

1.0 INTRODUCTION, GENERAL AND REQUIRED INFORMATION

This chapter of the Site Certification Application (SCA) provides background on Florida Power & Light Company (FPL), addresses specific applicant information requirements, provides an overview of the Turkey Point Units 6 & 7 Project for which FPL seeks certification (“Project”), references the state determination of need and separate federal licensing processes, summarizes FPL’s community outreach process for the Project, and provides a glossary of terms used in this document.

1.1 Introduction

The Project involves adding two new nuclear generating units (Units 6 & 7) and supporting facilities at a Site within the existing Turkey Point plant property boundaries. The Project for which FPL is seeking certification includes the construction and operation of Turkey Point Units 6 & 7 on the Site to be certified (the “Site”), as well as new transmission lines and other off-Site associated linear and non-linear facilities.

FPL’s Turkey Point plant property comprises approximately 11,000 acres in unincorporated southeast Miami-Dade County, Florida, east of Florida City and the City of Homestead, and bordered by Biscayne Bay to the east. The existing Turkey Point Plant consists of two nominal 400-megawatt (MW) natural gas/oil steam electric generating units (Units 1 & 2); two nominal 700-MW nuclear units (Units 3 and 4); and a nominal 1,150-MW natural gas-fired combined-cycle unit (Unit 5). The existing closed-loop cooling canals and industrial wastewater facility occupy approximately 5,900 acres. The location of the Turkey Point plant property is shown in Figure 1.1-1. The Site for Turkey Point Units 6 & 7 is south of Units 3 and 4 and occupies approximately 300-acres within the existing industrial wastewater facility. Two nuclear generating units, each with an approximate electrical output of 1,100 MW (net), including supporting buildings, facilities and equipment, will be located on the Site, along with a laydown area. Proposed off-Site associated facilities include: nuclear administration building, training building and parking area; an FPL reclaimed water treatment facility and reclaimed water pipelines; radial collector wells and delivery pipelines; equipment barge unloading area; ~~an FPL owned fill source~~; transmission lines and system improvements within Miami-Dade County; access roads and bridges; and potable water pipelines. A conceptual illustration of the Site is presented in Figure 1.1-2. The Project will provide clean, safe and reliable power to meet the needs of FPL’s customers.

FPL is seeking approval of the Project under Florida's Electrical Power Plant Siting Act (PPSA), Chapter 403, Part II, Florida Statutes (F.S.). The PPSA provides a centralized review process for new electrical generating facilities in Florida, which balances "the increasing demand for electrical power plants with the broad interests of the public." The Florida Public Service Commission (FPSC) is the sole forum for the determination of need for a proposed facility subject to the PPSA (Section 403.519, F.S.) The FPSC has issued an affirmative need determination order for Turkey Point Units 6 & 7 (see SCA Chapter 2.0). The Florida Department of Environmental Protection (FDEP) acts as the coordinator for the remainder of the site certification process with input from various state and regional agencies and local governments, along with interested citizens. Ultimate disposition of the SCA is by the Governor and Cabinet acting as the Siting Board, or the Secretary of the FDEP.

This SCA is being filed with the FDEP pursuant to Section 403.5064, F.S. and Chapter 62-17, Florida Administrative Code (F.A.C.). The SCA describes the Project and addresses its environmental and socioeconomic aspects by presenting information on the existing natural and human environment, the facilities to be constructed and operated, and the impacts of the Project on those environments. The format and content of this SCA follow FDEP's draft "Application Instruction Guide: Electrical Power Plant Sites and Associated Facilities Electrical Transmission Lines" dated June 27, 2007 (draft DEP Form 62-17.900). FPL has submitted separate permit applications to FDEP for aspects of the Project under federally-approved permit programs. A separate review of the Project, comprehensively addressing health and safety issues, and assessing environmental impacts, will be conducted by the U.S. Nuclear Regulatory Commission (NRC) as part of the independent federal licensing process required under the Atomic Energy Act of 1954, as amended (see Subsection 1.7).

1.2 The Applicant

FPL, a subsidiary of FPL Group, Inc., is the largest electric utility in the State of Florida. FPL serves approximately 4.5 million customer accounts and approximately 8.7 million customers, in all or parts of 35 Florida counties.

FPL's existing generating facilities are located at power plant sites distributed geographically around the FPL service territory (Figure 1.2-1), and also include partial ownership of two units located in Jacksonville, Florida, and one unit in Georgia. FPL's total net generating capability is 22,087 MW, consisting of nuclear units, coal units, combined-cycle units, oil/gas steam units, combustion turbines, and gas turbine/diesel units. This diverse mix of generating technologies allows FPL to meet the

needs of its customers and provides operating reliability, flexibility and the opportunity to minimize fuel costs, by being less reliant on any single source of fuel.

FPL's bulk transmission system is composed of about 6,727 circuit miles of transmission lines. Integration of the generation, transmission, and distribution system is achieved through approximately 580 FPL substations.

In addition to this Project, FPL is actively evaluating and pursuing other clean energy technologies that may be suitable for the State of Florida. FPL is taking major steps to grow its portfolio of renewable energy and make Florida a leader in solar power. In 2008, FPL broke ground on the world's first hybrid energy center, coupling solar thermal technology with an existing combined cycle generation unit. It is also building what will be the largest photovoltaic energy center in the United States. These state-of-the-art facilities, along with a photovoltaic facility at NASA's Kennedy Space Center, will add a total of 110 MW of new emissions-free generating capacity in Florida. FPL is also exploring technologies that produce electricity on a commercial scale from ocean current, ocean thermal, and hydrogen technologies. FPL's environmental commitment has resulted in key emissions rates that are well below the national average, one of the top customer energy efficiency programs in the U.S., and a range of renowned conservation and protection programs for sea turtles, manatees and the American crocodile.

1.3 Information Requirements

The following provides the applicant identification information and addresses the other information requirements of Section 1.3 of the FDEP's draft Application Instruction Guide:

Applicant's Official Name:	Florida Power & Light Company (FPL)
Address of Applicant:	700 Universe Boulevard Juno Beach, FL 33408
Address of Official Headquarters:	700 Universe Boulevard Juno Beach, FL 33408
Business Entity:	Corporation
Name and Title of Chief Executive Officer	Armando J. Olivera, President

Name, Address, and Phone Number of Official Representative Responsible for Obtaining Certification:

Barbara P. Linkiewicz
Director of Environmental Licensing
700 Universe Boulevard
Juno Beach, FL 33408
Phone: (561) 691-7518
Fax: (561) 691-7049

Site Location:

County:

Miami-Dade County

Nearest Incorporated City:

City of Homestead

Geographic, Decimal Degrees, North American Data 1983 (NAD83)

Unit 6 25.424186 N -80.331961 W

Unit 7 25.424198 N -80.334536 W

Universal Transverse Mercator Zone 17, Meters, NAD83

Unit 6 2812086.7867 N 567179.306034 E

Unit 7 2812086.7867 N 566920.313913 E

Florida State Plane East, U.S. Feet, NAD83

Unit 6 396968 N 876646 E

Unit 7 396968 N 875796 E

Section, Township, Range:

Sections 33 and 34, Township 57S, Range 40E

The specific location information above is for Units 6 & 7. All Project associated facilities are located in Miami-Dade County. The locations of associated non-linear facilities are shown in Chapter 3. The locations of the associated linear facilities are shown in Chapter 9.

Name Plate Generating Capacity:

Two Westinghouse AP1000 generating units,
each with approximate electrical output of
1,100 MW (net).

In preparing this SCA, the instructions contained in the draft FDEP Application Instruction Guide regarding information sources, data gathering and monitoring, and maps and drawings have been followed.

1.4 Overview of the Project

Nuclear power is a clean, safe, reliable and affordable energy source that is capable of providing large amounts of electricity to meet Florida's increasing energy needs while producing no greenhouse gases. Using nuclear power means greater energy independence for Floridians, protecting the public

and the U.S. economy from being too reliant on any single source of fuel. Finally, nuclear plants have been a proven power source for FPL customers for more than 30 years. Turkey Point Units 6 & 7 combined will produce an estimated 2,200 MW of electricity – enough to power over 745,000 homes in South Florida. Thus, the addition of Units 6 & 7 at Turkey Point will allow FPL to continue to meet the needs of its customers for adequate and reliable electric supply beginning in 2018 (Unit 6) and 2020 (Unit 7).

Two nuclear generating units, each with an approximate electrical output of 1,100 MW (net), including supporting buildings, facilities and equipment, will be located on the Site, along with a laydown area (Figure 1.4-1). Proposed off-Site associated facilities include: nuclear administration building, training building and parking area; an FPL reclaimed water treatment facility and reclaimed water pipelines; radial collector wells and associated pipelines; equipment barge unloading area; ~~an FPL owned fill source~~; new transmission lines and system improvements within Miami-Dade County, access roads and bridges; and potable water pipelines.

FPL has selected the Westinghouse AP1000 as the plant design for the Project, a design certified by the NRC under 10 Code of Federal Regulations (CFR) 52. The U.S. energy industry is using standardized designs for future nuclear electric generating plants. The new design incorporates the latest technology and more advanced safety features than existing plants, which have already achieved record safety levels.

In addition to the reactor units, other on-Site facilities include steam generators, steam turbines/electric generators, condensers, cooling towers, transformers, diesel generators and various buildings (e.g., containment building, turbine building, and annex building). A new electrical switchyard/substation will also be located on the Site and a laydown area will be located on the far western portion of the Site. New nuclear administration and training buildings, along with a parking area, will be located just north of the Site.

Operation of Units 6 & 7 will not utilize the existing industrial wastewater facility for cooling or wastewater disposal, except that stormwater will continue to be routed to this facility.

The primary source of cooling water makeup for Units 6 & 7 will be reclaimed water from the Miami-Dade County Water and Sewer Department (MDWASD), with potable water also from MDWASD. The Project will include an off-Site FPL reclaimed water treatment facility (see

Figure 1.4-1) and associated pipelines. This reclaimed water use is a beneficial and cost-effective means of increasing the use of reclaimed water from Miami-Dade County and helps the County meet its reclaimed water compliance requirements. In the absence of reuse opportunities, this treated domestic wastewater would likely continue to be discharged to the ocean or deep injection wells. Miami-Dade County is required to eliminate ocean outfalls and increase the amount of water that is reclaimed for environmental benefit and other beneficial uses. Units 6 & 7 will use reclaimed water 24 hrs per day, 365 days per year when operating and water is available in sufficient quantity and quality. Units 6 & 7 will efficiently use a recycled resource to produce safe, clean and reliable power. This use of reclaimed water will enable the County to meet approximately half of its wastewater reuse goals and will provide environmental benefits by reducing the volume of wastewater discharged by the County.

Following its use in Units 6 & 7, a significantly reduced volume of wastewater will be discharged via on-Site deep injection wells. When reclaimed water is not available in sufficient quantity and quality, the secondary makeup water source will come from radial collector wells, substratum collectors of saltwater that will recharge from below Biscayne Bay.

~~FPL proposes to obtain fill required for the Project from a fill source on FPL-owned property located northwest of the Site and from other regional sources. The FPL owned fill source would result in a water management feature that will be designed to complement and enhance regional wetland rehydration projects (see Figure 1.4.2).~~

Associated linear facilities include transmission lines, reclaimed water pipelines, potable water pipelines and roadway improvements. Units 6 & 7 will be interconnected with FPL's transmission network at the new on-Site substation. New transmission lines will be located in corridors leading both west and north from the Site within Miami-Dade County (see Figure 1.4-3). The FPL reclaimed water pipeline corridor will connect the MDWASD South District Wastewater Treatment Plant with the FPL reclaimed water treatment facility. The potable water pipeline corridor will connect the Site to the MDWASD potable supply. Access to the Site for construction and operation will be via existing and/or improved roads and new bridges in roadway improvement corridors (see Figure 1.4-4). The roadway improvements are uniquely required to support the safe and efficient construction of the facility, but are not necessary post-construction. This application identifies and offers mitigation for the impacts of the construction period roadway improvements. FPL will work

with appropriate agencies and stakeholders to determine and create the optimal disposition of the improved public rights-of-way.

In addition to providing clean, safe, and reliable power for FPL's customers, the Project will result in significant environmental and economic benefits. Adding new nuclear generating capacity will help FPL maintain fuel diversity in its generation mix, and this Project will avoid at least 266 million tons of carbon dioxide (CO₂) emissions over the first 40 years of operation, an average of about seven million tons of CO₂ emissions yearly. That is equivalent to taking approximately 1.3 million cars off the road every year. The Turkey Point 6 & 7 Project will also minimize air pollutant emissions by avoiding emissions of particulate matter (PM), sulfur dioxide (SO₂), nitrous oxide (NO_x), carbon monoxide (CO), and volatile organic compounds (VOCs). The large magnitude of the air emissions avoided by Turkey Point Units 6 & 7 is a significant environmental benefit for Florida's future air quality. In addition, the nuclear administration and training buildings may feature rooftop solar panels, and the buildings will be certified under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system (see Appendix 10.10).

The Project will create job growth and provide significant economic stimulus to the local economies. It will provide approximately \$6 billion in benefits to the local economy over the next decade, with approximately 3,600 new jobs at the peak of the construction period. Once constructed, the new units and other Project facilities will result in increased annual average tax revenues of approximately \$100 million annually to Miami-Dade County, the County school district and other local taxing authorities. Operation of Units 6 & 7 will provide approximately 800 new jobs at the Turkey Point Plant.

1.5 Need for the Project

The FPSC is the sole forum for the determination of need for a proposed facility subject to the PPSA (Section 403.519, F.S.). On April 11, 2008, the FPSC issued an affirmative need determination order for Turkey Point Units 6 & 7 (see Chapter 2.0). By that order, the FPSC found that there is a need for Turkey Point Units 6 & 7 taking into account: the need for electric system reliability and integrity; the need for fuel diversity and supply reliability; the need for baseload generating capacity; the need for adequate electricity at a reasonable cost and whether it is the most cost-effective alternative available. In making its determination of need, the FPSC also found that there are no renewable

energy sources and technologies or conservation measures reasonably available to FPL which might mitigate the need for Turkey Point Units 6 & 7.

1.6 Licensing and Permitting Process

In addition to the Site Certification, there are other permits, licenses and approvals required for the Project. In December of 2007, the Miami-Dade County Board of County Commissioners approved Resolution No. Z-56-07 granting FPL approval, with conditions, for the construction of the new nuclear Units 6 & 7 and ancillary structures and equipment. A copy of this resolution is included as Appendix 10.3. Due to the evolving nature of the design process for this Project, there are some Project features that are undergoing County reviews to ensure consistency with its land use and zoning requirements.

In addition, a Construction Permit Application for a Class V Exploratory Well and Associated Dual-Zone Monitor Well was submitted to FDEP on January 20, 2009. A copy of this application and additional information submitted by FPL is included as Appendix 10.2.8. Other permit applications submitted to FDEP and included as Appendices to this application are: the Prevention of Significant Deterioration (PSD) permit application (Appendix 10.2.5) and an application for modification of the facility's existing Industrial Wastewater Facility permit (Appendix 10.2.2). A Joint Application for Environmental Resource Permit / Authorization to Use Sovereign Submerged Lands / Federal Dredge and Fill Permit application is included as Appendix 10.4 and is being submitted separately to the U.S. Army Corps of Engineers (USACE).

1.7 NRC Licensing Process

FPL will submit a Combined License Application to the NRC for the construction and operation of Turkey Point Units 6 & 7. This application also seeks, through the inclusion of appropriate provisions, authorization to possess and use such quantities of source material, byproduct material, and special nuclear material as are needed to construct and operate the new units. In order to obtain a combined license from the NRC, FPL must comply with all applicable regulations, requirements, and standards of the NRC which limit the release of radioactive materials. The above NRC regulations, requirements and standards include the following:

- (a) Standards for Protection Against Radiation, U.S. Nuclear Regulatory Commission Rules and Regulations, Title 10, Chapter 1, Part 20, Code of Federal Regulations, as presently in effect or hereafter amended.
- (b) Limitations and conditions related to radioactive materials contained in the Radiological Environmental Monitoring Program required by Title 10, 10 CFR 50, as presently in effect or hereafter amended.

The NRC has the duty and responsibility imposed by statute, to enforce compliance by the Licensee with NRC standards and technical specifications, to assure that the construction and operation of the Turkey Point 6 & 7 Nuclear Plant will be in accord with the common defense and security and will provide adequate protection to the health and safety of the public.

The NRC review process will include the preparation of an Environmental Impact Statement pursuant to the National Environmental Policy Act.

1.8 Summary of Community Outreach Process

FPL recognizes the importance of collaborating with the community before, during and after the licensing process for projects needed to generate and deliver reliable power to its customers. FPL has been working with the local community surrounding the Turkey Point plant for many years. The community outreach process for this Project has been comprehensive to include various activities focused on communicating and collaborating with many stakeholders. Initially, on June 19, 2007, FPL sent approximately 100,000 letters to customers within a 10 mile radius of Turkey Point plant informing them of FPL's proposal to build additional nuclear units. This mailing was followed by over 33 community presentations over the next year to about 600 community members at large describing the Project and welcoming questions and feedback from the public.

Beginning in April 2009, FPL's community outreach team went back to the community to deliver update presentations on the Project. They were able to address questions concerning plant design, transmission lines, fill sources and water supply. There were also presentations made to several new organizations and their feedback was received.

The community outreach process involved meeting with community leaders, local government officials, regulatory agencies and other interested individuals. Starting in September 2007 and continuing into 2009, FPL hosted eight meetings with representatives of various regulatory agencies with interest in the area surrounding the Turkey Point Plant. The goal of these meetings was to seek

opportunities to complement or enhance regulatory agency goals and objectives for the area while identifying fill source, water supply and wetlands mitigation opportunities for the Project. Representatives of the following agencies have participated in these meetings: South Florida Water Management District, Florida Department of Environmental Protection, Miami-Dade County Environmental Resource Management, Miami-Dade County Planning and Zoning, Army Corps of Engineers, U. S. Fish and Wildlife Services, Biscayne National Park and Everglades National Park.

As part of FPL's community outreach process for the Project, nine open houses were held in late 2008 in strategic areas in Miami-Dade County to discuss the Project with a focus on the potential Turkey Point transmission line routes and to gain feedback from the community. Residents were notified of the open houses on November 11, 2008, when FPL sent approximately 260,000 letters to customers within a ½ mile on either side of the potential routes identified for the associated transmission lines.

At the open houses, customers were able to review maps, interactive displays and exhibits about the Project. They were also able to ask questions and provide input directly to members of the FPL Project team. The open houses were a valuable resource for the Project team in selecting the preferred routes. There were several other ways for residents to communicate with FPL concerning the Project besides attending open houses including an e-survey, a Project toll-free phone number, and a Project e-mail (reliabletransmission@fpl.com). Every step in the process included extensive contact with federal, state, regional and local governments and agencies informing them of next steps and gathering feedback.

In keeping with the collaborative process of this project, FPL also formed a community working group in early 2009 to continue reaching out to the community and to better understand their questions and concerns about the Project. This is a diverse group of interested stakeholders and opinion leaders from the community. Project updates will continue to be provided to the group so that the group may inform FPL of topics of interest. This forum also provides the participants with the opportunity to share Project information with their groups and communities.

FPL will maintain contact with the community through a variety of methods, including the following:

- Information about the Project is available on the FPL Web sites at:
 - o www.FPL.com/cleansafenuclear;
 - o www.FPL.com/reliabletransmission
- The following contact methods are listed on the Web site:
 - o Email: reliabletransmission@FPL.com
 - o Toll-free telephone number: 1-800-693-3267; and
- Direct mailing to adjacent and area property owners, FPL customers, and concerned citizens.

FPL is committed to sharing information about the Project and will continue working in a constructive and collaborative manner with all stakeholders to gain valuable input to attain common goals.

1.9 Glossary

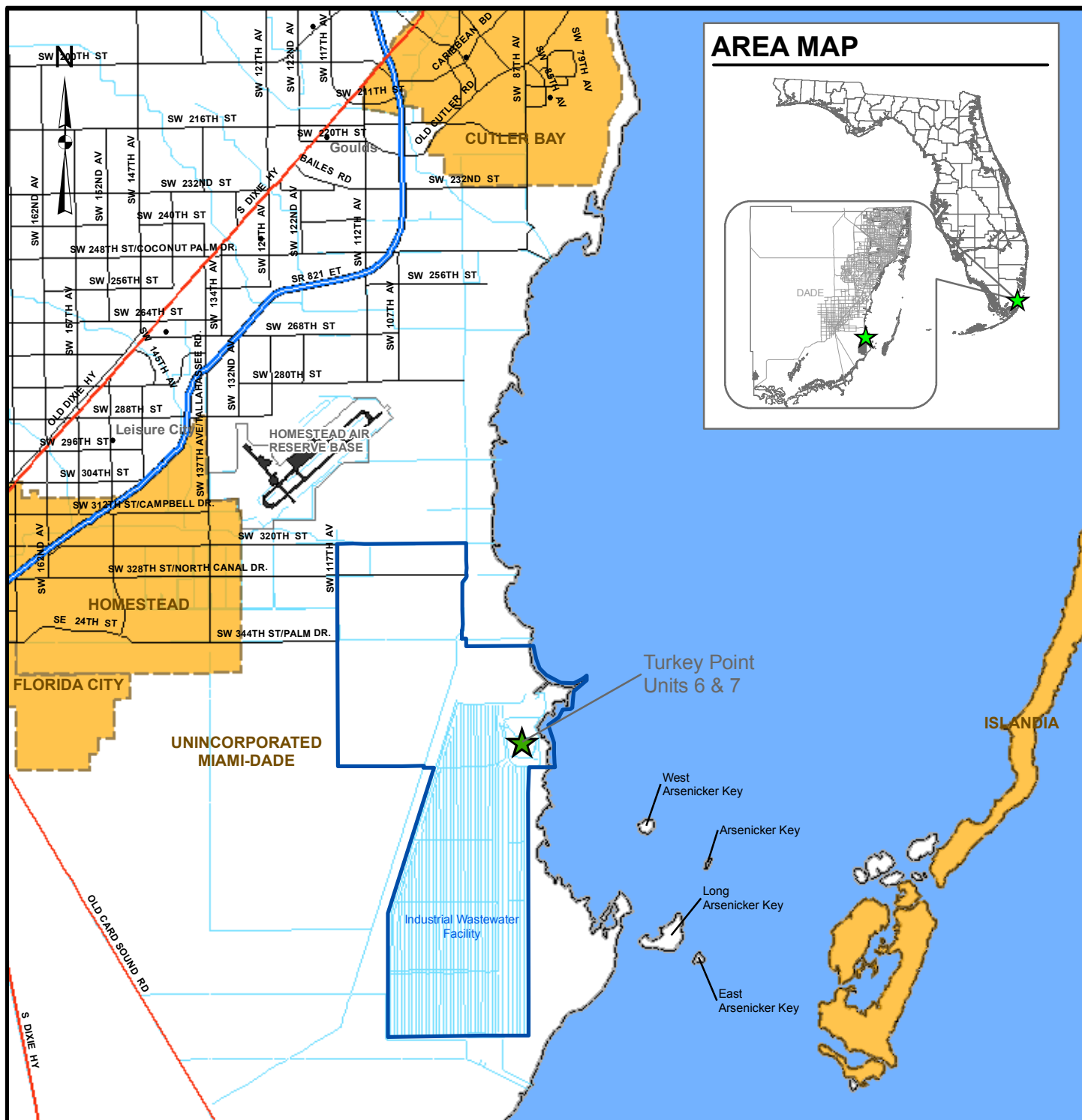
1. Turkey Point plant property – refers to the approximately 11,000 acres owned by FPL, including the existing Unit 1 through Unit 5.
2. Turkey Point Units 6 & 7 Project or the Project – refers to the entire Project for which FPL seeks certification, including the Turkey Point Units 6 & 7 Site and associated facilities.
3. Turkey Point Units 6 & 7 Site or Site – Refers to the area within the Turkey Point plant property identified by FPL as the site to be certified for Turkey Point Units 6 & 7. The Site is entirely located within the existing closed-loop cooling canals/industrial wastewater facility. It includes:
 - The Turkey Point Units 6 & 7 plant area, and
 - Laydown areas to the west.
4. Associated non-linear facilities –
 - Nuclear administration building, training building and parking area.
 - FPL reclaimed water treatment facility and delivery pipelines to the plant area.
 - Radial collector wells and delivery pipelines.
 - Equipment barge unloading area.
 - ~~FPL owned fill source – the fill borrow pit on FPL owned land. The FPL owned fill source is being offered as a potential water management feature.~~

5. Associated linear facilities –

- New transmission lines going north and west from Clear Sky substation; also includes the Levee substation expansion.
- Reclaimed water pipelines from Miami-Dade County South District Wastewater Treatment Plant to the FPL reclaimed water treatment facility.
- Access roads and bridges to the Turkey Point Units 6 & 7 Site and the nuclear administration building, training building and parking area.
- Potable water pipelines from Miami-Dade County Water and Sewer Department potable water transmission main to Turkey Point Units 6 & 7.

6. Turkey Point Units 6 & 7 plant area – The major portion of the Site where the generating facilities and associated infrastructure such as the Clear Sky substation, and makeup water reservoir will be located.

7. Turkey Point Units 6 & 7 – The reactor plants and supporting equipment used for the generation of electrical power within the plant area. This would include, but not be limited to, the reactor pressure vessel, steam generators, steam turbine/electric generator, condenser, cooling towers, transformers, diesel generators, air compressors, and other equipment in the various buildings associated with the generating units. The buildings include, but are not limited to, the containment building, turbine building, annex building, auxiliary building, and other supporting building/structures located within the plant area.



LEGEND

- Turkey Point Units 6 & 7
- Turkey Point Plant Property
- Municipal Boundaries

REFERENCES

1. Local City Boundaries, Municipal Boundaries, Major Roads, Miami-Dade County GIS, 2006.



PROJECT

**TURKEY POINT UNITS 6 & 7
PROJECT**

TITLE

LOCATION OF TURKEY POINT PLANT



FILE No. 08387584A001

REV. 0

PLOT DATE 6/11/2009

FIGURE

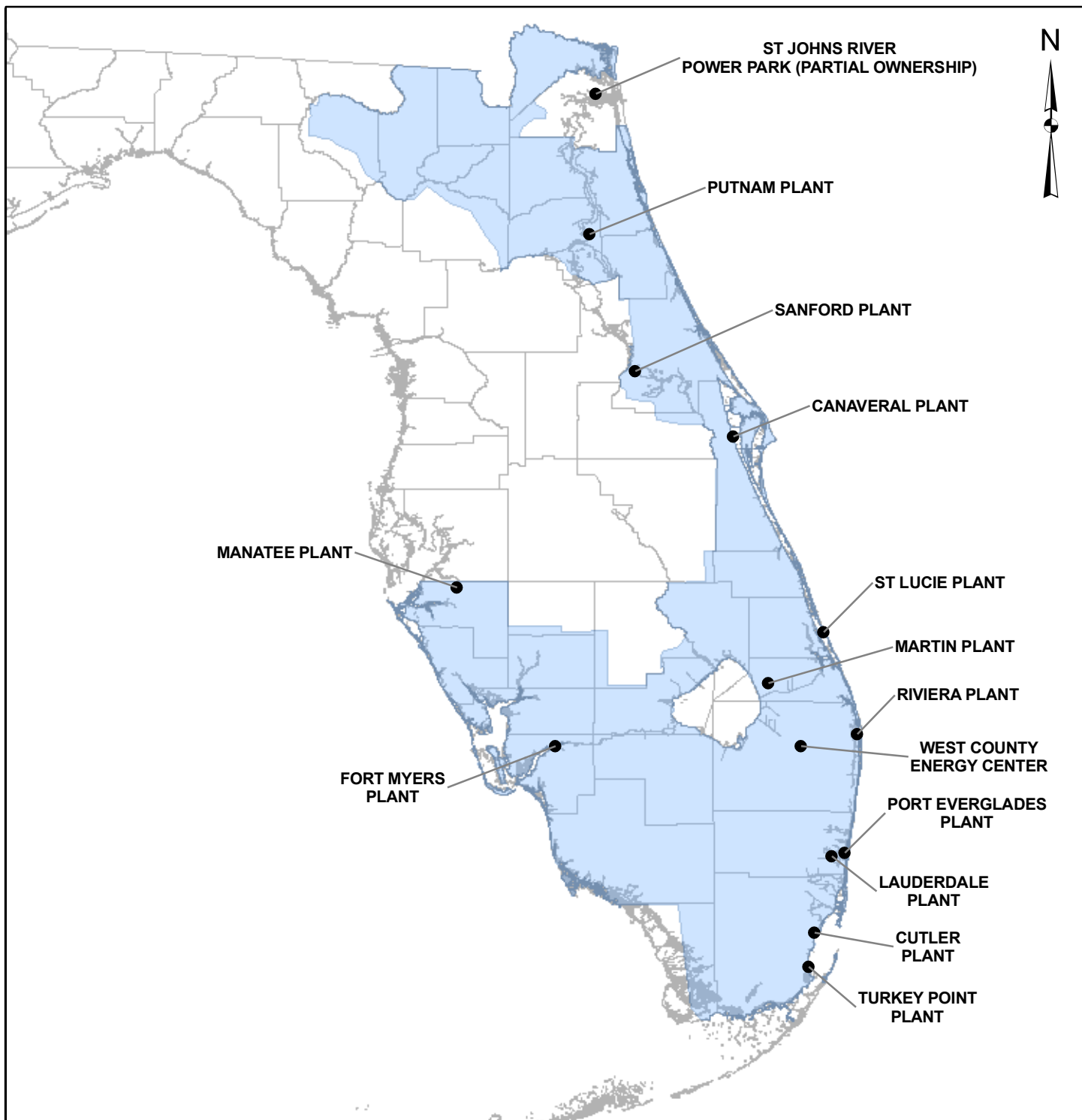
1.1-1



Figure 1.1-2
Conceptual Illustration of Turkey Point Units 6 & 7

Rev. 0



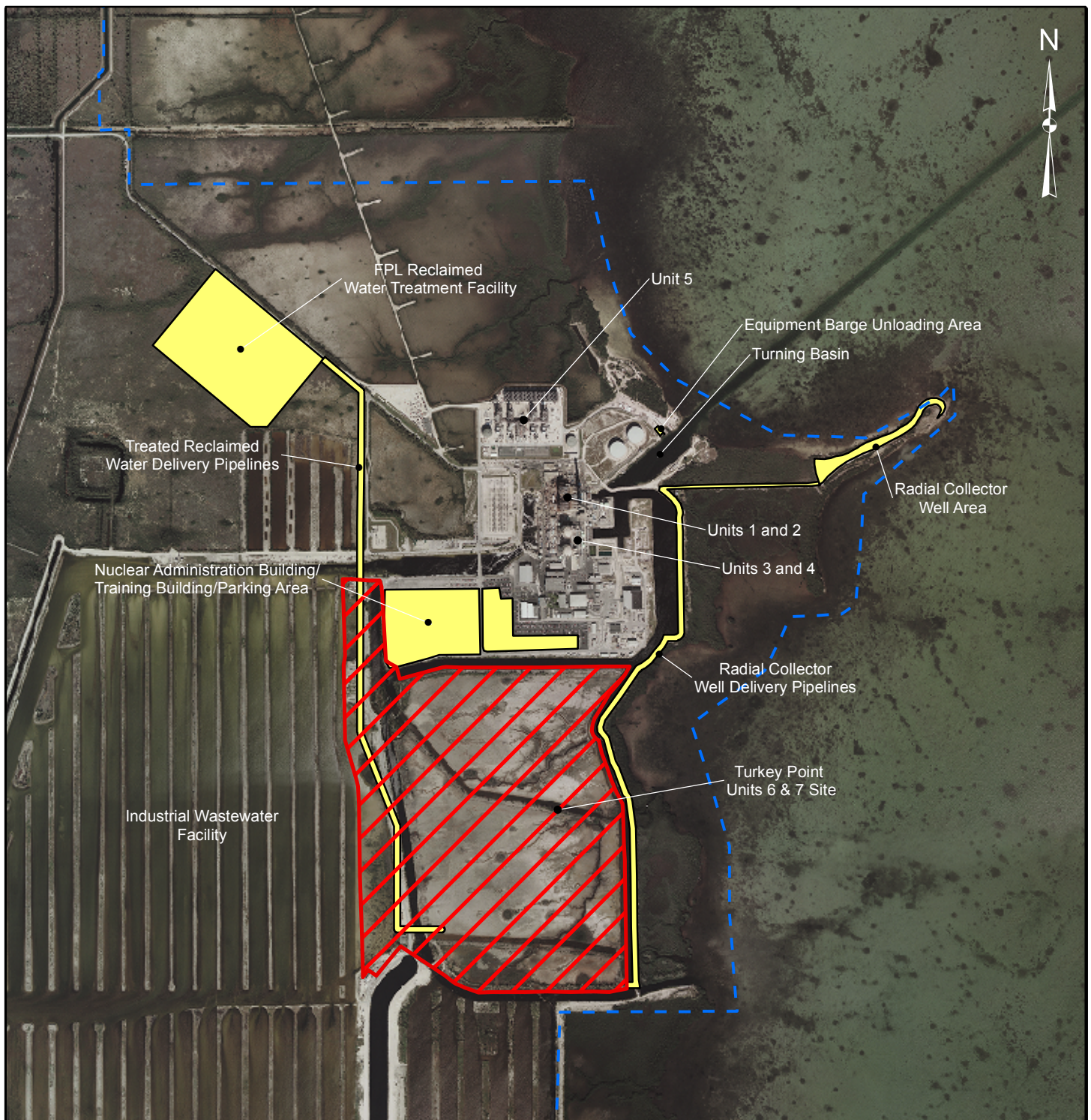


LEGEND

- FPL Power Plants
- FPL Service Territory

REFERENCES

PROJECT	TURKEY POINT UNITS 6 & 7 PROJECT	
TITLE	SERVICE TERRITORY	
	FILE No.	08387584A002
	REV.	0
	PLOT DATE	6/11/2009
		FIGURE 1.2-1



LEGEND

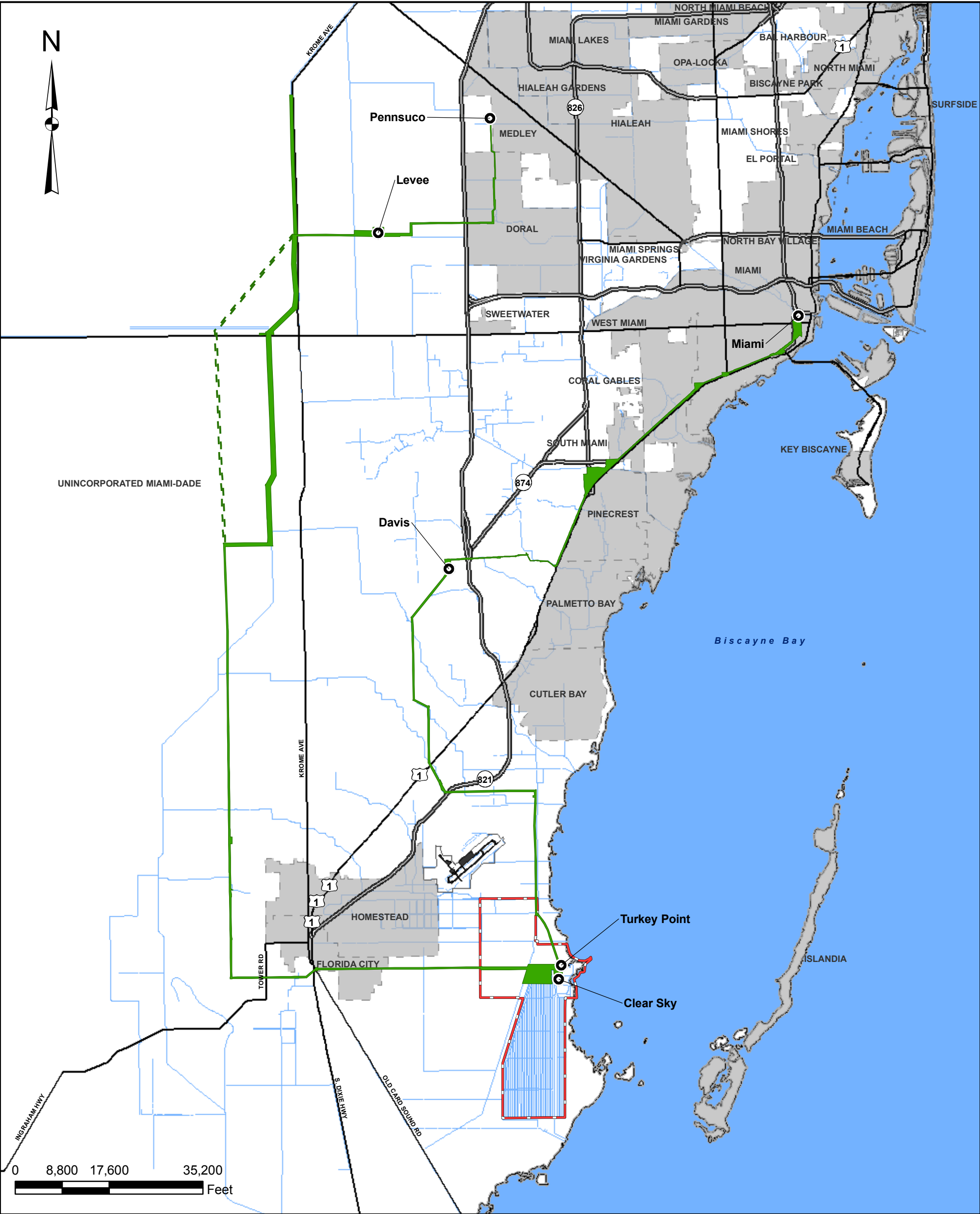
- Turkey Point Plant Property
- Turkey Point Units 6 & 7 Site
- Associated Non-Linear Facilities

REFERENCES

1. Imagery, Miami-Dade County, 2007.



PROJECT	TURKEY POINT UNITS 6 & 7 PROJECT	
TITLE	SITE AND ASSOCIATED NON-LINEAR FACILITIES ON TURKEY POINT PLANT PROPERTY	
	FILE No.	08387584A003
	REV.	0
	PLOT DATE	6/11/2009
		FIGURE 1.4-1



LEGEND

- FPL Substations
- Associated Linear Facilities - Transmission Lines and Corridors
- Secondary Corridor
- Turkey Point Plant Property

REFERENCES

1. Municipal Boundaries, Canals, Highways, Miami-Dade County GIS, 2006.

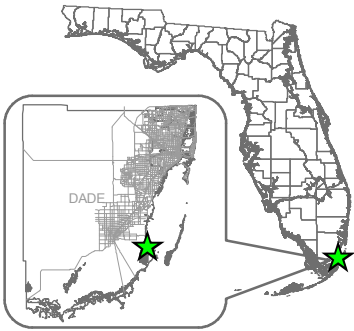
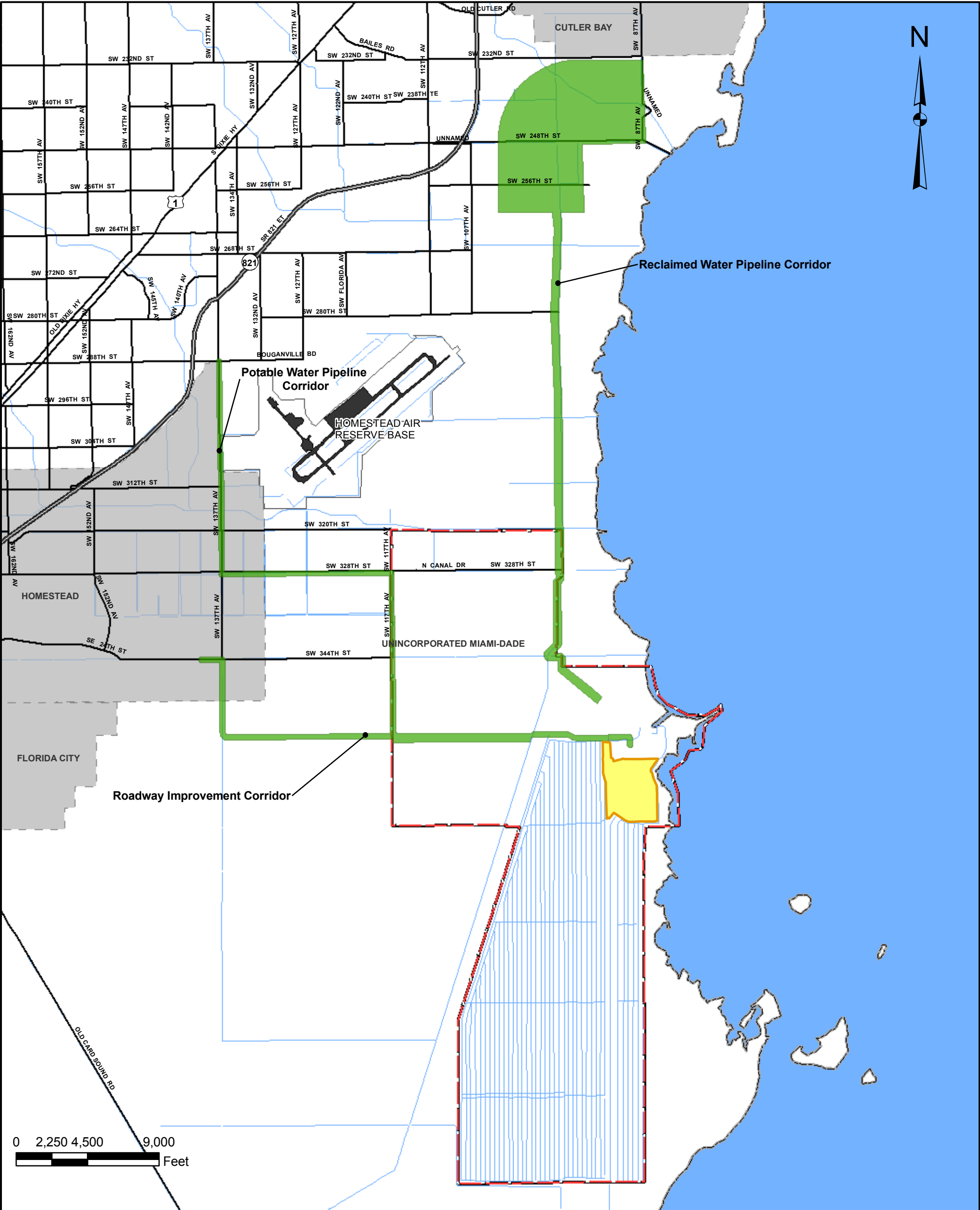


FIGURE 1.4-3	FILE No. 08387584A.005 REV. 0 PLOT DATE 6/11/2009	TITLE ASSOCIATED LINEAR FACILITIES TRANSMISSION	PROJECT TURKEY POINT UNITS 6 & 7 PROJECT	 FPL®
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LEGEND

- Turkey Point Units 6 & 7 Site
- Associated Linear Facilities - Corridors
- Turkey Point Plant Property

REFERENCES

1. Municipal Boundaries, Canals, Highways, Major Roads, Miami-Dade County GIS, 2006.

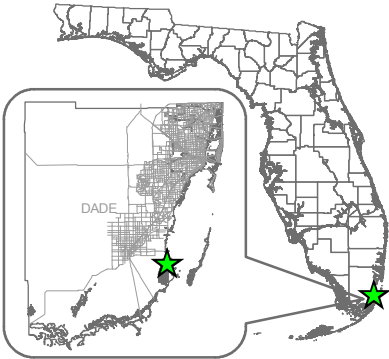


FIGURE 1.4-4	PLOT DATE 6/11/2009 REV. 0 FILE NO. 08387594A006	TITLE ASSOCIATED LINEAR FACILITIES: RECLAIMED WATER PIPELINES, ROADWAY IMPROVEMENTS, & POTABLE WATER PIPELINES	PROJECT TURKEY POINT UNITS 6 & 7 PROJECT	
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