

PLAN SYMBOLS

PLAN SYMBOLS (CONTINUED)

CONTROL DIAGRAM SYMBOLS (CONTINUED)

ABBREVIATIONS (CONTINUED)

	HOME RUN TO PANELBOARD. NO. OF ARROWS INDICATE NO. OF CIRCUITS, HASH MARKS INDICATE NO. OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2 #12 CONDUCTORS.
	CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING
	CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.
	CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.
	FLEXIBLE CONDUIT WITH EQUIPMENT CONNECTION.
	CONCRETE ENCASED DUCTBANK.
	CEILING MOUNTED LIGHTING FIXTURE, LETTER INDICATES TYPE (TYPICAL).
	WALL MOUNTED LIGHTING FIXTURE.
	FLUORESCENT LIGHTING FIXTURE, CEILING MOUNTED.
	EXTERIOR LUMINAIRE AND MOUNTING STANDARD.
	EXISTING EXTERIOR LIGHTING
	EMERGENCY BATTERY PACK LIGHTING FIXTURE.
	JUNCTION BOX N.E.C. SURFACE MOUNTED UNLESS INDICATED OTHERWISE.
	JUNCTION BOX PER N.E.C., FLUSH MOUNTED UNLESS INDICATED OTHERWISE.
	FLUSH OR SURFACE MOUNTED LIGHTING PANELBOARD.
	FLUSH OR SURFACE MOUNTED POWER PANELBOARD.
	DRY TYPE TRANSFORMER. NO. INDICATES KVA RATING.
	90A, 208V, 1φ WELDING OUTLET
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR OR 2" ABOVE COUNTER AS REQUIRED.
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH, FLOOR MOUNTED OUTLET BOX.
	20A, 125V, 3W DUPLEX RECEPTACLE, SURFACE MOUNTED.
	DISCONNECT RACK MOUNTED
	HOA/DISCONNECT RACK MOUNTED
	30A, 250V 1φ, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
	SINGLE POLE SWITCH IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED (TYPICAL).
	SINGLE POLE SWITCH, SURFACE MOUNTED.
	THREE-WAY SWITCH IN FLUSH OUTLET BOX.
	MOTOR DUTY, SINGLE PHASE DISCONNECT, NEMA 4X STAINLESS STEEL
	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
	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
	FUSED DISCONNECT SWITCH (30/20: 30=SWITCH RATING, 20=FUSE RATING)
	MOTORIZED VALVE
	COMBINATION MOTOR STARTER
	VARIABLE FREQUENCY DRIVE
	THERMOSTAT
	ELECTRIC HEATER
	FLUSH OUTLET BOX AND TELEPHONE COVER PLATE 48" ABOVE FINISHED FLOOR.
	CONTROL PULLBOX. SEE "PULL BOX DETAIL"
	POWER MANHOLE. SEE "MANHOLE DETAIL"
	TERMINATION CABINET, CLASS 1, DIVISION 2
	EYES FITTING AND CORRESPONDING "CHICO" CEMENT. COMBINATION SHALL BE RATED TO PROVIDE A CLASS 1, DIVISION 2 INSTALLATION.
	MAJOR COMPONENT, X COMPONENT NUMBER
	NAMEPLATE SCHEDULE

	ANALYZING INDICATING TRANSMITTER
	FLOW ELEMENT
	LEVEL SWITCH
	LEVEL ELEMENT
	PRESSURE SWITCH
	ZERO SPEED SWITCH
	SOLENOID VALVE
	LIQUID LEVEL SWITCH
	FLOW SWITCH
	FLOW INDICATING TRANSMITTER
	LEVEL INDICATING TRANSMITTER

SINGLE LINE DIAGRAM SYMBOLS

	COMBINATION MOTOR STARTER
	VOLTMETER
	AMMETER
	THREE PHASE VOLT SWITCH
	THREE PHASE AMP SWITCH
	GROUND FAULT INTERRUPTER
	WATT HOUR METER
	FUSE
	CAPACITOR
	DRAW-OUT CIRCUIT BREAKER
	MOLDED CASE CIRCUIT BREAKER
	TYPICAL SELECTOR SWITCH AND CONTROL. SEE ELEMENTARY 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

CONTROL DIAGRAM SYMBOLS

	DUPLEX RECEPTACLE
	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
	LIMIT SWITCH
	TORQUE SWITCH
	PRESSURE SWITCH
	ZERO SPEED SWITCH
	SOLENOID VALVE
	LIQUID LEVEL SWITCH
	VIBRATION SWITCH
	ALARM RELAY
	ALARM TIMER
	CONTROL RELAY
	MOTOR STARTER
	TIMING RELAY
	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
	THREE POSITION MAINTAINED CONTACT SELECTOR SWITCH
	FUSE
	MOLDED CASE CIRCUIT BREAKER
	CONTROL POWER TRANSFORMER
	REMOTE TERMINAL BLOCK POINT
	HORN

ABBREVIATIONS

A	AMPERES
ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CURRENT
AER	AERATOR
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CLB	CURRENT LIMITING BREAKER
CP	CONTROL PANEL
CU	COPPER
DH	DATA HIGHWAY
DISC	DISCONNECT
DO	DIGITAL OUTPUT
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
EFF	EFFLUENT
ELEC	ELECTRICAL
ELR	EMERGENCY LOCK-OUT RELAY
EM	EMERGENCY
ENCL	ENCLOSURE
EP	EXPLOSION PROOF
ESB	ENERGY SAVING BALLAST
ETM	ELAPSED TIME METER
EUH	ELECTRIC UNIT HEATER

EVA	ELECTRIC VALVE ACTUATOR
EXH	EXHAUST
EXIST	EXISTING
F&I	FINISH AND INSTALL
FPL	FLORIDA POWER AND LIGHT
FVNR	FULL VOLTAGE NON-REVERSING
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GND, G	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND-OFF-AUTOMATIC
HOLR	HAND-OFF-LOCAL-REMOTE
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HWY	HIGHWAY
INSTR	INSTRUMENTATION
IPS	INFLUENT PUMP STATION
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LTG	LIGHTING
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MH	METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MSC	MANUFACTURER SUPPLIED CABLE
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
MV	MERCURY VAPOR
NEC	NATIONAL ELECTRIC CODE
NEUT, N	NEUTRAL
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
P	POLE
PC	PHOTOCELL
PCP	PUMP CONTROL PANEL
PE	POWER EQUIPMENT
PM	PHASE MONITOR
PNL	PANEL
PS	PUMP STATION
PVC	POLYVINYL CHLORIDE
RA	RIGID ALUMINUM
RECP	RECEPTACLE
RTU	REMOTE TELEMETRY UNIT
RVNR	REDUCED VOLTAGE NON-REVERSING
SH	SHIELDED
SS	STAINLESS STEEL
STP	SHIELDED TWISTED PAIR
STR	STARTER
SUPP	SUPPRESSOR
SW	SWITCH
SWGR	SWITCHGEAR
TBR	TO BE REMOVED
TD	TIME DELAY
TR	TRANSFORMER
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTABLE POWER SUPPLY
UV	ULTRAVIOLET
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
W/	WITH
WP	WEATHERPROOF
φ	PHASE

NOTES

- ALL WORK SHALL COMPLY WITH N.E.C. AND LOCAL CODES.
- CONDUCTORS SHALL NOT BE SPLICED EXCEPT AS NOTED IN SPECS.
- ALL CONTROL PANELS SHALL BE UL LISTED.
- THESE DRAWINGS ARE INTENDED TO SHOW STANDARDS ON NEW PUMP STATIONS. AT THE COUNTY'S DISCRETION REHABS AND RENOVATIONS MAY HAVE DIFFERING DETAILS ON A SITE BY SITE BASIS.

REV. NO.	DESCRIPTIONS	DATE
6	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/2/20
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/29/17
4	REVISED, TO INCORPORATE UPS SYSTEM MODIFICATIONS	6/7/16
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	8/26/15
1	CONFORMED	5/17/13

SEAL	SEAL	SEAL
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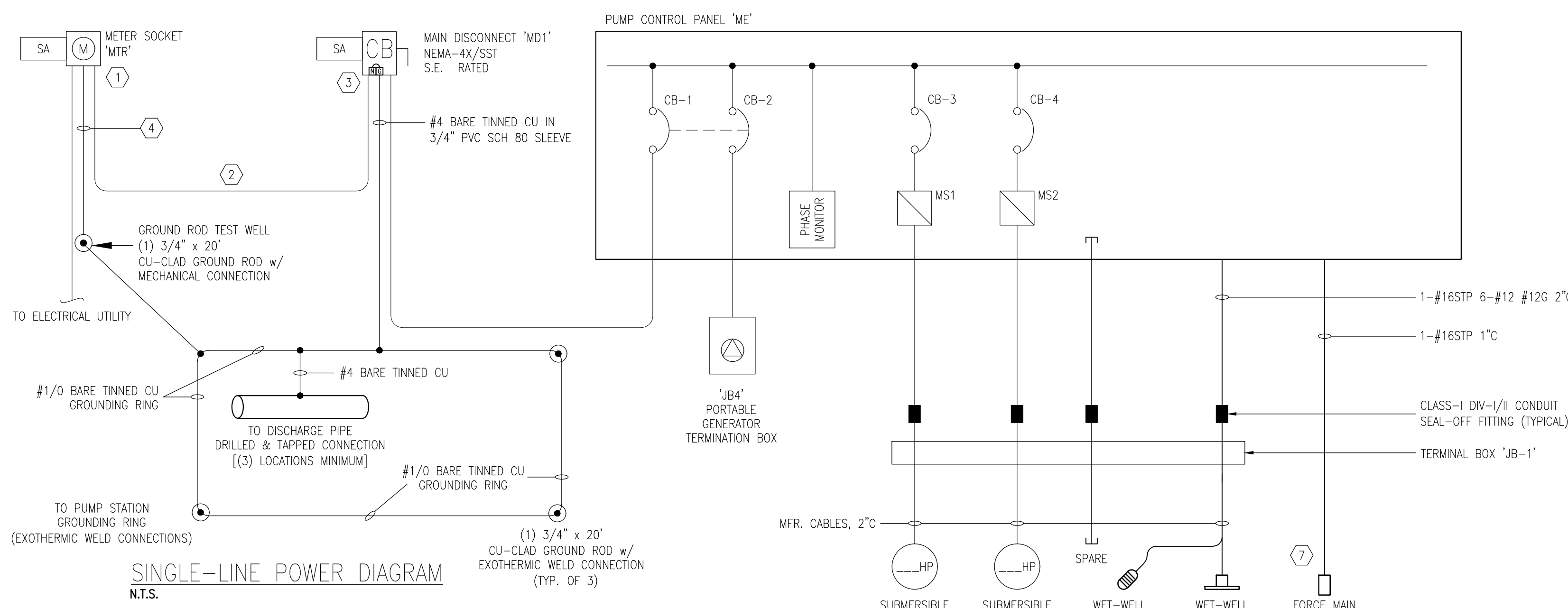


Hillsborough County Florida
PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/TAMPA FLORIDA 33602/PH: (813) 272-5977

DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL SYMBOLS, NOTES,
AND ABBREVIATIONS

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-0.0
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION 6



DESIGN BASIS NOTE:
THIS DRAWING REPRESENTS THE STANDARD DESIGN FOR ALL HILLSBOROUGH COUNTY STANDARD WASTEWATER PUMPING STATIONS. IT WAS DEVELOPED TO IMPROVE RELIABILITY AND MAINTAINABILITY, MINIMIZE SPARE PARTS AND INCREASE SERVICE LIFE. ALL REQUESTS FOR DEVIATION FROM THIS STANDARD MUST BE MADE IN WRITING AND WRITTEN APPROVAL, RECEIVED BEFORE MODIFICATIONS ARE MADE. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS NECESSARY TO RESTORE UNAUTHORIZED MODIFICATIONS.

DESIGN ENGINEER NOTE: *THIS IS NOT A CONSTRUCTION DRAWING*
DESIGN ENGINEER SHALL REFER TO ELECTRICAL DRAWINGS, MECHANICAL DRAWINGS, AND THE HILLSBOROUGH COUNTY WATER AND WASTEWATER TECHNICAL SPECIFICATION IN ORDER TO COORDINATE THE MECHANICAL AND ELECTRICAL INSTALLATIONS. DESIGN ENGINEER SHALL NOT USE THIS DRAWING FOR A SPECIFIC SITE INSTALLATION. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED IN ACCORDANCE WITH F.S. 471 AND RULES 61G.

GENERAL NOTES:

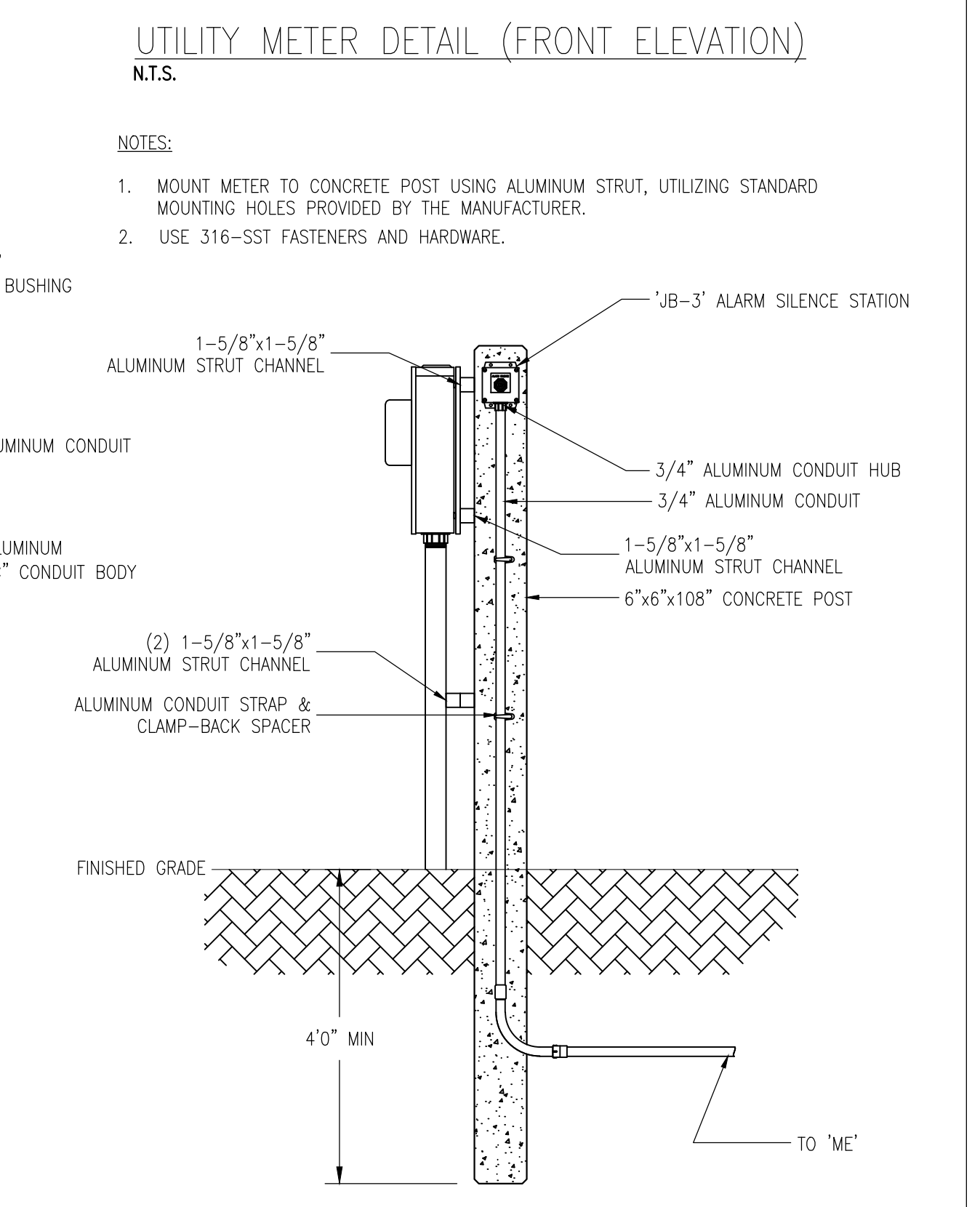
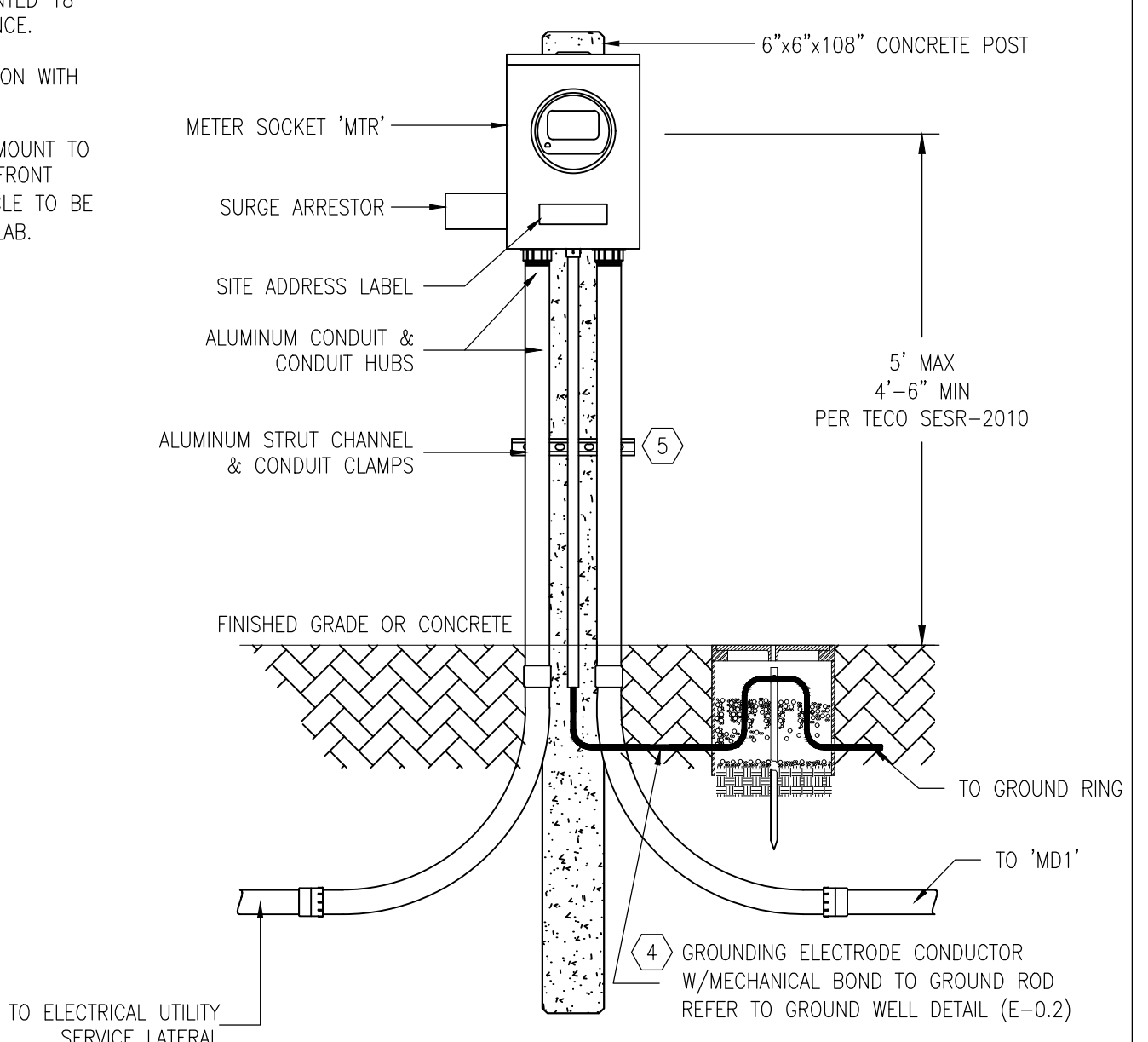
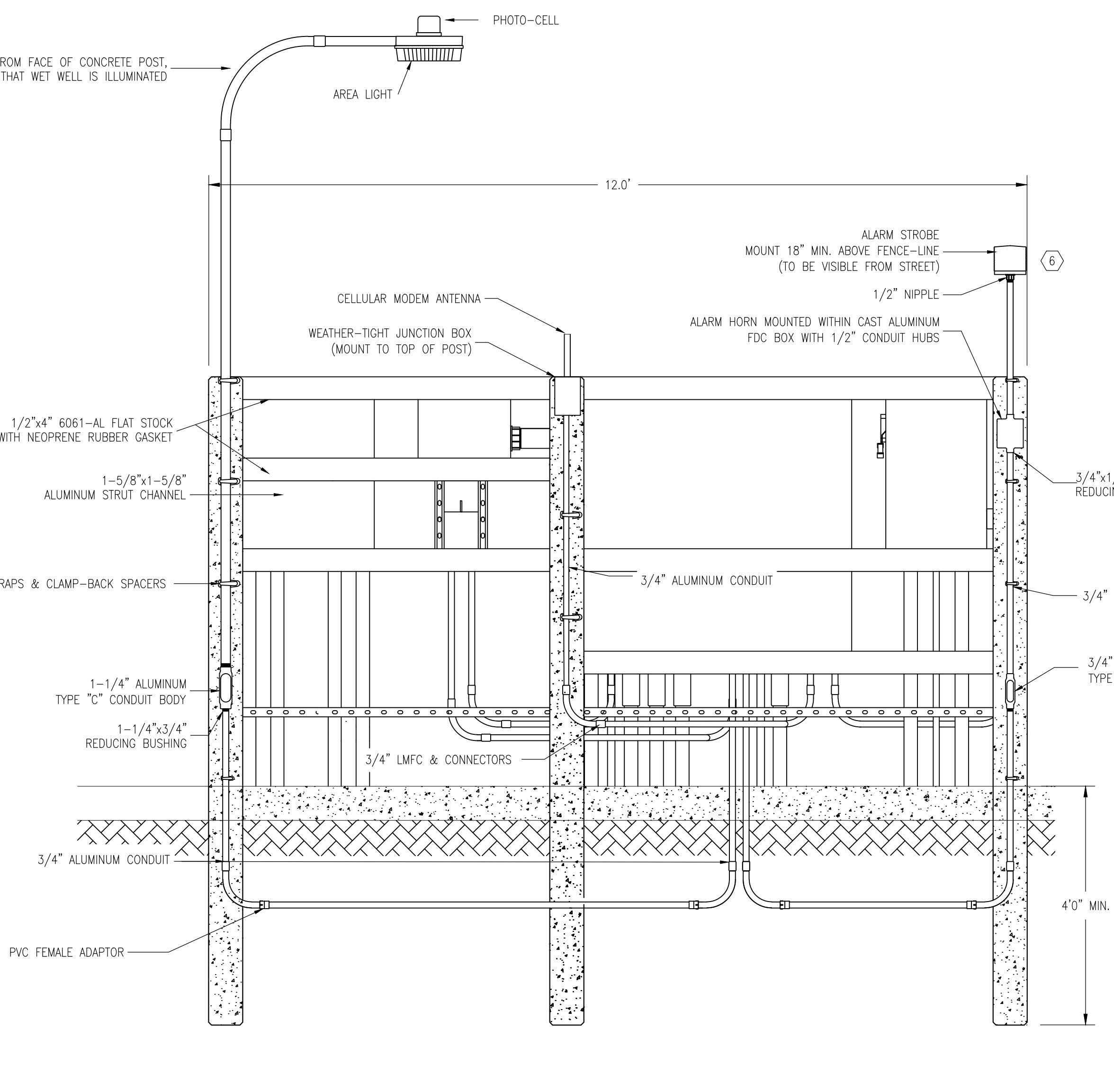
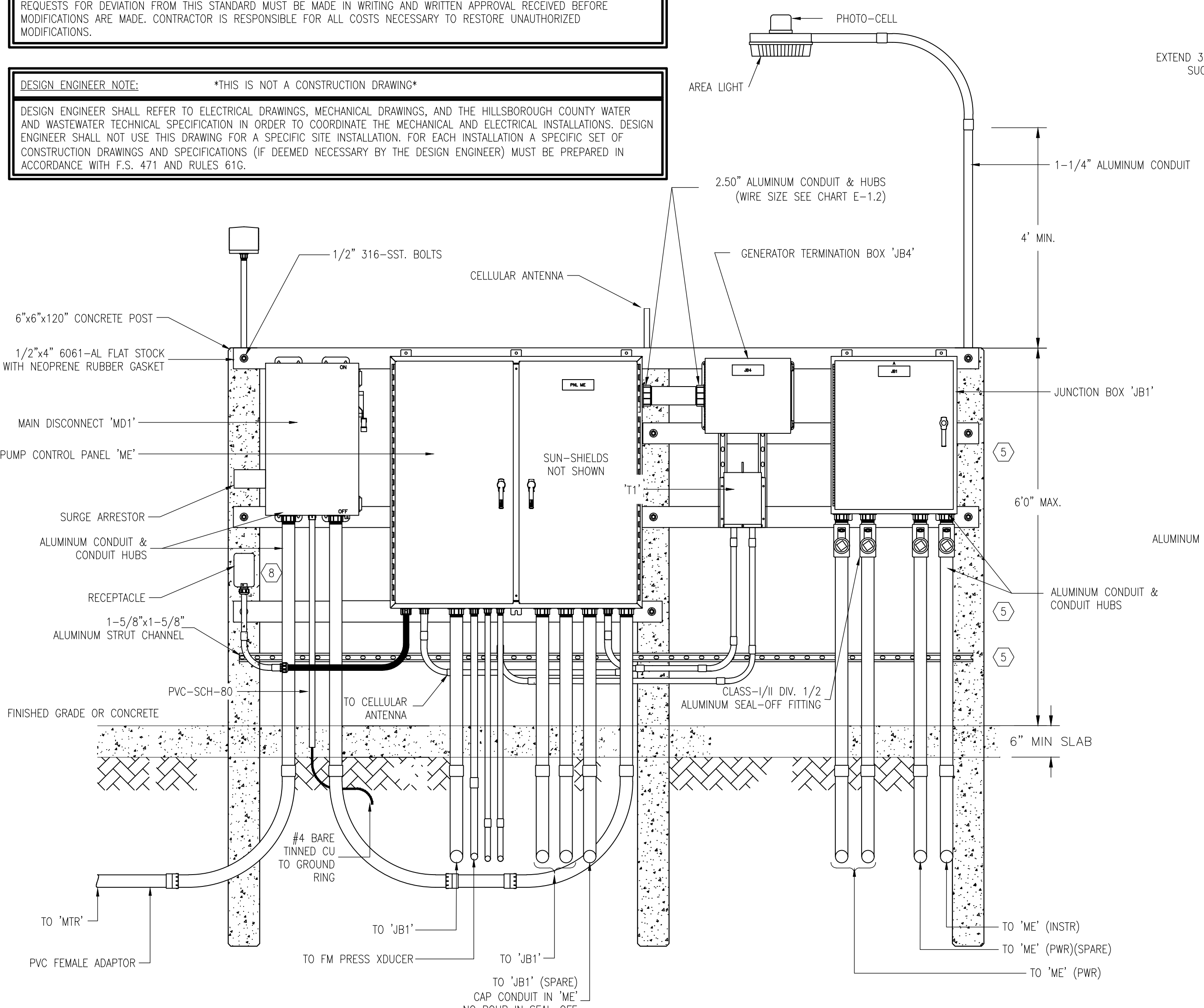
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE NEC, NESC AND LOCAL CODES INCLUDING OWNERS STANDARDS AND REQUIREMENTS.
- ALL POWER & CONTROL CONDUCTORS SHALL BE 600V RATED THHN/THWN-2 STRANDED CU AND SIZED PER NEC.
- ALL EXPOSED CONDUITS SHALL BE ALUMINUM THRU FIRST UNDERGROUND 90° BEND. WHERE IN CONTACT WITH CONCRETE SLAB, ALUMINUM CONDUIT SHALL BE COATED USING BITUMINOUS PAINT.
- ALL UNDERGROUND CONDUITS SHALL BE PVC SCH-80.
- ALL MECHANICAL CONNECTIONS SHALL BE THROUGH-BOLTED MADE WITH STAINLESS STEEL HARDWARE AND FASTENERS WHICH INCLUDE HEAVY GAUGE FLAT AND LOCK WASHERS.
- ELECTRICAL LAYOUT SUBJECT TO VARIATIONS BASED ON SPECIFIC SITE CONDITIONS, AS DETERMINED BY THE SITE-SPECIFIC DESIGN ENGINEER.
- REFERENCE MECHANICAL DRAWINGS FOR SPECIFIC SITE DETAILS & DIMENSIONS, AND FOR COORDINATING THE INSTALLATION OF OTHER TRADES.
- ROUTING SHOWN FOR CONDUITS AND GROUNDING CONDUCTORS ARE DIAGRAMMATIC. SITE-SPECIFIC DESIGN ENGINEER SHALL ROUTE CONDUITS AND GROUND CONDUCTORS AS FIELD CONDITIONS DICTATE UNLESS OTHERWISE NOTED.
- GROUNDING BUSHINGS SHALL BE USED ON ALL METAL CONDUITS IN ALL ENCLOSURES.
- MYERS HUBS OR EQUAL SHALL BE USED AT ALL LOCATIONS WHERE CONDUITS ARE CONNECTING INTO THE SIDE OF AN ELECTRICAL ENCLOSURE.
- OXIDE INHIBITING COMPOUND SHALL BE APPLIED TO ALL ELECTRICAL TERMINATION CONTACT SURFACES, INCLUDING COMPRESSION AND BOLTED CONNECTIONS.
- SENSOR CABLE SHALL CONTAIN HEAT SENSING AND SEAL FAILURE LEADS (4 TOTAL PER PUMP) AND SHALL BE INSTALLED IN CONDUIT WITH MOTOR LEADS FROM JB1 TO WETWELL.

KEYNOTES:

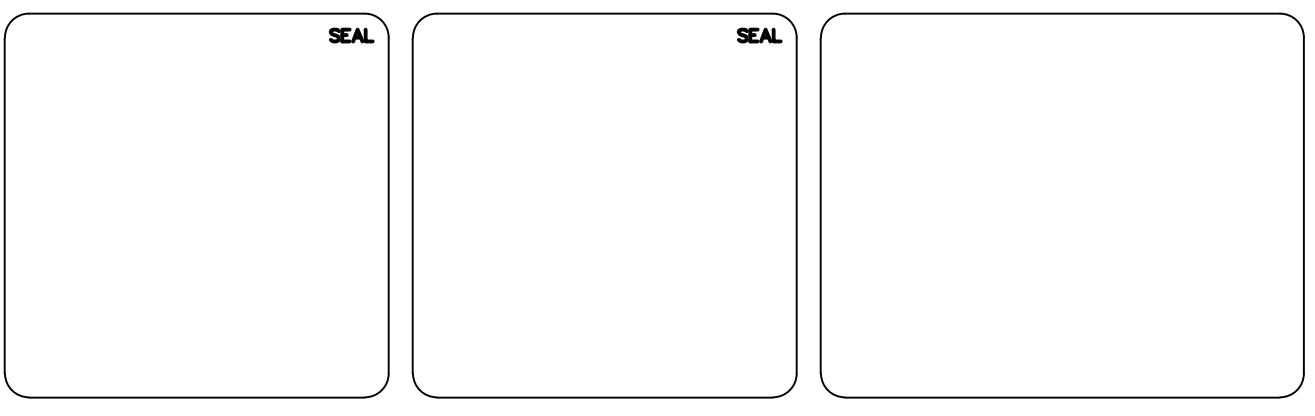
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TECO FOR METERING REQUIREMENTS AND SERVICE CONSTRUCTION STANDARDS (SESR-2010). WIRE IDENTIFICATION AND PHASE ARRANGEMENT SHALL BE PER NEC.
- EQUIPMENT AND WIRE SHALL BE SIZED AND RATED ACCORDING TO THE SERVICE VOLTAGE AND RESPECTIVE PUMP SIZES AT THE STATION. REFER TO CROSS REFERENCE TABLE ON DRAWING E-1.2.
- MD1, CB1 THRU CBS, AND CB10 SHALL BE CAPABLE OF INTERRUPTING A FAULT CURRENT OF 25,000 AIC MINIMUM.
- FOR SIZING GROUNDING ELECTRODE CONDUCTOR, REFER TO CROSS REFERENCE TABLE ON E-1.2:
• 3/0 OR SMALLER --> #4G
• OVER 3/0 THRU 350 --> #2G
• OVER 350 THRU 600 --> 1/0G
INSTALL IN 3/4" PVC SCH-80 SLEEVE.
- BEVEL AND GRIND ENDS SMOOTH ON ALL UNISTRUT, FLATSTOCK & ANGLE TO PROTECT PERSONNEL FROM POTENTIAL INJURY.
- ALARM STROBE AND HORN SHALL BE MOUNTED 18" MINIMUM ABOVE TOP OF SURROUNDING FENCE.
- CONTRACTOR SHALL COORDINATE INSTALLATION WITH ENGINEER/HCPU.
- RACK-MOUNT 120V DUPLEX RECEPTACLE, MOUNT TO EQUIPMENT RACK SUPPORT POST, FACING FRONT AND ADJACENT TO 'ME' CABINET. RECEPTACLE TO BE 36" MINIMUM ABOVE THE PUMP STATION SLAB.

480VAC LOAD CALCULATIONS				
DESCRIPTION	HP	480VAC	3-φ	AMPERES
PUMP NO.1	—HP	480VAC	3-φ	—AMPS
PUMP NO.2	—HP	480VAC	3-φ	—AMPS
MOTOR SUB TOTAL:				—AMPS
25% OF LARGEST MOTOR:				—AMPS
TOTAL MOTOR LOAD:				—AMPS
ODOR CONTROL SYSTEM (FUTURE)	1200W	480VAC	3-φ	2.5
TRANSFORMER	3KVA	480VAC	3-φ	6.25
TOTAL MAXIMUM PHASE AMPERES:				—AMPS

SERVICE SIZE: —A, 480VAC, 3φ, 4-WIRE, MINIMUM



REVNO.	DESCRIPTIONS	DATE
7	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	11/09/21
6	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/2/20
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	4/29/17
4	REVISED, TO INCORPORATE LPS SYSTEM MODIFICATIONS	4/7/16
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	8/28/15
1	CONFORMED	3/17/13



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TECHNICAL SERVICES DIVISION
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**DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION**

**ELECTRICAL POWER PLAN
AND DETAIL
(3PH, 480V/3-20HP)**

ISSUE DATE: **NOVEMBER 2021**

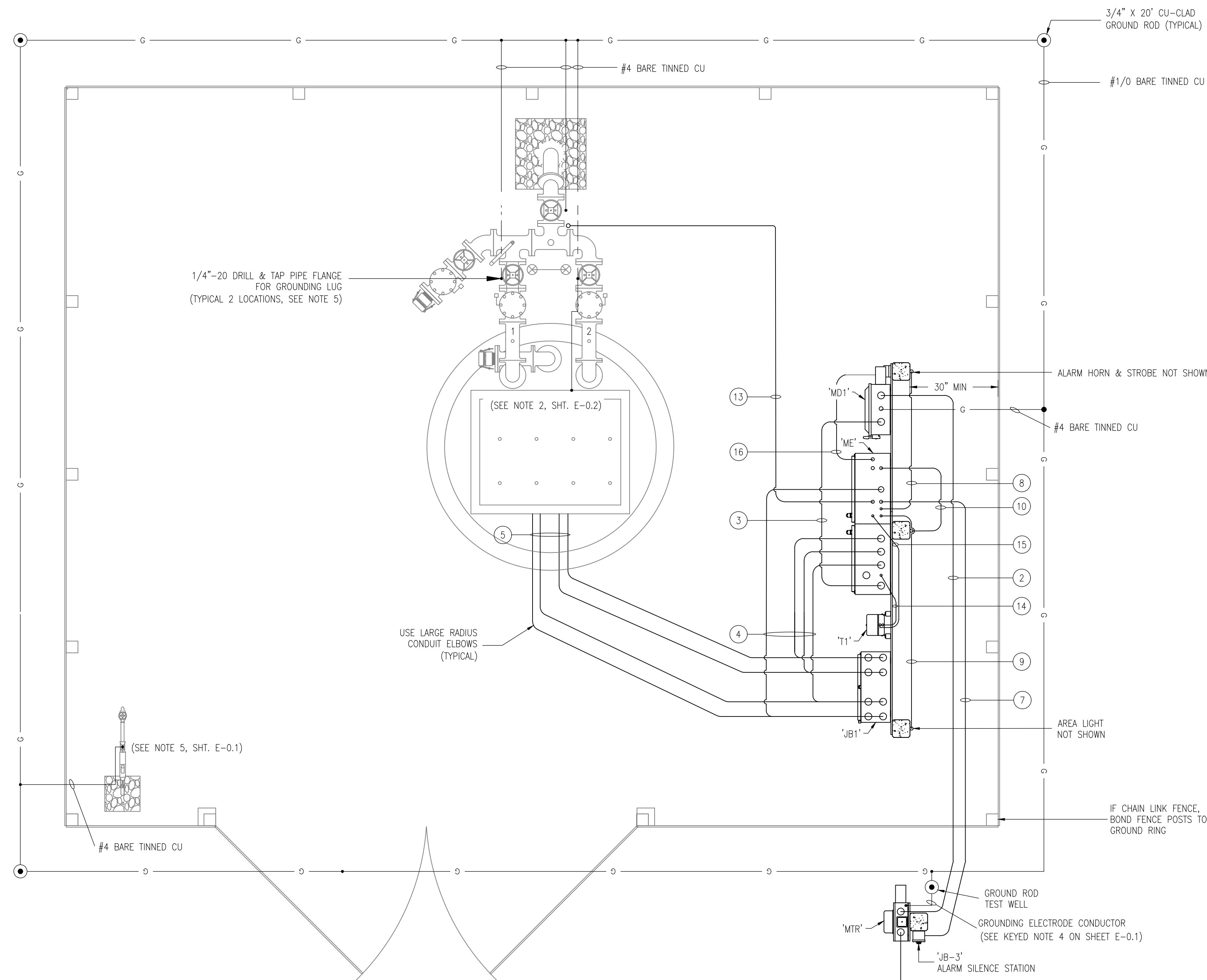
PROJ. # _____
DRAWN _____
DESIGNED _____
CHECKED _____
PROJ. MGR. _____

SCALE: HORIZONTAL: _____
VERTICAL: NA

FILE NUMBER: E-0.1

STATUS: **REVISED**

REVISION: **7**

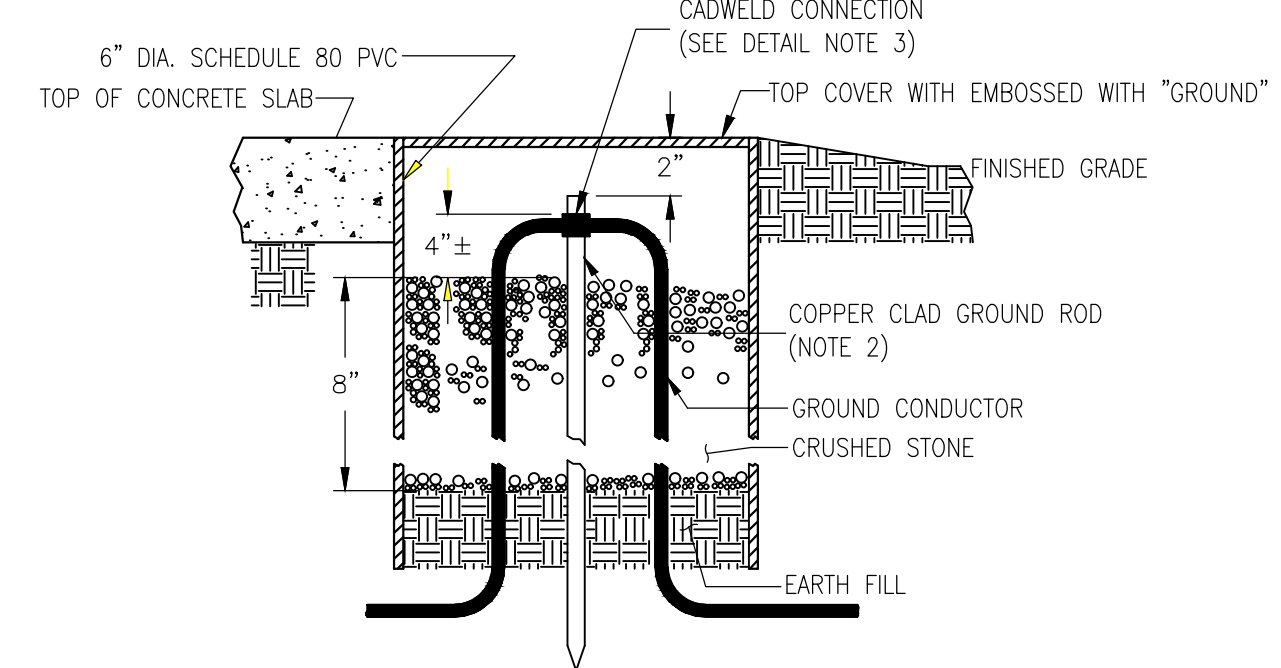
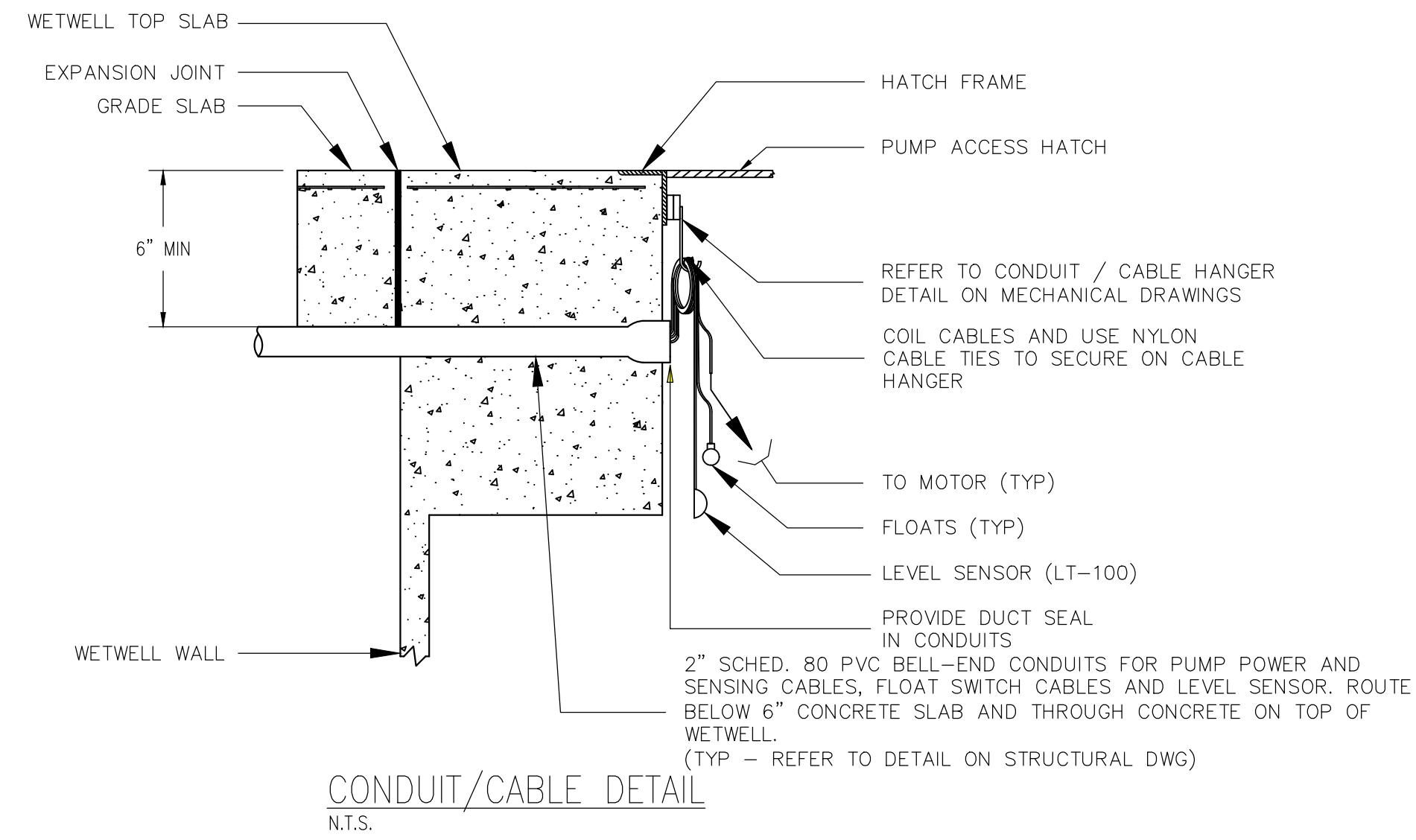


(X) CONDUIT & CABLE NOTES:

INSTALL THE FOLLOWING CONDUIT AND CABLE:

- | | |
|--|---|
| 1. [SVC TO MTR] 2" C, WIRE SIZE SEE CHART E-1.2 | 10. [ME/CELLULAR TO CELLULAR ANTENNA] 3/4" C, CELLULAR CABLE |
| 2. [MTR TO MD1] 2" C, WIRE SIZE SEE CHART E-1.2 | 11. N/A |
| 3. [MD1 TO ME/CB1] 2" C, WIRE SIZE SEE CHART E-1.2 | 12. N/A |
| 4. [ME/PMP1 TO JB1] 2" C, WIRE SIZE SEE CHART E-1.2
[ME/PMP2 TO JB1] 2" C, WIRE SIZE SEE CHART E-1.2
[ME/CONTL TO JB1] 2" C, FLOATS (24VAC) 6-#12 AWG,
WELL LEVEL (24VDC) 1-#16 STP
[ME/SPARE TO JB1] 2" C | 13. [ME/PRESS TO FM PRESS TRANSMITTER] 1" C, 1-16STP |
| 5. [JB1/PMP1 TO WELL] 2" C, MFR. CABLE
[JB1/PMP2 TO WELL] 2" C, MFR. CABLE
[JB1/CONTL TO WELL] 2" C, FLOATS (24VAC) MFR. CABLE,
WELL LEVEL (24VDC) MFR. CABLE
[JB1/SPARE TO WELL] 2" C | 14. [ME/CB11 TO T1] 0.75" C, (480VAC) 2-#12 #12G |
| 6. N/A | 15. [T1 TO ME/CB20] 0.75" C, (120VAC) 2-#12 |
| 7. [ME/ALM SIL TO JB3] 0.75" C, (120VAC) 2-#14 #12G | 16. [ME/CB21 TO RECP1] 0.75" C, RECP1 POWER (120VAC) 2-#12 #12G |
| 8. [ME/ALM STROBE-HORN TO JB2] 0.75" C, (120VAC) 4-#14 #12G | |
| 9. [ME/AREA LIGHT TO AREA LIGHT] 0.75" C, (120VAC) 3-#12 #12G | |

ELECTRICAL SITE PLAN
NTS



DETAIL NOTES:

1. TYPICAL FOR EACH GROUND ROD.
2. 3/4" x 20" COPPER CLAD DRIVEN GROUND ROD; THREE (3) GROUND RODS MINIMUM PER SITE.
3. "TEST WELL" AT TECO METER SHALL USE MECHANICAL CONNECTION TO FACILITATE ISOLATING THE GROUNDING SYSTEM FROM THE UTILITY GROUND FOR TESTING PURPOSES.
4. CONTRACTOR SHALL MEASURE THE RESISTANCE OF INSTALLED GROUNDING ELECTRODES AND IF ABOVE 5 OHMS, CONTRACTOR SHALL AUGMENT THE GROUND SYSTEM AS NECESSARY.

GROUND ROD WELL DETAIL
NTS.

GENERAL NOTES:

1. REFER TO GENERAL NOTES SHT. E-0.1, INCLUDING OWNER'S STANDARDS AND REQUIREMENTS.
2. GROUND CONDUCTOR AT FORCEMAIN PIPING SHALL EXTEND THROUGH SLAB VIA 1" SCH. 80 PVC CONDUIT. BOND GROUND CONDUCTOR TO PUMPS ABOVE GRADE PIPING AT CHECK VALVES FLANGE CONNECTION, TO FORCEMAIN FLANGE CONNECTION AND TO ACCESS HATCH COVER.

DESIGN BASIS NOTE:

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2	REVISED TO INCORPORATE FIELD CHANGES	8/28/15
1	CONFIRMED	5/17/13

SEAL

SEAL

Hillsborough County Florida

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TECHNICAL SERVICES DIVISION
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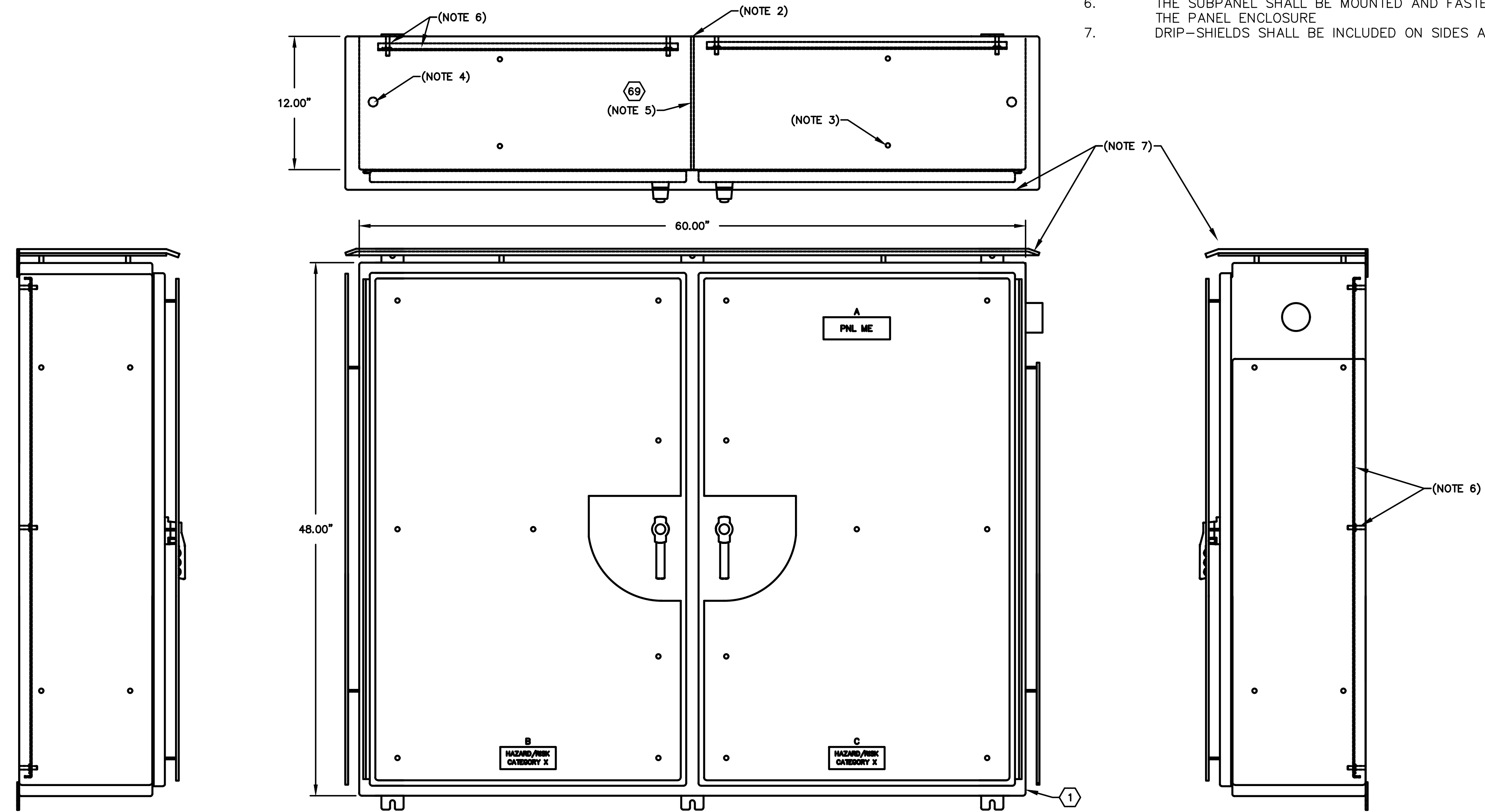
DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL SITE PLAN AND DETAIL
(3PH, 480V/3-20HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-0.2
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED	REVISION	7

NOTES:

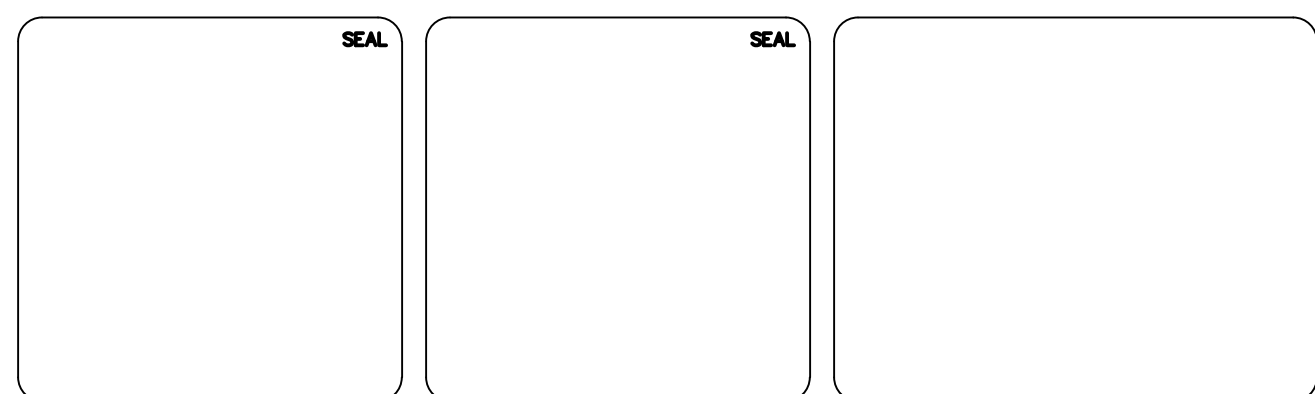
1. REFER TO SHT. E-1.2 FOR BILL OF MATERIAL, NAMEPLATE LEGEND AND ELECTRICAL SIZING; E-1.3 THRU E-1.8 FOR SCHEMATICS.
2. WELDED CABINET DIVIDER SHALL PROVIDE COMPLETE ISOLATION BETWEEN CABINET HALVES.
3. ATTACH SUN-SHIELD WITH STAINLESS STEEL HARDWARE. TYPICAL.
4. REMOVABLE LIFTING EYE SOCKET. IMMEDIATELY AFTER CABINET INSTALLATION, INSTALL SS PLUG BOLT AND RUBBER WASHER TO PROVIDE WATER-TIGHT SEAL. TYPICAL (2).
5. INSTALL PASS-THROUGH CABLE FITTINGS AT DIVIDER PLATE (BOTTOM & CENTERED) TYP. 3 (POWER, COMM, CONTROL)
6. THE SUBPANEL SHALL BE MOUNTED AND FASTENED TO THREADED STANDOFFS THAT ARE WELDED TO THE PANEL ENCLOSURE
7. DRIP-SHIELDS SHALL BE INCLUDED ON SIDES AND FRONT OF THE TOP SUN-SHIELD.



EXTERIOR ELECTRICAL/CONTROL CABINET, (ME)

5/32"=1"

REV. NO.	DESCRIPTIONS	DATE
6	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/2/20
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/29/17
4	REVISED, TO INCORPORATE UPS SYSTEM MODIFICATIONS	6/7/16
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	6/26/15
1	CONFIRMED	5/17/13



DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL/CONTROL ENCLOSURE
EXTERIOR LAYOUT
(3PH)(480V/3-20HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-1.0
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION 6

LIST OF MAJOR COMPONENTS

ELECTRICAL/CONTROL CABINET (ME)

ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION	
1	1		HOFFMAN	A48H6012WFSSLP-3PT (CUSTOM)	ENCLOSURE, 48"x60"x12"D, TWO-DOOR, WELDED CABINET DIVIDER, NEMA 4X, 304 SS, 3-PT LATCHES, SUN-SHIELDS, EPOXY WHITE FINISH, INNER-DOOR BOTH SIDES: 43.5"x27"W, ALUMINUM, 0.125" THICK MIN., POWDER-COAT IRON GRAY TEXTURE FINISH (HBT2-C0009-C50)	
2	2		HOFFMAN	(CUSTOM)	SUBPANEL, 45"x27"W, ALUMINUM, .125 GA THICK, EPOXY WHITE FINISH	
3	2		FABTECH	NH-45013	DOOR STOP KIT, 316 SS	
4	2		GE	UCF18/DW/ADV-16547	CABINET LIGHT, FLUORESCENT	
5	2		GE	F15T8/WW-10147	CABINET LIGHT, BULB	
5	2	SW5, SW6	SQUARE-D	9007-AP21	DOOR SWITCH	
6	1			JB4	GENERATOR TERMINATION PANEL, REFER TO SHT. E-5.0	
7	2	CB1, CB2	SEE CHART THIS SHT.			
			SQUARE-D	JUL36250U31X	CIRCUIT BREAKER, 600V, 3 POLE, 250 AMP, ELECTRONIC TRIP (MICROLOGIC), MECH-INTERLOCK	
8	1	CB10	SQUARE-D	HGL36020T	CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 20 AMP TRIP UNIT	
9	2	CB3, CB4	SEE CHART THIS SHT.			
			SQUARE-D	HGL36015T	CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 15 AMP TRIP UNIT	
			SQUARE-D	HGL36020T	CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 20 AMP TRIP UNIT	
			SQUARE-D	HGL36030T	CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 30 AMP TRIP UNIT	
			SQUARE-D	HGL36045T	CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 45 AMP TRIP UNIT	
			SQUARE-D	HGL36050T	CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 50 AMP TRIP UNIT	
10	2	MS1, MS2	SEE CHART THIS SHT.			
			SQUARE-D	8502-SCO2-V02S	CONTACTOR, 3 POLE, SIZE 1, 27A CONT.	
			SQUARE-D	8502-SDO2-V02S	CONTACTOR, 3 POLE, SIZE 2, 45A CONT.	
11	3	PDB1A,B,C	BUSSMANN	16325-1	POWER DISTRIBUTION BLK, 1 POLE, 350A, 600VAC, PRIM: 2 CONN 14-20 CU, SEC: 6 CONN 14-4 CU	
12	1	NB1	BUSSMANN	16325-1	POWER DISTRIBUTION BLK, 1 POLE, 350A, 600VAC, PRIM: 2 CONN 14-20 CU, SEC: 6 CONN 14-4 CU	
13	1	PMR	DIVERSIFIED ELECTRONICS	SLU-100-ASA	PHASE MONITOR RELAY	
			SQUARE-D	8501NR51	RELAY BASE	
14	1	FU1,FU2,FU3	SQUARE-D	DFCC3V	3 POLE FUSE HOLDER	
			3	BUSSMANN	1 AMP CLASS CC FUSE	
15	55		ENTRELEC	115 116.07	TERMINAL BLOCK, 30A	
16	11		ENTRELEC	118 368.16	TERMINAL BLOCK END BARRIER	
17	24		WAGO	249-117	TERMINAL BLOCK END STOP	
18	1	120VAC_UPS	SOLA	SDU-850-B	UNINTERRUPTIBLE POWER SUPPLY, 120VAC, 1PH, 850VA	
			1	120VAC_UPS_RELAY	UNINTERRUPTIBLE POWER SUPPLY ALARM RELAY MODULE	
19	2	24VDC_PS1,24VDC_PS2	WEIDMULLER	8951360000	POWER SUPPLY, 24VDC, 10AMP	
			1	24VDC_RED	POWER SUPPLY REDUNDANCY MODULE	
20	4	CB20, CB23, CB24	SQUARE-D	QOU1103100	CIRCUIT BREAKER, 1 POLE, 10 AMP, W/PANEL MOUNT BRACKETS	
21	1	CB21	SQUARE-D	QOU1153100	CIRCUIT BREAKER, 1 POLE, 15 AMP, W/PANEL MOUNT BRACKETS	
22	1	CPSA	CITEL	DS42S-120	SURGE ARRESTOR, 120VAC	
23	1	PLC_BP	MODICON	BMXXBP0800	M340, BACKPLANE, 8-SLOT	
24	1	PLC_PS	MODICON	BMXCP35500	M340, POWER SUPPLY MODULE, 120VAC INPUT	
25	1	PLC_MOD_0	MODICON	BMXP342020	M340, PROCESSOR MODULE, MODBUS, ETHERNET	
26	2	PLC_MOD_1,2	MODICON	BMXDD11602	M340, DISCRETE INPUT MODULE, 16PT	
27	1	PLC_MOD_3	MODICON	BMXDRA1605	M340, DISCRETE OUTPUT MODULE, 16PT	
28	1	PLC_MOD_4	MODICON	BMXAM0810	M340, ANALOG INPUT MODULE, 8PT	
29					*NOT USED	
30	4		MODICON	BMXFTB2000	TERMINAL CONNECTOR	
31	1	PLC_MOD_5	MODICON	BMXNOE0100	M340, I/O SCANNER MODULE	
32	1	PLC_MOD_7	MODICON	BMXNOR0200H	M340, DNP COMM MODULE	
32	1	OPI	MODICON	MAGELIS HMIQT02310	OPERATOR INTERFACE PANEL, 5.7", COLOR, TOUCHSCREEN, 24VDC, ENET	
33	2	PM1, PM2	SQUARE-D	LTMR100EBD	TSYS-T, CONTROLLER	
			2	SQUARE-D	LTMEV40BD	TSYS-T, EXTENSION MODULE
			2	SQUARE-D	LTMC004	TSYS-T, CONNECTOR
			2	SQUARE-D	9001SKR1BH5	PUSH BUTTON, N.O. CONTACT
34	13	CR1,2,4,5,7,8A,10A,10B,17,18,19,20,21	SQUARE-D	RXM4AB1BD	CONTROL RELAY, 24VDC COIL, 4PDT, 5A CONTACTS	
			2	SQUARE-D	RXM040W	DIODE MODULE, 6-230VDC (FOR CR4, CR5)
35	2	CR11,12	SQUARE-D	RXM4AB1B7	CONTROL RELAY, 24VAC COIL, 4PDT, 5A CONTACTS	
36	16		SQUARE-D	RXZE2M114	RELAY BASE	
37	2	SF1, SF2	CROUZET/SYRELEC	PNRU110A/BE	LEAK DETECTION RELAY / SEAL-FAIL RELAY	
			2	SQUARE-D	8501NR51	RELAY BASE
					*FOR FLYGT PUMPS ONLY	
			ITT/FLYGT	MINI-CAS	SUPERVISION RELAY FOR TEMPERATURE AND LEAKAGE SENSORS	
38	4	SP-1,2,24,25	CITEL	DLA-24D3	SURGE PROTECTOR, ANALOG, 24VDC, SINGLE CHANNEL, PLUG & BASE	
39	1	ENET_SW_1	CONNEXIUM	TCSESB083F23F0	ETHERNET SWITCH, MANAGED	
40	1	RECP1	HUBBELL	GFTR15GY	RECEPTACLE, 125VAC, DUPLEX, GFCI, 15A, 10KA SCOR	
			1	THOMAS & BETTS	RECEPTACLE BOX, DIE-CAST ALUMINUM, WEATHERPROOF, (3) 3/4" HOLES	
			1	INTERMATIC	RECEPTACLE COVER, DIE-CAST ALUMINUM, WEATHERPROOF, WHILE-IN-USE	
41	2	SW4,SW7	SQUARE-D	9001 KS11BH2	SELECTOR SWITCH, 2-POS, MAINTAINED	
42	2	SW1, SW2	SQUARE-D	9001 KS43BH2	SELECTOR SWITCH, 3-POS, MAINTAINED	
43	2		PANDUIT	G1x3WH6/C1WH6	WIRE DUCT, 1"W x 3"H, WHITE/WITH COVER	
			2	PANDUIT	WIRE DUCT, 1.5"W x 3"H, WHITE/WITH COVER	
44	1	FEDERAL SIGNAL	FEDERAL SIGNAL	141ST-24R	STROBE LIGHT, RED, 24VDC (REMOTE FROM ME)	
45	1	FEDERAL SIGNAL	FEDERAL SIGNAL	450E-24-31 wWB	ALARM HORN, 24VDC, w/ALUMINUM WP HOUSING (REMOTE FROM ME)	
46					*NOT USED	
47	1	CR13	SOD	9050JCK11V14	RELAY, 24VAC, TIME-DELAY, 1-10 SECONDS	
			SQUARE-D	8501NR51	RELAY BASE	
48	1	T2	SQUARE-D	9670T100D23	TRANSFORMER, 120V/24V, 1PH, 100VA	
49	1	LT-100	ENDRESS HAUSER	FMX21-FE-2-2-1H-G-K-41-A-PO-PS	PRESSURE TRANSMITTER, SUBMERSIBLE (WET WELL LEVEL)	
50	1	PIT-100	ROSEMOUNT	3051TG2A2B21AT1M5	PRESSURE TRANSMITTER, W/ LCD DISPLAY (FORCE MAIN PRESSURE)	
51	1	ECR1	MDS	MDSECR4G51NNNNS1S2USUNNN	CELLULAR ROUTER, 4G LTE (COUNTY TO PROVIDE FREQS AT TIME OF ORDER)	

ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
52	1			SQUARE-D	PK12GTA
53	1		LAIRD		TRA6927M3PBN-001
					GROUND BAR
					4G/3G MULTIBAND NO GROUND PLANE PHANTOM ANTENNA
54					*NOT USED
55					*NOT USED
56	1		VENTEV	565112	15' LMR195 JUMPER w/ N MALE (39931) TO SMA MALE (37467) CONNECTORS
57	1	CB11	SQUARE-D	HGL26015	CIRCUIT BREAKER, MOLDED-CASE, 600V, 2 POLE, 15 AMP
58	1	T1	SQUARE-D	3S1FSS	3KVA 480VAC - 120VAC SINGLE PHASE TRANSFORMER W/ ENCLOSURE
59	1		SQUARE-D	PK0GTA6	GROUND BAR, 6 CONN 14-10 CU
60	1	CR16	SQUARE-D	RXM4AB2F7	RELAY, 120VAC, 4DPT, 5A CONTACTS
61	9	SP-5,6,7,8,9,10,11,26,27	CITEL	DLA-24D3	SURGE PROTECTOR, DISCRETE, 24VDC, TWO CHANNEL, PLUG & BASE
62	1	FU4	BUSSMANN	GMA-2-R	FUSE, 2 AMP, FAST ACTING
63	8	FU5,6,7,8,9,10,11,12	BUSSMANN	GMA-500-R	FUSE, 500mA, FAST ACTING
			1	FU13	BUSSMANN
			1	FU14	BUSSMANN
					GMA-100-R
					FUSE, 100mA, FAST ACTING
					GMA-300-R
					FUSE, 300mA, FAST ACTING
64	1		ENTRELEC	173 523.11	FUSE TERMINAL BLOCK JUMPER
65	3		ENTRELEC	188 973.07	TERMINAL BLOCK JUMPER
66	9	FU4,5,6,7,8,9,10,13,14	ENTRELEC	115 657.25	FUSE TERMINAL BLOCK, 10A
67	3		ENTRELEC	116 951.15	FUSE TERMINAL BLOCK END BARRIER
68					*NOT USED
69	1		HUBBELL	ZS105	CABLE FITTING, PASS-THROUGH (POWER)
			1	HUBBELL	ZS108
			1	HUBBELL	ZS210
					CABLE FITTING, PASS-THROUGH (CONTROL)
70	1	BYP	SQUARE-D	RUMC32F7	CONTROL RELAY, 120VAC COIL, 3PDT, 10A CONTACTS, W/STATUS LED
					RUZSCM
					RELAY BASE, PIN PLUG, BOX-LUG, SEPARATE
71	1	CB12	SQUARE-D	QOU130	CIRCUIT BREAKER, 1 POLE, 30A

CROSS REFERENCE TABLE

SERVICE VOLTAGE	PUMP HP	PUMP FLA (PER NEC)	MTR-MD1 (AWG)	MD1-ME/CB1 J1/JB4-CB2/N (AWG)	CB1-PDB1 CB2-PDB1 (AWG)	MD1 CB1 CB2 SETTINGS J (I _r /tr/I _i)	GENERATOR CONNECTION	PDB1-PMR (AWG)	CB3 CB4	MS1 MS2	PDB1-CB3 PDB1-CB4 CB3-MS1 CB4-MS2 MS1-JB1 MS2-JB1 (AWG)	JB1-M1 JB1-M2	ODOR CONTROL CB10	PDB1-CB10 (AWG)	PDB1-CB20 (AWG)	PDB1-CB11 CB11-XFMR1 (AWG)	CB11
480VAC, 3PH, 4W	3	4.8	3-#3, 1-#3 N	3-#3, 1-#3 N, 1-#6 G	3-#3	J250(100/2/4)	JB4	3-#14	H15	SIZE 0	3-#12	PER MANUF	H20	3-#12	--	2-#10	H15
480VAC, 3PH, 4W	5	7.6	3-#3, 1-#3 N	3-#3, 1-#3 N, 1-#6 G	3-#3	J250(100/2/4)	JB4	3-#14	H15	SIZE 0	3-#12	PER MANUF	H20	3-#12	--	2-#10	H15
480VAC, 3PH, 4W	7.5	11.0	3-#3, 1-#3 N	3-#3, 1-#3 N, 1-#6 G	3-#3	J250(100/2/5)	JB4	3-#14	H20	SIZE 1	3-#12	PER MANUF	H20	3-#12	--	2-#10	H15
480VAC, 3PH, 4W	10	14.0	3-#3, 1-#3 N	3-#3, 1-#3 N, 1-#6 G	3-#3	J250(100/2/5)	JB4	3-#14	H25	SIZE 1	3-#12	PER MANUF	H20	3-#12	--	2-#10	H15
480VAC, 3PH, 4W	15	21.0	3-#3, 1-#3 N	3-#3, 1-#3 N, 1-#6 G	3-#3	J250(100/4/5)	JB4	3-#14	H40	SIZE 2	3-#8	PER MANUF	H20	3-#12	--	2-#10	H15
480VAC, 3PH, 4W	20	27.0	3-#3, 1-#3 N	3-#3, 1-#3 N, 1-#6 G	3-#3	J250(100/8/5)	JB4	3-#14	H50	SIZE 2	3-#8	PER MANUF	H20	3-#12	--	2-#10	H15

EQUIPMENT AND CONDUCTORS SHALL COMPLY WITH NEC AND ALL OTHER APPLICABLE CODES, INCLUDING EXISTING COUNTY STANDARDS.

NAMEPLATE SCHEDULE

ELECTRICAL/CONTROL CABINET (ME)

N.P. NO.	QTY	PLATE COLOR/SIZE	LTR COLOR/SIZE	ENGRAVING (LINE1/LINE2/ETC.)
A	1	BLK / 2.00" H x 6.00" W	WHT / 1/2"	PNL ME
B	1	BLK / 2.00" H x 5.00" W	WHT / 3/8"	HAZARD/RISK / CATEGORY X
C	1	BLK / 2.00" H x 5.00" W	WHT / 3/8"	HAZARD/RISK / CATEGORY X
D	2	ENG / 0.75" H x 2.50" W	ENG / 1/4"	PUMP NO.1
E	2	ENG / 0.75" H x 2.50" W	ENG / 1/4"	PUMP NO.2
F				*NOT USED
G	2	ENG / 2.25" H x 2.25" W	ENG / 3/16"	HAND OFF AUTO
H	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	AREA LIGHT
I	2	ENG / 2.25" H x 2.25" W	ENG / 3/16"	OFF ON
J	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	MAIN - CB1
K	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	EMERGENCY - CB2
L	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	ODOR CONT - CB10
M	2	ENG / 0.75" H x 2.50" W	ENG / 1/4"	RESET
N				*NOT USED
O				*NOT USED
P	1	ENG / 0.50" H x 2.00" W	ENG / 3/16"	AREA LIGHT - CB20
R	1	ENG / 0.50" H x 2.00" W	ENG / 3/16"	CONV. RECP. - CB21
S				*NOT USED
T	1	ENG / 0.50" H x 2.00" W	ENG / 3/16"	120VAC CONTROL POWER - CB23
U	1	ENG / 0.50" H x 2.00" W	ENG / 3/16"	24VAC CONTROL POWER - CB24
V	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	CONTROL - CB11
W				*NOT USED

DESIGN B-SIS. NOTE:

THIS DRAWING REPRESENTS THE STANDARD DESIGN FOR ALL HILLSBOROUGH COUNTY STANDARD WASTEWATER PUMPING STATIONS. IT WAS DEVELOPED TO IMPROVE RELIABILITY AND MAINTAINABILITY, MINIMIZE SPARE PARTS AND INCREASE SERVICE LIFE. ALL REQUESTS FOR DEVIATION FROM THIS STANDARD MUST BE MADE IN WRITING AND WRITTEN APPROVAL RECEIVED BEFORE MODIFICATIONS ARE MADE. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS NECESSARY TO RESTORE UNAUTHORIZED MODIFICATIONS.

DESIGN ENGINEER NOTE:

THIS IS NOT - CONSTRUCTION DR- ING

DESIGN ENGINEER SHALL REFER TO ELECTRICAL DRAWINGS, MECHANICAL DRAWINGS, AND THE HILLSBOROUGH COUNTY WATER AND WASTEWATER TECHNICAL SPECIFICATION IN ORDER TO COORDINATE THE MECHANICAL AND ELECTRICAL INSTALLATIONS. DESIGN ENGINEER SHALL NOT USE THIS DRAWING FOR A SPECIFIC SITE INSTALLATION. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED IN ACCORDANCE WITH F.S. 471 AND RULES 61C.

REV. NO.	DESCRIPTIONS	REVISIONS
7	REVISED, UPD-TE P-RT NUMBERS TO REFLECT CURRENT COUNTY ST-NO-RDS	11/5/21
6	REVISED, TO REFLECT CURRENT COUNTY ST-NO-RDS	3/2/20
5	REVISED, TO REFLECT CURRENT COUNTY ST-NO-RDS	9/28/17
4	REVISED, TO INCORPORATE UPS SYSTEM MODIF- TIONS	6/7/16
3	REVISED, TO INCORPORATE FIELD CH-NGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CH-NGES	8/26/15
1	CONFORMED	5/17/13

REV. NO.	DESCRIPTIONS	REVISIONS
SE-L		
SE-L		



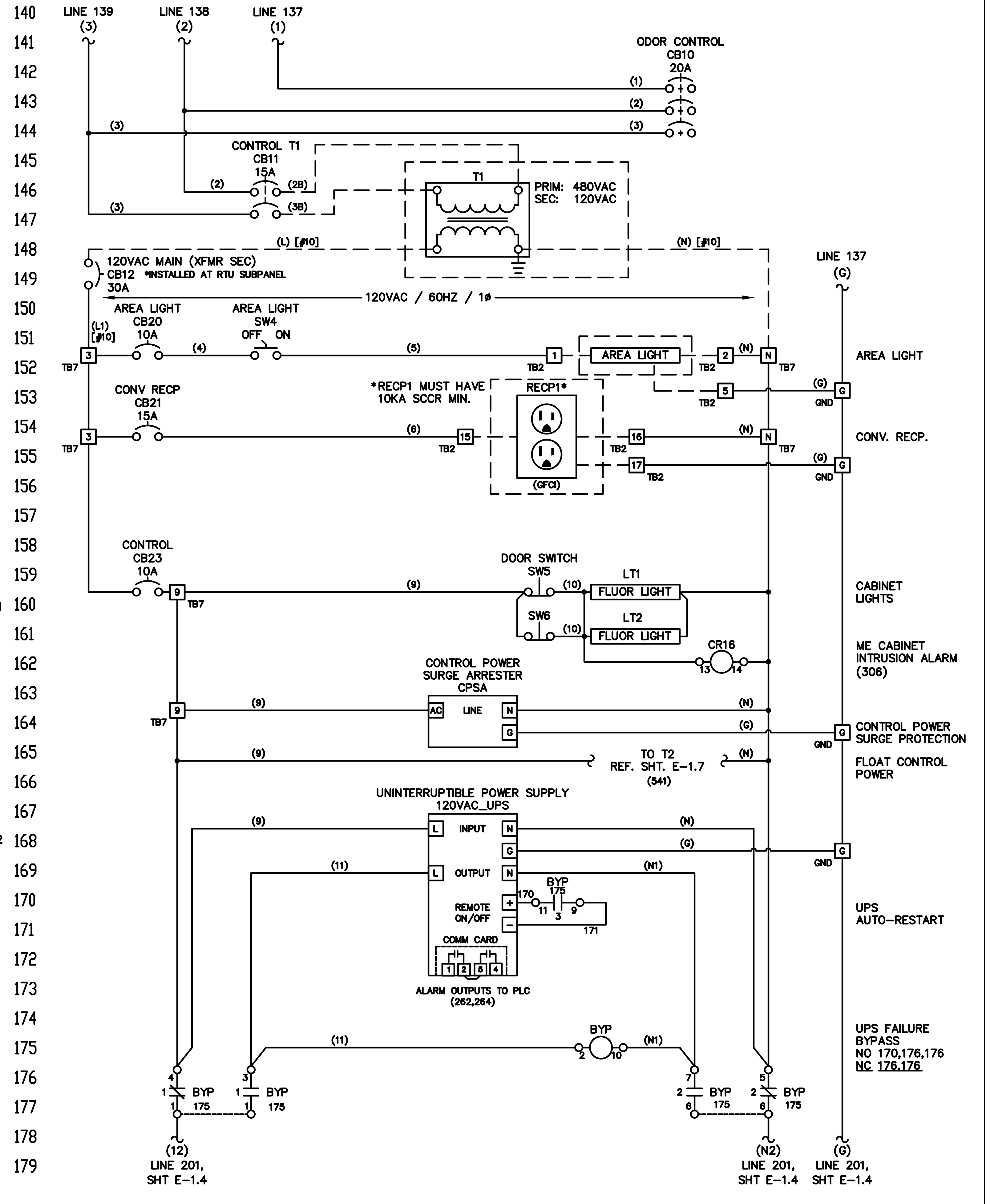
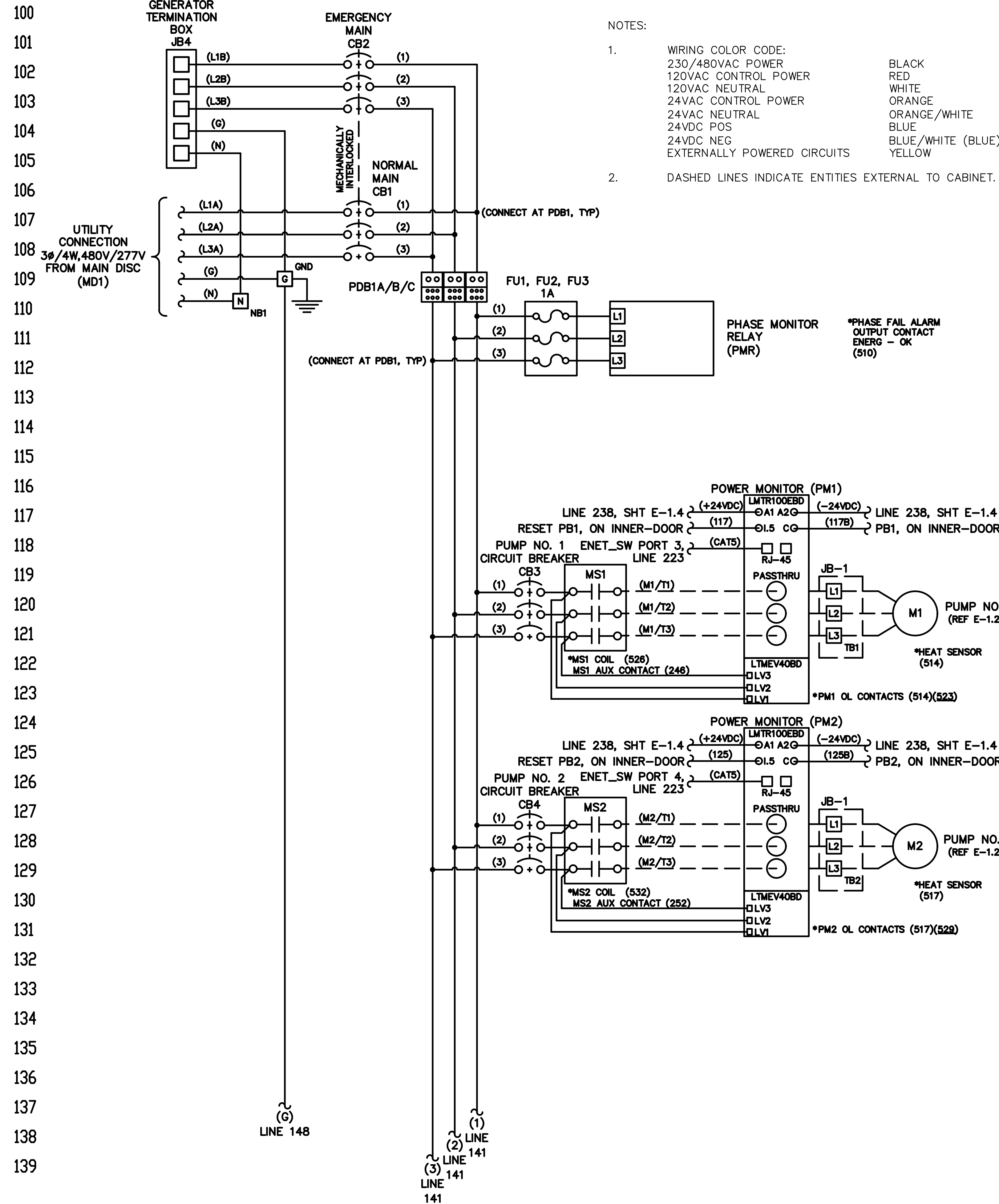
Hillsborough County Florida
PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET / 1ST FLORNO - 33602/PH: (813) 272-5977

DUPLEX

ELECTRICAL/CONTROL CABINET, (ME)

NOTES:

- WIRING COLOR CODE:
 230/480VAC POWER: BLACK
 120VAC CONTROL POWER: RED
 120VAC NEUTRAL: WHITE
 24VAC CONTROL POWER: ORANGE
 24VAC NEUTRAL: ORANGE/WHITE
 24VDC POS: BLUE
 24VDC NEG: BLUE/WHITE (BLUE)
 EXTERNALLY POWERED CIRCUITS: YELLOW
- DASHED LINES INDICATE ENTITIES EXTERNAL TO CABINET.



REV. NO.	DESCRIPTIONS	DATE
7	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/2/20
6	REVISED, TO INCORPORATE UPS SYSTEM MODIFICATIONS	9/14/18
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/28/17
4	REVISED, TO INCORPORATE UPS SYSTEM MODIFICATIONS	6/7/16
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	8/28/15
1	CONFIRMED	5/17/13

SEAL

SEAL

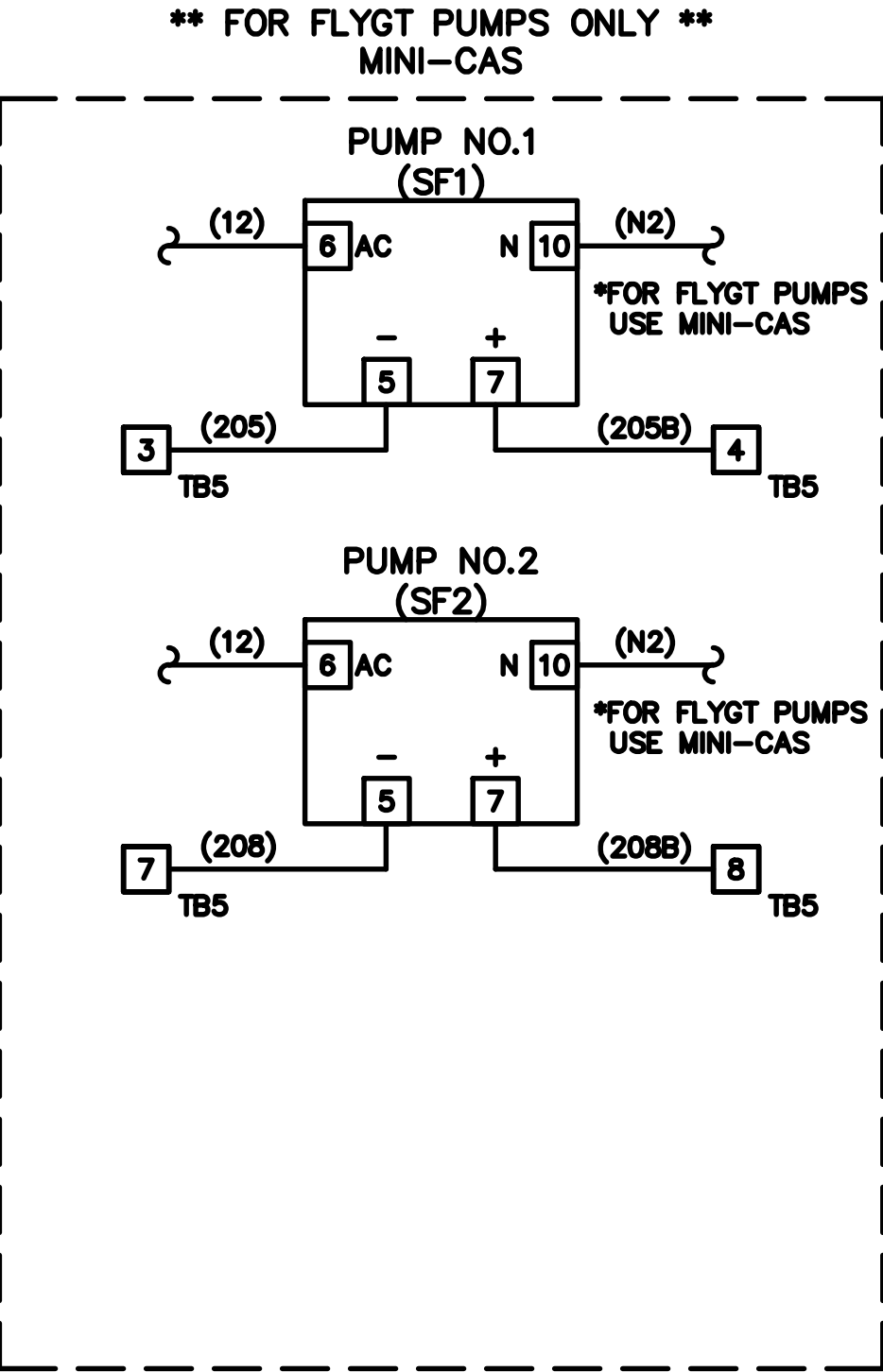
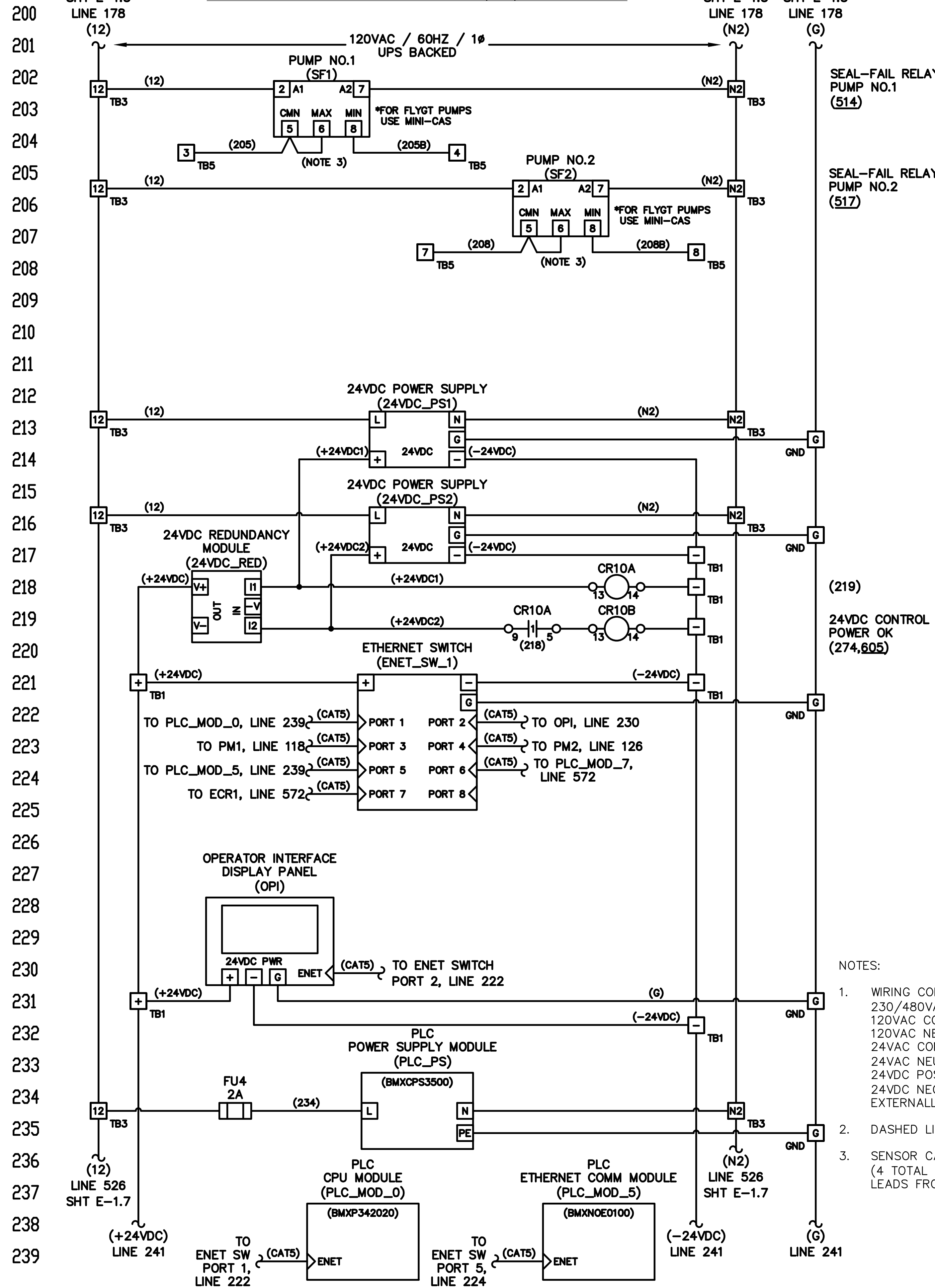
Hillsborough County Florida
 PUBLIC UTILITIES DEPARTMENT
 TECHNICAL SERVICES DIVISION
 925 E. THIGGS STREET/TAMPA FLORIDA 33602/PH: (813) 272-5977

DUPLEX WASTEWATER PUMP STATION
 ELECTRICAL, CONTROL & INSTRUMENTATION

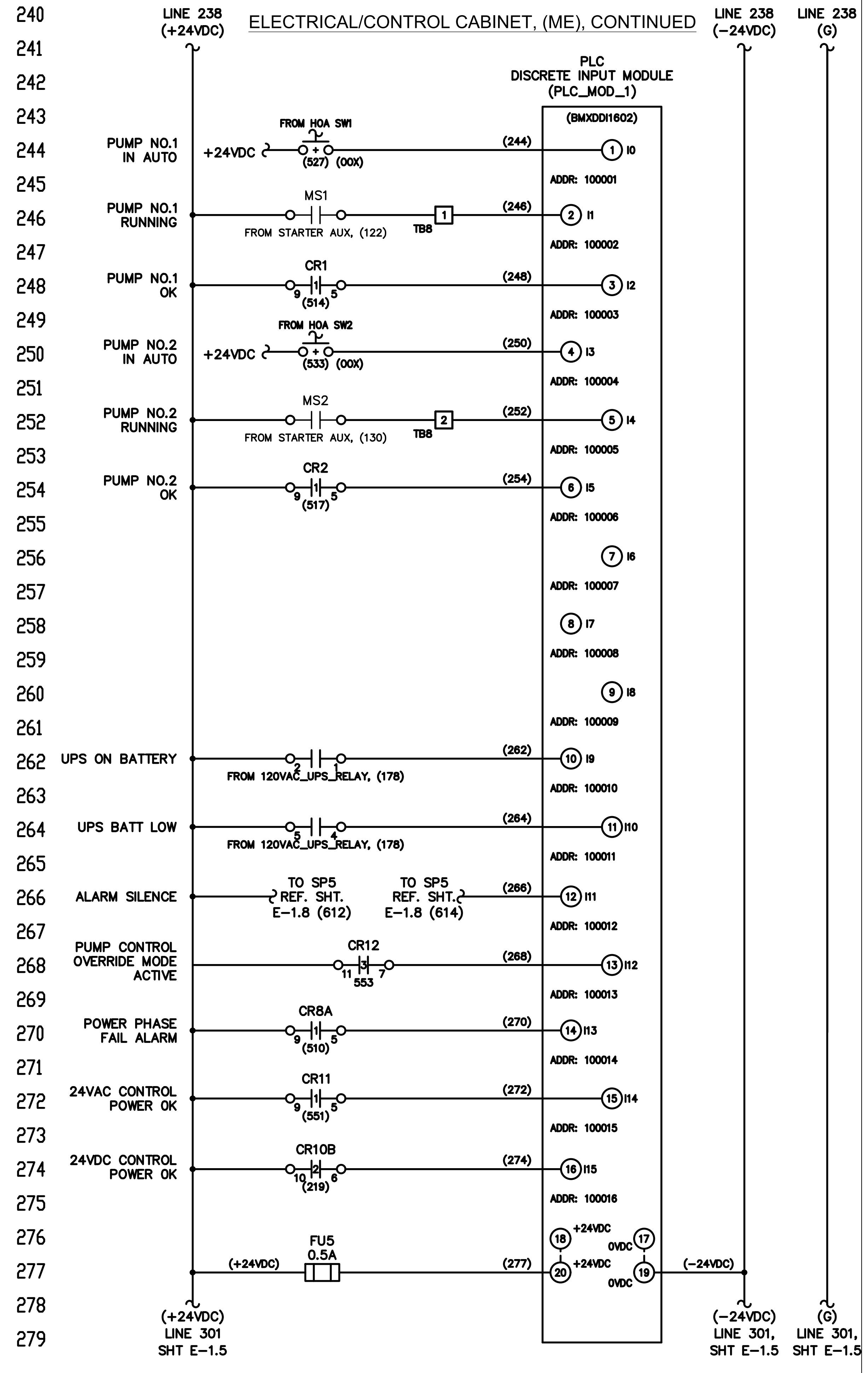
ELECTRICAL/CONTROL ENCLOSURE
 ELECTRICAL SCHEMATICS
 (3PH)(480V/3-20HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-1.3
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION 7

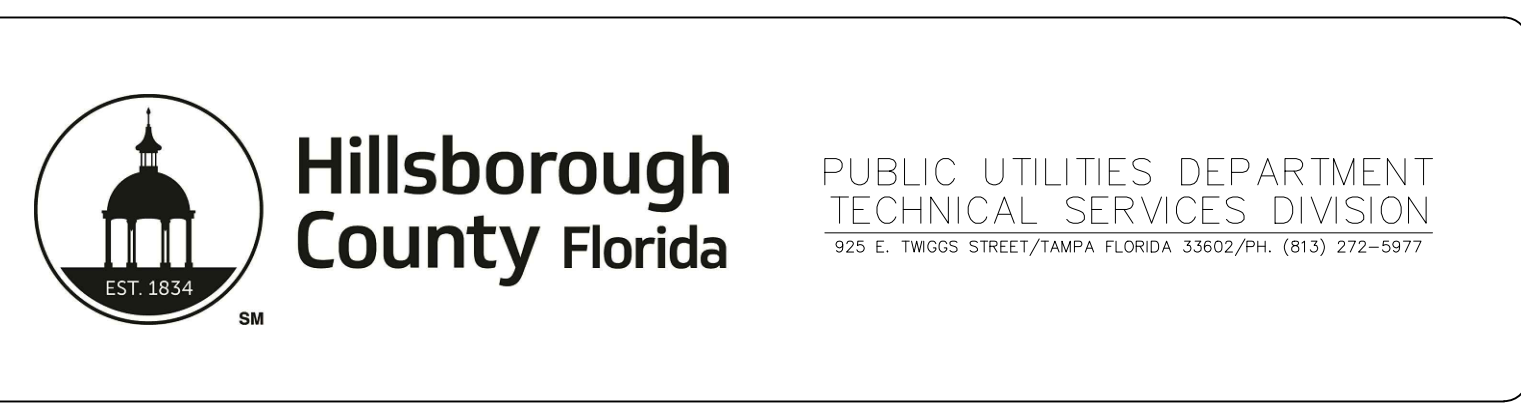
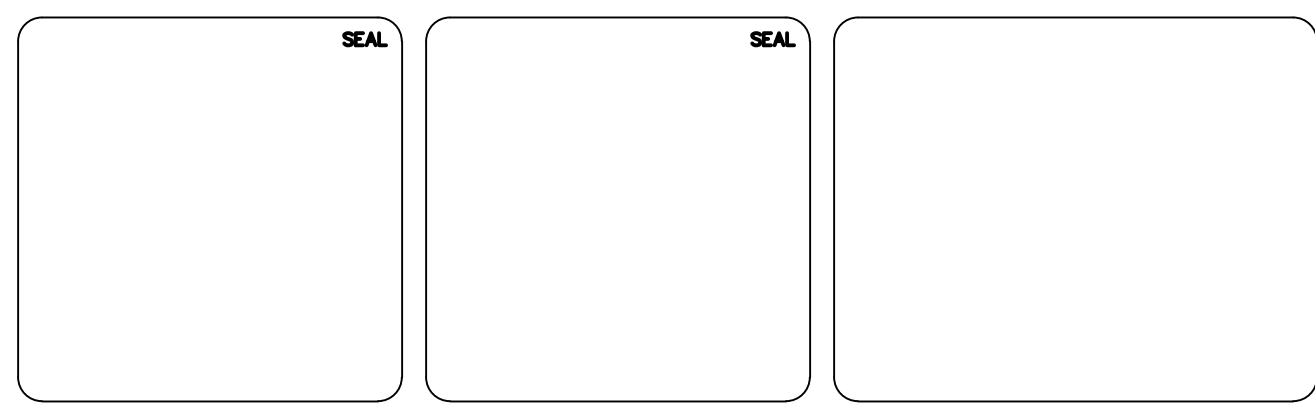
ELECTRICAL/CONTROL CABINET, (ME), CONTINUED



- NOTES:
- WIRING COLOR CODE:
230/480VAC POWER: BLACK
120VAC CONTROL POWER: RED
120VAC NEUTRAL: WHITE
24VAC CONTROL POWER: ORANGE
24VAC NEUTRAL: ORANGE/WHITE
24VDC POS: BLUE
24VDC NEG: BLUE/WHITE (BLUE)
EXTERNALLY POWERED CIRCUITS: YELLOW
 - DASHED LINES INDICATE ENTITIES EXTERNAL TO CABINET.
 - SENSOR CABLE SHALL CONTAIN HEAT SENSING AND SEAL FAILURE LEADS (4 TOTAL PER PUMP) AND SHALL BE INSTALLED IN CONDUIT WITH MOTOR LEADS FROM JUNCTION BOX JB1 TO THE WET WELL.



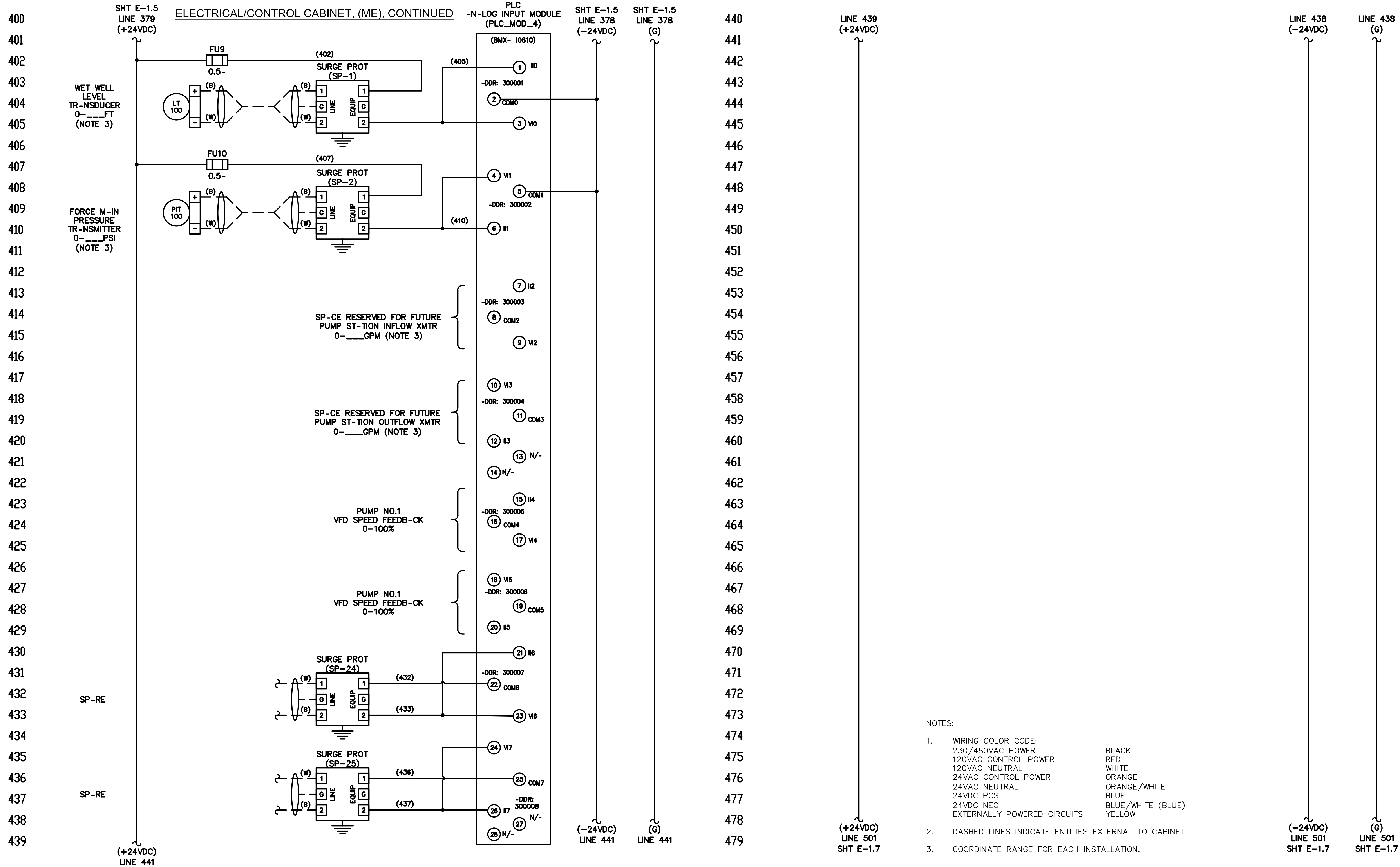
REVNO.	DESCRIPTIONS	DATE
6	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/2/20
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/29/17
4	REVISED, TO INCORPORATE UPS SYSTEM MODIFICATIONS	6/7/16
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	8/26/15
1	CONFIRMED	5/17/13



DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL/CONTROL ENCLOSURE
ELECTRICAL SCHEMATICS
(3PH)(480V/3-20HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-1.4
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION 6



REV. NO.	DESCRIPTIONS	DATE
8	REVISED TO REFLECT CURRENT COUNTY ST. D-RIS	3/2/20
5	REVISED TO REFLECT CURRENT COUNTY ST. D-RIS	9/29/17
4	REVISED TO 1 CORPORA-TE UPS SYSTEM MODIF-ICATIONS	9/7/16
3	REVISED TO 1 CORPORA-TE FIELD CH-GE	10/16/15
2	REVISED TO 1 CORPORA-TE FIELD CH-GE	8/26/15
1	CONFIRMED	5/17/13

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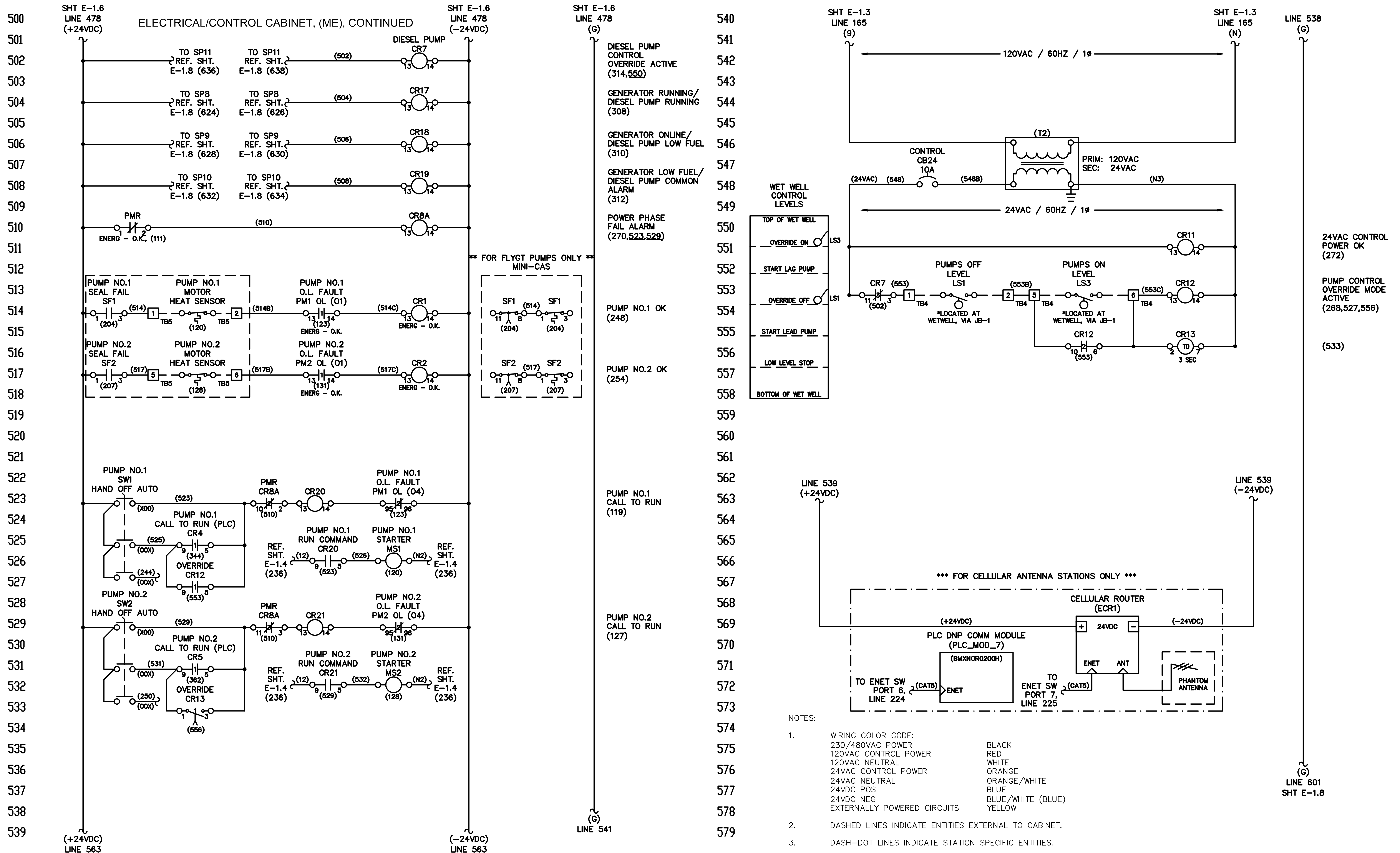
Hillsborough County Florida

PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION

925 E. THIGGS STREET/TAMPA FLORIDA 33602/PH: (813) 272-5977

DUPLEX WASTEWATER PUMP STATION
 ELECTRICAL, CONTROL & INSTRUMENTATION
 ELECTRICAL/CONTROL ENCLOSURE
 ELECTRICAL SCHEMATICS
 (3PH)(480V/3-20HP)

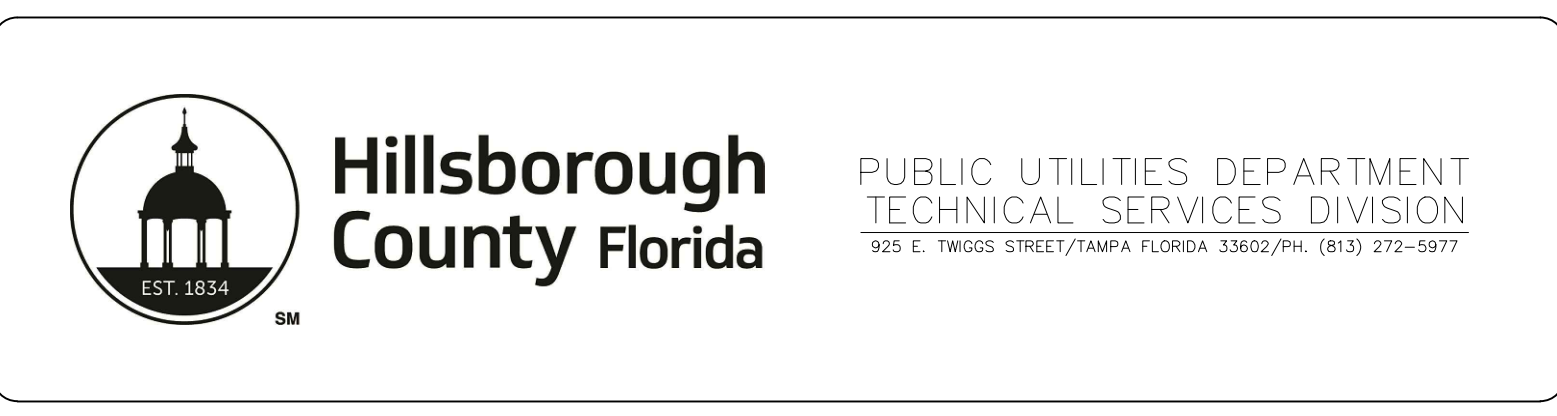
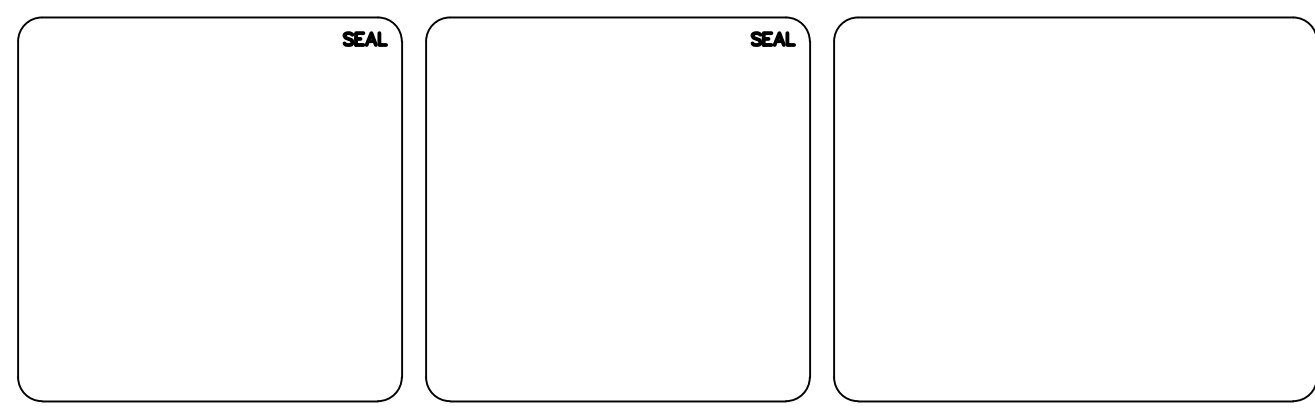
ISSUE D-TE: NOVEMBER 2021 PROJ. # _____ DR-WN _____ DESIGNED _____ CHECKED _____ PROJ. MGR. _____	SC-LE HORIZONT-L: _____ VERTIC-L: N-	FILE NUMBER DR I G NUMBER E-1.6	REVISION 6
ST-TUS: REVISED			



- NOTES:
- WIRING COLOR CODE:

230/480VAC POWER	BLACK
120VAC CONTROL POWER	RED
120VAC NEUTRAL	WHITE
24VAC CONTROL POWER	ORANGE
24VAC NEUTRAL	ORANGE/WHITE
24VDC POS	BLUE
24VDC NEG	BLUE/WHITE (BLUE)
EXTERNALLY POWERED CIRCUITS	YELLOW
 - DASHED LINES INDICATE ENTITIES EXTERNAL TO CABINET.
 - DASH-DOT LINES INDICATE STATION SPECIFIC ENTITIES.

REV. NO.	DESCRIPTIONS	DATE
8	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	3/2/20
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/29/17
4	REVISED, TO INCORPORATE UPS SYSTEM MODIFICATIONS	5/7/16
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	8/26/15
1	CONFIRMED	5/17/13



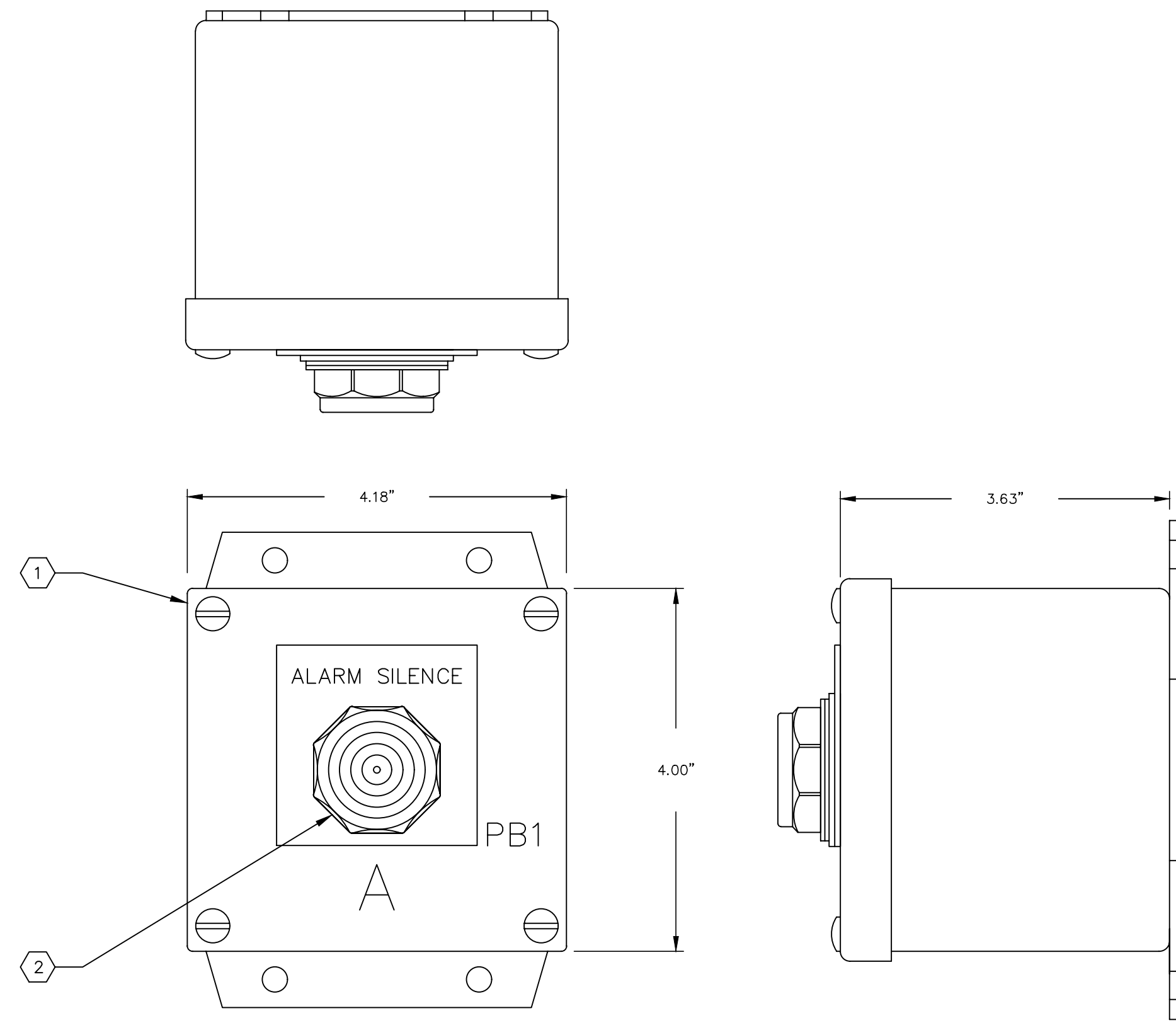
DUPLEX WASTEWATER PUMP STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL/CONTROL ENCLOSURE
ELECTRICAL SCHEMATICS
(3PH)(480V/3-20HP)

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN	VERTICAL:	E-1.7
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION 6

LIST OF MAJOR COMPONENTS					
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
ALARM SILENCE STATION:					
1	1		SQUARE-D	9001-KYSS100	JUNCTION BOX, 5"Hx4"Wx3.5"D, NEMA 4X, 304SS, SCREW COVER
2	1	PB1	SQUARE-D	9001 KR1BH5	PUSHBUTTON, FULL GUARD, N.O. CONTACTS

NAMEPLATE SCHEDULE				
N.P. NO.	QTY	PLATE COLOR/SIZE	LTR COLOR/SIZE	ENGRAVING (LINE1/LINE2/ETC.)
ALARM SILENCE STATION:				
A	1	BLK / 2.25" H x 2.25" W	WHT / 3/16"	ALARMSILENCE



ALARM SILENCE STATION (JB-3)
3/4"=1"

NOTES:

- WIRING COLOR CODE:

240/480VAC POWER	BLACK
120VAC CONTROL POWER	RED
120VAC NEUTRAL	WHITE
24VDC POS	BLUE
24VDC NEG	BLUE/WHITE (BLUE)
EXTERNALLY POWERED CIRCUITS	YELLOW

REV. NO.	DESCRIPTIONS	REVISIONS
4	REVISED, TO REFLECT CURRENT COUNTY ST-NO-RDS	9/29/17
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	8/26/15
1	CONFORMED	5/17/13

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Hillsborough County Florida

PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/T-14P - FLORIDA - 33602/PH. (813) 272-5977

ALARM SILENCE STATION

ENCLOSURE LAYOUT AND
BILL OF MATERIAL

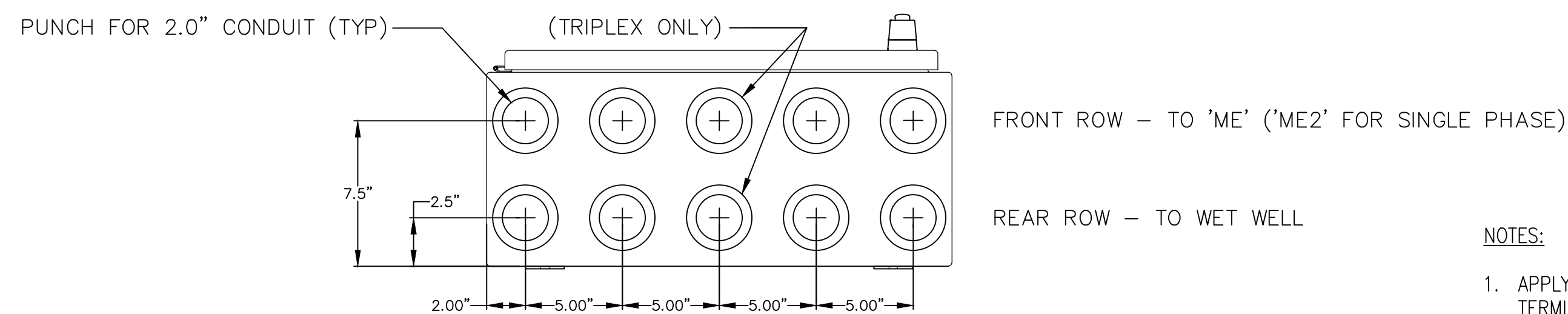
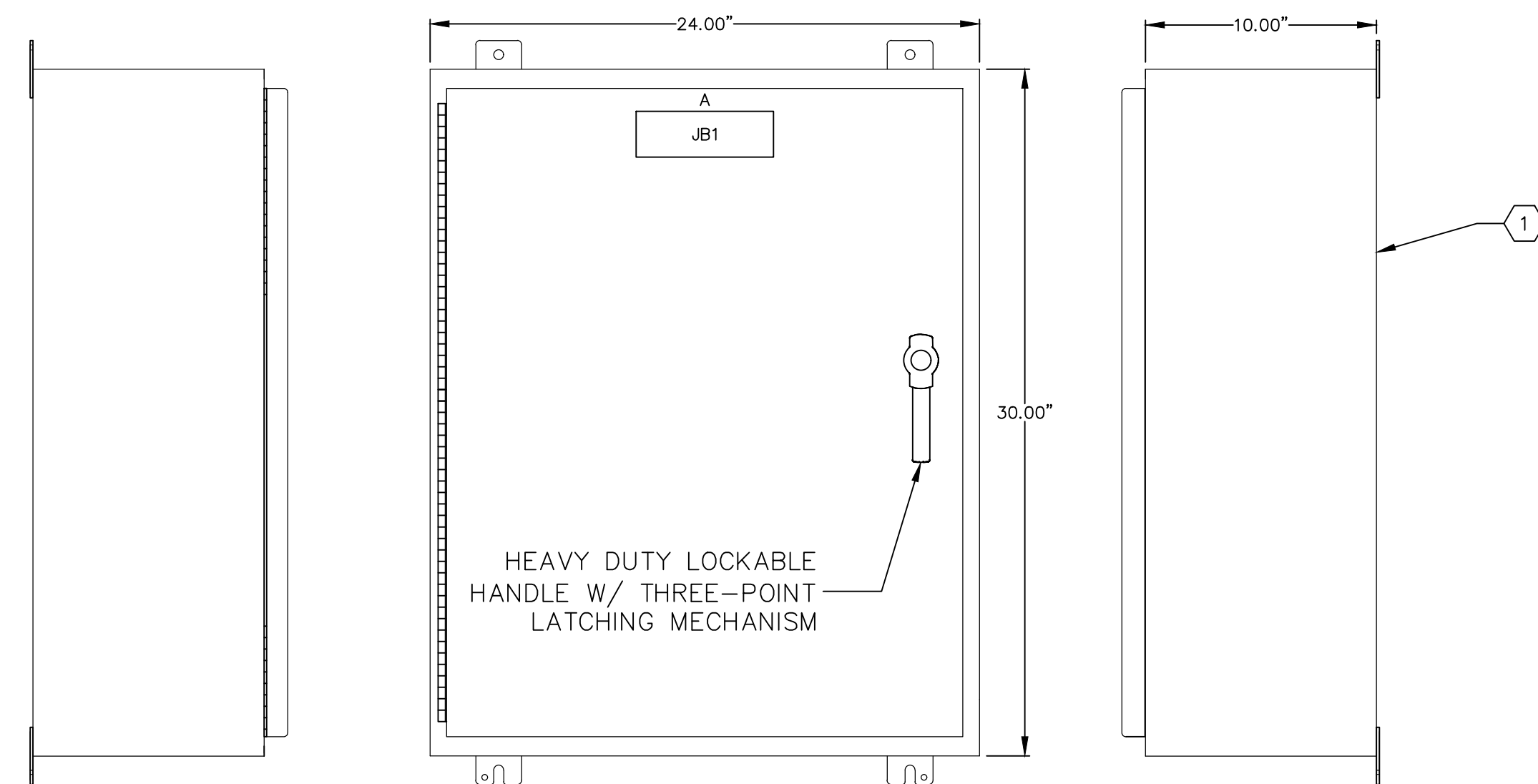
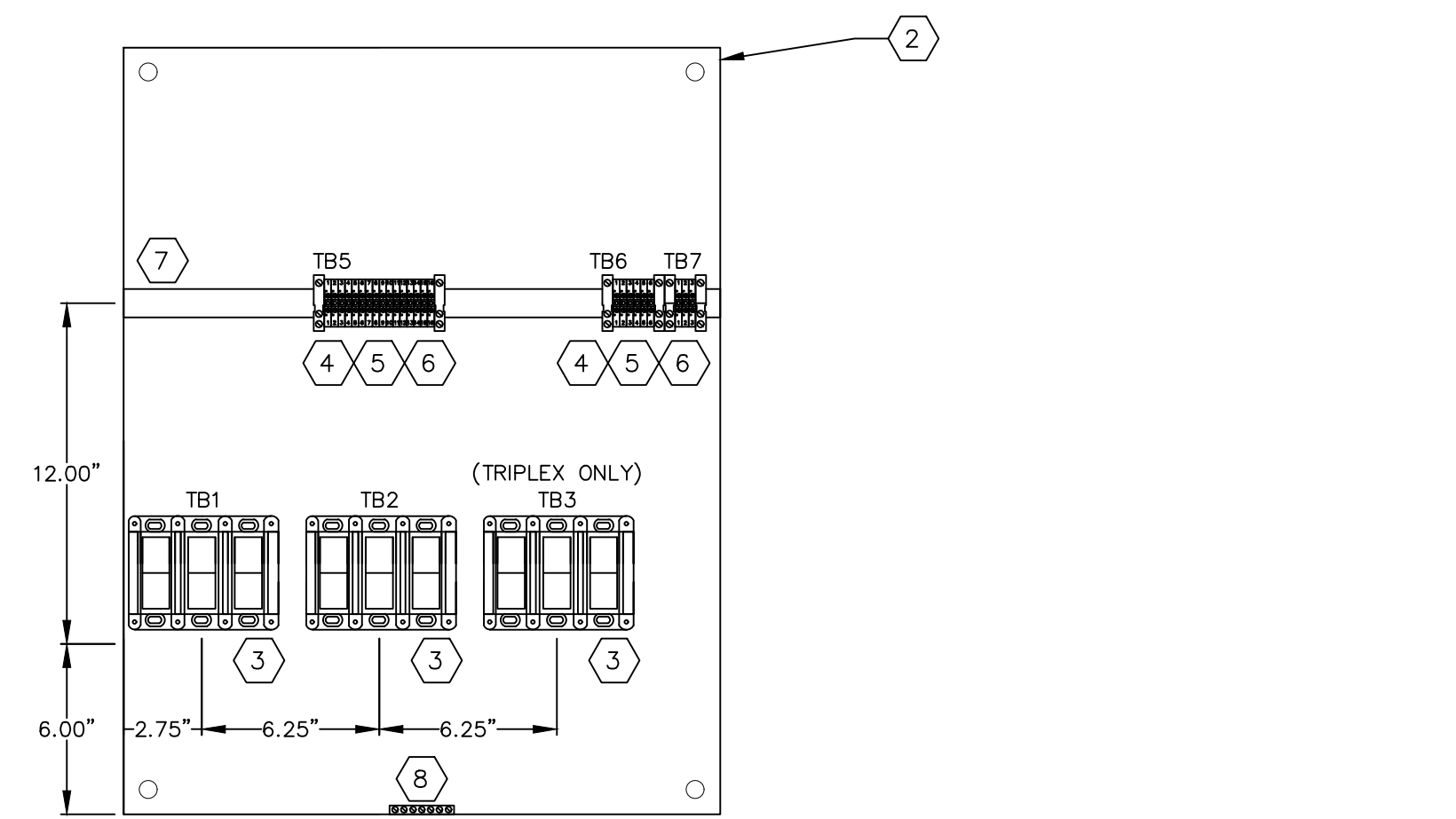
ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DR. WING NUMBER
DRAWN	VERTICAL:	E-2.0
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED		REVISION 4

LIST OF MAJOR COMPONENTS

WETWELL JUNCTION BOX (JB1)				
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	DESCRIPTION
1	1	JB1	HOFFMAN**	ENCLOSURE, 30"Hx24"Wx10"D, NEMA 4X, 304 SS, 3-PT LATCHES, EPOXY WHITE FINISH
2	1		HOFFMAN**	SUBPANEL, 27"Hx21"W, 0.10" THICK, ALUMINUM
3	2	TB1, TB2, TB3*	MARATHON	POWER DISTRIBUTION BLK, 3 POLE, 310A, 600VAC, PRIM: 1 CONN 6-350 CU, SEC: 2 CONN 14-2/0 CU
4	25	TB5, TB6, TB7	PHOENIX CONTACT	TERMINAL BLOCK
5	3		PHOENIX CONTACT	TERMINAL BLOCK END BARRIER
6	6		PHOENIX CONTACT	TERMINAL BLOCK END STOP
7	AR		PHOENIX CONTACT	DIN RAIL
8	1	GND	SQUARE-D	GROUND BAR, 14-4 CU, 7 POINT
		*TRIPLEX ONLY	**OR COUNTY APPROVED EQUAL	

NAMEPLATE SCHEDULE

N.P. NO.	QTY	PLATE COLOR/SIZE	LTR COLOR/SIZE	ENGRAVING (LINE1/LINE2/ETC.)
WET WELL JUNCTION BOX (JB1):				
A	1	BLK / 2.00" H x 6.00" W	WHT / 1/2"	JB1

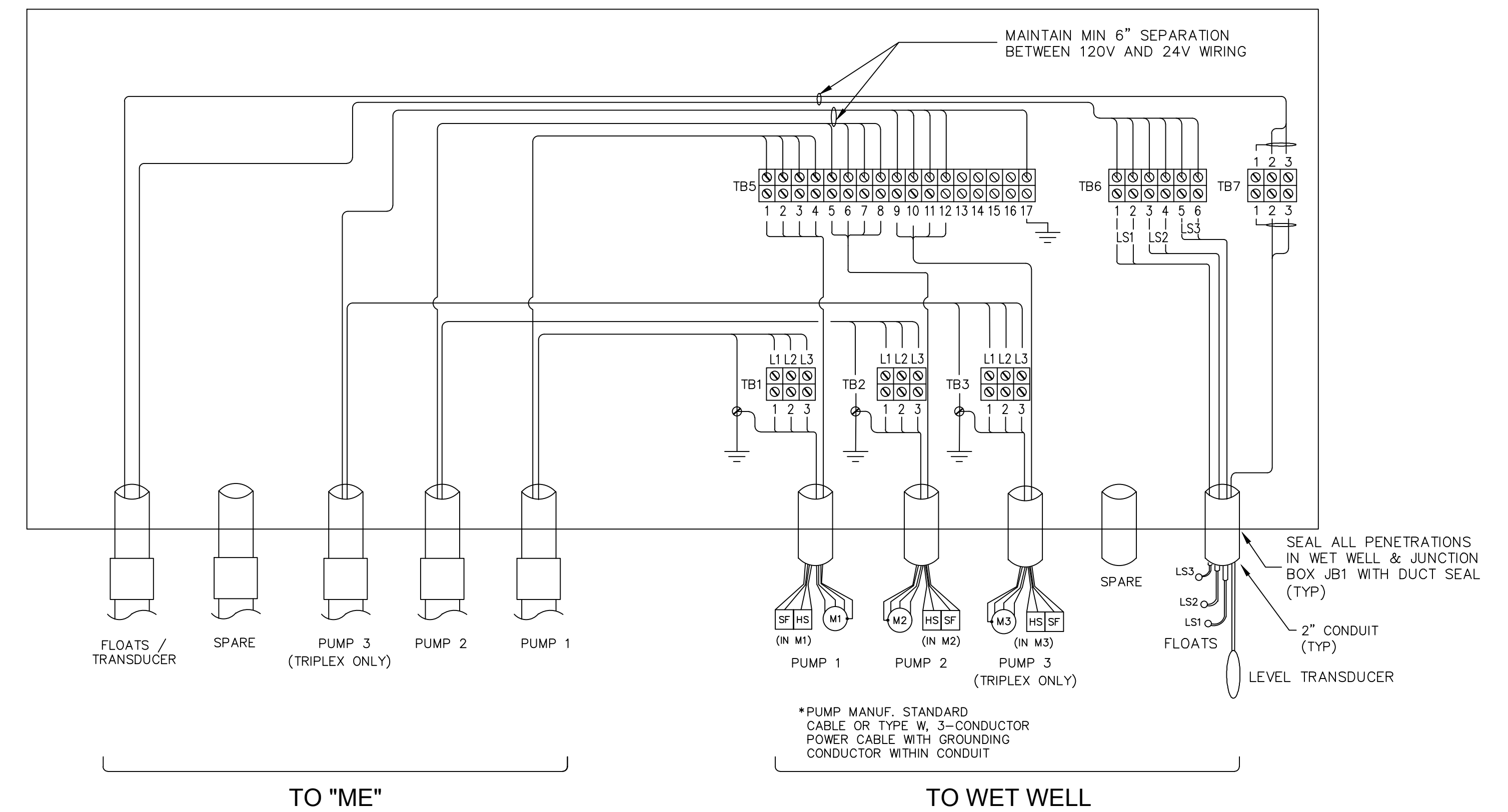


JB1 ENCLOSURE LAYOUT

2" = 1"

NOTES:

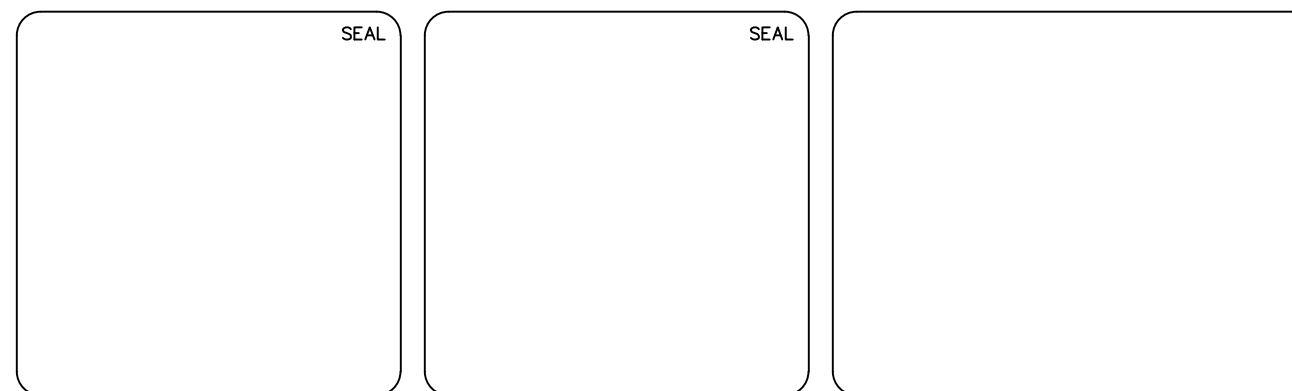
1. APPLY OXIDE-INHIBITING COMPOUND TO ALL ELECTRICAL TERMINATION CONTACT SURFACES, INCLUDING COMPRESSION AND BOLTED CONNECTIONS. PENETROX COMPOUND BURNDY OR EQUAL PRODUCT.
2. SCREW-DOWN CABLE TIES SHALL BE 3M CABLE TIE BASE MODEL 06299 OR PANDUIT MODEL ABM112 OR APPROVED EQUAL. (SIZE AS REQ'D)
3. CONTRACTOR SHALL MOUNT TERMINALS AS SHOWN.



JB1 ELECTRICAL SCHEMATIC

NTS

REVNO.	DESCRIPTIONS	REVISIONS	DATE
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS		9/6/19
4	REVISED, TO REFLECT CURRENT COUNTY STANDARDS		9/26/17
3	REVISED, TO INCORPORATE FIELD CHANGES		10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES		8/26/15
1	CONFORMED		5/17/13



**PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION**
925 E. TWIGGS STREET/TAMPA FLORIDA 33602/PH. (813) 272-5977

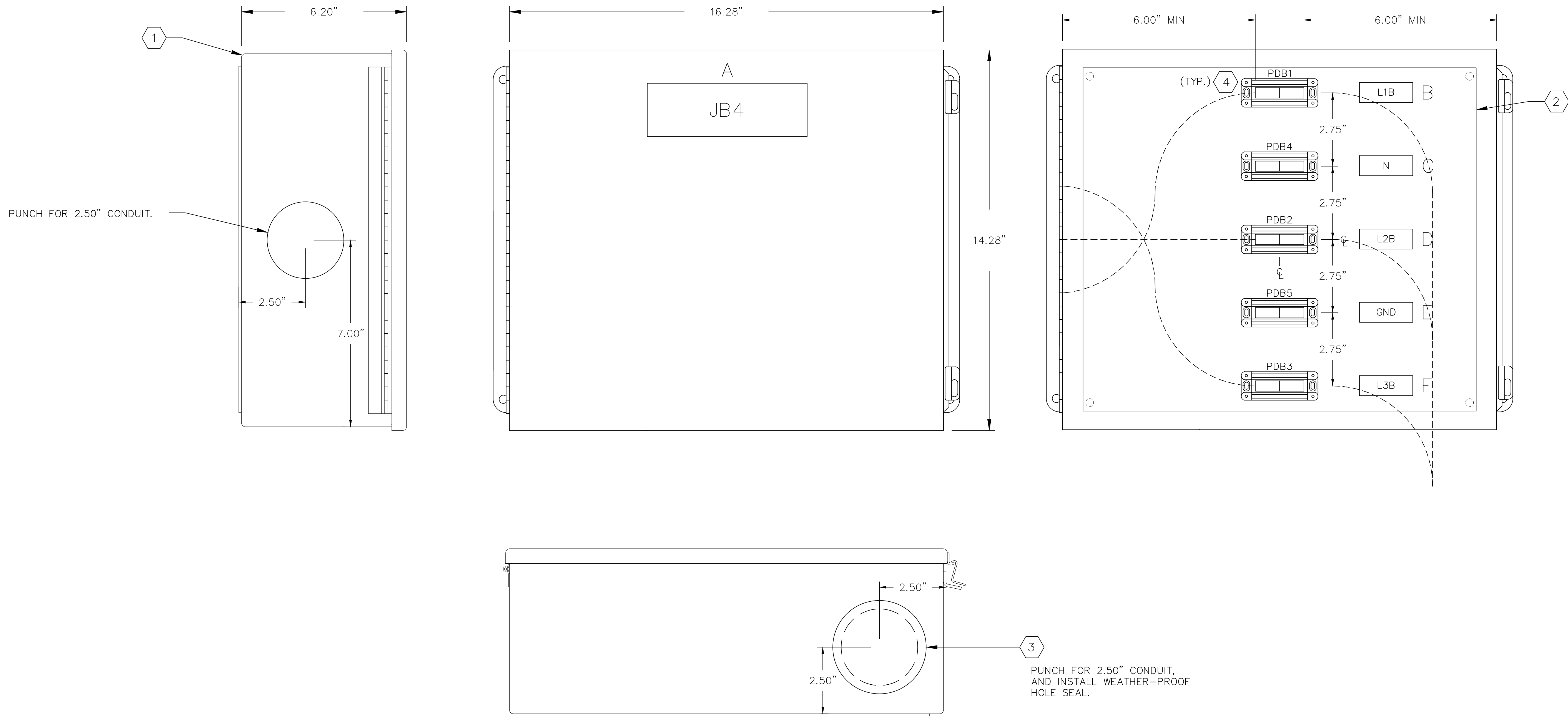
WET WELL JUNCTION BOX, (JB1)
CABINET LAYOUT, ELECTRICAL SCHEMATIC,
AND BILL OF MATERIAL

ISSUE DATE: NOVEMBER 2021
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE	FILE NUMBER
HORIZONTAL:	DRAWING NUMBER
VERTICAL:	E-3.0
NA	

STATUS:	REVISION
	5

LIST OF MAJOR COMPONENTS					
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
GENERATOR TERMINATION BOX (JB4):					
1	1	JB4	HOFFMAN**	A1614CHNFSS6	ENCLOSURE, 16"Hx14"Wx6"D, NEMA 4X, 304 SS, W/ LOCK KIT, EPOXY WHITE FINIS
2	1		HOFFMAN**	A16P14SS	SUBPANEL, 14.75"Hx12.88"W, 304 SS, EPOXY WHITE FINISH
3	2		HOFFMAN**	AS250SS	HOLE SEAL, 2.50", 300 SERIES SS, WEATHER-PROOF, EPOXY WHITE FINISH
4	5	PDB1,2,3,4,5	BUSSMANN	PDB204-1	POWER DISTRIBUTION BLK, 1 POLE, 175A, 600VAC, PRIM: 1 CONN 8-2/0 CU, SEC: 1 CONN 8-2/0 CU
**OR COUNTY APPROVED EQUAL					

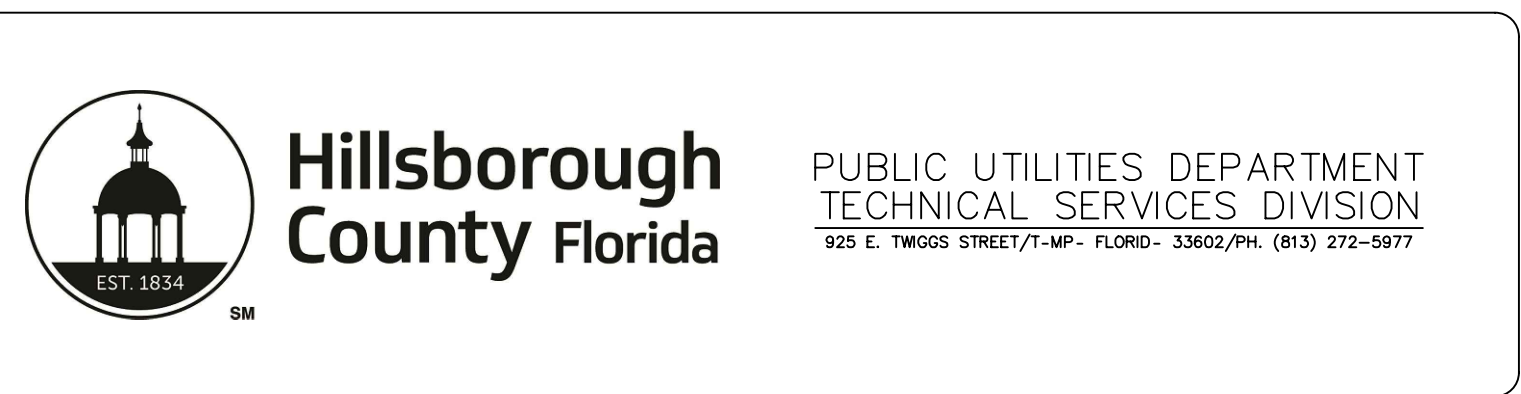
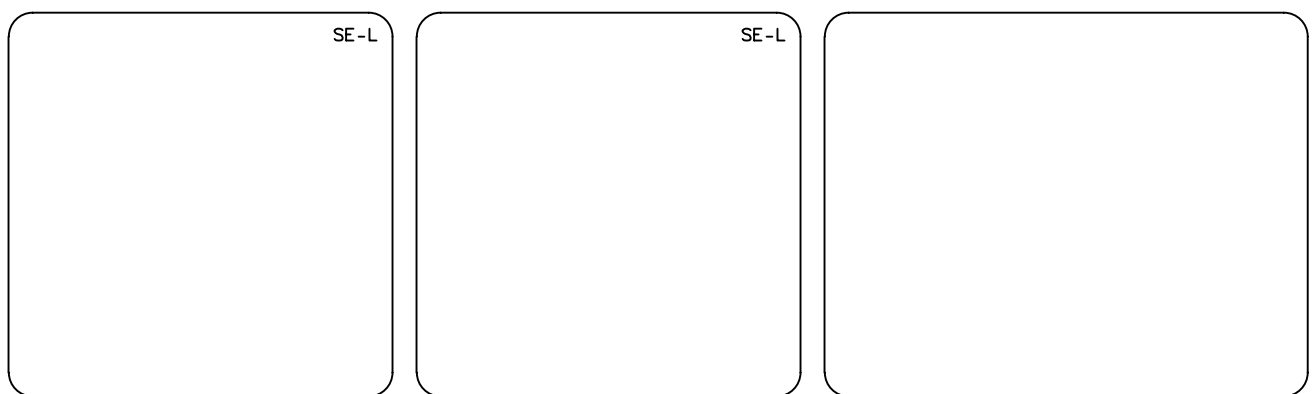


NAMEPLATE SCHEDULE				
N.P. NO.	QTY	PLATE COLOR/SIZE	LTR COLOR/SIZE	ENGRAVING (LINE1/LINE2/ETC.)
GENERATOR TERMINATION BOX (JB4):				
A	1	BLK / 2.00" H x 6.00" W	WHT / 1/2"	JB4
B	1	BLK / 0.75" H x 2.50" W	WHT / 1/4"	L1B
C	1	BLK / 0.75" H x 2.50" W	WHT / 1/4"	N
D	1	BLK / 0.75" H x 2.50" W	WHT / 1/4"	L2B
E	1	BLK / 0.75" H x 2.50" W	WHT / 1/4"	GND
F	1	BLK / 0.75" H x 2.50" W	WHT / 1/4"	L3B

GENERATOR TERMINATION PANEL (JB4)
1/2"=1"

NOTE: FOR USE WITH THE FOLLOWING "ME" PACKAGES ONLY:
 - DUP, 3PH/480VAC/3-20HP
 - TRI, 3PH/480VAC/3-20HP

REV. NO.	DESCRIPTION	DATE
4	REVISED, TO REFLECT CURRENT COUNTY ST-NO-RDS	9/29/17
3	REVISED, TO INCORPORATE FIELD CHANGES	10/16/15
2	REVISED, TO INCORPORATE FIELD CHANGES	8/26/15
1	CONFORMED	5/17/13



GENERATOR TERMINATION BOX, JB4
(SMALL)
CABINET LAYOUT
AND BILL OF MATERIAL

ISSUE DATE: NOVEMBER 2021	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DR-WING NUMBER
DRAWN	VERTICAL:	E-5.0
DESIGNED	NA	
CHECKED		
PROJ. MGR.		
STATUS: REVISED	REVISION	4