



**CITY OF CALLAWAY  
S. BERTHE AVENUE LIFT STATION &  
SEWER REHABILITATION  
BID NO.: CM2021-02**

**ADDENDUM #2**

Date Issued: May 20, 2021

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This addendum is being released to reflect changes to the plans and specification for the above named project.

**A. QUESTIONS AND CLARIFICATION**

**B. CONTRACT DOCUMENTS/SPECIFICATIONS** – to ensure the correct technical specifications are used for the bidding process, if a section and/or sentence was modified within the specification, the entire specification was reissued in the Addendum. It’s the responsibility of the **CONTRACTOR** to replace previously issued specifications with the reissued specification attached to this Addendum.

1. Section 40 9513 – Control Panel Construction: Revised control panel service voltage from 208Y/120V to 120/240V, Hi-Leg Delta.

**C. CONSTRUCTION PLANS** - It’s the responsibility of the **CONTRACTOR** to replace previously issued construction plans with the reissued construction plans attached to this Addendum.

SHEET NO.	CHANGE
E-001	Revised specification to indicate color coding for 120/240V power wiring in lieu of 208Y/120V.
E-101	Revised electrical service characteristics from 208Y/120V to 120/240V, Hi-Leg Delta. Added utility pole to be provided by Gulf Power.
E-111	Revised the Equipment Connection Schedule to indicate 240V in lieu of 208V.
E-311	Revised service entrance calculations for ampacity at 240V in lieu of 208V. Revised riser diagram to indicate 120/240V, Hi-Leg Delta in lieu of 208Y/120V. Added General Note 3 to indicate connection requirements for 120V branch circuits.

*Janice L. Peters*  
Janice L. Peters, City Clerk

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This Addendum must be acknowledged and included with the bid packet submission.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Date

## SECTION 40 95 13 – CONTROL PANEL CONSTRUCTION

### PART 1 - GENERAL

#### 1.1 SCOPE

- A. The Supplier shall furnish, test, and startup all furnished electrical control panels and control system components related to their furnished equipment.
- B. This section applies specifically to the Lift Station Control Panel, CP-LS

#### 1.2 SUBMITTALS

- A. Product Data: For each type of product supplied. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
- C. Additional Shop Drawing Requirements:
  - 1. Point - to - Point Wiring Drawings.
  - 2. Loop Drawings
  - 3. Fabrication and nameplate legend drawings
  - 4. Systems schematic drawings illustrating all components being supplied complete with electrical interconnections.
  - 5. Computer input/output lists and a written description of the control strategy to be applied.

### PART 2 - PRODUCTS

#### 2.1 GENERAL REQUIREMENTS FOR CONTROL PANELS

- A. Control panel shall be constructed in accordance with the following standards: National Electrical Manufacturers Association (NEMA), Institute of Electrical and Electronics Engineers (IEEE), Underwriter Laboratories (UL), Nation Fire Protection Association (NFPA), and Instrumentation Systems and Automation Society (ISA)
- B. Control panel shall be constructed in a UL approved production facility and bear all applicable UL labels for panel construction.

- C. The completed panel shall be factory tested prior to shipment. Field installation by the Contractor shall consist only of setting the panel in place and making necessary pneumatic and/or electrical connections.
- D. Control panel shall be designed to operate at the 120/240V, Hi-Leg Delta service voltage.

## 2.2 CONTROL PANEL ENCLOSURES

- A. Control panels and associated hardware shall be constructed of 316L stainless steel.
- B. Interior components shall be mounted with stainless steel hardware and shall be clearly identified with plastic identification nametags. The tags shall be white with black lettering.
- C. Control panels shall be NEMA 4X construction with a 3-point steel latching mechanism and padlocking stainless steel handles. Latch rods to have rollers for easier door closing.
- D. Door shall be provided with heavy gauge continuous stainless steel hinges.
- E. Control panels shall be constructed of 14 gauge stainless steel. Control panels shall also include a 10 gauge mild steel sub-panel mounted on collar studs for equipment mounting.
- F. Control panel seams shall be continuously welded and ground smooth.
- G. Exterior control panel doors shall be removable by pulling the stainless steel hinge pin.
- H. Data pockets shall be provide on all interior panel doors. The equipment supplier shall provide laminated schematics in each pocket for the associated control panel.
- I. Control panels shall be sized to accommodate the equipment required plus 25% spare space.
- J. Control panels shall be provided with a mild steel or aluminum dead front panel capable of protecting the operator from a bolted fault within the control panel with the outer door open.
- K. Control panels shall be provided with a battery back-up system that consists of a power supply / battery charger and re-chargeable batteries. The use of an off the shelf UPS shall not be considered acceptable.

## 2.3 CONTROL PANEL COOLING REQUIREMENTS

- A. NEMA 4X air conditioner shall be supplied as required to keep the equipment mounted inside the control panels operating within the manufacturers operating temperature

requirements. The air conditioner unit shall not exchange the air inside the control panel with the air outside the control panel. The unit shall be coated to provide environmental protection.

- B. The manufacturer of the control panel and cabinet shall provide all necessary cooling/heating equipment required to maintain temperature and humidity within the operating requirements of all equipment located within panels and cabinets. Coordination for electrical/mechanical connection is the responsibility of the Contractor. At the time of submittals the Contractor shall submit calculations indicating that such requirements have been met.

## 2.4 SUPPORT BASE

- A. Control panel shall be mounted on a support base constructed of 2" stainless steel angle, welded to provide a 24" high support structure with stainless steel removable, ventilated panels on the front, rear and sides of the support structure. The maximum size of the removable panels shall be 24" x 24".
- B. Provide stainless steel fasteners to attached support base to the concrete housekeeping pad and the control panel enclosure.

## 2.5 POWER INFEED

- A. Provide main circuit breaker for the feeder conductors entering the control panel enclosure.
- B. Provide generator input circuit breaker with 200A generator input receptacle located on the side of the control panel enclosure to accommodate a temporary connection to a portable generator.
- C. The main circuit breaker and generator input circuit breaker shall be mechanically interlocked to ensure only one breaker is allowed to be closed at all times.
- D. Provide integral mounted surge protection device within the control panel enclosure.

## 2.6 MOTOR STARTER

- A. Provide Solid State Reduced Voltage (SSRV) type, Size 3 motor starter for each 20 HP submersible pump.
- B. Motor starters shall be provided with 120 VAC operating coils.
  - 1. A motor protection relay shall be furnished as part of the starting equipment. The motor protector shall be adjustable so that the range selected includes the motor nameplate listed FLA (full load amps) rating and the service factor.

2. Repeated unsuccessful attempts to start the motor or a short circuit shall cause the motor protector to trip.
3. Tripping of the motor protector shall stop the motor and flash the trip light. Resetting the relay shall allow the alarm circuitry to be reset.
4. Output terminals shall be provided for connection of the motor leads exiting the enclosure.

## 2.7 TELEMETRY CONTROL UNIT (TCU)

- A. Control panel shall be provided with a telemetry control unit, Data Flow Systems Model TCU001, for monitoring and control of the lift station duplex submersible pump system and associated equipment as shown on drawings. Manufacturer representative contact information is:

Tom Hogeland  
Data Flow Systems  
Phone: 321.259.5009, ext. 1102  
Email: [tomh@dataflowsys.com](mailto:tomh@dataflowsys.com)

- B. The TCU shall be provided a Radio Telemetry System (RTS) consisting of 2W, synthesized 200 MHz, 9-18 VDC, 1.8A integrated radio and analog radio converter with Yagi antenna installed on concrete pole. Coordinate communication interface with the City of Callaway for connection to the City's control system network for remote monitoring and control of the lift station.
- C. The TCU input/outputs shall include the following:
1. Analog Inputs (4-20mA)
    - a. Bubbler Level Device (TCU360)
    - b. SPARE
  2. Digital Inputs (Intrinsically Safe)
    - a. Low Level Float Switch (Both pumps stopped with alarm)
    - b. Off Level Float Switch (All pumps stopped)
    - c. Lead Level Float Switch (Lead pump started)
    - d. Lag Level Float Switch (Lag pump started)
    - e. High Level Float Switch (All pumps stagger started with alarm)
  3. Digital Inputs (120V): The following motor protection and ground fault relay monitoring contacts shall be wired in parallel and monitored by a single digital input to provide a "Pump Fault Summary Alarm".
    - a. SP-1, Motor Protection Relay – Thermal and Moisture Seal (Alarm)
    - b. SP-1, Ground Fault Monitor Relay (Alarm)
    - c. SP-2, Motor Protection Relay – Thermal and Moisture Seal (Alarm)
    - d. SP-2, Ground Fault Monitor Relay (Alarm)
  4. Digital Outputs (120V)
    - a. Pump, SP-1, start command
    - b. Pump, SP-1, On pilot light

- c. Pump, SP-2, start command
- d. Pump, SP-2, On pilot light
- D. The TCU shall include 4-line x 20 character LCD with a 12-key keypad that allows the operator to configure the TCU, viewing and resetting alarms, and analyzing status information.
- E. Control panel shall include wireless industrial Ethernet connections and shall be provided with industrial wireless Ethernet access points. The Radio Telemetry Unit (RTU) shall be provided by Data Flow Systems.
- F. The TCU shall include Hand-Off-Automatic (H-O-A) switches for each pump.
- G. The TCU shall include an internal power monitor for a 120/240V, Hi-Leg Deltaelectrical system with phase monitor to disconnect power to the pump motors upon loss of a phase.

## 2.8 BUBBLER SYSTEM – LIFT STATION BUBBLER LEVEL DEVICE (BLD)

- A. The primary lift station level monitoring device shall be a bubbler system, Data Flow Systems Model RPT001, for monitoring and control of the lift station duplex submersible pumps. Manufacturer representative contact information is:

Tom Hogeland  
Data Flow Systems  
Phone: 321.259.5009, ext. 1102  
Email: [tomh@dataflowsys.com](mailto:tomh@dataflowsys.com)

- B. The bubbler system shall be monitored via a 4-20 mA signal to the analog input of the Telemetry Control Unit (TCU) and include the following components installed within the control panel enclosure:
  - 1. Bubbler Pressure Transducer
  - 2. Air Pump for Bubbler
  - 3. Check Valve
  - 4. Fittings and Adapters
  - 5. Tubing

## 2.9 CONTROL PANEL WIRING

- A. Wiring, where required, shall be general-purpose open type, neatly bundled and laced or installed in plastic wiring troughs. Wire shall be stranded No. 16 AWG minimum, with thermoplastic insulation rated for 600V and 90°C.
- B. All equipment mounting backboards shall be provided with nonmetallic slotted ducts. All nonmetallic slotted ducts shall have spare space equal to 40% of the depth of the duct.

- C. Wiring colors shall be as follows:
  - 1. All ungrounded AC conductors operating at the supply voltage shall be “Black”
  - 2. All ungrounded AC control conductors operating at voltage less than supply shall be “RED”
  - 3. All ungrounded DC control conductors shall be “Blue”
  - 4. All ungrounded AC control conductors or wires that remain energized when the main disconnect is in the “OFF” position shall be “Yellow”
  - 5. All grounded AC current carrying conductors shall be “White”
  - 6. All grounded DC current carrying conductors shall be “White with a Blue stripe”
  - 7. All grounded AC current carrying conductors that remain energized when the main disconnect is in the “OFF” position shall be “White with a Yellow stripe”
  - 8. All ground conductors shall be “Green”
  - 9. A wiring color code legend shall be mounted inside the control panel door.
- D. All wires entering and leaving all panels shall be terminated at barrier type terminal strips with integral surge protection. All terminals shall be identified and labeled per the Owner’s standard naming conventions. It shall be the Supplier’s responsibility to coordinate with the Owner for the accepted naming conventions. (All terminal strips shall be designed for #12 AWG, XHHW-2, 90°C field wiring for terminations.)
- E. No terminal strip may be located closer than 8” from any side or bottom of the control panel. This is designed to allow for adequate wire bending radius for field terminations.
- F. All wiring shall be clearly marked with an identification number consistent with the wiring schematic.
- G. Devices mounted on the enclosure door or interior dead front panel shall be run in spiral wrap to avoid pinch points when opening and closing the enclosure door(s) or interior panels.

## 2.10 SURGE PROTECTION

- A. The main surge protective device shall be rated at 120 KA surge current per phase for 208Y/120V systems with L-L, L-N and L-G protection modes equal to Phoenix Contact “Trabtech” surge protectors.
- B. All control power and digital I/O signals shall be protected from surges at the control panel with suitable surge suppression devices. Panel mounted surge protection shall be Plug in Style & DIN rail mounted to allow for easy replacement. The power and digital I/O signals shall be protected with solid state surge suppression devices manufactured by Phoenix Contact or Engineer approved equal. MOV only type surge suppression is not acceptable.
- C. All analog I/O signals shall be protected by loop powered isolators manufactured by Phoenix Contact or Engineer approved equal.

- D. Lightning Protection and surge suppression devices shall be provided for all radio and telemetry equipment. The Lighting protection and surge suppression devices shall be manufactured by Phoenix Contact or Engineer approved equal.

## 2.11 PANEL MOUNTED DEVICES

- A. Pump run status indicating lights shall be provided on the control panel door and shall be heavy duty, push-to-test type, oil tight, industrial type for 120 VAC applications. Pump run pilot lights shall be red colored. Legend plates shall be factory engraved as required. – Allen-Bradley Bulletin 800T 30.5mm or approved equal.
- B. Current to voltage converters, 4-20mA<sub>dc</sub> to 1-5VDC shall be as manufactured by Phoenix Contact or Engineer approved equal.
- C. D.C. power supplies shall be as manufactured by PLC Manufacturer, Phoenix Contact, or approved equal and shall be sized for 1.5 times the application requirements. (No open power supplies will be allowed.)
- D. All relays shall Allen-Bradley. Units shall be hermetically sealed in metal can with octal plug. Contacts to be 120VAC/60Hz at 10 amps. Unit to incorporate lamp in parallel with relay coil. All relays to be DPDT. Provide hold down clamps for all relays.
- E. All circuit breakers shall have an Amp Interrupting Capacity (AIC) rating of 22,000 minimum.
- F. Provide ground fault monitoring relay connected to the TCU digital input to provide common alarm with the motor protection relay supervision.
- G. Runtimes for each motor starter located in the control panel shall be tracked in the TCU and the motor control shall be programmed to alternate pumps to ensure equal run time for each motor.
- H. Power distribution blocks shall be block style distribution blocks manufactured by Ferraz Shawmut or Engineer approved equal. All distribution blocks shall be provided with polycarbonate safety covers to provide dead front protection. The safety cover shall have a test prod hole for testing purposes
- I. Fuse blocks/holders shall be UL style fuse blocks manufactured by Ferraz Shawmut or Engineer approved equal.
- J. General purpose fuses shall be Ferraz Shawmut UL Power Fuse style or Engineer approved equal. Unless otherwise noted the fuse rating and type shall be determined based on the equipment (which the fuse is protecting) manufacturer's recommendations for overcurrent protection.



- K. Semiconductor fuses shall be Ferraz Shawmut Amp Trap series fuses or Engineer approved equal. Unless otherwise noted the fuse rating and type shall be determined based on the equipment (which the fuse is protecting) manufacturer's recommendations for overcurrent protection.
- L. All control transformers shall be sized to provide 25% spare capacity. The transformer connections shall be provided with protective covers to guard against accidental contact, and the transformer shall be provided with primary and secondary fusing per the manufacturer's recommendations.
- M. Each control panel shall be provided with a ground fault duplex service receptacle that is accessible from the interior dead-front panel. The service receptacle shall be capable of providing 15A at 125VAC
- N. Each control panel shall be provided with a series connected suppression filter system to protect the programmable logic controller and instrumentation power from high-frequency noise and electrical transients. The suppression filter shall be a current technology LoadGuard or Engineer approved equal.
- O. All intrinsically safe barrier relays shall be UL listed and shall be manufactured by Warrick or Engineer approved equal.
- P. Pilot lights shall be provided for each starter located inside the control panel. The lights shall be as follows: Red (Run), Green (Off), Amber (Fault).
- Q. Control power transformers shall be provided in each control panel with a supply voltage other than 120V or 120/208V. Control power transformers shall be manufactured by Square D company and provided with both primary and secondary fuses per the NEC.

## 2.12 MISCELLANEOUS

- A. Engraved laminated plastic nameplates shall be furnished for each front panel mounted instrument. The Contractor shall coordinate with the Owner for nameplate color and naming conventions. All instruments and components shall be tagged on rear with embossed plastic tape labels.
- B. Provide convenience GFCI receptacle mounted within the control panel enclosure and a GFCI receptacle mounted on the exterior of the control panel enclosure in a cast aluminum outlet box with a while in use, weatherproof coverplate.
- C. Provide button type photocell and 20A/1P switch in weatherproof cast aluminum outlet boxes mounted on the exterior of the control panel to control the area light.
- D. Provide LED strip lights mounted within each section of the Lift Station Control Panel, CP-LS, controlled via door switches.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S RESPONSIBILITY

- A. The Contractor shall coordinate the work of the service personnel during construction, testing, and acceptance of the work.
- B. The Contractor shall receive final approval on all panel, enclosure, and equipment layouts by the Engineer prior to fabrication or installation.

### 3.2 QUALITY ASSURANCE

- A. All control panels shall be factory tested and certified prior to releasing for shipment. The testing shall consist of but not limited to the following:
  - 1. Point to point testing of all wiring prior to application of power.
  - 2. The intended supply voltage shall be applied to the control panel and all components shall be tested for proper operation and calibration.
  - 3. The Telemetry Control Unit and operator interface code shall be loaded, and shall be tested for functionality.
  - 4. All components shall be checked to confirm that each device has been installed per the plans and specifications as well as the Manufacturer's recommendations.
  - 5. The enclosure shall be inspected for defects and shall be repaired or replaced if necessary.
  - 6. All labeling and identification tags shall be verified and be clean and visible.
- B. An Electrical Engineer, registered in the state of Florida, shall be required to document the results of the control panel testing. The documentation shall contain the results of the tests listed above as well as any rework items and subsequent repairs that were required prior to shipment. In addition he/she must certify this document prior to the release for shipment. Prior to shipment all one copy of the applicable documentation shall be placed in the drawing pocket of each enclosure, and three copies shall be sent to the Engineer.

### 3.3 INSTALLATION

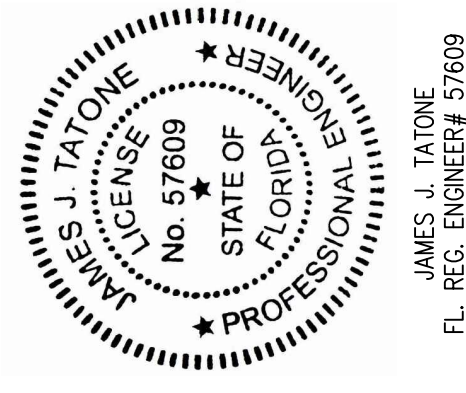
- A. All equipment and devices for the work shall be installed in the locations shown on the drawings, in accordance with the manufacturer's recommendations, and in compliance with the requirements of these specifications.
- B. The Contractor shall be responsible for coordinating the installation of all equipment in the proposed locations with all other trades performing work on the project that may be affected.

### 3.4 FINAL INSPECTION

- A. Include all changes and/or alterations in the control panels prior to final inspection and acceptance by the owner.
- B. Any changes and/or alterations in the Control Panels shall be reflected/updated in all Control Panel Schematics prior to acceptance by the Owner. This includes all electronic copies delivered to the Owner.

END OF SECTION 409513

LEGEND AND ABBREVIATIONS



PROJECT NO.	27656.01
DESIGNED BY: JUT	
DRAWN BY: JLB	
CHK'D BY: JUT	
PROJ. MGR: JCP	
DATE: FEBRUARY 2021	
NOT RELEASED FOR CONSTRUCTION BY JUT DATE	
REVISION/ACTION TAKEN	
NO.	2
DATE	05/2021
APPR.	JUT
ADDDUM	2

BERTHE BRIDGE & ASSOCIATED  
INFRASTRUCTURE

449 W MAIN ST PENSACOLA, FL 32502 (850)933-9861  
**BASKERVILLE-DONOVAN, INC.**  
 Innovative Infrastructure Solutions  
 Pensacola - Panama City Beach - Tallahassee - Mobile  
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ELECTRICAL ABBREVIATIONS	
A	AMPERES
AC	ABOVE CEILING
AF	AMPERE FRAME
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AF	ARC FAULT PROTECTIVE DEVICE
AG	AMP INTERRUPTING CAPACITY
ALT	ALTERNATE
AT	AMPERE TRIP
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C	CONDUIT
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
PC	PHOTOCELL
CF	CURB FACTOR
PH	POLYVINYL CHLORIDE
PVC	RIGID ALUMINUM CONDUIT
RAC	RECEPTACLE
REC	EQUIPMENT BONDING JUMBER
SPD	SURGE PROTECTIVE DEVICE
SSRV	SOLID STATE REDUCED VOLTAGE TAMPERS RESISTANT
TR	TELEVISION
TV	TYPICAL
UC	UNDER COUNTER
UC	UNDER COUNTER
UG	UNLESS NOTED OTHERWISE
V	VOLTAGE
W	WITH
WP	WEATHERPROOF
LTS	LIGHTS
LV	LOW VOLTAGE
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
MID	MOUNTING BRACKETS ONLY
N	NEUTRAL
NG	NEUTRAL
NC	NOT APPLICABLE
NO	NORMALLY CLOSED
NO	NORMALLY OPEN
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
P	POLE
PC	PHOTOCELL
CF	CURB FACTOR
PH	POLYVINYL CHLORIDE
PVC	RIGID ALUMINUM CONDUIT
RAC	RECEPTACLE
REC	EQUIPMENT BONDING JUMBER
SPD	SURGE PROTECTIVE DEVICE
SSRV	SOLID STATE REDUCED VOLTAGE TAMPERS RESISTANT
TR	TELEVISION
TV	TYPICAL
UC	UNDER COUNTER
UC	UNDER COUNTER
UG	UNLESS NOTED OTHERWISE
V	VOLTAGE
W	WITH
WP	WEATHERPROOF

ELECTRICAL LEGEND	
	MOTOR STARTER NEMA SIZE AS INDICATED ON DRAWING
	SURGE PROTECTIVE DEVICE
	GROUND ROD
	EQUIPMENT TAG
	KEYED NOTE
	PHOTOCELL
	FLOAT SWITCHES
	POWER METER
	MOTOR PROTECTION RELAY
	CURRENT TRANSFORMER SHORTING BLOCK
	TELEMETRY CONTROL UNIT
	BUBBLER LEVEL DEVICE
	RADIO TELEMETRY SYSTEM
	UTILITY METER
	SURGE PROTECTIVE DEVICE
	GROUND ROD
	FIXED EQUIPMENT CONNECTION
	WIRING
	CURRENT TRANSFORMER
	MOTOR # DENOTES HORSEPOWER RATING
	UTILITY POLE WITH THREE TRANSFORMERS
	AREA LIGHT MOUNTED ON SCADA POLE REFER TO DETAIL 3 ON SHEET E-411
	GROUND FAULT MONITOR RELAY

ELECTRICAL PROJECT NOTES	
C.	<p>LIMIT BRANCH CIRCUITS TO 3 CURRENT-CARRYING CONDUCTORS PER CONDUIT IN ACCORDANCE WITH NEC 310-15(B)(2)(A). FOR 20A CIRCUITS OF ALL TERMINATING PHASES, 4 CURRENT CARRYING CONDUCTORS MAY BE PERMITTED IN A RACEWAY. MINIMUM CONDUCTOR SIZE SHALL BE NO. 12 AWG.</p> <p>TEST EACH FEEDER AT TERMINATIONS FOR PROPER PHASING.</p> <p><b>COLOR CODE PHASING AS FOLLOWS:</b></p> <ul style="list-style-type: none"> <li>1. 120/240 VOLT PHASE A-BLACK, PHASE B-ORANGE (STINGER), PHASE C-BLUE.</li> <li>2. NEUTRAL-WHITE, GROUND CONDUCTOR-GREEN.</li> </ul> <p>SHARED NEUTRAL CONDUCTORS (MULTI-WIRE BRANCH CIRCUITS) ARE NOT ALLOWED.</p> <p><b>GROUNDING AND BONDING</b></p> <p>A. GROUND SYSTEM TESTING:</p> <ol style="list-style-type: none"> <li>1. RESISTANCE OF THE GROUNDING ELECTRODE SYSTEM SHOWN ON THE GROUNDING RISER DIAGRAM ON SHEET E-311 SHALL BE MEASURED USING A FOUR-TERMINAL FALL-OF-POTENTIAL METHOD AS DEFINED IN IEEE 81.</li> <li>2. GROUND RESISTANCE MEASUREMENTS SHALL BE MADE BEFORE THE ELECTRICAL SERVICE IS ENERGIZED AND SHALL BE MADE IN NORMALLY DRY CONDITIONS NOT FEWER THAN 48 HOURS AFTER THE LAST RAINFALL.</li> <li>3. RESISTANCE MEASUREMENTS OF THE GROUNDING ELECTRODE SYSTEM SHALL BE MADE BEFORE THE ELECTRICAL SYSTEM IS ENERGIZED.</li> </ol> <p>B. PROVIDE GROUND CONTINUITY BETWEEN EQUIPMENT OR DEVICE AND METALLIC CONDUIT-RACEWAY SYSTEM. MULTIPLE CONDUCTORS IN SINGLE LUG NOT PERMITTED. EACH GROUNDING CONDUCTOR SHALL TERMINATE IN ITS OWN TERMINAL LUG.</p> <p>C. PROVIDE SEPARATE GREEN WIRE GROUND CONDUCTOR FOR EACH BRANCH CIRCUIT AND FEEDER CONDUIT. GROUND CONDUCTORS SHALL BE SIZE AS INDICATED IN NEC. EXCEPT MINIMUM SIZE GROUND CONDUCTOR SHALL BE NO. 12 AWG.</p> <p>D. GROUNDING CONDUCTOR IS IN ADDITION TO NEUTRAL CONDUCTOR AND IN NO CASE SHALL NEUTRAL CONDUCTOR SERVE AS GROUNDING MEANS.</p> <p><b>RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS</b></p> <p>A. CONDUIT BODIES SHALL BE MADE FROM COPPER-FREE ALUMINUM AND HAVE OPENINGS COMPATIBLE WITH CONDUIT FITTINGS. PROVIDE BLANK COVERS WITH NEOPRENE GASKETS HELD IN PLACE WITH TWO (2) STAINLESS STEEL SCREWS. BODIES SHALL BE LB, C OR OTHER TYPE INDICATED.</p> <p>B. ALL CONDUITS INSTALLED ABOVE GRADE SHALL BE RIGID ALUMINUM CONDUIT (RAC). BUSHINGS SHALL HAVE BUSHINGS WITH INTEGRAL INSULATOR. PROVIDE BONDING BUSHINGS FOR ALL CONNECTIONS THROUGH PRE-PUNCHED CONCENTRIC OR ECCENTRIC KNOCKOUTS.</p> <p>G. CONDUITS INSTALLED BELOW GRADE SHALL BE SCHEDULE 40 PVC CONDUIT. UNDERGROUND CONDUIT SHALL TRANSITION TO RIGID ALUMINUM CONDUIT USING RIGID ALUMINUM ELBOWS WITH ALL RIGID ALUMINUM CONDUIT INSTALLED BELOW GRADE PAINTED WITH BITUMASTIC COATING OR WRAPPED IN CORROSION PROTECTION TAPE.</p> <p>H. PROVIDE ONE PIECE CAST ALUMINUM TYPE OUTLET BOXES TO ACCOMMODATE DEVICES. IN CONFORMANCE WITH CODE REQUIREMENTS, NUMBER AND SIZE OF CONDUCTORS AND SPLICES AND CONSISTENT WITH TYPE OF CONSTRUCTION.</p> <p>I. PROVIDE HEAVY DUTY SHEET STAINLESS STEEL STRAPS, OR CHANNEL SYSTEM WITH APPROPRIATE COMPONENTS CONDUIT SUPPORTS FOR HORIZONTAL OR VERTICAL SINGLE RUNS. SPRING TYPE PRESSURE CLAMPS MAY BE USED WITH CONDUIT THROUGH 3/4".</p> <p>J. REAM CONDUIT SMOOTH AT ENDS. CAP UPON INSTALLATION. RIGIDLY ATTACH TO STRUCTURAL SUPPORTS AND SECURELY FASTEN TO OUTLET BOXES, PANEL CABINETS, JUNCTION BOXES, PULL BOXES, SPLICING CHAMBERS, SAFETY SWITCHES AND OTHER COMPONENTS OF THE RACEWAY SYSTEM.</p> <p>K. MINIMUM CONDUIT SIZE IS 3/4".</p>
A.	<p>ALL ELECTRICAL WORK SHALL CONFORM WITH ALL STATE AND LOCAL CODES AND STANDARDS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:</p> <ol style="list-style-type: none"> <li>1. FLORIDA BUILDING CODE (2020)</li> <li>2. NATIONAL ELECTRICAL CODE (2017)</li> </ol> <p>WHEREVER CONFLICTS OCCUR, MORE STRINGENT CODES SHALL APPLY.</p> <p>DEVICES AND PRODUCTS SHALL BE LISTED AND CLASSIFIED BY UNDERWRITERS LABORATORIES, INC AS SUITABLE FOR THE PURPOSE INDICATED.</p> <p>ALL ELECTRICAL WORK SHALL BE PERFORMED BY QUALIFIED PERSONNEL IN A NEAT AND WORKMANLIKE MANNER IN ACCORDANCE WITH NECA 1.</p> <p>FURNISH AND INSTALL ALL MATERIALS AND ACCESSORIES AS REQUIRED FOR A COMPLETE AND OPERABLE INSTALLATION. TORQUE ALL FASTENING DEVICES TO MANUFACTURERS SPECIFICATIONS.</p> <p>UTILITY COORDINATION:</p> <ol style="list-style-type: none"> <li>1. COORDINATE UTILITY CONNECTION WITH THE GULF POWER AND INCLUDE IN BASE BID ALL COST TO OWNER FOR UTILITY SERVICE. IF GULF POWER SERVICE CONNECTION CHARGES ARE NOT DETERMINED AT THE TIME OF BID, PROVIDE NOTIFICATION TO OWNER INDICATING GULF POWER CONTRIBUTION IN AID OF CONSTRUCTION (CAC) ARE NOT INCLUDED IN THE BID. REFER TO GULF POWER CONTACT INFORMATION PROVIDED UNDER GENERAL NOTE 1, SHEET</li> <li>2. THE ELECTRICAL SERVICE UNDER THE SCOPE OF THIS PROJECT IS DESIGNED AS AN OVERHEAD 200A, 208Y/120 VOLT, THREE PHASE, 4 WIRE SERVICE WITH A MAXIMUM AVAILABLE FAULT CURRENT OF 22,000A. THE ELECTRICAL SERVICE CHARACTERISTICS SHALL BE VERIFIED WITH GULF POWER. IF ANY OF THE REQUIREMENTS ARE NOT MET, THE ELECTRICAL SERVICE SHALL BE COORDINATED WITH THE AVAILABLE ELECTRIC SERVICE PROVIDED BY GULF POWER. CONTACT THE ELECTRICAL ENGINEER OF RECORD PRIOR TO PERFORMING ANY ELECTRICAL WORK.</li> <li>3. PROVIDE METERING EQUIPMENT AS FOLLOWS:             <ol style="list-style-type: none"> <li>a. BASIS OF DESIGN: MILBANK UAP9700-RRL-QG-HSP</li> <li>b. METER IS SPECIFIED FOR A UTILITY SERVICE FED FROM A 208Y/120V, THREE PHASE, FOUR WIRE SYSTEM.</li> <li>c. METER ENCLOSURE SHALL BE 200A, 7" TERMINAL, RINGLESS WITH LEVER BYPASS IN ALUMINUM ENCLOSURE.</li> <li>d. SERVICE DELIVERY WITH GULF POWER AND NOTIFY GULF POWER AS SOON AS THE FINAL INSPECTION LABEL IS ATTACHED BY THE AUTHORITY-HAVING JURISDICTION.</li> </ol> </li> </ol> <p>ELECTRICAL IDENTIFICATION:</p> <ol style="list-style-type: none"> <li>1. COLOR-CODED TAPE SHALL BE 3M COMPANY "SCOTCH 35" VINYL PLASTIC ELECTRICAL TAPE.</li> <li>2. IDENTIFY PHASE OF EACH CONDUCTOR AT EACH PULL BOX, JUNCTION BOX, SWITCH AND AT EACH OUTLET WITH PERMANENTLY ATTACHED, WRAP AROUND, ADHESIVE MARKERS, WITH AN APPROPRIATE NUMBER OR LETTER THAT WILL EXPEDITE FUTURE TRACING AND TROUBLE SHOOTING.</li> <li>3. PROVIDE NAMEPLATE MOUNTED ON THE LEFT STATION CONTROL PANEL (CP4-S).</li> <li>4. IDENTIFICATION NAMEPLATES SHALL BE LAMINATED BLACK PHENOLIC RESIN WITH A WHITE CORE AND ENGRAVED LETTERING. LETTERING SHALL BE A MINIMUM OF 1/8" IN HIGH.</li> </ol> <p>WORKING CLEARANCES SHALL NOT BE LESS THAN SPECIFIED IN THE NATIONAL ELECTRICAL CODE.</p> <p>SECTION 28 0519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES</p> <p>A. CONDUCTOR SIZES (AND ASSOCIATED CONDUIT SIZES) IN THESE CONTRACT DOCUMENTS ARE BASED ON THE USE OF COPPER WIRE APPLIED AT 75 DEG. C RATING. ONLY COPPER WIRE SHALL BE USED.</p> <p>B. WIRE SHALL BE TYPE XHHW SINGLE CONDUCTOR INSULATED COPPER WIRE RATED FOR 600 VOLTS, RATED 90 DEGREES C DRIFT DEGREES C. WIRE NO. 12 AND SMALLER SHALL BE TYPE THHN. WIRE NO. 14 AND LARGER SHALL BE TYPE THWN. PROVIDE STRANDED CONDUCTORS WHERE CONDUCTORS TERMINATE IN CRIMP TYPE LUGS. WIRING CONNECTORS SHALL BE SPRING WIRE CONNECTORS: UL 486C; RATED FOR 600 VOLTS, 105 DEG. C.</p>

COMMON WORK RESULTS FOR ELECTRICAL	
A.	<p>ALL ELECTRICAL WORK SHALL CONFORM WITH ALL STATE AND LOCAL CODES AND STANDARDS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:</p> <ol style="list-style-type: none"> <li>1. FLORIDA BUILDING CODE (2020)</li> <li>2. NATIONAL ELECTRICAL CODE (2017)</li> </ol> <p>WHEREVER CONFLICTS OCCUR, MORE STRINGENT CODES SHALL APPLY.</p> <p>DEVICES AND PRODUCTS SHALL BE LISTED AND CLASSIFIED BY UNDERWRITERS LABORATORIES, INC AS SUITABLE FOR THE PURPOSE INDICATED.</p> <p>ALL ELECTRICAL WORK SHALL BE PERFORMED BY QUALIFIED PERSONNEL IN A NEAT AND WORKMANLIKE MANNER IN ACCORDANCE WITH NECA 1.</p> <p>FURNISH AND INSTALL ALL MATERIALS AND ACCESSORIES AS REQUIRED FOR A COMPLETE AND OPERABLE INSTALLATION. TORQUE ALL FASTENING DEVICES TO MANUFACTURERS SPECIFICATIONS.</p> <p>UTILITY COORDINATION:</p> <ol style="list-style-type: none"> <li>1. COORDINATE UTILITY CONNECTION WITH THE GULF POWER AND INCLUDE IN BASE BID ALL COST TO OWNER FOR UTILITY SERVICE. IF GULF POWER SERVICE CONNECTION CHARGES ARE NOT DETERMINED AT THE TIME OF BID, PROVIDE NOTIFICATION TO OWNER INDICATING GULF POWER CONTRIBUTION IN AID OF CONSTRUCTION (CAC) ARE NOT INCLUDED IN THE BID. REFER TO GULF POWER CONTACT INFORMATION PROVIDED UNDER GENERAL NOTE 1, SHEET</li> <li>2. THE ELECTRICAL SERVICE UNDER THE SCOPE OF THIS PROJECT IS DESIGNED AS AN OVERHEAD 200A, 208Y/120 VOLT, THREE PHASE, 4 WIRE SERVICE WITH A MAXIMUM AVAILABLE FAULT CURRENT OF 22,000A. THE ELECTRICAL SERVICE CHARACTERISTICS SHALL BE VERIFIED WITH GULF POWER. IF ANY OF THE REQUIREMENTS ARE NOT MET, THE ELECTRICAL SERVICE SHALL BE COORDINATED WITH THE AVAILABLE ELECTRIC SERVICE PROVIDED BY GULF POWER. CONTACT THE ELECTRICAL ENGINEER OF RECORD PRIOR TO PERFORMING ANY ELECTRICAL WORK.</li> <li>3. PROVIDE METERING EQUIPMENT AS FOLLOWS:             <ol style="list-style-type: none"> <li>a. BASIS OF DESIGN: MILBANK UAP9700-RRL-QG-HSP</li> <li>b. METER IS SPECIFIED FOR A UTILITY SERVICE FED FROM A 208Y/120V, THREE PHASE, FOUR WIRE SYSTEM.</li> <li>c. METER ENCLOSURE SHALL BE 200A, 7" TERMINAL, RINGLESS WITH LEVER BYPASS IN ALUMINUM ENCLOSURE.</li> <li>d. SERVICE DELIVERY WITH GULF POWER AND NOTIFY GULF POWER AS SOON AS THE FINAL INSPECTION LABEL IS ATTACHED BY THE AUTHORITY-HAVING JURISDICTION.</li> </ol> </li> </ol> <p>ELECTRICAL IDENTIFICATION:</p> <ol style="list-style-type: none"> <li>1. COLOR-CODED TAPE SHALL BE 3M COMPANY "SCOTCH 35" VINYL PLASTIC ELECTRICAL TAPE.</li> <li>2. IDENTIFY PHASE OF EACH CONDUCTOR AT EACH PULL BOX, JUNCTION BOX, SWITCH AND AT EACH OUTLET WITH PERMANENTLY ATTACHED, WRAP AROUND, ADHESIVE MARKERS, WITH AN APPROPRIATE NUMBER OR LETTER THAT WILL EXPEDITE FUTURE TRACING AND TROUBLE SHOOTING.</li> <li>3. PROVIDE NAMEPLATE MOUNTED ON THE LEFT STATION CONTROL PANEL (CP4-S).</li> <li>4. IDENTIFICATION NAMEPLATES SHALL BE LAMINATED BLACK PHENOLIC RESIN WITH A WHITE CORE AND ENGRAVED LETTERING. LETTERING SHALL BE A MINIMUM OF 1/8" IN HIGH.</li> </ol> <p>WORKING CLEARANCES SHALL NOT BE LESS THAN SPECIFIED IN THE NATIONAL ELECTRICAL CODE.</p> <p>SECTION 28 0519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES</p> <p>A. CONDUCTOR SIZES (AND ASSOCIATED CONDUIT SIZES) IN THESE CONTRACT DOCUMENTS ARE BASED ON THE USE OF COPPER WIRE APPLIED AT 75 DEG. C RATING. ONLY COPPER WIRE SHALL BE USED.</p> <p>B. WIRE SHALL BE TYPE XHHW SINGLE CONDUCTOR INSULATED COPPER WIRE RATED FOR 600 VOLTS, RATED 90 DEGREES C DRIFT DEGREES C. WIRE NO. 12 AND SMALLER SHALL BE TYPE THHN. WIRE NO. 14 AND LARGER SHALL BE TYPE THWN. PROVIDE STRANDED CONDUCTORS WHERE CONDUCTORS TERMINATE IN CRIMP TYPE LUGS. WIRING CONNECTORS SHALL BE SPRING WIRE CONNECTORS: UL 486C; RATED FOR 600 VOLTS, 105 DEG. C.</p>



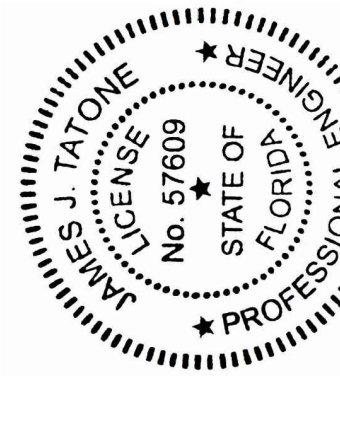
OVERALL  
SITE PLAN

PROJECT NO:	27656.01
DESIGNED BY:	JJT
DRAWN BY:	JLB
CHK'D BY:	JJT
PROJ. MGR:	JCP
DATE:	FEBRUARY 2021
NOT RELEASED FOR CONSTRUCTION BY JTT DATE / /	
NO.	DATE
2	05/2021
REVISION/ACTION TAKEN	
APPR. JTT ADDENDUM 2	

BERTHE BRIDGE &  
ASSOCIATED  
INFRASTRUCTURE

**BASKERVILLE-DONOVAN, INC.**  
Innovative Infrastructure Solutions  
449 W MAIN ST. PANASCOLA, FL 32502 (850)493-9661  
ENGINEERING BUSINESS: EB-0000340  
Panama City Beach - Tallahassee - Mobile

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1 OVERALL SITE PLAN  
SCALE: 3/32" = 1'-0" 0' 4' 8' 16'



KEYED NOTES

- 1 COORDINATE THE LOCATION OF THE UTILITY POLE WITH GULF POWER TO ENSURE THE OVERHEAD ELECTRICAL SERVICE FEEDERS ARE NOT ROUTED ABOVE THE LIFT STATION PAD.

**LUMINAIRE SCHEDULE**

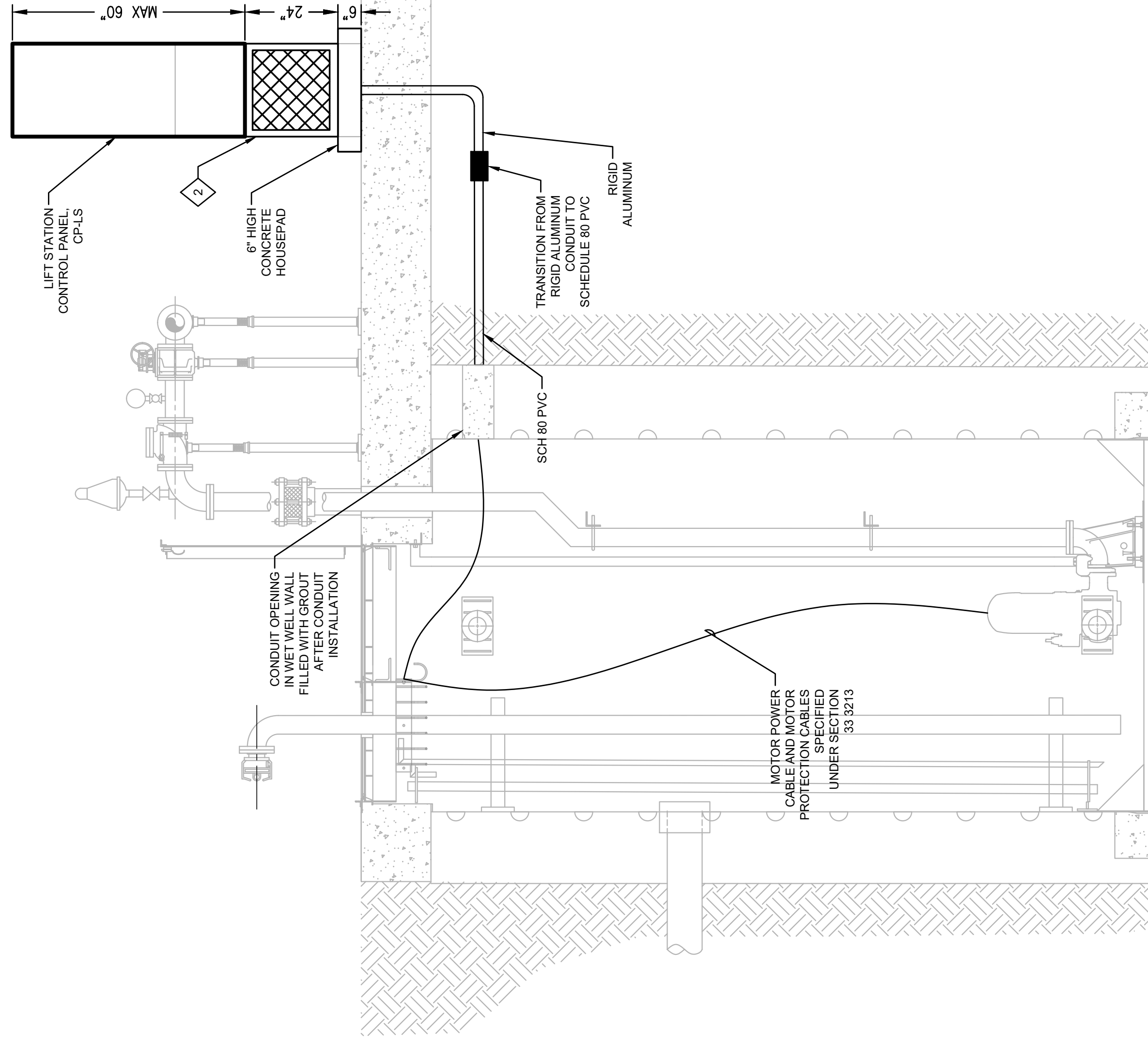
Type	Manufacturer	Model Series	Lamps No. & Type	Volts	Input Watts	Remarks
SL	Lithonia or Approved Equal	RSX1 LED Series	70 CRT, 3000K TYPE III B2-UC-G3 14,880 LUMENS	120	133	EXTERIOR SINGLE HEAD AREA LUMINAIRE, UL LISTED FOR WET LOCATIONS IN DARK BRONZE HOUSING MOUNTED ON A 25' DIRECT BURIED SQUARE CONCRETE POLE RATED FOR 160 MPH WIND SPEED. PROVIDE 20KV/10KA SURGE PROTECTIVE DEVICE AND IN-LINE FUSING WITHIN HANDHOLE AT BASE OF POLE.

**EQUIPMENT CONNECTION SCHEDULE**

TAG	HP (KW)	VOLTS	FLA	PHASE	KVA	SPECIFIED UNDER DIVISION 26 - ELECTRICAL	REMARKS
SP							<b>SUBMERSIBLE PUMP</b>
1	20	240	54.0	3	22.4	PROVIDE 125A 3P MAGNETIC ONLY CIRCUIT BREAKER GROUND FAULT MONITOR (ALARM ONLY), NEMA SIZE 3 SSRV MOTOR STARTER MOUNTED WITHIN THE LIFT STATION CONTROL PANEL AS SHOWN ON DRAWINGS.	
2	20	240	54.0	3	22.4	PROVIDE 125A 3P MAGNETIC ONLY CIRCUIT BREAKER GROUND FAULT MONITOR (ALARM ONLY), NEMA SIZE 3 SSRV MOTOR STARTER MOUNTED WITHIN THE LIFT STATION CONTROL PANEL AS SHOWN ON DRAWINGS.	

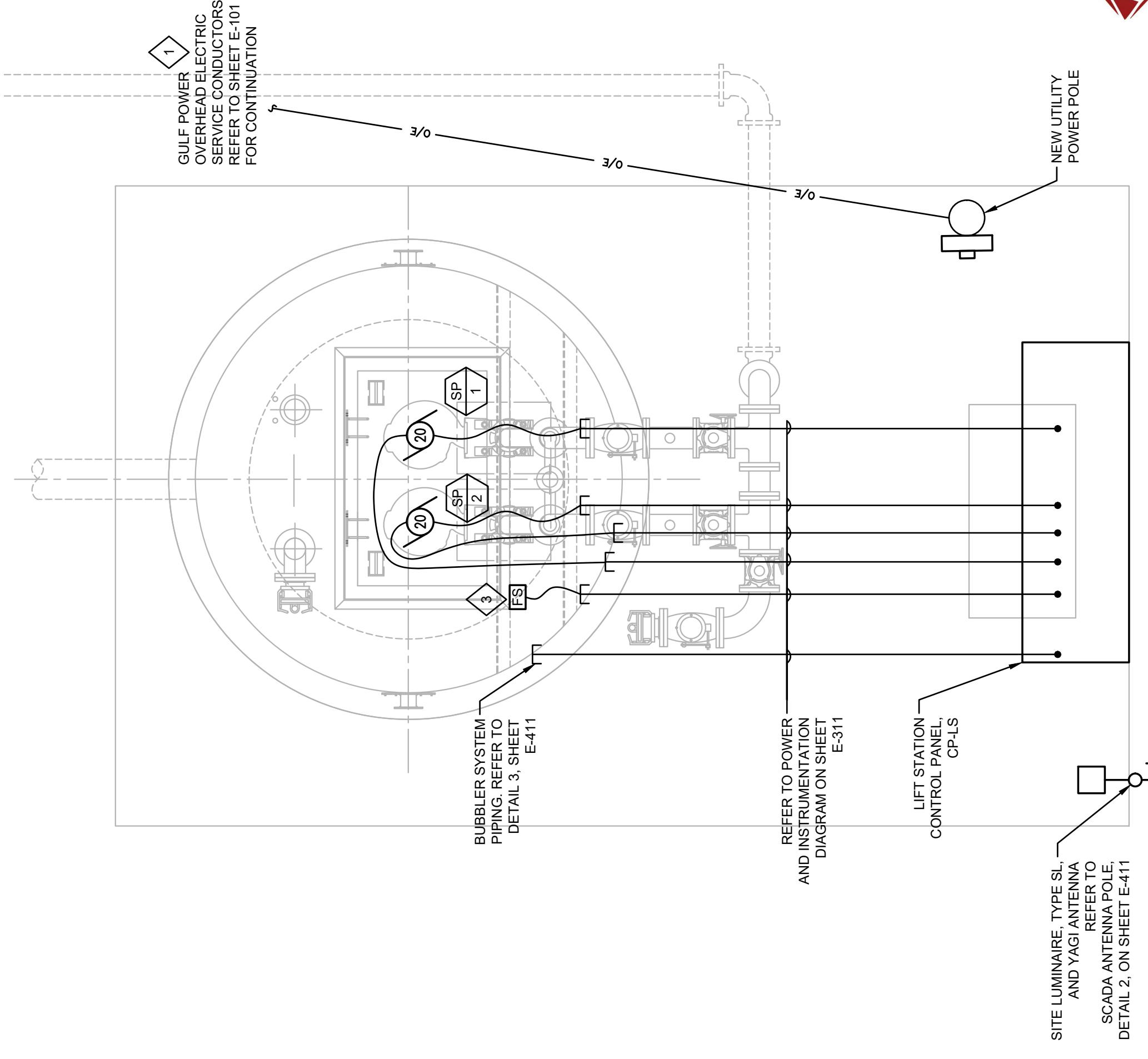
**KEYED NOTES**

- 1 COORDINATE THE LOCATION OF THE UTILITY POLE WITH GULF POWER TO ENSURE THE OVERHEAD ELECTRICAL SERVICE FEEDERS ARE NOT ROUTED ABOVE THE LIFT STATION PAD.
- 2 THE LIFT STATION CONTROL PANEL, CP-LS, SHALL BE INSTALLED ON A 24" HIGH STAINLESS STEEL BASE WITH VENTILATED REMOVABLE PANELS PROVIDED AS AN AIR BRACK FOR ALL CONDUITS ENTERING THE LIFT STATION. PROVIDE CABLE CLAMP FITTING ON TOP AND BOTTOM OF THE SUPPORT BASE AS SHOWN IN DETAIL 4 ON SHEET E-411.
- 3 REFER TO SHEET M-101 FOR FLOAT ELEVATIONS.



2 LIFT STATION SECTION

SCALE: 1/2" = 1'-0" 0 1' 2' 4'



1 LIFT STATION - PLAN VIEW

SCALE: 1/2" = 1'-0" 0 1' 2' 4'



**Ruby Engineering, Inc.**  
 RUBY ENGINEERING, INC.  
 3000 W. WINDY ST., SUITE 104  
 PENSACOLA, FL 32504  
 PHONE: (850) 455-5540  
 CERTIFICATE NO. CA-31884

LIFT STATION  
 AREA PLAN

E-111

BERTHE BRIDGE &  
 ASSOCIATED  
 INFRASTRUCTURE

PROJECT NO:	27656.01
DESIGNED BY:	JJT
DRAWN BY:	JLB
CHK'D BY:	JJT
PROJ. MGR:	JCP
DATE:	FEBRUARY 2021
NOT RELEASED FOR CONSTRUCTION BY JT DATE	/ /
NO.	2
DATE	05/2021
APPR.	JJT
REVISION/ACTION TAKEN	APPENDUM 2

**BASKERVILLE-DONOVAN, INC.**  
 INNOVATIVE INFRASTRUCTURE SOLUTIONS  
 449 W. MAIN ST., PENSACOLA, FL 32502 (850)93-9681  
 ENGINEERING BUSINESS: EB-0000340  
 Pensacola - Panama City Beach - Tallahassee - Mobile

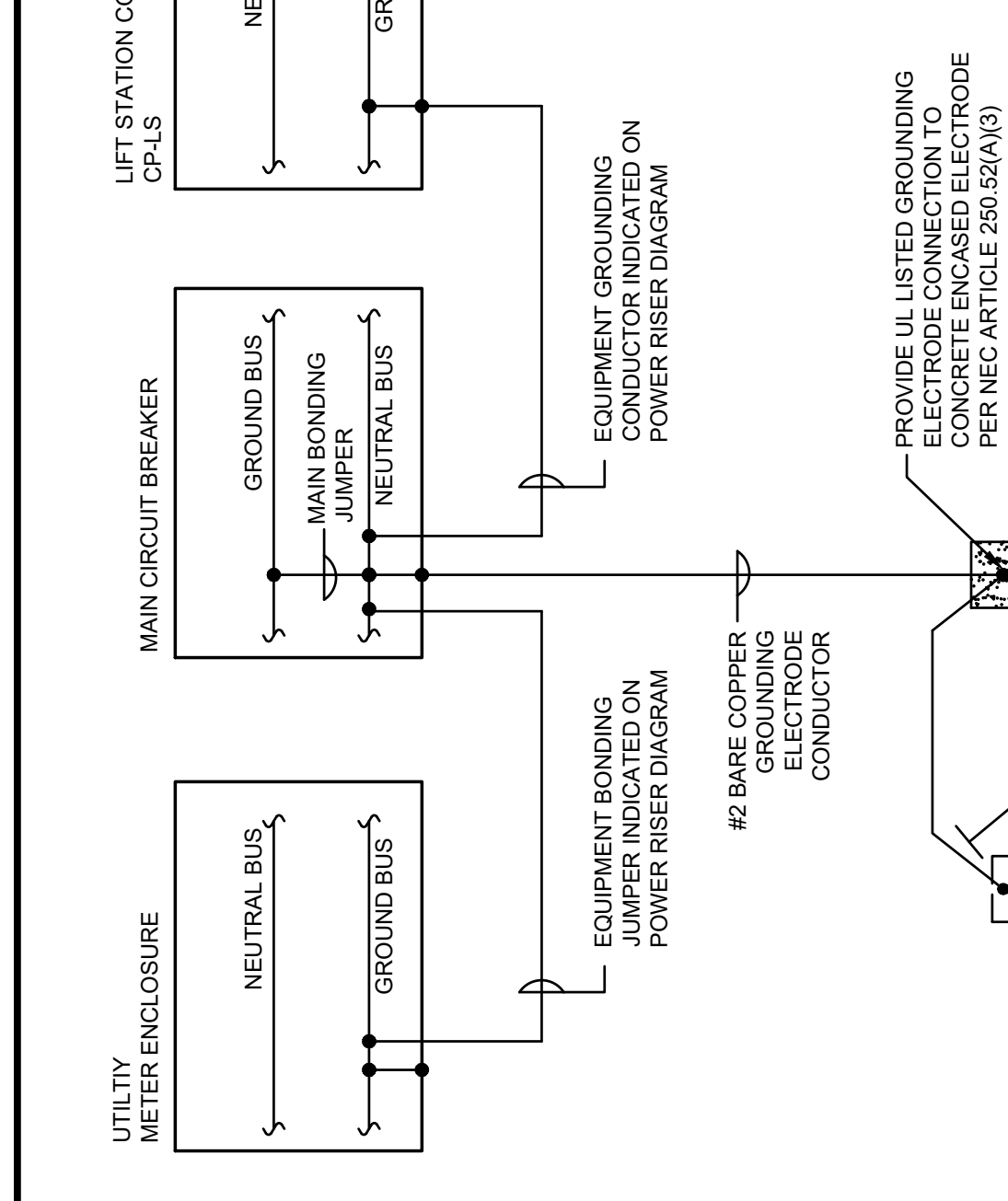


**GENERAL NOTES**

- THE ELECTRIC SERVICE INSTALLATION SHALL COMPLY WITH THE LOCAL SERVICE PROVIDER'S REQUIREMENTS. ALL UTILITY FEES TO PROVIDE ELECTRIC SERVICE SHALL BE INCLUDED IN THE BID.  
 GULF POWER CONTACT INFORMATION:  
 CHARLES BOYETT@NEXTERAENERGY.COM  
 PH: 850.528.3834
- VOLTAGE DROP CALCULATIONS HAVE BEEN VERIFIED TO BE LESS THAN 2% VOLTAGE DROP FOR FEEDERS AND LESS THAN 3% VOLTAGE DROP FOR BRANCH CIRCUITS.
- THE ELECTRICAL SERVICE IS FED FROM A 120/240V, 3 PHASE HLEG DELTA SYSTEM. ENSURE ALL 120V BRANCH CIRCUITS ARE CONNECTED TO NEUTRAL AND GROUND.

**KEYED NOTES**

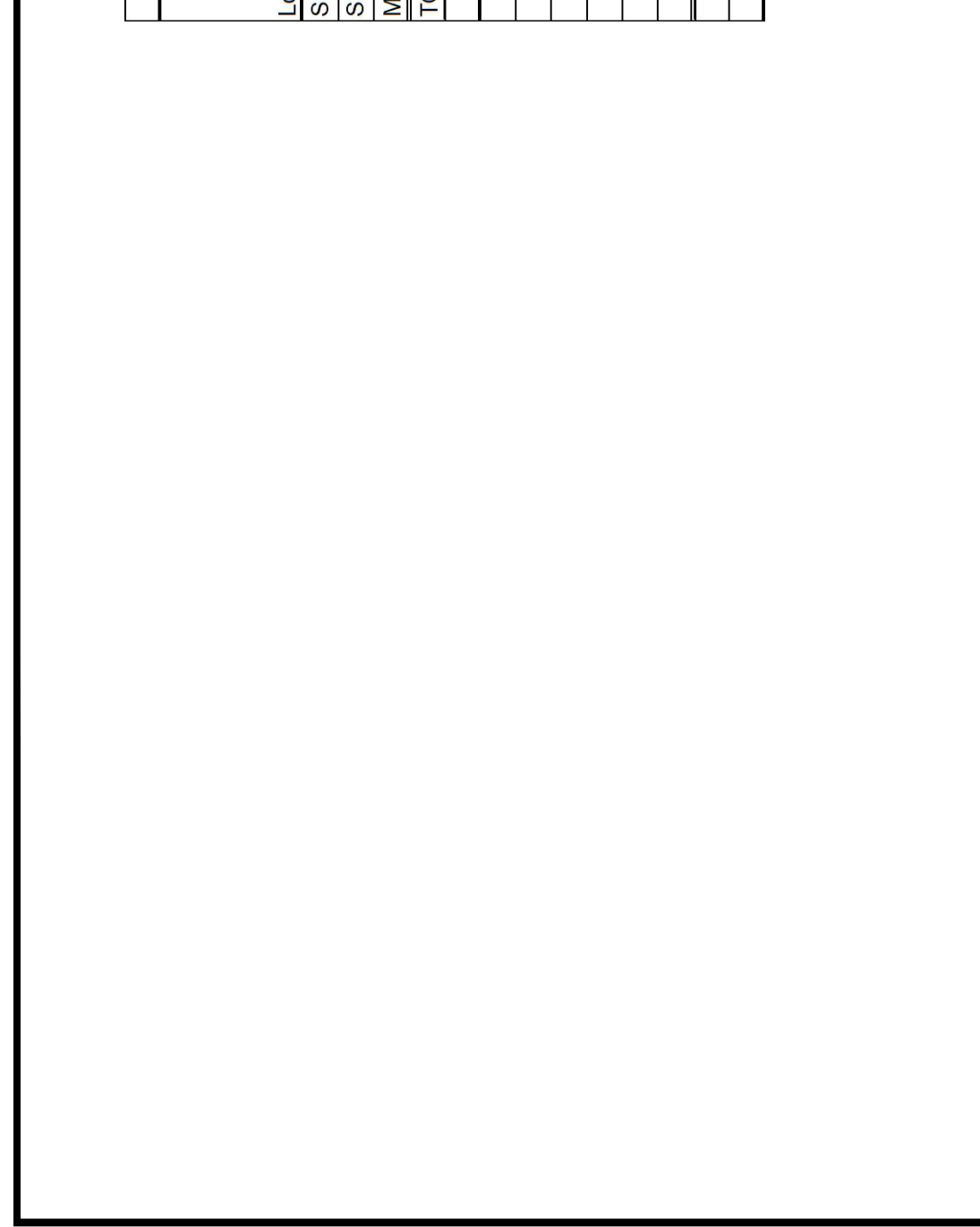
- REFER TO GROUNDING RISER DIAGRAM SHOWN ON THIS SHEET.
- PROVIDE 200A SELF-CONTAINED METER ENCLOSURE AS SPECIFIED UNDER UTILITY COORDINATION ON SHEET E-301.
- THE MAIN BREAKER AND GENERATOR INPUT BREAKER SHALL BE MECHANICALLY INTERLOCKED.
- LOCATE CONTROL POWER FUSE BLOCK IN THE LIFT STATION CONTROL PANEL, CP-LS. CONTROL SECTION TO SERVE CONTROL POWER FOR THE TELEMETRY, CONTROL UNIT, BUBBLER SYSTEM EQUIPMENT, MOTOR PROTECTION RELAYS AND RADIO TELEMETRY UNIT.
- PROVIDE CABLE GLAND CONNECTORS AT THE TOP AND BOTTOM OF THE BREAK SUPPORT BASE FOR ALL CONDUITS ENTERING THE WET WELL (CLASS 1 DIVISION 1 LOCATION) AS SHOWN IN DETAIL 4 ON SHEET E-411.
- PROVIDE 1/2" TWISTED SHIELDED PAIR TO THE ANALOG INPUT OF THE TELEMETRY CONTROL UNIT.
- PROVIDE 1/2" CONDUIT STUBBED INTO WET WELL TO ACCOMMODATE THE MOTOR POWER AND MOTOR PROTECTION CABLES SPECIFIED UNDER SECTION 33 3273.
- REFER TO DETAIL 3 ON SHEET E-411 FOR THE INSTALLATION OF BUBBLER AND PIPE REQUIREMENTS. THE BUBBLER SHALL BE INSTALLED IN THE WELLS IN ADVANCE OF THE BUBBLER SYSTEM PIPING INSTALLATION. THE CITY OF CALLAWAY WILL PROVIDE ON-SITE OBSERVATION DURING THE BUBBLER SYSTEM INSTALLATION. BUBBLER SYSTEM PIPING SHALL NOT BE INSTALLED UNTIL ON-SITE APPROVAL IS PROVIDED BY THE CITY.
- PROVIDE (6) 1" CONDUITS TO ACCOMMODATE FLOAT SWITCH CABLES FOR HIGH (ALARM), LOW LEAD, LOW WATER, AND DIGITAL INPUTS OF THE TELEMETRY CONTROL UNIT. REFER TO SHEET M-101 FOR FLOAT ELEVATIONS.
- PROVIDE BUTTON TYPE PHOTOCELL AND 20A/1P SWITCH IN WEATHER PROOF CAST ALUMINUM ENCLOSURES MOUNTED TO SIDE OF THE LIFT STATION CONTROL PANEL.
- PROVIDE LMR-400-DB OUTDOOR WATERTIGHT COAXIAL CABLE INSTALLED IN 1-1/4" CONDUIT ROUTED TO THE PAGI ANTENNA. COORDINATE TERMINATION PROVISION WITH THE ANTENNA MANUFACTURER. PROVIDE COAXIAL UNIT AND SCREW ANTENNA MANUFACTURER'S SHOP DRAWINGS. CONDUIT ROUTING TO ANTENNA SHALL UTILIZE SMOOTH RADIUS BENDS. CONDUIT BODIES OR PULLING EELS SHALL NOT BE PERMITTED.
- PROVIDE (2) #14 WHM ROUTED FROM THE GROUND FAULT RELAY TO THE TELEMETRY CONTROL UNIT. PROVIDE COMMON ALARM FOR THE THERMAL OVERLOAD AND MOISTURE SEAL PROTECTIVE RELAY OUTPUTS.



**SERVICE ENTRANCE CALCULATIONS**

Load Description	General		Specific		Fixed Space		A/C	
	Lighting	Receptacle	Appliance	Heating	Compressor	Motor	Connected	Connected
	Load (KVA)	Load (KVA)	Load (KVA)	Load (KVA)	Load (KVA)	Load (KVA)	Load (KVA)	Load (KVA)
Submersible Pump No. 1 (20 HP)	0.0	0.0	0.0	0.0	0.0	21.4		
Submersible Pump No. 2 (20 HP)	0.0	0.0	0.0	0.0	0.0	21.4		
Miscellaneous Electrical	0.5	0.4	1.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	<b>0.5</b>	<b>0.4</b>	<b>1.0</b>	<b>0.0</b>	<b>0.0</b>	<b>42.8</b>	<b>0.0</b>	<b>42.8</b>
General Lighting Load per NEC Article 220.12 and 220.42 (See Note 2): 0.5 KVA								
NEC Computed Receptacle Load per NEC Article 220.44: 0.4 KVA								
Specific Appliance Load per NEC Article 220.14(A): 1.0 KVA								
NEC Computed Fixed Space Heating Load per NEC Article 220.51: 0.0 KVA								
Refrigerant Compressor Connected Load per NEC Article 440.6: 0.0 KVA								
Motor Computed Loads per NEC Article 430.24: 42.8 KVA								
<b>Total NEC Computed Load: 44.7 KVA</b>								
<b>NEC Computed Ampacity @ 240V, 3 Phase: 107.5 A</b>								

5/8" DIA. X 101' COPPER CLAD GROUND ROD WITH EXOTHERMIC WELD TYPE TERMINATIONS IN GROUND TEST WELL. TYPICAL FOR ALL THREE GROUND RODS.



CONNECTION TO 120/240V, 3 PHASE OVERHEAD SERVICE TO BE PROVIDED BY GULF POWER