

ENVIRONMENTAL ASSESSMENT FRP GADSDEN COUNTY SOLAR

Gadsden County, Florida

**Prepared for:
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Florida

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EJS Report (March 17, 2021)

LIST OF ACRONYMS AND ABBREVIATIONS

%	Percent
AC	Alternating Current
ACHP	Advisory Council on Historic Preservation
AEI	Areas of Environmental Interest
APE	Area of Potential Effect
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
CBRA	Coastal Barrier Resources Act
CDTE	Cadmium Telluride
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CZMA	Coastal Zone Management Act
dB	Decibel
DC	Direct Current
DEF	Duke Energy Florida
EA	Environmental Assessment
EJSCREEN	Environmental Justice Mapping and Screening Tool
EMF	Electromagnetic Field
ESA	Endangered Species Act
FAA	Federal Aviation Administration
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FEMA	Federal Emergency Management Agency
FIRMs	Flood Insurance Rate Maps
FLUCFCS	Florida Land Use and Cover Forms Classification System

FNAI	Florida Natural Areas Inventory
FPL	Florida Power and Light Company
FRP	Florida Renewable Partners
FWC	Florida Fish and Wildlife Conservation Commission
GAR	Geographic Areas of Responsibility
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEEE	Institute of Electrical and Electronics Engineers
IPaC	Information for Planning and Consultation
kV	Kilovolt
MBTA	Migratory Bird Treaty Act
MSL	Mean Sea Level
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	Nationwide Rivers Inventory
NWI	National Wetland Inventory
OSHA	Occupational Safety and Health Administration
PAD-US	USGS Protected Areas Database United States
PCP	Pentachlorophenol
PCU	Solar Power Conditioning Unit
PPA	Power Purchase Agreement
Project	FRP Gadsden County Solar project
PV	Photovoltaic

REC	Recognized Environmental Conditions
RUS	Rural Utilities Services
SECI	Seminole Electric Cooperative, Inc.
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
SPCC	Spill Prevention Control and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
U.S.	United States of America
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

EXECUTIVE SUMMARY

Florida Renewable Partners (FRP) proposes to develop the FRP Gadsden County Solar project (Project) located north of W.L. Martin Road and east of Atwater Road, approximately 10 miles northwest of Quincy in Gadsden County Florida. The FRP Project would generate 74.5 megawatts of clean, renewable electricity to rural electric customers and be interconnected to the Duke Energy Florida transmission system. The facility will consist of solar photovoltaic panels with a collector yard, inverters, transformers, at-grade access pathways, collector lines, gen-tie line, and security fencing.

FRP is seeking financing from the United States Department of Agriculture (USDA) Rural Utilities Service (RUS). This Environmental Assessment (EA) has been prepared pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq., as amended) to assist the USDA's RUS in assessing the potential environmental effects of the Project.

This EA has been written in accordance with the Council on Environmental Quality regulations and follows the format specified by the RUS to assess whether the approximately 441.6-acre development footprint of the Project will have a significant environmental impact. This EA describes biological, environmental, cultural, and socioeconomic resources that may be affected by the Project, and determines the significance of potential impacts to each of the aspects evaluated.

The Project has been designed to minimize ground disturbance by installing solar arrays without requiring fill material to the greatest extent practicable and construction of at-grade access pathways. No wetland impacts are proposed. Prior to construction, erosion and sediment controls will be installed to avoid the discharge of erosional materials outside of the work area.

The Project as proposed will have no significant impact on existing land use, the surrounding community, archaeological and historic resources, threatened and endangered species, wetlands, floodplains, or water quality. There will be no permanent impacts to wetlands and only temporary impacts to one state-listed wildlife species, the gopher tortoise (*Gopherus polyphemus*). Prior to construction, FRP will prepare and submit a permit application to the Florida Fish and Wildlife Conservation Commission (FWC) to excavate unavoidable gopher tortoise burrows and safely relocate any captured individuals to an FWC-approved recipient site.

1.0 PURPOSE AND NEED

Florida Renewable Partners (FRP) proposes to develop the FRP Gadsden County Solar project (Project) located north of W.L. Martin Road and east of Atwater Road, approximately 10 miles northwest of Quincy in Gadsden County Florida (Figure 1).

The Project Boundary encompasses the full extent of the development, which primarily consists of a collector yard, solar panels, access pathways, batteries, and ancillary equipment. The Project Boundary consists of five parcels (Parcel Numbers 2-15-3N-5W-0000-00210-0000, 2-15-3N-5W-0000-00110-0000, 2-15-3N-5W-0000-00300-0000, 2-22-3N-5W-7510-00000-0020, and 2-22-3N-5W-7510-00000-0010) owned by FRP and located within the United States Geological Survey (USGS) 7.5-minute *Mount Pleasant Quadrangle*, Sections 15 and 22, Township 3 North and Range 5 West. The Project Boundary includes approximately 441.6 acres of silvicultural lands within the total 787.5 acres included in the parcel boundaries.

The Project will generate 74.5 megawatts (MWs) of clean, renewable electricity to rural electric customers and be delivered to the electrical grid via a 115-kilovolt (kV) overhead interconnection to the Duke Energy Florida (DEF) transmission system.

U.S. Department of Agriculture (USDA), Rural Development is a mission area that includes three federal agencies – Rural Business-Cooperative Service, Rural Housing Service, and Rural Utilities Service. The agencies have in excess of 50 programs that provide financial assistance and a variety of technical and educational assistance to eligible rural and tribal populations, eligible communities, individuals, cooperatives, and other entities with a goal of improving the quality of life, sustainability, infrastructure, economic opportunity, development, and security in rural America. Financial assistance can include direct loans, guaranteed loans, and grants in order to accomplish program objectives.

FRP is seeking financing from the USDA Rural Utility Service (RUS). This Environmental Assessment (EA) has been prepared pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq., as amended) to assist the USDA's RUS in assessing the potential environmental effects of the Project.

The Project site is used for silviculture operations. The overarching environmental goal of the Project is to minimize environmental impacts by utilizing previously disturbed land. A description of the Project and the Purpose and Need for the Project are described below.

1.1 PROJECT DESCRIPTION

This section provides specific details on the design, construction, operation, maintenance, and decommissioning of the Project. Preliminary design, including size and typical equipment, has

been determined (Figure 2). The final selection of solar modules, inverters, mounting system, array configuration, and precise dimensions will be determined during detailed design and equipment procurement. Project summary information is presented in Table 1-1.

Table 1-1: Project Summary

Project Capacity	74.5 MW
Gen-tie*	115 kV short span adjacent to DEF 115 kV interconnecting substation
Array Configuration	Solar panels

Note:

* - Interconnecting power line between systems.

The Project Boundary is surrounded by silvicultural operations with a few residential properties to the west, south, and east. South Mosquito Creek, a tributary of the Apalachicola River meanders through the property. Existing electrical power transmission lines are oriented from west to east across the central portion of the Project.

1.1.1 FACILITIES OVERVIEW

The Project is a combination of two primary components: approximately 441.2-acre photovoltaic solar array and a 0.46-acre collector yard site (Figure 2). The solar array will be comprised of “inverter blocks” aggregated to meet the total project output. While the mounting system, final block size dimensions, and the number of blocks will be determined during detailed design and equipment selection/procurement, the overall Project will have an installed capacity of 74.5 MW. The Project will also include the construction of a collector yard that will combine all alternating current (AC) power from the collection circuits and transform the electrical power to the appropriate transmission voltage. Electrical power from the solar array will be delivered to the adjacent collector yard.

1.1.1.1 Modules

The photovoltaic (PV) modules convert sunlight to direct current (DC) electrical energy. The PV module type for this Project is proposed to be either crystalline silicon or thin film. The final module mix will be chosen based on procurement availability.

1.1.1.2 Array Mounting System

Individual panels are mounted on a metal racking system with minimal disturbance to the land underneath the panels. The modules will be able to tilt to track the sun from east to west (i.e., tracking system), and will be supported by driven piles directly embedded in the ground. After racking system installation, natural vegetation is established beneath the panels.

1.1.1.3 Inverters and Collection Systems

The inverters perform three critical functions for the Project:

1. Collect DC power in a central location,
2. Convert the DC power into AC power, and
3. Convert low-voltage AC power to medium voltage AC power for collection from around the site.

Each inverter consists of DC collection equipment (e.g., junction boxes and overcurrent protective devices, etc.) and a low-to-medium-voltage transformer. The output power from the inverter stations is then fed to the AC collection system, which is typically a network of medium-voltage conductors and collection switchgear.

1.1.1.4 Collector Yard and Distribution Interconnection

FRP proposes to construct a collector yard that increases the voltage of the Project to match the voltage of the interconnecting switchyard. The collector yard will be east of the existing DEF substation located on Atwater Road. It will be enclosed within a separate security fence and access gate and will be situated on a semi-pervious base. The proposed finished floor elevation of the collector yard will be above the 100-year flood elevation. The collector yard will receive power generated from the solar array via a new 115 kV gen-tie to the DEF 115 kV interconnecting substation. Network upgrades were identified and include one new circuit breaker, one disconnect switch, and other structures required to interconnect.

1.1.1.5 Access Pathways and Perimeter Fencing

The entire solar array will be enclosed within a 6-foot chain-link fence topped with 1-foot of barbed wire. The collector yard will be enclosed with a 7-foot chain-link fence topped with 1-foot of barbed wire. Access pathways will be constructed as needed throughout the Project to provide access between the solar arrays. Access pathways are typically 12-foot wide and consist of the compacted aggregate base material. The main entrance access pathway to the collector yard may be as wide as 20 feet and the portion within any existing road right-of-way would be paved. Access pathways will be constructed at grade to maintain pre-development drainage flow patterns.

1.1.1.6 Lighting

Lighting will be installed at the site entry gate and the collector yard location; lighting will be designed to minimize spillover into neighboring properties. Operable lighting at each conversion station might be installed, but these units will only be used during maintenance activities. The entry will have fixtures to provide minimal lighting and will have additional on-demand (timer) lighting as needed or required.

1.1.1.7 Stormwater Facilities

Appropriate stormwater management facilities will be constructed in accordance with State regulations to account for runoff from semi-pervious access pathways, inverter stations, and the collector yard. These areas account for less than 2 percent (%) of the Project's total area.

1.1.1.8 Project Installation

The bulk of the Project construction activities involve the installation of equipment, discussed in Section 1.1.2.3.

1.1.2 PROJECT CONSTRUCTION

Project construction work is expected to include site preparation, system installation, and system acceptance. The various phases of the construction cycle are outlined in the following sections.

1.1.2.1 Site Preparation

Site preparation will involve surveying and staking, grading, clearing and grubbing, installation of a perimeter security fence and area lighting, and preparation of construction laydown areas. The Project proposes a "civil light" development approach, which focuses on minimal site grading to preserve existing drainage features and surface flow patterns. Fill material will be limited to the inverter pads and collector yard. Site preparation also includes the establishment of a construction management area, trailers, equipment, utility connections, and equipment laydown. Local power utility connections are already available at the Project. Construction vehicles will access the Project via either Atwater Road or W.L. Martin Road. Temporary logistic details of the Project typically include construction trailers, a first aid station, worker parking, truck loading, and unloading areas, and areas for Project assembly tasks. Portable toilet facilities will be temporarily installed during the construction phase and will be serviced by a private company on a regular basis.

1.1.2.2 Stormwater & Erosion Control

A Stormwater Pollution Prevention Plan (SWPPP) incorporating best management practices for erosion control will be prepared prior to the start of construction. During site preparation, the SWPPP will be implemented and initial erosion and sedimentation controls will be installed. Sediment basins and traps will be constructed as needed in any land disturbance activities and will be made functional before up-slope land disturbance takes place.

1.1.2.3 Project Installation

The bulk of the Project construction activities involve the installation of equipment, including array foundations (driven piles), conversion stations, cables, batteries, and collector yard high voltage equipment. Piles will be driven into the ground using a pile driver with a depth of

approximately 6 to 10 feet below grade as dictated by the soils and the array structural design. The module tracking assembly will be connected to the piles. The modules will then be fastened to the racking assembly and electrically connected in series strings or DC harnesses. The strings or harnesses will be routed to DC combiners or load break disconnects and subsequently routed to the inverters.

1.1.2.4 Potentially Hazardous Materials

The majority of waste produced during the construction phase of the Project is expected to be non-hazardous and consist primarily of cardboard, wood pallets, copper and aluminum wire cut-offs, scrap steel, common trash, and wooden wire spools. Construction waste would be recycled wherever possible. Non-recyclable construction waste would be disposed of by a licensed contractor at an approved facility.

Construction equipment will contain various hazardous materials such as hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, and other petroleum-based products typically used for construction vehicles. Compliance with regulations and standard manufacturers' protocols for storage, transportation, and usage of any hazardous construction-related materials will be followed to ensure safety in accordance with Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 Code of Federal Regulations [CFR] §1910.1200) and the Florida Hazardous Waste Management regulations (FDEP, 2019)

1.1.2.5 Fugitive Dust Control

Construction activities, including clearing, grading, excavating, and moving of heavy equipment, will create fugitive dust at various rates throughout the construction phase of the Project. Any substantial fugitive dust is expected to be short-term and limited to the early construction period, primarily during clearing and grading activities. Dust will be controlled by the application of water; this service will be provided by the construction contractor. Following the initial clearing/grading activities, the construction and operational phases of the Project are expected to emit a minimal amount of fugitive dust from periodic light truck traffic.

1.1.2.6 Construction Water Requirements

Potable water for drinking and domestic needs will be brought to the Project. Use of water during construction will be limited to dust suppression and soil conditioning and will be obtained from a local water provider, from on-site wells, or surface waters.

1.1.2.7 Construction Workers, Hours, and Equipment

Construction workers will include laborers, electricians, supervisory personnel, support personnel, and construction management personnel. It is expected that most workers will commute to the

Project from nearby communities including Mount Pleasant, Florida; Chattahoochee, Florida; Gretna, Florida; Greensboro, Florida; Midway, Florida; and Tallahassee, Florida.

Construction work will generally be conducted during daylight hours, Monday through Saturday. Non-daylight work hours may be necessary to offset schedule deficiencies, or to complete critical construction activities.

1.1.2.8 Testing, Commissioning, and Acceptance

Testing will be conducted throughout the PV facility installation during construction and operation. As each power block is completed, the electrical components of the system will be tested as a subsystem at the functional level. Once all blocks are completed, the collector yard will be interconnected to the DEF transmission system and each block will be commissioned again to test performance.

1.1.2.9 Cleanup

Cleanup and recycling of materials during the construction phase will be ongoing. Industrial trash receptacles will be established in the temporary laydown area and will be emptied or interchanged throughout the construction phase of the Project. Upon completion of construction, the Project will be cleared of any remaining debris and/or materials, which will be recycled or disposed of appropriately.

1.1.3 PROJECT OPERATIONS, MAINTENANCE, AND DECOMMISSIONING

The Project will be operated on an unstaffed basis and monitored remotely with scheduled personnel visits for security, maintenance, services, and system monitoring.

Ongoing system maintenance will be minimal. Planned maintenance is expected to occur periodically . Unplanned maintenance will be on an as-needed basis and depend on the event requiring maintenance.

1.1.3.1 Potentially Hazardous Material During Project Operations

Project operations will require the use of limited hazardous materials, specifically the mineral oil in the step-up transformers. A Spill Prevention, Control, and Countermeasure (SPCC) Plan, which will include an oil spill contingency plan, will be in place to ensure the implementation of appropriate spill response measures. In the case of a solar Power Conditioning Unit (PCU) oil-based transformer breach, the relatively small amount of oil would be confined to the area immediately around the PCU. SPCC protocols for cleanup of contaminated soils will be implemented to avoid oil contamination of adjacent areas or stormwater. The contaminated soil would be treated or disposed of at a hazardous waste disposal facility. However, FRP may elect to use dry-type transformers at the PCUs, which eliminates oil storage.

The Project may use PV panels that contain a thin semiconductor layer containing cadmium telluride (CdTe). CdTe panels contain small amounts (less than 0.1 percent by weight) of cadmium in an environmentally stable solid state. CdTe itself is a stable compound and the CdTe in the PV panels is bound and sealed within the glass sheets and laminate material. During normal operations, peer-reviewed studies have consistently concluded that CdTe panels do not present an environmental risk and that there are no cadmium emissions to air, water, or soil during standard operation. Due to CdTe's high melting temperature (1,041 degrees Celsius), only negligible emissions of CdTe may occur if the panels are broken and exposed to the elements or fire. In the event of any panel damage, proper handling and disposal techniques will be used to ensure that CdTe emissions are minimal or nonexistent. Risks during the disposal process are minimized as nearly 90% of the materials in the PV module can be recycled at the end of their 30-year life.

Pesticides and/or herbicides may be used to control vegetation. The application will be conducted by a licensed applicator following U.S. Environmental Protection Agency (USEPA) application guidelines for the chemical being used.

1.1.3.2 Project Decommissioning

A PV solar facility has a typical life of at least 30 years. Once the useful life of a facility is exhausted, it can be refurbished to continue operating as a solar power facility or decommissioned and removed. If the Project is to be removed, most of the materials (e.g., steel, aluminum, copper, and glass) would be recycled at appropriate facilities. The materials that cannot be recycled, and those materials containing oil or lubricants, would be disposed of in accordance with local, state, or federal standards at the time of decommissioning. The Project could then be converted to other uses in accordance with applicable land use regulations.

1.2 PURPOSE AND NEED

The purpose of the Project is to construct, operate, and maintain a 74.5 MW solar PV energy facility to provide clean, cost-effective, renewable energy in accordance with a 20-year Power Purchase Agreement (PPA) and Interconnection Agreement with Seminole Electric Cooperative, Inc. (SECI), which is fully executed. The need for this Project is to improve the electric generation and distribution in this rural area. FRP's goal is to minimize environmental impacts by building the Project on already disturbed land that is close to the DEF interconnection point.

The USDA's RUS administers programs that provide infrastructure improvements to rural communities. Specifically, the RUS Electric Program provides loans and loan guarantees to finance the construction or improvement of electric distribution, transmission, and generation facilities in rural areas (USDA, 2018). Financial assistance can include direct loans, guaranteed loans, and grants in order to accomplish program objectives.

FRP requested a \$91.6 million loan with a length of 29 years. The Project and borrower meet the eligibility requirements to receive the loan through RUS, as established by the Rural Electrification Act of 1936 and pursuant to 7 CFR Chapter XVIII. The expected Commercial Operation Date (COD) is December 2022 and construction is expected to commence in the spring of 2023.

2.0 ALTERNATIVES EVALUATED

This section describes the alternatives evaluated, including the Proposed Action and the No Action Alternative.

2.1 PROPOSED ACTION

The Proposed Action is the same as the Project Description and is described in detail in Section 1.0 of this EA. This Project is a single site action, as allowed in accordance with 7 CFR § 1970.13(a); where the Project Action must consider and document the analysis only of the No Action Alternative provided that there are no potential adverse effects to environmental resources. The Proposed Action involves the construction of the Project as presented in this EA.

FRP entered into a PPA with SECI, who selected the Project pursuant to a competitive solicitation process. The DEF substation and PPA are key factors in the FRP selection of the Project's current location. The Project was chosen for the following reasons:

- The Project is in an area with an excellent solar energy resource and is of sufficient size to produce up to 74.5 MW of electricity from PV solar panels as required by the PPA.
- The Project is adjacent to a DEF substation which will take energy produced by the Project into the grid. The Project requires the construction of a new interconnecting collector yard.
- The Project site is currently used for silviculture production. Although the Project site will require some grading, developing previously disturbed land decreases potential adverse environmental impact compared with developing undisturbed land.

2.2 OTHER ALTERNATIVES EVALUATED

Alternative locations for the Project need to satisfy the logistics, engineering and cost constraints while minimizing impacts to natural resources. Practicable alternatives are those that are available and capable of being completed after taking into consideration cost, existing technology, and logistics in light of the overall project purpose. The following criteria for site selection were developed as guidelines for locating solar photovoltaic generation facilities and were evaluated as part of the site selection process for the Project:

Land constraints:

- At least 400 buildable acres of land required to fulfill a generation capacity of 74.5 MW, including the solar PV fields, ancillary facilities, and areas required during construction for equipment laydown and staging; and
- Land must be available for purchase or long-term lease.

Co-location Constraints:

- Sites must be located in proximity to existing transmission lines to minimize cost and potential impacts associated with the interconnection of new solar generation into the existing grid.

Environmental and Cultural Resource Constraints:

- Avoid/minimize impacts to jurisdictional wetland areas;
- Avoid/minimize impacts to threatened and/or endangered species and critical habitats;
- Avoid/minimize impacts to conservation areas; and
- Avoid/minimize impacts to cultural resource sites eligible for listing on the National Register of Historic Places (NRHP).

In addition to the proposed alternative, one alternative site (QF 6-2) was evaluated for the location of the Project (Figure 3). A summary of the alternative sites relative to the site selection criteria is provided in Table 2-1.

Table 2-1: Summary of Sites

Criteria	Proposed Site	QF 6-2
Total Approximate Acreage	787.5	1007
Project Boundary Acreage	441.6	<500
Wetland Approximate Acreage	126	58
Available for Purchase/Lease	Yes	Yes
County	Gadsden	Gadsden
Distance to Transmission	Adjacent	Approximately 1/2 mile
Listed Species	One state-listed observed	One state-listed likely
Proximity to Conservation Areas	More than 2 miles	More than 2 miles
Cultural Resources	No NRHP eligible sites	No NRHP eligible sites

The QF 6-2 site was eliminated due to the larger percentage of slope variation in the terrain, significantly limiting the size of the Project. In addition, the distance to the connecting transmission line is greater, potentially increasing environmental impacts. The Gadsden County Solar site was determined to best fulfill the criteria regarding the geographic, co-location, land, and environmental constraints, including minimization of impacts to wetlands, listed species, and floodplains when compared to the alternative site. The Project has been located and designed to avoid and/or minimize impacts to natural resources to the greatest extent practicable while fulfilling the overall purpose to provide 74.5 MW of renewable solar energy for FRP's customers.

2.3 NO ACTION ALTERNATIVE

In accordance with 7 CFR §§ 1970.13(a) and 1970.102(a)(3), the USDA is required to evaluate the environmental effects of the No Action Alternative. The No Action Alternative establishes an environmental baseline that allows USDA RUS decision-makers to compare the environmental impacts that could result if the agency takes the requested action with the environmental impacts that would occur if the agency does not take the requested action.

The no-action alternative would result in a failure to provide reliable, low cost, renewable electric service to customers in this service territory, therefore failing to meet the increasing demand for electricity with renewable energy generation.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the physical, biological, cultural resources, and social factors most likely to be affected by the Project.

3.1 LAND USE / LAND OWNERSHIP

The Project Boundary (approximately 441.6 acres) is located entirely within the analyzed area consisting of the 787.5 acres FRP-owned active silvicultural operation, and is utilized by a local hunting club in northwestern Gadsden County.

3.1.1 GENERAL LAND USE

The Project Boundary lies within the "Tallahassee Hills", in the Apalachicola Embayment and Gulf Trough. The Tallahassee Hills are underlain by the Miccosukee Formation and the Hawthorn Group. Near-surface formations include dolomitic limestones, sandy clayey limestones; and finally, shell beds, clayey sands, and sand (NFWFMD, 2017). Elevations vary from about 100 feet above mean sea level (MSL) in the southern portion of Gadsden County to nearly 330 feet above MSL in the Project area (NFWFMD, 2018).

Gadsden County Comprehensive Plan and Land Development Regulations

The Florida Community Planning Act was approved on June 2, 2011 (Chapter 163, Florida Statute, as amended) and provides long-range policy guidance for the orderly social, economic, and physical development within the State of Florida. The Community Planning Act re-designated the Local Governmental Comprehensive Planning and Land Development Regulations Act of 1985 (commonly referred to as Florida's Growth Management Act) and maintained the requirement that each county and municipality in Florida adopt a local comprehensive plan. Counties and municipalities must also meet the minimum criteria rule for local government comprehensive plans (Chapter 9J-5, Florida Administrative Code [F.A.C.], as amended). Local governments are required to review their plan to determine if revisions are necessary to reflect applicable changes (Chapter 73C-49, F.A.C.). In addition, as a county's vision changes, and as the county grows, so too will the plan grow through a series of amendments. The most recent amendments to the Gadsden County Comprehensive Plan became effective August 2, 2016.

3.1.1.1 Affected Environment

The property is bounded by silvicultural operations with a few residential properties to the west, south, and east. South Mosquito Creek, a tributary of the Apalachicola River meanders throughout the property. Access to the property is from Atwater Road via unpaved roadway to a locked gate.

According to the Gadsden County Comprehensive Plan Future Land Use Map, the Project Boundary is located within Agriculture-2 (AG-2) and Agriculture-3 (AG-3) future land use designations (Figure 2). The area surrounding the Site is also designated as AG-2 and AG-3 land use designations. As defined in the Future Land Use Element of the Plan, the AG-2 and AG-3 future land use designations allow for solar power generation facilities on parcels 10 acres or greater in size. Solar power generation plants are allowed by Subsection 4103 of the Gadsden County Land Development Regulations if approved by the Gadsden County Planning Commission and the Board of County Commissioners per the Type II review procedure in Subsection 7202 (Gadsden County, 2020).

The Florida Land Use and Cover Forms Classification System (FLUCFCS) published by the Florida Department of Transportation was used to classify the existing land usage and vegetative community types observed within the Project Boundary (FDOT, 1999).

The wetland delineation and the land use and land cover data, shown in Appendices A and B, were updated based on the field observations completed by Tetra Tech in 2018, 2019, and 2020. The Project Boundary is dominated by Coniferous Plantation and Forest Regeneration areas (FLUCFCS 441 & 443). Stream and Lake Swamps (FLUCFCS 615) associated with South Mosquito Creek and its tributaries are located within the northern and southern portions of the Project Boundary. These wetlands are bordered by Coniferous Plantations and Forest Regeneration areas (FLUCFCS 441 & 443). Two isolated areas of Wetland Hardwood Forests (FLUCFCS 610) are located in the northern/central portion of the Project Boundary. Mobile home trailers and storage sheds (FLUCFCS 122) associated with a small hunting camp are located in the southeastern area of the Project Boundary. The acreage of each land use/land cover type within the Project Boundary is provided in Table 3-1.

Table 3-1: Existing Land Use/Land Cover of Total Acreage

FLUCFCS Code	Land Use/Land Cover	Acreage
122	Mobile Home Units	1.7
414	Pine-Mesic Oak	23.9
441	Coniferous Plantations	143.9
443	Forest Regeneration Areas	481.6
610	Wetland Hardwood Forests	4.5
615	Stream and Lake Swamps	122.4
832	Electric Power Transmission	9.5
	TOTAL	787.5

3.1.1.2 Environmental Consequences

Gadsden County Land Development identified approximately 441.6 acres of AG-2 and AG-3 land currently used for silviculture activities within the Project Boundary. The Project will change the land use and will increase electric power facilities (FLUCFCS 831) as shown in Table 3-2. However, when the Project is decommissioned, all of the solar panels and equipment can be removed, and the land can be returned to agriculture or silviculture production. The Gadsden County Land Development Code allows for the installation of solar power generation in AG-2 and AG-3 zoned land.

Table 3-2: Proposed Land Use/Land Cover

FLUCFCS Code	Land Use/Land Cover	Acreage
122	Mobile Home Units	0
414	Pine-Mesic Oak	9.5
441	Coniferous Plantations	57.0
443	Forest Regeneration Areas	143.1
610	Wetland Hardwood Forests	4.5
615	Stream and Lake Swamps	122.4
831	Fenced area with Electric Power Facilities – Inverters, Collector Yard, and Access Pathways	441.6
832	Electric Power Transmission Lines	9.4
	TOTAL	787.5

3.1.1.3 Mitigation

No mitigation would be required. Gadsden County Land Development Code allows for the installation of solar power generation in AG-2 and AG-3 zoned land. In addition, the conversion of the Project back to agriculture production may be viable upon decommissioning of the Project, and prime farmland is available throughout the state.

3.1.2 **IMPORTANT FARMLAND**

Important farmlands are defined as prime farmland, unique farmland, and farmland of statewide or local importance (USDA-NRCS, 2021).

3.1.2.1 Affected Environment

The USDA Natural Resources Conservation Service Farmland Classification was used to evaluate the Project Boundary. The Farmland Classification website identified 168.3 acres as Prime

Farmland and 134.2 acres as Farmland of local importance in the Project Boundary, as shown in Appendix A. None of the land in the Project Boundary was identified as Prime Forestland. The Project Boundary is zoned as AG-2 and AG-3, and currently consists of primarily coniferous plantation and forest regeneration areas, planted with loblolly pine (*Pinus taeda*) and/or slash pine (*Pinus elliottii*). Pine plantations are common throughout the state of Florida and are not identified as Prime Forestland.

3.1.2.2 Environmental Consequences

The Farmland Protection Policy Act regulates farmland conversion. The USDA Farmland Conversion Impact Rating Form AD-1006 was completed and is provided in Appendix A. The impact rating score is less than 160, therefore the Project does not result in a conversion of Prime Farmland.

3.1.2.3 Mitigation

No mitigation would be required. The Project does not impact Prime Farmland.

3.1.3 FORMALLY CLASSIFIED LANDS

There are no formally classified lands, as identified in 7 CFR 1970 Subpart C within or adjacent to the Project Boundary.

3.2 FLOODPLAINS

Floodplains are areas associated with rivers, creeks, and streams that can be inundated during periods of high flood states. The Federal Emergency Management Agency (FEMA) is responsible for the National Flood Insurance Program (NFIP) to mitigate flood losses through community-enforced building and zoning ordinances and provide access to flood insurance protection.

In support of NFIP, FEMA identifies flood hazard areas throughout the United States (U.S.) and its territories on Flood Insurance Rate Maps (FIRMs). The common and national standards used by NFIP and federal agencies for purposes of requiring flood insurance and regulating development is the 100-year flood, which is shown on FIRMs as Special Flood Hazard Areas (SFHAs) (FEMA, 2011, 2018). Gadsden County Property Appraiser mapping also identifies the FEMA flood hazard areas (Gadsden County, 2021).

3.2.1 AFFECTED ENVIRONMENT

According to FEMA FIRMs Panel #12039C0075C (effective 02/04/2009), the Project Boundary is predominately located in Zone X, indicating Area of Minimal Flood Hazard (Figure 4). These areas are outside of the SFHA and are usually depicted on FIRMs as above the 500-year flood level, defined as a 0.2% annual chance of flood. The Zone A areas depicted in Figure 4 are wetland

areas described in Section 3.3 and are not included in the construction footprint (FEMA 2011, 2018, and Gadsden County, 2021).

3.2.2 ENVIRONMENTAL CONSEQUENCES

The Project solar modules and associated infrastructure components are located in Zone X and therefore outside of the 100-year floodplain. Adverse impacts to floodplain storage capacity and/or alteration of flood base elevations are not anticipated.

3.2.3 MITIGATION

There are no anticipated impacts to floodplains as a result of the Project, therefore mitigation is not required.

3.3 WETLANDS

Wetlands are identified as areas where water either covers the soil or is present at or near the surface of the soil. Water may be present year-round, or at varying times of the year. Wetlands are identified by both soil saturation and the types of plant and animal communities living in and on the soil (USEPA, 2018).

3.3.1 AFFECTED ENVIRONMENT

A wetland and wildlife due diligence assessment were initiated in 2018 by Tetra Tech biologists which included a site reconnaissance and review of desktop resources to determine the potential for the occurrence of wetlands. The aerial interpretation of jurisdictional wetlands within the Project Boundary was conducted using geographic information system software to review data layers such as Natural Resource Conservation Service (NRCS) Soil Survey Map Units, United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), historical and recent aerial photography, USGS topographic quadrangle maps and Light Detection and Ranging Digital Elevation Model was conducted to determine broad-scale information (e.g., likely presence, location, size, and type) regarding wetlands that may be located in the vicinity of the Project and within the Project Boundary. Upon review of available data and field verified during the site, a preliminary wetland map was developed with the estimated extent of wetlands within the Project Boundary. Appendix B provides the request for a wetlands determination.

The preliminary wetland map was referenced during the wetland delineation. All on-site jurisdictional wetlands within the Project Boundary were delineated by Tetra Tech biologists in August 2019 pursuant to the current regulations, interpretations, and guidelines of the United States Army Corps of Engineers (USACE) Wetland Delineation Manual (Environmental Laboratory, 1987), Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (USACE, 2010); the Florida Wetlands Delineation Manual

(Gilbert, et al., 1995); and the Florida Department of Environmental Protection (FDEP) Wetland Delineation Method, Chapter 62 340, F.A.C. (FDEP, 2018).

The Project Boundary is estimated to contain approximately 665 acres of non-jurisdictional upland areas. Approximately 122 acres of Stream and Lake Swamps and approximately 4.5 acres of Wetland Hardwood Forests were observed within the Project Boundary. The on-site wetlands subject to state and federal jurisdiction range from medium-quality (wetland hardwood forests) to high-quality wetlands (stream and lake swamps). Two on-site wetlands are not USACE jurisdictional as they are wholly isolated with no connection to any USACE jurisdictional waters.

The wetland delineation will need to be confirmed by appropriate regulatory agencies to determine the legal limits of jurisdictional wetlands prior to permitting and construction.

3.3.2 ENVIRONMENTAL CONSEQUENCES

The Project construction has been designed to avoid all wetland impacts. Prior to construction, wetland delineation will be confirmed by appropriate regulatory agencies to determine the legal limits of jurisdictional wetlands, and erosion and sediment controls will be installed to avoid the discharge of erosional materials outside of the work area. Stormwater management is designed such that no adverse water quantity or quality to the receiving waters will occur. The Project is designed to allow a buffer of at least 50 feet from the wetlands located within the Project Boundary (Figure 2). In addition, existing pathways that already cross streams and wetlands will be used for construction and operation phases.

3.3.3 MITIGATION

The Project has been designed to avoid all wetland impacts and no wetland mitigation or monitoring is required.

3.4 WATER RESOURCES

The water resources include watersheds, surface water, and groundwater resources. Surface water resources focus on lakes, rivers, streams, and wetlands, while groundwater includes the aquifer or water table and associated underground geology. Waters of the U.S. and navigable waters include all surface water resources that are subject to jurisdiction under Section 404 of the Clean Water Act (33 U.S. Code § 1344) and Section 10 of the Rivers and Harbor Act, respectively. The National Park Service maintains the Nationwide Rivers Inventory (NRI) per the Wild and Scenic Rivers Act (16 U.S. Code § 1271). The NRI lists waterways identified as naturally or culturally significant. No rivers or waterways identified in the NRI are located within the Project Boundary (Appendix A), therefore are not further evaluated.

3.4.1 WATER QUANTITY

This section identifies the sufficiency of water resources during the construction and operation of the Project.

3.4.1.1 Affected Environment

The Tallahassee Hills are underlain by the Miccosukee Formation and the Hawthorn Group. Near-surface formations include dolomitic limestones, sandy clayey limestones; and finally, shell beds, clayey sands, and sand (NFWFMD, 2017). Elevations vary from about 100 feet above MSL in the southern portion of Gadsden County to nearly 330 feet above MSL in the Project area (NFWFMD, 2018).

Three major aquifers comprise the groundwater flow system in the Project area, consisting of the surficial aquifer, the intermediate system, and the Floridan aquifer system. The Floridan aquifer is the largest in the southeastern U.S. (Katz, 1992). The surficial aquifer ranges from near-surface to 75 feet below land surface, consists primarily of interbedded layers of clayey sand and sandy clay, and is not a significant source of potable water. The intermediate system consists of low permeability sediments forming an effective confining unit. The Floridan aquifer system is the major source of potable water and consists of a thick sequence, generally 450 to 600 feet, of carbonates across Gadsden County (NFWFMD, 2018).

3.4.1.2 Environmental Consequences

Water is expected to be transported to the Project during construction and operation and installation of groundwater wells is not included in the Project; therefore, adverse effects to water quantity are not anticipated for the Project.

3.4.1.3 Mitigation

Based on the negligible effects of water usage for the construction of the Project, mitigation for environmental impacts to water quantity is not required.

3.4.2 WATER QUALITY

This section identifies potential impacts to the quality of water resources during the construction and operation of the Project.

3.4.2.1 Affected Environment

The Project lies primarily within the Ochlockonee Watershed, which encompasses approximately 1,585,000 acres throughout Georgia and Florida. Approximately 53% of the watershed (832,000 acres) is in Florida and extends throughout the eastern and central portions of Gadsden County (NFWFMD, 2017). Stream and Lake Swamp community wetlands are located within the northern and western portions of the Project Boundary, associated with South Mosquito Creek, a tributary

of the Apalachicola River, and two isolated areas of Wetland Hardwood Forests community are located in the northern/central portion of the Project Boundary as discussed in Section 3.3.

The Project area is relatively flat, although areas of steep embankments that dropped approximately 100 feet in elevation toward the on-site Stream and Lake Swamp wetlands are evident. The normal average precipitation levels range from 53 to 67 inches per year across northwest Florida (NFWMD, 2018).

The Project is designed to allow a buffer of at least 50 feet from the wetlands located within the Project Boundary (Figure 2). In addition, existing pathways that already cross streams and wetlands will be used for construction and operation phases.

3.4.2.2 Environmental Consequences

The Project will result in a net improvement related to stormwater quantity and quality by eliminating agriculture-related activities and establishing large grass swales and vegetated buffer areas around the proposed impervious areas. The Project will result in an increase in imperviousness (i.e., PV panels). However, through adherence to the proposed structural and nonstructural best management practices (BMPs), infiltration should be similar to pre-construction conditions. The amount of runoff from the Project should be comparable to existing conditions. Water required during construction is expected to be transported to the Project. Therefore, adverse effects on groundwater are not anticipated for the Project.

Although existing drainage patterns will be maintained to the maximum extent practicable, grading will be necessary during site preparation prior to the construction phase of the Project; grading and earthmoving activities are limited to the Project Boundary. Potential minor temporary impacts to offsite water quality during the construction phase of the Project will be minimized by the implementation of standard construction BMPs that control and treat stormwater runoff, prevent soil erosion and sedimentation, prevent soil compaction, and reduce non-point source pollution. Thus, the Project will have no significant adverse impacts on water quality.

An application will be submitted for the Gadsden County Stormwater Management Permit. The SWPPP will identify soil erosion and sedimentation control measures and BMPs to avoid and minimize the effects of soil disturbance and control erosion/sedimentation. The SWPPP will be consistent with the conditions of the Gadsden County Stormwater Permit and the Gadsden County Stormwater Management Policy and Procedures Manual.

Peak stormwater flows from grading activities are unlikely to exceed the current discharges to adjacent wetlands and adjoining properties. Following grading, the Project will consist of open grassed and/or gravel access areas between panels to increase the pervious surface and increase

infiltration. The Project will be designed such that post-construction stormwater flows do not materially exceed pre-construction flows.

The impervious nature of PV panels requires stormwater management considerations. As rain falls on PV panels, water runs across the panel's impervious surface to the dripline and then falls to the pervious underlying surface. Water from each panel's dripline that does not infiltrate can be considered runoff. However, design features can minimize the impacts of stormwater runoff and reduce adverse effects on water quality. These may include, one or more of the following:

- Avoidance of excessive soil compaction which decreases infiltration.
- Preservation and/or restoration of natural vegetation cover and maintenance of vegetation growth beneath arrays.
- Arrangements of PV panels such that runoff between modules is allowed (i.e., disconnected runoff from solar panel arrays).
- Lowest vertical clearance possible for the current design.

In addition, the potential for chemical releases during construction, operation, or maintenance of the Project are not likely, and any releases will not likely adversely affect water quality. FRP will have an SPCC Plan in place to ensure readiness for any potential fuel spills during construction and operation.

The Project would utilize design features and structural and nonstructural BMPs to minimize stormwater impacts to the maximum extent practicable. Thus, adverse effects on surface water from the Project are anticipated to be negligible.

3.4.2.3 Mitigation

Adverse impacts are expected to be negligible; therefore, no mitigation is proposed.

3.5 COASTAL RESOURCES

The Florida Coastal Management Program is based on a network of agencies implementing 24 statutes that protect and enhance the state's natural, cultural and economic coastal resources. The program's goal is to coordinate local, state, and federal agency activities using existing laws. The FDEP is responsible for directing the implementation of the statewide coastal management program for the 35 coastal counties in Florida (FDEP, 2021a).

3.5.1 COASTAL ZONE MANAGEMENT ACT (CZMA)

The CZMA was enacted in 1972. The U.S. Department of Commerce National Oceanic and Atmospheric Administration authorized Florida Coastal Management Program in 1981 to review

certain federal activities affecting the land or water uses or natural resources of its coastal zone for consistency with its program (FDEP, 2021a).

3.5.1.1 Affected Environment

Gadsden County is not included in the counties affected by the CZMA.

3.5.1.2 Environmental Consequences

No environmental consequences associated with the CZMA are identified for this Project.

3.5.1.3 Mitigation

Based on no CZMA effects for the construction of the Project, mitigation for environmental impact is not required.

3.5.2 COASTAL BARRIER RESOURCES ACT (CBRA)

The CBRA was enacted in 1982 to limit Federal expenditures and financial assistance which have the effect of encouraging development on designated coastal barriers. The Florida Coastal Management Program reviews projects with potential impacts based upon the CBRA (FDEP, 2021a).

3.5.2.1 Affected Environment

Gadsden County is not included in the counties affected by the CBRA.

3.5.2.2 Environmental Consequences

No environmental consequences associated with the CBRA are identified for this Project.

3.5.2.3 Mitigation

Based on no CBRA effects for the construction of the Project, mitigation for environmental impact is not required.

3.6 BIOLOGICAL RESOURCES

To determine the potential effects of the Project on species listed as endangered, threatened, or of special concern (listed species) and critical habitat, biological resources must be identified. Biological resources refer to the flora (plants) and fauna (invertebrates, fish, birds, amphibians, reptiles, birds, and mammals) that may be found or have historically been found in the Project Boundary. Biological resources can also include rivers, lakes, wetlands, upland communities, and other habitat types necessary to support local flora and fauna. Vegetation is a key habitat component and acts to stabilize soils and prevent erosion; additionally, information on vegetation can be used in evaluating potential impacts to species and habitats. This section describes an

overview of the existing biological resources in the Project Boundary and the potential impacts to those resources associated with the Project.

3.6.1 GENERAL FISH, WILDLIFE, AND VEGETATION

Vegetative community types within the Project Boundary were defined during field surveys in accordance with FLUCFCS. The Project Boundary has been historically used for timber production, therefore the majority of the upland habitats are dominated by Coniferous Plantation and Forest Regeneration areas. A Pine-Mesic Oak community is located in the northeastern portion of the Project Boundary. The Stream and Lake Swamps community is the dominant wetland system that is associated with the South Mosquito Creek which occurred along the perimeter of the Project Boundary. Two isolated areas of Wetland Hardwood Forests are located in the northern/central portion of the Project Boundary.

The vegetative communities observed within the Project Boundary are provided in Appendix D and described below.

Pine-Mesic Oak (FLUCFCS 414): On moister areas of the property, slash pine and loblolly pine grow in strong association with a wide variety of mesic oaks and other hardwood species. The dominant canopy observed includes laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), southern magnolia (*Magnolia grandiflora*), and American holly (*Ilex opaca*). Gallberry (*Ilex glabra*) and wax myrtle (*Myrica cerifera*) were among the common understory species and the groundcover consisted of chalky bluestem (*Andropogon virginicus*). This cover type exists in areas abutting the on-site stream and lake wetlands and encompasses approximately 65 acres.

Coniferous Plantations (441) and Forest Regeneration Areas (443): The Project Boundary is predominantly covered by this land-use type and encompassed approximately 144 acres of Coniferous Plantation (441) and 482 acres of forest regeneration areas (443). According to historic aerial photographs, the planting and harvesting activities have been observed since at least 1947. In 2020, most of the coniferous plantation areas were harvested and not replanted. The FLUCFCS Map in Appendix A depicts the harvested (443) and unharvested (441) portions of the Project Boundary observed during the last site reconnaissance in August 2020. The remaining coniferous plantation is located in the southeastern area of the Project Boundary and was harvested and replanted with loblolly pine in 2018. Within the young Coniferous Plantation, the understory was dominated by red oak saplings (*Quercus falcata*), sweet bay magnolia saplings (*Magnolia virginiana*), common persimmon (*Diospyros virginiana*), American beautyberry (*Callicarpa americana*), blackberry, dog fennel, shiny blueberry (*Vaccinium myrsinites*), chalky bluestem, bracken fern, St. Johnswort (*Hypericum* spp.), and fetterbush.

Wetland Hardwood Forests (610): This community had a canopy that was dominated by sweet gum, water oak, loblolly pine, and slash pine. Two small areas of this cover type existed near the

center of the property, within the Coniferous Plantation community, and encompassed approximately 5 acres. St. John's wort was the dominant understory and the groundcover consisted of maidencane (*Panicum hemitomon*), bighead rush (*Juncus megacephalus*), spikerush (*Eleocharis baldwinii*), bushy broom grass (*Andropogon glomeratus*), sphagnum moss (*Sphagnum macrophyllum*), and beakrush (*Rynchospora* spp.).

Stream and Lake Swamps (615): The largest wetland system within the Project Boundary included this FLUCFCS and encompassed approximately 122 acres. This community often referred to as bottomland or stream hardwoods, is associated with the South Mosquito Creek, which occurred along the perimeter of the Project Boundary. Many of the hardwood tree species along the edge of the wetland were either snapped off or down due to Hurricane Michael in 2018. The predominant hardwood species in the canopy included southern magnolia, black gum (*Nyssa biflora*), American olive (*Osmanthus americanus*), southern magnolia, sweet gum, water oak, laurel oak, loblolly pine, and American elm (*Ulmus americana*). Fetterbush was the dominant shrub species.

A desktop review was performed of listed species that are known to occur or likely to occur within the Project Boundary. Databases reviewed included the Florida Natural Areas Inventory (FNAI) Biodiversity Matrix and the USFWS Information for Planning and Consultation (IPaC) Resource List, as well as other resources for species habitat. Table 3-3 summarizes the listed flora and fauna findings from the desktop review.

Table 3-3: Species of Conservation Interest in Gadsden County, Florida

Common Name	Scientific Name	Listing Status†	Species -Habitat Associations	Potential for Occurrence in Project Boundary
Apalachicola Rosemary	<i>Conradina glabra</i>	FE, SE	Sandhills; upper edges of steepheads in the transition to sandhills, edges of pine plantation, roadsides.	Unlikely
Apalachicola Wild Indigo	<i>Baptisia megacarpa</i>	SE	Well-drained, sandy ridges in floodplains, stream terraces, and lower hardwood-dominated slopes in the Chattahoochee River drainage.	Unlikely
Ashe's Magnolia	<i>Magnolia ashei</i>	SE	Rich upland hardwood forests of slopes, bluffs, and floodplains.	Unlikely
Bachman's Sparrow	<i>Peucaea aestivalis</i>	N	Mature pine forest, where it lives in the open grassy understory	Unlikely
Baldwyn's Spiny-pod	<i>Matelea baldwyniana</i>	SE	mature mesic hardwood forests on slopes and stream terraces over low-acidity soils.	Unlikely
Bay Star-vine	<i>Schisandra glabra</i>	SE	Rich mesic woods twining over subcanopy and understory trees, usually in bottomlands or in the bluffs along creeks and rivers.	Unlikely
Boykin's Lobelia	<i>Lobelia boykinii</i>	SE	Cypress gum depressions or ponds, wet pine savannahs, and flatwoods.	Unlikely
Chapman's Rhododendron	<i>Rhododendron chapmanii</i>	FE, SE	Wet, mesic, or dry scrubby flatwoods; borders of titi or bay swamps; disturbed areas, pine plantations.	Unlikely
Croomia	<i>Croomia pauciflora</i>	SE	Rich, moist, deciduous forests in ravines and on river bluffs, often over limestone or marl.	Unlikely
Curtiss' Loosestrife	<i>Lythrum curtissii</i>	SE	Wet roadside ditches and clearings in wet flatwoods; dome swamp edges; sunny patches in stream thickets and floodplain forests.	Unlikely
Eastern Indigo Snake	<i>Drymarchon couperi</i>	FT	Xeric scrub, pine flatwoods, hardwood forests, agricultural sites.	Unlikely
Florida Flame Azalea	<i>Rhododendron austrinum</i>	SE	Slope forest, upland mixed forest, upland hardwood forest, bottomland forest.	Unlikely
Florida Merrybells	<i>Uvularia floridana</i>	SE	Bottomland and floodplain forests, moist ravines.	Unlikely
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>	ST	Dry upland habitats, including sandhills, scrub, xeric oak hammock, and dry pine flatwoods; also pastures, old fields, and agricultural borders.	Potential

Common Name	Scientific Name	Listing Status	Species -Habitat Associations	Potential for Occurrence in Project Boundary
Florida Spiny-pod	<i>Matelea floridana</i>	SE	Usually occurs in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.	Unlikely
Florida Torreyia	<i>Torreya taxifolia</i>	FE, SE	Rich, deciduous forests with Beech and Southern Magnolia on mid-slopes of ravines and steepheads along the Apalachicola River in Florida.	Unlikely
Flyr's Brickell-bush	<i>Brickellia cordifolia</i>	SE	Moist, pine-oak-hickory woods and flats; dry woods; sandy, well-drained riverbanks; upper ravine slopes.	Unlikely
Frosted Flatwoods Salamander	<i>Ambystoma cingulatum</i>	FT	Ephemeral pond wetlands surrounded by pine flatwoods (longleaf or slash) communities with wiregrass.	Unlikely
Gentian Pinkroot	<i>Spigelia gentianoides</i>	FE, SE	longleaf-wiregrass, pine-oak-hickory woods, and in open space within forests.	Unlikely
Gopher Tortoise	<i>Gopherus polyphemus</i>	FC, ST	Any well-drained sandy areas with low growing vegetation.	Observed
Gray Bat	<i>Myotis grisescens</i>	FE	Caves alongside rivers and lakes.	Unlikely
Hairy-peduncled Beaksedge	<i>Rhynchospora crinipes</i>	SE	Sandy, gravelly, or peaty banks and sandbars of blackwater streams and spring runs.	Unlikely
Harper's Yellow-eyed Grass	<i>Xyris scabrifolia</i>	ST	Sandy-peaty soils of bogs, seepage slopes, openings in wet pine flatwoods, and savannas.	Unlikely
Incised Groove-bur	<i>Agrimonia incisa</i>	ST	Sandy, dry-mesic, usually upland in the lower Coastal Plain.	Unlikely
Karst Pond Xyris	<i>Xyris longisepala</i>	SE	Moist sandy shorelines of receding sandhill sinkhole ponds, or lake shores where water levels periodically recede enough to expose the sandy soil.	Unlikely
Narrow-leaved Trillium	<i>Trillium lancifolium</i>	SE	Floodplain forests; also lower rocky slopes over basic soils.	Unlikely
Nightflowering Wild Petunia	<i>Ruellia noctiflora</i>	SE	Wet flatwoods, seepage slopes, hydric hammock.	Unlikely
Nuttall's Rayless Goldenrod	<i>Bigelovia nuttallii</i>	SE	Thin soils immediately over non-calcerous rock; sand pine scrub and among disturbed mixtures of sand pine and slash pine.	Unlikely

Common Name	Scientific Name	Listing Status	Species -Habitat Associations	Potential for Occurrence in Project Boundary
Primrose-flowered Butterwort	<i>Pinguicula primuliflora</i>	SE	Shallow water of sand-bottomed streams and spring-runs; in sphagnum mats along stream banks, Atlantic white cedar swamps, and bogs.	Unlikely
Small-flowered Meadowbeauty	<i>Rhexia parviflora</i>	SE	Seepage slopes, margins of dome swamps, depression marshes, and evergreen shrub ponds.	Unlikely
Southeastern Bat	<i>Myotis austroriparius</i>	N	Roosting occurs in caves, hollows of bottomland hardwood trees, or in structures like abandoned buildings, bridges, or culverts. Foraging habitat consists of open water, riparian floodplain forests, flatwoods, or wooded wetlands.	Unlikely
Toothed Savory	<i>Calamintha dentata</i>	ST	Sandy habitats such as sandhills and the Florida scrub.	Unlikely
Variable-leaved Indian-plantain	<i>Arnoglossum diversifolium</i>	ST	Swamps, wet hardwood hammocks, openings in floodplain forests over limestone with clayey, basic soils, and a canopy of hardwood trees and bald cypress.	Unlikely
West's Flax	<i>Linum westii</i>	SE	Wet flatwoods, depression ponds, edges of pond cypress swamps.	Unlikely
White-top Pitcherplant	<i>Sarracenia leucophylla</i>	SE	Bogs, wet savannas, sunny openings in red maple-black gum swamps, sphagnum mats along streams clearings through these habitats.	Unlikely
Wood Stork	<i>Mycteria americana</i>	FT	Nests in cypress swamps and mixed forested wetlands; forages mainly in shallow water in freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures, and ditches.	Unlikely
Yellow Fringeless Orchid	<i>Platanthera integra</i>	SE	Sunny, wet savannas, prairies, flatwoods, pitcherplant bogs, and seepage slopes.	Unlikely

‡ SE= State-designated Endangered species, ST = State-designated Threatened species, FT = Federal-designated Threatened species, FE = Federal-designated Endangered species, FC = Federal Candidate.

Sources: (FNAI, 2021; Georgia, 2021; FNPS, 2021; Audubon, 2021a; Audubon, 2021b; USFWS, 2019a; USFWS, 2019b)

3.6.1.1 Affected Environment

Field reconnaissance was conducted in August 2018, August 2019, September 2019, and August 2020, and determined that the majority of the Project Boundary is almost exclusively comprised of pine forests artificially generated by planting seedling stock or seeds for silviculture management. During the August 2020 site reconnaissance, timber harvesting off all mature pine trees was observed. Young pine stands (approximately 3 years old) remain in the southeastern corner of the property.

Field reconnaissance conducted in 2018, 2019, and 2020 included observations of wildlife that were made visually, audibly, or by evidence of tracks, scat, nests, burrows, and/or dens. Observed wildlife and potentially occurring listed species are detailed in the following sections. Fauna documented within the Project Boundary during field reconnaissance is provided in Table 3-4.

Table 3-4: Project Boundary Observed Wildlife Species Documented During Field Reconnaissance

Common Name	Taxonomic Name	Observation	Listing Status†
Birds			
Eastern Bluebird	<i>Sialia sialis</i>	Foraging, Flying, & Calls	None
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	Foraging, Flying, & Calls	None
Mourning Dove	<i>Zenaida macroura</i>	Flying & Calls	None
Northern Cardinal	<i>Cardinalis cardinalis</i>	Flying & Calls	None
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Calls	None
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	Calls	None
Red-shouldered hawk	<i>Buteo lineatus</i>	Flying & Calls	None
Turkey Vulture	<i>Cathartes aura</i>	Flying	None
Mammals			
Armadillo	<i>Dasypus novemcinctus</i>	Rooting holes	None
White-tailed Deer	<i>Odocoileus virginianus</i>	Foraging	None
Reptiles			
Florida Box Turtle	<i>Terrapene Carolina</i>	Detritus	None
Common Name	Taxonomic Name	Observation	Listing Status†
Florida Scrub Lizard	<i>Sceloporus woodi</i>	Foraging	None
Gopher Tortoise	<i>Gopherus polyphemus</i>	Individual within burrow and burrows	ST, FC
Southeastern Five-Lined Skink	<i>Eumeces inexpectatus</i>	Foraging	None

† ST = State Threatened, FC = Federal Candidate

3.6.1.2 Environmental Consequences

The Project is proposed in previously disturbed land that has been used for silviculture; therefore, changes to baseline conditions or impacts to fish, wildlife, and vegetation are negligible. The Project Boundary is routinely harvested for timber, and currently includes disturbed areas and access pathways.

3.6.1.3 Mitigation

Adverse impacts to native fish, vegetation, and wildlife are expected to be negligible; therefore, no mitigation is proposed.

3.6.2 LISTED THREATENED AND ENDANGERED SPECIES

Federally listed species are protected under federal law by the Endangered Species Act (ESA) of 1973 (16 U.S.C §1531-1544). The 2021 Listed Wildlife and Habitat Assessment Report identified the potential presence and extent of wildlife species (considering on-site habitats) listed as endangered, threatened, or Species of Special Concern by the Florida Fish and Wildlife Conservation Commission (FWC) and USFWS. Sensitive species are those species deemed Federally-designated Endangered, Federally-designated Threatened, State-designated Threatened, or State Species of Special Concern by the FWC and/or USFWS (Tetra Tech, 2021).

3.6.2.1 Affected Environment

The Project Boundary is not located within USFWS consultation areas for any federally protected wildlife species. The Project Boundary is within the range (i.e., observed, contains documented records, and/or has the potential habitat) of nine federally-listed wildlife species (Table 3-1) (Tetra Tech, 2021).

The USFWS IPaC and the FNAI were utilized to identify species of conservation interest in Gadsden County that may have the potential to occur within the Project Boundary (USFWS, 2021; FNAI, 2021). The 2013 USFWS Eastern Indigo Programmatic Effect Determination Key was reviewed for the project's potential to impact the eastern indigo snake (*Drymarchon couperi*) (USFWS, 2013b). The scope of the key is to be used in a review of permit applications for effects determinations within the North and South Florida Ecological Services Field Offices Geographic Areas of Responsibility (GAR). The potential listed species and habitats in the Project Boundary identified in the FNAI and USFWS IPaC are provided in Appendix D.

Table 3-5 provides the identified species, habitat characteristics for each species, and addresses the likelihood for each species to occur within the Project Boundary.

Table 3-5: Listed Wildlife Species

Common Name	Scientific Name	Observed on-site	Listing Status†	Species -Habitat Associations
Wood Stork	<i>Mycteria americana</i>	No	FT	Nests in cypress swamps and mixed forested wetlands; forages mainly in shallow water in freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures, and ditches.
Gopher Tortoise	<i>Gopherus polyphemus</i>	Yes	ST/FC	Any well-drained sandy areas with low growing vegetation.
Eastern Indigo Snake	<i>Drymarchon couperi</i>	No	FT	Xeric scrub, pine flatwoods, hardwood forests, agricultural sites.
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>	No	ST	Dry upland habitats, including sandhills, scrub, xeric oak hammock, and dry pine flatwoods; also pastures, old fields, and agricultural borders.
Frosted Flatwoods Salamander	<i>Ambystoma cingulatum</i>	No	FT	Ephemeral pond wetlands surrounded by pine flatwoods (longleaf or slash) communities with wiregrass.
Gray Bat	<i>Myotis grisescens</i>	No	FE	Caves alongside rivers and lakes.
Atlantic Sturgeon	<i>Acipenser oxyrinchus</i>	No	FT	Rivers and coastal waters.
Fat Threeridge (mussel)	<i>Amblema neislerii</i>	No	FE	Slow to moderate current rivers with sand, gravel, and rocky rubble floors.
Purple Bankclimber (mussel)	<i>Elliptoideus sloatianus</i>	No	FT	Slow to moderate current rivers with a sandy floor, which can have a mud or gravel mixture.

† Status Key: FC=federal candidate; FE=federally endangered; FT=federally threatened; ST=state threatened

Formal, species-specific surveys were not conducted; however meandering pedestrian transects and stationary observations of approximately 15% of all on-site habitat were conducted in January 2018, August 2019, September 2019, and August 2020.

The Atlantic sturgeon (Federally Threatened), fat threeridge (Federally Endangered), and purple bankclimber (Federally Threatened) are listed in the ESA for the area; however, the Project Boundary does not contain suitable habitat for these species, and therefore they are not discussed herein.

Eastern Indigo Snake

The eastern indigo snake is a non-venomous, bluish-black colored snake that can reach lengths of 8 feet. It inhabits a mosaic of habitats including sandhills, pine flatwoods, hardwood forests, moist hammocks, and areas that surround cypress swamps. In high xeric habitats, the eastern indigo snake is associated with gopher tortoise burrows, which provide shelter from seasonal temperature fluctuations. Its current range extends throughout the state of Florida and southern Georgia. Populations of indigo snakes can persist on smaller, fragmented, or degraded suitable habitats, but long-term population viability is at risk. The eastern indigo snake is classified as a Federally Threatened species by the ESA.

No individuals or evidence of eastern indigo snakes were observed within the Project Boundary during the site reconnaissance. According to the USFWS Panama City Field Office, the absence of eastern indigo snake occurrence data in the Panhandle of Florida, including Gadsden County, reduces the likelihood of occurrence of this species within the Project Boundary, therefore, there is a low likelihood of the occurrence of this species within the Project Boundary.

Florida Pine Snake

The Florida pine snake is one of the largest eastern snakes in North America. This species can reach a length of up to 84 inches. It has a brown back with dark blotches, a white belly, ridged scales, a small head, and a pointed snout. The Florida pine snake inhabits dry, upland areas with well-drained, sandy soils. Its preferred natural habitat includes upland pine forests and sandhills; however, it also can be found in scrubby flatwoods, oak scrub, dry oak forests, old fields, and agricultural borders. This species can be found from southwestern South Carolina, west to Mobile Bay in Alabama, and south to Florida (excluding the Everglades). They use gopher tortoise burrows, pocket gopher burrows, and stump holes to forage, nest, and escape adverse weather conditions or fire. The Florida pine snake is classified as a State-designated Threatened species and is protected by Florida's Endangered and Threatened Species Rule.

Recent and frequent timber harvesting over the years has reduced the quality and suitability of preferred habitat on-site. No Florida pine snakes were observed during the site reconnaissance. There is a moderate likelihood of the occurrence of this species within the Project Boundary since gopher tortoise burrows were observed.

Frosted Flatwoods Salamander

The frosted flatwoods salamander can reach lengths up to 4.5 inches and is a salamander with a delicate white to a silvery-grey pattern that may resemble nets, lichens, or narrow lines and rings on a black background. The aquatic larvae can reach lengths up to 3 inches and contain bushy reddish gills, a dorsal tail fin, and on each side, a tan strip sandwiched between a pair of dark stripes, including one that passes through the eye. The preferred habitat of this species includes

ephemeral pond wetlands surrounded by pine flatwoods communities with wiregrass groundcover. This species is classified as a Federally Threatened species by the ESA.

No evidence of individuals or the habitat of the frosted flatwoods salamander was observed in the Project Boundary during the site reconnaissance. According to the USFWS Panama City Field Office, no historic observations or designated critical habitat occurs within Gadsden County. Suitable habitat, as described above for this species, does not exist within the Project Boundary. Any natural pine flatwoods that may have existed have been harvested and the ponds within the Project Boundary are not ephemeral, therefore, there is a low likelihood of occurrence of this species within the Project Boundary.

Gopher Tortoise

The gopher tortoise is a moderate-sized, terrestrial turtle averaging 9 to 11 inches in length. This species is identified by its stumpy elephantine hind feet and flattened shovel-like forelimbs adapted for digging. The shell is oblong and generally tan, brown, or gray in coloration. The gopher tortoises' preferred habitat includes uplands with an open canopy and deep well-drained sandy soils. The gopher tortoise is classified as a State-designated Threatened species. The gopher tortoise also has both a Federally Threatened distinction west of Mobile and Tombigbee Rivers in Alabama, Mississippi, and Louisiana, and is a Federal Candidate for protection in Alabama, Florida, Georgia, and South Carolina; however, the Project Boundary does not fall within the federal range of protection for this species.

Approximately 448.8 acres of suitable gopher tortoise habitat were identified within the Project boundary during the 15% gopher tortoise survey that was conducted in June 2021 according to the FWC Gopher Tortoise Permitting Guidelines (Tetra Tech, 2021). A total of 57 burrows were identified within the Project boundary (Appendix D).

Gopher tortoise habitat in the Coniferous Plantation and Forest Regeneration communities was considered low quality due to the recent timber harvesting that occurred in 2020 and the frequent harvesting activities since 1947. Formal 100-percent burrow surveys will be conducted within all potential gopher tortoise habitats prior to development. The FWC gopher tortoise relocation permit would be required if burrows cannot be avoided, and captured tortoises will be relocated to an FWC-approved recipient site prior to construction.

Gray Bat

This species is a nocturnal hunter that feeds on insects with a body length up to 3.5 inches and a wingspan of 9 to 11 inches. Its fur is typically gray but can turn to a reddish-brown color during the summer. With rare exceptions, gray bats live exclusively in caves alongside rivers and lakes, hibernating in the winter months and roosting and foraging for insects during the summer months. The gray bat is classified as a Federally Endangered species by the ESA.

No evidence of the gray bat or its preferred cave habitat was observed in the Project Boundary. Additionally, the Project Boundary is located east of the gray bat known range information. The likelihood of occurrence of this species within the Project Boundary is low.

Wood Stork

This species is a large, long-legged wading bird that reaches lengths of 35 to 45 inches with a wingspan of 60 to 65 inches. Both the primary and tail feathers are black, while the rest of the body feathers are white. The head and upper neck of adult wood storks have no feathers and the skin is gray. Wood storks have a black bill and black legs with pink toes. Wood storks are classified as a Federally Threatened species by the ESA.

Wood storks typically nest colonially in medium to tall trees that occur in stands located either in swamps or on islands surrounded by relatively broad expanses of open water. Typical foraging sites include freshwater marshes, depressions in cypress heads, swamp sloughs, managed impoundments, stock ponds, shallow-seasonally flooded roadside, or agricultural ditches, and narrow tidal creeks or shallow tidal pools. Wood storks, their nesting areas, and suitable foraging habitats are protected by the federal ESA.

No wood storks were observed nesting or foraging within the Project Boundary during the site reconnaissance. The Project Boundary is not located within a USFWS Core Foraging Area buffer (USFWS, 2016). Future development within the Project Boundary is not likely to adversely affect this species.

3.6.2.2 Environmental Consequences

Gopher tortoise burrows were observed within Project Boundary during the 15% gopher tortoise survey, and gopher tortoises and/or burrows will be impacted by the Project. FWC requires a 100% survey within 90 days prior to site preparation or construction commencement.

There have been no documented occurrences of the eastern indigo snake within the past 25 years in Gadsden County, therefore is not listed within the north Florida GAR. Since Gadsden County is not listed within the north Florida GAR, the protection measures detailed in the Programmatic Effect Determination Key can be waived if 2013 USFWS Standard Protection Measures for the Eastern Indigo Snake, identified in Section 3.5.2.3, are followed during construction activities (USFWS, 2013a).

The FWC conducts consultation reviews through the Office of Intergovernmental Programs Clearinghouse (Clearinghouse). The email response received by the Clearinghouse is included in Appendix D.

3.6.2.3 Mitigation

Within 90 days prior to site preparation or construction, a 100% gopher tortoise burrow survey will be conducted to support the submittal of an FWC gopher tortoise Conservation Relocation permit application. All burrows within 25 feet of the construction footprint will be excavated under the direction of an FWC-permitted gopher tortoise authorized agent and captured tortoises will be relocated to an agency-approved recipient site to avoid impact.

Mitigation for the eastern indigo snake will be the standard protection measures to include but are not limited to, installation of eastern indigo signage, verbal training for construction personnel, appropriate steps to be taken if eastern indigo snakes (alive or dead) are observed, and post-construction eastern indigo monitoring report (Appendix D). The mitigation for the eastern indigo snake will also provide protection for the Florida pine snake.

The Project will not adversely affect other federally or state-listed species; therefore, no other species-specific mitigation measures are required.

3.6.3 MIGRATORY BIRD TREATY ACT

Most migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-711) which prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the USFWS.

3.6.3.1 Affected Environment

Birds have been identified as a group potentially at risk from man-made structures (Erickson, Johnson, and Young, 2005). Utility-scale solar energy developments pose potential risks to birds in several ways such as habitat degradation, loss, and fragmentation, or direct mortality (Leroy et al, 2015; Kagan et al. 2014; Smith and Dwyer 2016; McCrary et al, 1986). Gadsden County, Florida lies in the Atlantic Flyway, one of the primary avian migratory routes in North America, and features a wide variety of productive ecosystems including forests, beaches, and coastal wetlands (Audubon Society, 2021a). Generally, the Atlantic Flyway follows the east coast of the U.S., and extends from New York to the Bahamas (Audubon Society, 2021a). The Atlantic Flyway is of great importance to migratory waterfowl, land birds, waterbirds, and shorebirds.

3.6.3.2 Environmental Consequences

Potential risks to migratory birds may occur as a result of the Project as utility-scale solar energy developments may pose some risks to birds (Leroy et al. 2015; Kagan et al. 2014; Smith and Dwyer 2016; McCrary et al. 1986). However, there is no indication that the Project would result in long-term disturbance or displacements of migratory birds. In addition, utilization of dark PV cells with treated glass would reduce glare (“lake effect”) and minimize impacts associated with the potential lake effect and decrease risks to migratory birds.

3.6.3.3 Mitigation

Adverse impacts to migratory birds are expected to be negligible; thus, no mitigation is proposed.

3.6.4 BALD AND GOLDEN EAGLE PROTECTION ACT

The bald eagle is not currently listed under the ESA or Florida's Endangered and Threatened Species Rule, however, it is protected at the federal level under the Bald and Golden Eagle Protection Act (BGEPA) and the MBTA [16 U.S.C. § 668 et seq.], as well as on the state level under the FWC Bald Eagle Management Plan (FWC, 2021). On April 20, 2017, FWC approved rule revisions which maintain that only a federal permit is required. Activities are federally regulated within 660 feet of any active or alternate bald eagle nest. The FWC maintains a bald eagle nest location database (FWC, 2021), which documents the known locations of nests throughout the state.

3.6.4.1 Affected Environment

A review of the FWC nest location database indicated no known nests are located within 660 feet of the Project Boundary. Bald eagle individuals, nests, or potential nest trees were not observed within the Project Boundary during the site reconnaissance. No adverse impacts to the bald eagle are anticipated as a result of the construction and operation of the Project.

Review by the FWC via the Clearinghouse did not identify concerns regarding BGEPA species, and no trust resources under ESA protection were within the Project Boundary (Appendix D).

3.6.4.2 Environmental Consequences

Potential risks to bald and golden eagles may occur as a result of the Project as utility-scale solar energy developments may pose some risks to birds, as described previously. However, there is no indication that the Project would result in long-term disturbance or displacements of bald and golden eagles as no known nests are located within 660 feet of the Project Boundary.

3.6.4.3 Mitigation

The Project would not adversely affect bald and golden eagles; therefore, mitigation measures are not required.

3.6.5 INVASIVE SPECIES

Invasive species, including non-native animals, plants, invertebrates, or microorganisms occur throughout Florida and pose concern because they can out-compete native species resources. Florida regulates non-native plant pests, noxious weeds, arthropods, biological control agents in Chapter 5B-57 F.A.C., and non-native species in Chapter 68-5 F.A.C. The list of noxious weeds is provided in Chapter 5B-57.007 F.A.C.

3.6.5.1 Affected Environment

None of the identified noxious weeds were observed during the field reconnaissance; however, focused surveys for invasive species were not conducted within the Project Boundary.

3.6.5.2 Environmental Consequences

Site preparation and grading will require clearing of vegetation remaining in the Project Boundary. While ground disturbance creates an opportunity for noxious weeds or invasive species populations to increase, potential colonization by noxious weeds or invasive species would be considered temporary because graded areas would be kept devoid of vegetation or revegetated with a ground cover seed-mix, or converted to other design features. Restoration/re-vegetation of the Project will utilize a native seed mix. Project restoration/re-vegetation will mitigate the potential increase in noxious weeds; if chemical control of noxious weeds is needed, appropriate technical expertise will be retained.

3.6.5.3 Mitigation

Adverse impacts are expected to be minor; therefore, no mitigation is proposed.

3.7 CULTURAL RESOURCES

The National Historic Preservation Act of 1966 (NHPA), as amended, is the principal federal law addressing cultural resources. The NHPA sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the NRHP. Section 106 of the NHPA directs federal agencies to take into account the effects of their undertakings on such properties, consult with interested parties, including the State Historic Preservation Officer (SHPO) and Indian tribes, to develop measures that would avoid, reduce, or minimize adverse effects, and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 CFR § 800).

To be eligible for the NRHP, cultural resources must be at least 50 years old (generally), meet most of the seven aspects of integrity, and meet at least one of the four criteria listed below. Integrity is the property's ability to convey its demonstrated historical significance through location, design, setting, materials, workmanship, feeling, and association. ACHP also offers considerations for resources that may have achieved national significance but are fewer than 50 years old. Criteria for listing on the NRHP (36 CFR § 60.4) are as follows:

- Association with events that have made a significant contribution to the broad patterns of our history;
- Association with the lives of persons significant to our past;
- Resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic

- values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Resources that have yielded or may be likely to yield information important in prehistory or history.

Section 106 of the NHPA describes the procedures for identifying and evaluating eligible properties, assessing the effects of federal actions on eligible properties, and for consulting to avoid, reduce, or minimize adverse effects.

3.7.1 AFFECTED ENVIRONMENT

This section evaluates the potential for historic properties to be present within the proposed Project Area of Potential Effects (APE) identified for the Project and the potential to adversely affect such resources. The APE defined for the Figure 8 Solar Project includes the geographic area or areas within which the undertaking (“the Project Area”) may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. The APE for this Project is defined as the surfaces and depths that would be disturbed by excavation within the approximately 441.6-acre Project Area. Because the Project Area is surrounded by active silviculture and since any existing vegetation buffers along the outer boundaries of the Project Area will be left in-place and maintained, the proximity effects APE (“visual APE”) has been confined to boundary of the Project Area. Construction activities for the solar site would consist of grading and trenching to a depth of approximately 6 to 10 feet below grade as dictated by the soils and the array structural design.

3.7.1.1 Phase I Survey

The Phase I cultural resources assessment survey of the Project (previously known as Figure 8) was conducted in accordance with the provisions of Chapter 1A-46, F.A.C. The survey exceeded the final property boundaries included in the Project. The survey resulted in a recommended finding of No Cultural Resources and No Historic Properties within the APE. The Florida Division of Historical Resources and State Historic Preservation Officer concurred with the recommended finding (FDOS DHR, January 26, 2022). No further archaeological work is recommended for the survey area and no historic properties will be affected by this project (AECOM, 2019).

3.7.1.2 Native American Consultation

Section 106 of the NHPA requires federal agencies to consult with the relevant Tribal Historic Preservation Officer or official Tribal designees on historic properties of religious or cultural significance that may be affected by the Project. The Project does not include Tribal lands as defined in 36 CFR § 800.16 (x). The Tribal Directory Assessment Tool (TDAT) is a tool that provides contact information for tribal leaders and Tribal Historic Preservation Officers, along with counties where the tribes have current and ancestral interest. FRP has well-established relationships with Tribal governments with potential or expressed interest in Florida-based

projects. The Choctaw Nation of Oklahoma is listed in the TDAT for the Florida Panhandle, however they were not contacted because Gadsden County is not in their area of interest based on their reviewer feedback and material from the THPO cultural site, identified in Appendix C. On May 4, 2021, FRP sent letters to nine (9) Native American Tribes to understand any ancestral or current concerns that may be present within the project area. Those contacted include the Alabama-Coushatta Tribe of Texas, Coushatta Tribe of Louisiana, Jena Band of Choctaw Indians, Miccosukee Tribe of Indians, Mississippi Band of Choctaw Indians, Muscogee (Creek) Nation, Poarch Band of Creek Indians, Thlopthlocco Tribal Town, and the Seminole Tribe of Florida (STOF). On May 25, 2021, the STOF indicated that the Tribe had no objections or other comments about the project.

3.7.2 ENVIRONMENTAL CONSEQUENCES

Cultural resources were considered during the Cultural Resources Assessment Survey Report conducted in 2019 (AECOM, 2019). The Project's APE consists of approximately 441.6 acres within the Project Boundary. No historic properties will be affected as a result of the Project. If cultural resources (e.g., lithic tools, pottery, human remains, etc.) are discovered during construction, then earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find in consultation with SHPO and interested Native American tribes (as applicable). Unexpected discoveries will be handled pursuant to applicable Florida laws including Chapter 872.05, Florida Statutes, which prohibits the destruction or desecration of human remains or repositories including Native American burial grounds or mounds.

3.7.3 MITIGATION

The Project will not adversely impact cultural resources eligible for NRHP listing; therefore, mitigation is not required. The Cultural Resources Discovery Mitigation Plan, provided in Appendix C, will be kept onsite and adhered to during construction in the event of discovery of any artifacts, foundations, or other indications of past human occupation of the area are uncovered.

3.8 AESTHETICS

This section discusses the potential for adverse impacts to the existing visual character or quality of the land within the Project Boundary and its surroundings through changes in the existing landscape. Potential effects are evaluated relative to important visual features (e.g., scenic highways, scenic features) and the existing visual landscape and its users. Gadsden County Land Development Code 5204 and 5302 address specific requirements for the visual impact of solar facilities (Gadsden County, 2020).

Aesthetic impacts of solar energy projects are often based on the type of solar technology, the scenic quality of the existing landscape, the degree to which the solar project would change the scenic quality, and the viewer's response to project-related changes.

3.8.1 AFFECTED ENVIRONMENT

The visual setting of the Project is largely rural and consists of a mosaic of pine plantations, silvicultural land, agricultural land, and residential areas. In addition, highways, local roads, transmission lines, and other types of development contribute to the overall visual character. The Project's location lacks significant geological or natural features that could be considered scenic.

The Project is bounded to the east by Atwater Road, and the south by W.L. Martin Road, which are the only public roads adjoining the Project. Residences are sporadically located along the western, southern, and eastern boundary of the Project, as well as within approximately 0.5 mile north and east of the boundary. The unincorporated community of Mount Pleasant is within 2 miles east of the Project Boundary.

According to the USGS Protected Areas Database of the United States (PAD-US), no Wildlife Management Areas/Refuges, parks, or other protected areas were identified within 2 miles of the Project. Additionally, designated national or state-designated byways are not located in the vicinity of the Project (USGS, 2021).

3.8.2 ENVIRONMENTAL CONSEQUENCES

The Project will be visible from Atwater Road and W.L. Martin Road, which are the main thoroughfares near the Project. While the Project and associated infrastructure have the potential to introduce visual contrast and have the potential to change the character of this rural landscape, no significant adverse visual impacts are expected to occur based on the following factors:

- All Project components will have a relatively low profile and are not expected to significantly change the current character of the landscape.
- The Project will include minimal lighting and will not substantially degrade the existing visual character or quality of the land within the Project Boundary and its surroundings.
- The Project typically uses dark PV solar cells designed to absorb sunlight. The glass panels that protect the PV surface are typically coated glass designed to allow sunlight to pass with minimal reflection. As a result, the source of glare or light from the Project is minimal.

- The Project will include screening measures such as vegetative buffers along the property boundary to shield the view of the Project site from adjacent residences. The landscape plan will be submitted to Gadsden County for approval.

Based on these factors, the Project will introduce long-term changes to the character of the existing landscape; however, the adverse visual impacts to sensitive receptors are expected to be low because of the factors listed above.

The Project is located approximately 14 miles northwest of the Quincy Municipal Airport. The Project is not located near military airfield control towers, air traffic areas, or helicopter landing zones. An analysis of solar glint/glare and potential ocular impacts was not conducted for the Project because the Federal Aviation Administration's (FAA's) Interim Policy for Solar Energy System Project on Federally Obligated Airports (FAA, 2013) and Department of Defense guidance (Department of Defense, 2014) do not apply to the Project, as modeling is only required for those solar arrays installed at federally-obligated airports. Further, given the respective distances to each airport, glare or glint is not expected to be observed from either airport traffic control tower, nor would glare be observed along the final approach glide path for an airplane, as defined by 2 miles from 50 feet above the landing threshold using a standard 3-degree glide path.

3.8.3 MITIGATION

The Project is not expected to result in significant adverse visual impacts; therefore, mitigation is not required.

3.9 AIR QUALITY

The Clean Air Act requires the USEPA to set National Ambient Air Quality Standards (NAAQS) [40 CFR part 50] for six air pollutants known as criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM₁₀ and annual and 24 Hour-PM_{2.5}), and sulfur dioxide. NAAQS defines the maximum permissible concentrations of these criteria pollutants, which are considered harmful to public health and the environment. NAAQS standards are based on human health criteria for the protection of public health (primary standards) and on environmental criteria to prevent environmental and property damage and for the protection of public welfare (secondary standards) (USEPA, 2021a).

3.9.1 AFFECTED ENVIRONMENT

The Project is located in Region 4 of the USEPA, and as of February 28, 2021, Gadsden County in Florida is currently designated as being in attainment (i.e., meeting NAAQS) for criteria pollutants (USEPA 2021b, 2021c).

3.9.2 ENVIRONMENTAL CONSEQUENCES

The Project is not expected to result in adverse impacts to air quality or exceed air quality standards. Emissions during the construction phase of the Project are expected to be temporary and relatively minor and include the generation of negligible quantities of exhaust and/or fugitive dust from construction and delivery vehicles, diesel-operated equipment, and vegetation clearing and grading activities. Applicable emissions and ambient air quality standards will continue to be met. Implementation of BMPs in accordance with FDEP guidelines, including stabilization and water trucks, will minimize fugitive dust generation.

Solar panels and associated equipment would have an operating life of several decades; therefore, the replacement of panels would be very infrequent. Maintenance and security personnel would visit the Project on an as-needed basis. Based on these factors, operational traffic, and associated dust generation, would be minimal.

Electricity generation from a PV system does not generate chemical emissions that would adversely affect air quality. Further, the Project would not emit hazardous emissions or handle hazardous materials, substances, or waste that would contribute to air emissions. Energy production that substitutes fossil fuels to meet the demand for electricity in Gadsden County and surrounding communities are expected to reduce regional emissions of regulated pollutants over time.

3.9.3 MITIGATION

Adverse impacts to air quality are expected to be negligible; therefore, no mitigation is proposed.

3.10 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

This section identifies socioeconomic characteristics of Gadsden County, including demographics, employment, and income. It also addresses environmental justice per Executive Order 12898.

3.10.1 AFFECTED ENVIRONMENT

The Project Site is located within unincorporated Gadsden County, approximately 8 miles northwest of the city of Quincy, Florida. The populations of Gadsden County and the state of Florida for both 2010 and 2019 are provided in Table 3-6, based on available U.S. Census data. The state of Florida showed population growth of 14.24% over this time, while Gadsden County's population decreased by 1.6%.

Table 3-6: Population Data

Jurisdiction	U.S. Census 2010 Population	U.S. Census 2019 Population Estimates	Percent Population Change
State of Florida	18,801,310	21,477,737	+ 14.24%
Gadsden County	46,389	45,660	- 1.6%

According to the University of Florida Bureau of Economic Business Research (UF/BEBR, 2020), the median population projections for Gadsden County indicate a continued growth, with an estimated population of approximately 47,400 by 2045, a 3.8% increase from the 2019 estimates.

An estimated 6,698 people were employed in Gadsden County in 2019 (Table 3-7). The leading employment industries were education, health care/social services, and retail trade which accounted for approximately 50% of the county's total employment. Statewide, these same industries accounted for approximately 38% of Florida's total employment. (U.S. Census Bureau, 2021).

The median household income within Gadsden County, based on the U.S. Census 2019 data (U.S. Census Bureau, 2019), was reported at \$41,401. Within the County, the average household size was 2.46 people. The median household income within the state of Florida, based on the U.S. Census 2019 data, was reported at \$55,660. Within the state, the average household size was 2.65 people.

Table 3-7: 2019 Employment by Industry, State of Florida and Gadsden County

2019 Employment by Industry	State of Florida Estimate	State of Florida Percent	Gadsden County Estimate	Gadsden County Percent
Total Employment	9,495,353	100%	6,698	100
Educational services, and health care and social assistance	1,994,422	21.0%	1,372	20.5
Public administration	400,774	4.2%	930	13.9
Retail trade	1,206,140	12.7%	863	12.9
Construction	721,621	7.6%	566	8.5
Professional, scientific, and management, and administrative and waste management services	1,245,305	13.1%	527	7.9
Arts, entertainment, and recreation, and accommodation and food services	1,162,995	12.2%	504	7.5
Transportation and warehousing, and utilities	532,646	5.6%	474	7.1

2019 Employment by Industry	State of Florida Estimate	State of Florida Percent	Gadsden County Estimate	Gadsden County Percent
Manufacturing	480,934	5.1%	456	6.8
Finance and insurance, and real estate and rental and leasing	738,389	7.8%	341	5.1
Agriculture, forestry, fishing and hunting, and mining	92,995	1.0%	313	4.7
Other services, except public administration	498,858	5.3%	240	3.6
Wholesale trade	250,829	2.6%	72	1.1
Information	169,445	1.8%	40	0.6

Environmental Justice Analysis

Executive Order 12898, “*Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations*” directs federal agencies “to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.”

Utilizing U.S. Census data, the demographics of the Gadsden county and the state of Florida were characterized by racial categories as well as identified by Hispanic and Latino origin, which is an ethnicity rather than a racial characteristic. In accordance with the Council on Environmental Quality (CEQ) guidance (USEPA, 1998), minority populations are identified when either:

- The population of a minority race exceeds 50% of the population; or
- The population of a minority race is meaningfully greater than, or 1.5 times, the minority population percentage in the general population or another appropriate unit of geographical analysis.

A minority community or a minority population is one that is identified or recognized by the U.S. Census Bureau as Hispanic or Latino, African American or Black, Asian and Pacific Islanders or American Indian. Therefore, any community with a racial or ethnic minority population that is equal to or greater than 50% or when the minority population is 1.5 times greater than the minority population percentage in the total population, then the area is a potential environmental justice area. Table 3-8 presents the demographic characteristics of Gadsden County, as well as the state of Florida. Environmental justice minority populations are present in Gadsden County, as the population of a minority race exceeds 50% of the population.

Table 3-8: 2019 Population Demographics for Gadsden County and the State of Florida

Race/Ethnicity	Gadsden County Total	State of Florida Total
Total Population	45,660	21,477,737
White	41.5%	77.3%
Black or African American	55.5%	16.9%
American Indian and Alaska Native	0.6%	0.5%
Asian	0.6%	0.3%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%
Two or more Races	1.2%	2.2%
Hispanic or Latino (of any race)	10.9%	26.4%

Utilizing U.S. Census data, the population of those living below the poverty line within Gadsden County and the state of Florida were identified and reviewed.

Per CEQ guidance, low-income populations in an affected area should be identified with the annual statistical poverty thresholds from Census Bureau reports on income and poverty. The Census Bureau reports poverty status as the number of people or families with income below a defined threshold level, defining the poverty threshold level as annual income of \$13,465 or less for an individual under age 65 and \$26,246 or less for a family of four with two children (U.S. Census Bureau, 2021). Within Gadsden County, an estimated 19.7% of persons were reported below the poverty level, higher than Florida which had 12.7% of persons reported below the poverty level; therefore, environmental justice low-income populations are present in Gadsden County.

A review of information available at the USEPA's environmental justice mapping and screening tool (EJSCREEN) was performed for a 1-mile radius from the Project site. It is based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports. Appendix E provides the EJSCREEN information for the 1-mile radius from the Project site in comparison to Florida, USEPA Region 4, and the U.S. The EJSCREEN information confirms the presence of an environmental justice population within the 1-mile radius of the project site with a higher percentage of the minority population and low-income population than that of the state, USEPA region, and the U.S.

The Gadsden County environmental indicators rankings are listed in Table 3-10. There are no Superfund sites or hazardous waste treatment, storage, and disposal facilities located within one mile of the Project. The Project will not increase any environmental impacts identified in Table 3-10.

Table 3-9: EJSCREEN Demographic Indicators

Demographic Indicator	1-Mile Radius of Project Site	State	EPA Region	U.S. Percentile
People of Color Population	48%	46%	39%	39
Low Income Population	50%	35%	36%	33

Table 3-10: EJSCREEN Indicators Summary

Environmental Indicator	Value	State Percentile	EPA Region	U.S. Percentile
Particulate Matter	9.23	99	81	72
Ozone	33	52	16	5
Diesel PM	0.147	2	<50	<50
Air Toxics Cancer Risk	40	97	70 - 80	80 - 90
Respiratory Hazard Index	0.65	96	90 - 95	90 - 95
Traffic Proximity and Volume	6.6	4	13	9
Lead Paint	0.31	86	85	63
Superfund Proximity	0.044	34	55	38
RMP Proximity	0.064	4	8	7
Hazardous Waste Proximity	0.031	2	1	2
Wastewater Discharge	0.0097	89	86	79

3.10.2 ENVIRONMENTAL CONSEQUENCES

The Project is expected to have a positive regional effect and positively benefit communities directly affected by the Project, specifically through employment, economic benefit, and tax revenue.

3.10.2.1 Employment and the Economy

The Project is expected to have a positive regional effect and positively benefit communities directly affected by the Project, specifically through employment, economic benefit, and tax revenue.

The construction phase of the project is expected to begin in the spring of 2023. Construction activities, including transmission system upgrades, are expected to involve approximately 150 to 250 on-site construction-related jobs that are likely to be filled by in-state workers. Construction of the Project would involve substantial capital investment that would support temporary employment and income in Gadsden County and the region. Estimated direct construction jobs may result in additional indirect jobs providing increased local revenue. Some construction materials and most temporary construction workers would most likely be drawn from the local community. As a result, permanent increases in population would not occur and housing and community services would not be permanently impacted. The peak construction workforce (250 persons) would have negligible socioeconomic impacts since the increase in economic activity would be temporary and would subside when construction is completed.

Operation of the Project would continue to contribute to the local and regional economies through direct employment and Project-related operations and maintenance expenditures. Typical local operations and maintenance-related expenditures may include vehicle-related expenditures such as fuel costs, maintenance, small replacement parts and equipment, and miscellaneous supplies.

Operation of the Project is expected to support two direct jobs and one indirect job in the region and approximately \$150,000 in direct labor income, with a total annual economic output of approximately \$170,535. This output is expected to occur each year the Project operates.

3.10.2.2 Environmental Justice

The information provided above demonstrates the presence of environmental justice population of minorities and low-income persons in Gadsden County compared to both the U.S. and the state of Florida. The information further demonstrates that these populations are not currently subject to disproportionately high and adverse impacts from existing sources.

The potential adverse impacts of the Project are during construction as the operation of a solar farm does not produce emissions or pollutants or any wastewater discharges. The limited operational employment will not add significant traffic to the area's roadways. During the construction period (9 to 12 months) there will be truck deliveries of material and equipment. There will be a short-term and temporary increase in diesel fuel emissions. The Project is not expected to result in adverse impacts to air quality or exceed air quality standards as identified in Section 3.9.2. There will not be a disproportionate impact to the environmental justice population of the County. When combined with other past, present, or reasonably foreseeable actions and

impacts, the construction, and operation of the Project is not expected to result in cumulative, lasting impacts.

3.10.2.3 Tax Revenue

Construction of the Project will generate sales and use tax revenues through in-state Project expenditures on construction materials, supplies, and equipment. Indirect revenues, such as increased levels of spending by the construction and operation workforce, will also benefit the state and local economies. The Project is expected to have a positive impact on local businesses and the local economy during construction and operation. Purchases of a wide variety of services and supplies such as concrete, aggregate, lumber, conduit, cable, building supplies, office supplies, and tools, are likely to be made locally, whenever available. Motels, apartment complexes, other transient living facilities, such as mobile homes and trailer parks, as well as restaurants and retail businesses, will also benefit from non-local workers, particularly during construction. Additional indirect state and local revenues will be generated from the purchases previously described through corporate income taxes, as well as retail sales taxes paid by the businesses and their employees.

Development and operation would typically be subject to Gadsden County property taxes generated on an annual basis for the operating life of the Project.

3.10.3 MITIGATION

The Project will not result in adverse impacts to socioeconomics; therefore, mitigation is not required.

3.11 MISCELLANEOUS ISSUES

This section discussed the miscellaneous issues potentially associated with construction of the Project.

3.11.1 NOISE

Noise or sound is defined as a rapid vibration of atmospheric pressure caused by some disturbance of air. Characteristics of noise (e.g., level, frequency/pitch, pressure, duration) play a role in determining the intrusiveness and level of impact of the noise on a noise receptor. Sound levels are recorded on a logarithmic decibel (dB) scale that reflects how the ear perceives differences in sound energy levels (OSHA, 2013).

3.11.1.1 Affected Environment

Sources that contribute to the ambient noise in the vicinity of the Project Boundary include manmade noise such as vehicular traffic, noise from agricultural practices, silvicultural operations, roadways, rural residential sounds, and natural sounds (e.g., wind, wildlife). Some land uses are considered more sensitive to intrusive noise than others because of the activities typically involved at those receptor locations. Sensitive human noise receptors normally include residences, schools, libraries, religious institutions, hospitals, and nursing homes, daycare centers, and other

businesses. A cursory desktop review of the Project's vicinity indicates that schools and churches, as well as multiple residences, are located within a 2-mile radius in the unincorporated community of Mount Pleasant. No hospitals are located within a 2-mile radius. The area surrounding the Project is rural.

3.11.1.2 Environmental Consequences

Noise generated during the construction phase of the Project (i.e., from increased vehicular and truck traffic, heavy construction equipment, and other equipment with internal combustion engines) is likely to result in a temporary, short-term increase in ambient sound levels in the Project's vicinity. Construction noise would be of a similar level to the current noise generated from silvicultural operations on the Project site. Construction activities would generally occur between dawn and dusk, Monday through Saturday, 7 AM to 7 PM. The typical maximum noise level of common construction equipment is presented in Table 3-11 (USDOT FHwy, 2006).

Temporary and short-term noise generated during construction is not expected to adversely affect sensitive offsite receptors. During the construction phase of the Project, workers would be expected to wear appropriate hearing protection as required by the Occupational Safety and Health Act of 1970 (20 U.S.C. 651 et seq.).

Table 3-11: Noise Emission Reference Levels for Common Construction Equipment

Equipment Type	Maximum Noise Level (L _{max}) at 50 feet (dBA, slow) * ‡
Compactor (ground)	80
Dozer	85
Dump Truck	84
Excavator	85
Generator	82
Grader	85
Pickup Truck	55
Warning Horn	85
Crane	85

*‡ dBA = decibels A-weighted; ‡ Source: (USDOT FHwy, 2006)

Operation of the Project will not impact ambient noise; the primary source of noise associated with the operation of the Project would be from light vehicular traffic during regular security and/or maintenance activities. Maintenance, repair, and other operational activities would occur exclusively during daylight hours. Inverters, which will be distributed throughout the Project, are a potential source of noise during the daytime hours when PV panels are producing electricity. The typical uncontrolled inverter noise is expected to be up to 75 dB, A-scale which is not likely to be above background levels at the Project boundary (Tech Environmental, 2012). The new switchyard

will be located immediately adjacent to the existing substation and will not significantly increase the current noise volume. Thus, changes in ambient noise levels associated with operations are not expected to adversely impact sensitive receptors.

3.11.1.3 Mitigation

Due to the short-term temporary nature of changes in ambient noise levels during the construction phase of the project and negligible changes during the operation phase of the project when compared with pre-development conditions, no mitigation is required.

3.11.2 TRANSPORTATION

An evaluation of transportation-related to the Project is conducted to determine potential consequences to the community and the environment.

3.11.2.1 Affected Environment

The Project is located approximately one mile southwest of Highway 90, which is a two-lane paved U.S. highway and approximately 2 ½ miles north of Interstate 10. Interstate 10 is a principal arterial traversing through the northern portion of the state of Florida. Interstate 10 is the main thoroughfare in the general vicinity of the Project and Highway 90 runs generally parallel to Interstate 10 in northwest Florida (Figure 1).

3.11.2.2 Environmental Consequences

The Project is expected to result in some short-term increased use of the local transportation network during construction, but not during operation of the Project.

Construction

Currently, vehicular traffic is present during silvicultural operations. An increase in vehicular traffic is expected during the construction phase of the Project from the presence of workers, material/equipment deliveries, access/egress of heavy machinery or trucks accessing the Project. Highway access to the Project during construction will be from Interstate 10 or Highway 90, and construction vehicles will access the Project site via either Atwater Road or W.L. Martin Road. Impacts to road traffic conditions will be limited to the construction phase; thus, short-term and temporary. Safety precautions and work-zone recommended practices in accordance with applicable state and federal regulations will be implemented to maintain safe access/egress of personnel and equipment from the Project while minimizing disruptions to local road conditions. If roadways are inadvertently damaged during Project-related use, repairs would be performed as needed.

Operation

When the Project is completed, vehicular traffic would have highway access to the Project from Interstate 10 or Highway 90 and will access the Project site via either the Atwater Road or

W.L. Martin Road gates. Traffic associated with the operation of the Project is expected from security and/or maintenance activities. Maintenance and security personnel would visit the Project on an as-needed basis. Based on these factors, operational traffic would be minimal. Traffic volume would be similar to, or less than, current existing conditions and would not result in noticeable adverse impacts.

3.11.2.3 Mitigation

Adverse impacts are expected to be minor; therefore, no mitigation is proposed.

3.12 HUMAN HEALTH AND SAFETY

This section addresses public health and safety associated with Project. Public health issues include emergency response and preparedness to ensure operations do not pose a threat to public health. Safety issues related to operations include occupational (worker) safety in compliance with OSHA standards. These safety standards are also applicable to construction activities.

3.12.1 ELECTROMAGNETIC FIELDS AND INTERFERENCE

Electromagnetic fields (EMF) are invisible areas of energy associated with the use of electrical power and various forms of natural and man-made lighting (often referred to as radiation). EMFs are typically grouped into one of two categories by their frequency:

- Non-ionizing: low-level radiation that is generally perceived as harmless to humans. Sources of non-ionizing radiation include microwave ovens, computers, cell phones, power lines, and magnetic resonance imaging (NIEHS, 2022).
- Ionizing: high-level radiation that has the potential to cause cellular and DNA damage. Sources of ionizing radiation include sunlight, x-rays, and some gamma rays (NIEHS, 2022).

3.12.1.1 Affected Environment

Typical EMF associated with electrical generation includes electrical substation that contain transformers, reactors, and capacitor banks, electric power transmission lines, and electric power distribution lines. Transmission lines emit EMF at varying levels depending upon the voltage. At a distance of 300 feet and at times of average electricity demand, the magnetic fields from 115 kV lines can be similar to typical background levels found in most homes. At an electrical substation, the EMF produced by the substation equipment is typically indistinguishable from background levels beyond the substation fence or wall (NIEHS, 2002). A study was conducted in 2015 to characterize EMF at two California solar generating facilities (Tell et al. 2015). The study concluded that EMFs at the facilities were very small compared to exposure limits established by the Institute of Electrical and Electronics Engineers (IEEE) and the International Commission on Non-Ionizing Radiation Protection (ICNIRP, 2020).

3.12.1.2 Environmental Consequences

The Project will be constructed adjacent to an existing 115 kV electrical substation, and will construct a 115 kV gen-tie to the substation. Existing electrical power transmission lines are oriented from west to east across the central portion of the Project. There is unlikely to be significant additional EMF exposure as a result of the construction of the Project.

3.12.1.3 Mitigation

Impacts to human health and safety from EMF are not anticipated; therefore, mitigation is not required.

3.12.2 ENVIRONMENTAL RISK MANAGEMENT

The Project is located on land previously used for silviculture; the Project is private and public access is restricted. There are no current known health and safety issues within the Project Boundary.

3.12.2.1 Affected Environment

The Phase I Environmental Site Assessment for Figure 8 Southlands Parcels was conducted for the solar array field in February 2018 (Tetra Tech, 2018). Work was performed in accordance with the American Society for Testing and Materials (ASTM Standard Practice E1527-13) and the USEPA All Appropriate Inquiry Rule for evaluation of commercial real estate. The purpose of these reports was to assess potential environmental concerns and to identify areas of environmental interest (AEI) and recognized environmental conditions (RECs) related to past and present activities and current conditions of the property. Upon review of environmental databases, historical aerial photographs, and available historical environmental files, Tetra Tech identified two AEIs, one of which is a REC.

The Phase I ESA identified AEI 1/REC 1 (Latitude 30.657863° Longitude -84.717819°) as the location where five pressure-treated utility poles were accidentally partially burned during a prescribed burn. The ownership or age of the utility poles has not been determined. These utility poles were taken out of service when the metal utility poles became available. The chemicals used to treat the utility poles depend on the age of the treated utility poles. Older poles contain pentachlorophenol (PCP). The copper/chromate/arsenic treatment replaced PCP treatment. It may be difficult to determine the nature of the chemicals used to treat the utility poles in AEI/REC 1. Since these utility poles were burned it is reasonable to suspect that residuals may be in the soil (Tetra Tech, 2018).

The Phase I ESA identified AEI 2 (Latitude 30.648117° Longitude -84.719070°) as a hunting camp where materials typical of any hunting camp were observed. No stained soil or stressed vegetation was identified in association with operations at the hunting camp. The campground area was very orderly and clean. No further action was recommended for AEI 2 (Tetra Tech, 2018).

3.12.2.2 Environmental Consequences

The Phase I ESA recommended that the burned utility poles at AEI 1/REC 1 be managed as solid waste. Prior to construction, sampling will be conducted of the soil to determine the disposal of any impacted soil. The soil will be analyzed for PCP, copper, chromium, and arsenic. The final disposition of the soil would depend on the detected concentrations of PCP, copper, chromium, and arsenic.

During construction of the Project, contractors working at the Project may be exposed to short-term safety risks associated with construction. Contractors would be required to establish and maintain a safety plan for construction activities in compliance with OSHA requirements. Standard OSHA recommended BMPs for safety would help minimize any potential safety risks in this regard. Safety BMPs might include but are not be limited to the following:

- Implementing procedures to ensure that equipment guards, housekeeping, and personal protective equipment are in place;
- Establishing programs and procedures for lockout, right-to-know, confined space, hearing conservation, forklift operations, etc.;
- Conducting employee safety orientations;
- Performing regular safety inspections; and
- Developing a plan of action for identified hazards.

With the exception of construction-related materials such as fuels, lubricants, adhesives, and solvents, construction or operation of the Project will not require generation, use, or storage of significant quantities of hazardous substances. Pesticide and herbicide use is site-specific and will be performed by a licensed applicator following USEPA application guidelines for the chemical being used. Compliance with regulations and standard manufacturers' protocols for storage, transportation, and usage of any hazardous construction-related materials will be followed to ensure safety in accordance with OSHA Hazard Communication Standard (29 CFR § 1910.1200) and applicable regulations administered by the local fire departments and Florida OSHA. The toxicity and potential release of these materials would depend on the quantity of material, type of storage container, safety protocols used at the Project, location and/or proximity to residences, frequency, and duration of spills or storage leaks, and the reactivity of hazardous substances with other materials. The PV panels for the Project are environmentally sealed collections of PV cells that require no chemicals and produce no waste materials.

The Project is not expected to present unique or serious health and safety hazards to members of the public. Access to the Project will be restricted to personnel and the perimeter of the Project

will be fenced. Any emergency response at the Project would include the local emergency response agencies in Gadsden County.

3.12.2.3 Mitigation

Impacts to human health and safety are not anticipated; therefore, mitigation is not required.

4.0 CUMULATIVE EFFECTS

The CEQ regulations for implementing NEPA define cumulative effects as “*the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions*” (40 CFR 1508.7). NEPA provides the context and carries the mandate to analyze the cumulative effects of federal actions (CEQ, 1997).

The Gadsden County Planning Division was consulted in order to evaluate any cumulative impacts the Project may have in conjunction with other planned projects in the area. The Future Land Use Element for AG-2 and AG-3 includes solar power generation facilities. The Project is located in land use with this designation, therefore is consistent with the future land use plan (Gadsden County, 2016).

The Wild Azalea Solar Power Energy Center, to be constructed by Florida Power and Light Company (FPL) is the only major project within the five-mile radius of the Project location. The FPL project is located along Atwater Road, north of the Project location. The FDEP Environmental Resource Permit No.: 0405794-001-EI/20 was issued August 18, 2021, and identified that no wetlands will be impacted by the FPL project (FDEP, 2022).

As summarized in Table 4-1, FRP does not anticipate any significant long-term cumulative effects associated with the project. While silviculture land will be taken out of production for both solar projects, the land can be reverted to agriculture upon removal of the solar generating equipment. Temporary impacts will be encountered during the construction stages but will be mitigated as discussed in Section 3.0.

The analysis presented in Table 4-1 utilizes principles of the cumulative effects analysis of CEQ guidance (CEQ, 1997). The analysis uses natural ecological, regional, and sociocultural boundaries as well as temporal scales relevant to the regional vicinity of the Project. Cumulative impacts have been assessed in a qualitative manner and in the context of each inventoried resource, ecosystem, or human community that might be affected. Thus, this cumulative analysis evaluates the Project in the context of other development in the region. The project is not expected to significantly contribute to any cumulative effect.

The Project is not a commitment to a larger action and it is not intended to facilitate substantial population growth in the region. It is part of FRP’s renewable energy portfolio expansion.

Table 4-1: Cumulative Effects Analysis

Resource	Past Actions	Present Actions	Proposed Action	Future Actions	Cumulative Effect
Climate	Dependence on fossil fuels and linked to climate change.	Continued dependence on non-renewable energy; some investment in renewable energy.	New solar project will provide a renewable electrical energy generation resource.	Reduce dependence in non-renewable energy and pursue renewable energy sources.	Potential positive cumulative effects to climate impacts through use of renewable resources for electrical energy production.
Soils	Land cleared for agricultural production.	Seasonal bare soil from agricultural practices.	Temporary disturbance due to construction. Year-round vegetative cover with proposed project.	Continued seasonal bare soil from agricultural practices. Vegetative cover with solar projects.	Combined projects will not have cumulative effects of seasonally bare soil in the area, potential long-term improvements with year-round vegetation cover.
Water Features	Land adjacent to wetland areas cleared for agricultural production. No apparent mitigation by use of SWPPP or BMPs.	Land adjacent to wetland areas cleared for agricultural production. No apparent mitigation by use of SWPPP or BMPs.	Minor temporary disturbance mitigated by use of SWPPP and BMPs. No permanent disturbance of wetlands or streams	Potential impacts to wetlands from regional growth and development. Anticipated protection and mitigation through the FDEP and ACOE permits.	Combined projects will not incur significant cumulative adverse effects to water features and will benefit through minimization of sediment in runoff due to year-round vegetative ground cover.
Vegetation	Land cleared for agricultural production.	Agricultural areas left seasonally bare, native vegetation removed.	Year-round vegetation cover in the Project area.	Continued agricultural practices in the region will leave land seasonally bare and cleared of native vegetation. Vegetative cover with solar projects.	Cumulative loss of agricultural crops from combined projects. Year-round natural vegetative cover to be provided in the Project area.
Wildlife	Wildlife habitat cleared for agricultural production.	Continued loss of habitat and habitat fragmentation due to regional growth and development.	Year-round herbaceous habitat in the Project area.	Continued agricultural practices in the region, loss of habitat, and habitat fragmentation.	Cumulative loss of forested habitat. Year-round improvement to herbaceous habitat for small mammals, birds, and insects.

Resource	Past Actions	Present Actions	Proposed Action	Future Actions	Cumulative Effect
Threatened and Endangered Species	Loss of species populations and habitat.	Species protected and monitored. Some continued loss.	Relocation of Gopher Tortoises ensures that Project does not impact T&E species.	Continue to protect and monitor T&E species and habitat.	No significant cumulative effect.
Land Use	Land cleared for agricultural production.	Regional land use dominated by agricultural production.	Convert farmland to solar facility.	Continued agricultural production in the region. Potential loss of farmland for development.	Cumulative loss of farmland.
Cultural and Historic Resources	Loss of cultural and historic resources.	Conservation and protection of cultural and historic resources.	Utilize Project Area that avoids cultural and historic resources.	Continued conservation protection of cultural and historic resources.	No significant cumulative effect.
Urban, Residential, and Recreation Resources	Development of neighborhoods in the City of Gretna, rural areas, industrial areas, and hunting/fishing recreational areas.	Continued development in the City of Gretna, rural areas, industrial areas, and hunting/fishing recreational areas.	Conversion of farmland to solar facility. Short term impacts as a result of construction (e.g., dust, traffic, potential ground disturbance, and noise disruption).	Continued development around the City of Gretna.	Cumulative loss of land for development around the City of Gretna. No significant cumulative effect to recreational areas.
Transportation/ Utilities	State highways and county roads built around the City of Gretna.	State highways and county roads maintained.	Conversion of farmland to solar facility. Temporary increase in traffic during construction phase.	State highways and county roads maintained.	No significant cumulative effect, temporary increase in traffic during construction phase.
Population	Population primarily in/around the City of Gretna.	Population of Gadsden County has experienced slight decline over the past decade.	Conversion of farmland to solar facility, temporary relocation of specialized workers to the area during construction.	Population expected to continue on the same course.	No significant cumulative effect.
Noise	No identifiable noise issues.	No identifiable noise issues.	Conversion of farmland to solar facility. Temporary increase in noise during construction phase.	Noise levels are expected to remain the same in the area.	No significant cumulative effect.

Resource	Past Actions	Present Actions	Proposed Action	Future Actions	Cumulative Effect
Air Quality	Land cleared for agricultural production. Wind born dust generation from seasonal bare soil.	Land cleared for agricultural production. Wind born dust generation from seasonal bare soil.	Conversion of farmland to solar facility. Year-round vegetation cover. Temporary increase in dust during construction phase.	Continued agricultural production and seasonally bare soil in the region.	Minimum short term impacts during construction of projects. Potential long-term improvements in wind born dust generation from current seasonal bare soil compared to year-round vegetative cover with combined projects.

5.0 SUMMARY OF MITIGATION

FRP has avoided impacts to wetlands and Waters of the U.S., thereby avoiding permitting and mitigation with the USACE and the FDEP. No cultural resources have been identified as eligible for NRHP listing within the Project Boundary, thereby no mitigation measures are required.

The Project is not likely to affect the eastern indigo snake, and will not affect other federally-listed threatened or endangered species within the Project Boundary, therefore mitigation through USFWS is not required. However, the gopher tortoise, observed at the site, is classified as a State-designated Threatened species. Within 90 days prior to site preparation or construction, a 100% gopher tortoise burrow survey will be conducted to support the submittal of an FWC gopher tortoise Conservation Relocation permit application. All burrows within 25 feet of the construction footprint will be excavated under the direction of an FWC-permitted gopher tortoise authorized agent and captured tortoises will be relocated to an agency-approved recipient site to avoid impact.

Mitigation for the eastern indigo snake will include complying with the USFWS Standard Protection Measures which include but are not limited to, installation of eastern indigo signage, verbal training for construction personnel, appropriate steps to be taken if eastern indigo snakes (alive or dead) are observed, and post-construction eastern indigo monitoring report.

6.0 COORDINATION, CONSULTATION, AND CORRESPONDENCE

Consultation with regulatory agencies in the State of Florida was conducted via the Clearinghouse, which coordinates with the following agencies for application reviews:

- U.S. Fish and Wildlife Service;
- Florida State Historic Preservation Office;
- Florida Fish and Wildlife Conservation Commission; and
- Florida Department of Environmental Protection.

The State Clearance Letter was received by email on August 31, 2021 and is provided in Appendix D.

The application for the Project, which included the Environmental Impact Assessment required by the Gadsden County Land Development Code, was submitted to the Gadsden County Board of County Commissioners, Planning Division, in May 2021.

In addition, emailed letters were sent to the following tribes who may have an interest in the Project:

- Alabama-Coushatta Tribe of Texas
- Coushatta Tribe of Louisiana
- Jena Band of Choctaw Indians
- Miccosukee Tribe of Indians
- Mississippi Band of Choctaw Indians
- Muscogee (Creek) Nation
- Poarch Band of Creeks
- Thlopthlocco Tribal Town
- Seminole Tribe of Florida

These tribes are identified as having an ancestral interest in the area. The Seminole Tribe of Florida responded with no objections or other comments. No other tribe responded within the comment period.

7.0 REFERENCES

- AECOM, 2019. "Cultural Resources Assessment Survey of the Figure 8 Solar Track, Gadsden County, Florida" Prepared for Florida Renewable Partners, LLC, Juno Beach, FL. October.
- Audubon (National Audubon Society), 2021a. "Atlantic Flyway." Accessed March 16, 2021. <https://www.audubon.org/atlantic-flyway>.
- Audubon, 2021b. "Guide to North American Birds". Accessed March 2021. <https://www.audubon.org/bird-guide>.
- CEQ (Council on Environmental Quality), 1997. "Considering Cumulative Effects Under the National Environmental Policy Act". Council on Environmental Quality, Executive Office of the President, Washington, DC. January.
- Department of Defense, 2014. "Memorandum for: Mitigation Oversight Committee Members - Procedures Memo #4: Glint/Glare Issues on or near Department of Defense (DoD) Aviation Operations." Department of Defense. https://www.acq.osd.mil/dodsc/library/Procedures_Memo_4_Glint%20Glare%20Issues%20on%20or%20near%20DoD%20Aviation%20Operations.pdf.
- Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual. Wetlands Research Program - Technical Report Y-87-1." U.S. Army Corps of Engineers.
- Erickson, Wallace P, Gregory D Johnson, and David P Young. 2005. "A Summary and Comparison of Bird Mortality from Anthropogenic Causes with an Emphasis on Collisions [USDA FS General Technical Report PSW-GTR-191]." U.S. Department of Agriculture, U.S. Forest Service. https://www.fs.fed.us/psw/publications/documents/psw_gtr191/psw_gtr191_1029-1042_erickson.pdf.
- FAA, 2013. *Interim Policy, Federal Aviation Administration (FAA) Review of Solar Energy System Projects on Federally Obligated Airports [October 23, 2013]. Notices*. Vol. FR Vol. 78, No. 205. <https://www.gpo.gov/fdsys/pkg/FR-2013-10-23/pdf/2013-24729.pdf>.
- FDEP, 2018. (Florida Department of Environmental Protection) *Wetland Delineation Method*, Chapter 62-340, Florida Administrative Code.
- FDEP, 2019. *Hazardous Waste*, Chapter 62-730, Florida Administrative Code.
- FDEP, 2021a. Florida Coastal Management Program. <https://floridadep.gov/rcp/fcmp>
- FDEP, 2022. Map Direct. <https://ca.dep.state.fl.us/mapdirect/?focus=erp>
- FDOS DHR (Florida Department of State, Division of Historical Resources), 2022. Letter from Director, Division of Historical Resources & State Historic Preservation Officer (T. Parsons, Ph.D.) to AECOM (M. Martinkovic). *DHR Project File No.: 2021-6954*

Cultural Resources Assessment Survey of the Figure 8 Solar Tract, Gadsden County, Florida. Dated January 26.

FDOT (Florida Department of Transportation), 1999. "Florida Land Use, Cover and Forms Classification System Handbook". Florida Department Of Transportation, Surveying and Mapping Office, Geographic Mapping Section. Third Edition. January.

FEMA, 2011. "National Flood Insurance Program: Answers to Questions About the NFIP [FEMA F-084 / March 2011]." Federal Emergency Management Agency.

FEMA, 2018. "National Flood Hazard Layer (NFHL) Viewer [ArcGIS Web Application]." 2018. <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>.

FNAI (Florida Natural Areas Inventory). 2021. Biodiversity Matrix Search. Accessed online at: <http://fnai.org/biointro.cfm>

FWC (Florida Fish and Wildlife Conservation Commission). 2021 Eagle Nest Location. Accessed online at: https://geodata.myfwc.com/datasets/eb20bf44aeea44a8ab4a47cd4329c6b6_5?geometry=-104.698%2C24.348%2C-62.884%2C31.148

FNPS (Florida Native Plant Society), 2021. Accessed March 19, 2021. <https://www.fnps.org>.

Gadsden County, 2016. Gadsden County Comprehensive Plan. https://www.gadsdencountyfl.gov/departments/planning_and_community_development/and_development_regulations/comprehensive_plan.php

Gadsden County, 2020. Gadsden County Land Development Code. https://www.gadsdencountyfl.gov/departments/planning_and_community_development/and_development_regulations/land_development_code.php

Gadsden County, 2021. Gadsden County Property Appraiser website, accessed March 18, 2021. <https://qpublic.schneidercorp.com/Application.aspx?AppID=814&LayerID=14537&PageTypeID=1&PageID=6960#>.

Georgia (Georgia Biodiversity Portal), 2021. Accessed March 19, 2021. <https://www.georgiabiodiversity.a2hosted.com/natels/>

Gilbert, K.; J.D. Tobe, R.W. Cantrell, M. E. Sweeley, and J. R. Cooper, 1995. The Florida Wetlands Delineation Manual. <https://floridadep.gov/sites/default/files/delineationmanual.pdf>

ICNIRP (International Commission on Non-Ionizing Radiation Protection), 2020. ICNIRP Guidelines for Limiting Exposure to Electromagnetic Fields (100 kHz to 300 GHz). Available at: <https://www.icnirp.org/cms/upload/publications/ICNIRPrfgdl2020.pdf>.

IEEE. 2000. *IEEE Guide for Safety in AC Substation Grounding [IEEE Std 80-2000 (Revision of IEEE Std 80-1986)]*. The Institute of Electrical and Electronics Engineers, Inc. <http://www.dee.ufrij.br/~acsl/grad/equipamentos/IEEE-std80.pdf>.

- Kagan, Rebecca A, Tabitha C Viner, Pepper W Trail, and Edgard O Espinoza. 2014. "Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis [Docket No. 09-AFC-07C]." Center For Biological Diversity. http://docketpublic.energy.ca.gov/publicdocuments/09-afc-07c/tn202538_20140623t154647_exh_3107_kagan_et_al_2014.pdf.
- Katz, Brian G., 1992. *Hydrochemistry of the Upper Floridan Aquifer, Florida*. U.S. Geological Survey Water-Resources Investigations Report 91-4196. Tallahassee, Florida.
- Leroy, J Watson Jr, Katherine E Rollins, Karen P Smith, Kirk E LaGory, Karin Sinclair, Craig Turchi, Tim Wendelin, and Heidi Souder. 2015. "A Review of Avian Monitoring and Mitigation Information at Existing Utility-Scale Solar Facilities - Prepared for U.S. Department of Energy, SunShot Initiative and Office of Energy Efficiency & Renewable Energy." Argonne National Laboratory-Environmental Science Division and National Renewable Energy Laboratory. <https://www.osti.gov/servlets/purl/1176921>.
- McCrary, Michael D, Robert L McKernan, Schreiber, William D Wagner, and Terry C Sciarrotta. 1986. "Avian Mortality at a Solar Energy Power Plant." *Journal of Field Ornithology* 57 (2 spring): 135–41.
- NIEHS (National Institute of Environmental Health Sciences), 2002. Electric and Magnetic Fields Associated with the Use of Electric Power Questions and Answers. prepared by the National Institute of Environmental Health Sciences and National Institutes of Health. Available at: https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf
- NIEHS, 2022. Electric & Magnetic Fields. Available at: <https://www.niehs.nih.gov/health/topics/agents/emf/index.cfm>
- NWFWMD (Northwest Florida Water Management District), 2017. "Ochlockonee River and Bay Surface Water Improvement and Management Plan". Program Development Series 17-02. https://www.nfwwater.com/content/download/18031/121997/Apalachicola%20River%20and%20Bay%20SWIM%20Plan%20November%202017_errata.pdf.
- NWFWMD, 2018. "2018 Water Supply Assessment Update". Northwest Florida Water Management District Water Resources Assessment 18-01. December.
- OSHA. 2013. "Occupational Safety and Health Administration (OSHA) Technical Manual - Section III: Health Hazards, Chapter 5. Noise [Section Added 2013]." Occupational Safety and Health Administration. https://www.osha.gov/dts/osta/otm/new_noise/index.html.
- Smith, Jennifer A, and James F Dwyer. 2016. "Avian Interactions with Renewable Energy Infrastructure: An Update." *The Condor-Ornithological Applications* 118: 411–23. <https://doi.org/10.1650/CONDOR-15-61.1>.

- Tech Environmental, 2012. *Study of Acoustic and EMF levels from Solar Photovoltaic Projects*, Prepared for the Massachusetts Clean Energy Center, Boston, Massachusetts. December.
- Tell, R.A., H.C. Hooper, G.G. Sias, G. Mexei, P. Hung, and R. Kavet. 2015. Electromagnetic Fields Associated with Commercial Solar Photovoltaic Electric Power Generating Facilities. *Journal of Occupational and Environmental Hygiene* 12(11):795–803. Available at: <https://pubmed.ncbi.nlm.nih.gov/26023811/>.
- Tetra Tech (Tetra Tech, Inc.), 2018. "Phase I Environmental Site Assessment Figure 8 Southlands Parcels (2-15-3N-5W-0000-00210-0000, 2-15-3N-5W-0000-00110-0000, 2-15-3N-5W-0000-00300-0000, 2-22-3N-5W-7510-00000-0020 and 2-22-3N-5W-7510-00000-0010) Gadsden County, Florida. Prepared for Florida Renewable Partners, Juno Beach, Florida. February.
- Tetra Tech, 2021. "Listed Wildlife and Habitat Assessment FRP Gadsden County Solar, Gadsden County, Florida (5 parcels)." Prepared for Florida Renewable Partners, Juno Beach, Florida. April.
- UF/BEBR (University of Florida/Bureau of Economic and Business Research), 2020. Population Studies Program. <https://www.bibr.ufl.edu/population>
- USACE (U.S. Army Corps of Engineers), 2010. "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region". U.S. Army Engineer Research and Development Center, Wetlands Regulatory Assistance Program. ERDC/EL TR-10-20. November.
- U.S. Census Bureau, 2019. "2019 U.S. Federal Poverty Guidelines Used to Determine Financial Eligibility for Certain Federal Programs" <https://aspe.hhs.gov/poverty-guidelines>
- U.S. Census Bureau, 2021. *Poverty Thresholds for 2019 by Size of Family and Number of Related Children Under 18 Years*. Accessed June 2021. <https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html>
- US Census Bureau, ACS (American Community Survey), 2021. 2019 ACS 5-Year Estimates Data Profiles, Selected Gadsden County, <https://data.census.gov/cedsci/table?q=gadsden%20county,%20fl%20employment&g=0400000US12&tid=ACSDP5Y2019.DP03&hidePreview=true&moe=false>. Accessed June.
- USDA (U.S. Department of Agriculture). 2018. "USDA Rural Development." Rural Utility Service (RS). 2018. <https://www.rd.usda.gov/about-rd/agencies/rural-utilities-service>.
- USDA-NRCS (U.S. Department of Agriculture, Natural Resources Conservation Service), 2021. Farmland Protection Policy Act <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/>

- USDOT FHWA. 2006. "Construction Noise Handbook (FHWA-HEP-06-015) [Online Resource]." U.S. Department of Transportation, Federal Highway Administration. https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/.
- USEPA (U.S. Environmental Protection Agency), 2018. "What is a Wetland?" <https://www.epa.gov/wetlands/what-wetland>
- USEPA. 2021a. "NAAQS Table." U.S. EPA: Criteria Air Pollutants. 2021. <https://www.epa.gov/criteria-air-pollutants/naaqs-table>.
- USEPA. 2021b. "EnviroMapper for Envirofacts." 2021. <https://geopub.epa.gov/myem/efmap//index.html?ve=13,47.236778259277344,%E2%80%90122.35669708251953&pText=Fife,%20WA>.
- USEPA, US. 2021c. "Green Book | Florida Nonattainment/Maintenance Status for Each County by Year." February 28, 2021. https://www3.epa.gov/airquality/greenbook/anayo_fl.html.
- USFWS (US Fish and Wildlife Service), 2013a. *Standard Protection Measures for the Eastern Indigo Snake*. https://www.fws.gov/northflorida/IndigoSnakes/20130812_Eastern_indigo_snake_Standard_Protection_Measures.htm
- USFWS, 2013b. *Eastern Indigo Snake Programmatic Effect Determination Key*. www.fws.gov/northflorida/IndigoSnakes/20130813_ltr_Update_addendum_2010_COE_Programmatic_EIS_Key.pdf.
- USFWS, 2016. Species Information, Florida Nesting Colonies, and Core Foraging Areas Map. https://www.fws.gov/northflorida/woodstorks/Documents/20131211_Wood_stork_FL_nesting_colonies_map_update_2013.pdf
- USFWS , 2019a. "Boykin's lobelia Fact Sheet" March, 2019. <https://www.fws.gov/southeast/pdf/fact-sheet/boykins-lobelia.pdf>
- USFWS, 2019b. U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Resource List. Accessed on at: <https://ecos.fws.gov/ipac/>
- USFWS, Information for Planning and Consultation (IPaC), 2021. Accessed March 15, 2021. <https://ecos.fws.gov/ipac/location/Q6EPRTHKQBFAZML652D7BMUIQ/resources>
- USGS, 2021. "U.S. Geological Survey, Gap Analysis Project (GAP), 2021, Protected Areas Database of the United States (PAD-US) 2.1: <https://maps.usgs.gov/padus/#share=g-6b4a915101577be08456f69639864b91>.

8.0 LIST OF PREPARERS


The following table lists the individuals who contributed to the development of this EA.

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Desiree Estabrook	Project Manager, Tribal Relations	NextEra Energy Resources
Heather Carolan	Project Manager	Tetra Tech, Inc.
Diane Fears	Environmental Scientist	Tetra Tech, Inc.
Carlos Hernandez, PMP	Environmental Scientist	Tetra Tech, Inc.
Michelle Cannella	Environmental Scientist, Senior Reviewer	Tetra Tech, Inc.

FIGURES



DRAWN BY	DATE
J.MADDEN	03/08/21
CHECKED BY	DATE
H.CAROLAN	03/08/21
REVISED BY	DATE
SCALE AS NOTED	

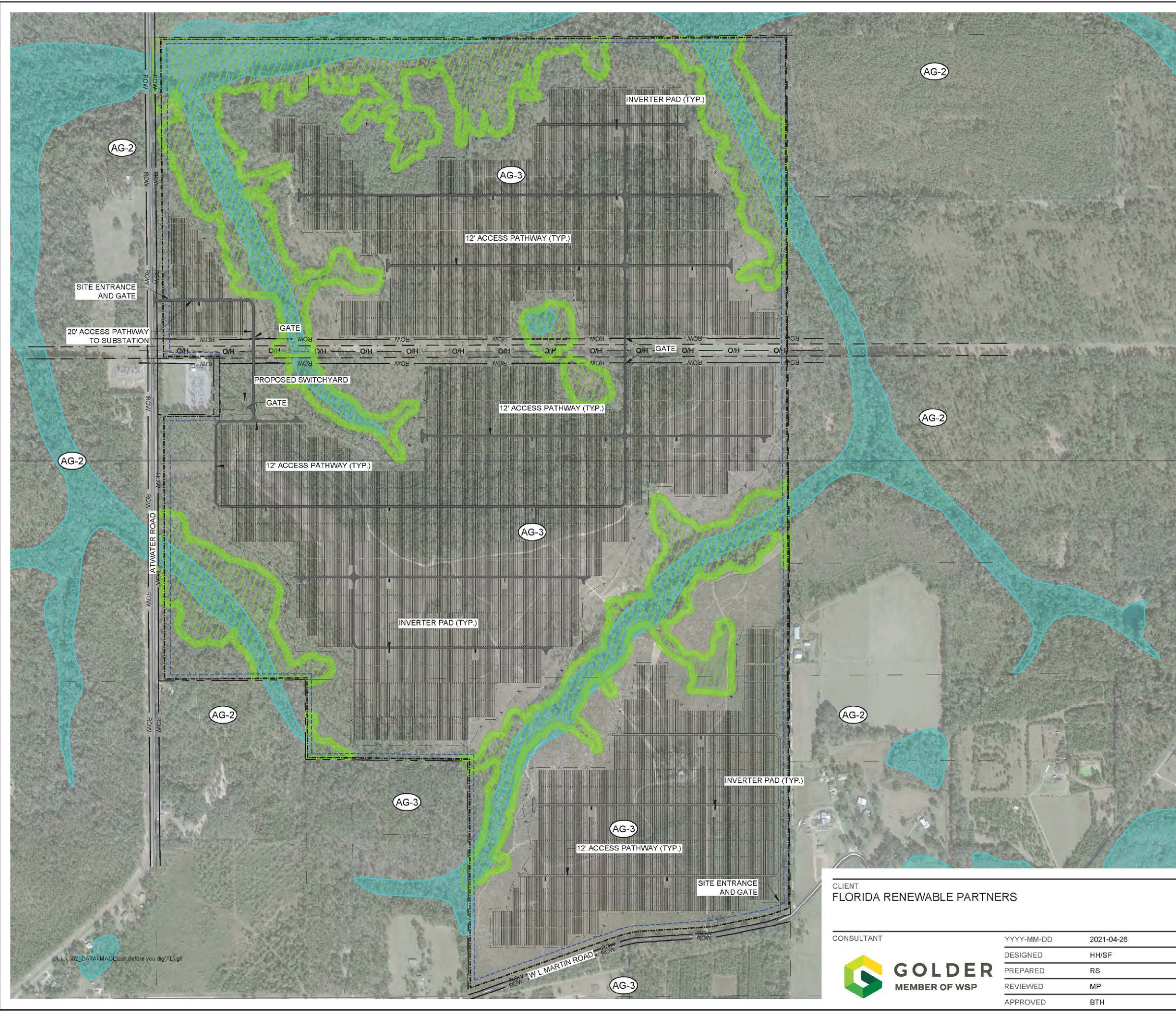


TETRA TECH

Site Vicinity Map
 Florida Renewable Partners Gadsden County Solar
 Gadsden County, FL

CONTRACT NUMBER 112C09415	
APPROVED BY	DATE
H.CAROLAN	03/08/21
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SITE COVERAGE TABLE			
DESCRIPTION	SQ. FT.	ACREAGE	% OF SITE
PROPOSED ACCESS PATHS	566,032	12.99	1.65
SUBSTATION	20,000	0.46	0.06
INVERTER PADS	6,317	0.15	0.02
TOTAL IMPERVIOUS	592,349	13.60	1.73
TOTAL PERVIOUS	33,713,306	773.95	98.27
TOTAL AREA	34,305,655	787.55	100
FENCED AREA	17,143,445	393.56	49.97

FLORIDA RENEWABLE PARTNERS
 GADSDEN COUNTY SOLAR ENERGY CENTER
 GADSDEN COUNTY, FLORIDA

OWNER
 FLORIDA RENEWABLE PARTNERS

ZONING

SITE ZONING SETBACKS	
FRONT	50'
SIDE	15'
REAR	10'

SOLAR SETBACKS	
FROM ROW LINE	100'
FROM PROPERTY LINE	50'

- FUTURE LAND USE**
- (AG-2) AGRICULTURE 2
 - (AG-3) AGRICULTURE 3

100-YEAR FLOODPLAIN
 THE FACILITY LIES WITHIN FLOOD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AND FLOOD ZONE A (1% ANNUAL FLOOD CHANCE) AS IDENTIFIED ON FEMA PANELS 12039C0075C, EFFECTIVE DATE: 02/04/2009.

SECURITY FENCING
 SUBSTATION FENCE SHALL BE 7'-0" CHAINLINK WITH 6 STRANDS OF BARBED WIRE ON "V" EXTENSION ARMS TO MAKE AN OVERALL HEIGHT OF 8'-0". PERIMETER FENCE SHALL BE 6'-0" CHAINLINK WITH 3 STRANDS OF BARBED WIRE TO MAKE AN OVERALL HEIGHT OF 7'-0" OR WOVEN WIRE FARM FENCE WITH AN OVERALL HEIGHT OF 6'-0".

LEGEND

--- SITE BOUNDARY	--- FLOODPLAIN - ZONE A
-x-x- PROPOSED FENCE	--- WETLAND BOUNDARY
- - - ROW	--- WETLAND BUFFER
--- PARCEL BOUNDARY	--- SOLAR PANELS
--- ZONING SETBACK	--- INVERTER PAD
--- SOLAR SETBACK	--- ACCESS PATHWAY
--- O/H	
--- ELECTRICAL EASEMENT	

**NOT FOR CONSTRUCTION
 DRAFT**

- NOTE(S)**
- AERIAL IMAGERY COURTESY OF GOOGLE EARTH DATED 11/12/2019.
 - ELEVATIONS SHOWN ON THE PLANS ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NAVD88 = NGVD29 -0.489 FT.
 - BOUNDARY SURVEY DATA TAKEN FROM DOUGLAS W NUMAKER PROFESSIONAL SURVEYOR AND MAPPER DATED 01/22/2018.
 - WETLAND DATA TAKEN FROM TETRA TECH, INC. DATED 08/26/2019.

CLIENT
 FLORIDA RENEWABLE PARTNERS

CONSULTANT
GOLDER
 MEMBER OF WSP

YYYY-MM-DD	2021-04-26
DESIGNED	HH/SF
PREPARED	RS
REVIEWED	MP
APPROVED	BTH

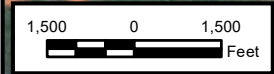
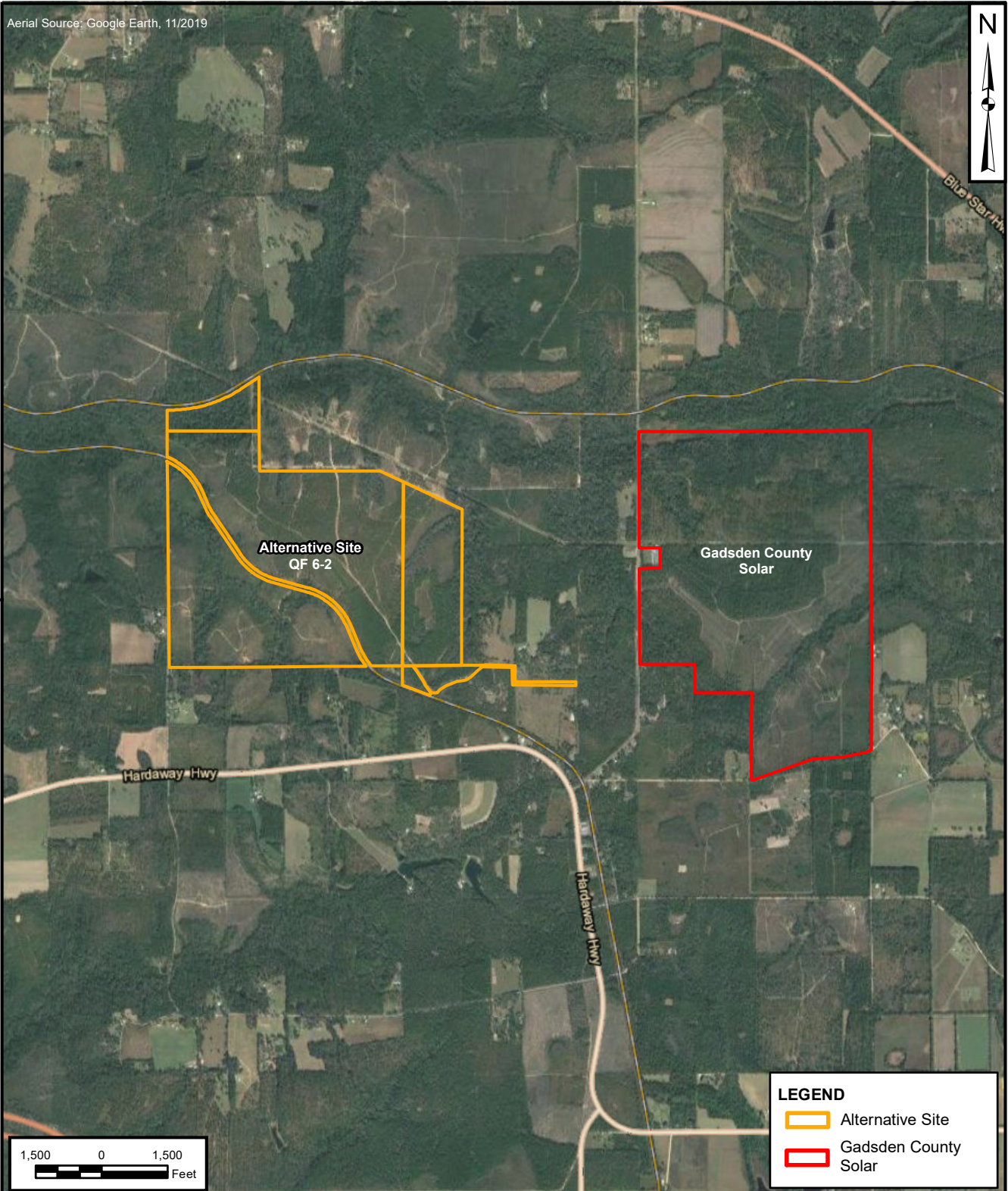
PROJECT
 FRP GADSDEN COUNTY SOLAR
 GADSDEN COUNTY, FLORIDA

TITLE
 SITE PLAN

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Aerial Source: Google Earth, 11/2019



LEGEND	
	Alternative Site
	Gadsden County Solar

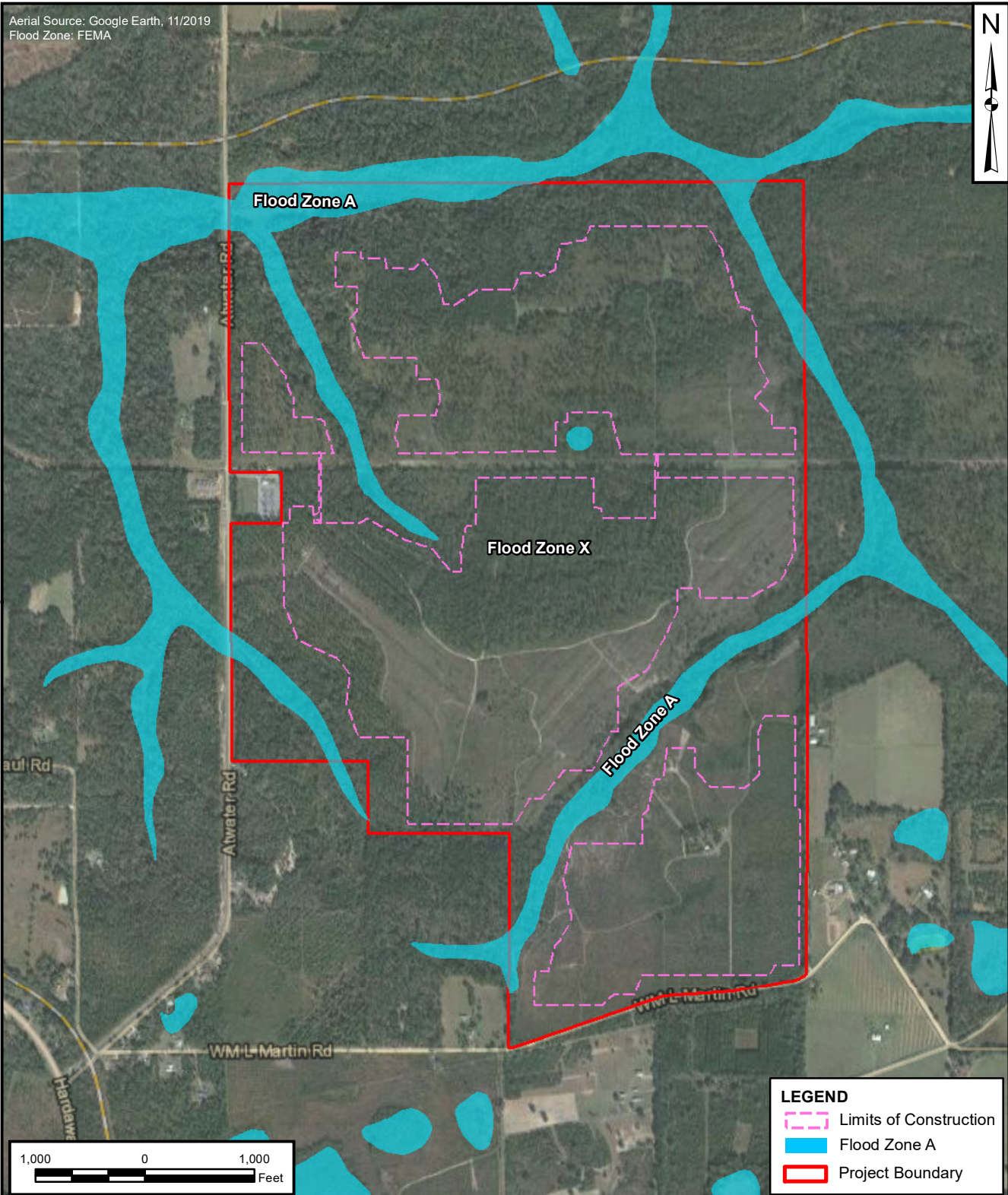
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J.MADDEN	05/25/21
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H.CAROLAN	05/25/21
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SCALE	AS NOTED



Alternative Sites Location Map
 Florida Renewable Partners Gadsden County Solar
 Gadsden County, FL


CONTRACT NUMBER	
112C09415	
APPROVED BY	DATE
H.CAROLAN	05/25/21
APPROVED BY	DATE
FIGURE NO.	REV
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Aerial Source: Google Earth, 11/2019
 Flood Zone: FEMA



LEGEND	
	Limits of Construction
	Flood Zone A
	Project Boundary

DRAWN BY	DATE
J.MADDEN	09/06/22
CHECKED BY	DATE
H.CAROLAN	09/06/22
REVISED BY	DATE
SCALE AS NOTED	



TETRA TECH

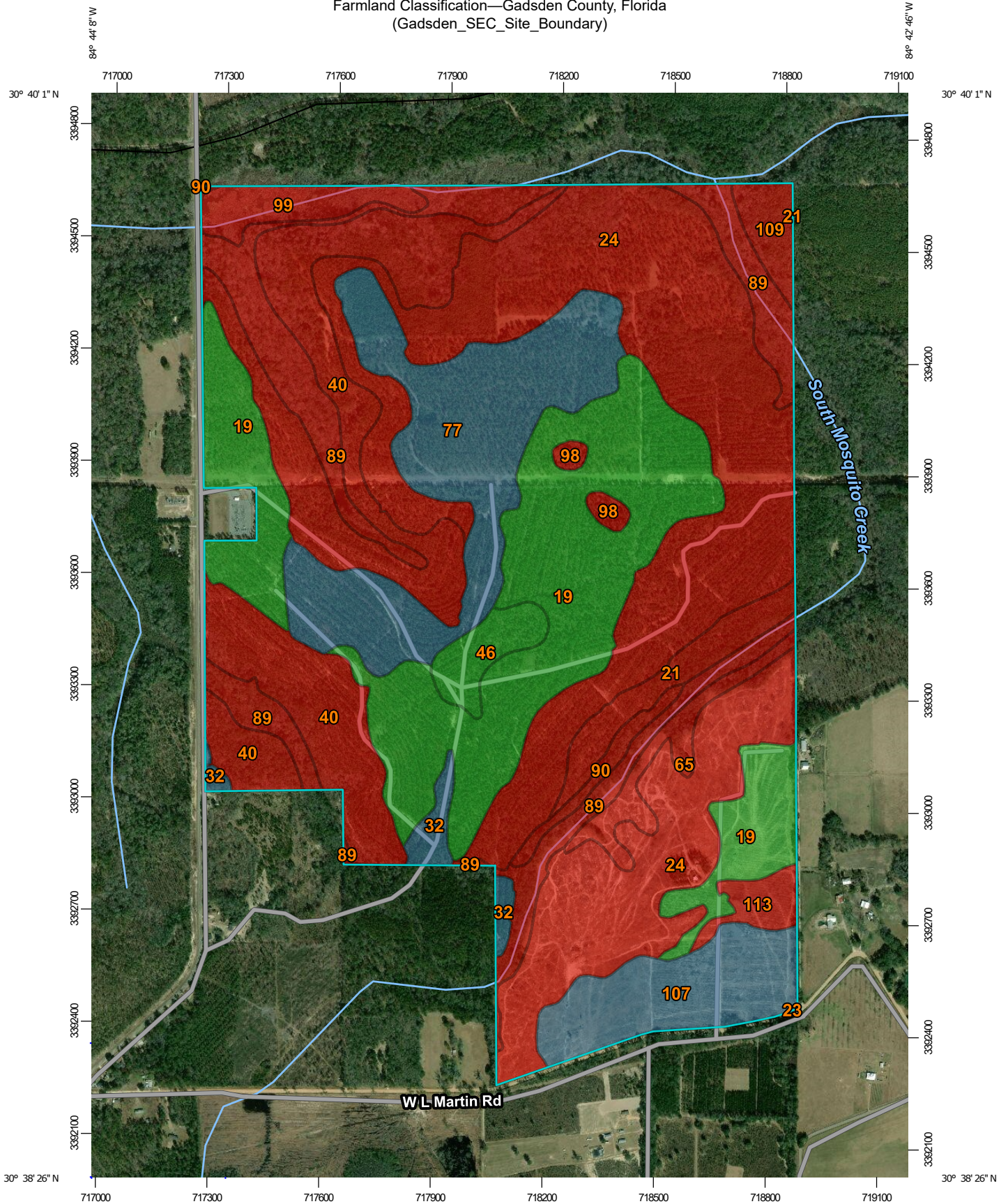
Flood Zone Map
 Florida Renewable Partners Gadsden County Solar
 Gadsden County, FL

CONTRACT NUMBER 112C09415	
APPROVED BY H.CAROLAN	DATE 09/06/22
APPROVED BY	DATE
FIGURE NO. 4	REV 0

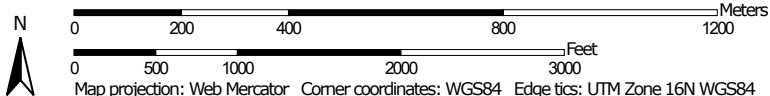
APPENDICES

APPENDIX A – LAND USE

Farmland Classification—Gadsden County, Florida
(Gadsden_SEC_Site_Boundary)



Map Scale: 1:14,100 if printed on A portrait (8.5" x 11") sheet.

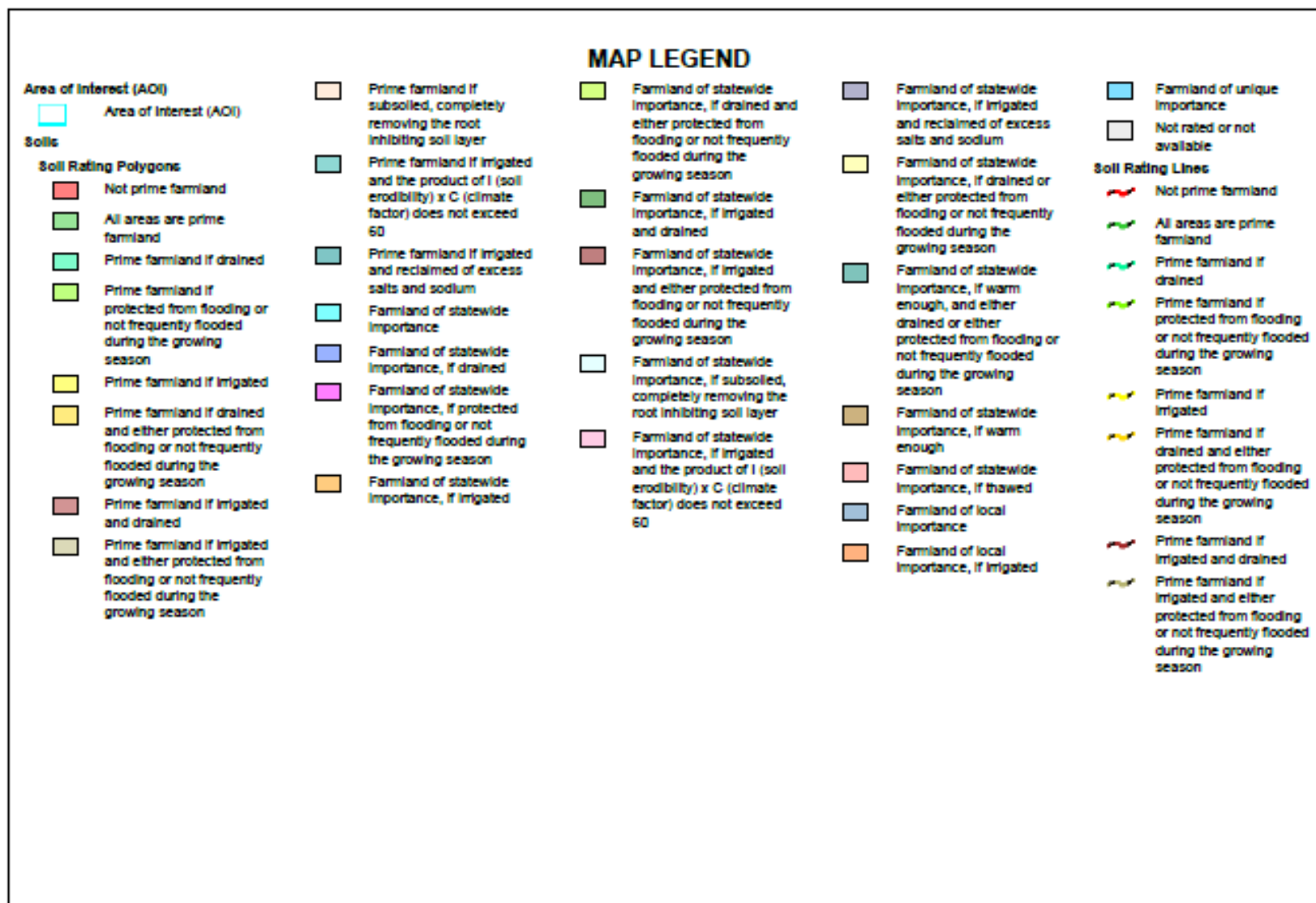


Natural Resources
Conservation Service
































Web Soil Survey
National Cooperative Soil Survey

9/28/2021
Page 1 of 6






















Farmland Classification—Gadsden County, Florida
(Gadsden_SEC_Site_Boundary)



Farmland Classification—Gadsden County, Florida
(Gadsden_SEC_Site_Boundary)

	Prime farmland if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium		Farmland of unique importance		Prime farmland if subsoiled, completely removing the root inhibiting soil layer
	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if irrigated and drained		Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season		Soil Rating Points Not prime farmland		Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
	Prime farmland if irrigated and reclaimed of excess salts and sodium		Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season		Prime farmland if drained		Prime farmland if irrigated and reclaimed of excess salts and sodium
	Farmland of statewide importance		Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if warm enough		Prime farmland if protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance
	Farmland of statewide importance, if drained		Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if thawed		Prime farmland if irrigated		Farmland of statewide importance, if drained
	Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season				Farmland of local importance		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
	Farmland of statewide importance, if irrigated				Farmland of local importance, if irrigated		Prime farmland if irrigated and drained		Farmland of statewide importance, if irrigated
							Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season		

Farmland Classification—Gadsden County, Florida
(Gadsden_SEC_Site_Boundary)

<ul style="list-style-type: none">  Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season  Farmland of statewide importance, if irrigated and drained  Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season  Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer  Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60 	<ul style="list-style-type: none">  Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium  Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season  Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season  Farmland of statewide importance, if warm enough  Farmland of statewide importance, if thawed  Farmland of local importance  Farmland of local importance, if irrigated 	<ul style="list-style-type: none">  Farmland of unique importance  Not rated or not available <p>Water Features</p> <ul style="list-style-type: none">  Streams and Canals <p>Transportation</p> <ul style="list-style-type: none">  Rails  Interstate Highways  US Routes  Major Roads  Local Roads <p>Background</p> <ul style="list-style-type: none">  Aerial Photography 	<p>The soil surveys that comprise your AOI were mapped at 1:12,000.</p> <p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</p> <p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Gadsden County, Florida Survey Area Data: Version 26, Jun 11, 2020</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Feb 11, 2016—Sep 24, 2017</p> <p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>
--	--	--	---

Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
19	Dothan-Fuquay complex, 2 to 5 percent slopes	All areas are prime farmland	157.2	20.0%
21	Dothan-Fuquay-Cowarts complex, 8 to 15 percent slopes	Not prime farmland	16.2	2.1%
23	Fuquay-Lucy-Orangeburg complex, 0 to 5 percent slopes	Farmland of local importance	0.0	0.0%
24	Fuquay-Bonifay complex, 5 to 15 percent slopes	Not prime farmland	236.1	30.0%
32	Leefield-Bonifay-Dothan complex, 0 to 5 percent slopes	Farmland of local importance	8.4	1.1%
40	Cowarts-Dothan-Fuquay complex, 15 to 60 percent slopes	Not prime farmland	115.3	14.6%
46	Orangeburg loamy sand, 2 to 5 percent slopes	All areas are prime farmland	11.1	1.4%
65	Udorthents, reclaimed	Not prime farmland	12.4	1.6%
77	Bonifay-Fuquay complex, 0 to 5 percent slopes	Farmland of local importance	89.0	11.3%
89	Bibb-Rains-Garcon complex, occasionally flooded	Not prime farmland	67.0	8.5%
90	Hosford and Plummer mucky sands, 2 to 12 percent slopes	Not prime farmland	5.6	0.7%
98	Rutlege and Plummer soils, depressional	Not prime farmland	3.5	0.4%
99	Water	Not prime farmland	13.2	1.7%
107	Fuquay-Bonifay complex, 0 to 5 percent slopes	Farmland of local importance	36.8	4.7%
109	Dothan-Cowarts-Fuquay complex, 15 to 60 percent slopes	Not prime farmland	8.4	1.1%
113	Leefield fine sand, 0 to 5 percent slopes	Not prime farmland	7.4	0.9%
Totals for Area of Interest			787.5	100.0%

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

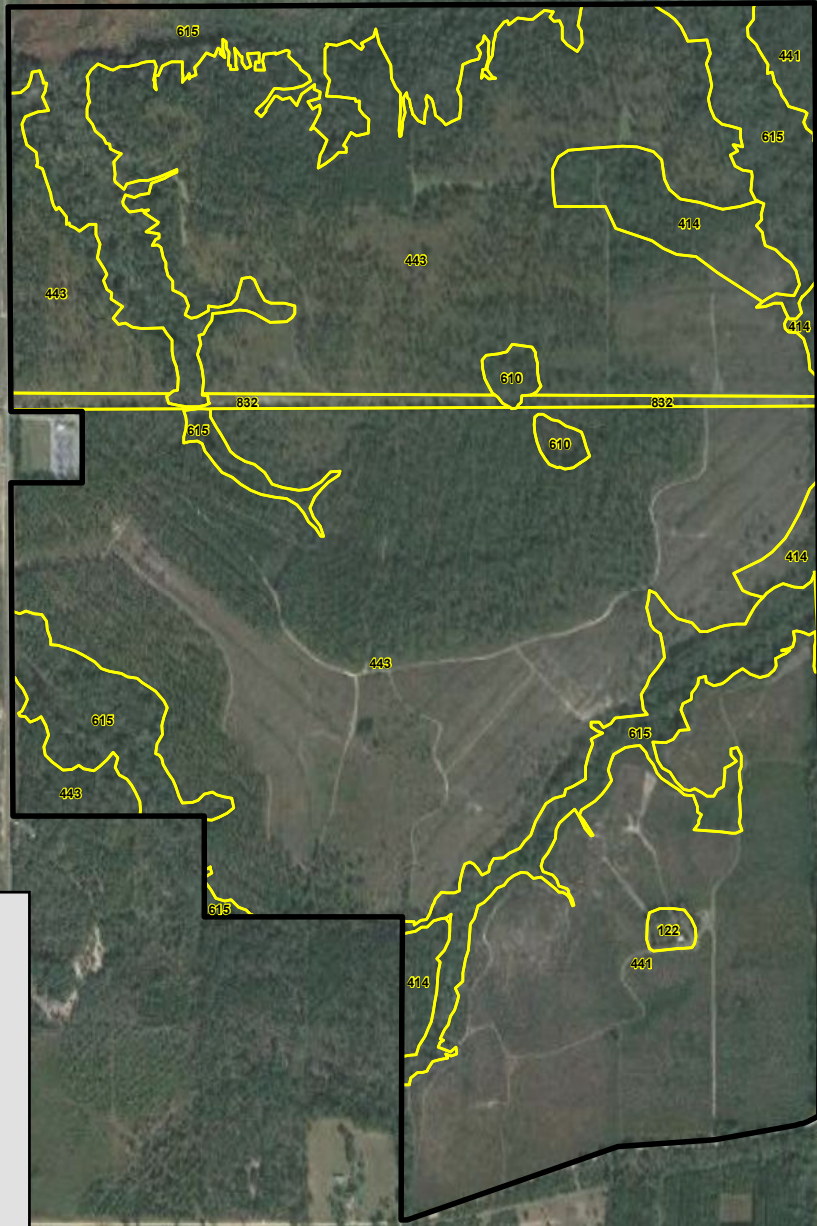
Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

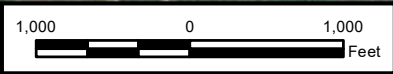
FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 4/5/2022			
Name of Project Florida Renewable Partners (FRP) Gads		Federal Agency Involved United States Department of Agricul			
Proposed Land Use Solar power generation		County and State Gadsden County, Florida			
PART II (To be completed by NRCS)		Date Request Received By NRCS 4/6/2022		Person Completing Form: Isabelle Giuliani	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? <i>(If no, the FPPA does not apply - do not complete additional parts of this form)</i>		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	Acres Irrigated 2,650	Average Farm Size 126
Major Crop(s) forage (hay)	Farmable Land In Govt. Jurisdiction Acres: 15,718 % 4.76	Amount of Farmland As Defined in FPPA Acres: 74,967 % 0.2270			
Name of Land Evaluation System Used soil potential evaluation rating	Name of State or Local Site Assessment System none	Date Land Evaluation Returned by NRCS 4/7/2022			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		438			
B. Total Acres To Be Converted Indirectly		213			
C. Total Acres In Site		590			
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		157.2			
B. Total Acres Statewide Important or Local Important Farmland		145.3			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		1.92			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		49.6			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)		75.4			
PART VI (To be completed by Federal Agency) Site Assessment Criteria <i>(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)</i>		Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use		(15)	15		
2. Perimeter In Non-urban Use		(10)	8		
3. Percent Of Site Being Farmed		(20)	20		
4. Protection Provided By State and Local Government		(20)	0		
5. Distance From Urban Built-up Area		(15)	5		
6. Distance To Urban Support Services		(15)	10		
7. Size Of Present Farm Unit Compared To Average		(10)	10		
8. Creation Of Non-farmable Farmland		(10)	10		
9. Availability Of Farm Support Services		(5)	0		
10. On-Farm Investments		(20)	0		
11. Effects Of Conversion On Farm Support Services		(10)	0		
12. Compatibility With Existing Agricultural Use		(10)	0		
TOTAL SITE ASSESSMENT POINTS		160	78	0	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	75.4	0	0
Total Site Assessment (From Part VI above or local site assessment)		160	78	0	0
TOTAL POINTS (Total of above 2 lines)		260	153.4	0	0
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>			
Reason For Selection:					
Name of Federal agency representative completing this form:					Date:

Aerial Source: Google Earth, 11/2019



- 122 - Mobile Home Units
1.7 Acres
- 414 - Pine-Mesic Oak
25.1 Acres
- 441 - Coniferous Plantations
145.7 Acres
- 443 - Forest Regeneration Areas
482.7 Acres
- 610 - Wetland Hardwood Forests
4.5 Acres
- 615 - Stream and Lake Swamps
121.9 Acre
- 832 - Electrical Power Transmission
Lines: 9.5 Acres



LEGEND

Project Boundary

DRAWN BY	DATE
J.MADDEN	05/14/21
CHECKED BY	DATE
H.CAROLAN	05/14/21
REVISED BY	DATE
SCALE	AS NOTED



Florida Land Use, Cover and Forms Classification System Map
Florida Renewable Partners Gadsden County Solar
Gadsden County, FL

CONTRACT NUMBER 112C09415	
APPROVED BY H.CAROLAN	DATE 05/14/21
APPROVED BY	DATE
FIGURE NO. 5	REV 0

Nationwide Rivers Inventory

National Park Service
U.S. Department of the Interior

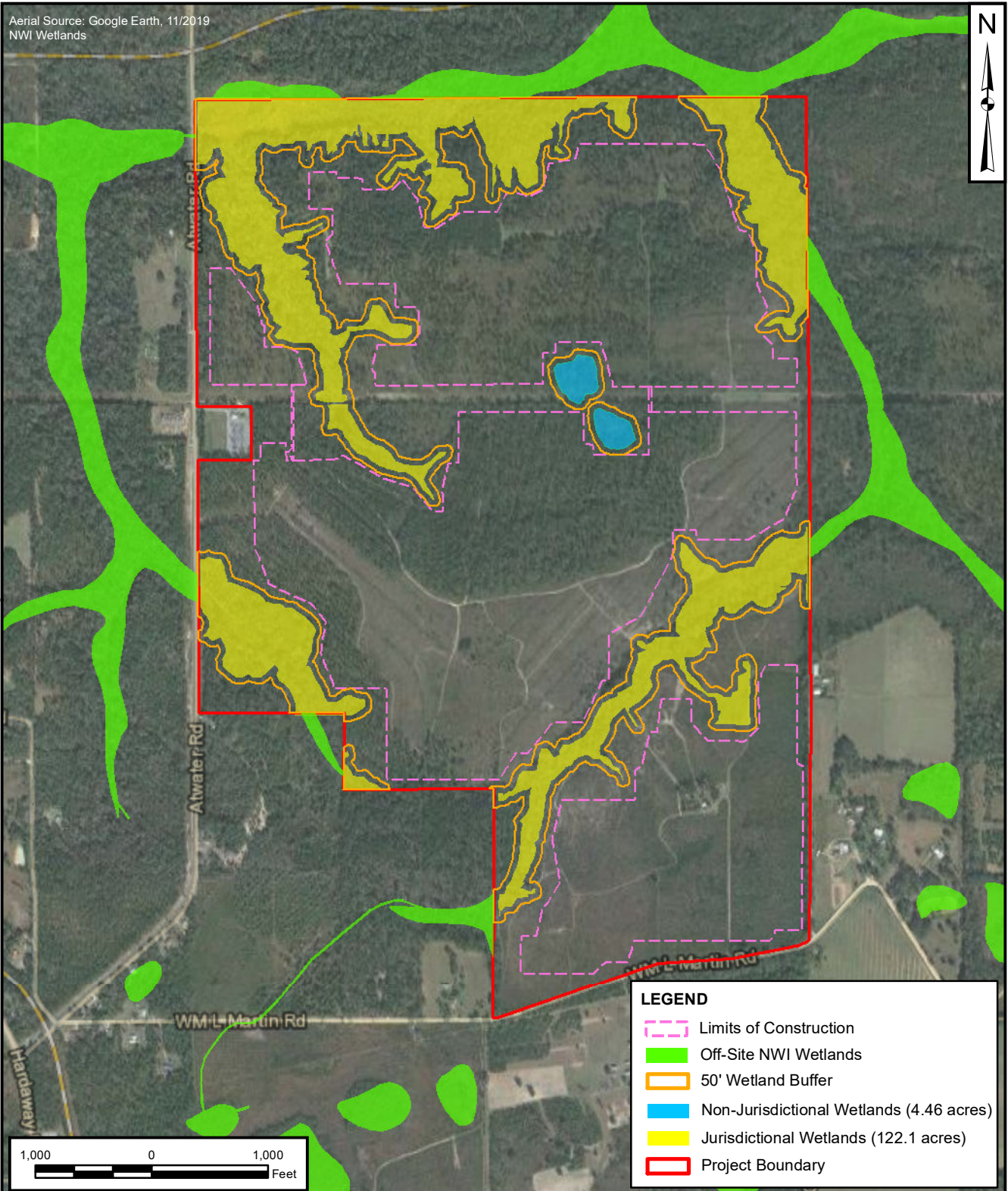
This is a listing of more than 3,200 free-flowing river segments in the U.S. that are believed to possess one or more "outstandingly rem...



2000 ft National Park Service (<https://www.nps.gov>) | © Mapbox (<https://www.mapbox.com/about/maps/>) | © OpenStreetMap (<https://www.openstreetmap.org/copyright>) contributors | Geocoding by Esri

APPENDIX B – WETLANDS

Aerial Source: Google Earth, 11/2019
 NWI Wetlands



LEGEND

- Limits of Construction
- Off-Site NWI Wetlands
- 50' Wetland Buffer
- Non-Jurisdictional Wetlands (4.46 acres)
- Jurisdictional Wetlands (122.1 acres)
- Project Boundary



DRAWN BY	DATE
J.MADDEN	09/06/22
CHECKED BY	DATE
H.CAROLAN	09/06/22
REVISED BY	DATE
SCALE AS NOTED	

TETRA TECH

Wetland Delineation Map
 Florida Renewable Partners Gadsden County Solar
 Gadsden County, FL

CONTRACT NUMBER 112C09415	
APPROVED BY H.CAROLAN	DATE 09/06/22
APPROVED BY	DATE
FIGURE NO. 4	REV 0



November 12, 2020

Ms. Muriel Blaisdell
U.S. Army Corps of Engineers
Jacksonville District
701 San Marco Boulevard
Jacksonville, FL 32207

Re: Florida Renewables Partners (FRP) Gadsden County Solar – Approved Jurisdictional Determination

Dear Ms. Blaisdell:

Florida Renewable Partners (FRP) is requesting an approved jurisdictional determination for the proposed FRP Gadsden County Solar (project). The proposed project encompasses approximately 790 acres of silvicultural land north of W L. Martin Road and east of Atwater Road, approximately 6 miles southeast of the city of Chattahoochee in unincorporated Gadsden County, Florida (Figure 2).

The enclosed package requests jurisdictional determination of two isolated wetland systems. To support the request of a letter documenting that the two isolated wetland systems are excluded from USACE jurisdiction, the package includes:

- Interim Approved Jurisdictional Determination Form
- Figures (parcel IDs, site vicinity, aerial photograph with wetland delineation, soils, NWI, and USGS topographic map)
- Wetland Determination Data Forms

Should you have any questions regarding this request, please feel free to contact me at 561-691-7068 (kennard.proctorjr@nee.com).

Sincerely,

A handwritten signature in blue ink, appearing to read "Ken Proctor".

Ken Proctor
Environmental Services

cc: Heather Carolan, Tetra Tech



**U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE**

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): 11/12/2020

ORM Number: -

Associated JDs: N/A

Review Area Location¹: State/Territory: Florida City: Chattahoochee County/Parish/Borough: Gadsden

Center Coordinates of Review Area: Latitude 30.658191° Longitude -84.722309°

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale:
- There are “navigable waters of the United States” within Rivers and Harbors Act jurisdiction within the review area (complete table in Section II.B).
- There are “waters of the United States” within Clean Water Act jurisdiction within the review area (complete appropriate tables in Section II.C).
- There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in Section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)²

§ 10 Name	§ 10 Size		§ 10 Criteria	Rationale for § 10 Determination
N/A	N/A	N/A	N/A.	N/A

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters): ³				
(a)(1) Name	(a)(1) Size		(a)(1) Criteria	Rationale for (a)(1) Determination
N/A	N/A	N/A.	N/A.	N/A

Tributaries ((a)(2) waters):				
(a)(2) Name	(a)(2) Size		(a)(2) Criteria	Rationale for (a)(2) Determination
South Mosquito Creek	N/A	N/A.	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year.	Perennial stream with intermittent tributaries as depicted in the attached USGS 2012 topographic map and aerial photograph with the delineated wetlands.

¹ Map(s)/figure(s) are attached to the AJD provided to the requestor.

² If the navigable water is not subject to the ebb and flow of the tide or included on the District’s list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.

³ A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD Form.



**U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE**

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):				
(a)(3) Name	(a)(3) Size		(a)(3) Criteria	Rationale for (a)(3) Determination
N/A	N/A	N/A.	N/A.	N/A

Adjacent wetlands ((a)(4) waters):				
(a)(4) Name	(a)(4) Size		(a)(4) Criteria	Rationale for (a)(4) Determination
Wetlands	122.1	acre(s)	(a)(4) Wetland inundated by flooding from an (a)(1)-(a)(3) water in a typical year.	Connected by the perennial South Mosquito Creek and intermittent tributaries as depicted in the attached USGS 2012 topographic map and figure with delineated wetlands over an aerial photograph.

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12)): ⁴				
Exclusion Name	Exclusion Size		Exclusion ⁵	Rationale for Exclusion Determination
Non-Jurisdictional Wetland 1	2.51	acre(s)	(b)(1) Non-adjacent wetland.	The subject water does not meet the definition of an “adjacent wetland”. This wetland is a small isolated wetland, which is not located in proximity to, or connected to, any other system or jurisdictional water of the U.S.
Non-Jurisdictional Wetland 2	1.95	acre(s)	(b)(1) Non-adjacent wetland.	The subject water does not meet the definition of an “adjacent wetland”. This wetland is a small isolated wetland, which is not located in proximity to, or connected to, any other system or jurisdictional water of the U.S.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

Information submitted by, or on behalf of, the applicant/consultant: [Figure 1 – Parcels](#), [Figure 2 – Site Vicinity](#)

This information is sufficient for purposes of this AJD.

Rationale: [Two wetlands are non-jurisdictional and isolated since they do not meet the definition of a connection to a jurisdictional water of the U.S.](#)

- Data sheets prepared by the Corps:
- Photographs: [Aerial: Figure 3 – Aerial with delineated jurisdictional wetland limits](#)
- Corps site visit(s) conducted on:
- Previous Jurisdictional Determinations (AJDs or PJDs):
- Antecedent Precipitation Tool: [provide detailed discussion in Section III.B.](#)
- USDA NRCS Soil Survey: [Figure 4 - NRCS Soils](#)
- USFWS NWI maps: [Figure 5](#)

⁴ Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.

⁵ Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.



**U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE**

USGS topographic maps: [Figure 6](#)

Other data sources used to aid in this determination:

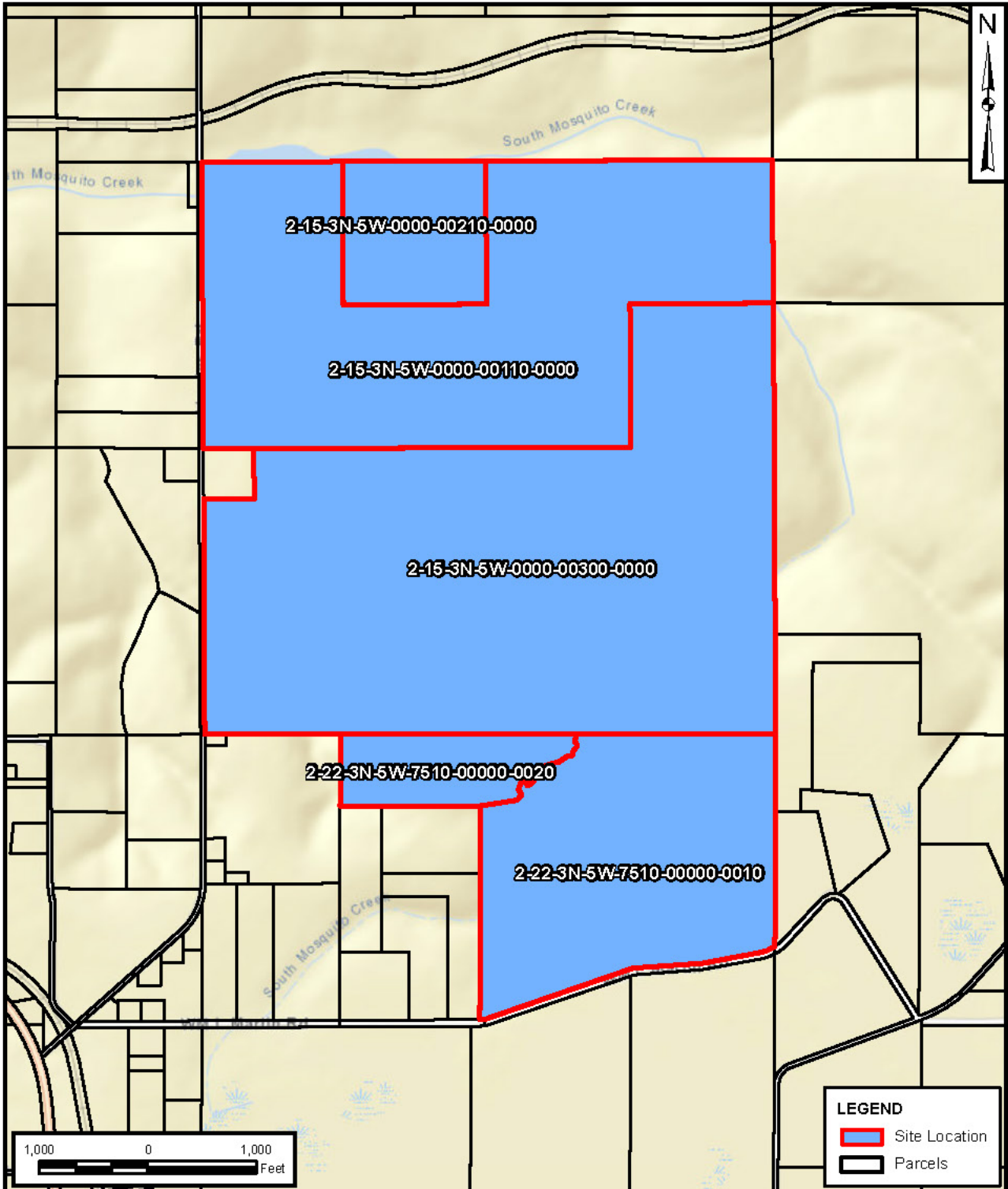
Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A
USDA Sources	N/A
NOAA Sources	N/A
USACE Sources	N/A
State/Local/Tribal Sources	N/A
Other Sources	Data forms prepared by the requestor

B. Typical year assessment(s): [N/A.](#)

C. Additional comments to support AJD: [Two wetlands are isolated and non-jurisdictional with no connection to a jurisdictional water of the U.S.](#)

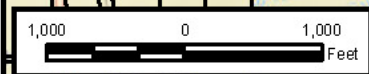
ATTACHMENTS

PARCEL IDENTIFICATION NUMBER



LEGEND

- Site Location
- Parcels



DRAWN BY	DATE
J.MADDEN	01/02/18
CHECKED BY	DATE
B.PEEBLES	01/02/18
REVISED BY	DATE



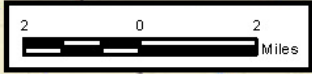
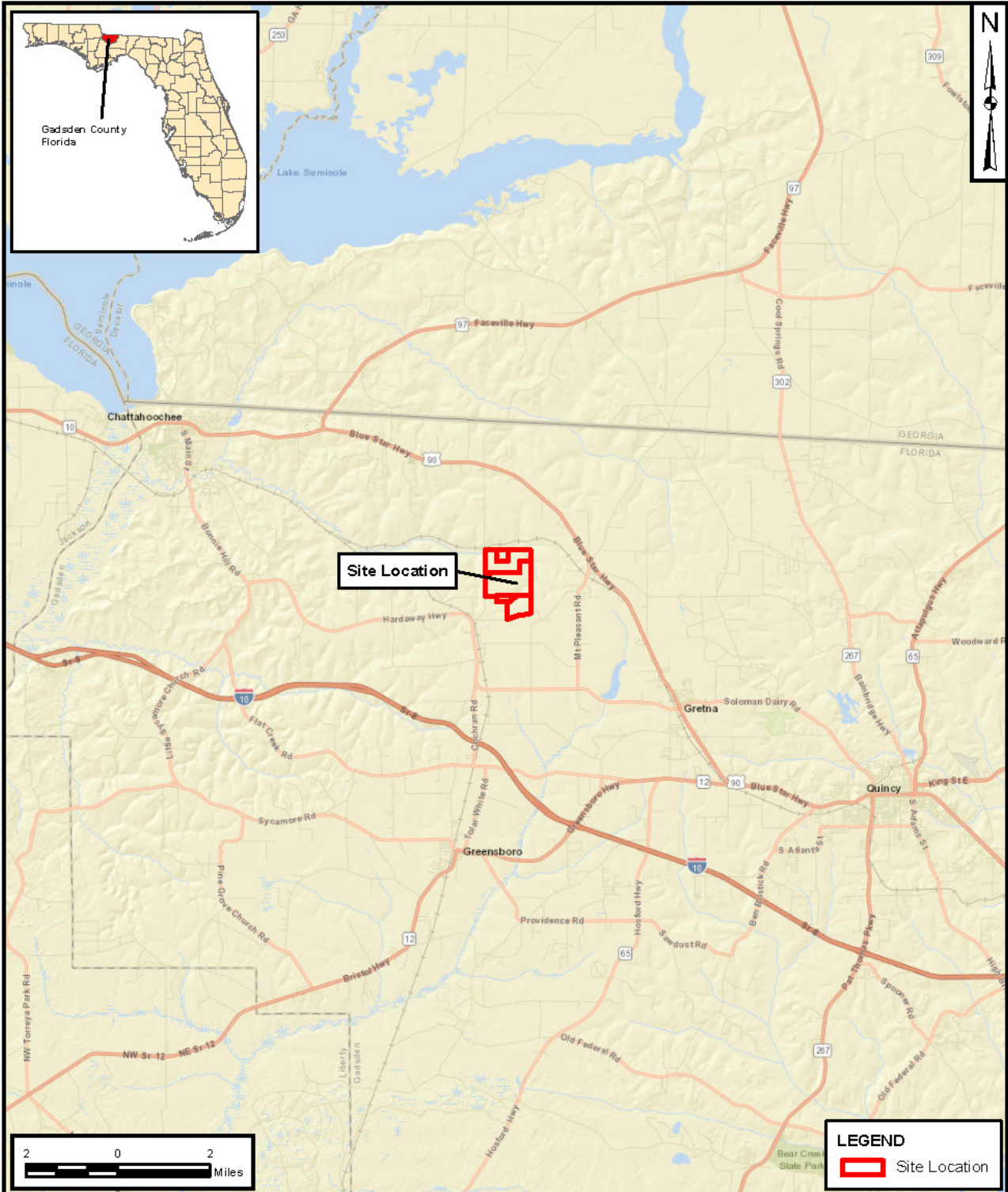
Parcels
Gadsden County Solar
Gadsden County, FL

CONTRACT NUMBER	
112C08948	
APPROVED BY	DATE
B.PEEBLES	01/02/18
APPROVED BY	DATE

SCALE
AS NOTED

FIGURE NO.	1	REV	0
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SITE LOCATION FIGURE



LEGEND
 Site Location

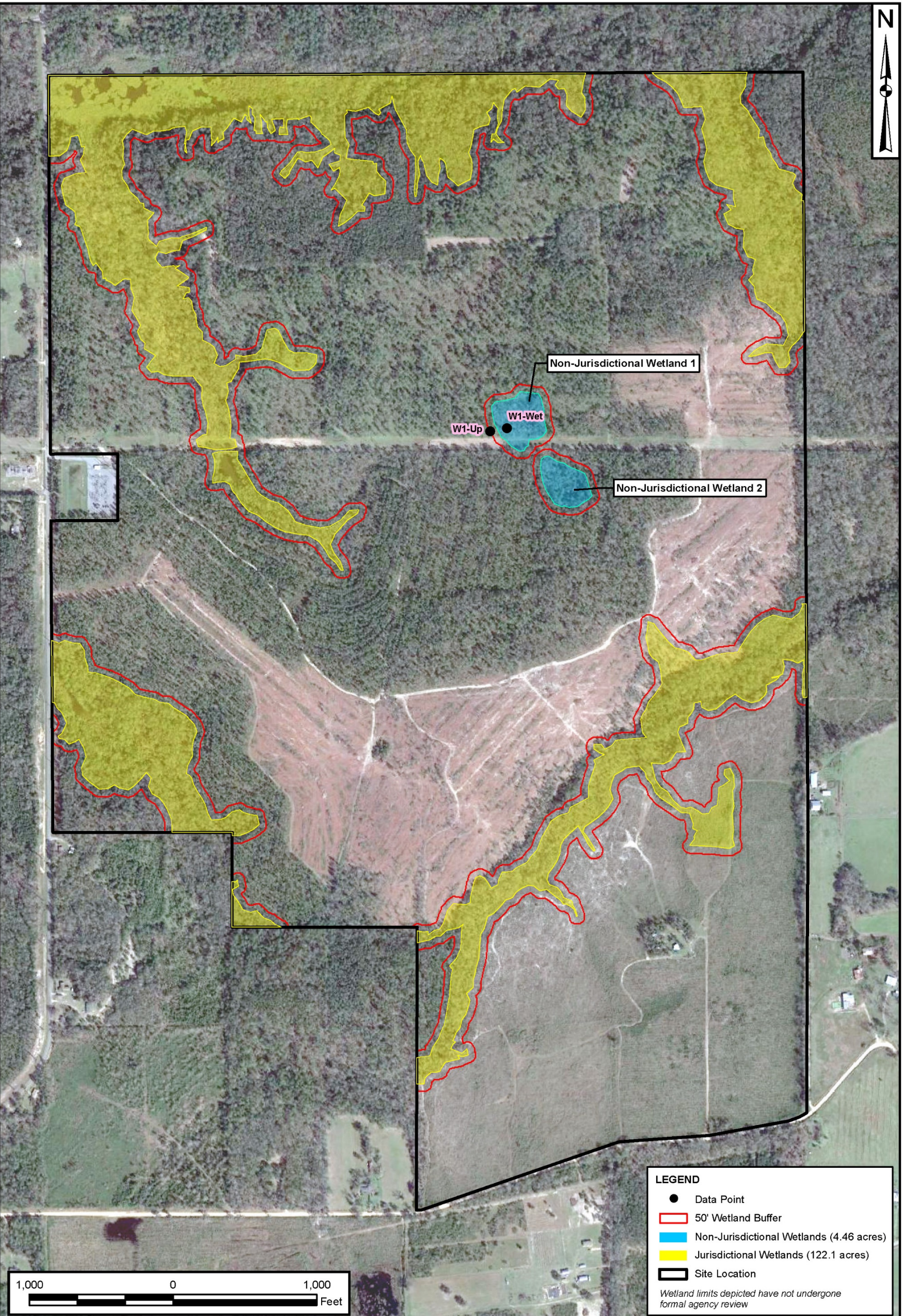
DRAWN BY	DATE
J.MADDEN	09/26/19
CHECKED BY	DATE
H.CAROLAN	09/26/19
REVISED BY	DATE
SCALE	AS NOTED



Site Vicinity Figure
Gadsden County Solar
Gadsden County, FL

CONTRACT NUMBER	
112C08948	
APPROVED BY	DATE
H.CAROLAN	09/26/19
APPROVED BY	DATE
FIGURE NO.	REV
2	0

AERIAL PHOTOGRAPH WITH WETLAND LIMITS



LEGEND

- Data Point
- 50' Wetland Buffer
- Non-Jurisdictional Wetlands (4.46 acres)
- Jurisdictional Wetlands (122.1 acres)
- Site Location

Wetland limits depicted have not undergone formal agency review

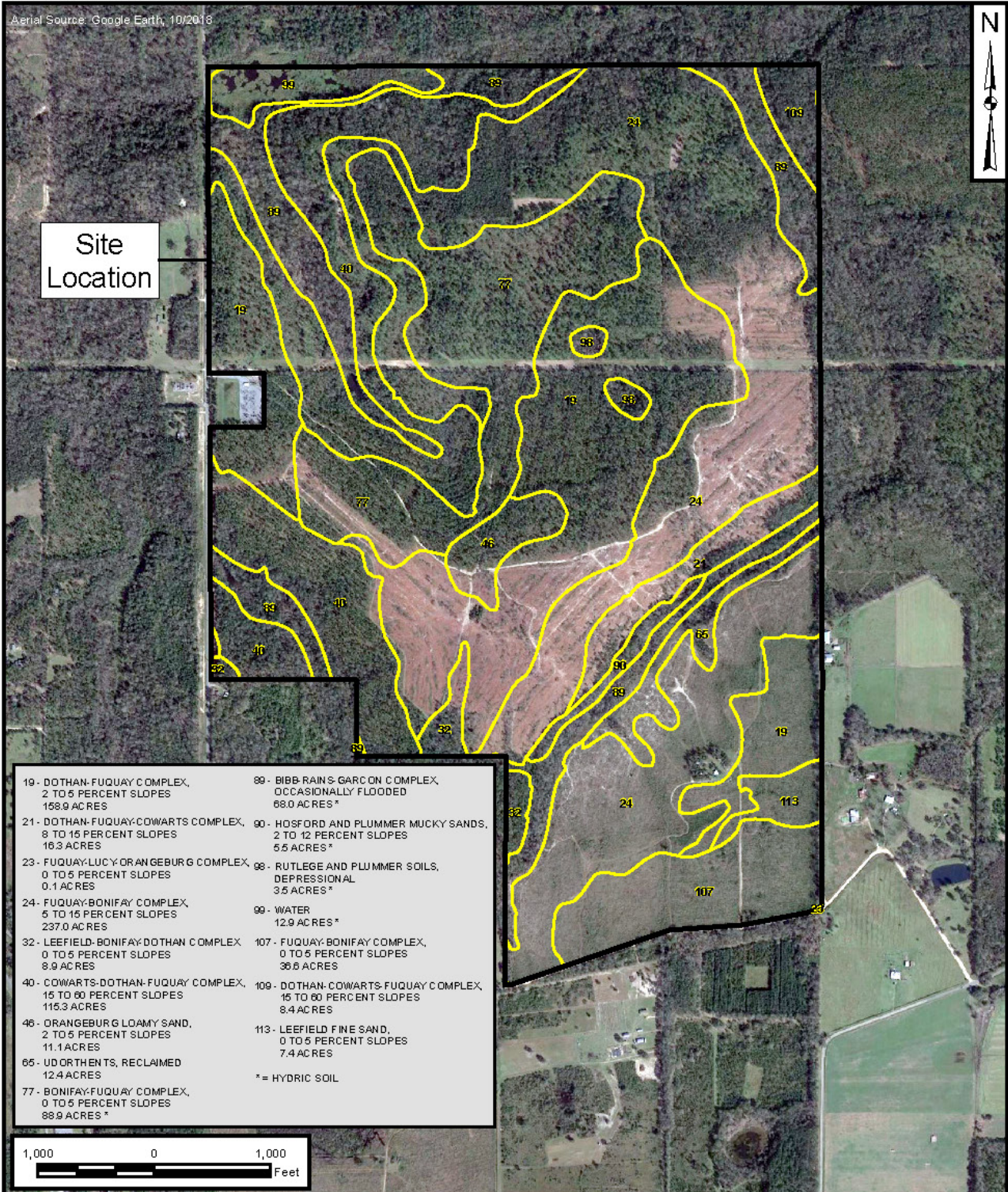
DRAWN BY J.MADDEN	DATE 10/29/20
CHECKED BY H.CAROLAN	DATE 10/29/20
REVISED BY	DATE
SCALE AS NOTED	

TETRA TECH

**Wetland Delineation Figure
Gadsden County Solar
Gadsden County, FL**

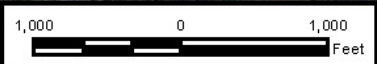
CONTRACT NUMBER 112C08948	
APPROVED BY H.CAROLAN	DATE 10/29/20
APPROVED BY	DATE
FIGURE NO. 3	REV 0

SOILS




Site Location

19 - DOTHAN-FUQUAY C COMPLEX, 2 TO 5 PERCENT SLOPES 158.9 ACRES	89 - BIBB-RAINS-GARCON COMPLEX, OCCASIONALLY FLOODED 68.0 ACRES *
21 - DOTHAN-FUQUAY-COWARTS COMPLEX, 8 TO 15 PERCENT SLOPES 16.3 ACRES	90 - HOSFORD AND PLUMMER MUCKY SANDS, 2 TO 12 PERCENT SLOPES 5.5 ACRES *
23 - FUQUAY-LUCY-ORANGEBURG COMPLEX, 0 TO 5 PERCENT SLOPES 0.1 ACRES	98 - RUTLEGE AND PLUMMER SOILS, DEPRESSIONAL 3.5 ACRES *
24 - FUQUAY-BONIFAY COMPLEX, 5 TO 15 PERCENT SLOPES 237.0 ACRES	99 - WATER 12.9 ACRES *
32 - LEEFIELD-BONIFAY-DOTHAN C COMPLEX, 0 TO 5 PERCENT SLOPES 8.9 ACRES	107 - FUQUAY-BONIFAY COMPLEX, 0 TO 5 PERCENT SLOPES 36.6 ACRES
40 - COWARTS-DOTHAN-FUQUAY COMPLEX, 15 TO 60 PERCENT SLOPES 115.3 ACRES	109 - DOTHAN-COWARTS-FUQUAY C COMPLEX, 15 TO 80 PERCENT SLOPES 8.4 ACRES
46 - ORANGEBURG LOAMY SAND, 2 TO 5 PERCENT SLOPES 11.1 ACRES	113 - LEEFIELD FINE SAND, 0 TO 5 PERCENT SLOPES 7.4 ACRES
65 - UD ORTHENTS, RECLAIMED 12.4 ACRES	* = HYDRIC SOIL
77 - BONIFAY-FUQUAY COMPLEX, 0 TO 5 PERCENT SLOPES 88.9 ACRES *	



DRAWN BY	DATE
J.MADDEN	09/26/19
CHECKED BY	DATE
H.CAROLAN	09/26/19
REVISED BY	DATE
SCALE	
AS NOTED	



Soils Figure
Gadsden County Solar
Gadsden County, FL

CONTRACT NUMBER	
112C08948	
APPROVED BY	DATE
H.CAROLAN	09/26/19
APPROVED BY	DATE
FIGURE NO.	REV
4	0

USFWS NATIONAL WETLANDS INVENTORY



October 27, 2020

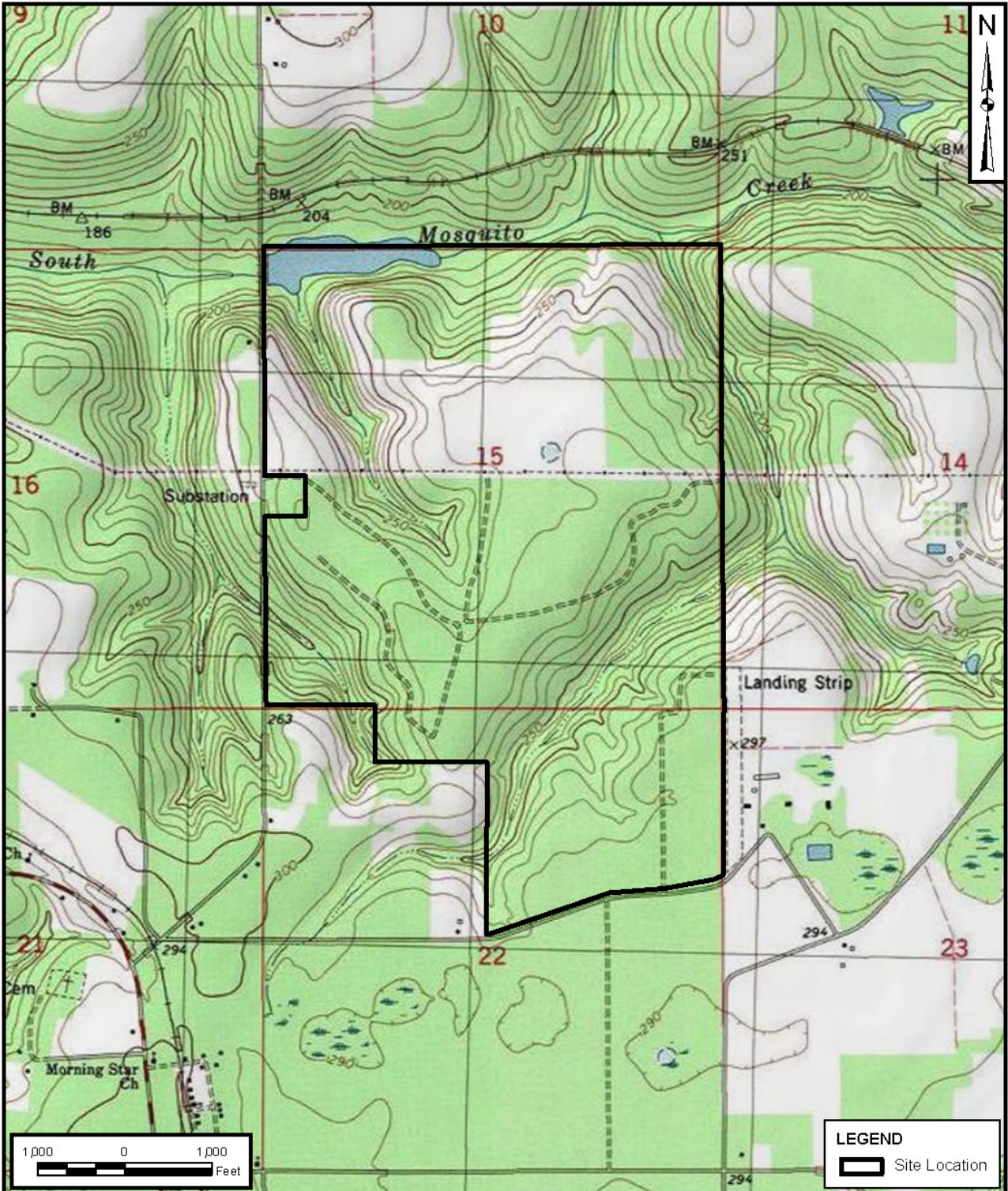
Wetlands

- | | | |
|--|---|--|
|  Estuarine and Marine Deepwater |  Freshwater Emergent Wetland |  Lake |
|  Estuarine and Marine Wetland |  Freshwater Forested/Shrub Wetland |  Other |
| |  Freshwater Pond |  Riverine |


This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Figure 5

USGS TOPOGRAPHIC MAP



DRAWN BY	DATE
J.MADDEN	10/30/20
CHECKED BY	DATE
H.CAROLAN	10/30/20
REVISED BY	DATE
SCALE AS NOTED	

 **TETRA TECH**
 Topographic Map
 Gadsden County Solar
 Gadsden County, FL

CONTRACT NUMBER 112C08948	
APPROVED BY	DATE
H.CAROLAN	10/30/20
APPROVED BY	DATE
FIGURE NO.	REV
6	0

USACE DATA SHEETS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Gadsden County Solar City/County: Gadsden Sampling Date: 1/16/18
 Applicant/Owner: _____ State: FL Sampling Point: Up 1
 Investigator(s): C. Drury & H. Carolan Section, Township, Range: S15 T3N R5W
 Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 5
 Subregion (LRR or MLRA): LRR T Lat: 30.658012° Long: -84.722728° Datum: _____
 Soil Map Unit Name: Dothan-Fuquay Complex, 1 to 5 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) (LRR U) _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) (LRR T,U)
--	---

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Up 1

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: _____)																				
1. <u>Liquidambar styraciflua</u>	10	No	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. <u>Quercus nigra</u>	10	No	FAC																	
3. <u>Pinus taeda</u>	80	Yes	FAC																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
	100	=Total Cover		Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>135</u></td> <td>x 3 = <u>405</u></td> </tr> <tr> <td>FACU species <u>25</u></td> <td>x 4 = <u>100</u></td> </tr> <tr> <td>UPL species <u>35</u></td> <td>x 5 = <u>175</u></td> </tr> <tr> <td>Column Totals: <u>195</u> (A)</td> <td><u>680</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.49</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>135</u>	x 3 = <u>405</u>	FACU species <u>25</u>	x 4 = <u>100</u>	UPL species <u>35</u>	x 5 = <u>175</u>	Column Totals: <u>195</u> (A)	<u>680</u> (B)	Prevalence Index = B/A = <u>3.49</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>135</u>	x 3 = <u>405</u>																			
FACU species <u>25</u>	x 4 = <u>100</u>																			
UPL species <u>35</u>	x 5 = <u>175</u>																			
Column Totals: <u>195</u> (A)	<u>680</u> (B)																			
Prevalence Index = B/A = <u>3.49</u>																				
50% of total cover: <u>50</u>	20%	of total cover: <u>20</u>																		
Sapling/Shrub Stratum (Plot size: _____)																				
1. <u>Vaccinium myrsinites</u>	25	Yes	FACU	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. <u>Yucca filamentosa</u>	10	No	UPL																	
3. <u>Dysodiopsis tagetoides</u>	25	Yes	UPL																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
	60	=Total Cover																		
50% of total cover: <u>30</u>	20%	of total cover: <u>12</u>																		
Herb Stratum (Plot size: _____)																				
1. <u>Andropogon capillipes</u>	35	Yes	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	35	=Total Cover																		
50% of total cover: <u>18</u>	20%	of total cover: <u>7</u>																		
Woody Vine Stratum (Plot size: _____)																				
1. _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
		=Total Cover																		
50% of total cover: _____	20%	of total cover: _____																		

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Up 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/1	60					Sandy	Remaining soil 10YR 7/1
6-12	10YR 4/2	100					Sandy	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR, P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- ? Stripped Matrix (S6)
- ? Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8)
(LRR S, T, U)

- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12)
(MLRA 153B, 153D)
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20)
(MLRA 149A, 153C, 153D)
- Very Shallow Dark Surface (F22)
(MLRA 138, 152A in FL, 154)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16)
(outside MLRA 150A)
- Reduced Vertic (F18)
(outside MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20)
(MLRA 153B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
(outside MLRA 138, 152A in FL, 154)
- Barrier Islands Low Chroma Matrix (TS7)
(MLRA 153B, 153D)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

This data form is revised from Atlantic and Gulf Coastal Plain Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 8.0, 2016.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Gadsden County Solar City/County: Gadsden Sampling Date: 1/16/18
 Applicant/Owner: _____ State: FL Sampling Point: Wet 1
 Investigator(s): C. Drury & H. Carolan Section, Township, Range: S15 T3N R5W
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR or MLRA): LRR T Lat: 30.657972° Long: -84.722420° Datum: _____
 Soil Map Unit Name: Rutlege and Plummer Soils, Depressional NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) (LRR U) _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) <u>X</u> Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) <u>X</u> Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) <u>X</u> Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) <u>X</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) (LRR T,U)
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Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Wet 1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	<u>75</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Quercus nigra</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	<u>100</u> = Total Cover		
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>	

Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Juncus paludosus</u>	<u>35</u>	<u>Yes</u>	<u>OBL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>35</u> = Total Cover		
	50% of total cover: <u>18</u>	20% of total cover: <u>7</u>	

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>35</u>	x 1 = <u>35</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>100</u>	x 3 = <u>300</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>135</u> (A)	<u>335</u> (B)
Prevalence Index = B/A = <u>2.48</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Wet 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 2/1	100	10YR 3/2	30	RM	PL	Sandy	
9-12	10YR 6/3	50	10YR 6/8	25	RM	M	Sandy	Remaining soil 10YR 6/5.

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR, P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**

- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

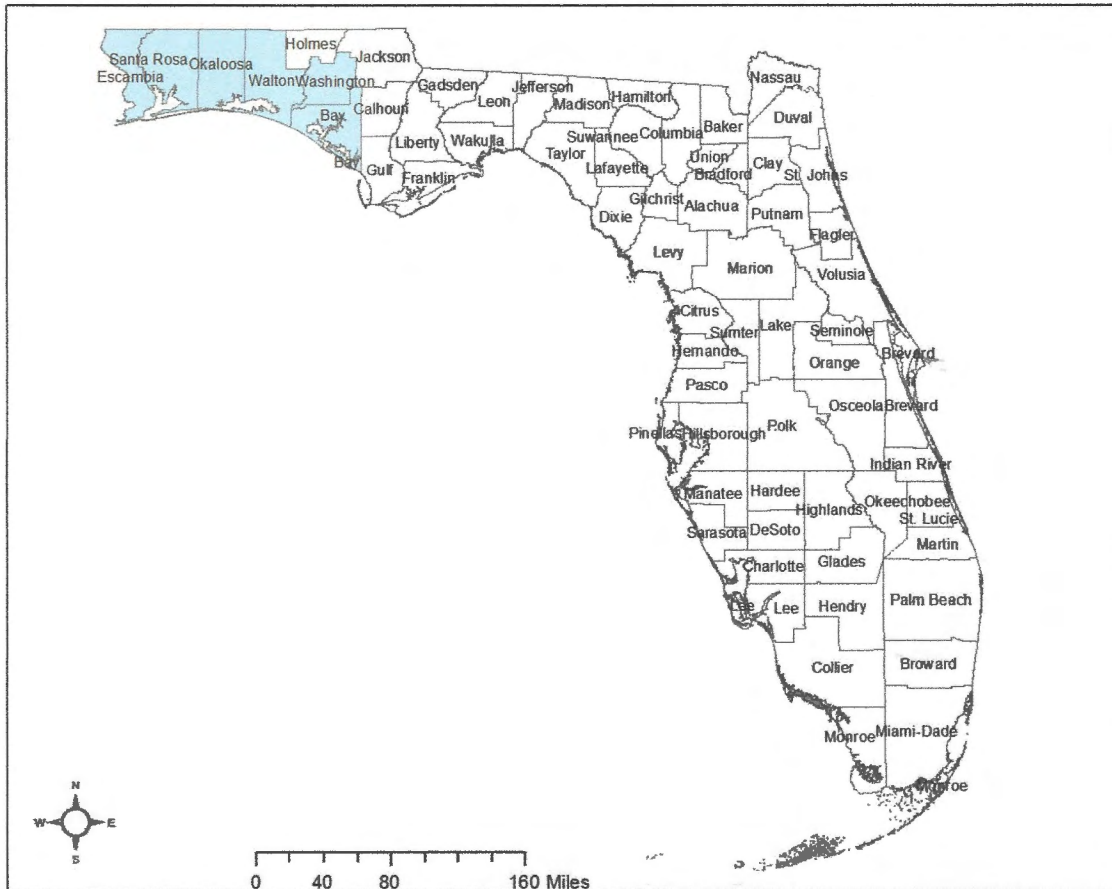
Remarks:

This data form is revised from Atlantic and Gulf Coastal Plain Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 8.0, 2016.

APPENDIX C – CULTURAL RESOURCES



FLORIDA Area of Historic Interest Choctaw Nation of Oklahoma



List of Counties

BAY
 ESCAMBIA
 OKALOOSA
 SANTA ROSA
 WALTON
 WASHINGTON

Map by: Ryan L. Spring
 Historic Preservation Dept.
 Choctaw Nation of Oklahoma
 05/02/2014

Cultural Resources Discovery Mitigation Plan

If during any Project-related ground disturbance, any post review discovery, including but not limited to, any artifacts, foundations, or other indications of past human use or occupation of the area are uncovered, such discoveries shall be protected by complying with 36 CFR § 800.13(b)(3) and (c), and if human remains or suspected human remains are encountered by Chapter 872.05, *Florida Statutes*, and shall include the following procedures:

All Project-related ground disturbing activities (“Work”), including vehicular traffic within a 50-foot radius around the area of discovery shall immediately stop. FRP or their construction contractor shall ensure barriers are established to protect the area of discovery and notify the Construction Manager to contact the FRP Construction Compliance Environmental Lead (FRP-CCEL). The Construction Manager and/or the FRP-CCEL shall contact the FRP Archaeologist, a Secretary of the Interior (SOI) qualified professional, who will quickly (within 24 hours) assess the nature and scope of the discovery; implement interim measures to protect the discovery from looting and vandalism; and establish broader barriers if additional historic and/or precontact properties, can reasonably be expected to occur.

The FRP Archaeologist and/or the FRP-CCEL shall notify the Federal Preservation Officer (FPO) and State Historic Preservation Office (SHPO) immediately. Indian tribe(s) that have an interest in the area of discovery (the Seminole Tribe of Florida [STOF]) shall also be contacted immediately. The SHPO may require additional tribes who may have an interest in the area of discovery also be contacted. The notification shall include an assessment of the discovery provided by the FRP Archaeologist, and a copy shall be provided to the FRP Tribal Relations contact.

Should the discovery contain burial sites or human remains, the Construction Manager shall immediately notify the FRP-CCEL and FRP Archaeologist who will contact the FPO, the Florida SHPO, and the STOF. The relevant law enforcement authorities shall be immediately contacted by onsite personnel to reduce delay times, in accordance with tribal, state, or local laws including 36 CFR Part 800.13; 43 CFR Part 10, Subpart B; and the Advisory Council on Historic Preservation’s *Policy Statement Regarding treatment of Burial Sites, Human Remains, or Funerary Objects* (February 23, 2007).

Due to their Indigenous Traditional Ecological Knowledge (ITEK), FRP will engage with the STOF at the contact listed below. The area will be examined by the FRP Archaeologist and representatives of the STOF (if requested), who, in consultation with FPO and Florida SHPO, will determine if the remains are human or potentially human or if the discovery is significant.

When the discovery contains burial sites or human remains, all construction activities, including vehicular traffic shall stop within a 100-foot radius of the discovery and barriers shall be established. The evaluation of human remains shall be conducted at the site of discovery by a SOI qualified professional. Remains that have been removed from their primary context and where that context may be in question may be retained in a secure location on the Project Site pending further decisions on treatment and disposition. FRP may expand this radius based on the FRP Archaeologist’s professional assessment of the discovery and establish broader barriers if further subsurface burial sites, or human remains can reasonably be expected to occur. FRP, in consultation with the SHPO, the STOF and any other interested tribes, shall develop a plan for the treatment of native human remains.

Work may continue in other areas of the Project Site where no historic properties, burial sites, or human remains are present. If the inadvertent discovery appears to be a consequence of illicit activity such as

looting, the FRP Archaeologist and/or the FRP-CCEL shall contact the appropriate legal authorities immediately or take the necessary precautions to prevent further impacts to the discovery.

Work may not resume in the area of the discovery until a notice to proceed has been issued by FRP. FRP shall not issue the notice to proceed until it has determined that the appropriate local protocols and consulting parties have been consulted.

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APPENDIX D – BIOLOGICAL RESOURCES

LISTED WILDLIFE AND HABITAT ASSESSMENT FRP GADSDEN COUNTY SOLAR

**Gadsden County, Florida
(5 parcels)**

Revision 2

**Prepared for:
FLORIDA RENEWABLE PARTNERS
700 Universe Boulevard
Juno Beach, Florida 33408**



**Prepared by:
TETRA TECH, INC.
8880 Freedom Crossing Trail, Suite 101
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Report Date: June 29, 2021

EXECUTIVE SUMMARY

Tetra Tech, Inc. (Tetra Tech) completed an assessment of listed wildlife and habitat at the proposed Florida Renewable Partners (FRP) Gadsden County Solar (Subject Property), that encompasses approximately 790 acres of silvicultural land north of W.L. Martin Road and east of Atwater Road, approximately 10 miles northwest of Quincy in unincorporated northern Gadsden County, Florida (Appendix A, Figure 1). The assessment was conducted in general accordance with Tetra Tech's proposal submitted to FRP dated January 3, 2021.

The purpose of this assessment is to determine the potential presence and extent of habitat or occurrence of individuals of wildlife species listed as endangered, threatened or species of special concern by the Florida Fish and Wildlife Conservation Commission and the U.S. Fish and Wildlife Service. The following parameters were reviewed in support of this Listed Wildlife and Habitat Assessment Report for the Subject Property:

- Land use/land cover;
- Topography and soils;
- Rare, threatened, and endangered species and critical habitat;
- Mitigation requirements for threatened and endangered species.

Utilizing both the desktop review information and information gained from the site reconnaissance, suitable habitat for the state-threatened gopher tortoises (*Gopherus polyphemus*) exists within the Coniferous Plantation and Forest Regeneration Areas on the Subject Property. Thirty-one active and/or inactive gopher tortoise burrows were observed during the site reconnaissances. The Subject Property could contain approximately 599 acres of potential gopher tortoise habitat with a conservative gopher tortoise burrow occupancy of 104 burrows. No further documentation or actions are anticipated for other federal or state listed species.

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C FNAI Biodiversity Matrix Unofficial Report and USFWS Unofficial IPaC Resource List

D USFWS Standard Protection Measures for the Eastern Indigo Snake

ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
bls	Below land surface
Eagle Act	Bald and Gold Eagle Protection Act
ESA	Endangered Species Act
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FE	Federal-designated Endangered
FLUCFCS	Florida Land Use and Cover Forms Classification System
FNAI	Florida Natural Areas Inventory
FRP	Florida Renewable Partners
FT	Federal-designated Threatened species
FWC	Florida Fish and Wildlife Conservation Commission
GAR	Geographic Areas of Responsibility
IPaC	Information for Planning and Consultation
NRCS	Natural Resources Conservation Service
Subject Property	FRP Gadsden County Solar in Gadsden County, Florida
Tetra Tech	Tetra Tech, Inc.
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) was authorized by Florida Renewable Partners (FRP) to conduct a Listed Wildlife and Habitat Assessment of the FRP Gadsden County Solar Project (Subject Property) that encompasses approximately 790 acres of land north of W.L. Martin Road and east of Atwater Road, approximately 10 miles northwest of Quincy in unincorporated northern Gadsden County, Florida (Appendix A, Figure 1). The Subject Property consists of five parcels of silvicultural land as described in Section 3.0, Site Description. The findings presented herein are based on a desktop review of available data and site reconnaissance efforts from 2018 to 2020.

2.0 METHODS

The assessment of the Subject Property included site reconnaissance and review of desktop resources to determine the potential for occurrence of listed wildlife species or extent of their habitat to occur within the Subject Property. The following parameters were reviewed in support of this Listed Wildlife and Habitat Assessment Report for the Subject Property:

- Land use/land cover;
- Topography and soils;
- Rare, threatened, and endangered species and critical habitat;
- Mitigation requirements for listed wildlife species.

The site reconnaissance efforts were conducted by Tetra Tech biologists during multiple mobilization efforts from 2018 to 2020. The location of the evidence of each listed wildlife species was recorded during each site reconnaissance effort using the parameters listed above. The site reconnaissances were conducted on January 5, 2018 (preliminary wetlands and listed species site assessment), August 14, 2019 to August 16, 2019 (wetland delineation fieldwork), September 5, 2019 (listed wildlife and habitat assessment), and August 25, 2020 to August 28, 2020 (Gadsden County Protected Tree Survey).

The digital resources reviewed included historic aerial photographs, United States Geological Survey (USGS) topographic maps, United States Department of Agriculture (USDA) soil surveys, and state and federal listed species databases. The soil survey for Gadsden County was reviewed to help evaluate suitable habitat for listed species depending on substrate requirements. State and federal listed species databases reviewed included the Florida Fish and Wildlife Conservation Commission (FWC) Bald Eagle (*Haliaeetus leucocephalus*) Nest Locator (FWC, 2021); the Florida Natural Areas Inventory (FNAI) Biodiversity Matrix (FNAI, 2021); and the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Resource List (USFWS, 2021). Documents and other resources reviewed included the FWC Gopher Tortoise (*Gopherus polyphemus*) Permitting Guidelines (FWC, 2020); the United States Army Corps of Engineers (USACE) Eastern Indigo Snake (*Drymarchon*

courais) Programmatic Effect Determination Key (USFWS, 2013b); and the USACE Jacksonville District and Effect Determination Key for the Wood Stork (*Mycteria americana*) in Central and Northern Peninsular form (USFWS, 2008). The FNAI Biodiversity Matrix and IPaC Resource List are provided in Appendix C.

3.0 SITE DESCRIPTION

The Subject Property consists of five parcels of land along Atwater Road and W.L. Martin Road in northern unincorporated Gadsden County. The Gadsden County folio numbers representing the Subject Property are 2-22-3N-5W-7510-00000-0010, 2-22-3N-5W-7510-00000-0020, 2-15-3N-5W-0000-00300-0000, 2-15-3N-5W-0000-00110-0000, and 2-15-3N-5W-0000-00210-0000 within the USGS 7.5-minute *Mount Pleasant Quadrangle*, Sections 15 and 22, Township 3 North and Range 5 West.

The Subject Property includes an active silvicultural operation with a secondary use of a hunting club. Current and historical information regarding the Subject Property was provided by the previous property manager and he stated the Subject Property has been used for commercial silviculture since the 1940's. During the site reconnaissance in August 2020 recent timber harvesting off all mature pine trees was observed. Young pine stands (approximately 3 years old) remain in the southeastern corner of the Subject Property.

3.1 HABITAT AND VEGETATION COMMUNITIES

The land use and vegetative community types within the Subject Property were defined based on the Florida Department of Transportation (FDOT) Florida Land Use and Cover Forms Classification System (FLUCFCS) and the 1999 handbook (FDOT, 1999). The results of the site reconnaissance FLUCFCS observations are shown on Appendix A, Figure 2, and described below.

3.1.1 Mobile Home Units (122)

Near the southeast area of the Subject Property a hunting camp was observed, which included a mobile home/camper along with small storage sheds and hunting equipment.

3.1.2 Pine-Mesic Oak (414)

On moister areas of the Subject Property, slash pine (*Pinus elliottii*) and loblolly pine (*Pinus taeda*) grow in strong association with a wide variety of mesic oaks and other hardwood species. The dominate canopy observed includes laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), southern magnolia (*Magnolia grandiflora*) and American holly (*Ilex opaca*). Gallberry (*Ilex glabra*) and wax myrtle (*Myrica cerifera*) were among the common understory species and the groundcover consisted of chalky bluestem (*Andropogon virginicus*). This cover type exists in areas abutting the on-site stream and lake wetlands, and encompasses approximately 25 acres.

3.1.3 Coniferous Plantations (441) and Forest Regeneration Areas (443)

The Subject Property is predominantly covered by this land use type and encompassed approximately 146 acres of Coniferous Plantation (441) and 483 acres of forest regeneration areas (443). According to historic aerial photographs, the planting and harvesting activities have been observed since at least 1947. In 2020, most of the coniferous plantation areas were harvested and not replanted. The FLUCFCS Map (Appendix A, Figure 2) accurately depicts the harvested (443) and unharvested (441) portions of the Subject Property observed during the last site reconnaissance in August 2020. The remaining coniferous plantation is located in the southeastern area of the Subject Property and was harvested and replanted with loblolly pine in 2018.

Within the young Coniferous Plantation, the understory was dominated by red oak saplings (*Quercus falcata*), sweet bay magnolia saplings (*Magnolia virginiana*), common persimmon (*Diospyros virginiana*), American beautyberry (*Callicarpa americana*), blackberry, dog fennel, shiny blueberry (*Vaccinium myrsinites*), chalky bluestem, bracken fern, St. Johnswort (*Hypericum spp.*), and fetterbush.

3.1.4 Wetland Hardwood Forests (610)

This community had a canopy that was dominated by sweet gum, water oak, loblolly pine, and slash pine. Two small areas of this cover type existed near the center of the Subject Property, within the Coniferous Plantation community, and encompassed approximately 5 acres. St. John's wort was the dominate understory and the groundcover consisted of maidencane (*Panicum hemitomon*), bighead rush (*Juncus megacephalus*), spikerush (*Eleocharis baldwinii*), bushy broom grass (*Andropogon glomeratus*), sphagnum moss (*Sphagnum macrophyllum*), and beakrush (*Rynchospora spp.*).

3.1.5 Stream and Lake Swamps (615)

The largest wetland system within the Subject Property included this FLUCFCS and encompassed approximately 122 acres. This community, often referred to as bottomland or stream hardwoods, is associated with the South Mosquito Creek, which occurred along the perimeter of the Subject Property. Many of the hardwood tree species along the edge of the wetland were either snapped off or down due to Hurricane Michael in 2018. The predominant hardwood species in the canopy included southern magnolia, black gum (*Nyssa biflora*), American olive (*Osmanthus americanus*), southern magnolia, sweet gum, water oak, laurel oak, loblolly pine, and American elm (*Ulmus americana*). Fetterbush was the dominate shrub species.

3.1.6 Roads and Trails (814)

Several unimproved roads for timber access traverse throughout the Subject Property.

3.1.7 Electric Power Transmission Lines (832)

Existing electrical power transmission lines are oriented from west to east across the central portion of the Subject Property. They appear to be maintained, as large trees and dense woody vegetation have been removed within an approximately 100-foot wide utility right-of-way corridor.

3.2 SOILS

Based on the Natural Resources Conservation Service (NRCS) soils survey, there are 16 soil types present throughout the Subject Property as depicted within Appendix A, Figure 3. Hydric soils are denoted by an asterisk. The dominant upland soil types were 19 – Dothan-Fuquay complex (2 to 5 percent slopes), 24 – Fuquay-Bonifay complex (0 to 15 percent slopes), 40 – Cowarts-Dothan-Fuquay complex (15 to 60 percent slopes), and 77 – Bonifay-Fuquay complex (0 to 5 percent slopes). The dominant hydric soil types were 89 – Bibb-Rains-Garcon complex occasionally flooded and 90 – Hosford and Plummer Mucky Sands (2 to 12 Percent Slopes), 98 – Rutlege and Plummer soils depressional. A brief description of dominant soil types is included below.

A custom USDA and NRCS Soil Resource Report (USDA, 2021) that includes all mapped soils for the Subject Property is provided as Appendix B.

3.2.1 Dominant Upland Soils

19 – Dothan-Fuquay complex (2 to 5 percent slopes) is comprised of steeply sloped well drained soils located on knolls of marine terraces. It is not rated as hydric soil and typically has a seasonal high-water table at a depth of approximately 36 to 54 inches below land surface (bls). A typical profile is sand from the surface to 30 inches bls, followed by sandy loam from 30 to 80 inches bls. Approximately 20% or 159 acres of the Subject Property includes this mapped soil type.

24 – Fuquay-Bonifay complex (0 to 15 percent slopes) is comprised of well drained sandy soils found on ridgetops and hills. It is not rated as hydric soil and typically has a seasonal high-water table at a depth of approximately 48 to 60 inches bls. A typical profile is sand from the surface to 32 inches bls, followed by sandy loam from 32 to 80 inches bls. Approximately 30% or 237 acres of the Subject Property includes this mapped soil type.

40 – Cowarts-Dothan-Fuquay complex (15 to 60 percent slopes) is comprised of moderately well drained sandy soils. It is not rated as hydric soil and typically has a seasonal high-water table at a depth of approximately 36 to 54 inches bls. A typical profile is loamy fine sand from the surface to 4 inches bls, followed by sandy loam and clay loam from 4 to 80 inches bls. Approximately 15% or 115 acres of the Subject Property includes this mapped soil type.

77 –Bonifay-Fuquay complex (0 to 5 percent slopes) is comprised of well drained loamy sandy soils found on knolls and marine terraces. It is not rated as hydric soil and typically has a seasonal high-water table at a depth of

approximately 54 to 66 inches bls. A typical profile is loamy sand from the surface to 48 inches bls, followed by sandy clay loam from 67 to 80 inches bls. Approximately 11% or 89 acres of the Subject Property includes this mapped soil type.

3.2.2 Dominant Hydric Soils

89 – Bibb-Rains-Garcon complex occasionally flooded is comprised of land that is nearly level and poorly drained soils found in flats on flood plains and marine terrace. It is rated as a hydric soil and typically has a seasonal high-water table from 3 to 12 inches bls. A typical profile is sandy loam from the surface to 36 inches bls, followed by sandy clay loam from 36 to 80 inches bls. Approximately 9% or 68 acres of this soil type are mapped within the Subject Property.

90 – Hosford and Plummer Mucky Sands (2 to 12 Percent Slopes) is comprised of steeply sloped, poorly drained soils found on marine terrace seeps. It is rated as a hydric soil and typically has a seasonal high-water table from 0 to 6 inches bls. A typical profile is mucky sand from the surface to 66 bls, followed by sand from 66 to 80 inches bls. Approximately .07% or 6 acres of this soil type are mapped within the Subject Property.

98 – Rutlege and Plummer soils depressional is comprised of very poorly drained, frequently flooded soils, in depressions on marine terraces. It is rated as a hydric soil and has a depth to water table is at the surface. The typical soil profile is sand from the surface to 58 inches, followed by sandy clay loam from 58 inches to 80 inches. Approximately 0.4% or 4 acres of this soil type are mapped within the Subject Property.

4.0 WILDLIFE FINDINGS

Before the site reconnaissance, a desktop review was performed of listed species that are known to occur or likely to occur within the Subject Property. Databases reviewed include the FNAI Biodiversity Matrix, FWC Bald Eagle Nest data, and the USFWS IPaC Resource List. A copy of the FNAI Biodiversity Matrix and IPaC Resource List are provided in Appendix C. The following sections summarize the wildlife findings from the desktop review of databases and the site reconnaissance efforts.

4.1 DESKTOP REVIEW

Listed wildlife species identified by the FNAI Biodiversity Matrix and IPaC Resource List for the Subject Property (Appendix C) are provided in Table 4-1 below.

Table 4-1: FNAI and IPaC Summary			
Common Name	Taxonomic Name	Species Observed During Site Reconnaissance	Listing Status
Likely to Occur			
Wood Stork	<i>Mycteria americana</i>	No	FT
Potential to Occur			
Gopher Tortoise	<i>Gopherus polyphemus</i>	Yes	ST, FC
Eastern Indigo Snake	<i>Drymarchon couperi</i>	No	FT
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>	No	ST
Frosted Flatwoods Salamander	<i>Ambystoma cingulatum</i>	No	FT
Gray Bat	<i>Myotis grisescens</i>	No	FE
Atlantic Sturgeon*	<i>Acipenser oxyrinchus</i>	No	FT
Fat Threeridge* (mussel)	<i>Amblema neislerii</i>	No	FE
Purple Bankclimber* (mussel)	<i>Elliptoideus sloatianus</i>	No	FT

Notes: ST = State-designated Threatened species, FT = Federal-designated Threatened species,

FE = Federal-designated Endangered species, FC = Federal Candidate

* denotes species that are identified by IPaC as potential to occur, but habitat is not present (see Section 4.4)

4.2 OBSERVATIONS

During the site reconnaissances, Tetra Tech biologists conducted meandering pedestrian surveys within the Subject Property with an emphasis on those areas with vegetative assemblages, hydrology, and/or soils potentially indicative of the presence of species identified in the desktop review. Observations of wildlife were made visually, audibly, or by evidence of tracks, scat, nests, detritus, burrows, and/or dens. Weather conditions, the time of day, the season, and the scope of the inspection may have influenced the wildlife species observed during the site assessments. The wildlife species observed within the Subject Property during the assessments are listed in Table 4-2 below.

Table 4-2: Observed Wildlife Species			
Common Name	Taxonomic Name	Observation	Listing Status
Birds			
Eastern Bluebird	<i>Sialia sialis</i>	Foraging, Flying, & Calls	None
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	Foraging, Flying, & Calls	None
Mourning Dove	<i>Zenaida macroura</i>	Flying & Calls	None
Northern Cardinal	<i>Cardinalis cardinalis</i>	Flying & Calls	None
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Calls	None
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	Calls	None
Red-shouldered hawk	<i>Buteo lineatus</i>	Flying & Calls	None
Turkey Vulture	<i>Cathartes aura</i>	Flying	None
Mammals			
Armadillo	<i>Dasypus novemcinctus</i>	Rooting holes	None
White-tailed Deer	<i>Odocoileus virginianus</i>	Foraging	None
Reptiles			
Florida Box Turtle	<i>Terrapene Carolina</i>	Detritus	None
Florida Scrub Lizard	<i>Sceloporus woodi</i>	Foraging	None
Gopher Tortoise	<i>Gopherus polyphemus</i>	Individual within burrow and burrows	ST, FC
Southeastern Five-Lined Skink	<i>Eumeces inexpectatus</i>	Foraging	None

Note: ST = State Threatened, FC = Federal Candidate

4.3 STATE PROTECTED SPECIES

State listed species include wildlife species afforded protection under Florida’s Endangered and Threatened Species Rule (68A-27, Florida Administrative Code and managed by the FWC, established pursuant to Article IV, Section 9, Florida Constitution. The sections below include further discussions of state listed species identified by the FNAI biodiversity matrix with habitat within the Subject Property.

4.3.1 Gopher Tortoise

The gopher tortoise is classified as a State-designated Threatened species and has several associated regulatory documents including the September 2012 *Gopher Tortoise Management Plan* (FWC, 2012) and the FWC April 2008, revised July 2020 *Gopher Tortoise Permitting Guidelines* (FWC, 2020). On the federal level, the gopher tortoise has both a Federally Threatened distinction west of Mobile and Tombigbee Rivers in Alabama, Mississippi, and Louisiana, and is a Federal Candidate for protection in Alabama, Florida, Georgia and South Carolina; however, the Subject Property does not fall within the federal range of protection for this species. The gopher tortoise is a moderate-sized, terrestrial turtle averaging 9 to 11 inches in length. This species is identified by its stumpy elephantine hind feet and flattened shovel-like forelimbs adapted for digging. The shell is oblong and generally tan, brown, or gray in coloration. The gopher tortoises preferred habitat includes uplands with an open canopy and deep well-drained sandy soils.

Following the Determination of Suitable Habitat methodologies in the USACE Gopher Tortoise Survey Handbook (USACE, 2009), approximately 448.8 acres of suitable gopher tortoise habitat were identified throughout the Subject Property (Appendix A, Figure 4). This habitat determination was made based on the vegetation observed during the site reconnaissance and the well-drained deep sandy soils identified in the Gadsden County Soil Survey (Appendix A, Figure 3). The 15-percent gopher tortoise survey was conducted in June 2021 according to the FWC Gopher Tortoise Permitting Guidelines (Tetra Tech, 2021). A total of 57 burrows were identified within the Project boundary (Figure 4).

A formal 100-percent burrow survey and gopher tortoise relocation permit from FWC is required prior to any development that proposes to impact gopher tortoises or their burrows. Further discussion on permitting requirements is provided in Section 5.1.

4.3.2 Florida Pine Snake

The Florida pine snake is classified as a State-designated Threatened species and is protected by Florida's Endangered and Threatened Species Rule. The Florida pine snake is one of the largest eastern snakes in North America. This species can reach a length of up to 84 inches. It has a brown back with dark blotches, white belly, ridged scales, small head, and pointed snout. The Florida pine snake inhabits dry, upland areas with well drained, sandy soils. Its preferred natural habitat includes upland pine forests and sandhills; however, it also can be found in scrubby flatwoods, oak scrub, dry oak forests, old fields, and agricultural borders. This species can be found from southwestern South Carolina, west to Mobile Bay in Alabama, and south to Florida (excluding the Everglades). They use gopher tortoise burrows, pocket gopher burrows, and stump holes to forage, nest, and escape adverse weather conditions or fire.

Recent and frequent timber harvesting over the years has reduced the quality and suitability of preferred habitat on-site. No Florida pine snakes were observed during the site reconnaissance. There is a moderate likelihood of the occurrence of this species within the Subject Property since gopher tortoise burrows were observed. Further discussion on permitting requirements is provided in Section 5.1.

4.4 FEDERALLY PROTECTED SPECIES

The Endangered Species Act (ESA) of 1973 (United States Federal Government, 1988) provides a conservation framework and protection for endangered and threatened species and their habitat. The Bald and Gold Eagle Protection Act (Eagle Act) was originally written in 1940 and revised in 1962 (United States Federal Government, 1940). The Eagle Act provides protections for these two eagle species regardless of listing status under the ESA. The management and scientific authority for federally listed or protected species is through the USFWS. The sections below include discussions on the federally protected wildlife species identified by desktop resources to potentially contain habitat within the Subject Property. The Atlantic sturgeon (FT), fat threeridge (FE), and purple bankclimber (FT) are Federally listed for the area; however, the Subject Property does not contain suitable habitat for these species, and therefore they will not be discussed herein.

4.4.1 Eastern Indigo Snake

The eastern indigo snake is FT by the ESA. This species is a non-venomous, bluish-black colored snake that can reach lengths of 8 feet. It inhabits a mosaic of habitats including sandhills, pine flatwoods, hardwood forests, moist hammocks, and areas that surround cypress swamps. In high xeric habitats, the eastern indigo snake is associated with gopher tortoise burrows, which provide shelter from seasonal temperature fluctuations. Its current range extends throughout the state of Florida and southern Georgia. Populations of indigo snakes can persist on smaller, fragmented or degraded suitable habitats, but long-term population viability is at risk.

No individuals or evidence of eastern indigo snakes were observed on the Subject Property during the site reconnaissance. The Subject Property contained a mosaic of upland and wetland habitats (Appendix A, Figure 2). According to the USFWS Panama City Field Office, the absence of eastern indigo snake occurrence data in the Panhandle of Florida, including Gadsden County, reduces the likelihood of occurrence of this species within the Subject Property, therefore, there is a low likelihood of the occurrence of this species within the Subject Property.

4.4.2 Frosted Flatwoods Salamander

The frosted flatwoods salamander is FT by the ESA. This species can reach lengths up to 4.5 inches and is a salamander with a delicate white to silvery-grey pattern that may resemble nets, lichens, or narrow lines and rings on a black background. The aquatic larvae can reach lengths up to 3 inches and contain bushy reddish gills, a dorsal tail fin, and on each side a tan strip sandwiched between a pair of dark stripes, including one that passes

through the eye. The preferred habitat of this species includes ephemeral pond wetlands surrounded by pine flatwoods communities with wiregrass groundcover.

No evidence of individuals or the habitat of the frosted flatwoods salamander was observed in the Subject Property during the site reconnaissance. According to the USFWS Panama City Field Office, no historic observations or designated critical habitat occurs within Gadsden County. Suitable habitat, as described above for this species, does not exist within the Subject Property. Any natural pine flatwoods that may have existed have been harvested and the ponds within the subject property are not ephemeral, therefore, there is a low likelihood of occurrence of this species within the Subject Property.

4.4.3 Gray Bat

The gray bat is FE by the ESA. This species is a nocturnal hunter that feeds on insects with a body length up to 3.5 inches and a wingspan of 9 to 11 inches. Its fur is typically gray but can turn to a reddish-brown color during the summer. With rare exceptions, gray bats live exclusively in caves alongside rivers and lakes, hibernating in the winter months and roosting and foraging for insects during the summer months.

No evidence of the gray bat or its preferred cave habitat were observed in the Subject Property. Additionally, the Subject Property is located east of the gray bat known range information. The likelihood of occurrence of this species within the Subject Property is low.

4.4.4 Bald Eagle

The bald eagle is not currently listed under the ESA or Florida's Endangered and Threatened Species Rule, however, it is protected at the federal level under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (United States Federal Government, 2004) as well as on the state level under the FWC Bald Eagle Management Plan (FWC, 2017). On April 20, 2017, FWC approved rule revisions which maintain that only a federal permit is required. Activities are federally regulated within 660 feet of any active or alternate bald eagle nest. The FWC maintains a bald eagle nest database, which documents the known locations of nests throughout the state. A review of the database indicated no known nests are located within 660 feet of the Subject Property. Bald eagle individuals, nests, or potential nest trees were not observed on the Subject Property during the site reconnaissance.

4.4.5 Wood Stork

Wood storks are FT by the ESA. This species is a large, long-legged wading bird that reaches lengths of 35 to 45 inches with a wingspan of 60 to 65 inches. Both the primary and tail feathers are black, while the rest of the body feathers are white. The head and upper neck of adult wood storks have no feathers and the skin is gray. Wood storks have a black bill and black legs with pink toes.

Wood storks, their nesting areas, and suitable foraging habitats are protected by the federal ESA. Wood storks typically nest colonially in medium to tall trees that occur in stands located either in swamps or on islands surrounded by relatively broad expanses of open water. Typical foraging sites include freshwater marshes, depressions in cypress heads, swamp sloughs, managed impoundments, stock ponds, shallow-seasonally flooded roadside, or agricultural ditches, and narrow tidal creeks or shallow tidal pools.

No wood storks were observed nesting or foraging within the Subject Property during the site reconnaissance. The Subject Property is not within a USFWS Core Foraging Area buffer (USFWS, 2016). Future development on the Subject Property is not likely to adversely affect this species.

5.0 WILDLIFE PERMITTING AND MITIGATION

Regulations governing wildlife permitting and mitigation are dependent on the nature of the proposed work and, in some instances, whether a USACE and/or Florida Department of Environmental Protection (FDEP) permit is required.

5.1 WILDLIFE PERMITTING

Gopher tortoise burrows were observed during the site reconnaissance. FWC maintains permitting process and regulations protecting gopher tortoises and their burrows. If the project proposes to impact gopher tortoises, and/or their burrows, FWC guidelines require a 100-percent gopher tortoise burrow survey of all suitable gopher tortoise habitat, relocation permits obtained, and all proposed impacted gopher tortoises be relocated. These activities must occur within 90 days prior to construction commencement or site preparation activities.

An FDEP Environmental Resource Permit will be required for the project and if jurisdictional wetlands and/or surface waters are impacted a State 404 Permit Application will be prepared. During the permitting process, inter-agency consultations may occur with USFWS and/or FWC, respectively, for federal and state listed wildlife species with the potential to occur in the Subject Property. When consultation between agencies determines that the proposed action will have no effect on protected resources, no further consultation is required. If a “may affect” determination is made, using USFWS species specific programmatic keys, the agency may either: (1) request USFWS concurrence with a “may affect, but not likely to adversely affect” finding, or (2) request initiation of formal consultation for determinations of “may affect, likely to adversely affect.” Both determinations would include a written analysis explaining the determination.

The 2013 USFWS Eastern Indigo Programmatic Effect Determination Key (USFWS, 2013b) was reviewed for the project’s potential to impact the eastern indigo snake. The scope of the key is to be used in a review of permit applications for effects determinations within the North and South Florida Ecological Services Field Offices

Geographic Areas of Responsibility (GAR). Gadsden County is not listed within the north Florida GAR, due to the lack of documented occurrences of this species within the past 25 years. Since Gadsden County is not listed within the north Florida GAR, the protection measures detailed in the Programmatic Effect Determination Key can be waived if 2013 USFWS Standard Protection Measures for the Eastern Indigo Snake (USFWS, 2013a) are followed during construction activities. The Standard Protection Measures for the Eastern Indigo Snake include, but are not limited to, installation of eastern indigo signage, verbal training for construction personnel, appropriate steps to be taken if eastern indigo snakes (alive or dead) are observed, and post construction eastern indigo monitoring report (Appendix D).

The Florida pine snake is a state-listed species with the potential to occur within the Subject Property. A species-specific survey for the Florida pine snake is not required, however, care should be taken during gopher tortoise reconstruction and site development/construction activities to prevent any “take” of this species. If Florida pine snakes are observed during the gopher tortoise relocation, they will be released on-site, outside of the area to be developed and within the Subject Property boundary, or they will be allowed to escape unharmed.

5.1.1 Wildlife Mitigation

Based on the desktop wildlife assessment and site reconnaissance, approximately 598 acres of high and low probability of gopher tortoise habitat exists within the upland areas (Appendix A, Figure 4). Prior to developing within potential gopher tortoise habitat in the Subject Property, state regulations require gopher tortoise burrow surveys, application for a relocation permit addressing state mitigation efforts, and subsequent relocation efforts are performed by an FWC authorized gopher tortoise agent.

At the time of this report, there is one gopher tortoise recipient site option within an acceptable distance (<100 miles) from the Subject Property per the preferred FWC regulations. The recipient site is Nokuse Plantation, Inc., located near Freeport, Florida. FWC is temporarily waiving the requirement that a recipient site be within 100 latitudinal miles of the donor site. Chinquapin Farm, LLC, and Eglin Air Force Base are located outside of the 100 latitudinal miles and are accepting gopher tortoises.

6.0 SUMMARY

Utilizing both the desktop review information and information gained from the site reconnaissance, suitable habitat for gopher tortoises exist mostly within the Coniferous Plantation and Forest Regeneration Areas on the Subject Property. Thirty-one active and/or inactive gopher tortoise burrows were observed during the site reconnaissance. The Subject Property could contain approximately 599 acres of high and low probability of gopher tortoise habitat with a conservative gopher tortoise burrow occupancy of 104 burrows. Any activities proposed that could impact gopher tortoises or their burrows will require an FWC gopher tortoise relocation permit.

An FDEP Environmental Resource Permit will be required for the project and if jurisdictional wetlands and/or surface waters are impacted a State 404 Permit Application will be prepared. During the permitting process the USFWS and/or FWC may be notified and allowed to comment on listed species with the potential to occur on-site. During this comment period, additional information may be requested from the applicant to document any impacts to potentially occurring listed species. These requests for additional information may take the form of informal correspondence or formal consultation. No further documentation or actions should be required regarding the eastern indigo snake, frosted flatwoods salamander, wood stork, gray bat, Atlantic sturgeon, fat threeridge and the purple bankclimber.

Consultations for state-listed species may involve providing the FDEP with a letter report and site plan that details the site reconnaissance results and would likely result in FWC concurrence that the proposed project would not adversely affect the state of Florida potentially occurring listed species. If no jurisdictional wetlands are impacted by the project, USFWS and/or FWC consultations regarding listed wildlife species will be at the discretion of the applicant.

7.0 REFERENCES

- FDOT (Florida Department of Transportation), 1999. Florida Land Use, Cover and Forms Classification System. <http://www.fdot.gov/geospatial/documentsandpubs/fluccmanual1999.pdf>
- FNAI (Florida Natural Areas Inventory). 2021. Biodiversity Matrix Search. Accessed online at: <http://fnai.org/biointro.cfm>
- FWC (Florida Fish and Wildlife Conservation Commission) Gopher Tortoise Management Plan. 2012 <https://myfwc.com/media/1819/gt-management-plan.pdf>
- FWC. A Species Action Management Plan for the Bald Eagle *Haliaeetus leucocephalus*, 2017. <https://myfwc.com/media/1778/baldeaglesap.pdf>
- FWC Gopher Tortoise Permitting Guidelines. 2020 <https://myfwc.com/media/11854/gt-permitting-guidelines.pdf>
- FWC. Eagle Nest Location. Accessed 2021. https://geodata.myfwc.com/datasets/eb20bf44ae4a44a8ab4a47cd4329c6b6_5?geometry=-104.698%2C24.348%2C-62.884%2C31.148
- Tetra Tech (Tetra Tech, Inc.), 2021. *Florida Renewable Partners (FRP) Gadsden County Solar Center, Task 2a Gopher Tortoise 15% Survey and Florida Fish and Wildlife Conservation Commission (FWC) Permitting*. Prepared for Florida Renewable Partners, Juno Beach, Florida. June.
- United States Federal Government. (1940) Bald and Golden Eagle protection act (16 United States Code 618-618d).
- United States Government. (1988). Endangered Species Act of 1973, as amended through the 100th Congress. U.S. Department of the Interior. <https://www.fws.gov/international/pdf/esa.pdf>
- United States Federal Government. (2004) Migratory Bird Treaty Act (16 United States Code. 703–711)
- USACE (United States Army Corps of Engineers), 2009 Gopher Tortoise Survey Handbook. <https://www.fws.gov/southeast/pdf/methodology/gopher-tortoise-survey-handbook.pdf>
- USDA (United States Department of Agriculture), Natural Resources Conservation Service (NRCS) 2021. Accessed online at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

USFWS (United States Fish and Wildlife Service) & United States Army Corps of Engineers, 2008 Wood Stork Consultation Key.
https://www.fws.gov/northflorida/WoodStorks/Documents/20080900_JAXESO_WOST_Key.pdf

USFWS, 2013a. Standard Protection Measures for the Eastern Indigo Snake.
https://www.fws.gov/northflorida/IndigoSnakes/20130812_Eastern_indigo_snake_Standard_Protection_Measures.htm

USFWS, 2013b. Eastern Indigo Snake Programmatic Effect Determination Key.
https://www.fws.gov/northflorida/IndigoSnakes/20130813_ltr_Update_addendum_2010_COE_Programmatic_EIS_Key.pdf

USFWS, 2016. Species Information, Florida Nesting Colonies, and Core Foraging Areas Map.
https://www.fws.gov/northflorida/woodstorks/Documents/20131211_Wood_stork_FL_nesting_colonies_map_update_2013.pdf

USFWS, 2021. U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Resource List. Accessed on at: <https://ecos.fws.gov/ipac/>

APPENDIX A: FIGURES



DRAWN BY	DATE
J.MADDEN	03/08/21
CHECKED BY	DATE
H.CAROLAN	03/08/21
REVISED BY	DATE

SCALE
AS NOTED

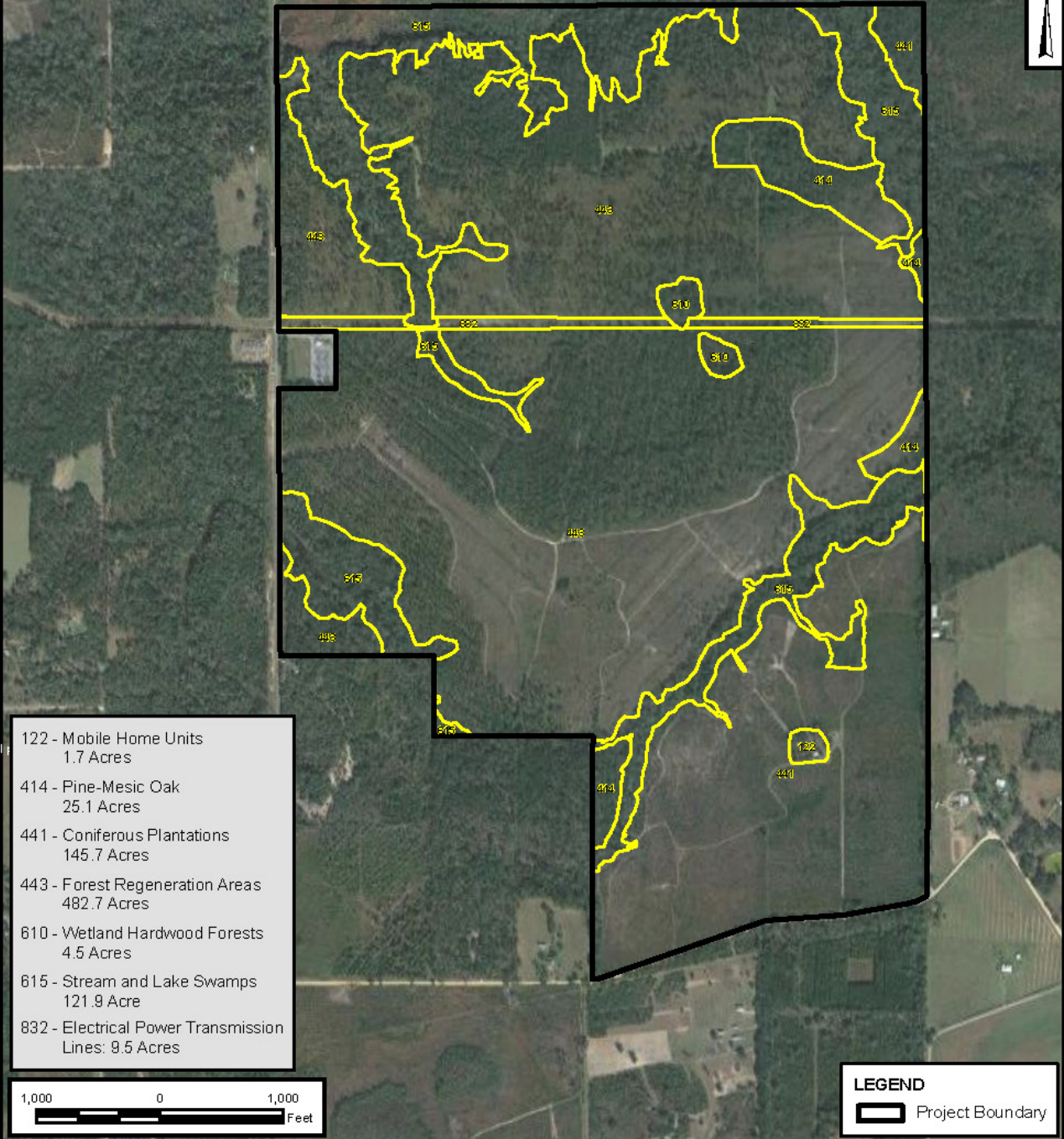


Site Vicinity Map
Florida Renewable Partners Gadsden County Solar
Gadsden County, FL

CONTRACT NUMBER 112C09415	
APPROVED BY	DATE
H.CAROLAN	03/08/21
APPROVED BY	DATE

FIGURE NO.	1	REV	0
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Aerial Source: Google Earth, 11/2019



- 122 - Mobile Home Units
1.7 Acres
- 414 - Pine-Mesic Oak
25.1 Acres
- 441 - Coniferous Plantations
145.7 Acres
- 443 - Forest Regeneration Areas
482.7 Acres
- 610 - Wetland Hardwood Forests
4.5 Acres
- 615 - Stream and Lake Swamps
121.9 Acre
- 832 - Electrical Power Transmission
Lines: 9.5 Acres



LEGEND
 Project Boundary

DRAWN BY	DATE
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H.CAROLAN	05/14/21
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SCALE	AS NOTED

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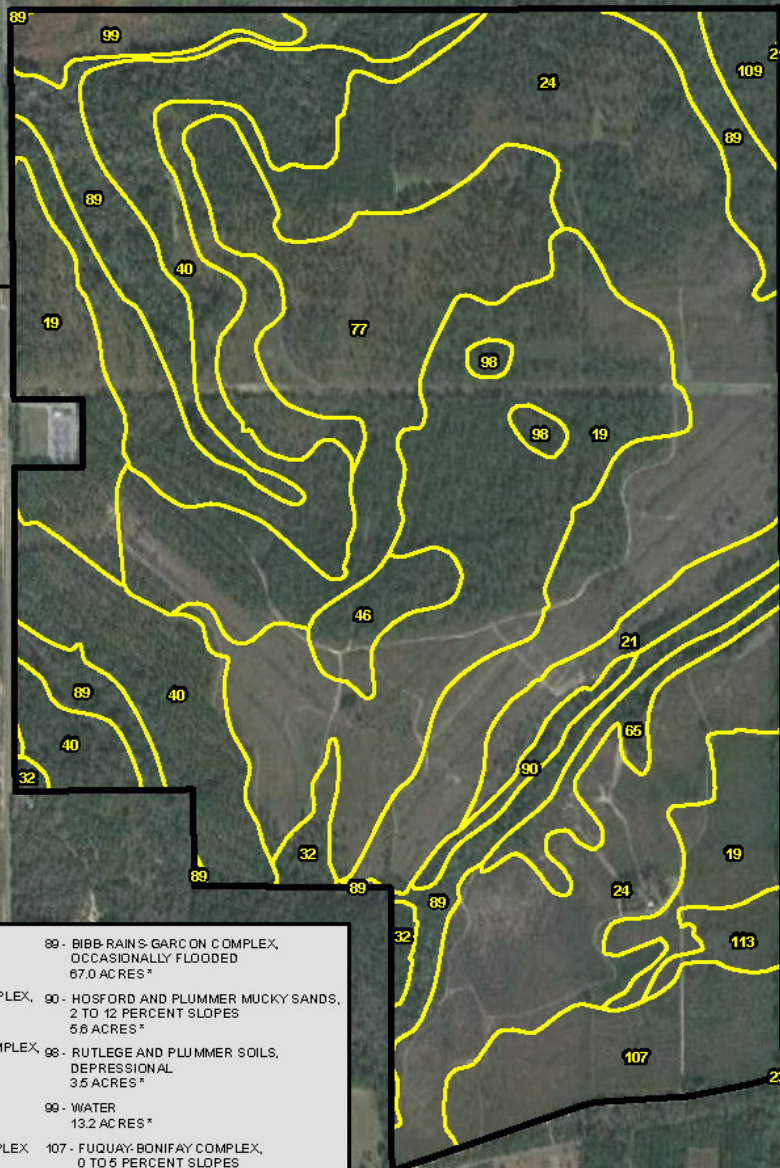
Florida Land Use, Cover and Forms Classification System Map
Florida Renewable Partners Gadsden County Solar
Gadsden County, FL

CONTRACT NUMBER 112C09415	
APPROVED BY	DATE
H.CAROLAN	05/14/21
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FIGURE NO.	REV
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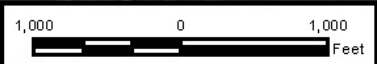
Aerial Source: Google Earth, 11/2019



Site
Location



19 - DOTHAN-FUQUAY C COMPLEX, 2 TO 5 PERCENT SLOPES 157.2 ACRES	89 - BIBB-RAINS-GARCON COMPLEX, OCCASIONALLY FLOODED 67.0 ACRES *
21 - DOTHAN-FUQUAY-COWARTS COMPLEX, 8 TO 15 PERCENT SLOPES 16.2 ACRES	90 - HOSFORD AND PLUMMER MUCKY SANDS, 2 TO 12 PERCENT SLOPES 5.6 ACRES *
23 - FUQUAY-LUCY-ORANGEBURG COMPLEX, 0 TO 5 PERCENT SLOPES 0.1 ACRES	98 - RUTLEGE AND PLUMMER SOILS, DEPRESSIONAL 3.5 ACRES *
24 - FUQUAY-BONIFAY COMPLEX, 5 TO 15 PERCENT SLOPES 236.1 ACRES	99 - WATER 13.2 ACRES *
32 - LEEFIELD-BONIFAY-DOTHAN C.COMPLEX, 0 TO 5 PERCENT SLOPES 8.4 ACRES	107 - FUQUAY-BONIFAY COMPLEX, 0 TO 5 PERCENT SLOPES 36.7 ACRES
40 - COWARTS-DOTHAN-FUQUAY COMPLEX, 15 TO 80 PERCENT SLOPES 115.3 ACRES	109 - DOTHAN-COWARTS-FUQUAY C.COMPLEX, 15 TO 80 PERCENT SLOPES 8.4 ACRES
46 - ORANGEBURG LOAMY SAND, 2 TO 5 PERCENT SLOPES 11.1 ACRES	113 - LEEFIELD FINE SAND, 0 TO 5 PERCENT SLOPES 7.4 ACRES
65 - UD ORTHENTS, RECLAIMED 12.4 ACRES	* = HYDRIC SOIL
77 - BONIFAY-FUQUAY COMPLEX, 0 TO 5 PERCENT SLOPES 89.0 ACRES *	



DRAWN BY	DATE
J.MADDEN	05/27/21

CHECKED BY	DATE
H.CAROLAN	05/27/21

REVISED BY	DATE

SCALE
AS NOTED



Soils Map
Florida Renewable Partners Gadsden County Solar
Gadsden County, FL

CONTRACT NUMBER
112C09415

APPROVED BY	DATE
H.CAROLAN	05/27/21

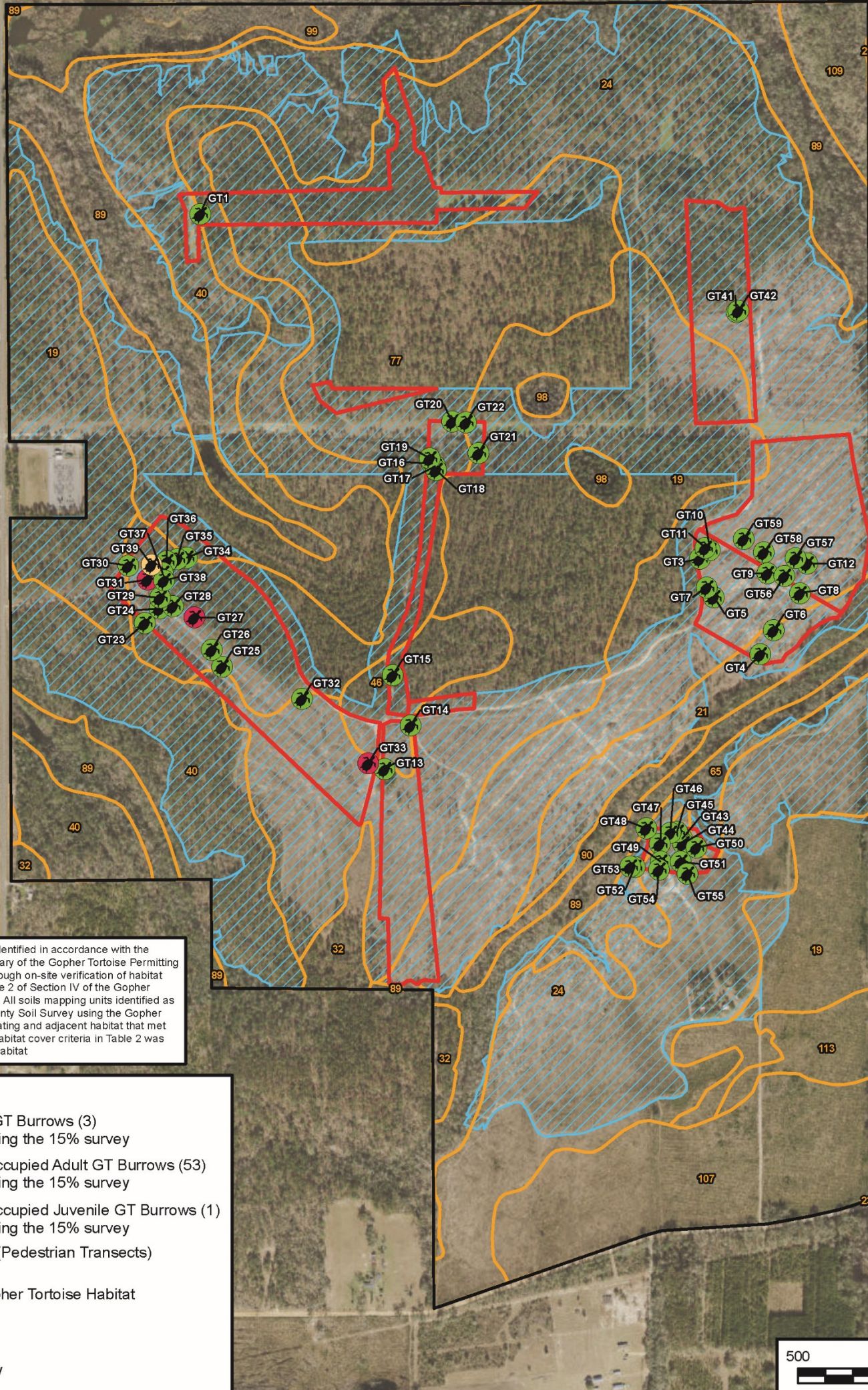
APPROVED BY	DATE

FIGURE NO.	3	REV	0
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Aerial Source: ArcGIS Online World Imagery (1/2019)

19 - DOTHAN-FUQUAY COMPLEX, 2 TO 5 PERCENT SLOPES 1 57.1 ACRES, DTW RATING 114cm	40 - COWARTS-DOTHAN-FUQUAY COMPLEX, 15 TO 60 PERCENT SLOPES 1 15.3 ACRES, DTW RATING 114cm	90 - HOSFORD AND PLUMMER MUCKY SANDS, 2 TO 12 PERCENT SLOPES 5 6 ACRES *, DTW RATING 0cm
21 - DOTHAN-FUQUAY-COWARTS COMPLEX, 8 TO 15 PERCENT SLOPES 1 6.2 ACRES, DTW RATING 114cm	46 - ORANGEBURG LOAMY SAND, 2 TO 5 PERCENT SLOPES 1 1.1 ACRES, DTW RATING >200cm	98 - RUTLEGE AND PLUMMER SOILS, DEPRESSIONAL 3 5 ACRES *, DTW RATING 0cm
23 - FUQUAY-LUCY-ORANGEBURG COMPLEX, TO 5 PERCENT SLOPES 0 1 ACRES, DTW RATING 137cm	65 - UDORTMENTS, RECLAIMED 1 2.4 ACRES, DTW RATING >200cm	99 - WATER 1 3.2 ACRES *, DTW RATING >200cm
24 - FUQUAY-BONIFAY COMPLEX, TO 15 PERCENT SLOPES 5 36.1 ACRES, DTW RATING 137cm	77 - BONIFAY-FUQUAY COMPLEX, 0 TO 5 PERCENT SLOPES 8 9.0 ACRES *, DTW RATING 153cm	107 - FUQUAY-BONIFAY COMPLEX, 0 TO 5 PERCENT SLOPES 36.7 ACRES, DTW RATING 137cm
32 - LEEFIELD-BONIFAY-DOTHAN COMPLEX 0 TO 5 PERCENT SLOPES 8 4 ACRES, DTW RATING 59cm	89 - BIBB-RAINS-GARCON COMPLEX, OCCASIONALLY FLOODED 6 7.0 ACRES *, DTW RATING 20cm	109 - DOTHAN-COWARTS-FUQUAY COMPLEX, 15 TO 60 PERCENT SLOPES 8 4 ACRES, DTW RATING 114cm
		113 - LEEFIELD FINE SAND, 0 TO 5 PERCENT SLOPES 7 4 ACRES, DTW RATING 74cm

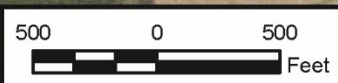
* = HYDRIC SOIL



Potential tortoise habitat was identified in accordance with the definition provided in the Glossary of the Gopher Tortoise Permitting Guidelines and was refined through on-site verification of habitat criteria thresholds listed in Table 2 of Section IV of the Gopher Tortoise Permitting Guidelines. All soils mapping units identified as highly suited by the NRCS County Soil Survey using the Gopher Tortoise Burrowing Suitability rating and adjacent habitat that met the acceptable and desirable habitat cover criteria in Table 2 was identified as potential tortoise habitat

LEGEND

- Abandoned GT Burrows (3) observed during the 15% survey
- Potentially Occupied Adult GT Burrows (53) observed during the 15% survey
- Potentially Occupied Juvenile GT Burrows (1) observed during the 15% survey
- Survey Area (Pedestrian Transects) 89.4 Acres
- Potential Gopher Tortoise Habitat 448.8 Acres
- Soils
- Site Boundary



DRAWN BY J.MADDEN	DATE 06/28/21	TETRA TECH	CONTRACT NUMBER 112C09415	
CHECKED BY H.CAROLAN	DATE 06/28/21		APPROVED BY H.CAROLAN	DATE 06/28/21
REVISED BY	DATE	Gopher Tortoise 15 Percent Survey Map Florida Renewable Partners Gadsden County Solar Gadsden County, FL		
SCALE AS NOTED				

APPENDIX B: USDA CUSTOM SOIL RESOURCE REPORT



United States
Department of
Agriculture

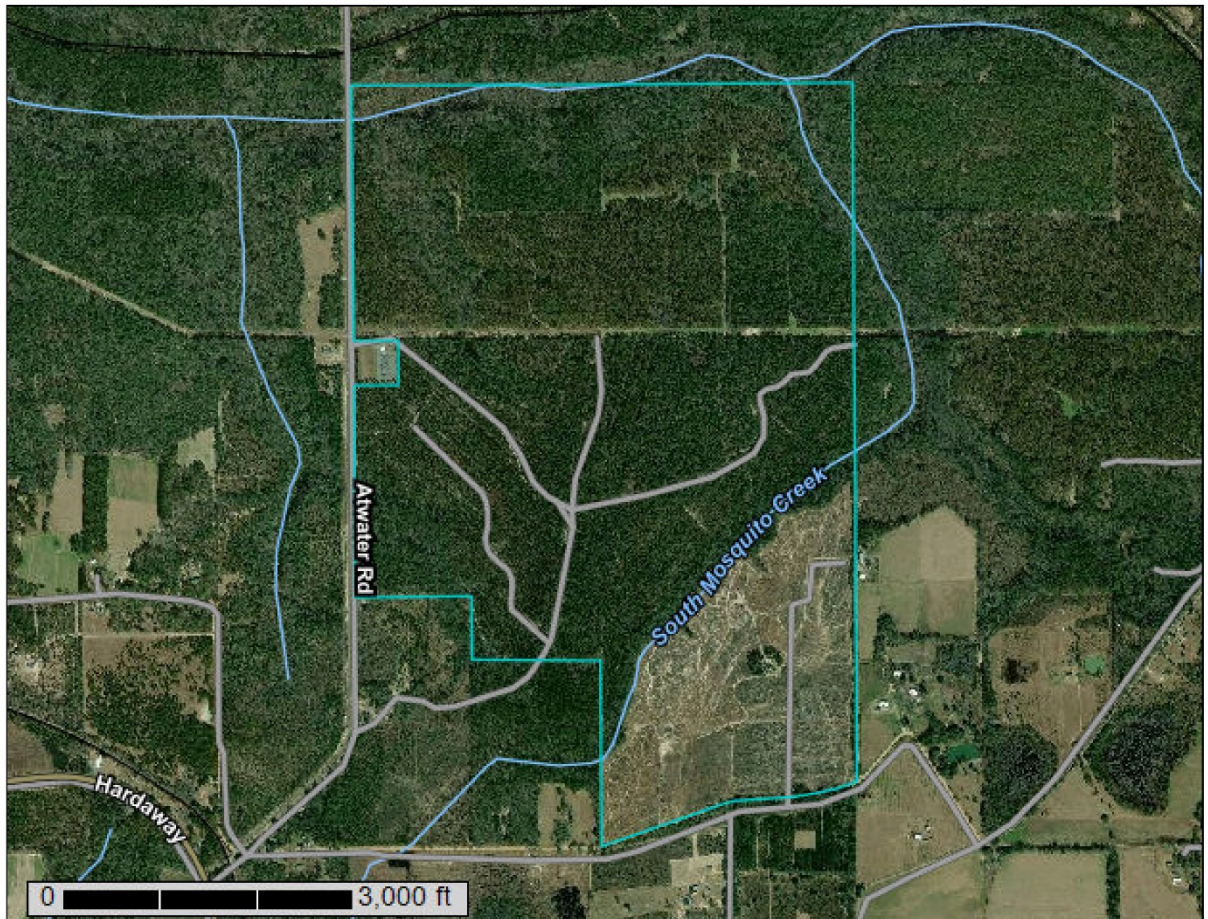
NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Gadsden County, Florida**

Gadsden SEC



May 27, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

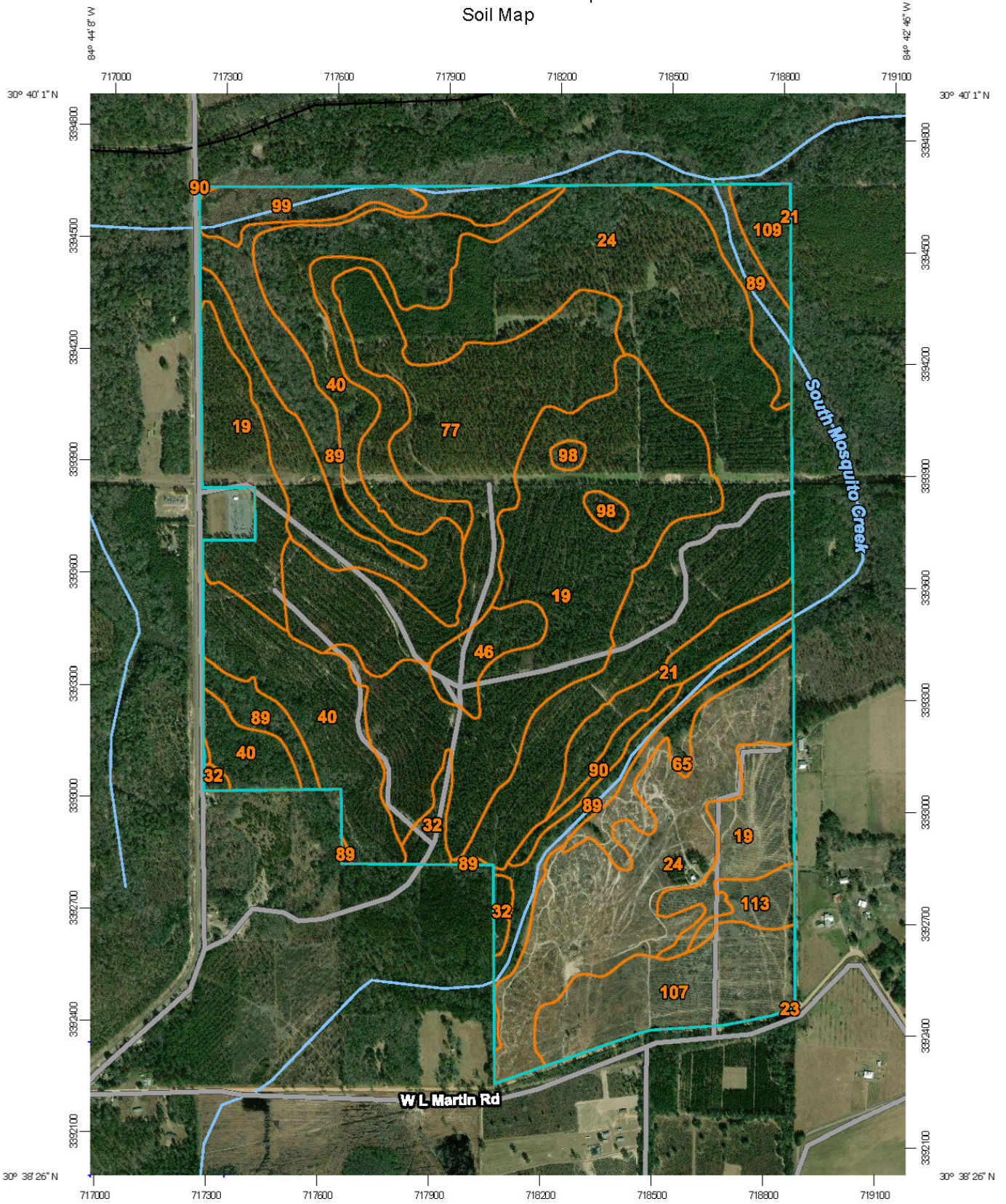
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

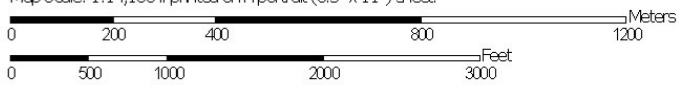
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map




Map Scale: 1:14,100 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features





-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Gadsden County, Florida
 Survey Area Data: Version 26, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 11, 2016—Sep 24, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
19	Dothan-Fuquay complex, 2 to 5 percent slopes	157.2	20.0%
21	Dothan-Fuquay-Cowarts complex, 8 to 15 percent slopes	16.2	2.1%
23	Fuquay-Lucy-Orangeburg complex, 0 to 5 percent slopes	0.0	0.0%
24	Fuquay-Bonifay complex, 5 to 15 percent slopes	236.1	30.0%
32	Leefield-Bonifay-Dothan complex, 0 to 5 percent slopes	8.4	1.1%
40	Cowarts-Dothan-Fuquay complex, 15 to 60 percent slopes	115.3	14.6%
46	Orangeburg loamy sand, 2 to 5 percent slopes	11.1	1.4%
65	Udorthents, reclaimed	12.4	1.6%
77	Bonifay-Fuquay complex, 0 to 5 percent slopes	89.0	11.3%
89	Bibb-Rains-Garcon complex, occasionally flooded	67.0	8.5%
90	Hosford and Plummer mucky sands, 2 to 12 percent slopes	5.6	0.7%
98	Rutlege and Plummer soils, depressional	3.5	0.4%
99	Water	13.2	1.7%
107	Fuquay-Bonifay complex, 0 to 5 percent slopes	36.8	4.7%
109	Dothan-Cowarts-Fuquay complex, 15 to 60 percent slopes	8.4	1.1%
113	Leefield fine sand, 0 to 5 percent slopes	7.4	0.9%
Totals for Area of Interest		787.5	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

Custom Soil Resource Report

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps.

Custom Soil Resource Report

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Gadsden County, Florida

19—Dothan-Fuquay complex, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1hcmf
Elevation: 50 to 700 feet
Mean annual precipitation: 53 to 69 inches
Mean annual air temperature: 63 to 70 degrees F
Frost-free period: 234 to 320 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Dothan and similar soils: 49 percent
Fuquay and similar soils: 39 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dothan

Setting

Landform: Knolls on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy marine deposits

Typical profile

A - 0 to 9 inches: loamy fine sand
Bt - 9 to 17 inches: fine sandy loam
Btv - 17 to 80 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 36 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Forage suitability group: Loamy and clayey soils on rises and knolls of mesic uplands (G133AA321FL)
Other vegetative classification: Loamy and clayey soils on rises and knolls of mesic uplands (G133AA321FL)
Hydric soil rating: No

Description of Fuquay

Setting

Landform: Knolls on marine terraces

Parent material: Sandy and loamy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 7 inches: sand

E - 7 to 30 inches: sand

Bt - 30 to 38 inches: sandy loam

Btv - 38 to 80 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 48 to 60 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: C

Forage suitability group: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)

Other vegetative classification: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)

Hydric soil rating: No

Minor Components

Bonifay

Percent of map unit: 9 percent

Landform: Knolls on marine terraces, ridges on marine terraces

Landform position (three-dimensional): Side slope, interfluvium

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G133AA121FL), Upland Hardwood Hammock (R133AY008FL)

Hydric soil rating: No

Cowarts

Percent of map unit: 3 percent

Landform: Knolls on marine terraces

Other vegetative classification: Loamy and clayey soils on knolls and ridges of mesic uplands (G133AA311FL)

Hydric soil rating: No

21—Dothan-Fuquay-Cowarts complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 1hcmh
Elevation: 30 to 700 feet
Mean annual precipitation: 53 to 67 inches
Mean annual air temperature: 63 to 72 degrees F
Frost-free period: 223 to 320 days
Farmland classification: Not prime farmland

Map Unit Composition

Dothan and similar soils: 49 percent
Fuquay and similar soils: 20 percent
Cowarts and similar soils: 19 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dothan

Setting

Landform: Ridges on marine terraces
Parent material: Loamy marine deposits

Typical profile

A - 0 to 5 inches: loamy fine sand
Bt - 5 to 13 inches: fine sandy loam
Btv - 13 to 80 inches: sandy clay loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 36 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Forage suitability group: Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G133AA322FL)

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Other vegetative classification: Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G133AA322FL)
Hydric soil rating: No

Description of Fuquay

Setting

Landform: Ridges on marine terraces
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 5 inches: sand
E - 5 to 21 inches: sand
Bt - 21 to 29 inches: sandy loam
Btv - 29 to 80 inches: sandy clay loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Forage suitability group: Sandy soils on strongly sloping to steep side slopes of mesic uplands (G133AA123FL)
Other vegetative classification: Sandy soils on strongly sloping to steep side slopes of mesic uplands (G133AA123FL)
Hydric soil rating: No

Description of Cowarts

Setting

Landform: Ridges on marine terraces
Parent material: Loamy marine deposits

Typical profile

A - 0 to 4 inches: loamy fine sand
BE - 4 to 9 inches: fine sandy loam
Bt - 9 to 32 inches: sandy clay loam
C - 32 to 80 inches: sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 36 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Forage suitability group: Loamy and clayey soils on strongly sloping to steep side slopes of mesic uplands (G133AA313FL)
Other vegetative classification: Loamy and clayey soils on strongly sloping to steep side slopes of mesic uplands (G133AA313FL)
Hydric soil rating: No

Minor Components

Norfolk

Percent of map unit: 8 percent
Landform: Ridges on marine terraces
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G133AA322FL)
Hydric soil rating: No

Orangeburg

Percent of map unit: 4 percent
Landform: Hills on marine terraces
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Loamy and clayey soils on strongly sloping to steep side slopes of mesic uplands (G133AA313FL)
Hydric soil rating: No

23—Fuquay-Lucy-Orangeburg complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1hcmk
Elevation: 50 to 500 feet

Custom Soil Resource Report

Mean annual precipitation: 53 to 69 inches
Mean annual air temperature: 63 to 72 degrees F
Frost-free period: 223 to 320 days
Farmland classification: Farmland of local importance

Map Unit Composition

Fuquay and similar soils: 40 percent
Lucy and similar soils: 30 percent
Orangeburg and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fuquay

Setting

Landform: Knolls on marine terraces
Parent material: Sandy and loamy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 10 inches: sand
E - 10 to 32 inches: sand
Bt - 32 to 46 inches: sandy loam
Btv - 46 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Forage suitability group: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)
Other vegetative classification: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)
Hydric soil rating: No

Description of Lucy

Setting

Landform: Knolls on marine terraces
Parent material: Sandy and loamy marine and fluvial deposits

Typical profile

Ap - 0 to 8 inches: loamy sand
E - 8 to 24 inches: loamy sand

Custom Soil Resource Report

Bt1 - 24 to 35 inches: sandy loam

Bt2 - 35 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)*

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: B

Forage suitability group: Sandy over loamy soils on knolls and ridges of mesic uplands (G133AA211FL)

Other vegetative classification: Sandy over loamy soils on knolls and ridges of mesic uplands (G133AA211FL)

Hydric soil rating: No

Description of Orangeburg

Setting

Landform: Knolls on marine terraces

Parent material: Sandy and loamy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 6 inches: loamy sand

BE - 6 to 11 inches: loamy sand

Bt - 11 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)*

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B

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Forage suitability group: Loamy and clayey soils on knolls and ridges of mesic uplands (G133AA311FL)

Other vegetative classification: Loamy and clayey soils on knolls and ridges of mesic uplands (G133AA311FL)

Hydric soil rating: No

Minor Components

Dothan

Percent of map unit: 5 percent

Landform: Knolls on marine terraces

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Loamy and clayey soils on rises and knolls of mesic uplands (G133AA321FL)

Hydric soil rating: No

Bonifay

Percent of map unit: 5 percent

Landform: Ridges on marine terraces, knolls on marine terraces

Landform position (three-dimensional): Side slope, interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G133AA121FL), Upland Hardwood Hammock (R133AY008FL)

Hydric soil rating: No

24—Fuquay-Bonifay complex, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 1hcml

Elevation: 50 to 400 feet

Mean annual precipitation: 53 to 69 inches

Mean annual air temperature: 63 to 70 degrees F

Frost-free period: 241 to 320 days

Farmland classification: Not prime farmland

Map Unit Composition

Fuquay and similar soils: 55 percent

Bonifay and similar soils: 38 percent

Minor components: 7 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fuquay

Setting

Landform: Hills on marine terraces, ridges on marine terraces

Custom Soil Resource Report

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy and loamy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 5 inches: sand

E - 5 to 32 inches: sand

Bt - 32 to 44 inches: sandy loam

Btv - 44 to 80 inches: sandy clay loam

Properties and qualities

Slope: 5 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 48 to 60 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: B

Forage suitability group: Sandy soils on strongly sloping to steep side slopes of mesic uplands (G133AA123FL)

Other vegetative classification: Sandy soils on strongly sloping to steep side slopes of mesic uplands (G133AA123FL)

Hydric soil rating: No

Description of Bonifay

Setting

Landform: Ridges on marine terraces, hills on marine terraces

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 4 inches: loamy sand

E - 4 to 45 inches: loamy sand

Bt - 45 to 53 inches: sandy loam

Btv - 53 to 80 inches: sandy clay loam

Properties and qualities

Slope: 5 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

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Depth to water table: About 54 to 66 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Forage suitability group: Sandy soils on strongly sloping to steep side slopes of mesic uplands (G133AA123FL)
Other vegetative classification: Sandy soils on strongly sloping to steep side slopes of mesic uplands (G133AA123FL), Longleaf Pine-Turkey Oak Hills (R133AY002FL)
Hydric soil rating: No

Minor Components

Dothan

Percent of map unit: 3 percent
Landform: Ridges on marine terraces
Other vegetative classification: Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G133AA322FL)
Hydric soil rating: No

Troup

Percent of map unit: 2 percent
Landform: Ridges on marine terraces
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on strongly sloping to steep side slopes of xeric uplands (G133AA113FL), Longleaf Pine-Turkey Oak Hills (R133AY002FL)
Hydric soil rating: No

Tifton

Percent of map unit: 2 percent
Landform: Ridges on marine terraces
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G133AA322FL)
Hydric soil rating: No

32—Leefield-Bonifay-Dothan complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1hcmv

Elevation: 30 to 450 feet

Mean annual precipitation: 53 to 73 inches

Mean annual air temperature: 63 to 72 degrees F

Frost-free period: 223 to 320 days

Farmland classification: Farmland of local importance

Map Unit Composition

Leefield and similar soils: 44 percent

Bonifay and similar soils: 26 percent

Dothan and similar soils: 23 percent

Minor components: 7 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Leefield

Setting

Landform: Knolls on marine terraces

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 10 inches: sand

E - 10 to 23 inches: sand

Bt - 23 to 33 inches: sandy loam

Btv - 33 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

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Hydrologic Soil Group: C/D

Forage suitability group: Sandy over loamy soils on rises and knolls of mesic uplands (G133AA231FL)

Other vegetative classification: Sandy over loamy soils on rises and knolls of mesic uplands (G133AA231FL), North Florida Flatwoods (R133AY004FL)

Hydric soil rating: No

Description of Bonifay

Setting

Landform: Knolls on marine terraces

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 8 inches: loamy sand

E - 8 to 42 inches: loamy sand

Bt - 42 to 53 inches: sandy loam

Btv - 53 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 54 to 66 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: A

Forage suitability group: Sandy soils on rises, knolls, and ridges of mesic uplands (G133AA121FL)

Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G133AA121FL), Upland Hardwood Hammock (R133AY008FL)

Hydric soil rating: No

Description of Dothan

Setting

Landform: Knolls on marine terraces

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Loamy marine deposits

Typical profile

A - 0 to 9 inches: loamy fine sand

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Bt - 9 to 24 inches: fine sandy loam

Btv - 24 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 36 to 54 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B

Forage suitability group: Loamy and clayey soils on rises and knolls of mesic uplands (G133AA321FL)

Other vegetative classification: Loamy and clayey soils on rises and knolls of mesic uplands (G133AA321FL)

Hydric soil rating: No

Minor Components

Chipley

Percent of map unit: 4 percent

Landform: Knolls on marine terraces

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands
(G133AA131FL)

Hydric soil rating: No

Lakeland

Percent of map unit: 3 percent

Landform: Ridges on marine terraces, knolls on marine terraces

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on ridges and dunes of xeric uplands
(G133AA111FL), Longleaf Pine-Turkey Oak Hills (R133AY002FL)

Hydric soil rating: No

40—Cowarts-Dothan-Fuquay complex, 15 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2wyxc
Elevation: 100 to 400 feet
Mean annual precipitation: 40 to 69 inches
Mean annual air temperature: 55 to 70 degrees F
Frost-free period: 190 to 310 days
Farmland classification: Not prime farmland

Map Unit Composition

Cowarts and similar soils: 50 percent
Dothan and similar soils: 25 percent
Fuquay and similar soils: 17 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cowarts

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Marine deposits

Typical profile

Ap - 0 to 4 inches: loamy fine sand
BE - 4 to 8 inches: fine sandy loam
Bt1 - 8 to 15 inches: sandy clay loam
Bt2 - 15 to 29 inches: sandy clay loam
Bt3 - 29 to 40 inches: sandy clay loam
C1 - 40 to 45 inches: sandy clay loam
C2 - 45 to 57 inches: sandy clay loam
C3 - 57 to 80 inches: sandy loam

Properties and qualities

Slope: 15 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 36 to 54 inches
Frequency of flooding: None
Frequency of ponding: None

Custom Soil Resource Report

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Dothan

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy marine deposits derived from sedimentary rock

Typical profile

Ap - 0 to 9 inches: loamy fine sand
Bt1 - 9 to 17 inches: fine sandy loam
Bt2 - 17 to 49 inches: sandy clay loam
Btv1 - 49 to 62 inches: sandy clay loam
Btv2 - 62 to 80 inches: sandy clay loam

Properties and qualities

Slope: 15 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 39 to 55 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Forage suitability group: Loamy and clayey soils on rises and knolls of mesic uplands (G133AA321FL)
Other vegetative classification: Loamy and clayey soils on rises and knolls of mesic uplands (G133AA321FL)
Hydric soil rating: No

Description of Fuquay

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear

Custom Soil Resource Report

Parent material: Sandy marine deposits over loamy marine deposits

Typical profile

Ap - 0 to 7 inches: sand
E1 - 7 to 23 inches: sand
E2 - 23 to 37 inches: sand
Btv1 - 37 to 43 inches: sandy loam
Btv2 - 43 to 54 inches: sandy clay loam
Btv3 - 54 to 80 inches: sandy clay loam

Properties and qualities

Slope: 15 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 35 to 47 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Lucy

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy over loamy soils on knolls and ridges of mesic uplands (G133AA211FL)
Hydric soil rating: No

Nankin

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Loamy and clayey soils on strongly sloping to steep side slopes of mesic uplands (G133AA313FL)
Hydric soil rating: No

46—Orangeburg loamy sand, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2sms1
Elevation: 40 to 500 feet
Mean annual precipitation: 40 to 70 inches
Mean annual air temperature: 55 to 72 degrees F
Frost-free period: 190 to 310 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Orangeburg and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Orangeburg

Setting

Landform: Broad interstream divides
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Marine deposits

Typical profile

Ap - 0 to 7 inches: loamy sand
BA - 7 to 12 inches: sandy loam
Bt1 - 12 to 54 inches: sandy clay loam
Bt2 - 54 to 80 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e

Custom Soil Resource Report

Hydrologic Soil Group: B

Forage suitability group: Loamy and clayey soils on knolls and ridges of mesic uplands (G133AA311FL)

Other vegetative classification: Loamy and clayey soils on knolls and ridges of mesic uplands (G133AA311FL)

Hydric soil rating: No

Minor Components

Benevolence

Percent of map unit: 10 percent

Landform: Broad interstream divides

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Faceville

Percent of map unit: 5 percent

Landform: Knolls

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Other vegetative classification: Loamy and clayey soils on knolls and ridges of mesic uplands (G133AA311FL)

Hydric soil rating: No

Lucy

Percent of map unit: 3 percent

Landform: Broad interstream divides

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Interfluve, rise

Down-slope shape: Convex

Across-slope shape: Convex

Other vegetative classification: Sandy over loamy soils on knolls and ridges of mesic uplands (G133AA211FL)

Hydric soil rating: No

Norfolk

Percent of map unit: 2 percent

Landform: Interfluves

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Interfluve, rise

Down-slope shape: Convex

Across-slope shape: Convex

Other vegetative classification: Loamy and clayey soils on rises and knolls of mesic uplands (G133AA321FL)

Hydric soil rating: No

65—Udorthents, reclaimed

Map Unit Setting

National map unit symbol: 1hcnw
Elevation: 50 to 300 feet
Mean annual precipitation: 55 to 57 inches
Mean annual air temperature: 66 to 68 degrees F
Frost-free period: 270 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Mine spoil or earthy fill

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G133AA999FL)
Other vegetative classification: Forage suitability group not assigned (G133AA999FL)
Hydric soil rating: No

77—Bonifay-Fuquay complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1hcp8
Elevation: 50 to 310 feet
Mean annual precipitation: 53 to 69 inches
Mean annual air temperature: 63 to 72 degrees F
Frost-free period: 223 to 320 days

Custom Soil Resource Report

Farmland classification: Farmland of local importance

Map Unit Composition

Bonifay and similar soils: 49 percent

Fuquay and similar soils: 40 percent

Minor components: 11 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bonifay

Setting

Landform: Knolls on marine terraces

Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 10 inches: loamy sand

E - 10 to 48 inches: loamy sand

Bt - 48 to 67 inches: sandy loam

Btv - 67 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 54 to 66 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: A

Forage suitability group: Sandy soils on rises, knolls, and ridges of mesic uplands (G133AA121FL)

Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G133AA121FL), Longleaf Pine-Turkey Oak Hills (R133AY002FL)

Hydric soil rating: No

Description of Fuquay

Setting

Landform: Knolls on marine terraces

Parent material: Sandy and loamy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 7 inches: sand

E - 7 to 36 inches: sand

Bt - 36 to 59 inches: sandy loam

Btv - 59 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Custom Soil Resource Report

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Forage suitability group: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)
Other vegetative classification: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)
Hydric soil rating: No

Minor Components

Lucy

Percent of map unit: 7 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Side slope, interfluvium
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy over loamy soils on knolls and ridges of mesic uplands (G133AA211FL)
Hydric soil rating: No

Troup

Percent of map unit: 4 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Side slope, interfluvium
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on ridges and dunes of xeric uplands (G133AA111FL), Longleaf Pine-Turkey Oak Hills (R133AY002FL)
Hydric soil rating: No

89—Bibb-Rains-Garcon complex, occasionally flooded

Map Unit Setting

National map unit symbol: 1hcpn
Elevation: 30 to 450 feet

Custom Soil Resource Report

Mean annual precipitation: 53 to 68 inches
Mean annual air temperature: 63 to 72 degrees F
Frost-free period: 234 to 320 days
Farmland classification: Not prime farmland

Map Unit Composition

Bibb and similar soils: 40 percent
Rains and similar soils: 25 percent
Garcon and similar soils: 24 percent
Minor components: 11 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bibb

Setting

Landform: Flats on flood plains on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified loamy and sandy alluvium

Typical profile

A - 0 to 10 inches: sandy loam
Cg1 - 10 to 36 inches: sandy loam
Cg2 - 36 to 66 inches: loamy sand
Cg3 - 66 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 3 to 12 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Forage suitability group: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G133AA345FL)
Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G133AA345FL)
Hydric soil rating: Yes

Description of Rains

Setting

Landform: Flats on stream terraces on marine terraces, flood plains on marine terraces
Landform position (three-dimensional): Talf

Custom Soil Resource Report

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy and clayey marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 9 inches: fine sandy loam

Btg1 - 9 to 36 inches: sandy clay loam

Btg2 - 36 to 80 inches: sandy clay

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: OccasionalNone

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: B/D

Forage suitability group: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G133AA345FL)

Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G133AA345FL), Freshwater Marshes and Ponds (R133AY010FL)

Hydric soil rating: Yes

Description of Garcon

Setting

Landform: Flats on stream terraces on marine terraces, flood plains on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: fine sand

E - 7 to 26 inches: fine sand

Bt - 26 to 40 inches: sandy clay loam

Btg - 40 to 51 inches: sandy loam

BCg - 51 to 60 inches: loamy fine sand

Cg - 60 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: Low

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: OccasionalNone

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: B/D

Forage suitability group: Sandy or sandy over loamy soils on stream terraces or flood plains (G133AA134FL)

Other vegetative classification: Sandy or sandy over loamy soils on stream terraces or flood plains (G133AA134FL), North Florida Flatwoods (R133AY004FL)

Hydric soil rating: No

Minor Components

Ousley

Percent of map unit: 8 percent

Landform: Rises on stream terraces on marine terraces, knolls on stream terraces on marine terraces, flood plains on marine terraces

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy or sandy over loamy soils on stream terraces or flood plains (G133AA134FL), Upland Hardwood Hammock (R133AY008FL)

Hydric soil rating: No

Pelham

Percent of map unit: 3 percent

Landform: Flats on marine terraces

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G133AA241FL), North Florida Flatwoods (R133AY004FL)

Hydric soil rating: No

90—Hosford and Plummer mucky sands, 2 to 12 percent slopes

Map Unit Setting

National map unit symbol: 1hcpp

Custom Soil Resource Report

Elevation: 0 to 400 feet
Mean annual precipitation: 49 to 70 inches
Mean annual air temperature: 63 to 73 degrees F
Frost-free period: 232 to 295 days
Farmland classification: Not prime farmland

Map Unit Composition

Hosford and similar soils: 53 percent
Plummer and similar soils: 41 percent
Minor components: 6 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hosford

Setting

Landform: Seeps on marine terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A1 - 0 to 4 inches: mucky sand
A2 - 4 to 66 inches: mucky coarse sand
Cg - 66 to 80 inches: sand

Properties and qualities

Slope: 2 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy over loamy, loamy, and clayey soils on ridges and side slopes of hydric uplands (G133AA443FL)
Other vegetative classification: Sandy over loamy, loamy, and clayey soils on ridges and side slopes of hydric uplands (G133AA443FL)
Hydric soil rating: Yes

Description of Plummer

Setting

Landform: Toes on marine terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, side slope

Custom Soil Resource Report

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: mucky sand
E - 7 to 48 inches: sand
Btg - 48 to 80 inches: sandy loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: sandy soils on flats of mesic or hydric lowlands
(G133AA141FL)
Other vegetative classification: sandy soils on flats of mesic or hydric lowlands
(G133AA141FL), Wetland Hardwood Hammock (R133AY012FL)
Hydric soil rating: Yes

Minor Components

Rutlege

Percent of map unit: 6 percent
Landform: Depressions on stream terraces on marine terraces, flood plains on marine terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G133AA145FL)
Hydric soil rating: Yes

98—Rutlege and Plummer soils, depressional

Map Unit Setting

National map unit symbol: 1j8gr

Custom Soil Resource Report

Elevation: 0 to 400 feet
Mean annual precipitation: 49 to 67 inches
Mean annual air temperature: 63 to 73 degrees F
Frost-free period: 223 to 295 days
Farmland classification: Not prime farmland

Map Unit Composition

Rutlege, depressional, and similar soils: 50 percent
Plummer, depressional, and similar soils: 38 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rutlege, Depressional

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 15 inches: sand
Cg - 15 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G133AA145FL)
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G133AA145FL)
Hydric soil rating: Yes

Description of Plummer, Depressional

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy and loamy marine deposits

Custom Soil Resource Report

Typical profile

A - 0 to 10 inches: sand
E - 10 to 58 inches: sand
Btg - 58 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G133AA145FL)
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G133AA145FL), Wetland Hardwood Hammock (R133AY012FL)
Hydric soil rating: Yes

Minor Components

Hosford

Percent of map unit: 7 percent
Landform: Seeps on marine terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy over loamy, loamy, and clayey soils on ridges and side slopes of hydric uplands (G133AA443FL)
Hydric soil rating: Yes

Leon

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: sandy soils on flats of mesic or hydric lowlands (G133AA141FL), North Florida Flatwoods (R133AY004FL)
Hydric soil rating: No

99—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified

Forage suitability group: Forage suitability group not assigned (G133AA999FL)

Other vegetative classification: Forage suitability group not assigned (G133AA999FL)

Hydric soil rating: Unranked

107—Fuquay-Bonifay complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1nwzx

Elevation: 20 to 350 feet

Mean annual precipitation: 53 to 70 inches

Mean annual air temperature: 63 to 72 degrees F

Frost-free period: 223 to 320 days

Farmland classification: Farmland of local importance

Map Unit Composition

Fuquay and similar soils: 50 percent

Bonifay and similar soils: 38 percent

Minor components: 12 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fuquay

Setting

Landform: — error in exists on —

Parent material: Sandy and loamy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 6 inches: sand

E - 6 to 35 inches: sand

Bt - 35 to 54 inches: sandy loam

Btv - 54 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Forage suitability group: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)
Other vegetative classification: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)
Hydric soil rating: No

Description of Bonifay

Setting

Landform: — error in exists on —
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 8 inches: loamy sand
E - 8 to 48 inches: loamy sand
Bt - 48 to 52 inches: sandy loam
Btv - 52 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 54 to 66 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Forage suitability group: Sandy soils on rises, knolls, and ridges of mesic uplands (G133AA121FL)
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G133AA121FL), Longleaf Pine-Turkey Oak Hills (R133AY002FL)
Hydric soil rating: No

Minor Components

Bonneau

Percent of map unit: 5 percent

Landform: Knolls on marine terraces

Other vegetative classification: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)

Hydric soil rating: No

Chipleay

Percent of map unit: 4 percent

Landform: Knolls on marine terraces

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G133AA131FL)

Hydric soil rating: No

Foxworth

Percent of map unit: 3 percent

Landform: Knolls on marine terraces

Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G133AA121FL), Longleaf Pine-Turkey Oak Hills (R133AY002FL)

Hydric soil rating: No

109—Dothan-Cowarts-Fuquay complex, 15 to 60 percent slopes

Map Unit Setting

National map unit symbol: 1nx06

Elevation: 20 to 700 feet

Mean annual precipitation: 53 to 70 inches

Mean annual air temperature: 63 to 72 degrees F

Frost-free period: 223 to 320 days

Farmland classification: Not prime farmland

Map Unit Composition

Dothan and similar soils: 35 percent

Cowarts and similar soils: 28 percent

Fuquay and similar soils: 25 percent

Minor components: 12 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dothan

Setting

Landform: Hillslopes on marine terraces

Parent material: Loamy marine deposits

Typical profile

A - 0 to 6 inches: loamy fine sand

Bt - 6 to 10 inches: fine sandy loam

Custom Soil Resource Report

Btv - 10 to 80 inches: sandy clay loam

Properties and qualities

Slope: 15 to 60 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: About 36 to 54 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B

Forage suitability group: Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G133AA322FL)

Other vegetative classification: Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G133AA322FL)

Hydric soil rating: No

Description of Cowarts

Setting

Landform: Hillslopes on marine terraces

Parent material: Loamy marine deposits

Typical profile

A - 0 to 3 inches: loamy fine sand

BE - 3 to 7 inches: fine sandy loam

Bt - 7 to 27 inches: sandy clay loam

C - 27 to 80 inches: sandy loam

Properties and qualities

Slope: 15 to 60 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)

Depth to water table: About 36 to 54 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: C

Custom Soil Resource Report

Forage suitability group: Loamy and clayey soils on strongly sloping to steep side slopes of mesic uplands (G133AA313FL)

Other vegetative classification: Loamy and clayey soils on strongly sloping to steep side slopes of mesic uplands (G133AA313FL)

Hydric soil rating: No

Description of Fuquay

Setting

Landform: Hillslopes on marine terraces

Parent material: Sandy and loamy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 4 inches: sand

E - 4 to 21 inches: sand

Bt - 21 to 35 inches: sandy loam

Btv - 35 to 80 inches: sandy clay loam

Properties and qualities

Slope: 15 to 60 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 48 to 60 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water capacity: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Forage suitability group: Sandy soils on strongly sloping to steep side slopes of mesic uplands (G133AA123FL)

Other vegetative classification: Sandy soils on strongly sloping to steep side slopes of mesic uplands (G133AA123FL)

Hydric soil rating: No

Minor Components

Bonneau

Percent of map unit: 5 percent

Landform: Ridges on marine terraces, hills on marine terraces

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)

Hydric soil rating: No

Chipley

Percent of map unit: 4 percent

Landform: Knolls on marine terraces

Custom Soil Resource Report

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G133AA131FL)
Hydric soil rating: No

Foxworth

Percent of map unit: 3 percent
Landform: Hills on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on strongly sloping to steep side slopes of mesic uplands (G133AA123FL), Longleaf Pine-Turkey Oak Hills (R133AY002FL)
Hydric soil rating: No

113—Leefield fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2wyy3
Elevation: 100 to 450 feet
Mean annual precipitation: 40 to 69 inches
Mean annual air temperature: 55 to 70 degrees F
Frost-free period: 190 to 310 days
Farmland classification: Not prime farmland

Map Unit Composition

Leefield and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Leefield

Setting

Landform: Knolls on marine terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits and/or loamy marine deposits

Typical profile

Ap - 0 to 7 inches: fine sand
E1 - 7 to 15 inches: sand
E2 - 15 to 29 inches: sand
E3 - 29 to 32 inches: sand
Bt - 32 to 38 inches: sandy loam
Btvg - 38 to 52 inches: sandy clay loam
Btg1 - 52 to 63 inches: sandy clay loam

Custom Soil Resource Report

Btg2 - 63 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: About 28 to 31 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water capacity: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: A

Forage suitability group: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)

Other vegetative classification: Sandy over loamy soils on rises, knolls, and ridges of mesic uplands (G133AA221FL)

Hydric soil rating: No

Minor Components

Chipley

Percent of map unit: 5 percent

Landform: Flats on marine terraces

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Rise

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G133AA131FL)

Hydric soil rating: No

Fuquay

Percent of map unit: 5 percent

Landform: Knolls on marine terraces

Landform position (two-dimensional): Shoulder, summit

Landform position (three-dimensional): Interfluvium

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy over loamy soils on knolls and ridges of mesic uplands (G133AA211FL)

Hydric soil rating: No

Foxworth

Percent of map unit: 5 percent

Landform: Ridges on marine terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluvium

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: R133AY002FL - Longleaf Pine-Turkey Oak Hills

Custom Soil Resource Report

Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G133AA121FL)

Hydric soil rating: No

Pelham

Percent of map unit: 5 percent

Landform: Depressions on flats on marine terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear, convex

Across-slope shape: Concave, linear

Hydric soil rating: Yes

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

**APPENDIX C: FNAI BIODIVERSITY MATRIX UNOFFICIAL REPORT AND
USFWS UNOFFICIAL IPAC RESOURCE LIST**



1018 Thonotosaway Road
 Suite 200-C
 Tallahassee, FL 32303
 850-224-8207
 850-481-9344 fax
 www.fnai.org

FLORIDA
Natural Areas
 INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Query Results

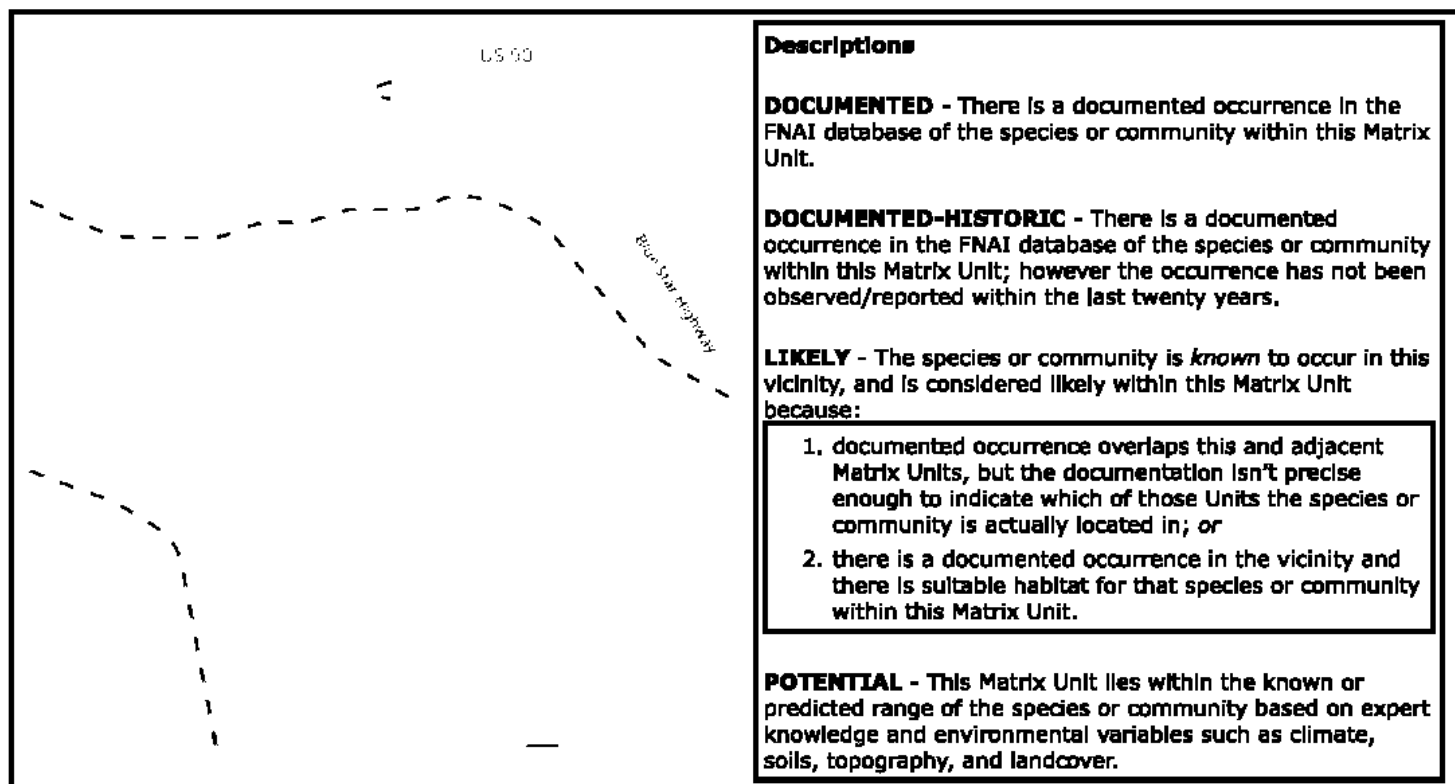
UNOFFICIAL REPORT

Created 3/15/2021

(Contact the FNAI Data Services Coordinator at 850.224.8207 or
 kbrinegar@fnai.fsu.edu for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 4 Matrix Units: 11167 , 11168 , 11242 , 11243



Matrix Unit ID: 11167

0 Documented Elements Found

0 Documented-Historic Elements Found

4 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Mesic flatwoods</i>	G4	S4	N	N
<i>Mycteria americana</i> Wood Stork	G4	S2	LT	FT
<i>Sandhill</i>	G3	S2	N	N
<i>Upland hardwood forest</i>	G5	S3	N	N

Matrix Unit ID: 11168

0 Documented Elements Found

1 Documented-Historic Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Luxilus zonistius</i> Bandfin Shiner	G4	S1S2	N	N

2 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Mycteria americana</i> Wood Stork	G4	S2	LT	FT
<i>Upland hardwood forest</i>	G5	S3	N	N

Matrix Unit ID: 112420 **Documented** Elements Found0 **Documented-Historic** Elements Found**2 Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Mycteria americana</i> Wood Stork	G4	S2	LT	FT
<i>Upland hardwood forest</i>	G5	S3	N	N

Matrix Unit ID: 112430 **Documented** Elements Found0 **Documented-Historic** Elements Found**3 Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Mesic flatwoods</i>	G4	S4	N	N
<i>Mycteria americana</i> Wood Stork	G4	S2	LT	FT
<i>Upland hardwood forest</i>	G5	S3	N	N

Matrix Unit IDs: 11167 , 11168 , 11242 , 1124343 **Potential** Elements Common to Any of the 4 Matrix Units

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Agrimonia incisa</i> Incised Groove-bur	G3	S2	N	T
<i>Ambystoma cingulatum</i> Frosted Flatwoods Salamander	G2	S2	LT	FT
<i>Amphiuma pholeter</i> One-toed Amphiuma	G3	S3	N	N
<i>Andropogon arctatus</i> Pine-woods Bluestem	G3	S3	N	T
<i>Arnoglossum diversifolium</i> Variable-leaved Indian-plantain	G2	S2	N	T
<i>Asplenium heteroresiliens</i> Wagner's Spleenwort	GNA	S1	N	N
<i>Baptisia megacarpa</i> Apalachicola Wild Indigo	G2	S1	N	E

<u><i>Bigeleowia nuttallii</i></u> Nuttall's Rayless Goldenrod	G3G4	S1	N	E
<u><i>Brickellia cordifolia</i></u> Flyr's Brickell-bush	G2G3	S2	N	E
<u><i>Calamintha dentata</i></u> Toothed Savory	G3	S3	N	T
<u><i>Conradina glabra</i></u> Apalachicola Rosemary	G1	S1	LE	E
<u><i>Croomia pauciflora</i></u> Croomia	G3	S2	N	E
<u><i>Croton elliotii</i></u> Elliott's Croton	G2G3	SH	N	N
<u><i>Drymarchon couperi</i></u> Eastern Indigo Snake	G3	S3	LT	FT
<u><i>Gopherus polyphemus</i></u> Gopher Tortoise	G3	S3	C	ST
<u><i>Heterodon simus</i></u> Southern Hognose Snake	G2	S2	N	N
<u><i>Linum westii</i></u> West's Flax	G1	S1	N	E
<u><i>Lobelia boykinii</i></u> Boykin's Lobelia	G2G3	S1	N	E
<u><i>Lythrum curtissii</i></u> Curtiss' Loosestrife	G1	S1	N	E
<u><i>Macrochelys apalachicola</i></u> Apalachicola Alligator Snapping Turtle	G2G3	S2	N	N
<u><i>Magnolia ashei</i></u> Ashe's Magnolia	G2	S2	N	E
<u><i>Matelea baldwyniana</i></u> Baldwyn's Spiny-pod	G3	S1	N	E
<u><i>Matelea floridana</i></u> Florida Spiny-pod	G2	S2	N	E
<u><i>Micropterus cataractae</i></u> Shoal Bass	G3	S1	N	N
<u><i>Myotis austroriparius</i></u> Southeastern Bat	G3G4	S3	N	N
<u><i>Myotis grisescens</i></u> Gray Bat	G3	S1	LE	FE
<u><i>Peucaea aestivalis</i></u> Bachman's Sparrow	G3	S3	N	N
<u><i>Pinguicula primuliflora</i></u> Primrose-flowered Butterwort	G3G4	S3	N	E
<u><i>Pituophis melanoleucus mugitus</i></u> Florida Pine Snake	G4T3	S3	N	SSC
<u><i>Platanthera integra</i></u> Yellow Fringeless Orchid	G3G4	S3	N	E
<u><i>Rhexia parviflora</i></u> Small-flowered Meadowbeauty	G2	S2	N	E
<u><i>Rhododendron austrinum</i></u> Florida Flame Azalea	G3	S3	N	E
<u><i>Rhododendron chapmanii</i></u> Chapman's Rhododendron	G1	S1	LE	E
<u><i>Rhynchospora crinipes</i></u> Hairy-peduncled Beaksedge	G2	S2	N	E
<u><i>Ruellia noctiflora</i></u> Nightflowering Wild Petunia	G2	S2	N	E
<u><i>Sarracenia leucophylla</i></u> White-top Pitcherplant	G3	S3	N	E
<u><i>Schisandra glabra</i></u> Bay Star-vine	G3	S2	N	E
<u><i>Spigelia gentianoides</i></u> Gentian Pinkroot	G1	S1	LE	E
<u><i>Torreya taxifolia</i></u> Florida Torreya	G1	S1	LE	E
<u><i>Trillium lancifolium</i></u>	G3	S2	N	E

Narrow-leaved Trillium				
<u><i>Uvularia floridana</i></u> Florida Merrybells	G3	S1	N	E
<u><i>Xyris longisekala</i></u> Karst Pond Xyris	G2G3	S2S3	N	E
<u><i>Xyris scabrifolia</i></u> Harper's Yellow-eyed Grass	G3	S3	N	T

Disclaimer

The data maintained by the Florida Natural Areas Inventory represent the single most comprehensive source of information available on the locations of rare species and other significant ecological resources statewide. However, the data are not always based on comprehensive or site-specific field surveys. Therefore, this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. FNAI shall not be held liable for the accuracy and completeness of these data, or opinions or conclusions drawn from these data. FNAI is not inviting reliance on these data. Inventory data are designed for the purposes of conservation planning and scientific research and are not intended for use as the primary criteria for regulatory decisions.

Unofficial Report

These results are considered unofficial. FNAI offers a [Standard Data Request](#) option for those needing certifiable data.

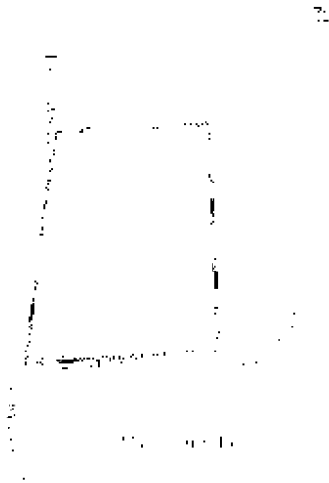
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Gadsden County, Florida



Local office

Panama City Ecological Services Field Office

☎ (850) 769-0552

📠 (850) 763-2177

1601 Balboa Avenue

Panama City, FL 32405-3792

<http://www.fws.gov/panamacity/specieslist.html>

<http://www.fws.gov/panamacity/pcdata.html>

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME

STATUS

Wood Stork *Mycteria americana*

Threatened

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8477>

Reptiles

NAME

STATUS

Eastern Indigo Snake *Drymarchon corais couperi*

Threatened

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/646>**Gopher Tortoise** *Gopherus polyphemus*

Candidate

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6994>

Fishes

NAME

STATUS

Atlantic Sturgeon (gulf Subspecies) *Acipenser oxyrinchus*

Threatened

(=*oxyrinchus*) *desotoi*

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.<https://ecos.fws.gov/ecp/species/651>

Clams

NAME

STATUS

Fat Threeridge (mussel) *Amblema neislerii*

Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.<https://ecos.fws.gov/ecp/species/2574>**Purple Bankclimber (mussel)** *Elliptoideus sloatianus*

Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.<https://ecos.fws.gov/ecp/species/7660>

Flowering Plants

NAME

STATUS

Fringed Campion *Silene polypetala*

Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3738>

Conifers and Cycads

NAME

STATUS

Florida Torreya *Torreya taxifolia*

Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/5391>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ

below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Common Ground-dove *Columbina passerina exigua*
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds Feb 1 to Dec 31

Swallow-tailed Kite *Elanoides forficatus*
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
<https://ecos.fws.gov/ecp/species/8938>

Breeds Mar 10 to Jun 30

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ()

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be

used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review.

Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

[PFO6/4C](#)

[PFO6C](#)

[PFO1/4A](#)

[PFO6A](#)

[PFO6Cb](#)

[PFO6Fb](#)

[PFO6F](#)

FRESHWATER POND

[PUBH](#)

RIVERINE

[R4SBC](#)

[R5UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters.

Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX D: USFWS STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE
U.S. Fish and Wildlife Service
August 12, 2013

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: jaxregs@fws.gov; South Florida Field Office: verobeach@fws.gov; Panama City Field Office: panamacity@fws.gov). As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the attached poster and brochure), no further written confirmation or “approval” from the USFWS is needed and the applicant may move forward with the project.

If the applicant decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or “approval” from the USFWS that the plan is adequate must be obtained. At least 30 days prior to any clearing/land alteration activities, the applicant shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

The Plan materials should consist of: 1) a combination of posters and pamphlets (see **Poster Information** section below); and 2) verbal educational instructions to construction personnel by supervisory or management personnel before any clearing/land alteration activities are initiated (see **Pre-Construction Activities** and **During Construction Activities** sections below).

POSTER INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (a final poster for Plan compliance, to be printed on 11” x 17” or larger paper and laminated, is attached):

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands

and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTION UNDER FEDERAL AND STATE LAW: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. “Taking” of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. “Take” is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of \$25,000 for civil violations and up to \$50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant’s designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A DEAD EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant’s designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

Telephone numbers of USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:

North Florida Field Office – (904) 731-3336
Panama City Field Office – (850) 769-0552
South Florida Field Office – (772) 562-3909

PRE-CONSTRUCTION ACTIVITIES

1. The applicant or designated agent will post educational posters in the construction office and throughout the construction site, including any access roads. The posters must be clearly visible to all construction staff. A sample poster is attached.
2. Prior to the onset of construction activities, the applicant/designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational brochure including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office (a final brochure for Plan compliance, to be printed double-sided on 8.5" x 11" paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC websites.
3. Construction staff will be informed that in the event that an eastern indigo snake (live or dead) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Field Office. The contact information for the USFWS is provided on the referenced posters and brochures.

DURING CONSTRUCTION ACTIVITIES

1. During initial site clearing activities, an onsite observer may be utilized to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).
2. If an eastern indigo snake is discovered during gopher tortoise relocation activities (i.e. burrow excavation), the USFWS shall be contacted within one business day to obtain further guidance which may result in further project consultation.
3. Periodically during construction activities, the applicant's designated agent should visit the project area to observe the condition of the posters and Plan materials, and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.

POST CONSTRUCTION ACTIVITIES

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion. The report can be sent electronically to the appropriate USFWS e-mail address listed on page one of this Plan.

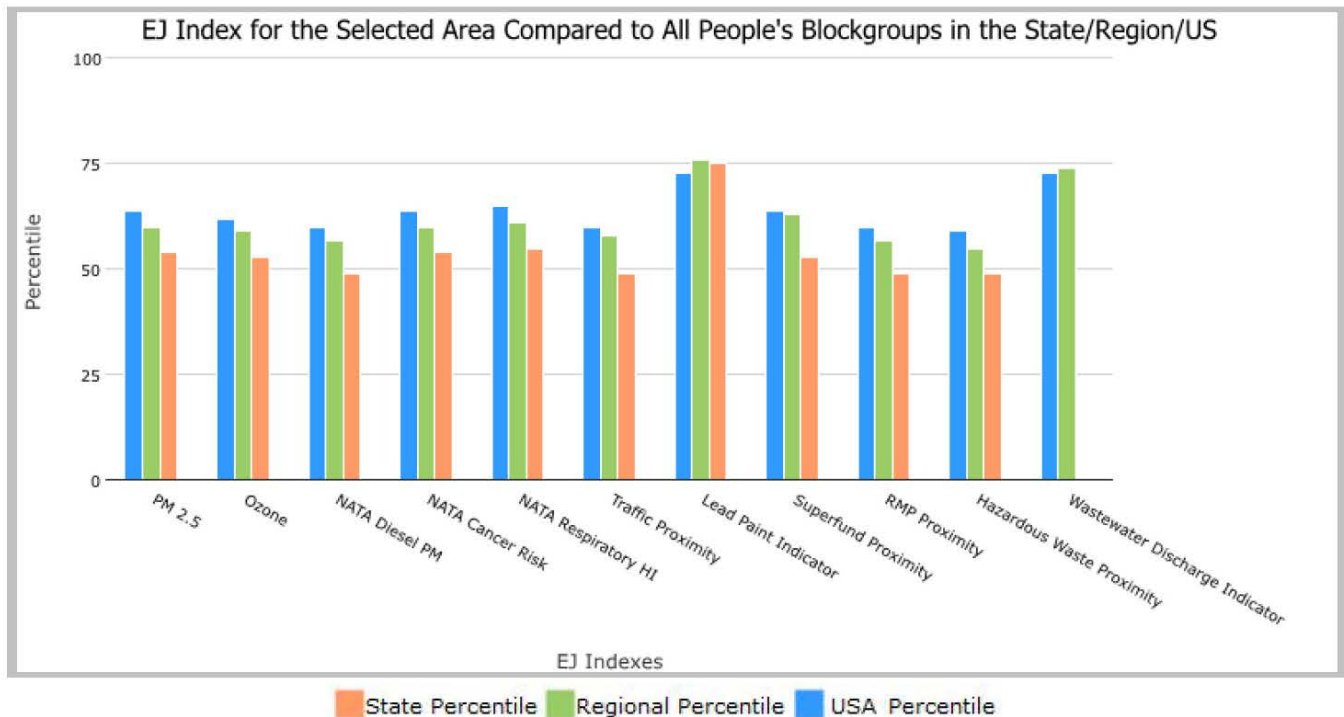
APPENDIX E – SOCIOECONOMICS

1 mile Ring Centered at 30.657759,-84.725537, FLORIDA, EPA Region 4

Approximate Population: 29

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	54	60	64
EJ Index for Ozone	53	59	62
EJ Index for NATA* Diesel PM	49	57	60
EJ Index for NATA* Air Toxics Cancer Risk	54	60	64
EJ Index for NATA* Respiratory Hazard Index	55	61	65
EJ Index for Traffic Proximity and Volume	49	58	60
EJ Index for Lead Paint Indicator	75	76	73
EJ Index for Superfund Proximity	53	63	64
EJ Index for RMP Proximity	49	57	60
EJ Index for Hazardous Waste Proximity	49	55	59
EJ Index for Wastewater Discharge Indicator	N/A	74	73



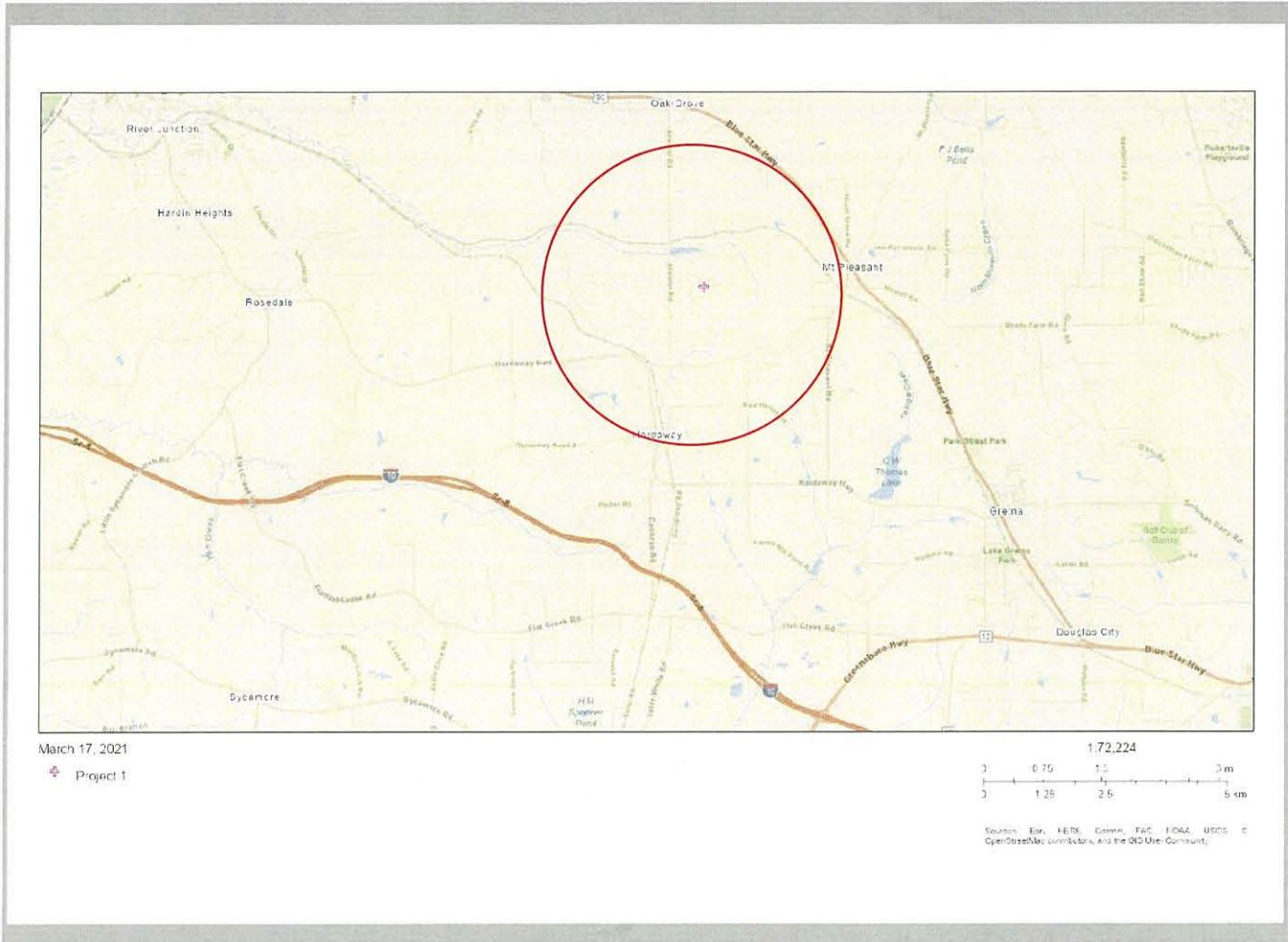
This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.



1 mile Ring Centered at 30.657759,-84.725537, FLORIDA, EPA Region 4

Approximate Population: 29

Input Area (sq. miles): 3.14



Sites reporting to EPA	
Superfund NPL	
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	

EJSCREEN Report (Version 2020)



1 mile Ring Centered at 30.657759,-84.725537, FLORIDA, EPA Region 4

Approximate Population: 29

Input Area (sq. miles): 3.14

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	9.32	8.11	99	8.57	83	8.55	75
Ozone (ppb)	33	31.9	52	38	16	42.9	5
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	0.132	0.556	0	0.417	<50th	0.478	<50th
NATA* Cancer Risk (lifetime risk per million)	40	33	97	36	70-80th	32	80-90th
NATA* Respiratory Hazard Index	0.66	0.49	97	0.52	90-95th	0.44	90-95th
Traffic Proximity and Volume (daily traffic count/distance to road)	7.6	550	4	350	13	750	10
Lead Paint Indicator (% Pre-1960 Housing)	0.35	0.11	88	0.15	87	0.28	67
Superfund Proximity (site count/km distance)	0.048	0.13	38	0.083	58	0.13	41
RMP Proximity (facility count/km distance)	0.072	0.79	5	0.6	11	0.74	9
Hazardous Waste Proximity (facility count/km distance)	0.033	0.81	2	0.91	2	5	2
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0	0.61	N/A	0.65	39	9.4	33
Demographic Indicators							
Demographic Index	49%	41%	66	37%	72	36%	73
People of Color Population	48%	46%	57	39%	66	39%	65
Low Income Population	50%	35%	76	36%	75	33%	80
Linguistically Isolated Population	0%	7%	29	3%	51	4%	45
Population With Less Than High School Education	26%	12%	89	13%	89	13%	87
Population Under 5 years of age	0%	5%	7	6%	5	6%	4
Population over 64 years of age	21%	20%	69	17%	78	15%	80

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

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