

Technical Specification

For

BGS Standby Emergency Diesel Generator Integration

Project: 8008367

PWO: 30911617

Revision: 2

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1.0 General

1.1. Justification

Brandy Branch Generating Station (BGS) is a critical facility that provides dispatch for JEA's infrastructure. BGS has had several power blackouts since its commissioning, leaving critical unit equipment unprotected until power was restored. This had prompted JEA to install a 480V standby diesel generator to provide power to specific equipment in the case of a future blackout; however, the generator requires integration into a backup power system. Integrating the generator to all the units and their critical equipment will ensure plant resilience and safety during power outages.

1.2. Scope of Work

Provide material/labor to install/integrate automatic transfer switch (ATS) and switchboard equipment per engineering specifications and drawings.

2.0 JEA Responsibilities

2.1. ATS and Switchboard Procurement

JEA will acquire the ATS and switchboard for the installation, which will be stored locally in a JEA warehouse.

2.2. Project Manager

JEA will have a project manager on-site to provide physical access, communication with JEA personnel, and general project assistance.

2.3. Equipment Isolation

JEA utilizes LOTO for equipment isolation. The JEA project manager will assist in ensuring LOTO is in place and JEA's Tagging Authority will add/remove clearances as necessary.

3.0 Contractor Responsibilities

3.1. Switchboard Installation

Switchboard must be installed inside of the MCC room of building 50. Switchboard location and specification shown in support documentation (Section 5.1).

3.2. ATS Padding

Concrete padding must be installed outside each unit's MCC building to support each ATS. The padding must cover the length/width of the ATS, have 6" depth, and use rebar/WWF reinforcement. ATS location and specification shown in support documentation (Section 5.2).

3.3. ATS Installation

An ATS must be installed outside each unit's MCC building and inside the MCC room of building 50. ATS specification shown in support documentation (Section 5.2).

3.4. Conduit Installation

Conduits must be installed between equipment and associated cable trays. List of equipment that require conduit and approximate distances are listed in support documentation (Section 5.3)

3.5. Generator Feeder Cable Terminations

Six sets of 3#500KCM cables and one 1#350KCM cable from the generator are bundled in cable trays in building 50's MCC room. These cables must be terminated onto the switchboard's main breaker and neutral/ground bus.

3.6. ATS "Emergency" Feeder Cable Pulls and Terminations

Each feeder breaker from the building 50 switchboard needs cables pulled to each ATS. Cables will be routed through new conduits, existing cable trays, and existing underground conduits. Cables coming from the building 50 switchboard will terminate on the "Emergency" portion of the ATS.

Cable specifications are outlined in support documentation (Section 5.4).

3.7. ATS "Normal" and "Load" Feeder Cable Removal, Pulls, and Terminations

Each building has a 480V MCC/Panel feeding the desired auxiliary equipment. The cables feeding the MCC/panel come from an existing 480V switchboard in each building. The feeder cables coming from the existing switchboard and going to the MCCs/panels must be removed.

New cables must be pulled and terminated from the MCCs/panels to the "Load" portion of the ATS.

New cables must be pulled and terminated from the existing switchboards to the "Normal" portion of the ATS.

Feeder cable specifications are outlined in support documentation (Section 5.4).

3.8. Control Wire Pulls and Terminations

The existing generator control panel, new ATS, and new switchboards have terminations for control wiring. Control wires must be pulled and terminated from each piece of equipment to Mark IV control panels available in each building. Control cable specifications are outlined in support documentation (Section 5.5).

3.9. Cable Labelling

Near each termination point, each cable must be labelled with a printed sleeve. The labelling must consist of the origin, destination, and voltage.

3.10. Roll-up Door Installation OR Fire-Protection Movement

A new ~8' X 10' motorized roll-up door must be installed on the west wall of building 50.

4.0 Startup and Commissioning

4.1. Contractor Presence

Startup procedures will be led by JEA engineering, operations, and maintenance personnel. However, the contractor must be present during startup to assist in any information or corrections requested by JEA personnel.

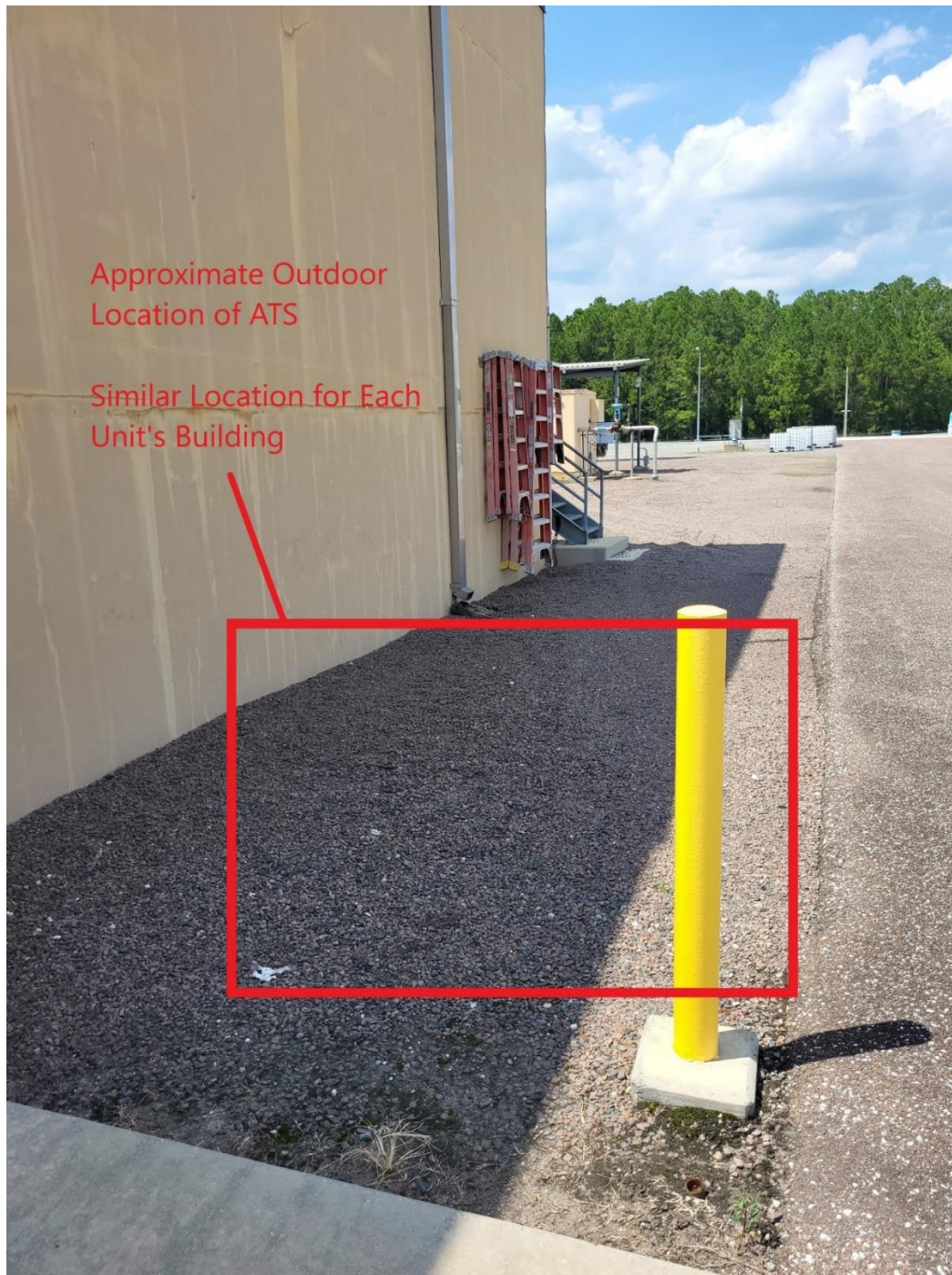
5.0 Support Documentation

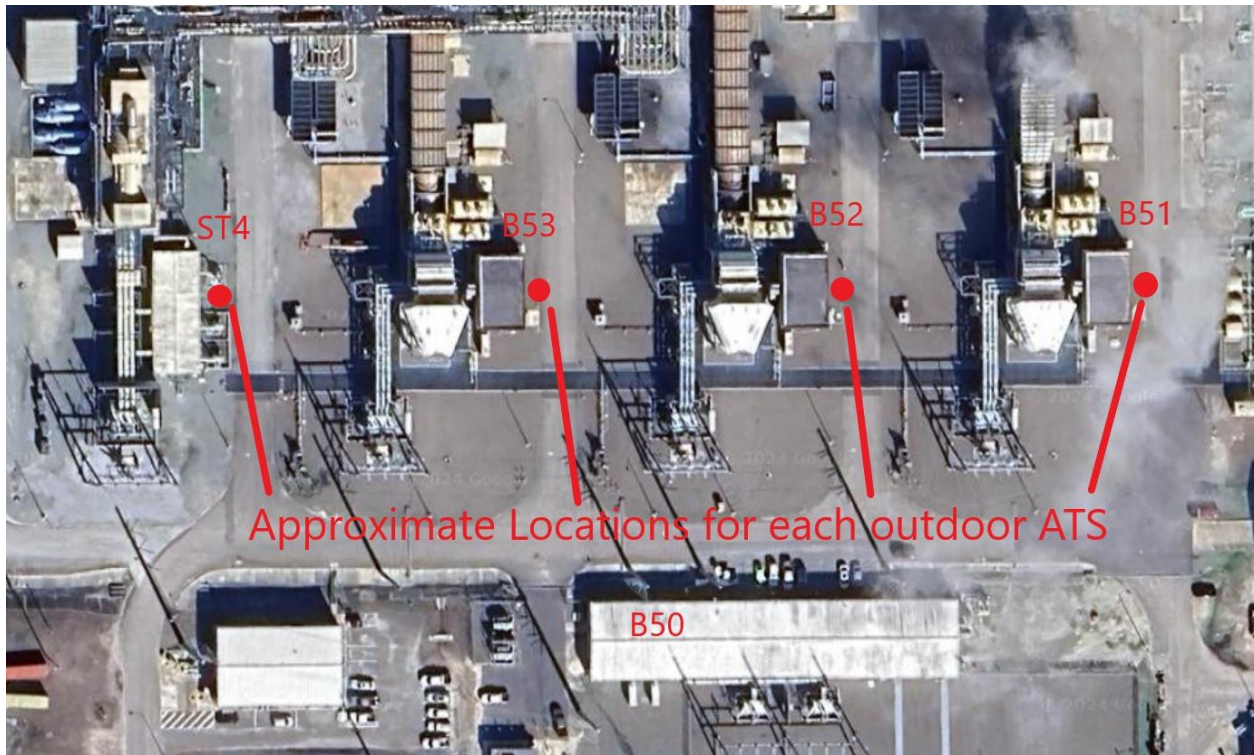
5.1. Switchboard

See attached documents, "Switchboard Specification".

5.2. ATS

See attached document, "Automatic Transfer Switch Specification".





5.3. Conduit Schedule

Below lists equipment that require new conduit to house cables going from the equipment to cable trays or existing conduit:

- B50 Switchboard (10ft)
- B50 Generator Panel (20ft)
- B50 Automatic Transfer Switch (10ft)
- B51 Automatic Transfer Switch (50ft)
- B52 Automatic Transfer Switch (50ft)
- B53 Automatic Transfer Switch (50ft)
- B54 Automatic Transfer Switch (50ft)

See support document, “Layout and Underground Conduit Dwg Set”, for remaining routing.

5.4. Feeder Cable Specifications

FROM EQUIPMENT	TO EQUIPMENT	FLA (A)	CABLE SIZE (AWG)	NEC CABLE AMPACITY (A)	115F TEMP DERATING	DERATED CABLE AMPACITY	TWO CONDUCTOR AMPACITY	CABLE LENGTH (FT)	NOTE
B50 SWG E	B50 ATS E	225	1#500KCM, 1#1G	380	0.82	311.6	NA	150	NOTE 1
B50 SWG E	B51 ATS E	600	1#500KCM, 1#1G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	900	NOTE 1/2
B50 SWG E	B52 ATS E	600	1#500KCM, 1#1G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	700	NOTE 1/2
B50 SWG E	B53 ATS E	600	1#500KCM, 1#1G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	700	NOTE 1/2
B50 SWG E	B54 ATS E	800	1#500KCM, 1#1/0G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	900	NOTE 1/2
B50 SWG N	B50 ATS N	225	1#500KCM, 1#1G	380	0.82	311.6	NA	150	NOTE 1
B51 SWG N	B51 ATS N	600	1#500KCM, 1#1G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	150	NOTE 1/2
B52 SWG N	B52 ATS N	600	1#500KCM, 1#1G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	150	NOTE 1/2
B53 SWG N	B53 ATS N	600	1#500KCM, 1#1G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	150	NOTE 1/2
B54 SWG N	B54 ATS N	800	1#500KCM, 1#1/0G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	200	NOTE 1/2
B50 ATS L	B50 480V Panel	225	1#500KCM, 1#1G	380	0.82	311.6	NA	150	NOTE 1
B51 ATS L	B51 480V Panel	600	1#500KCM, 1#1G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	100	NOTE 1/2
B52 ATS L	B52 480V Panel	600	1#500KCM, 1#1G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	100	NOTE 1/2
B53 ATS L	B53 480V Panel	600	1#500KCM, 1#1G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	100	NOTE 1/2
B54 ATS L	B54 MCC	800	1#500KCM, 1#1/0G, 2C per phase, 1 GND per set	380	0.82	311.6	623.2	150	NOTE 1/2
NOTE 1	CABLES SHALL BE COPPER, 600V, SINGLE CONDUCTOR, XHHW-2, 90C								
NOTE 2	2 CONDUCTORS PER PHASE, 1 GND CONDUCTOR PER SET								

5.5. Control Cable Specifications

FROM EQUIPMENT	TO EQUIPMENT	CABLE SIZE (AWG)	CABLE LENGTH (FT)
B54 ATS	B54 MARK VI	14	150
B53 ATS	B53 MARK VI	14	150
B52 ATS	B52 MARK VI	14	150
B51 ATS	B51 MARK VI	14	150
B50 ATS	B50 MARK VI	14	200
B50 MAIN BKR	B50 MARK VI	14	200
B50 BKR 1A	B50 MARK VI	14	200
B50 BKR 2A	B50 MARK VI	14	200
B50 BKR 3A	B50 MARK VI	14	200
B50 BKR 4A	B50 MARK VI	14	200
B50 BKR 5A	B50 MARK VI	14	200
B50 GEN PNL	B50 MARK VI	14	200
B50 GEN PNL #2	B50 MARK VI	14	200
NOTE	ALL CABLES 14 CONDUCTOR		