

5.0 Environmental Effects of Site Preparation and Plant and Associated Facilities Construction

This chapter discusses expected environmental effects of site preparation and construction of SCCF. These effects are addressed in terms of their physical impact on the resources and populations described in Chapter 3.0, as well as in terms of compliance with applicable nonprocedural requirements.

5.1 Land Impact

5.1.1 General Construction Impacts

Figure 5.1.1-1 illustrates the general areas on the SGS site that will be disturbed by construction of the proposed SCCF power plant and associated onsite facilities. Approximately 55 acres of the 1,996-acre SGS site will be impacted by construction activities. As shown in Figure 5.1.1-1, the approximately 32-acre proposed Project power block and associated facilities area will be located south of the Existing SGS Units and southwest of the existing hyperbolic cooling towers. An approximately 18-acre area located north of the proposed power block area will be disturbed for construction laydown and an approximately 5-acre area northeast of the laydown area for construction parking. Other areas within the disturbed area for plant facilities may be used for laydown and parking during the construction process. After construction is complete, the aggregate in the construction parking area will be removed, and the area will be seeded and allowed to revegetate with grass. The construction laydown area will be utilized for future outages.

As discussed in Section 1.3, natural gas for SCCF will be supplied through an approximately 21-mile pipeline lateral from the FGT natural gas transmission system. The new natural gas pipeline lateral will not be permitted, majority-owned, constructed, or operated by SECI. Similarly, SECI will not own the approximately 150' by 200' (0.7-acre) pipeline lateral gas yard in the southwestern portion of the site or the gas pipeline entering the site and running to the yard. The gas yard and pipeline are, therefore, not proposed for certification in this SCA.

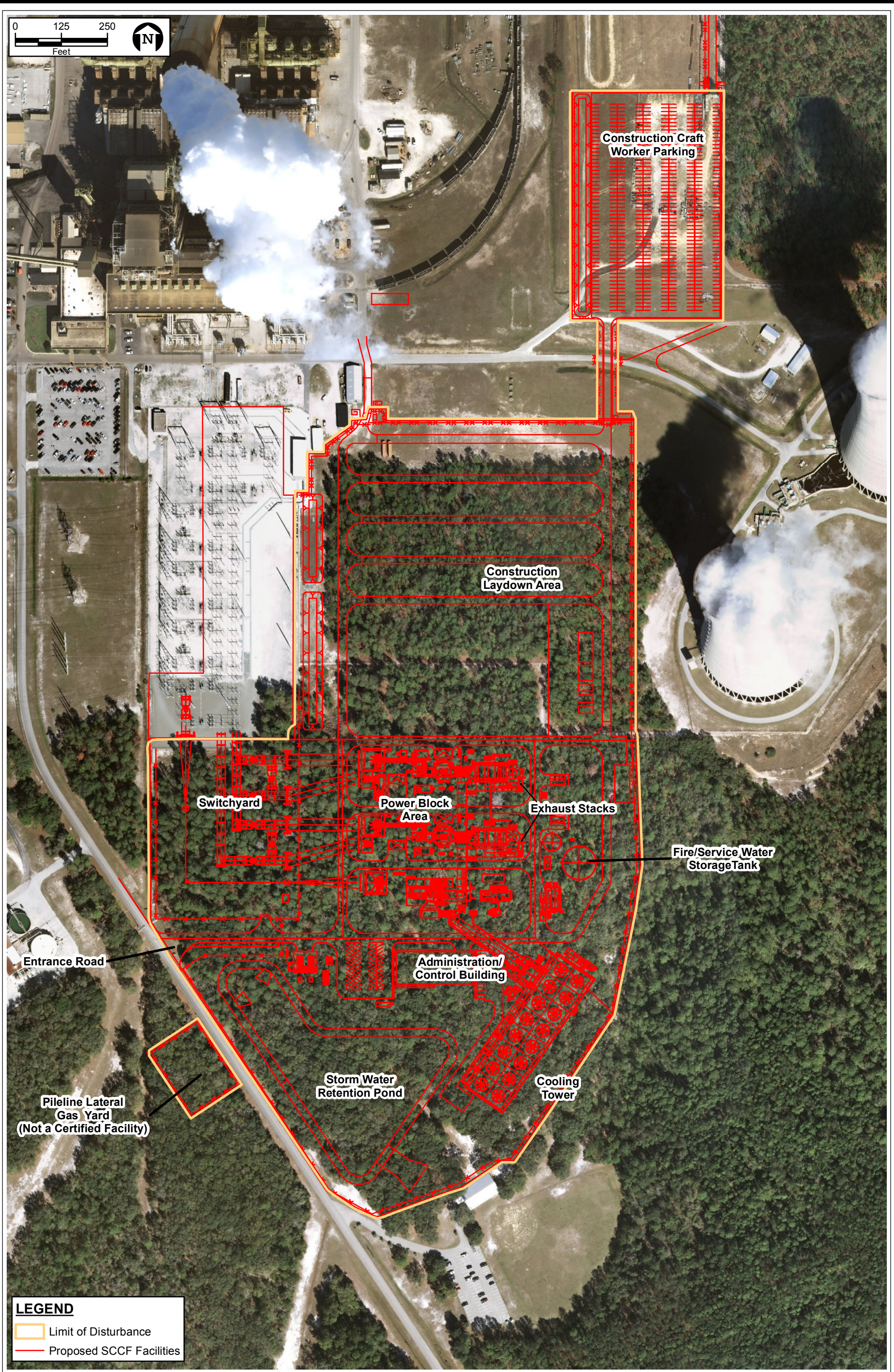


FIGURE 5.1.1-1.
LAYOUT OF SCCF FACILITIES SHOWING LIMIT OF DISTURBANCE

Sources: FDOT, 2017; Putnam Co PA, 2016; B & V, 2016; ECT, 2017.

Construction activities for SCCF are scheduled to begin between mid-2019 and early 2020 or after the necessary regulatory approvals are obtained, with targeted commercial operation of SCCF approximately 36 months later. The onsite construction activities for the Project will involve the following general phases:

- Site preparation and grading
- Access roads, laydown/parking area and stormwater system construction
- Utilities work
- Foundations and civil works
- Equipment erection
- Bulk commodity installation
- Startup and testing
- Site cleanup/demobilization

The initial site preparation activities on the Project area will involve grubbing and clearing of vegetation from the areas to be used for construction and removal of unsuitable materials. Cleared vegetation will be disposed of offsite at an appropriately permitted facility or burned onsite in accordance with applicable county, state, and federal requirements. The cleared areas will be graded and stabilized. Erosion control measures, such as silt fencing, will be installed to control sediment in runoff from the disturbed areas.

Next, the plant facilities and switchyard areas will be cut and/or filled, as needed, to raise the areas to design elevations (i.e., nominal 74.0' North American Vertical Datum of 1988 [NAVD88]). The proposed site elevations are designed to provide a balanced cut-and-fill site to the extent practicable. As needed, structural fill materials, such as crushed limestone, will be obtained from locally available sources and applied and compacted in lifts. Again, erosion control measures will be installed to control sediment runoff. Also, sloped areas will be seeded and revegetated to stabilize the areas.

The first areas to be developed on the site will be the internal roads, stormwater management drainage ditches and retention ponds, and construction laydown and parking areas. As discussed in Section 4.8, SCCF's stormwater management plan includes retention ponds for the construction parking area and construction laydown and plant facilities areas. For the balance of construction, surface water runoff from the disturbed areas will be directed to one of the stormwater retention ponds. After construction is complete and the parking area has been allowed to revegetate, the retention pond for the construction parking area will be removed. The construction laydown and parking areas and internal roads will be stabilized with limestone or similar locally available aggregate material.

The next general phases of construction will involve underground utility and civil works. Underground work will consist of installation of such facilities as cooling water, fire water, sewer, drain, and other piping and electrical duct banks and grounding. Foundations to support heavy loads (i.e., CTGs, HRSGs, STGs,

stacks, etc.) will be constructed using reinforced spread footings and/or piles, depending on final geotechnical specifications. Detailed foundation design will be completed during final design of the Project. No use of explosives is anticipated during construction.

During construction, temporary and localized dewatering activities will occur at various locations on the site for installation of facilities with deeper foundations. In general, the temporary dewatering activities will be accomplished through standard construction dewatering techniques, such as dewatering wells, French drains, trenches, sheet pile walls, and sump pumps. Water withdrawn during the dewatering operations will be routed to the stormwater retention ponds. As described in Section 5.3, these temporary dewatering activities are not expected to adversely impact offsite surface water or groundwater resources. Dewatering activities will be conducted in accordance with applicable requirements.

After completion of the civil and foundation works, structural steel erection activities will be conducted, followed by mechanical equipment erection and installation. Next, bulk piping and electrical systems will be installed. As construction activities are completed, various systems will be tested, commissioned, and started up to assure their proper function. When all systems are ready, a startup and testing phase will occur. Following initial startup and commissioning, the site will be demobilized and cleaned up.

During construction, the construction labor force will use portable chemical toilets or permitted chemical holding tanks. A licensed contractor will pump sanitary sewage from the portable toilets and holding tanks as needed and transport the waste to a permitted offsite disposal facility. Potable water for consumption and hand washing during construction will be provided by bottled water.

5.1.2 Roads

The construction workforce will average approximately 200 workers for the overall 33-month construction period beginning between mid-2019 and early 2020. A peak of approximately 500 workers is anticipated in 2021 for the construction activities. This peak is anticipated to last two to four months. Approximately 30 full-time employees will be needed during SCCF operation.

During construction of SCCF, construction labor force and delivery traffic will use the existing roadway system in the vicinity of the SGS site. These same roads and intersections were used by construction traffic during development of the Existing SGS Units. During construction, most of the workers (90 percent) and all large trucks will access the site using the existing main entrance road from US 17. Construction management workers (10 percent) may use the southern site access road from West River Road.

Operational employees will use the West River Road access. Section 5.7.3 of this SCA discusses potential transportation impacts during construction of the proposed SCCF.

Although the majority of equipment and materials for construction will be delivered to the site by trucks, some larger equipment, such as the CTGs, HRSGs, and STGs, will be delivered via the railroad system using the existing rail line along US 17 and the rail spur into the SGS site.

5.1.3 Flood Zones

As shown in Figure 3.1.4-1, SCCF is not located within the 100-year flood zone or a flood hazard area. The Putnam County Floodplain Hazardous Management and Floodplain Protection ordinance (LDC Article 6.05) also references FIRMs and other maps as the basis for establishing flood hazard areas, and the floodplain map included in the appendix to the LDC also designates the area for SCCF as Flood Zone X, an area subject to minimal flooding. Therefore, no specific flood zone protection measures will be required for Project construction.

5.1.4 Topography and Soils

As shown on Figure 3.3.1-4, the Project area is relatively flat, ranging from approximately 80 to 65 ft-msl and sloping from the northwest to the southeast. Detailed descriptions of the site topography, soils, runoff characteristics, soil bearing strength and stability, and sinkhole potential are provided in Sections 3.3.1, 3.3.2, and 3.3.3. Construction activities will alter runoff and percolation rates in the specific areas of the new structures and facilities. Stormwater runoff from these affected areas will be collected and directed to appropriately designed drainage systems and retention ponds in accordance with applicable federal, state, and local stormwater management requirements (see Section 4.8 and Appendix 10.4). Also, during construction, appropriate erosion and sediment control measures will be implemented. Overall, the proposed changes in site topography and soils in the SCCF facilities area will be minor and will not significantly change existing conditions. Runoff on the remaining undisturbed portion of the SGS site or offsite areas will also not alter existing conditions.

5.2 Impact on Surface Water Bodies and Uses

5.2.1 Impact Assessment

Construction of SCCF will have negligible impacts on surface waters and the adjoining St. Johns River. While there are streams in the north-northeast portion of the overall SGS site, there are no open surface waters or streams in the SCCF area, which precludes any direct or indirect impacts to onsite waters or water

quality. Therefore, no adverse effects are anticipated on navigation, fish and wildlife resources, water quality, water supply, or aesthetics.

Site preparation will require clearing and grading. Erosion, sedimentation, and runoff control measures, both pre- and postconstruction, will meet applicable nonprocedural requirements, including Part IV of Chapter 373, F.S., and Chapter 62-330, F.A.C., and applicable Putnam County regulatory requirements. The stormwater retention ponds will be constructed early in the Project construction activities to provide stormwater water treatment for onsite runoff during the construction. BMPs for erosion and sediment control will be employed to mitigate temporary impacts from construction and dewatering. Appendix 10.4 contains a copy of the stormwater management plan. Construction will not occur in a Putnam County wellfield protection zone or groundwater recharge area.

Cooling tower makeup water for the proposed Project will be withdrawn from the St. Johns River through the existing intake structure, and blowdown water from the cooling tower will be discharged through the existing discharge structure designated as D-001. Therefore, no construction activities will occur in the St. Johns River. Also, no wetland-related impacts are expected due to Project construction. No impacts will occur to navigational or recreational uses, and no public water supplies exist in the area that will be affected.

5.2.2 Measuring and Monitoring

Monitoring of construction runoff and operation and maintenance of BMPs for erosion and sediment control will be undertaken as required by existing SGS COC A.XXVII.B.3, local requirements, and applicable construction permits (i.e., NPDES Generic Permit for Stormwater Discharge from Large and Small Construction Activities, Chapter 62-621, F.A.C.). Routine monitoring of discharge D-001, as required by the SGS existing NPDES permit, will continue through the construction period; additional compliance monitoring specific to the operation of SCCF may be incorporated into the revised NPDES permit. No additional surface water monitoring of the adjacent St. Johns River is anticipated.

5.3 Groundwater Impacts

5.3.1 Impact Assessment

The proposed site preparation and facility construction activities for SCCF may have potential short-term effects on groundwater levels in the surficial aquifer on the site due to short-term, localized dewatering activities. These limited, temporary dewatering activities may be required for construction of subsurface water pipes, deep sumps, or potential deep foundations for support. Because of the temporary and localized

(i.e., in the immediate onsite facility area) nature of the potential dewatering impacts, construction of the Project is not expected to have adverse impacts on groundwater resources. SECI will submit a dewatering plan to FDEP prior to commencing dewatering activities, in accordance with existing SGS Condition A.XVII.B.10.

Stormwater retention ponds will be constructed early in the construction process and will be used to manage dewatering water. Additional retention/infiltration ponds specifically for dewatering water may be developed, as needed. The specific means and methods for dewatering activities will be determined during detailed design with additional investigation of groundwater recharge rates. If required, a specific dewatering plan will be prepared prior to commencing the dewatering activities. This plan will be used to meet the substantive requirements of FDEP's Generic NPDES Permit for Discharge of Groundwater from Dewatering Operations, Rule 62-621.300(2), F.A.C., for the discharge of dewatering water to a stormwater management system that discharges to surface waters. Direct discharge of dewatering water to surface waters is not expected during dewatering activities.

Potential chemical effects can result from construction and dewatering activities and disturbance (mobilization) of constituents from soils into the water and from oxidation of groundwater during construction and site preparation. Such chemical effects could include disassociation of calcite-releasing bicarbonate and calcium ions, which can increase the hardness of the water. In addition, iron in the soils can oxidize and cause ferrous iron to form ferric iron. These potential surficial aquifer impacts due to groundwater drawdowns are not expected to result in significant impacts to surface water bodies and wetlands in the vicinity of the Project area, since the drawdowns will occur only in the immediate area of the facilities, which contain surface waters or wetlands. No impacts to the drinking water supply are expected due to the short-term and localized nature of the dewatering activities.

5.3.2 Measuring and Monitoring Programs

Proposed site preparation and facility construction activities for SCCF do not warrant the implementation of a groundwater monitoring program. Under FDEP's generic permit for discharge of produced groundwater, flow rates are required to be reported once per week when discharging, as well as chemicals used for treatment, if required, of the discharged water. This reporting is sufficient to monitor for any potential impacts.

5.4 Ecological Impacts

5.4.1 Impact Assessment

Potential impacts to terrestrial and aquatic ecological resources within the areas to be developed for the proposed Project will be based on the effects associated with site clearing and Project construction on the existing floral and faunal communities. Potential impacts may include direct and indirect effects on wildlife and indirect effects on aquatic habitat, wetlands, and important species. The proposed construction activities are planned to occur in areas lacking in sensitive wetland or upland environments, the potential for impacts to ecological resources is expected to be minor. The following subsections provide information on the potential impacts to ecological resources.

5.4.1.1 Terrestrial Systems—Flora

Construction of SCCF will impact approximately 55 acres, or approximately 2.8 percent of the total approximately 1,996-acre SGS site. Of this impacted area, 100 percent is comprised of upland vegetation communities and other non-wetland land uses, including approximately 0.24 acre of community recreational facilities (186), 0.19 acre of herbaceous uplands (310), 44.0 acres of upland mixed hardwood/conifer forest (434), 0.50 acre of upland scrub pine and hardwoods (436), 0.04 acre of roads and highways land use category (814), and 10.0 acres of electrical power facilities (831). The upland community types that will be affected by onsite construction are prevalent on the SGS site and in the surrounding vicinity; therefore, their displacement is not expected to cause adverse impacts. Figure 5.4.1-1 depicts the proposed Project site layout and area of disturbance overlain on the land use community types on the SGS site, and Table 5.4.1-1 summarizes existing, impacted, and remaining acreages by impacted community type. These affected land covers will be converted to the category electrical power facilities (831) after construction.

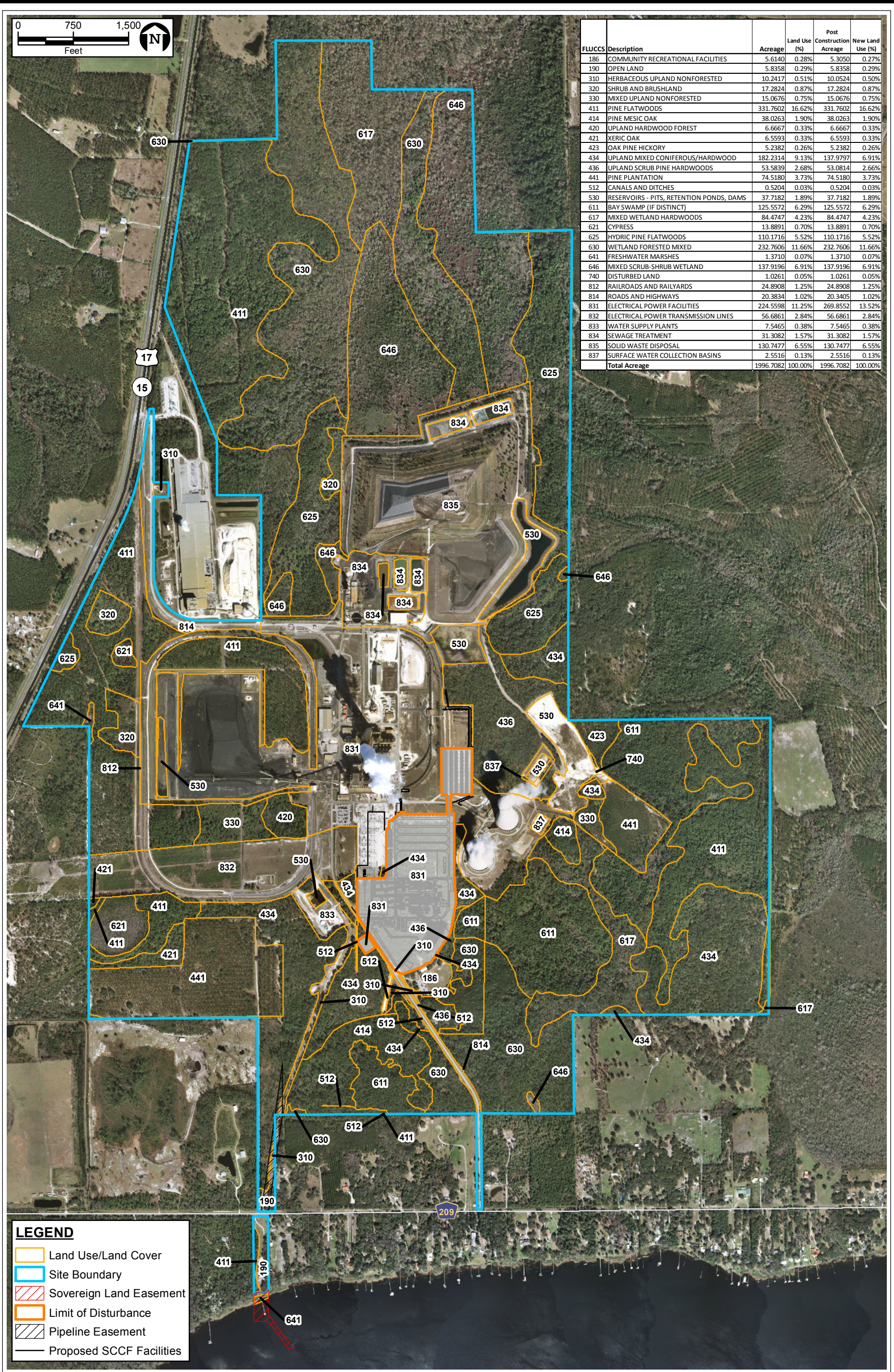


FIGURE 5.4.1-1.
POSTCONSTRUCTION LAND USE / LAND COVER ON THE SGS SITE

Sources: SJRWMD, 2016; FDOT, 2014, 2016; Putnam Co PA, 2016; ECT, 2017.

Table 5.4.1-1. Construction Impacts on the SCCF Site by FLUCFCS Type*

FLUCFCS	Description	Acreage on SCCF Site	Existing Percentage of Total SGS Site	Construction Impact Acreage	Impacted Percentage of Total SGS Site	Post- construction Acreage	Remaining Percentage of Total SGS Site
186	Community recreational facilities	5.61	0.28	0.24	4.2	5.37	0.27
310	Herbaceous uplands	10.24	0.51	0.19	1.85	10.05	0.50
434	Upland mixed hardwood/conifer forest	182.23	9.13	44.0	24.2	138.21	6.92
436	Upland scrub pine and hardwoods	53.58	2.68	0.50	0.94	53.08	2.66
814	Road and highways	20.38	1.02	0.04	0.21	20.34	1.02
831*	Electrical power facilities	224.56	11.25	10.0	4.45	269.56	13.5
	TOTAL			54.97	2.76		

*FLUCFCS = Florida Land Use, Cover, and Forms Classification System.

†831 land use will increase in acreage because the acreage of other land uses will be converted to that cover type

Source: ECT, 2016

5.4.1.2 Terrestrial Systems—Fauna

Construction impacts to wildlife resources may occur in the form of direct impacts (displacement, mortality) in the proposed construction area or indirect impacts (noise, human presence) in preserved onsite and surrounding natural habitats. In the areas to be cleared for construction, mobile fauna will be displaced. Less motile or fossorial species may be lost due to clearing and earth-moving activities.

The most conspicuous faunal elements observed on the site are birds. It is unlikely site preparation or construction activities will affect regional populations of any bird species, because birds are highly mobile, and similar or better-quality habitats are available on the remainder of the site and in nearby environs.

It is also unlikely SCCF clearing/construction would impact most of the mammal species found onsite. The better-quality habitats on the site (located on the northern and eastern portions of the site) will not be affected by clearing or construction activities. Amphibians and most reptiles are not likely to be affected by SCCF construction, because no aquatic/wetland habitats will be impacted. Populations of these animals are expected to be minimal in the affected habitats.

Power plant construction is not expected to significantly impact regional populations of any endangered, threatened, or of-special-concern species. Of the listed wildlife species possibly occurring on the site, only

the Sherman's fox squirrel and gopher tortoise were confirmed onsite in surveys conducted in 2015 and 2016. The state-threatened gopher tortoise occurs in areas scheduled for power plant construction, and SECI will comply with current Florida Fish and Wildlife Conservation Commission (FWC) gopher tortoise permitting and relocation rules prior to commencing construction. SECI will also comply with FWC's proposed survey protocol and recommended protection measures for Sherman's fox squirrel, a species of special concern.

Gopher tortoises will be relocated to an offsite conservation area. Sherman's fox squirrel is mobile and will relocate to other suitable upland habitats onsite during construction. Active nesting will be avoided to the extent possible during construction.

Since suitable habitat is present, as are gopher tortoise burrows, SECI will follow current U.S. Fish & Wildlife Service (USFWS) guidelines (USFWS, 2013) for protection to potential occurrence of eastern indigo snakes. This will include educating and instructing construction workers in the guidelines, placing educational signage, and allowing the snakes to leave the area unharmed if discovered onsite.

While other listed species may occur in or use the areas to be impacted, these areas do not represent valuable wildlife habitats. Better habitats exist elsewhere on the northern and eastern portions of the site (which will remain undisturbed) and certainly in the region. As no wetland or aquatic habitats are within the construction area, no impacts to wetland-dependent listed species are expected. Therefore, no adverse impacts are expected to occur to regional populations of any listed species.

5.4.1.3 Wetland/Aquatic Systems

The SCCF site layout has been specifically designed to avoid and minimize impacts to wetland communities. Given the distribution of onsite wetland communities, it was possible to entirely avoid direct wetland impacts. Therefore, 100 percent of the onsite wetlands will remain intact, and all wetland communities will be preserved.

Secondary impacts to preserved wetland communities will be prevented by maintaining an average 25' buffer surrounding the wetlands, where no construction activities will occur. Figure 5.4.1-1 shows these wetland communities delineated onsite.

No significant impacts to offsite aquatic resources are expected to occur, because no modifications to the existing intake or discharge pipelines or structures in the St. Johns River are proposed. No in-water work

is proposed within or along the St. Johns River, so there will be no construction impacts to aquatic species in the river.

5.4.2 Measuring and Monitoring Programs

As stated previously in Sections 3.3.5 and 3.3.6, data used for this SCA include field studies conducted on the SCCF site in 2015 and 2016, as well as published data. No aquatic ecological studies on the site were conducted recently, nor were such studies considered necessary for the purpose of evaluating impacts to aquatic systems from the proposed actions. No monitoring programs are proposed for biological resources during construction of SCCF. No monitoring programs are proposed within the intake or discharge area in the St. Johns River, because no construction activities are proposed in the river.

5.5 Air Impact

Construction of SCCF will result in three general categories of air emissions. First, fugitive PM emissions will be generated from land clearing, site preparation, and vehicle movement associated with these activities. Second, internal combustion engines in construction equipment will release NO_x, CO, and other products of fuel combustion. Third, construction worker travel and material and equipment deliveries to and from the site will result in vehicular emissions.

The quantity of emissions released during the construction process will generally be low but will vary due to weather conditions and will fluctuate on an hourly and daily basis as construction progresses. Fugitive dust emissions will be greatest during the land clearing and site preparation phase. Fugitive dust emissions will also be greater during the more active construction periods as a result of increased vehicle traffic on the site.

Fugitive dust emissions from land clearing and site preparation on the site will be minimized using reasonable precautions and implementing appropriate dust suppression control methods, as required. Standard control methods include the application of environmentally approved dust-suppressing chemicals or water to unpaved roads and other exposed surfaces during construction activities. Post construction control measures include seeding of exposed areas. Construction-related fugitive dust emissions will be temporary and will cease once construction is completed. The power block construction area will be located more than 2,000' from the closest property boundary, i.e., SGS property boundary to the southwest and southeast, which is currently a forested area and pasture. In addition, the two closest regularly populated offsite locations are West River Road to the south, more than 3,000' from the proposed power block area, and US 17 to the west, more than 6,000' from the power block area. Based on the proximity of the SCCF

power block location to the property boundaries, potential fugitive dust impacts to offsite areas are expected to be minimal.

Emissions from internal combustion engines will occur during site preparation and construction because of the use of onsite construction equipment for clearing, filling, excavation, and grading; concrete placement; and structural steel and major equipment installation. In addition to pollutants associated with the combustion of motor fuel by construction equipment engines, the following construction activities will result in minor emissions of VOCs:

- Evaporative losses from onsite painting.
- Refueling of construction equipment.
- Application of adhesives and waterproofing chemicals.

Construction of SCCF will occur over an approximately 33-month period, followed by a three-month testing and initial startup period. There will be an average of approximately 200 construction workers during construction, with the potential for up to 500 workers for a relatively short period. It is anticipated the majority of construction personnel will be drawn from outside Putnam County and will commute to the job site. Conversely, construction workers from Putnam County who currently commute to job sites outside the County would travel fewer miles to the site. While not readily quantifiable, the temporary net changes in vehicle-miles traveled (VMT) in the area would be relatively insignificant, as would any temporary net changes in areawide vehicular emissions.

Air quality impacts caused by construction activities will vary from day to day as a function of the level of activity, specific nature of the activity, weather conditions while the activity is occurring, and emissions controls applied to the activity. However, even under worst-case conditions, the maximum ambient impacts caused by construction emissions are expected to be modest, temporary, and limited to the general area of the site under construction. Thus, based on the type and nature of construction-related emissions sources, location within the SGS property, and distance to the nearest property boundary or major road, potential maximum air quality impacts caused by construction-related emissions should be localized, primarily limited to the immediate onsite area of the construction activity, and within SGS site boundaries.

5.6 Solid Wastes

Solid waste generated during construction activities will be disposed of in accordance with applicable federal, state, and local regulations. Solid waste (i.e., typical construction solid waste) will be placed for disposal in appropriate waste collection containers located around the construction areas and will then be

transported off-site for disposal at the existing Putnam County landfill or another appropriately permitted facility. Construction debris, such as scrap wood, concrete, and metal, will first be transported to a specified storage area on the site where they will be separated and stored for potential salvage and recycling. Construction debris that is not salvaged and recycled will be transported to a permitted off-site construction and demolition debris disposal facility.

Used oil from construction vehicles and equipment will be collected in appropriate containers and transported off-site for recycling or disposal at a permitted facility. The permitted facility will be an existing facility permitted for commercial recycling or disposal of used oils.

Individual contractors/subcontractors may generate hazardous waste while performing work and will be responsible for handling hazardous materials required to perform their tasks. The contractors/subcontractors will be responsible for the onsite storage, recordkeeping, and overall management of hazardous waste generated at the site, including manifesting and transporting for final off-site disposition at approved permitted hazardous waste management facility in accordance with federal, state, and local hazardous waste regulations.

5.7 Impact on Human Populations

5.7.1 Land Use Impacts

Projected construction impacts on land use on and in the vicinity of the Project are expected to be insignificant, because SCCF will be developed within SECI-owned SGS property. Water intake and discharge pipelines for the Project will connect with existing facilities utilized by the Existing SGS Units. Information presented in Section 3.2.3.2 describes the surrounding land uses, which are the Existing SGS Units and associated facilities located to the north and northwest. Undeveloped land and the existing hyperbolic cooling towers are located to the east. A recreation area and undeveloped, wooded land is located to the south. The only areas of residential development found within a 2-mile radius of the Project site are located along CR 209 and US 17 to the southeast, south, southwest, west, and northwest. Nonresidential development is located at the intersection of CR 209 and US 17 and north of the SGS facility associated with the Continental Building Products construction materials facility.

Figure 4.2.0-1 depicts the overall site plan for the proposed Project facilities. The site plan shows the planned locations for construction of the new facilities (cooling towers, CTGs, HRSGs, STGs, etc.). This plan also shows setbacks from site boundaries and visual buffers for the main power plant facilities. Except for the tallest structures (i.e., exhaust stacks and HRSGs), the Project facilities will not be visible from the

closest nonresidential or residential properties due to intervening vegetation. The public land to the south is part of Putnam County's Tanglewylde Park. There are no significant improvements in the park, and the portion of the park north of CR 209 is heavily wooded with no public facilities. The nearest improvements associated with the Project are located approximately 2,500' northwest of the nearest boundary of Tanglewylde Park.

5.7.2 Construction Employment

The construction workforce for SCCF is estimated to peak at up to approximately 500 workers and average 200 workers for an approximately 33-month duration beginning between mid-2019 and early 2020. Employment is expected to peak in 2021 for a two- to four-month period.

Approximately 40 percent of the average construction workforce is expected to be drawn from Putnam County and northeast Florida within commuting distance to the site. An additional 30 percent of the employees will come from Florida with the remainder from outside the state. During peak construction, approximately 60 percent of the workforce will come from outside Florida. An average of 60 employees and up to 260 employees at the peak of the construction period will be from outside the state. These workers are expected to temporarily relocate to areas within commuting distance of the site. These workers will occupy available rental housing units, temporary lodging (hotels, motels, etc.), or recreational vehicle (RV) park sites. As a result of this relatively short work period, associated potential impacts on housing, schools, and other public facilities and services, such as recreation, public water, and sewer, are expected to be minimal and temporary. Chapter 7.0 provides more detailed information on the construction workforce, payroll, expenditures, and economic benefits.

5.7.3 Transportation Impacts

SECI is committed to ensuring that SCCF operation does not interfere with the safe and efficient flow of traffic on US 17 and CR 209. To that end, SECI retained Leftwich Consulting, Inc., to conduct a traffic impact analysis (TIA) for the construction and operational phases of the Project. The TIA was conducted in accordance with FDOT and Putnam County TIA procedures and requirements. Appendix 10.9 provides a copy of the TIA.

The main access to the SGS site is from US 17 (North Access), which is shared with the Continental Building Products adjacent wallboard facility. A secondary access from the south of the SGS site is from CR 209 (West River Road). Figure 5.7.3-1 (excerpted from the TIA) shows the locations of the access

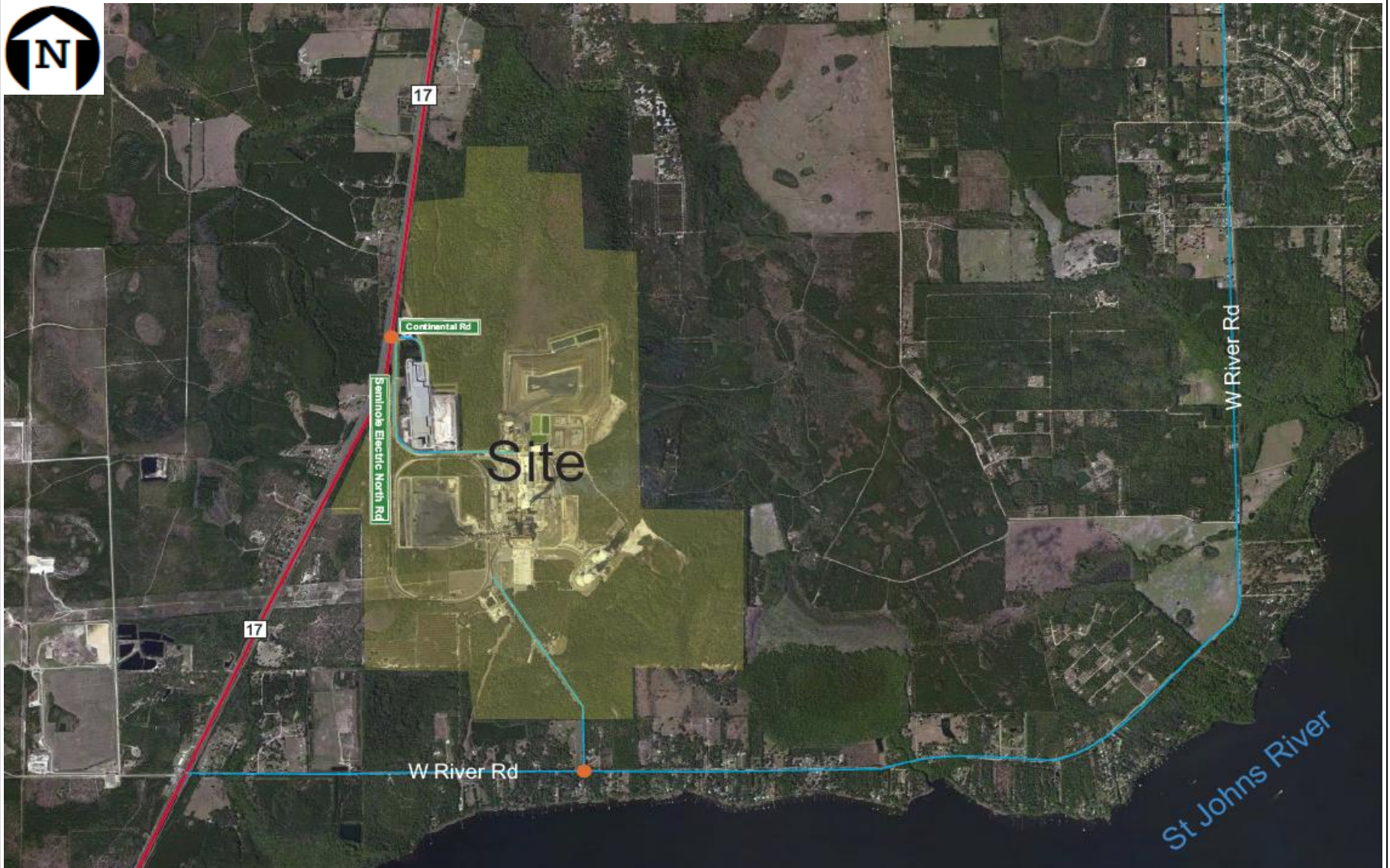


FIGURE 5.7.3-1.

PROJECT SITE LOCATION AND ACCESS

Sources: Leftwich Consulting, Inc., 2017.



roads to the SGS site. The traffic study evaluated the expected worst-case impacts on the roadways and intersection to SGS for the peak construction period and during plant operation. With regard to SCCF construction, the analysis evaluated potential traffic-related impacts under the following assumptions, among others:

- The construction period will last approximately 33 months to be followed by a 3-month testing period. Peak construction is anticipated to occur in 2021.
- The number of SCCF construction employees will average up to approximately 200 during the construction period, with a peak of up to 500.
- Construction craft employees (approximately 90 percent of construction employees) will use the US 17 access, remaining construction employees (approximately 10 percent of construction employees) will utilize the West River Road access.
- Approximately six additional large truck trips per day associated with SCCF construction are anticipated. All additional large trucks will utilize the US 17 access.
- During the construction phase of SCCF, up to 500 additional employees are expected on site each spring for approximately 45 days associated with scheduled outages of the Existing SGS Units. Outage employees typically utilize the US 17 access. During the scheduled outages, an additional 12 daily truck deliveries are expected.

With regard to the construction period, the analysis concluded:

- All roadway segments are forecast to operate at acceptable level of service (LOS) conditions.
- Background intersections are forecast to continue to meet acceptable LOS for all but the US 17 access intersection westbound approach, which will experience delay during the PM peak hour general construction phase conditions.
- Construction phase intersections are forecast to continue to meet acceptable LOS for all but the US 17 and North Access intersection westbound approach, which will experience continued expected delay for outage conditions during the AM and PM peak hour.

The traffic analysis recommends, and SECI will implement:

- A police officer directing traffic at the North Access during the PM peak hours throughout the construction period and during both AM and PM peak hours during outage conditions.
- The police officers will not be interfering with northbound and southbound through traffic on US 17, but rather will make sure the traffic moving in and out of the site is managed.
- Portable changeable message signs, or similar signage, northbound and southbound along US 17 to alert drivers to conditions ahead.

With these measures, construction-related traffic will not cause adverse impacts to roadways and intersections.

SECI will also encourage transportation demand management techniques to reduce the number of temporary construction-related vehicle trips on the road network. These techniques will include placing a bulletin board onsite that may be used by construction contractors to place car-pooling advertisements. Construction contractors will be requested to inform their employees that this service is available.

During construction activities, construction vehicles (e.g., graders, bulldozers, dump trucks) will also access the site. However, the majority of these heavy construction vehicles are anticipated to remain onsite for the duration of the initial construction activities, entering at initiation and exiting at completion. Since the majority of these vehicles are not expected to make daily trips to and from the site, potential traffic impacts from these vehicles are expected to be minimal to the regional road network.

As discussed in Section 5.1.2, certain oversized, heavy equipment, such as the CTGs, may first be delivered to the site by rail and then transported to the specific Project area. A similar transport method was successfully used for certain equipment for construction of the SGS units.

5.7.4 Housing Impacts

For the year 2015, the University of Florida Bureau of Economic and Business Research (BEBR) reported a total of 719 construction workers in Putnam County (BEBR, 2017a). Based on this available construction local workforce, the regional workforce, and SECI's estimates, approximately 40 percent of the average construction workforce is expected to be drawn from within commuting distance to the site. A majority of the workers will be temporarily relocating to the area. Maintenance activities required annually at the existing SGS facility require up to 500 workers, most of whom temporarily relocate to the area for approximately 45 days. These workers are routinely accommodated at nearby RV parks and lodging facilities.

The number of construction workers expected to be drawn from outside Putnam County and northeast Florida is predicted to range up to 75 percent of the peak workforce. These workers are anticipated to occupy available rental housing and/or rental or seasonal units in the area (including, e.g., Duval, Clay, St. Johns, Volusia, Flagler, and Alachua counties within a one-hour commute). Relatively few construction

workers are anticipated to be continuously employed throughout the 33-month construction period, and, consequently, associated impacts on housing are expected to be negligible.

In 2015, there were 36,528 total housing units in Putnam County, of which 22.9 percent or approximately 8,300 units were vacant. In addition, in 2011, there were 2,097 licensed lodging units in 61 licensed lodgings. Therefore, the additional temporary demand for rental housing and lodging associated with the SCCF construction workforce is expected to be readily absorbed by available accommodations in Putnam County and/or adjacent counties. Commuting workers are expected to maintain their established patterns of use based on their existing residences, which are not expected to create any additional housing demands to the area.

5.7.5 Public Services and Facilities Impacts

As with potential housing impacts, construction-related impacts to public services and facilities are not expected to be significant. Although the majority of the construction workforce is anticipated to temporarily relocate to the area, there are sufficient vacant housing units, RV parks, and lodging units to accommodate the temporary influx of workers. Therefore, because the housing units and temporary living facilities are currently provided with available public or onsite services and facilities, no significant changes in the patterns of use or demands on public services are expected. During construction, bottled water and portable sanitary units will be used for the construction work force.

5.7.6 Noise Impacts

SCCF construction can generally be divided into several phases, with the noise level varying with the construction phase (based on Barnes *et al.*, 1977). The various construction phases are:

- Site preparation and excavation
- Concrete pouring
- Steel erection
- Mechanical and electrical
- Startup and testing
- Clean up/demobilization

At the Project site, potential noise impacts are expected to be minimal and mitigated by the distance between the construction area of the power block and the site boundaries.

A construction equipment inventory was developed for a typical construction project, with the high noise level equipment identified for evaluation. Table 5.7.6-1 presents the loudest equipment types generally operating at the site during each construction phase. The composite average or equivalent site noise level, representing noise from all equipment averaged over the workday, is also presented.

Table 5.7.6-1. Construction Equipment and Composite Site Noise Levels

Construction Phase	Loudest Construction Equipment	Maximum Equipment Noise Level at 50' (dBA)	Composite Site Noise Level for Construction Phase at 50' (dBA)
Site clearing and excavation	Bulldozer	90	89
	Truck	82	
	Backhoe	84	
	Grader	85	
	Tractor scraper	87	
	Compactor	83	
Concrete pouring	Ready-mix truck	84	87
	Mobile crane	85	
	Concrete pump	82	
	Pile driver	102	
Steel erection	Pneumatic tools	90	90
	Air compressor	76	
	Mobile crane	85	
	Cherry picker	80	
Mechanical	Pneumatic tools	90	89
	Air compressor	76	
	Mobile crane	85	
Cleanup/demobilization	Truck	84	86
	Front-end loader	87	

Sources: Barnes *et al.*, 1977.
ECT, 2017.

The nearest property boundary is the southern boundary, which is located more than 2,000' from the SCCF power block construction area. The area between the SCCF power block and the southern boundary consists primarily of forested land. The closest off-property roadway is West River Road, which is approximately 3,000' to the south of the power block. The closest residence to the portion of the SGS property on which SCCF is proposed to be located is approximately 2,000' to the south. Table 5.7.6-2 presents average or equivalent construction noise levels predicted at the southern property boundary during construction. These noise results are conservative, because the only attenuating mechanism assumed was divergence of the sound waves over distance; no attenuation from natural vegetation was factored into the analysis. As shown in Table 5.7.6-2, average noise levels during the loudest construction activities are

predicted to be between 56 and 60 A-weighted decibels (dBA) at the property boundary. These predicted noise levels are less than 10 dBA higher than existing ambient levels in this area (see Section 3.3.7). These noise levels would be below the Putnam County standards for amplified sound,¹ if applicable, and are lower than generally accepted noise levels in residential and other land use areas. Therefore, normal noise levels from construction activities are expected to have minimal impact on the nearest residential areas because of the distance from the power block area and the temporary and sporadic nature of these activities.

Table 5.7.6-2. Projected Average Construction Noise Levels at Nearest Property Boundary Based on Composite Noise Levels

Construction Phase	Noise Level at Southern Property Boundary (dBA)
Site clearing and construction	59
Concrete pouring	57
Steel erection	60
Mechanical	59
Cleanup/demobilization	56

Source: ECT, 2017.

The final phase, consisting generally of site cleanup and plant startup activities, is typically quieter than the other phases (Barnes *et al.*, 1977), except for steam blows during the final phase of plant startup and equipment preparation, cleaning, and testing. Steam blows involve exhausting steam for short periods of time. This process is typically infrequent, and available noise attenuation measures will be used to minimize noise emanating from steam blows.

5.8 Impact on Landmarks and Sensitive Areas

As discussed in Section 3.2.1, there are several public areas within a 5-mile radius of the SCCF site. These include the Putnam County-owned Tanglewylde Nature Park located adjacent to the southern SGS site boundary, two SJRWMD-owned resource management/conservation areas (i.e., J.A. Ginn, Jr. Parcel and Edgefield Parcel), the John Theobald Sports Complex, two public boat ramps, and the Bostwick Community Center. Except for Tanglewylde Park, these areas are located approximately 3 miles or more from the site. Due to the distance from the site area, SCCF construction is not expected to impact these

¹ Article VII, Chapter 18, Putnam County Code.

areas. SCCF construction is also not anticipated to impact Tanglewylde Park due to the presence of the 2,000' or more tree/vegetation buffer between the construction activities and the park. Similarly, the construction activities are not expected to impact other landmarks and sensitive areas in the region of the SGS site.

5.9 Impact of Archaeological and Historic Sites

Based on the prior cultural resources assessment survey conducted by Janus Research for the Project area in December 2016 (see Appendix 10.7.1), the construction and operation of the Project is not expected to disturb any significant archaeological or historical features eligible for the National Register of Historic Places. Therefore, no mitigation for such impacts will be required. In the unexpected event such a feature is encountered during construction, SECI will notify the appropriate FDEP District office and the Florida Department of State, Division of Historical Resources, in accordance with the existing SGS COCs (B.V.B). SECI will consult with DHR to determine the appropriate action.

As discussed in Section 3.2.1, Tanglewylde Park, adjacent to the southern SGS site boundary, has an historical home, which is not open to the public. SCCF construction is not expected to impact the park or the home due to the distance from the construction area and the tree/vegetation buffer.

5.10 Special Features

Construction of the Project will involve no unusual products, raw materials, garbage disposal services, or incinerator effluents or residues that will have influence on the environment or ecological systems on the site or adjacent areas.

5.11 Benefits from Construction

The construction of the Project will provide economic benefits to the area, including increased construction employment and sales taxes levied on construction materials. Chapter 7.0 of this SCA presents a detailed description of these benefits.

References

- Barnes, J.D., L.N. Miller, and E.W. Wood. 1977. Power Plant Construction Noise Guide. Prepared for Empire State Electric Energy Research Corporation, New York New York. Bolt Beranek and Newman, Inc., Cambridge, Massachusetts. Report No. 3321. May.
- Bolt Beranek and Newman, Inc. 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances.
- Bureau of Economic and Business Research (BEBR). 2017a. University of Florida. Data, Categories/Employment and Earnings/Employment. <http://www.bibr.ufl.edu/data/series/45>. Accessed January 2017.
- . 2017b. University of Florida. Population Studies Program. <http://www.bibr.ufl.edu/population>. Accessed January 2017.
- Florida Natural Areas Inventory (FNAI). 2016. Florida Conservation Lands. GIS Data. <http://www.fnai.org/gisdata.cfm>. Accessed January 2017.
- Leftwich Consulting, Inc. 2016. Traffic Impact Analysis, Seminole Electric Cooperative, Putnam County, Florida. October.
- Putnam County. 2016. Geographic Information Services & Mapping. Recreation Parks. GIS shapefile-RE_PARKS. http://www.putnam-fl.com/GIS/gis_downloads.php. Accessed January 2017.