEET

N

FPL

M:\ACAD\020965\airmaps\Aerial_all.dwg \ P5 04/29/03




# FPL COLLIER-ORANGE RIVER 230-kV TRANSMISSION LINE PROJECT

USGS QUADS: BONITA SPRINGS, CORKSCREW SW, NAPLES NORTH AND BELLE MEADE NW, FLORIDA, 1999.

LEGEND:

- PREFERRED CORRIDOR
- TRANSMISSION LINE TO BE IN SERVICE 2003
- FPL SUBSTATION

GRAPHIC SCALE

0 1000 2000 4000

SCALE IN FEET

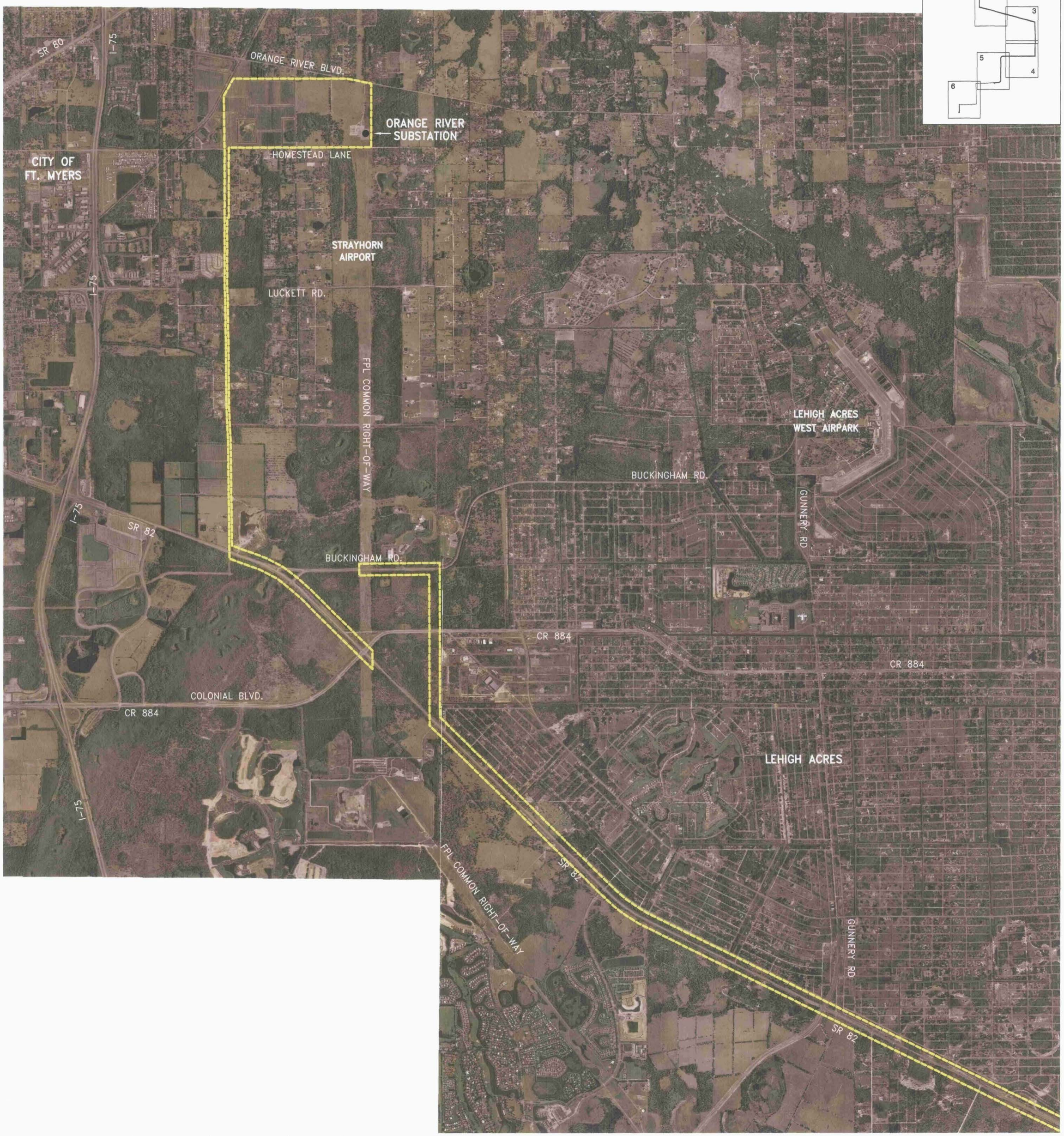
N

FPL

M:\ACAD\020965\airmaps\Aerial_all.dwg \ P6 04/29/03

DEPARTMENT OF
ENVIRONMENTAL PROTECTION
AUG 18 2003
SITING COORDINATION

(7)




FPL COLLIER-ORANGE RIVER 230-kV TRANSMISSION LINE PROJECT

USGS QUADS: FT. MYERS, FT. MYERS SE, OLGA, AND ALVA SW, FLORIDA, 2002.

LEGEND:

- PREFERRED CORRIDOR
- TRANSMISSION LINE TO BE IN SERVICE 2003
- FPL SUBSTATION

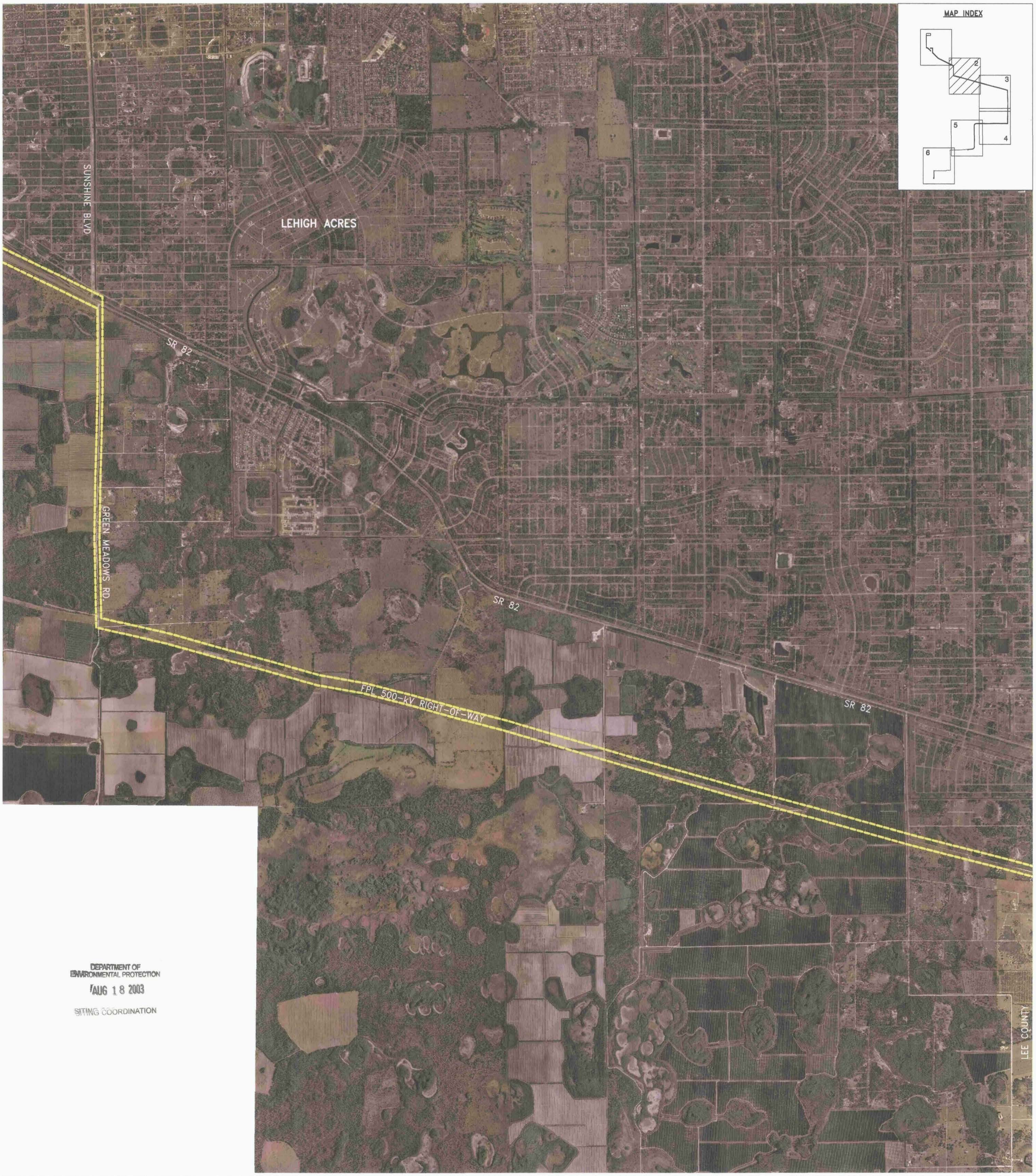
GRAPHIC SCALE
0 1000 2000 4000
SCALE IN FEET

N

FPL

M:\ACAD\020965\airmaps\Aerial_all2.dwg \ P1 08/08/03

(8)




DEPARTMENT OF
ENVIRONMENTAL PROTECTION
AUG 18 2003
SITING COORDINATION

M:\ACAD\020965\airmaps\Aerial_all2.dwg \ P2 08/08/03

FPL COLLIER-ORANGE RIVER 230-kV TRANSMISSION LINE PROJECT

USGS QUADS: ALVA SW, ALVA SE, CORKSCREW NW, CORKSCREW, FLORIDA, 2002.

LEGEND:

PREFERRED CORRIDOR

TRANSMISSION LINE TO BE IN SERVICE 2003

FPL SUBSTATION

GRAPHIC SCALE

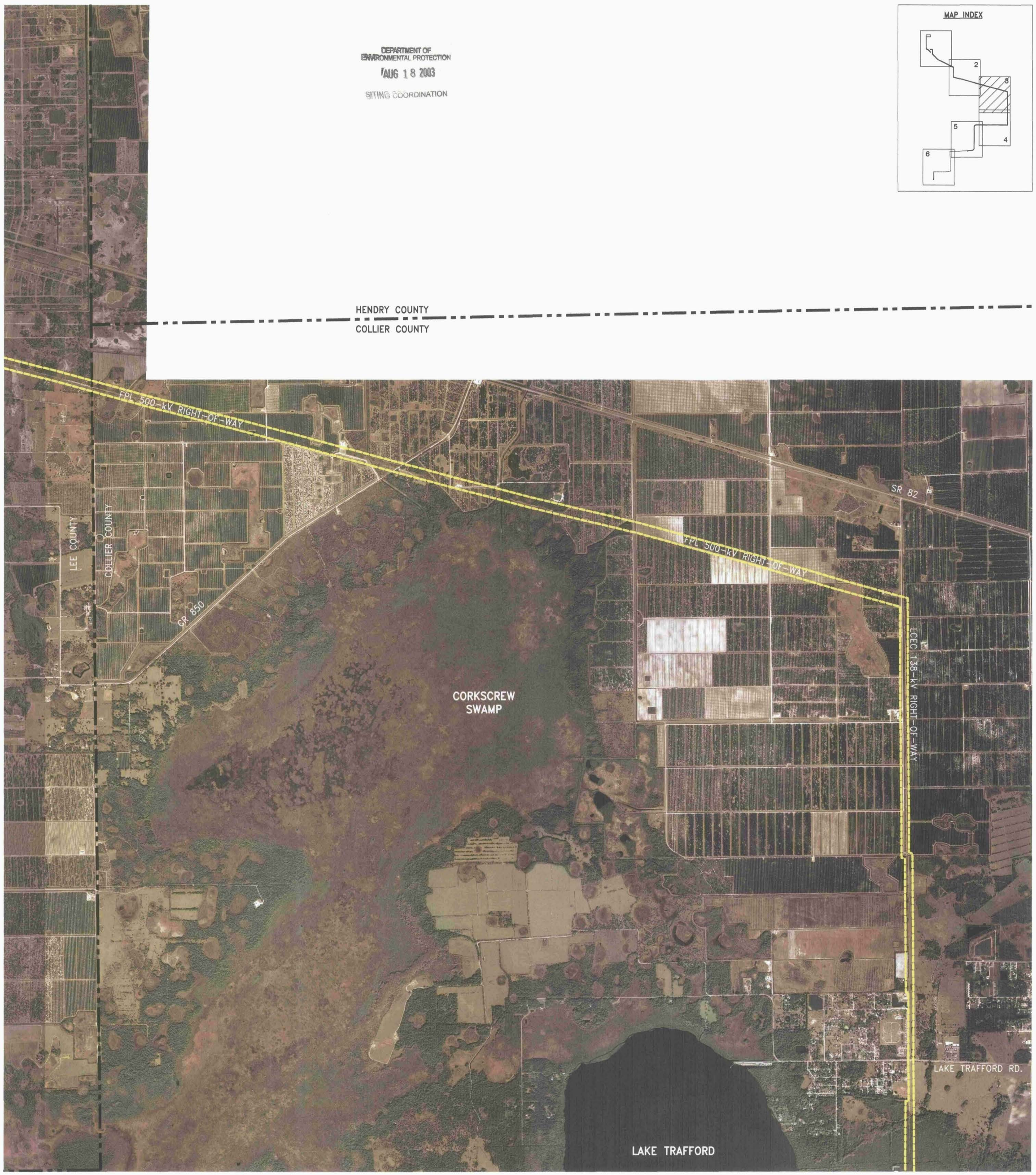
0 1000 2000 4000

SCALE IN FEET

N

FPL

DEPARTMENT OF
ENVIRONMENTAL PROTECTION
AUG 18 2003
SITING COORDINATION




# FPL COLLIER-ORANGE RIVER 230-kV TRANSMISSION LINE PROJECT

USGS QUADS: ALVA SE, CORKSCREW, IMMOKALEE, FELDA, FLORIDA, 2002.

LEGEND:

- PREFERRED CORRIDOR
- TRANSMISSION LINE TO BE IN SERVICE 2003
- FPL SUBSTATION

GRAPHIC SCALE
0 1000 2000 4000
SCALE IN FEET

N

FPL

M:\ACAD\020965\airmaps\AerialL_all2.dwg \ P3 08/08/03