

# DUPLEX PUMP STATION W/ GENERATOR ELECTRICAL DRAWING INDEX

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## GENERAL NOTES:

- 1.) SITE SPECIFIC CONDITIONS DETERMINE THE CLASSIFICATION OF PUMP STATION IN ACCORDANCE WITH FDEP STANDARDS AND MUST BE DETERMINED BY THE DESIGN ENGINEER FOR EACH SPECIFIC PROJECT.
- 2.) A PUMP STATION THAT RECEIVES FLOW FROM MORE THAN 1 LOCATION WILL BE CLASSIFIED AS EITHER A REPUMP STATION OR A MASTER PUMP STATION. THE DETERMINATION OF PUMP STATION CLASSIFICATION IS VERY SITE SPECIFIC. ENGINEER, DEVELOPER AND/OR CONTRACTOR MUST COORDINATE WITH LEE COUNTY UTILITIES TO CORRECTLY CATEGORIZE THE STATION. PUMP STATION CLASSIFICATION DETERMINES WHICH STANDARD TO REFERENCE. REPUMP STATIONS CAN BE UP TO 77HP, 2 OR 3 PUMPS AND WILL BE EQUIPPED WITH ACROSS THE LINE STARTERS CONTROLLED BY SCADA-PAK. REFERENCE LCU STANDARD DUPLEX 3-PHASE PUMP STATION WITH GENERATOR OR LCU STANDARD TRIPLEX 3-PHASE PUMP STATION WITH GENERATOR FOR GENERAL CONSTRUCTION STANDARDS. SIZE ELECTRICAL SERVICE AND EQUIPMENT SITE SPECIFIC TO REPUMP STATION HORSEPOWER. MASTER PUMP STATIONS WILL BE 35HP AND GREATER, MOST LIKELY 3 PUMPS. THEY WILL BE EQUIPPED WITH VFDS WHICH ARE LEVEL CONTROLLED THROUGH A PLC. REFERENCE LCU MASTER PUMP STATION STANDARD DRAWINGS. SIZE ELECTRICAL SERVICE AND EQUIPMENT SITE SPECIFIC TO MASTER PUMP STATION HORSEPOWER.

## STAND-BY GENERATOR REQUIREMENT:

FDEP REQUIRES AN IN PLACE EMERGENCY GENERATOR TO PROVIDE UNINTERRUPTED PUMPING CAPABILITY FOR PUMP STATIONS RECEIVING FLOW FROM ONE OR MORE PUMP STATIONS THROUGH A FORCE MAIN OR PUMP STATIONS DISCHARGING THROUGH PIPES 12 INCHES OR LARGER. REFERENCE FDEP FORM 62-604.300(3)(a) EMERGENCY OPERATION OF PUMP STATIONS PARAGRAPH 71. IN ADDITION TO FDEP REQUIREMENTS, GENERATORS ARE REQUIRED BY LCU AT PUMP STATIONS BASED ON SITE SPECIFIC FLOWS. COORDINATE WITH LCU TO DETERMINE IF SITE SPECIFIC FLOWS AT PUMP STATION REQUIRE AN IN PLACE EMERGENCY GENERATOR.

## SUBMITTAL REQUIREMENT:

LEE COUNTY UTILITIES REQUIRES PUMP STATION SUBMITTALS BE PROVIDED FOR THEIR REVIEW TO ENSURE COMPLIANCE WITH THE LCU PUMP STATION STANDARDS.

K:\LCU Wastewater PS Standards Update\Duplex W Gen\240V\_3PH W GEN\E-1.dwg Plotted: Mar 03, 2026 - 3:25pm by fernandoj



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LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS	ISSUED FOR: <b>90% REVIEW</b>
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# ABBREVIATIONS LIST

A	AMPS
AF	AMP FRAME
AIC	AMPS INTERRUPTING CURRENT
ALUM	ALUMINUM
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AVAIL	AVAILABLE
AWG	AMERICAN WIRE GAUGE
C.	CONDUIT
CAB	CABINET
CAT	CATEGORY
CONV	CONVERSION
CRCC	CELLULAR ROUTER COMMUNICATION CABINET
CU	COPPER
D	DEPTH
DIA	DIAMETER
DRGS	DRAWINGS
ENET	ETHERNET
EXT	EXTERNAL
FOCC	FIBER OPTIC CONVERSION CABINET
FPL	FLORIDA POWER AND LIGHT
GND OR GRD. OR G.	GROUND
H	HEIGHT
HZ	HERTZ
I&C	INSTRUMENTATION AND CONTROLS
I/O	INPUT/OUTPUT
INST	INSTRUMENT
INT	INTERNAL
KVA	KILOVOLT-AMPERES (1VA*10 <sup>-3</sup> )
LCU	LEE COUNTY UTILITIES
LT	LIGHT
MA	MILLIAMPS (1A*10 <sup>-3</sup> )
MCB	MAGNETIC CIRCUIT BREAKER
MIN	MINIMUM
NA	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION
NTS	NOT TO SCALE
P	POLE
PH	PHASE
P&ID	PROPORTIONAL INTEGRAL DERIVATIVE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PW	PRODUCTION WELL
MPZ	MINI POWER ZONE
SCH	SCHEDULE
SE	SERVICE ENTRANCE
SPD	SURGE PROTECTION DEVICE
SS	STAINLESS STEEL
TEMP	TEMPERATURE OR TEMPORARY
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
U.G.	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SOURCE
V	VOLTS
VA	VOLT-AMPERES (APPARENT POWER)
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS (REAL POWER)
PCP	PUMP CONTROL PANEL
W/	WITH
XFMR	TRANSFORMER
"	INCHES
' OR FT	FEET
# OR NO.	NUMBER
E# OR I#	11"X17" SHEET
ES-#	8.5"X11" SHEET
FDEP	FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS

ABBREVIATIONS LIST

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### CONTROL/ELEMENTARY SYMBOLS

- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- LIMIT SWITCH, NORMALLY OPEN
- LIMIT SWITCH, NORMALLY CLOSED
- PRESSURE SWITCH, NORMALLY OPEN
- PRESSURE SWITCH, NORMALLY CLOSED
- FLOAT SWITCH, NORMALLY OPEN
- FLOAT SWITCH, NORMALLY CLOSED
- FLOW SWITCH, NORMALLY OPEN
- FLOW SWITCH, NORMALLY CLOSED
- TEMPERATURE SWITCH, NORMALLY OPEN
- TEMPERATURE SWITCH, NORMALLY CLOSED
- NORMALLY OPEN, TIMED TO CLOSE CONTACT
- NORMALLY CLOSED, TIMED TO OPEN CONTACT
- NORMALLY CLOSED, TIMED TO CLOSE CONTACT
- NORMALLY OPEN, TIMED TO OPEN CONTACT
- ANALYZER INDICATOR TRANSMITTER
- ALARM RELAY
- ALARM TIMER
- CONTROL RELAY
- FLOW INDICATOR TRANSMITTER (TOTALIZER)
- FLOW SWITCH HIGH/LOW
- LIQUID LEVEL SWITCH
- LEVEL INDICATOR TRANSMITTER
- LIMIT SWITCH OR LEVEL SWITCH
- MOTOR SWITCH MANUAL
- MOTOR STARTER
- PRESSURE GAUGE
- PROCESS FLOW TIMER
- PRESSURE SWITCH
- TEMPERATURE SWITCH
- TIMING RELAY
- SURGE SUPPRESSION DEVICE
- SOLENOID VALVE
- VIBRATION SWITCH
- TORQUE SWITCH
- ZERO SPEED SWITCH
- ALARM INDICATING LIGHT
- RUN INDICATING LIGHT
- MOMENTARY CONTACT PUSHBUTTON
- MOMENTARY BREAK PUSHBUTTON OR RESET
- KEYED SWITCH
- MAINTAINED CONTACT ON-OFF SWITCH
- START/STOP (S/S) CONTROL SWITCH
- MAINTAINED CONTACT
- FUSE
- MOLDED CASE CIRCUIT BREAKER
- CONTROL POWER TRANSFORMER
- REMOTE TERMINAL BLOCK POINT

### ELECTRICAL PLAN SYMBOLS

- WALL OUTLET BOX AND 20 AMP SINGLE POLE SWITCH ('a' INDICATES SWITCHES) 48" TO CETERLINE
- WALL OUTLET BOX AND 20 AMP 3-WAY SWITCH ('a' INDICATES SWITCHES) 48" TO CTR LINE.
- MANUAL MOTOR STARTING SWITCH WITH OVERLOADS AND PILOT LIGHT. NEMA 4X TYPICAL
- WALL OUTLET BOX AND 20 AMP SWITCH WITH WEATHERPROOF COVER OR ENCLOSURE.
- WALL OUTLET BOX AND 20 AMP DUPLEX RECEPTACLE 18" TO CENTERLINE
- WALL OUTLET BOX AND 20 AMP DUPLEX RECEPT MOUNTED 48" AFF OR AS NOTED.
- WALL OUTLET BOX AND 20 AMP GFCI DUPLEX RECEPTACLE AT 18" TO CENTERLINE. WP INDICATES WEATHERPROOF COVER PLATE.
- WALL OUTLET BOX AND 20 AMP GFCI RECEPTACLE MOUNTED 48" AFF OR AS NOTED.
- WALL OUTLET BOX AND DOUBLE 20 AMP DUPLEX RECEPTACLES 18" TO CENTERLINE
- FLUSH MOUNTED JUNCTION BOX ( SURFACE IN MECH/ELEC SPACES OR ABOVE CEILINGS).
- BRANCH CIRCUIT CONDUIT AND WIRE GENERALLY SURFACE MOUNTED, CONCEALED ABOVE CEILINGS SLASH MARKS INDICATE NUMBER OF CONDUCTORS; (MARKS SHOWN TO AID CONTRACTOR IN BIDDING, THE CONTRACTOR SHALL PROVIDE THE REQUIRED CONDUCTORS UNDER THE CONTRACT SUM WHETHER OR NOT SHOWN). SHORT SLASHES INDICATE PHASE CONDUCTOR OR SWITCH LEG, LONG INDICATE NEUTRAL CONDUCTOR. GREEN GROUND CONDUCTOR NOT SHOWN; ALL CONDUITS REQUIRE COPPER GROUND CONDUCTOR. TWO CONDUCTORS PLUS GROUND REQUIRED, MINIMUM.
- CONDUIT AND WIRE CONCEALED IN FLOOR SLAB OR UNDERGROUND.
- BRANCH CIRCUIT PANELBOARD AS NOTED; SEE PANEL SCHEDULES
- DISCONNECT SWITCH SIZE PER EQUIPMENT NAME PLATE OR AS NOTED: FOR DISCONNECTS SERVING MOTOR LOADS OF 10HP OR GREATER AND FOR ALL MOTOR LOADS SERVED THROUGH VARIABLE FREQUENCY DRIVES; PROVIDE SURGE SUPPRESSION DEVICE EQUAL TO SQ.-D. SDSA4040 OR EQUAL AT DISCONNECT.
- MOTOR CONNECTION
- MANUAL TRANSFER SWITCH OR REVERSING SWITCH

### LIGHTING FIXTURES SYMBOLS

- LED FIXTURE POLE MOUNTED SEE DETAIL
- COPPERWELD GRD. ROD
- HAND OFF REMOTE CONTROL STATION
- HAND OFF AUTO CONTROL STATION
- MOTOR STRIP HEATER

### SYSTEM SYMBOL LEGEND

- SYSTEMS CABINET AS NOTED OR MARKED.
- LIGHTNING PROTECTION AIR TERMINAL STREAMER RETARDING TYPE.
- STREAMER RETARDING AIR TERMINAL MOUNTED TO LIGHT POLE.

### SINGLE LINE DIAGRAM SYMBOLS

- VOLTMETER
- POWER FACTOR METER
- KILOWATT METER
- AMMETER
- THREE PHASE VOLT SWITCH
- THREE PHASE AMP SWITCH
- CURRENT TRANSMITTER
- KILOWATT TRANSMITTER
- POWER FACTOR TRANSMITTER
- LOCAL CONTROL PANEL
- GROUND FAULT INTERRUPTER
- WATT HOUR METER
- FUSE
- CAPACITOR
- DRAW-OUT CIRCUIT BREAKER
- MOULDED CASE CIRCUIT BREAKER
- TYPICAL STARTER CONTROL. SEE SWITCHGEAR CONTROL DIAGRAMS FOR EXACT TYPE.
- ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
- ELECTRIC D.C. MOTOR, NO. INDICATES HORSEPOWER.
- SERVICE OR EQUIPMENT GROUND.
- NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.
- NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS.
- LIGHTING PANELBOARD
- POWER PANELBOARD
- KIRK KEY INTERLOCK
- CURRENT TRANSFORMERS
- POTENTIAL TRANSFORMERS
- MANUAL OR AUTOMATIC TRANSFER SWITCH

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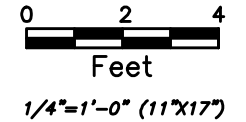
LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS  
 ELECTRICAL SYMBOLS LEGEND

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**MINIMUM EQUIPMENT RACK LAYOUT BASED ON THE FOLLOWING:**

ADJUST EQUIPMENT RATINGS AND DIMENSIONS FOR SPECIFIC PUMP STATION HORSEPOWER AND SERVICE SIZE (MINIMUM 100A SERVICE SIZE). IN NO CASE SHALL DIMENSIONS BE PERMITTED TO BE REDUCED IN SIZE.

EQUIPMENT	SIZE	H(IN)	W(IN)	D(IN)	EQUIPMENT	SIZE	H(IN)	W(IN)	D(IN)	EQUIPMENT	SIZE	H(IN)	W(IN)	D(IN)
UTILITY MAIN BREAKER (0-3HP)	100A	33	10	8	PUMP STATION CONTROL PANEL (5HP-15HP)	250AF 200AT	48	60	16	AUTOMATIC TRANSFER SWITCH (25HP-30HP)	400A	74	33	20
UTILITY MAIN BREAKER (5-15HP)	200A	33	10	8	PUMP STATION CONTROL PANEL (20HP-30HP)	400AF 300AT	48	60	16	PANELBOARD (0-30HP)	60A	38	20	7
UTILITY MAIN BREAKER (20-30HP)	400A	41	21	10	AUTOMATIC TRANSFER SWITCH (0-5HP)	125A	46	32	16					
PUMP STATION CONTROL PANEL (0HP-3HP)	150AF 100AT	48	60	16	AUTOMATIC TRANSFER SWITCH (7.5HP-20HP)	225A	46	32	16					

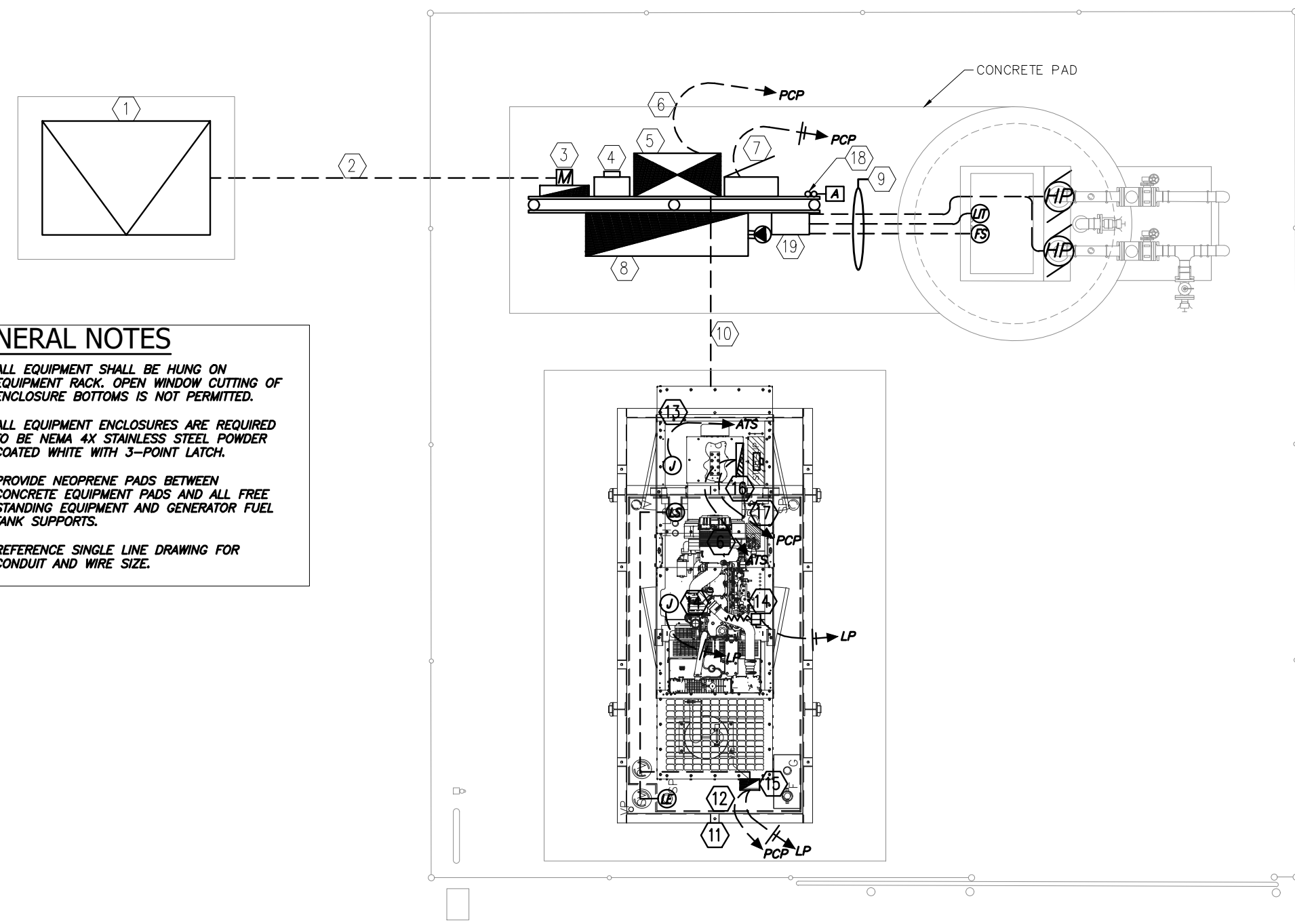


**KEYNOTES**

- 1.) UTILITY PADMOUNT TRANSFORMER OR AERIAL TRANSFORMER BANK. COORDINATE SERVICE CHARACTERISTICS, EXACT LOCATION AND PRIMARY FEEDER DETAILS WITH UTILITY, PROVIDE GROUNDING, TRANSFORMER PAD AND CONDUIT ENTRY PER UTILITY REQUIREMENTS.
- 2.) UNDERGROUND SERVICE LATERAL.
- 3.) ALUMINUM DIRECT READING UTILITY METER.
- 4.) NEMA 4XSS SE RATED ENCLOSED CIRCUIT BREAKER.
- 5.) NEMA 4XSS AUTOMATIC TRANSFER SWITCH.
- 6.) DEDICATED 2 WIRE UTP CABLE FOR REMOTE GEN-START COMMAND IN 1" C.
- 7.) NEMA 4X, SS 120/240V 3PH-4WIRE PANELBOARD LP.
- 8.) DEP COMPLIANT, POWDER COATED WHITE, STAINLESS STEEL, PUMP CONTROL PANEL (PCP).
- 9.) (3) MINIMUM 2" CONDUITS INTO WETWELL (2) FOR SUBMERSIBLE PUMP CABLES, (1) FOR FLOATS AND LIT CABLES. CORE DRILL NEW PENETRATIONS THROUGH WETWELL. PATCH ALL WITH HYDROCEMENT.
- 10.) STAND-BY POWER UNDERGROUND SERVICE LATERAL.
- 11.) GENSET WITH SUBBASE FUEL TANK.
- 12.) (2) PAIR #16 TSP INSTRUMENTATION CABLE IN 1" C. AND (9) CONDUCTOR #14 CONTROL CABLE IN 1.25" C.
- 13.) (2)#8 AND #10G IN 1" C. TO BATTERY CHARGER. FIELD COORDINATE EXACT LOCATION OF BATTERY.
- 14.) GENSET STRIP HEATER AND JACKET WATER HEATER. MINIMUM (3)#10 IN 0.75" C. COORDINATE EXACT LOCATION OF HEATERS.
- 15.) GENERATOR FUEL FILL PANEL WITH FUEL LEVEL TRANSMITTER & TANK LEAK ALARM PANEL MOUNTED WITHIN NEMA4X SS POWDER COATED WHITE ENCLOSURE.
- 16.) GENERATOR CONTROL PANEL; (GCP). COORDINATE EXACT LOCATION PRIOR TO ROUGH-IN. PROGRAM TO PROVIDE MONITORING CONTACTS FOR: GENERATOR FAULT GENERATOR RUNNING
- 17.) (2)1.25" C. (1) SPARE, (1) WITH (13) CONDUCTOR #14 CONTROL CABLE.
- 18.) DATA COLLECTOR AND MAST; INSTALLATION OF DEVICE IS SITE SPECIFIC AS DIRECTED BY OWNER.
- 19.) NEMA 4XSS JUNCTION BOX.

**GENERAL NOTES**

- 1.) ALL EQUIPMENT SHALL BE HUNG ON EQUIPMENT RACK. OPEN WINDOW CUTTING OF ENCLOSURE BOTTOMS IS NOT PERMITTED.
- 2.) ALL EQUIPMENT ENCLOSURES ARE REQUIRED TO BE NEMA 4X STAINLESS STEEL POWDER COATED WHITE WITH 3-POINT LATCH.
- 3.) PROVIDE NEOPRENE PADS BETWEEN CONCRETE EQUIPMENT PADS AND ALL FREE STANDING EQUIPMENT AND GENERATOR FUEL TANK SUPPORTS.
- 4.) REFERENCE SINGLE LINE DRAWING FOR CONDUIT AND WIRE SIZE.



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LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS  
 STANDARD 240V-3Ø (0-30HP) DUPLEX PUMP STATION W/ GENERATOR POWER, INSTRUMENTATION AND CONTROL PLAN

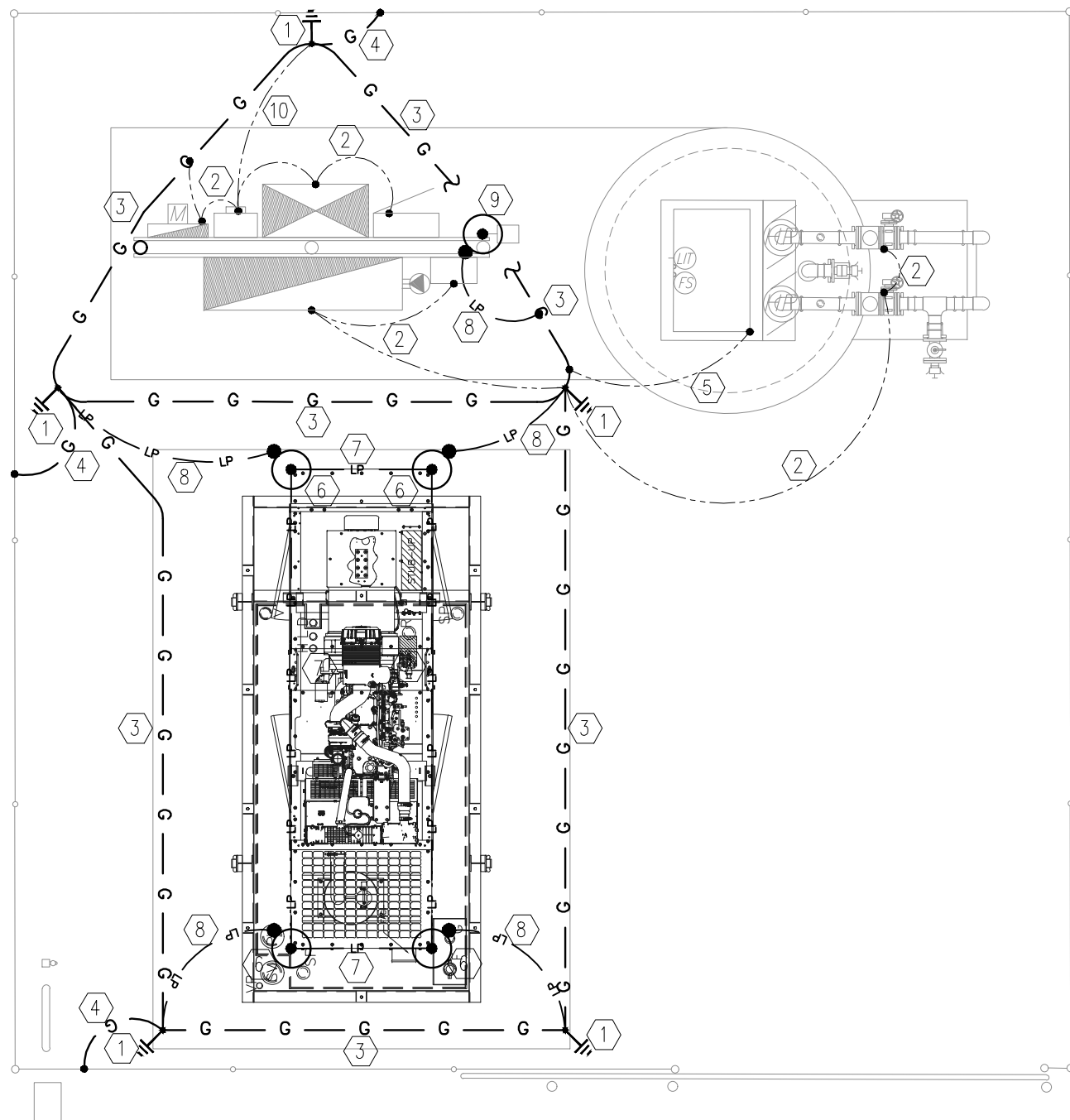
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### GENERAL NOTES

- 1.) ALL U.G. CONNECTIONS TO BE VIA EXOTHERMIC WELD (CADWELD) UNLESS INDICATED OTHERWISE.
- 2.) ALL REQUIRED BONDS MAY NOT BE SHOWN; PROVIDE ADDITIONAL BONDS TO ALL DEVICES, INSTRUMENTS, CABINETS, CONTROL VALVES, ETC. AS REQUIRED TO COMPLY WITH UL AND NEC.

### KEYNOTES

- 1.) 20' DRIVEN GROUND ROD WITH INSPECTION TEST WELL (SEE DETAIL). TYPICAL.
- 2.) #2 TINNED SOLID COPPER BOND. TYPICAL.
- 3.) #2/0 TINNED STRANDED COPPER COUNTERPOISE LOOP GROUND. TYPICAL.
- 4.) #2/0 TINNED SOLID BARE BOND TO GROUND GRID.
- 5.) BOND TO HINGE CORNER OF HATCH FRAME. DRILL TAP AS REQUIRED.
- 6.) STREAMER RETARDING ROOF MOUNTED AIR TERMINAL. TYPICAL.
- 7.) MAIN ROOF CONDUCTOR. TYPICAL.
- 8.) ROOF DOWN CONDUCTOR TO GROUND GRID.
- 9.) STREAMER RETARDING LIGHT POLE MOUNTED AIR TERMINAL. TYPICAL.
- 10.) TINNED STRANDED COPPER ELECTRIC SERVICE MAIN GROUNDING ELECTRODE CONDUCTOR. SIZE PER SITE SPECIFIC SERVICE REQUIREMENTS.



### LIGHTNING PROTECTION LEGEND:

- LP — LP — MAIN ROOF/DOWN CONDUCTOR TYPICAL
- G — G — #2/0 TINNED BARE COPPER COUNTERPOISE LOOP GROUND.
- #2 TINNED SOLID COPPER BOND TO EQUIPMENT/CABINETS ETC.

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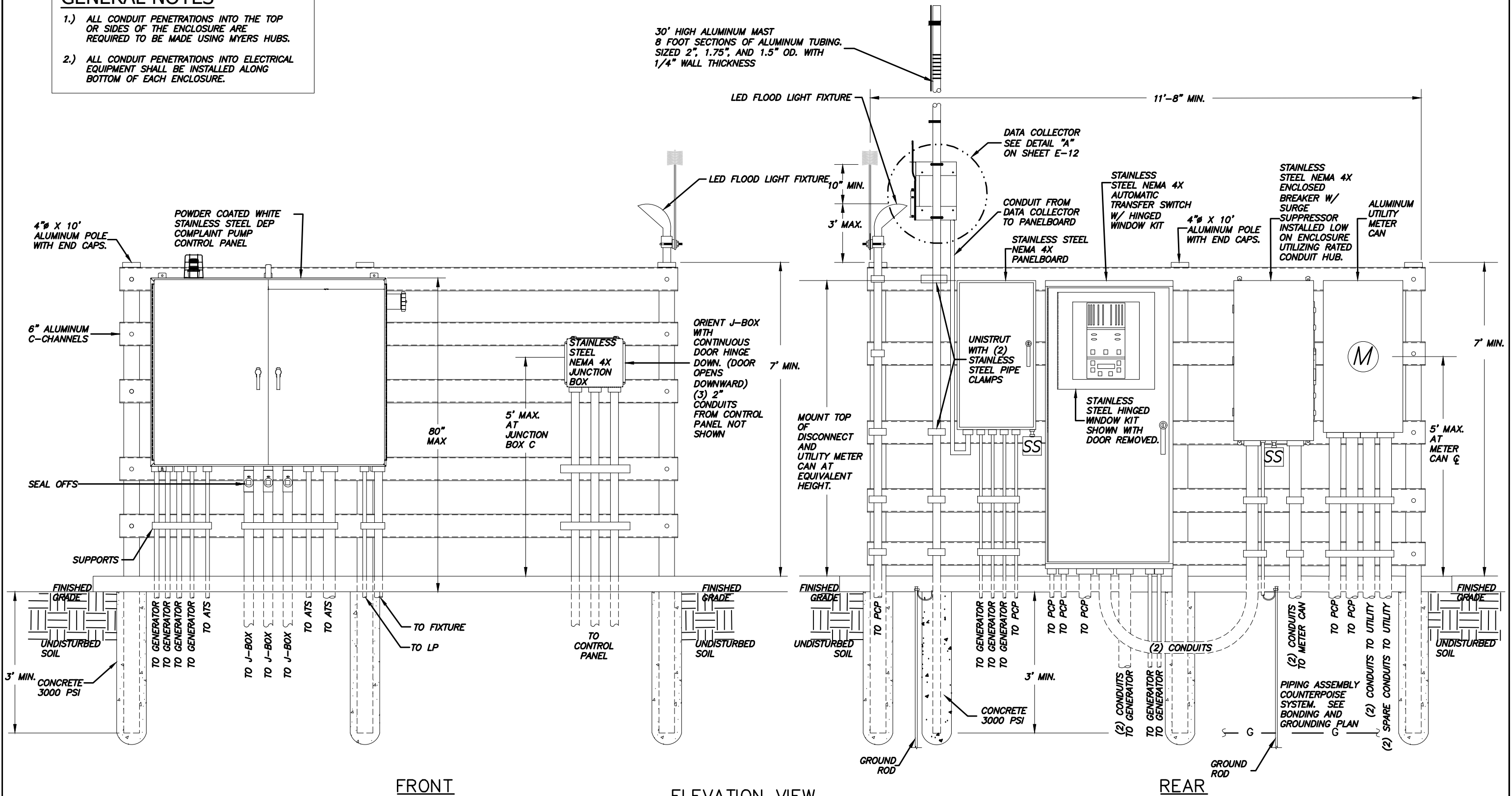
LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS
STANDARD 240V-3Ø (0-30HP) DUPLEX PUMP STATION W/ GENERATOR LIGHTNING PROTECTION, BONDING & GROUNDING PLAN

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# GENERAL NOTES

- 1.) ALL CONDUIT PENETRATIONS INTO THE TOP OR SIDES OF THE ENCLOSURE ARE REQUIRED TO BE MADE USING MYERS HUBS.
- 2.) ALL CONDUIT PENETRATIONS INTO ELECTRICAL EQUIPMENT SHALL BE INSTALLED ALONG BOTTOM OF EACH ENCLOSURE.

30' HIGH ALUMINUM MAST  
8 FOOT SECTIONS OF ALUMINUM TUBING.  
SIZED 2", 1.75", AND 1.5" OD. WITH  
1/4" WALL THICKNESS



PROVIDE SHOP DRAWINGS FROM A FLORIDA REGISTERED PROFESSIONAL ENGINEER CERTIFYING THAT THE ALUMINUM POST FOUNDATION AND RACK MEET CURRENT FLORIDA BUILDING CODE AND WIND LOAD REQUIREMENTS.

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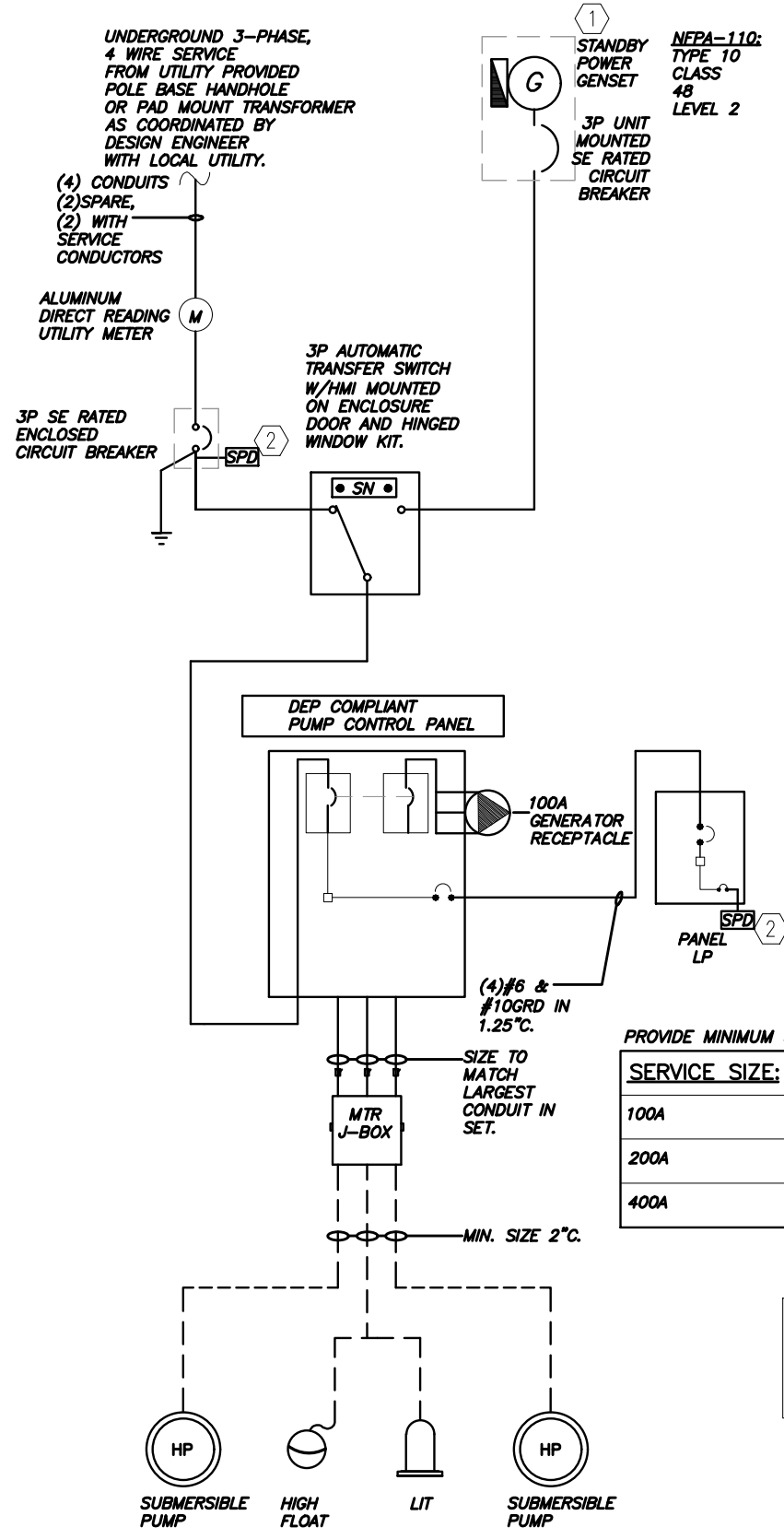
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LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS  
STANDARD 240V-3Ø (0-30HP) DUPLEX PUMP STATION W/ GENERATOR ELECTRICAL EQUIPMENT RACK ELEVATION

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FERNANDO E. FUENTES JR. P.E. #86514



**GENERAL NOTES:**

- 1.) MINIMUM EQUIPMENT AIC RATINGS:  
240V SERVICE 35,000AIC  
480V SERVICE 65,000AIC  
EQUIPMENT AIC RATINGS SHOWN TO ESTABLISH MINIMUM ACCEPTABLE RATING. DESIGNER TO COORDINATE REQUIRED AIC RATINGS WITH SITE SPECIFIC ELECTRICAL SERVICE CHARACTERISTICS AND IN NO CASE LOWER THEN ESTABLISHED MINIMUMS.
- 2.) THIS PLAN DOES NOT INDICATE ALL CONDUIT & WIRE REQUIRED; SEE ADDITIONAL REQUIREMENTS ON ELEMENTARY & PLAN DRAWINGS.

**KEYNOTES**

- 1.) DO NOT GROUND GENERATOR NEUTRAL AT GENSET. PROVIDE NEUTRAL CONDUCTOR FROM GENSET TO MAIN SERVICE ENTRANCE DISCONNECT NEUTRAL BUS.
- 2.) CUTLER HAMMER CVX100-240H 100kA SURGE SUPPRESSOR OR EQUAL. MOUNT WITH INDICATOR LIGHTS VISIBLE TO OPERATOR WHILE FACING BREAKER.

PROVIDE MINIMUM SERVICES UTILITY SIZES AS FOLLOWS:

SERVICE SIZE:	CONDUIT SIZE:	CONDUCTOR SIZE:	GROUND SIZE:
100A	(1)2"	(4)#3	(1)#8
200A	(1)2.5"	(4)#3/0	(1)#3
400A	(2)2.5"	(4)#3/0 IN EACH	(1)#3 IN EACH

GENERIC SINGLE LINE DRAWING- REVISE ACCORDINGLY TO PROVIDE SITE SPECIFIC DETAILS INCLUDING UTILITY COORDINATION, SERVICE SIZE AND GENERATOR SIZE. SIZE SERVICE, GENERATOR, CONDUIT AND WIRE PER SITE SPECIFIC WELL HORSEPOWER.

**ELECTRICAL RISER DIAGRAM (240V 3-PHASE)**

N.T.S.

PANEL: LP	BUS: 100A, 60A MCB	VOLTAGE: 120/240V, 3P, 4W		
MOUNTING: WALL MOUNT	POLES: 18	35,000AIC MIN		
LOCATION: EQUIPMENT RACK	NEMA 4X SS ENCLOSURE			
CIR. NO.	DESCRIPTION	TRIP	POLES	REMARKS
1	GENERATOR BATTERY CHARGER	20	1	
2	GENERATOR STRIP HEATER	20	1	
3	GENERATOR WATER HEATER	20	1	
4	DATA COLLECTOR HUB (AMI)	20	1	
5	SPARE	20	1	
6	SPARE	20	1	
7	SPARE	20	1	
8	SPARE	20	1	
9-17	SPACE	20	1	
10-12	SPACE	20	1	
14,16,18	SURGE SUPPRESSION	30	1	

PROVIDE PANEL WITH 35KAIC RATING.  
PROVIDE PANEL WITH EXTERNAL CUTLER HAMMER CVX100 SERIES SPD  
COORDINATE PANEL WITH POSSIBLE HIGH LEG OPEN DELTA ELECTRIC SERVICE.

**PANEL SCHEDULE**

N.T.S.

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CHECKED BY: F.E.F.JR.  
CAD FILE: E-7.dwg

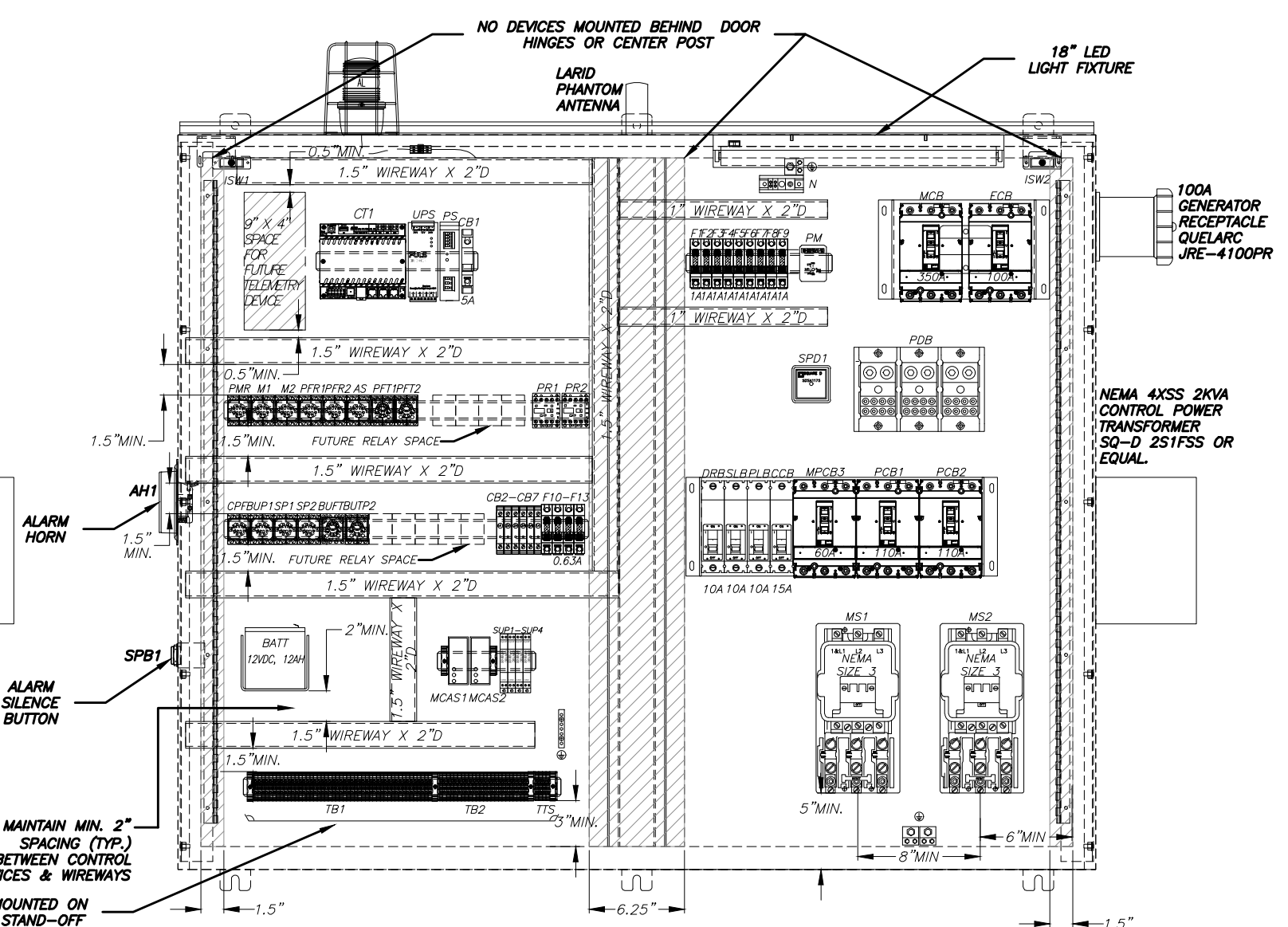
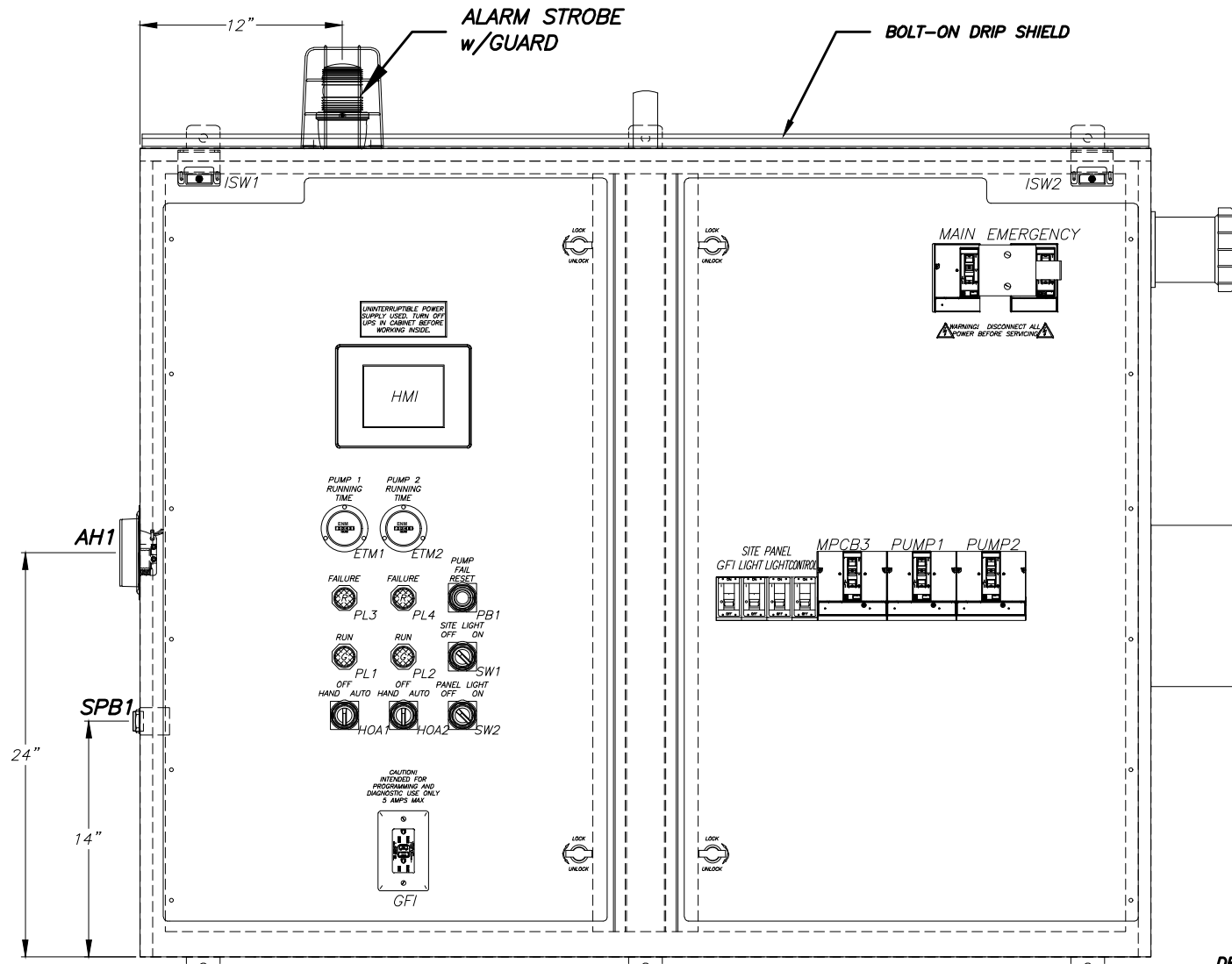


LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS  
STANDARD 240V-3Ø (0-30HP) DUPLEX PUMP STATION W/ GENERATOR ELECTRICAL RISER DIAGRAM & PANEL SCHEDULE

ISSUED FOR:  
**90% REVIEW**  
DATE: **03/2026**  
SHEET NO.: **E-7**

**CONTROL WIRE COLOR CODE:**

FUNCTION DESCRIPTION	WIRE COLOR	FUNCTION DESCRIPTION	WIRE COLOR	FUNCTION DESCRIPTION	WIRE COLOR	FUNCTION DESCRIPTION	WIRE COLOR	FUNCTION DESCRIPTION	WIRE COLOR
120VAC FEED	BLACK	H-O-A 1 SCADA	BROWN	PUMP 2 RUN SCADA	ORANGE/BLACK	PUMP 3 FAIL SCADA	BLUE/RED	START PUMP 3	BLACK/BLUE
120VAC LOAD	RED	H-O-A 1 COMMON SCADA	BROWN	PUMP 2 RUN COMMON SCADA	ORANGE/BLACK	PUMP 3 FAIL COMMON SCADA	BLUE/RED	START PUMP 3 COMMON	BLACK/BLUE
120VAC NEUTRAL	WHITE	H-O-A 2 SCADA	RED/BLACK	PUMP 3 RUN SCADA	YELLOW/BLACK	CONTROL POWER FAIL SCADA	YELLOW/RED	ALARM RESET	RED/BLUE
PHASE MONITOR FAIL	BLUE	H-O-A 2 COMMON SCADA	RED/BLACK	PUMP 3 RUN COMMON SCADA	YELLOW/BLACK	CONTROL POWER FAIL SCADA COMMON	YELLOW/RED	ALARM RESET COMMON	RED/BLUE
PHASE MONITOR COMMON	BLUE	H-O-A 3 SCADA	YELLOW	PUMP 1 RUN SCADA	BROWN/BLACK	START PUMP 1	ORANGE/RED	ALARM LIGHT HORN	ORANGE/BLUE
24VDC POSITIVE (+)	BLUE	H-O-A 3 COMMON SCADA	YELLOW	PUMP 1 FAIL COMMON SCADA	BROWN/BLACK	START PUMP 1 COMMON	ORANGE/RED	ALARM LIGHT HORN COMMON	ORANGE/BLUE
24VDC NEGATIVE (-)	WHITE/BLUE	PUMP 1 RUN SCADA	BLUE/BLACK	PUMP 2 FAIL SCADA	BLACK/RED	START PUMP 2	BROWN/RED	SCADA HIGH LEVEL FLOAT	YELLOW/BLUE
GROUND	GREEN	PUMP 1 RUN COMMON SCADA	BLUE/BLACK	PUMP 2 FAIL COMMON SCADA	BLACK/RED	START PUMP 2 COMMON	BROWN/RED	SCADA HIGH LEVEL FLOAT COMMON	YELLOW/BLUE



**ENCLOSURE:**  
 MIN. SPN4DSS-486016 (48"H x 60"W x 16"D) NEMA 4X RATED, WITH BOLT-ON DRIP SHIELD AND REMOVABLE CENTER POST. FABRICATED FROM TYPE 304 STAINLESS STEEL, WITH POWDER COATED WHITE FINISH. OUTER DOORS HAVE 3-POINT PAD-LOCKABLE HANDLES, AND 90° STOPS.

**BACK PANEL:**  
 SPPD-6048 (45"H x 57"W) FABRICATED FROM 12ga. CARBON STEEL PAINTED WHITE.

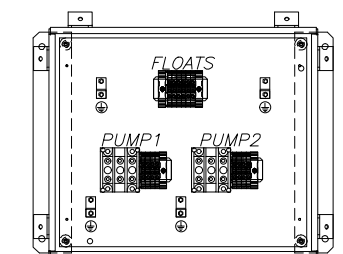
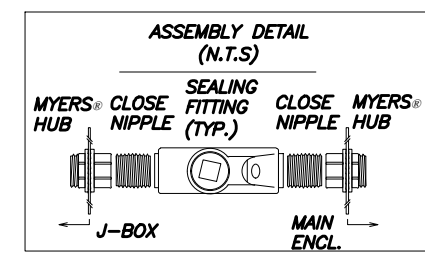
**INNER DOOR:**  
 (2) HID-4830 FABRICATED FROM .125 BLACK ENGRAVED ALUMINUM.

**INNER DOOR LAYOUT**  
 (OUTER DOOR REMOVED FOR CLARITY)

**BACK PANEL LAYOUT**

**NOTES:**

1. TERMINAL ON CONTROL CIRCUIT TERMINAL STRIP
2. TERMINAL ON POWER DISTRIBUTION BLOCK
3. NEUTRAL AND GROUND LUGS
4. FIELD WIRING (EXTERNAL TO CONTROL PANEL)
5. PANEL WIRING
6. SEAL ALL CONDUITS ENTERING CONTROL PANEL
7. CONTROL PANEL IS UL508A LABELED
8. INSTALL IN ACCORDANCE WITH ARTICLE 504 OF THE N.E.C.
9. MINIMUM #14 AWG WIRE AT 600V
10. MAINTAIN MIN. 2" SPACE BETWEEN CONTROL DEVICES & WIREWAYS
11. MAINTAIN MAX. 6" EXTRA LENGTH ON CONTROL WIRES



**JUNCTION BOX ENCLOSURE:**  
 SPJH4SS-1412B (14"H x 12"W x 8"D) NEMA 4X RATED, JIC TYPE, FABRICATED FROM TYPE 304 STAINLESS STEEL, POLISHED FINISH. OUTER DOOR HAS JIC CLAMPS.

**BACK PANEL:**  
 SPPJ-1412 (12.88"H x 10.88"W) FABRICATED FROM 12ga. CARBON STEEL PAINTED WHITE.

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 CAD FILE: E-8.dwg

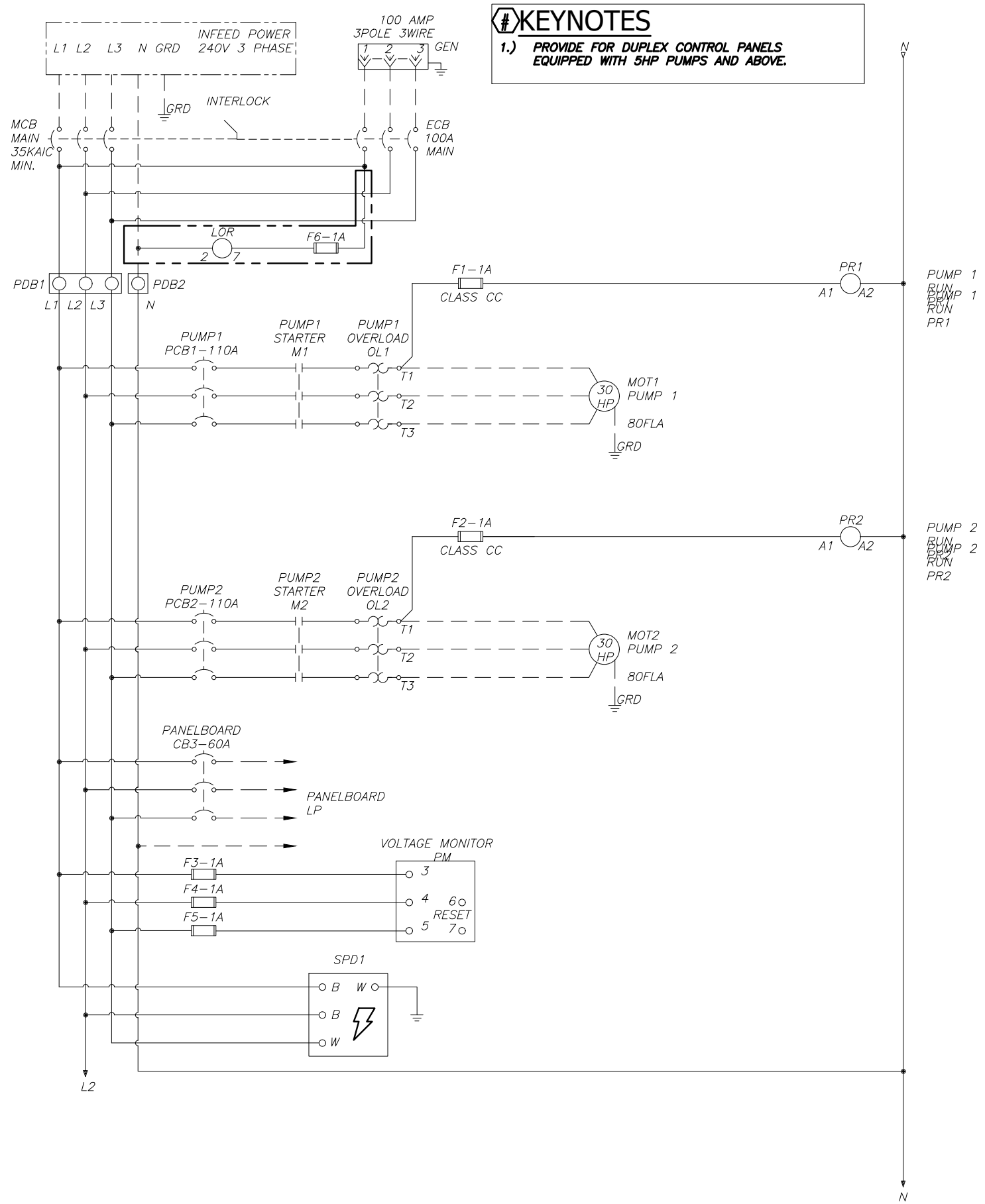


ISSUED FOR:  
**LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS**  
 STANDARD 240V-3Ø (0-30HP) DUPLEX PUMP STATION W/ GENERATOR CONTROL PANEL ELEVATION

90% REVIEW  
 DATE: 03/2026  
 SHEET NO.: E-8

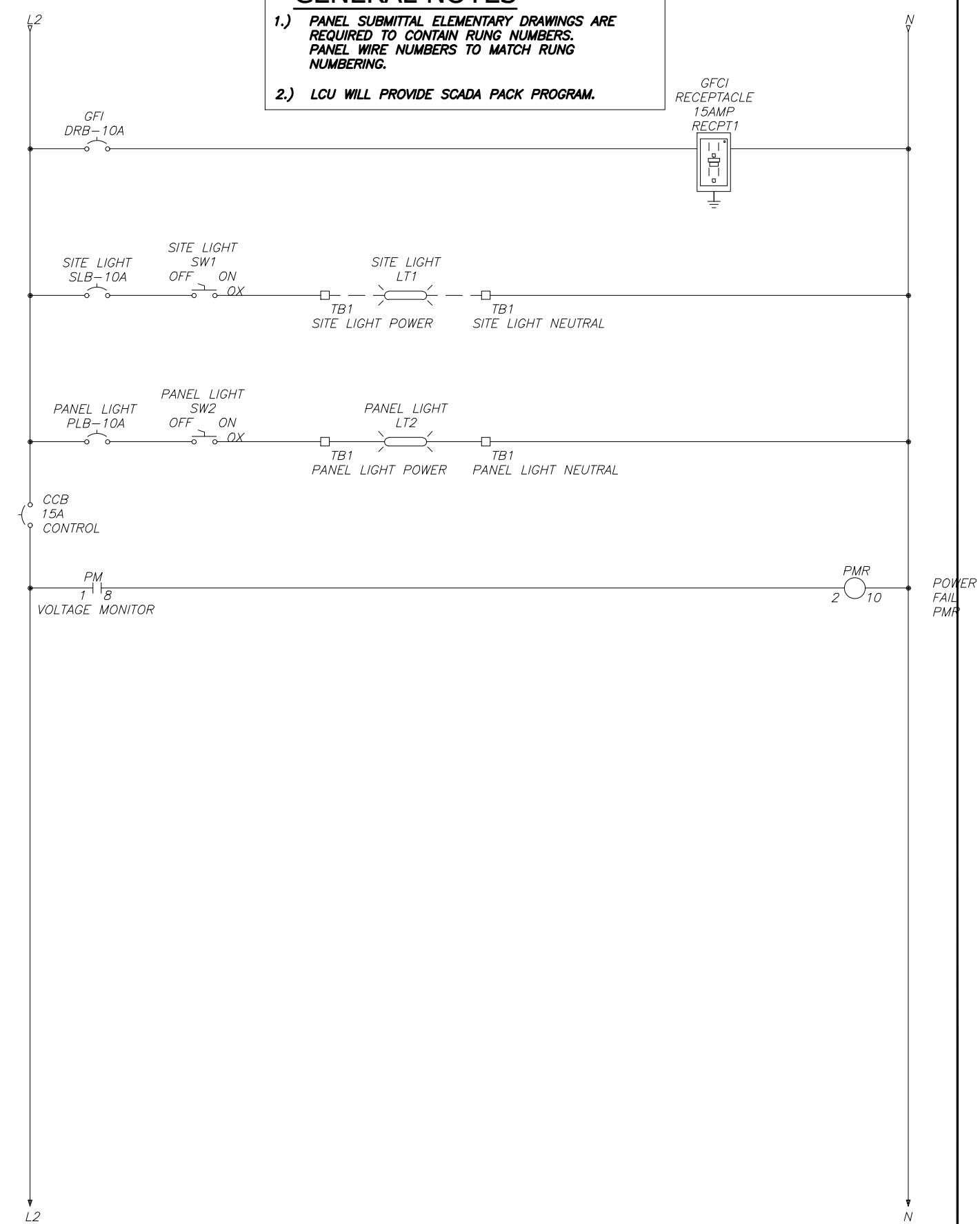
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**KEYNOTES**  
 1.) PROVIDE FOR DUPLEX CONTROL PANELS EQUIPPED WITH 5HP PUMPS AND ABOVE.

**GENERAL NOTES**  
 1.) PANEL SUBMITTAL ELEMENTARY DRAWINGS ARE REQUIRED TO CONTAIN RUNG NUMBERS. PANEL WIRE NUMBERS TO MATCH RUNG NUMBERING.  
 2.) LCU WILL PROVIDE SCADA PACK PROGRAM.



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 CHECKED BY: F.E.F.JR.  
 CAD FILE: E-9.dwg

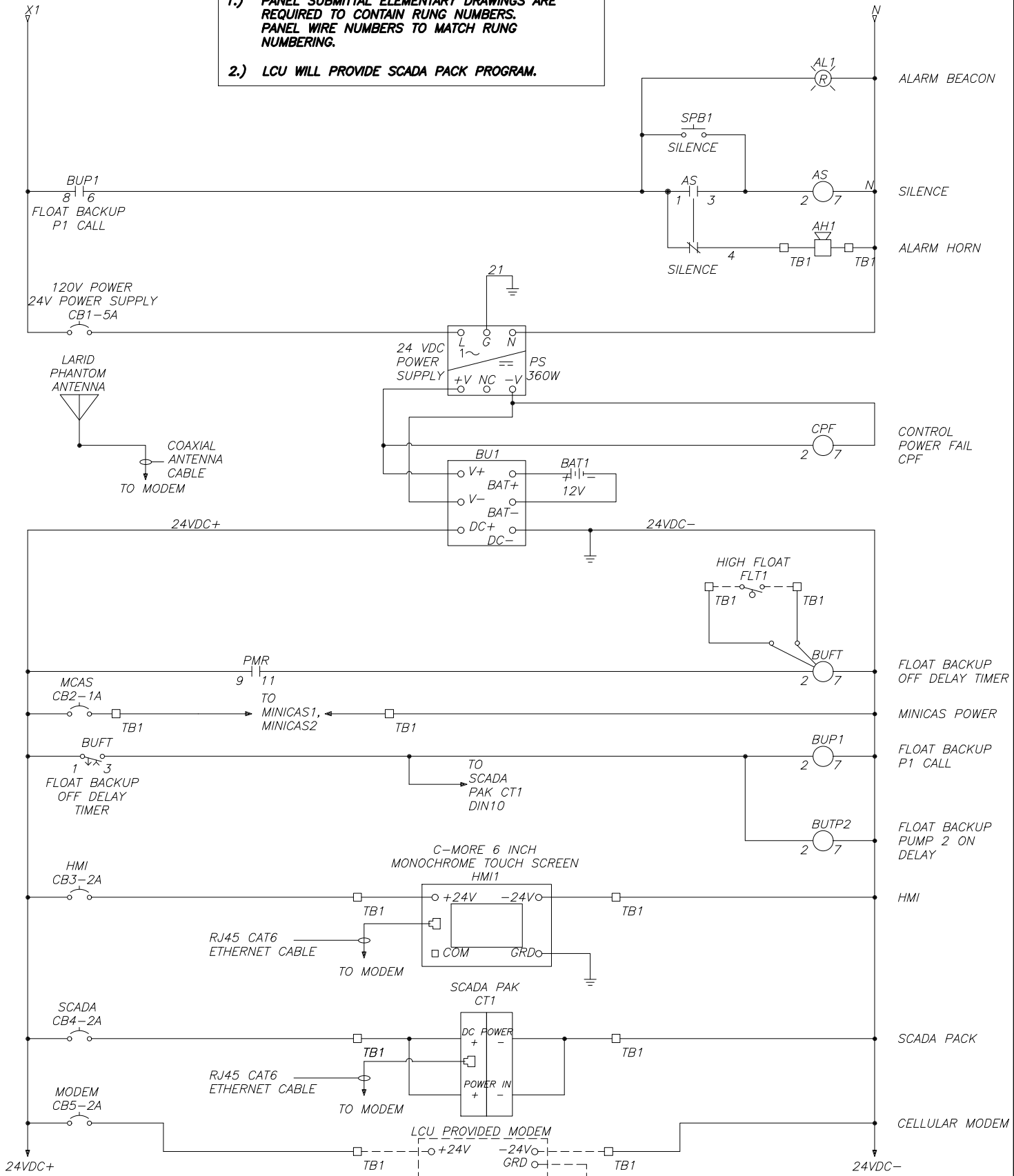
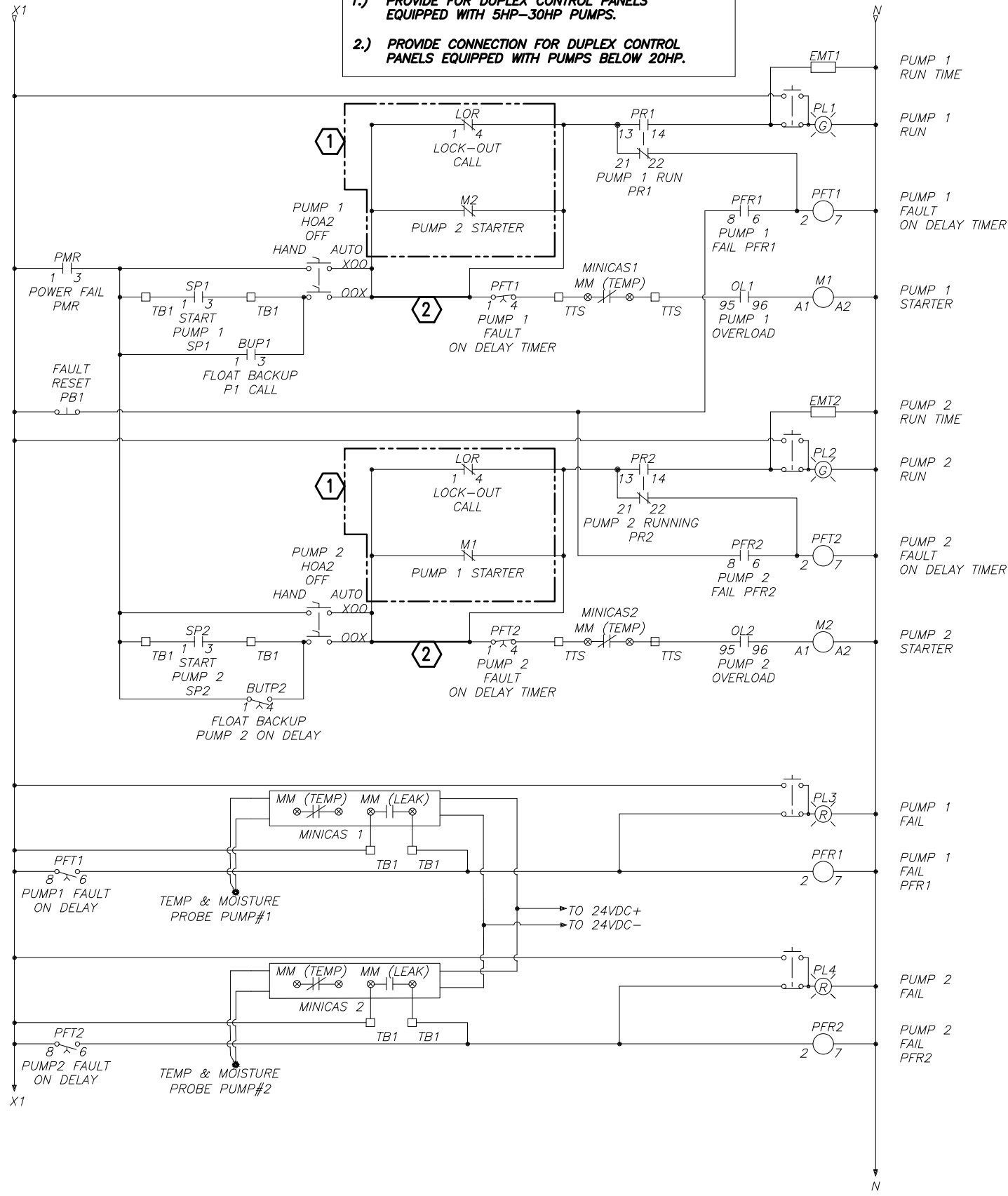


LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS  
 STANDARD 240V-3Ø (0-30HP) DUPLEX PUMP STATION W/ GENERATOR CONTROL PANEL ELEMENTARY

ISSUED FOR:  
**90% REVIEW**  
 DATE: **03/2026**  
 SHEET NO.: **E-9**

- ### KEYNOTES
- 1.) PROVIDE FOR DUPLEX CONTROL PANELS EQUIPPED WITH 5HP-30HP PUMPS.
  - 2.) PROVIDE CONNECTION FOR DUPLEX CONTROL PANELS EQUIPPED WITH PUMPS BELOW 20HP.

- ### GENERAL NOTES
- 1.) PANEL SUBMITTAL ELEMENTARY DRAWINGS ARE REQUIRED TO CONTAIN RUNG NUMBERS. PANEL WIRE NUMBERS TO MATCH RUNG NUMBERING.
  - 2.) LCU WILL PROVIDE SCADA PACK PROGRAM.



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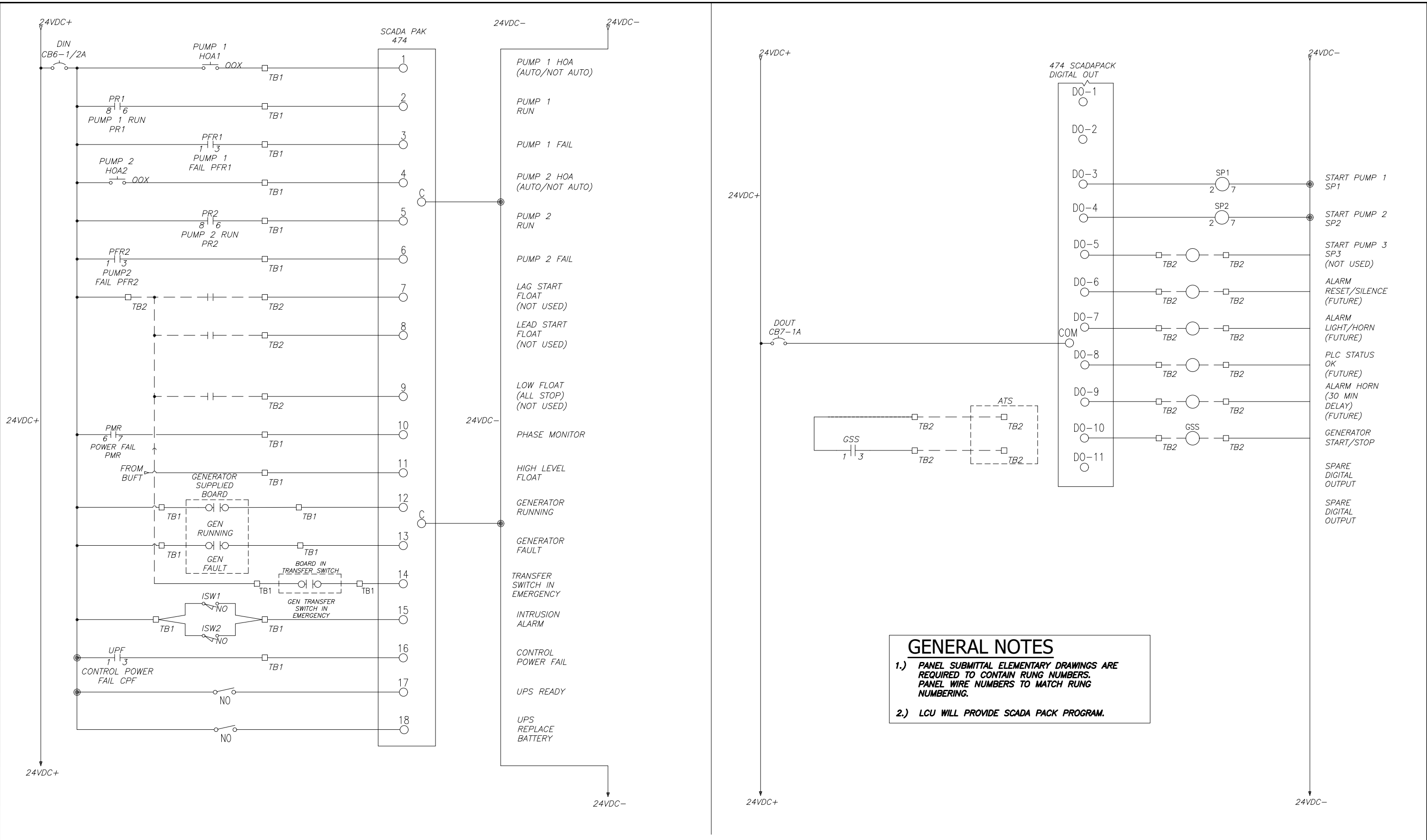
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 CAD FILE: E-10.dwg



LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS  
 STANDARD 240V-3Ø (0-30HP) DUPLEX PUMP STATION W/ GENERATOR CONTROL PANEL ELEMENTARY

ISSUED FOR:  
**90% REVIEW**  
 DATE: **03/2026**  
 SHEET NO.: **E-10**



**GENERAL NOTES**

- 1.) PANEL SUBMITTAL ELEMENTARY DRAWINGS ARE REQUIRED TO CONTAIN RUNG NUMBERS. PANEL WIRE NUMBERS TO MATCH RUNG NUMBERING.
- 2.) LCU WILL PROVIDE SCADA PACK PROGRAM.

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 CHECKED BY: F.E.F.JR.  
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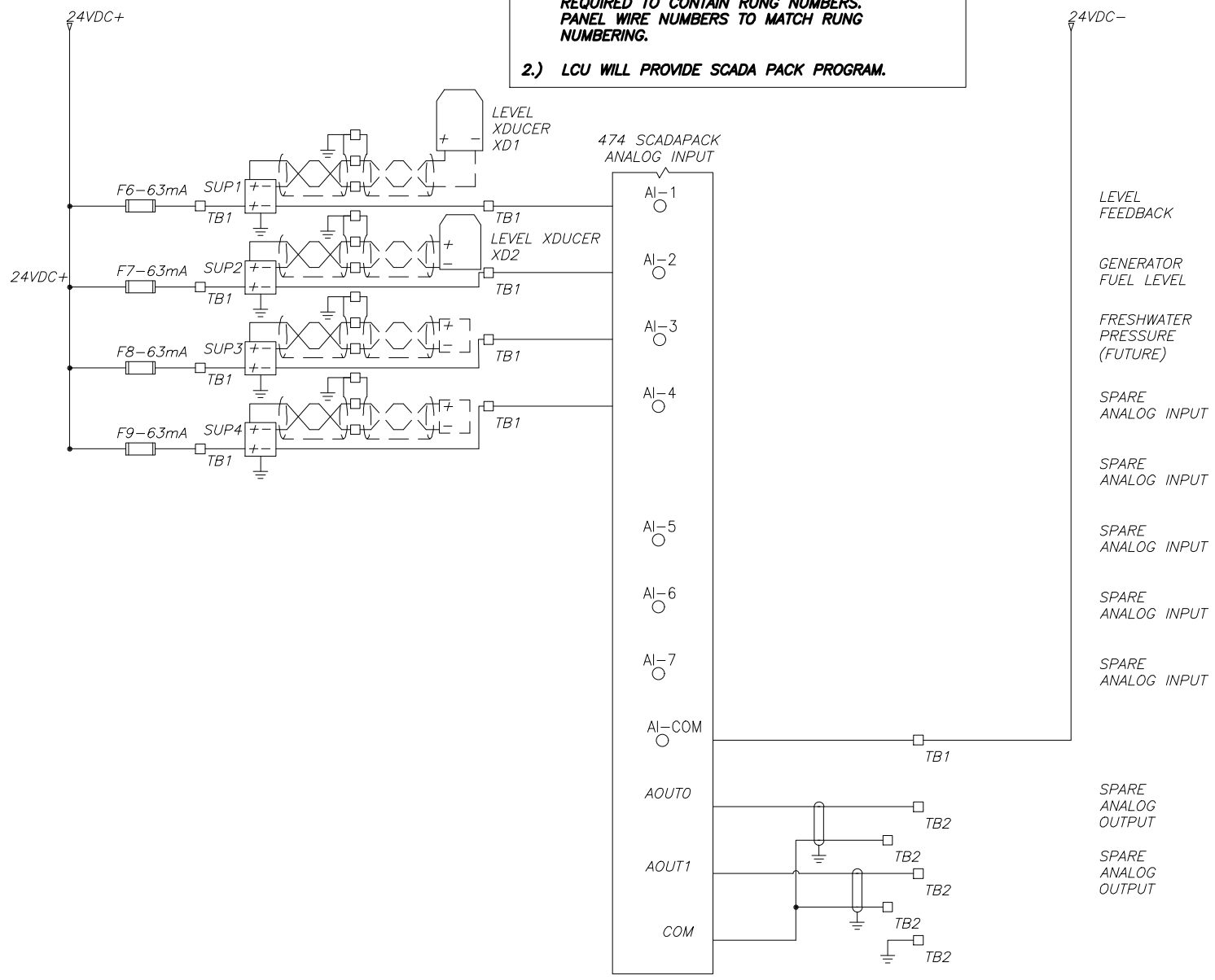


LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS  
 STANDARD 240V-3Ø (0-30HP) DUPLEX PUMP STATION W/ GENERATOR CONTROL PANEL ELEMENTARY

ISSUED FOR:  
**90% REVIEW**  
 DATE: **03/2026**  
 SHEET NO.: **E-11**

## GENERAL NOTES

- 1.) PANEL SUBMITTAL ELEMENTARY DRAWINGS ARE REQUIRED TO CONTAIN RUNG NUMBERS. PANEL WIRE NUMBERS TO MATCH RUNG NUMBERING.
- 2.) LCU WILL PROVIDE SCADA PACK PROGRAM.



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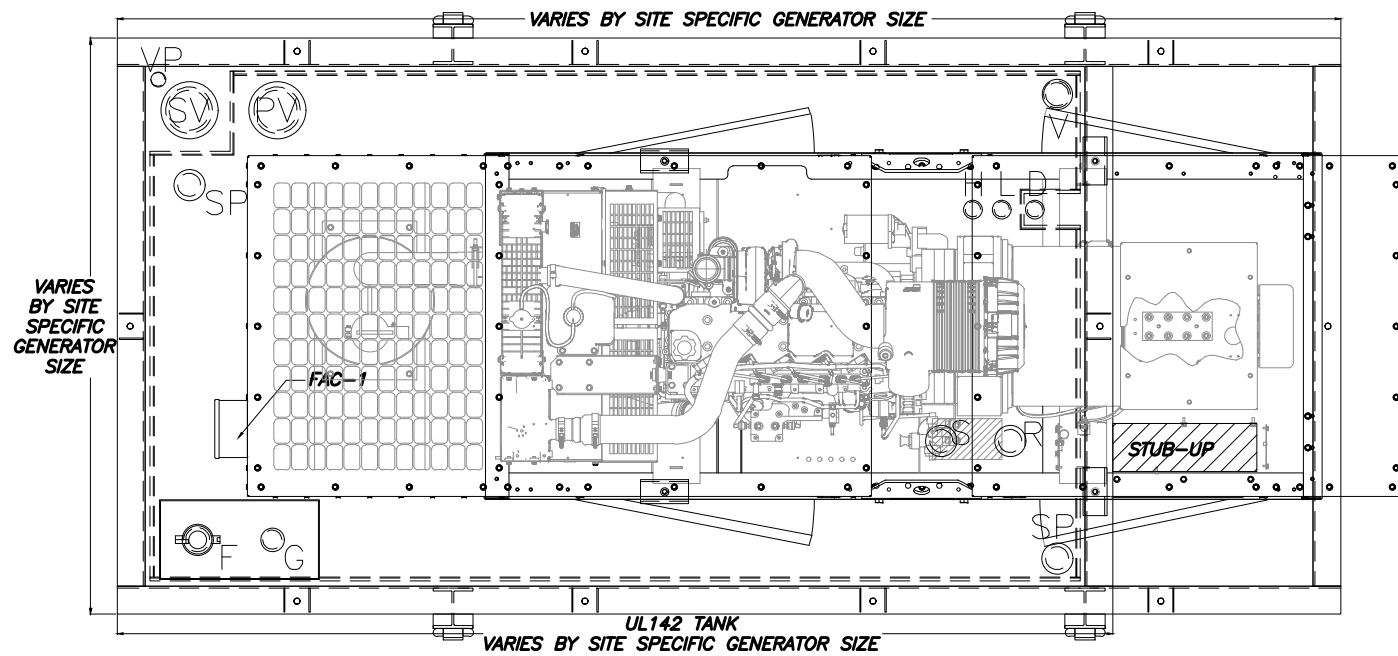
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**LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS**

**STANDARD 240V-3Ø (0-30HP) DUPLEX PUMP STATION W/GENERATOR CONTROL PANEL ELEMENTARY**

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SHEET NO.:	<b>E-12</b>

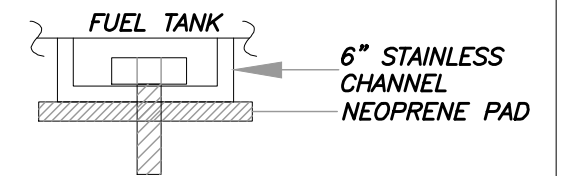


**TANK FITTING LEGEND**

- F - FUEL FILL
- FP - FUEL FILL PANEL
- G - MECH. FUEL GAUGE
- D - LEAK DETECTOR
- S - FUEL SUPPLY
- R - FUEL RETURN
- V - MAIN VENT
- SV - SECONDARY EMERGENCY VENT
- PV - PRIMARY EMERGENCY VENT
- H - HIGH FUEL LEVEL SENSOR
- L - LOW FUEL LEVEL SENSOR
- SP - SPARE
- VP - SECONDARY VACUUM PORT
- SS - 4-20ma ULTRASONIC SENSOR

**GENERAL SHEET NOTES**

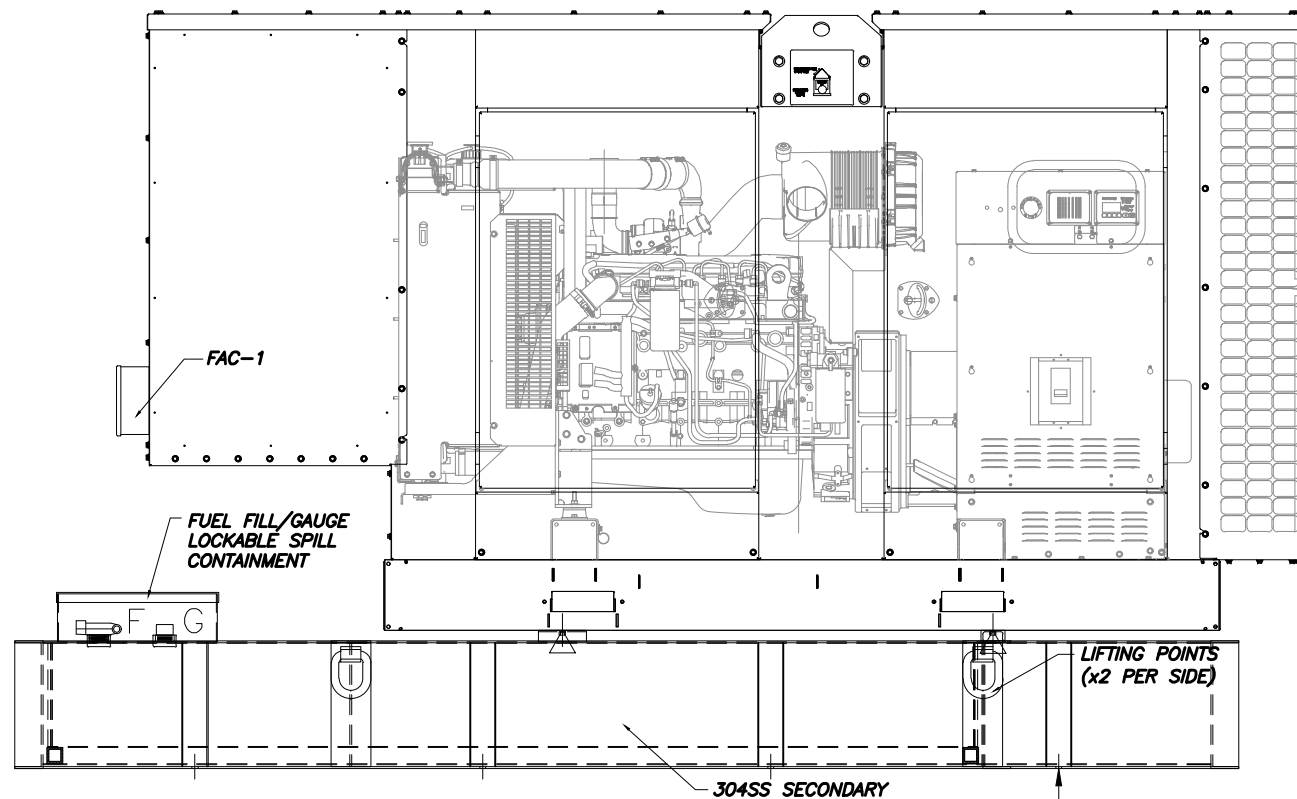
- 1.) ALL FITTINGS TO BE S.S. THREADED PIPE. (UNLESS OTHERWISE NOTED)
- 2.) EXTERIOR FINISH: COMM. WHITE METAL SANDBLAST, 12 TO 15 MIL INTERMEDIATE GLASS FLAKE EPOXY COAT & 2 TO 3 MIL POLYURETHANE TOP COAT
- 3.) TANK SHALL BE PROVIDED WITH 6" WIDE X 3/8" THICK; FULL LENGTH NEOPRENE PADS FOR EACH TANK SUPPORT FOOT.
- 4.) APPROXIMATE TANK VOLUME: SIZE FOR 48 HOUR FULLY LOADED RUN TIME.
- 5.) TANK CONSTRUCTION: STAINLESS STEEL OUTER SHELL; RATED UL-142 DOUBLE CONTAINMENT
- 6.) ENCLOSURE SOUND ATTENUATION LEVEL: MINIMUM -35DBA



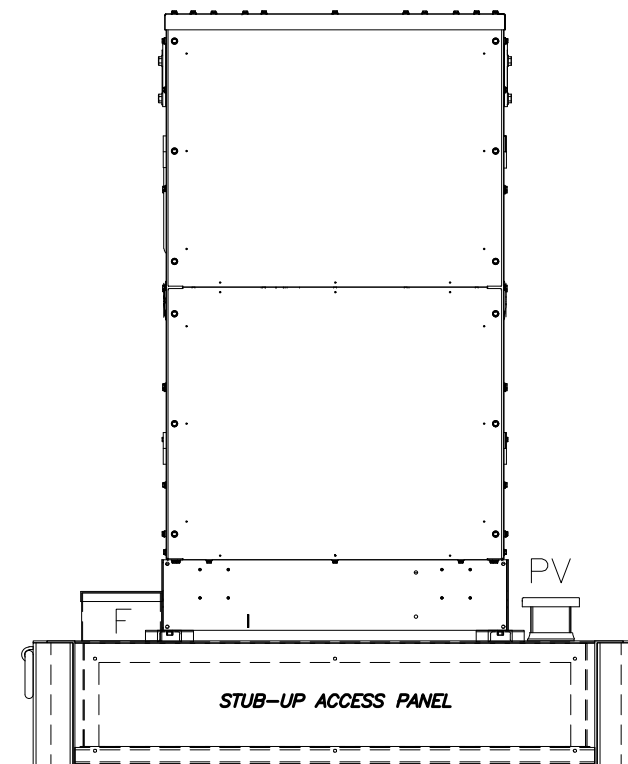
**CHANNEL MOUNTING DETAIL**

ACOUSTIC RATING: THE ENCLOSURE TO BE LINED WITH ACOUSTIC SOUND FOAM TO ACHIEVE 55 dbA @ 21 FT.

NOTE: WALK-IN ENCLOSURE MAY BE REQUIRED DEPENDING ON THE UNITS PROXIMITY TO PROPERTY LINE AND RESIDENCIES.



**GENERATOR SIDE VIEW**



**GENERATOR INTAKE END VIEW**

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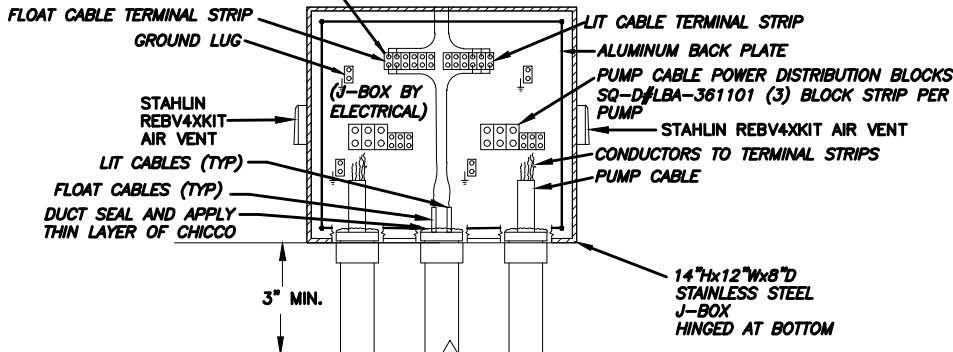
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CAD FILE: E-13.dwg



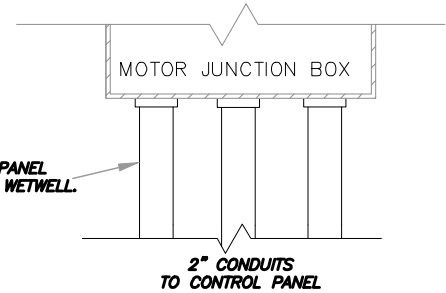
LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARDS  
 GENERATOR LAYOUT & DETAILS

ISSUED FOR:  
**90% REVIEW**  
 DATE:  
**03/2026**  
 SHEET NO. :  
**E-13**

IDEAL TERMINAL STRIPS #ITB-300 RATED AT 30A. REPLACE ALL SCREWS W/ STAINLESS STEEL SCREWS.

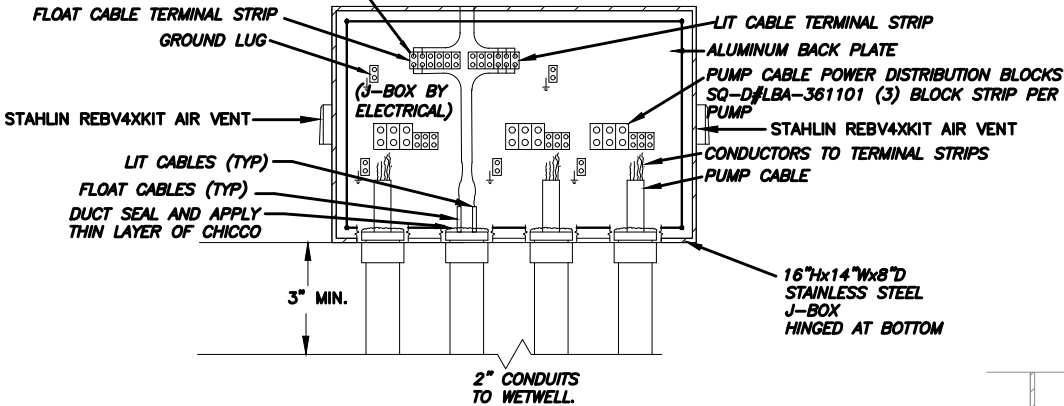


DUPLEX JUNCTION BOX  
N.T.S.

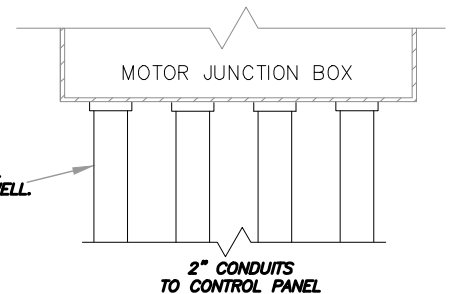


DUPLEX JUNCTION BOX AND TERMINAL STRIP INSTALLATION DETAIL  
N.T.S.

IDEAL TERMINAL STRIPS #ITB-300 RATED AT 30A. REPLACE ALL SCREWS W/ STAINLESS STEEL SCREWS.



TRIPLEX JUNCTION BOX  
N.T.S.



TRIPLEX JUNCTION BOX AND TERMINAL STRIP INSTALLATION DETAIL  
N.T.S.

DATE: MARCH 2026



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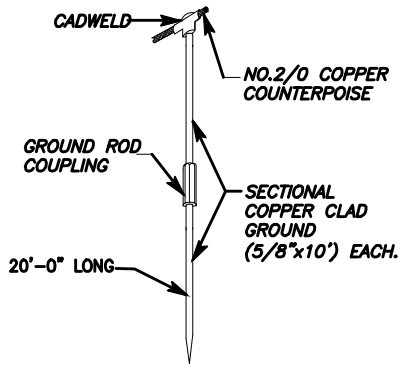


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FERNANDO E. FUENTES JR. P.E. #86514

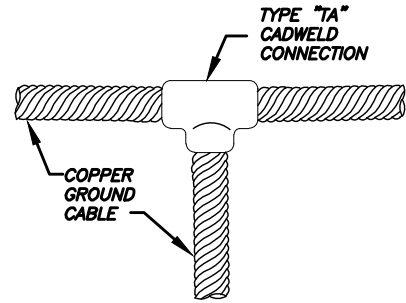
LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARD

JUNCTION BOX & TERMINAL STRIP INSTALLATION AT CONTROL PANEL LOCATION

ES-1

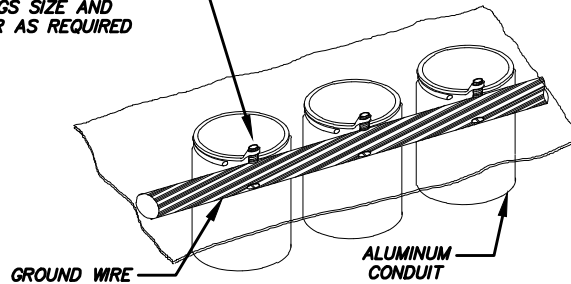


**TYPICAL GROUND ROD CONNECTION DETAIL**  
N.T.S



**GROUND CABLE CONNECTION**  
N.T.S

CONDUIT SHALL BE GROUNDED WITH INSULATED GROUNDING BUSHINGS SIZE AND NUMBER AS REQUIRED



**PANEL CONDUIT GROUNDING DETAIL**  
N.T.S

DATE: MARCH 2026

LEE COUNTY UTILITIES WASTEWATER  
PUMP STATION STANDARD

GROUNDING DETAILS

ES-2



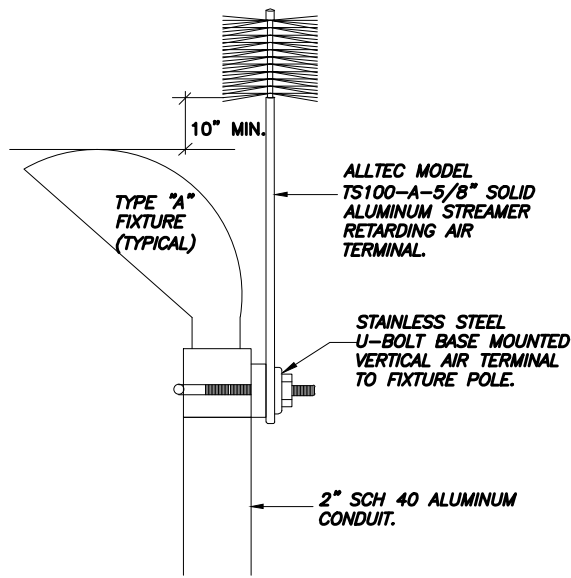
ELECTRICAL\*INSTRUMENTATION\*CONTROL DESIGN

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Date: \_\_\_\_\_

FERNANDO E. FUENTES JR. P.E. #886514





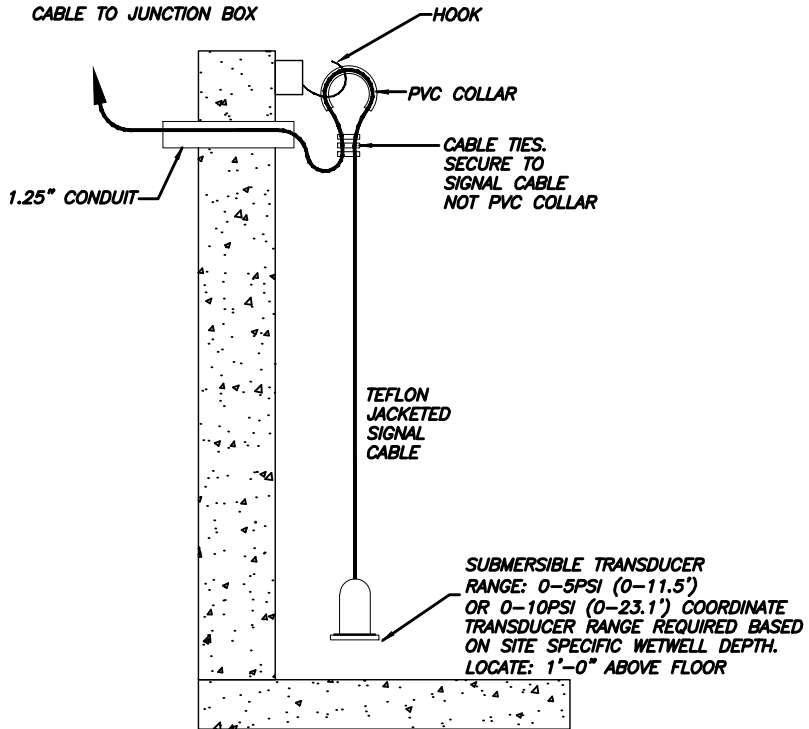
DATE: MARCH 2026

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Date: \_\_\_\_\_  
 FERNANDO E. FUENTES JR. P.E. #88514



LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARD	
STREAMER RETARDING AIR TERMINAL FIXTURE POLE MOUNTED	ES-3



DATE: MARCH 2026

LEE COUNTY UTILITIES WASTEWATER  
 PUMP STATION STANDARD

LEVEL TRANSMITTER  
 DETAIL

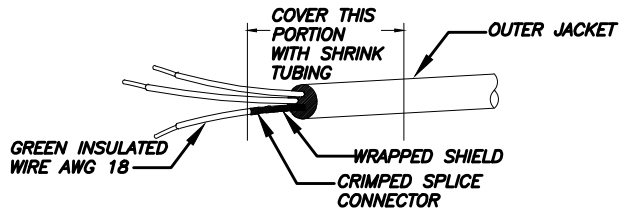
ES-4

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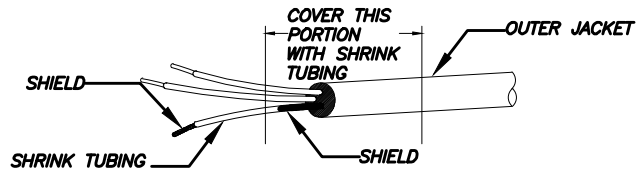
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FERNANDO E. FUENTES JR. P.E. #886514

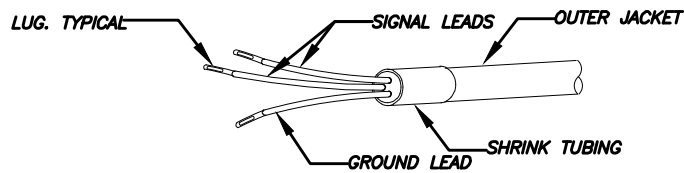




DIGITAL SIGNAL CABLE STRIPPING



ANALOG SIGNAL CABLE STRIPPING



NOTE: SHIELD GROUNDED AT TERMINATION

SIGNAL CABLE SHRINK TUBING

DATE: MARCH 2026

LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARD

TERMINATION OF SHIELDED INSTRUMENT CONTROL CABLE DETAIL

ES-5

**RIC CONSULTING ENGINEERS**

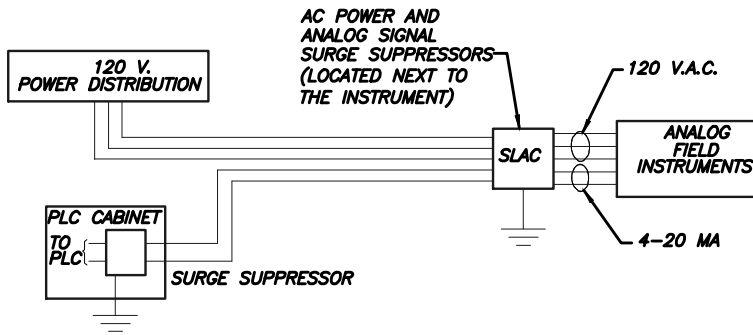
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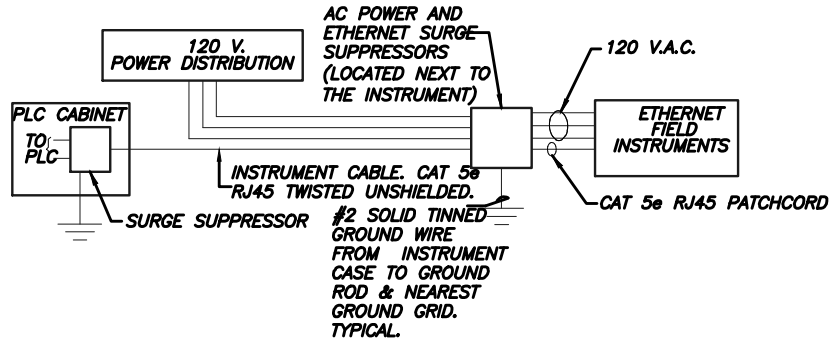
Date: \_\_\_\_\_

FERNANDO E. FUENTES JR. P.E. #86514

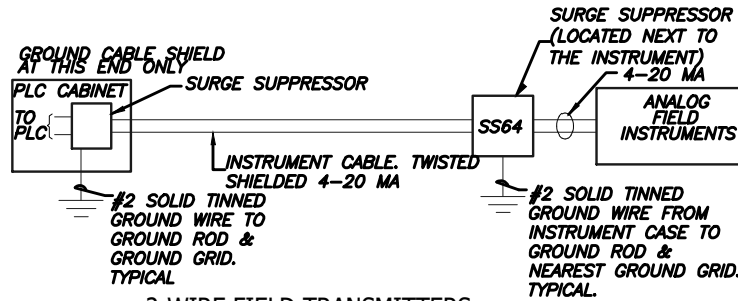




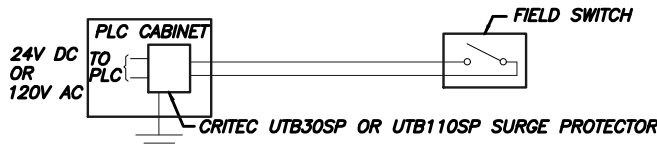
**4-WIRE FIELD TRANSMITTERS**  
N.T.S.



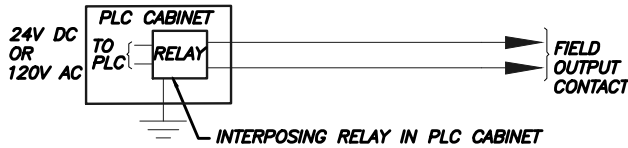
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N.T.S.



**2-WIRE FIELD TRANSMITTERS**  
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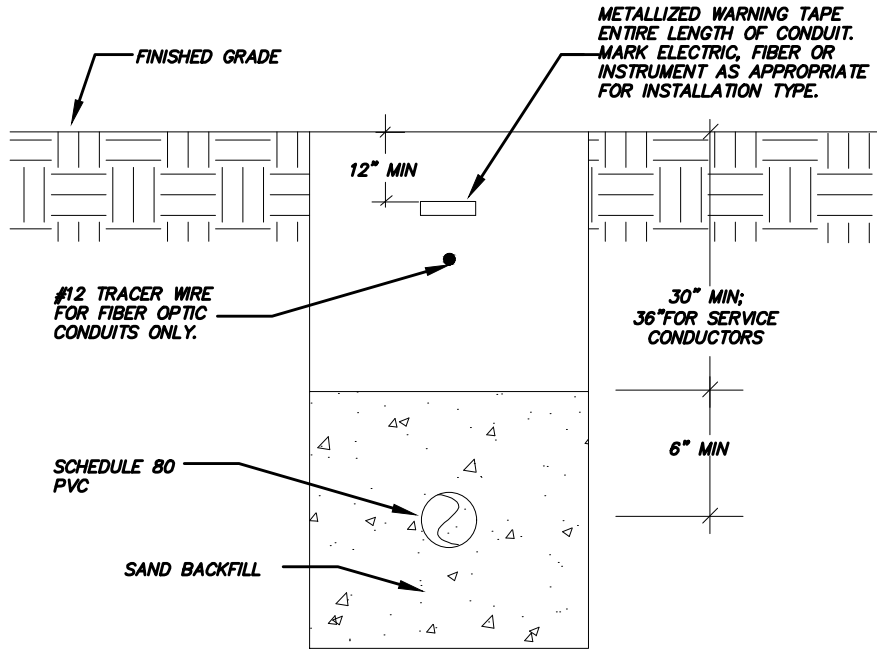


**DISCRETE PLC/INPUT CIRCUIT**  
N.T.S.



**DISCRETE PLC/OUTPUT CIRCUIT**  
N.T.S.

DATE: MARCH 2026



DATE: MARCH 2026

LEE COUNTY UTILITIES WASTEWATER  
PUMP STATION STANDARD

UNDERGROUND CONDUIT  
INSTALLATION DETAIL

ES-7

**RIS CONSULTING ENGINEERS**

ELECTRICAL\*INSTRUMENTATION\*CONTROL DESIGN

12651 McGregor Blvd. | Unit 4-402

Fort Myers, FL 33919 | 239.481.6775

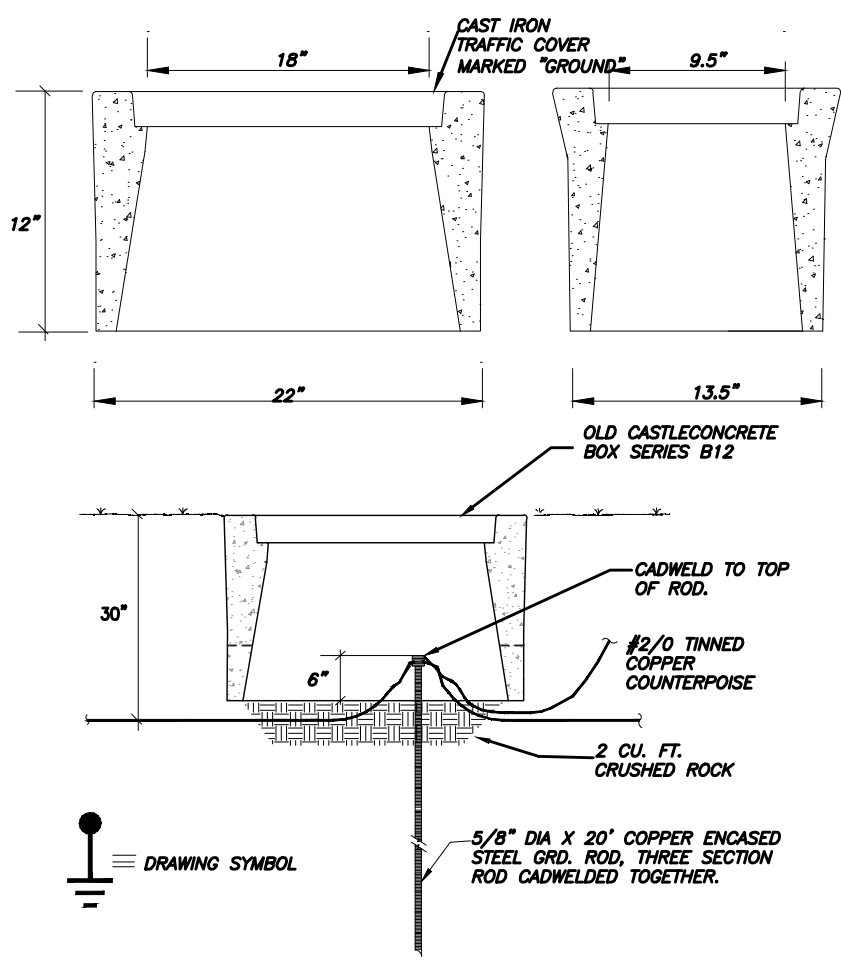
Certificate of Authorization #8212

Date: \_\_\_\_\_

FERNANDO E. FUENTES JR. P.E. #886514



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DATE: MARCH 2026

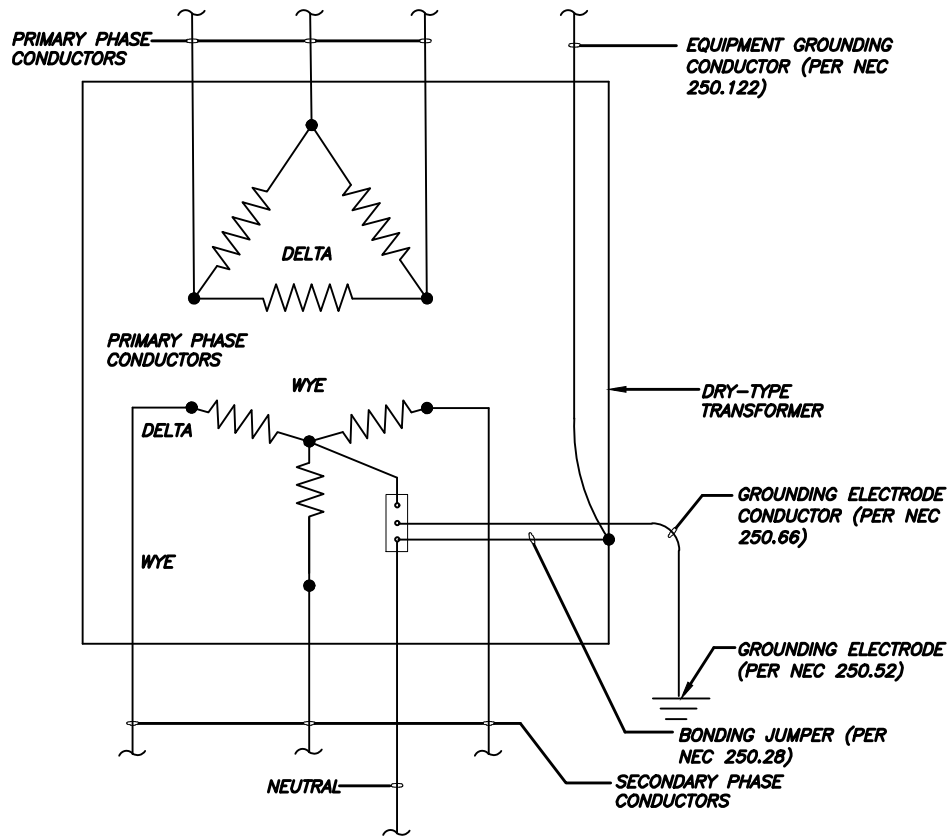
**RIS CONSULTING ENGINEERS**  
 ELECTRICAL\*INSTRUMENTATION\*CONTROL DESIGN  
 12651 McGregor Blvd. | Unit 4-402  
 Fort Myers, FL 33919 | 239.481.6775  
 Certificate of Authorization #8212

Date: \_\_\_\_\_  
 FERNANDO E. FUENTES JR. P.E. #86514



LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARD	
GROUND ROD INSTALLATION DETAIL	ES-8

K:\LCU Wastewater PS Standards Update\Duplex W Gen\DETAILS\ES-9.dwg Plotted: Mar 03, 2026 - 1:06pm by fernando



DATE: MARCH 2026

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 ELECTRICAL\*INSTRUMENTATION\*CONTROL DESIGN  
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Date: \_\_\_\_\_  
 FERNANDO E. FUENTES JR. P.E. #86514



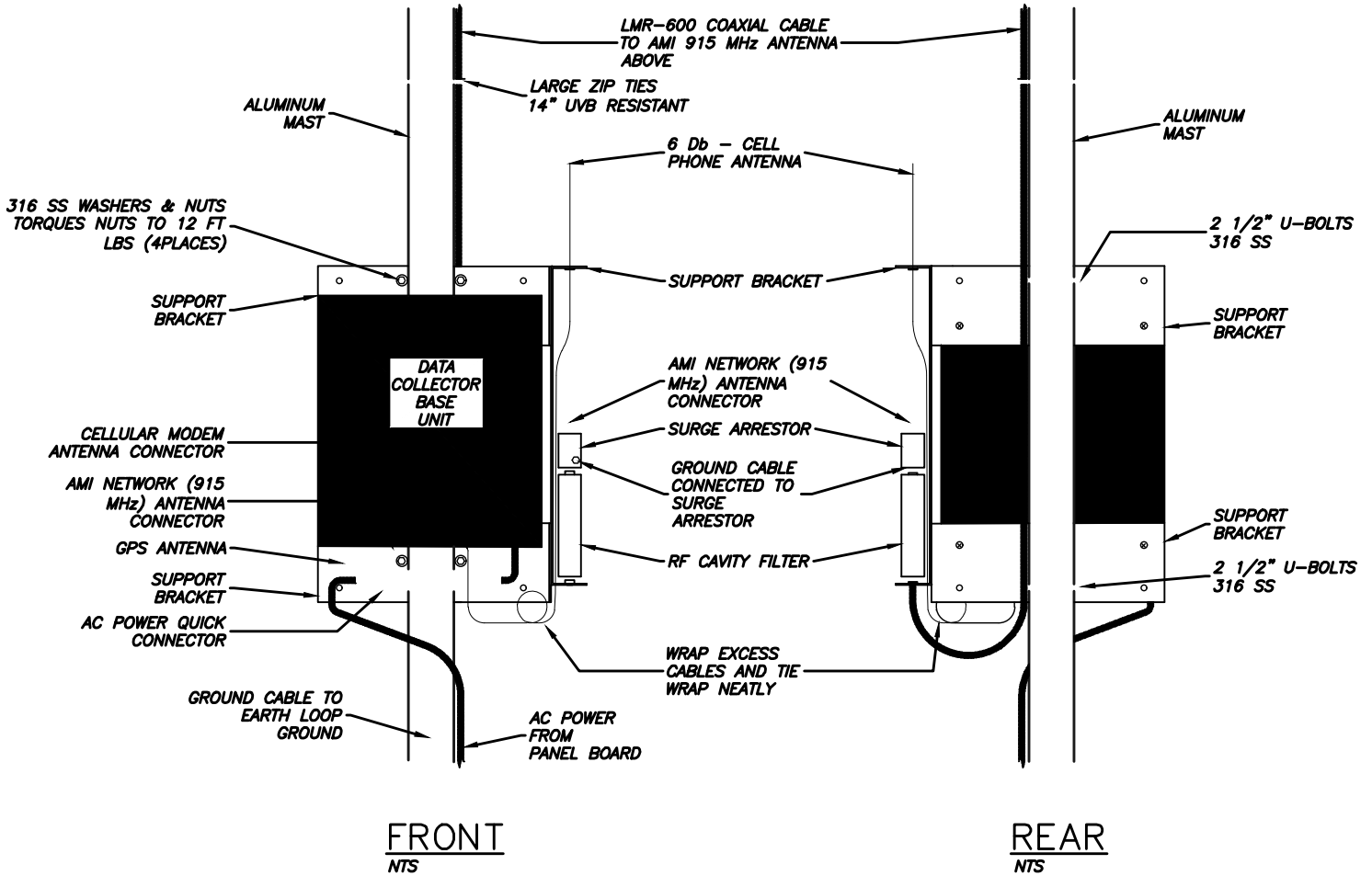
LEE COUNTY UTILITIES WASTEWATER PUMP STATION STANDARD

STEP DOWN XFMR GROUNDING FOR 3PH 3WIRE DELTA PRIMARY, 3PH 4WIRE WYE SECONDARY

ES-9

## GENERAL NOTES

- 1.) ALL CONNECTORS TO BE WRAPPED WITH MASTIC AND TAPE.



DATE: MARCH 2026

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 **Lee County**  
Southwest Florida

LEE COUNTY UTILITIES WASTEWATER  
PUMP STATION STANDARD

DATA COLLECTOR  
INSTALLATION DETAIL "A"

ES-10

Date: \_\_\_\_\_  
FERNANDO E. FUENTES JR. P.E. #86514