PLAN SYMBOLS

	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.
A	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.
J	JUNCTION BOX N.E.C. SURFACE MOUNTED UNLESS INDICATED OTHERWISE.
J	JUNCTION BOX PER N.E.C., FLUSH MOUNTED UNLESS INDICATED OTHERWISE.
	FLUSH OR SURFACE MOUNTED LIGHTING PANELBOARD.
	FLUSH OR SURFACE MOUNTED POWER PANELBOARD.
30	DRY TYPE TRANSFORMER. NO. INDICATES KVA RATING.
	90A, 208V, 1ø 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 1Ø, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
S	SINGLE POLE SWITCH IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED (TYPICAL).
S_S	SINGLE POLE SWITCH, SURFACE MOUNTED.
S_3	THREE-WAY SWITCH IN FLUSH OUTLET BOX.
S_M	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
10	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
F 30/20	FUSED DISCONNECT SWITCH (30/20: 30=SWITCH RATING, 20=FUSE RATING)
M	MOTORIZED VALVE
	COMBINATION MOTOR STARTER
VFD	VARIABLE FREQUENCY DRIVE
T	THERMOSTAT
	ELECTRIC HEATER
	FLUSH OUTLET BOX AND TELEPHONE COVER PLATE 48" ABOVE FINISHED FLOOR.
C	CONTROL PULLBOX. SEE "PULL BOX DETAIL"
P	POWER MANHOLE. SEE "MANHOLE DETAIL"
TC	TERMINATION CABINET, CLASS 1, DIVISION 2
	EYS FITTING AND CORRESPONDING "CHICO" CEMENT. COMBINATION SHALL BE RATED TO PROVIDE A CLASS 1, DIVISION 2 INSTALLATION.
XX	MAJOR COMPONENT, X COMPONENT NUMBER
A-V	NAMEPLATE SCHEDULE

PLAN SYMBOLS (CONTINUED)

AIT	ANALYZING INDICATING TRANSMITTER
FE	FLOW ELEMENT
LS	LEVEL SWITCH
LE	LEVEL ELEMENT
PS	PRESSURE SWITCH
ZS	ZERO SPEED SWITCH
SV	SOLENOID VALVE
LLS	LIQUID LEVEL SWITCH
FS	FLOW SWITCH
FIT	FLOW INDICATING TRANSMITTER
LIT	LEVEL INDICATING TRANSMITTER

SINGLE LINE DIAGRAM SYMBOLS

	COMBINATION MOTOR STARTER
V	VOLTMETER
A	AMMETER
VS	THREE PHASE VOLT SWITCH
AS	THREE PHASE AMP SWITCH
GFI	GROUND FAULT INTERRUPTER
W	WATT HOUR METER
	FUSE
	CAPACITOR
	DRAW-OUT CIRCUIT BREAKER
	MOLDED CASE CIRCUIT BREAKER
	TYPICAL SELECTOR SWITCH AND CONTROL. SEE ELEMENTARY DIAGRAMS FOR EXACT TYPE.
10	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
1	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
K	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

CONTROL DIAGRAM SYMBOLS (CONTINUED)

	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
LS	LIMIT SWITCH
XS	TORQUE SWITCH
PS	PRESSURE SWITCH
ZS	ZERO SPEED SWITCH
SV	SOLENOID VALVE
LLS	LIQUID LEVEL SWITCH
VS	VIBRATION SWITCH
AR	ALARM RELAY
AT	ALARM TIMER
CR	CONTROL RELAY
M	MOTOR STARTER
TR	TIMING RELAY
A	ALARM INDICATING LIGHT
R	RUN INDICATING LIGHT
	MOMENTARY CONTACT PUSHBUTTON
	MOMENTARY BREAK PUSHBUTTON OR RESET
K	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
ILS	INFLUENT LIFT STATION
INSTR	INSTRUMENTATION
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LS	LIFT STATION
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
PVC	POLYVINYL CHLORIDE
RA	RIGID ALUMINUM
RECPT	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
ø	PHASE

NOTES

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

REV.NO.	DESCRIPTIONS	DATE
1	CONFORMED	6/18/18

REVISIONS

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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 LIFT STATION ELECTRICAL, CONTROL & INSTRUMENTATION

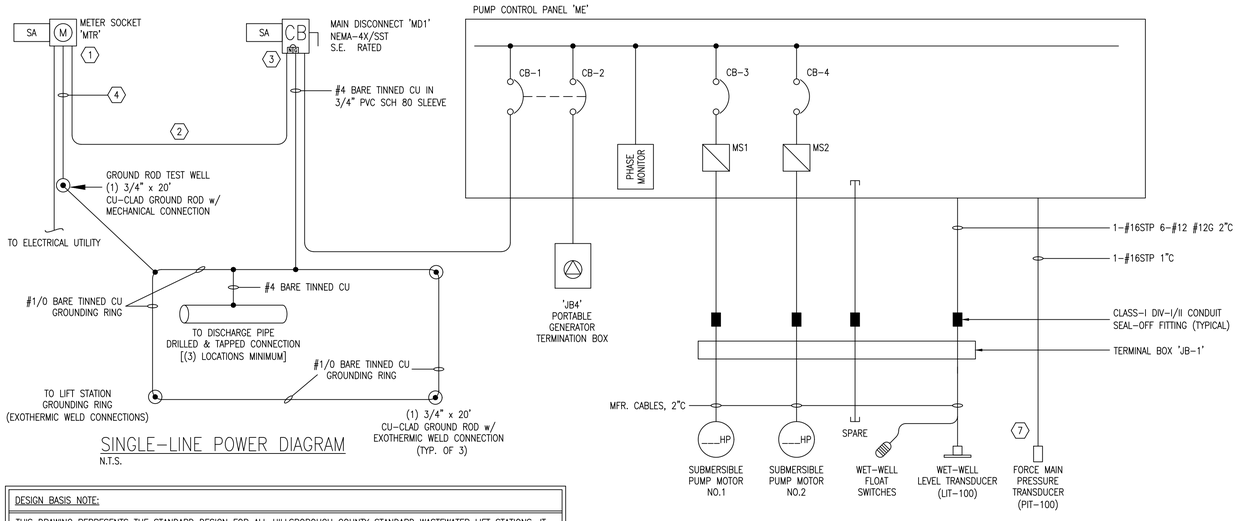
ELECTRICAL SYMBOLS, NOTES, AND ABBREVIATIONS

ISSUE DATE: OCTOBER 2025
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL: NA

FILE NUMBER
DRAWING NUMBER
E-0.0

STATUS:



SINGLE-LINE POWER DIAGRAM

N.T.S.

GENERAL NOTES:

1. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NEC, NESC AND LOCAL CODES INCLUDING OWNERS STANDARDS AND REQUIREMENTS.
2. ALL POWER & CONTROL CONDUCTORS SHALL BE 600V RATED THHN/THWN-2 STRANDED CU AND SIZED PER NEC.
3. 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.
4. ALL UNDERGROUND CONDUITS SHALL BE PVC SCH-80.
5. ALL MECHANICAL CONNECTIONS SHALL BE THROUGH-BOLTED MADE WITH STAINLESS STEEL HARDWARE AND FASTENERS WHICH INCLUDE HEAVY GAUGE FLAT AND LOCK WASHERS.
6. ELECTRICAL LAYOUT SUBJECT TO VARIATIONS BASED ON SPECIFIC SITE CONDITIONS, AS DETERMINED BY THE SITE-SPECIFIC DESIGN ENGINEER.
7. REFERENCE MECHANICAL DRAWINGS FOR SPECIFIC SITE DETAILS & DIMENSIONS, AND FOR COORDINATING THE INSTALLATION OF OTHER TRADES.
8. 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.
9. GROUNDING BUSHINGS SHALL BE USED ON ALL METAL CONDUITS IN ALL ENCLOSURES.
10. MYERS HUBS OR EQUAL SHALL BE USED AT ALL LOCATIONS WHERE CONDUITS ARE CONNECTING INTO THE SIDE OF AN ELECTRICAL ENCLOSURE.
11. OXIDE INHIBITING COMPOUND SHALL BE APPLIED TO ALL ELECTRICAL TERMINATION CONTACT SURFACES, INCLUDING COMPRESSION AND BOLTED CONNECTIONS.
12. 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:

1. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TECO FOR METERING REQUIREMENTS AND SERVICE CONSTRUCTION STANDARDS (SESR-2010). WIRE IDENTIFICATION AND PHASE ARRANGEMENT SHALL BE PER NEC.
2. 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.
3. MD1, CB1 THRU CB5, AND CB10 SHALL BE CAPABLE OF INTERRUPTING A FAULT CURRENT OF 25,000 AIC MINIMUM.
4. 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.
5. BEVEL AND GRIND ENDS SMOOTH ON ALL UNISTRUT, FLATSTOCK & ANGLE TO PROTECT PERSONNEL FROM POTENTIAL INJURY.
6. ALARM STROBE AND HORN SHALL BE MOUNTED 18" MINIMUM ABOVE TOP OF SURROUNDING FENCE.
7. CONTRACTOR SHALL COORDINATE INSTALLATION WITH ENGINEER/HCPU.
8. 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 LIFT STATION SLAB.

480VAC LOAD CALCULATIONS

DESCRIPTION				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

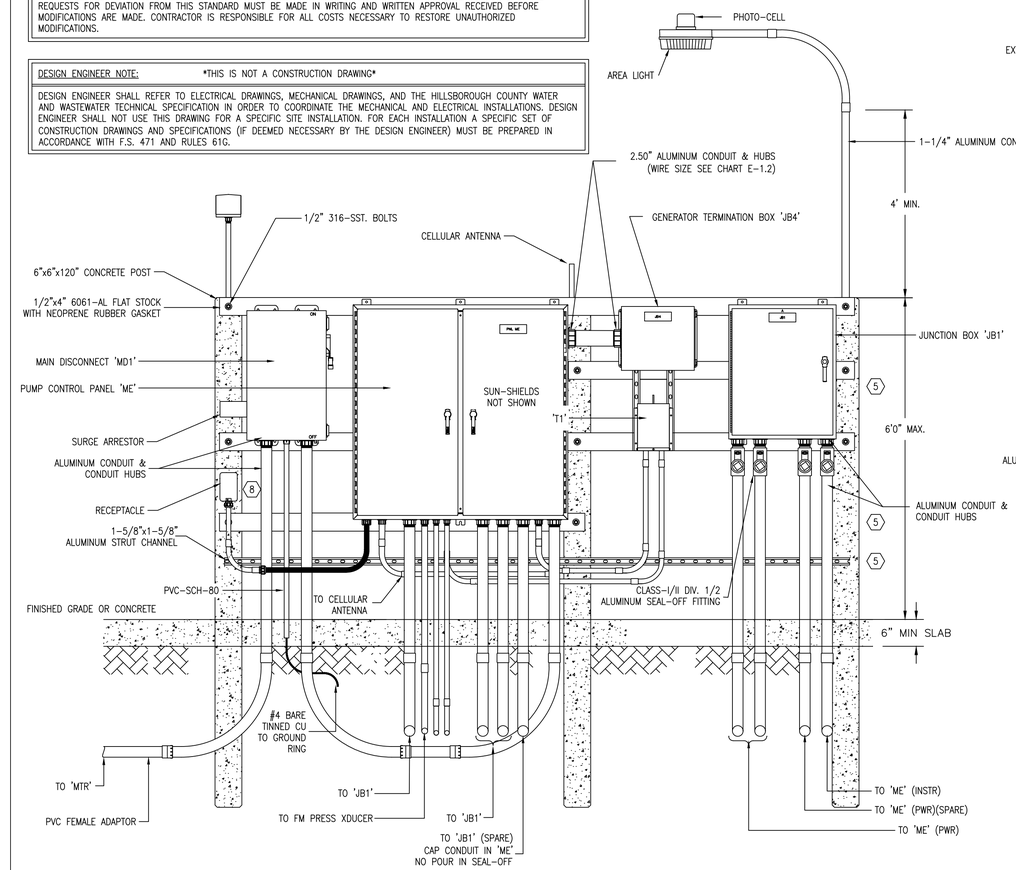
SERVICE SIZE: ___A, 480VAC, 3ϕ, 4-WIRE, MINIMUM

DESIGN BASIS NOTE:

THIS DRAWING REPRESENTS THE STANDARD DESIGN FOR ALL HILLSBOROUGH COUNTY STANDARD WASTEWATER LIFT 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.

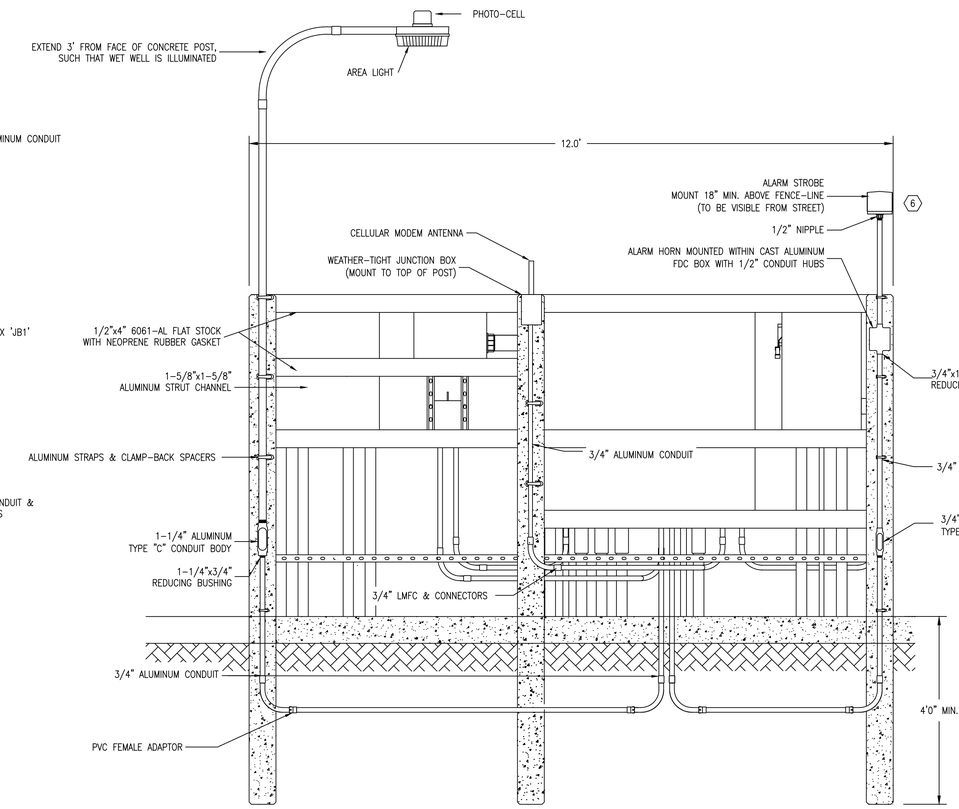
DESIGN ENGINEER NOTE: *THIS IS NOT A CONSTRUCTION DRAWING*

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.



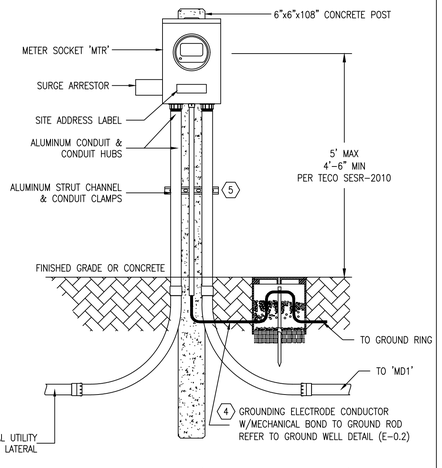
ELECTRICAL EQUIPMENT RACK DETAIL (FRONT ELEVATION)

N.T.S.



ELECTRICAL EQUIPMENT RACK DETAIL (REAR ELEVATION)

N.T.S.

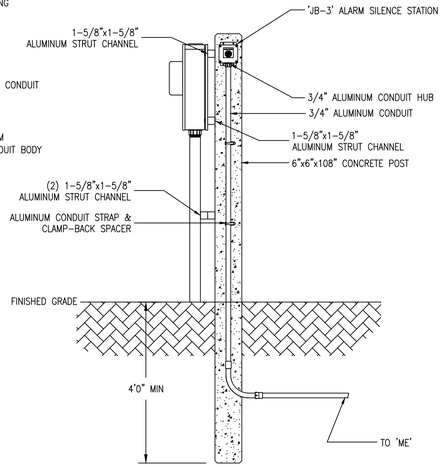


UTILITY METER DETAIL (FRONT ELEVATION)

N.T.S.

NOTES:

1. MOUNT METER TO CONCRETE POST USING ALUMINUM STRUT, UTILIZING STANDARD MOUNTING HOLES PROVIDED BY THE MANUFACTURER.
2. USE 316-SST FASTENERS AND HARDWARE.



UTILITY METER DETAIL (RIGHT-SIDE ELEVATION)

N.T.S.

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	
7	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	11/05/21
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	8/28/15
1	CONFORMED	5/17/13

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DUPLEX WASTEWATER LIFT STATION ELECTRICAL, CONTROL & INSTRUMENTATION

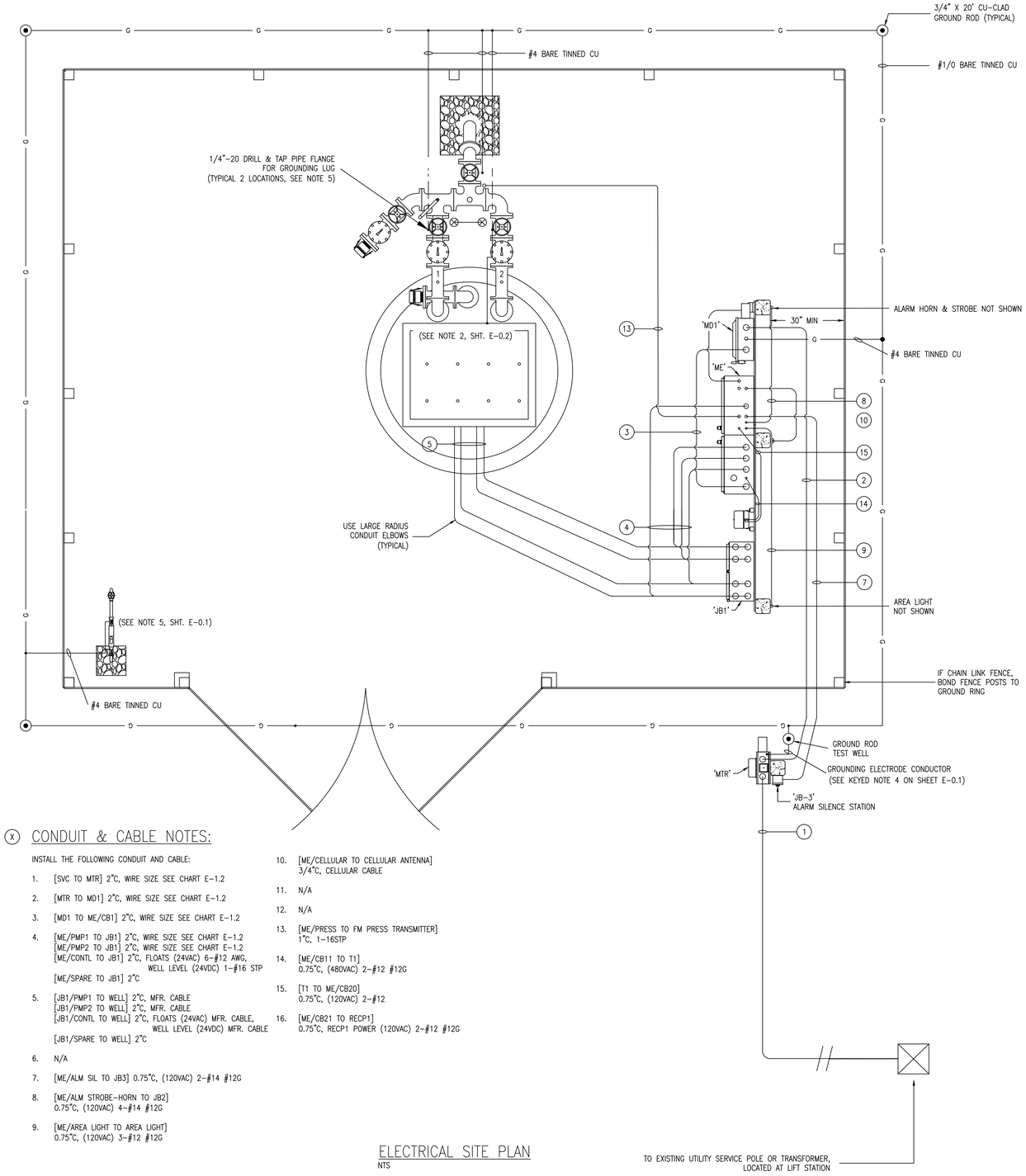
ELECTRICAL POWER PLAN AND DETAIL (3PH, 480V/3-20HP)

ISSUE DATE: OCTOBER 2025
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL:
NA

FILE NUMBER
DRAWING NUMBER
E-0.1

STATUS: REVISED
REVISION 7



ELECTRICAL SITE PLAN
NTS

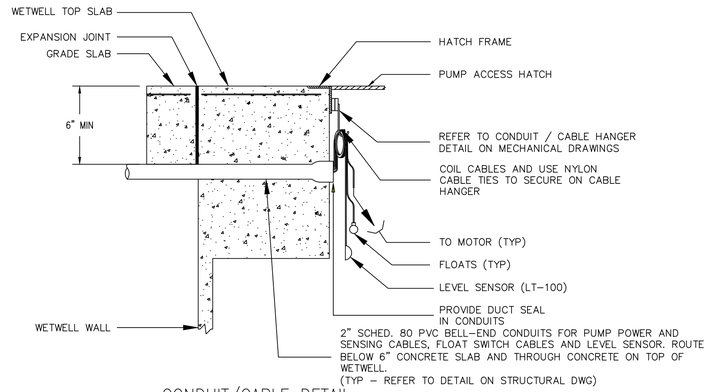
(X) CONDUIT & CABLE NOTES:

INSTALL THE FOLLOWING CONDUIT AND CABLE:

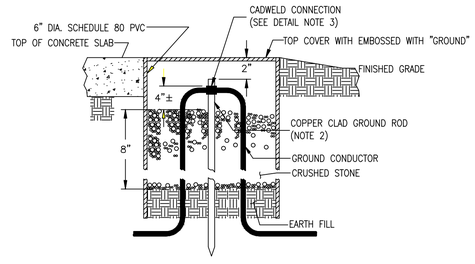
1. [SVC TO MTR] 2"C, WIRE SIZE SEE CHART E-1.2
2. [MTR TO MD1] 2"C, WIRE SIZE SEE CHART E-1.2
3. [MD1 TO ME/CB1] 2"C, WIRE SIZE SEE CHART E-1.2
4. [ME/PMP1 TO JB1] 2"C, WIRE SIZE SEE CHART E-1.2
   [ME/PMP2 TO JB1] 2"C, WIRE SIZE SEE CHART E-1.2
   [ME/CONTL TO JB1] 2"C, FLOATS (24VAC) 6-#12 AWG, WELL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

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.



CONDUIT/CABLE DETAIL
N.T.S.



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
N.T.S.

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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Hillsborough County Florida

DUPLEX WASTEWATER LIFT STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

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

ISSUE DATE: OCTOBER 2025	
PROJ. #	
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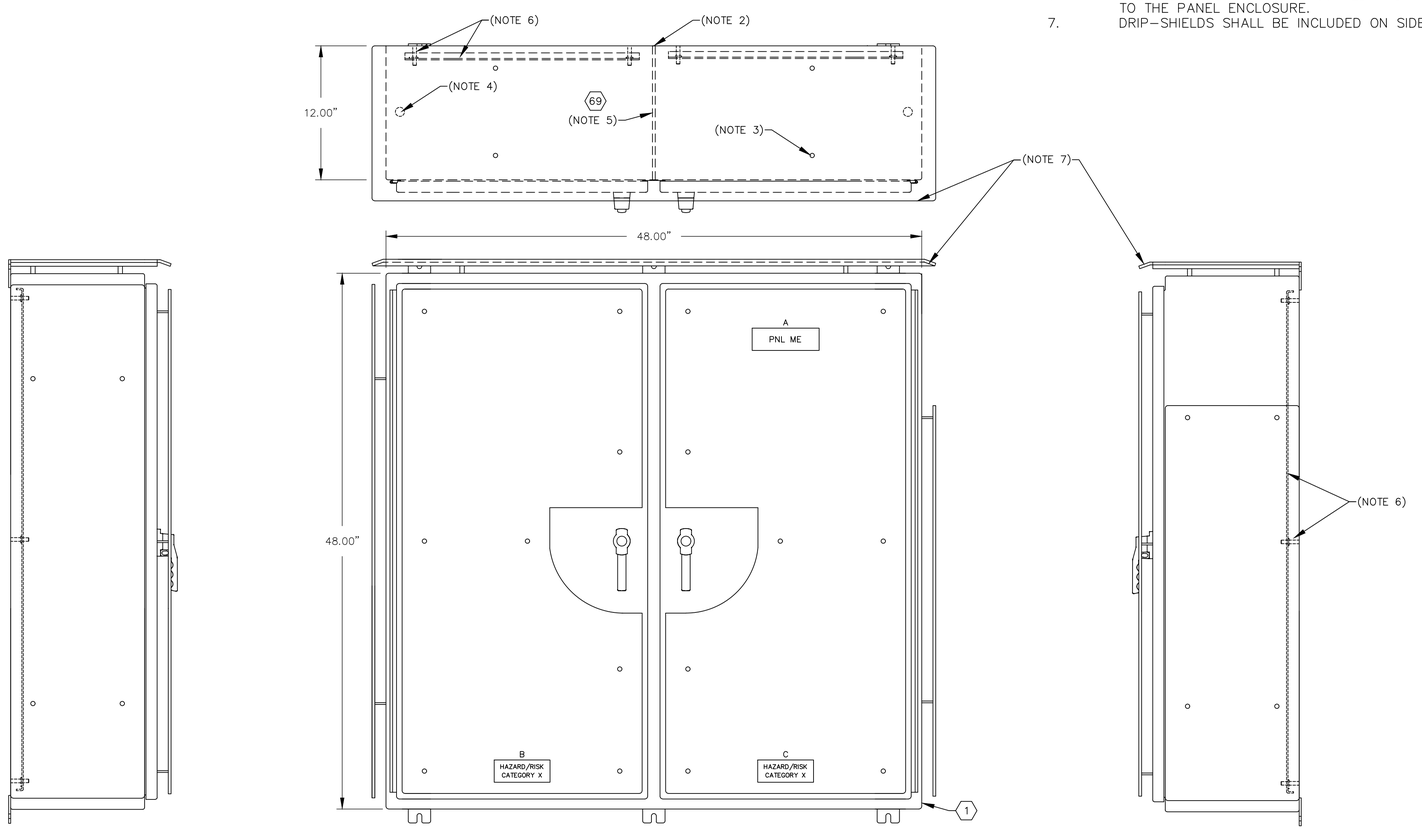
SCALE
HORIZONTAL:
VERTICAL: NA

FILE NUMBER
DRAWING NUMBER
E-0.2

STATUS:

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
1	CONFORMED	6/18/18

REVISIONS

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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 LIFT STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

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

ISSUE DATE: OCTOBER 2025
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL: NA

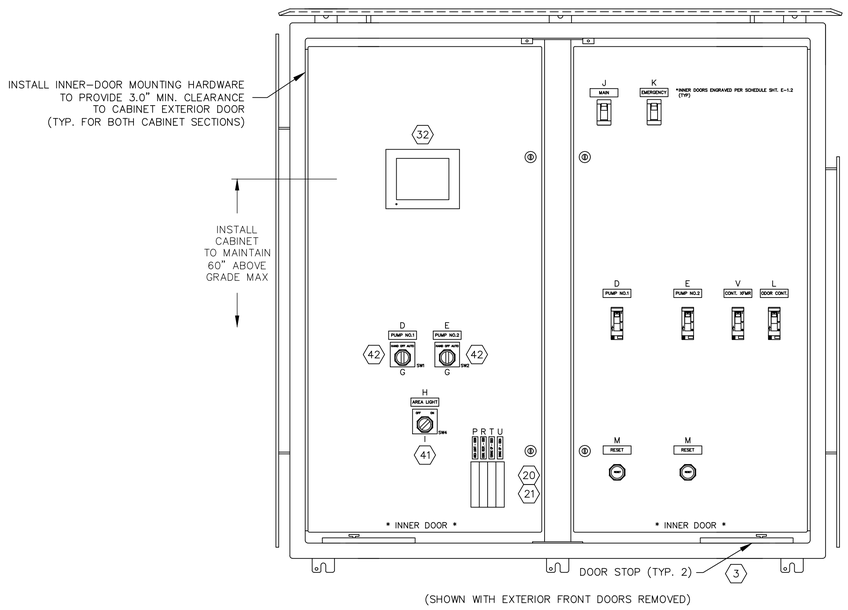
FILE NUMBER
DRAWING NUMBER
E-1.0

STATUS:

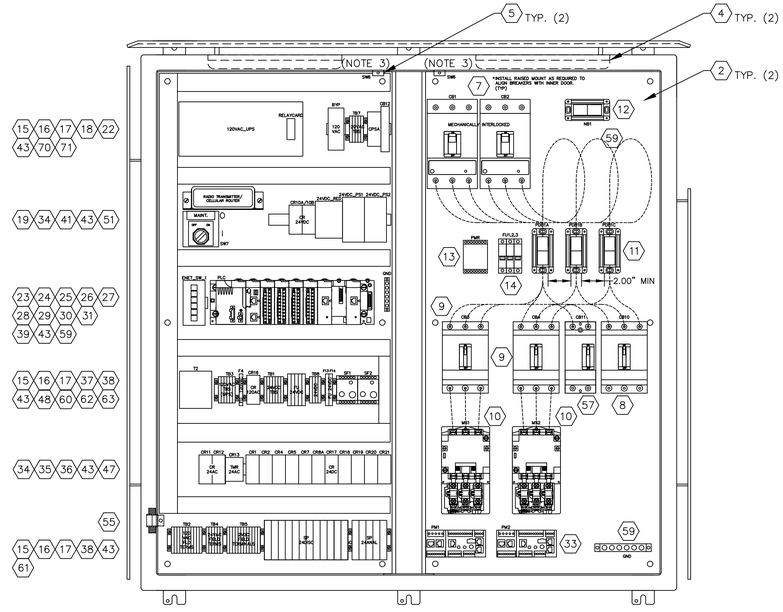
REVISION
1

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. INSTALL STAND-OFF BRACKETS AS REQ'D TO EXTEND CIRCUIT BREAKERS TO INNER DOOR.
3. INSTALL DOOR SWITCHES TO INSURE THAT ACTUATION PLUNGER CLEARS WEATHER-STRIPPING AND MAKES CLEAR CONTACT WITH DOOR SURFACE.



(SHOWN WITH EXTERIOR FRONT DOORS REMOVED)



INTERIOR ELECTRICAL/CONTROL CABINET, (ME)

5/32"=1'

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	
2	REVISED TO REFLECT CURRENT COUNTY STANDARDS	4/07/23
1	CONFORMED	6/18/18

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FILE NUMBER
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E-1.1

STATUS:
REVISION 2

LIST OF MAJOR COMPONENTS

ELECTRICAL/CONTROL CABINET (ME)

ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
1	1		HOFFMAN	A48H4812WFSSLP-3PT (CUSTOM)	ENCLOSURE, 48"Hx48"Wx12"D, TWO-DOOR, WELDED CABINET DIVIDER, NEMA 4X 304 SS, 3-PT LATCHES, SUN-SHIELDS, EPOXY WHITE FINISH INNER-DOOR BOTH SIDES: 43.5"Hx21"W, ALUMINUM, 0.125" THICK MIN., POWDER COAT IRON GRAY TEXTURE FINISH (HBT2-C0009-C50)
2	2		HOFFMAN	(CUSTOM)	SUBPANEL, 45"Hx21"W, ALUMINUM, 0.250" THICK, EPOXY WHITE FINISH
3	2		FABTECH	NH-45013	DOOR STOP KIT, 316 SS
4	2		GE	UCF18/DW/ADV-16547	CABINET LIGHT, FLUORESCENT
	2		GE	F15T8/WW-10147	CABINET LIGHT, BULB
5	2	SW5, SW6	SQUARE-D	9007-AP221	DOOR SWITCH
6	1	JB4			GENERATOR TERMINATION PANEL, REFER TO SHT. E-5.0
7	2	CB1, CB2	SEE CHART THIS SHT.		
			SQUARE-D	JJL36250U31X	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	HGL36025T	CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 25 AMP TRIP UNIT
			SQUARE-D	HGL36040T	CIRCUIT BREAKER, MOLDED-CASE, 600V, 3 POLE, 40 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 14-2/0 CU, SEC: 6 CONN 14-4 CU
12	1	NB1	BUSSMANN	16325-1	POWER DISTRIBUTION BLK, 1 POLE, 350A, 600VAC, PRIM: 2 CONN 14-2/0 CU, SEC: 6 CONN 14-4 CU
13	1	PMR	DIVERSIFIED ELECTRONICS	SDU-100-ASA	PHASE MONITOR RELAY
			SQUARE-D	8501NR51	RELAY BASE
14	1		SQUARE-D	DFCC3V	3 POLE FUSE HOLDER
	3	FU1,FU2,FU3	BUSSMANN	LP-CC-1	1 AMP CLASS CC FUSE
15	76		ENTRELEC	115 116.07	TERMINAL BLOCK, 30A
16	10		ENTRELEC	116 368.16	TERMINAL BLOCK END BARRIER
17	19		WAGO	249-117	TERMINAL BLOCK END STOP
18	1	120VAC_UPS	SOLA	SDU-850a	UNINTERRUPTIBLE POWER SUPPLY, 120VAC, 1PH, 850VA
	1	120VAC_UPS_RELAY	SOLA	SDUCFRELAYCARD	UNINTERRUPTIBLE POWER SUPPLY ALARM RELAY MODULE
19	2	24VDC_PS1,24VDC_PS2	WEIDMULLER	8951360000	POWER SUPPLY, 24VDC, 10AMP
	1	24VDC_RED	WEIDMULLER	8710620000	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	BMXCPS3500	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	BMXDDI1602	M340, DISCRETE INPUT MODULE, 16PT
27	1	PLC_MOD_3	MODICON	BMXDRA1605	M340, DISCRETE OUTPUT MODULE, 16PT
28	1	PLC_MOD_4	MODICON	BMXAMI0810	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
	1	PLC_MOD_7	MODICON	BMXNOR0200H	M340, DNP COMM MODULE
32	1	OPI	MODICON	MAGELIS HMIGT02310	OPERATOR INTERFACE PANEL, 5.7", COLOR, TOUCHSCREEN, 24VDC, ENET
33	2	PM1, PM2	SQUARE-D	LTMR27EBD	TSYS-T, CONTROLLER
	2		SQUARE-D	LTMEV40BD	TSYS-T, EXTENSION MODULE
	2		SQUARE-D	LTMCC004	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
	4		SQUARE-D	RXM040W	DIODE MODULE, 6-230VDC (FOR CR4, CR5, CR24, CR25)
35	2	CR11,12	SQUARE-D	RXM4AB1B7	CONTROL RELAY, 24VAC COIL, 4PDT, 5A CONTACTS
36	20		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	5	SP-1,2,24,25,28	CITEL	DLA-24D3	SURGE PROTECTOR, ANALOG, 24VDC, SINGLE CHANNEL, PLUG & BASE
39	1	ENET_SW_1	CONNEXIUM	TCSESB083F23F0	ETHERNET SWITCH, MANAGED
40					*NOT USED
					*NOT USED
					*NOT USED
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	12		IBOCO	IB-T1-1030W	WIRE DUCT, 1"W x 3"H, WHITE (PER FT, 6' MIN)
	12		IBOCO	IB-T1-1530W	WIRE DUCT, 1.5"W x 3"H, WHITE (PER FT, 6' MIN)
44					*NOT USED
45					*NOT USED
46					*NOT USED
47	1	CR13	SQD	9050JCK11V14	RELAY, 24VAC, TIME-DELAY, 1-10 SECONDS
	1		SQUARE-D	8501NR51	RELAY BASE
48	1	T2	SQUARE-D	9070T100D23	TRANSFORMER, 120V/24V, 1PH, 100VA
49					*NOT USED
50					*NOT USED
51	1	RAD1	MDS	220-MDS-SD2P-B-ES-ETHERNET	RADIO TRANSCEIVER (COUNTY WILL PROVIDE FREQS AT TIME OF ORDER)
	1	ECR1	GE MDS	MDSECR4GLTE	CELLULAR ROUTER (COUNTY WILL PROVIDE FREQS AT TIME OF ORDER)
52					*NOT USED
53					*NOT USED
					*NOT USED
54					*NOT USED
55	1		POLYPHASER	IS-50NX-C2	ANTENNA CABLE SURGE SUPPRESSOR
56	1		ANDREWS	F2A-PNMNR-6	ANTENNA JUMPER CABLE, N-MALE 90 TO N-MALE, 6FT
	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	2		SQUARE-D	PK0GTA6	GROUND BAR, 6 CONN 14-1/0 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	BUSSMANN	GMA-500-R	FUSE, 500mA, FAST ACTING
	1	FU13	BUSSMANN	GMA-100-R	FUSE, 100mA, FAST ACTING
	1	FU14	BUSSMANN	GMA-300-R	FUSE, 300mA, FAST ACTING
64	1		ENTRELEC	173 523.11	FUSE TERMINAL BLOCK JUMPER
65	3		ENTRELEC	168 973.07	TERMINAL BLOCK JUMPER
66	9	FU4,5,6,7,8,9,10,13,14	ENTRELEC	115 657.25	FUSE TERMINAL BLOCK, 10A
67	2		ENTRELEC	116 951.15	FUSE TERMINAL BLOCK END BARRIER
68					*NOT USED
69	1		HUBBELL	ZS105	CABLE FITTING, PASS-THROUGH (POWER)
	1		HUBBELL	ZS108	CABLE FITTING, PASS-THROUGH (COMMUNICATION)
	1		HUBBELL	ZS210	CABLE FITTING, PASS-THROUGH (CONTROL)
70	1	BYP	SQUARE-D	RUMC3AB2F7	CONTROL RELAY, 120VAC COIL, 3PDT, 10A CONTACTS, W/STATUS LED
	1			RUZSC3M	RELAY BASE, PIN PLUG, BOX-LUG, SEPARATE
71	1	CB12	SQUARE-D	QOU130	CIRCUIT BREAKER, 1 POLE, 30A

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	1	ENG / 0.75" H x 2.50" W	ENG / 1/4"	MAINT
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

CROSS REFERENCE TABLE

BID ITEM	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 (Ir/tr/Ii)	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
4.1.A.S	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 1	3–#12	PER MANUF	H20	3–#12	––	2–#10	H15
4.1.B.S	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 1	3–#12	PER MANUF	H20	3–#12	––	2–#10	H15
4.1.C.S	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
4.1.D.S	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
4.2.A.S	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
4.2.B.S	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.

DESIGN BASIS NOTE:

THIS DRAWING REPRESENTS THE STANDARD DESIGN FOR ALL HILLSBOROUGH COUNTY STANDARD WASTEWATER LIFT 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.

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	
3	REVISED TO REFLECT CURRENT COUNTY STANDARDS	8/17/23
2	REVISED TO REFLECT CURRENT COUNTY STANDARDS	4/07/23
1	CONFORMED	6/18/18

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DUPLEX WASTEWATER LIFT STATION ELECTRICAL, CONTROL & INSTRUMENTATION

ELECTRICAL/CONTROL ENCLOSURE BILL OF MATERIAL & EQUIP SIZING CHART (3PH)(480V/3–20HP)

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E–1.2

STATUS:
REVISION 3

ELECTRICAL/CONTROL CABINET, (ME)

GENERATOR TERMINATION BOX JB4

EMERGENCY MAIN CB2

NORMAL MAIN CB1

MECHANICALLY INTERLOCKED

UTILITY CONNECTION 3ø/4W,480V/277V FROM MAIN DISC (MD1)

(L1A) (L2A) (L3A) (G) (N)

NB1

GND

(CONNECT AT PDB1, TYP)

PDB1A/B/C

FU1, FU2, FU3 1A

L1 L2 L3

PHASE MONITOR RELAY (PMR)

*PHASE FAIL ALARM OUTPUT CONTACT ENERG – OK (510)

NOTES:

1. 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

2. DASHED LINES INDICATE ENTITIES EXTERNAL TO CABINET.

POWER MONITOR (PM1)

LMTR100EBD

LINE 238, SHT E–1.4 (+24VDC) A1 A2 (–24VDC) LINE 238, SHT E–1.4

RESET PB1, ON INNER–DOOR (117) I.5 C (117B) PB1, ON INNER–DOOR

PUMP NO. 1 CIRCUIT BREAKER CB3

ENET_SW PORT 3, LINE 223 (CAT5) RJ–45 PASSTHRU

MS1

(M1/T1) (M1/T2) (M1/T3)

JB–1 L1 L2 L3 TB1

M1 PUMP NO.1 (REF E–1.2)

*HEAT SENSOR (514)

*MS1 COIL (526)

MS1 AUX CONTACT (246)

LTMEV40BD LV3 LV2 LV1

POWER MONITOR (PM2)

LMTR100EBD

LINE 238, SHT E–1.4 (+24VDC) A1 A2 (–24VDC) LINE 238, SHT E–1.4

RESET PB2, ON INNER–DOOR (125) I.5 C (125B) PB2, ON INNER–DOOR

PUMP NO. 2 CIRCUIT BREAKER CB4

ENET_SW PORT 4, LINE 223 (CAT5) RJ–45 PASSTHRU

MS2

(M2/T1) (M2/T2) (M2/T3)

JB–1 L1 L2 L3 TB2

M2 PUMP NO.2 (REF E–1.2)

*HEAT SENSOR (517)

*MS2 COIL (532)

MS2 AUX CONTACT (252)

LTMEV40BD LV3 LV2 LV1

(G) LINE 148

(1) (2) (3) LINE 141

(3) LINE 141

LINE 139 (3) LINE 138 (2) LINE 137 (1)

ODOR CONTROL CB10 20A

CONTROL T1 CB11 15A

T1 PRIM: 480VAC SEC: 120VAC

(L) [#10] (N) [#10]

120VAC MAIN (XFMR SEC) CB12 *INSTALLED AT RTU SUBPANEL 30A

120VAC / 60HZ / 1ø

AREA LIGHT CB20 10A

AREA LIGHT SW4 OFF ON

AREA LIGHT

CONV RECP CB21 15A

*RECP1 MUST HAVE 10KA SCCR MIN.

RECP1* (GFCI)

CONV. RECP.

CONTROL CB23 10A

DOOR SWITCH SW5

SW6

FLUOR LIGHT

CABINET LIGHTS

CR16

ME CABINET INTRUSION ALARM (306)

CONTROL POWER SURGE ARRESTER CPSA AC LINE N G

CONTROL POWER SURGE PROTECTION

TO T2 REF. SHT. E–1.7

FLOAT CONTROL POWER

UNINTERRUPTIBLE POWER SUPPLY 120VAC_UPS

INPUT OUTPUT REMOTE ON/OFF 12VDC COMM

BYP E–1.5 (305) (305) –24VDC

120VAC_UPS_RELAY

ALARM OUTPUTS TO PLC (262,264)

UPS AUTO–RESTART

UPS FAILURE BYPASS (170,176,176,176,176)

(12) LINE 201, SHT E–1.4

(N2) LINE 201, SHT E–1.4

(G) LINE 201, SHT E–1.4

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

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CHECKED
PROJ. MGR.

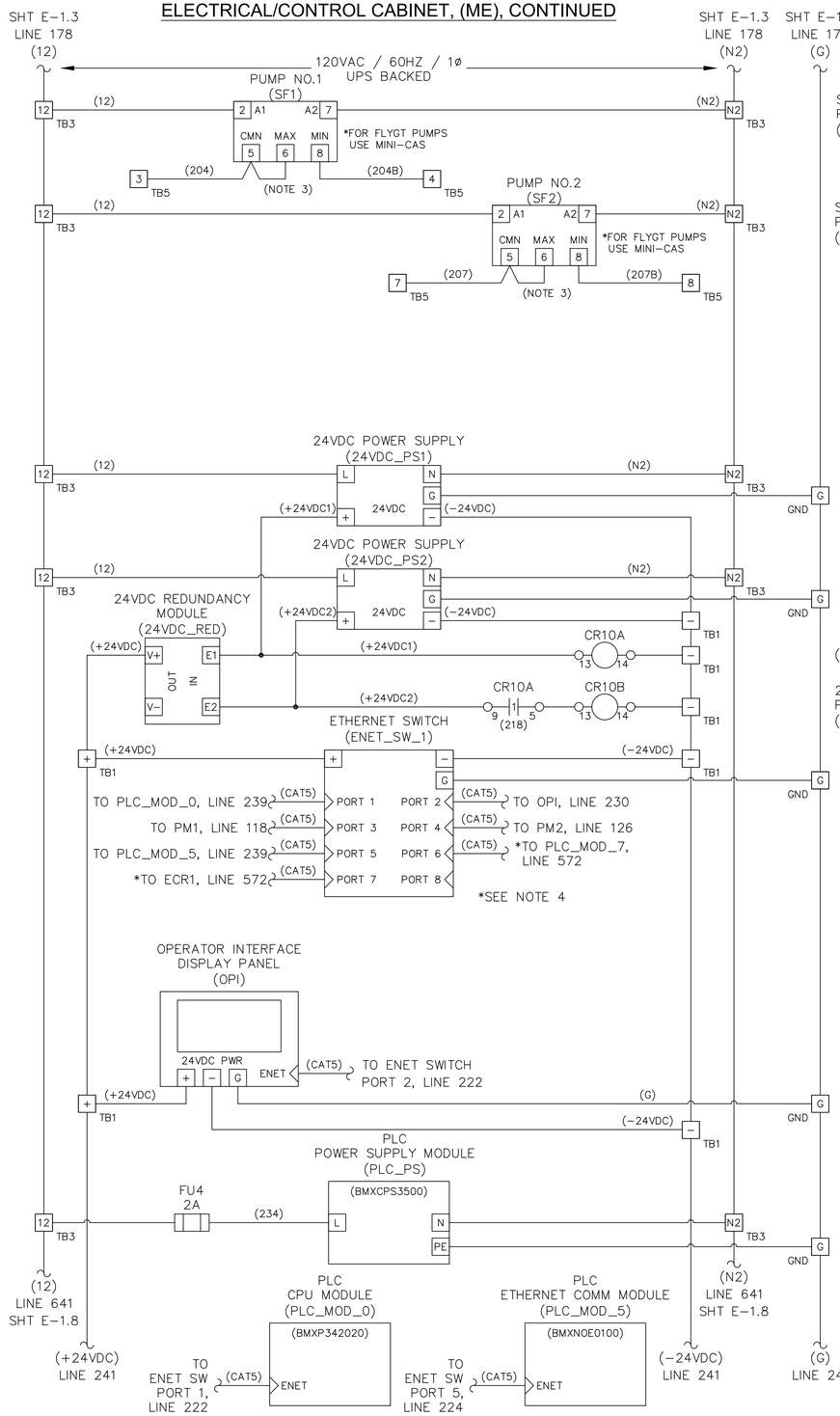
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VERTICAL: NA

FILE NUMBER
DRAWING NUMBER
E–1.3

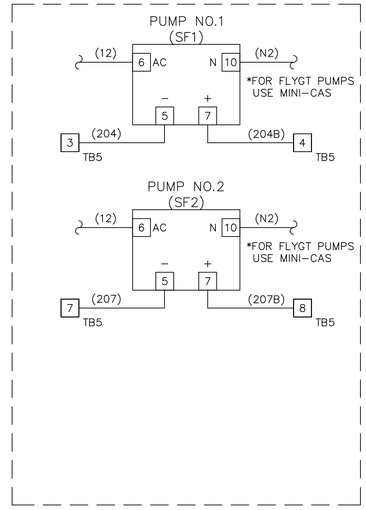
STATUS:

REVISION 2

ELECTRICAL/CONTROL CABINET, (ME), CONTINUED



** FOR FLYGT PUMPS ONLY **
MINI-CAS



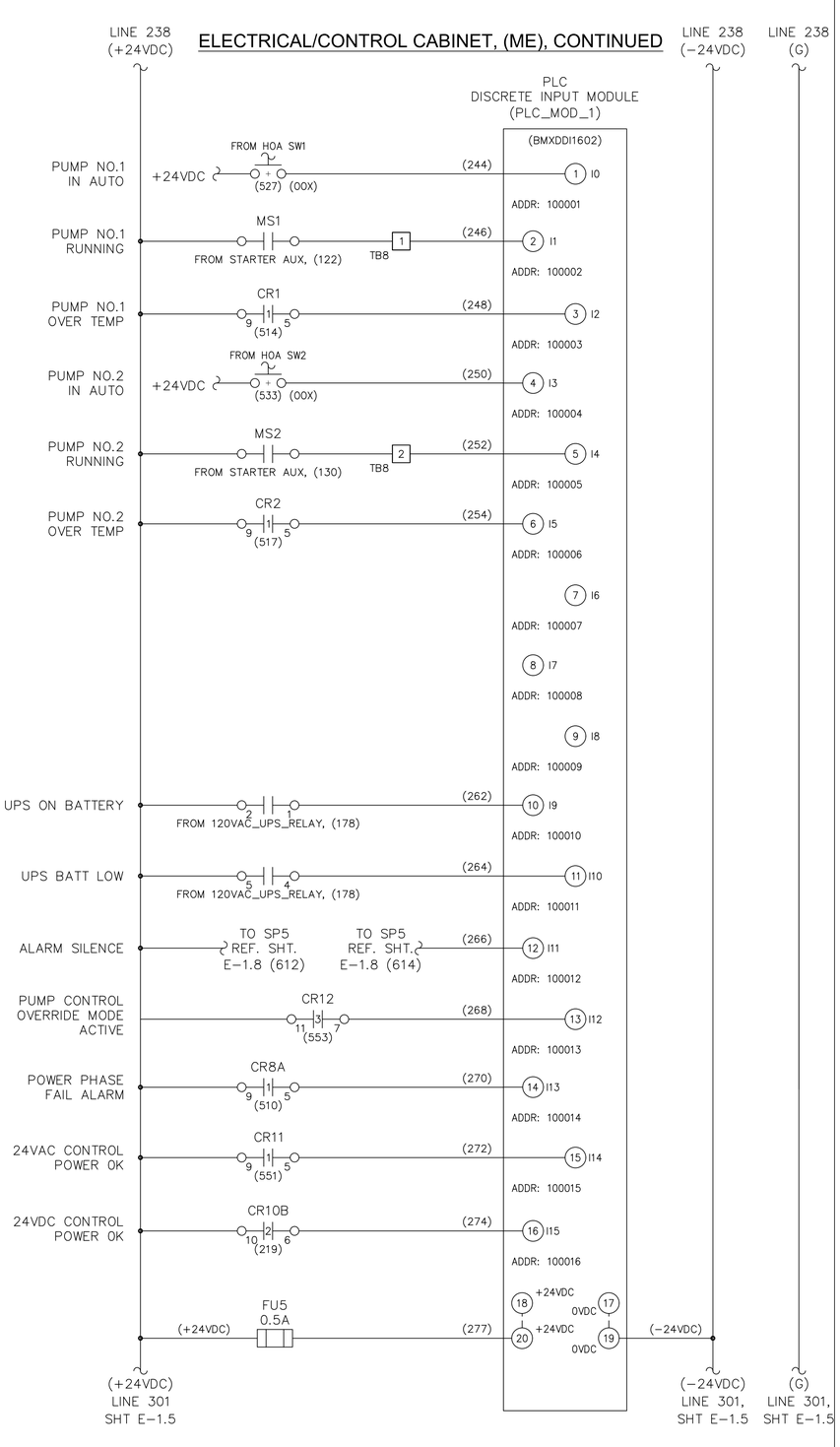
NOTES:

1. 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

2. DASHED LINES INDICATE STATION SPECIFIC ENTITIES.
3. 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.
4. PORTS 6 & 7 ON THE ETHERNET SWITCH WILL ONLY BE REQUIRED AT STATIONS, DETERMINED BY THE COUNTY, THAT NEED CELLULAR ANTENNAS.

ELECTRICAL/CONTROL CABINET, (ME), CONTINUED



REV.NO.	DESCRIPTIONS	DATE
2	REVISED TO REFLECT CURRENT COUNTY STANDARDS	4/07/23
1	CONFORMED	6/18/18

REVISIONS

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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 LIFT STATION ELECTRICAL, CONTROL & INSTRUMENTATION

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

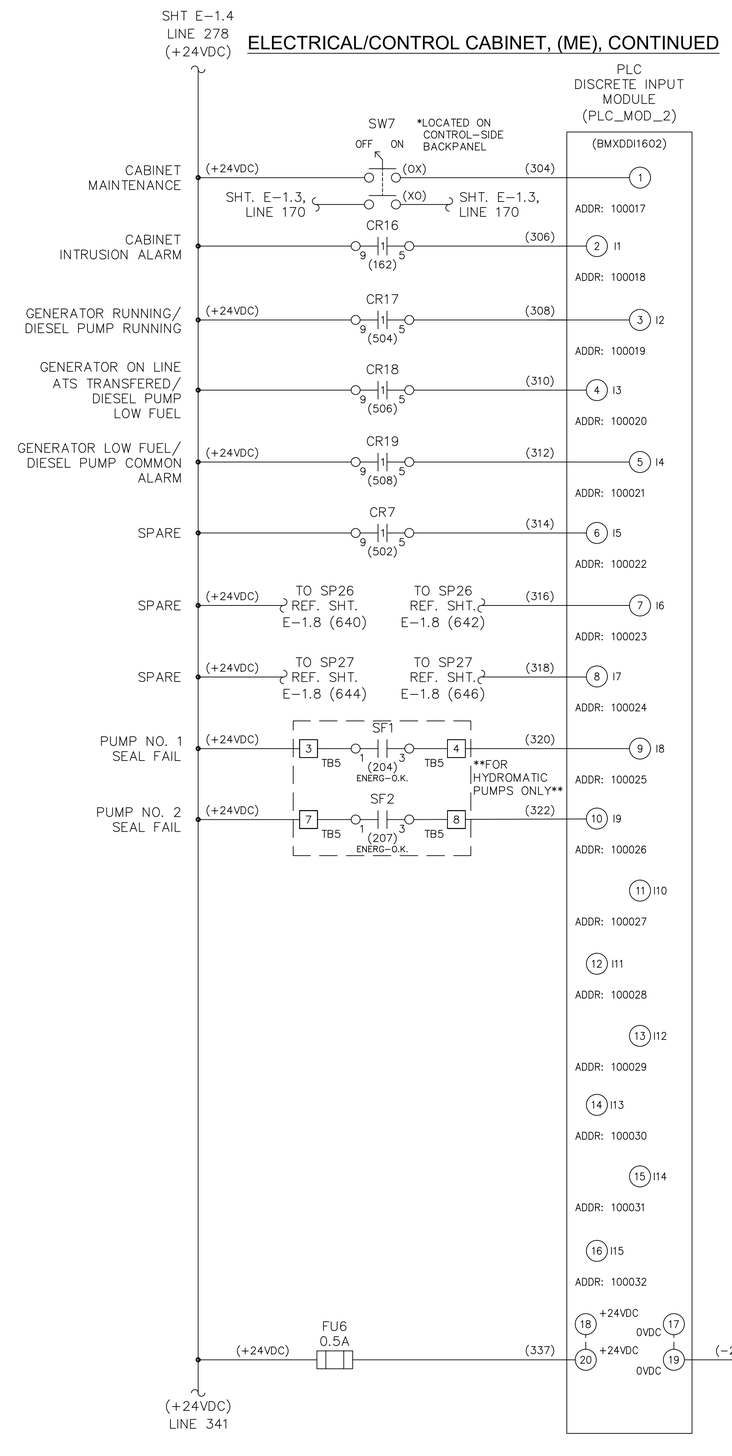
ISSUE DATE: OCTOBER 2025
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL: NA

FILE NUMBER
DRAWING NUMBER
E-1.4

STATUS: REVISED
REVISION 2

ELECTRICAL/CONTROL CABINET, (ME), CONTINUED

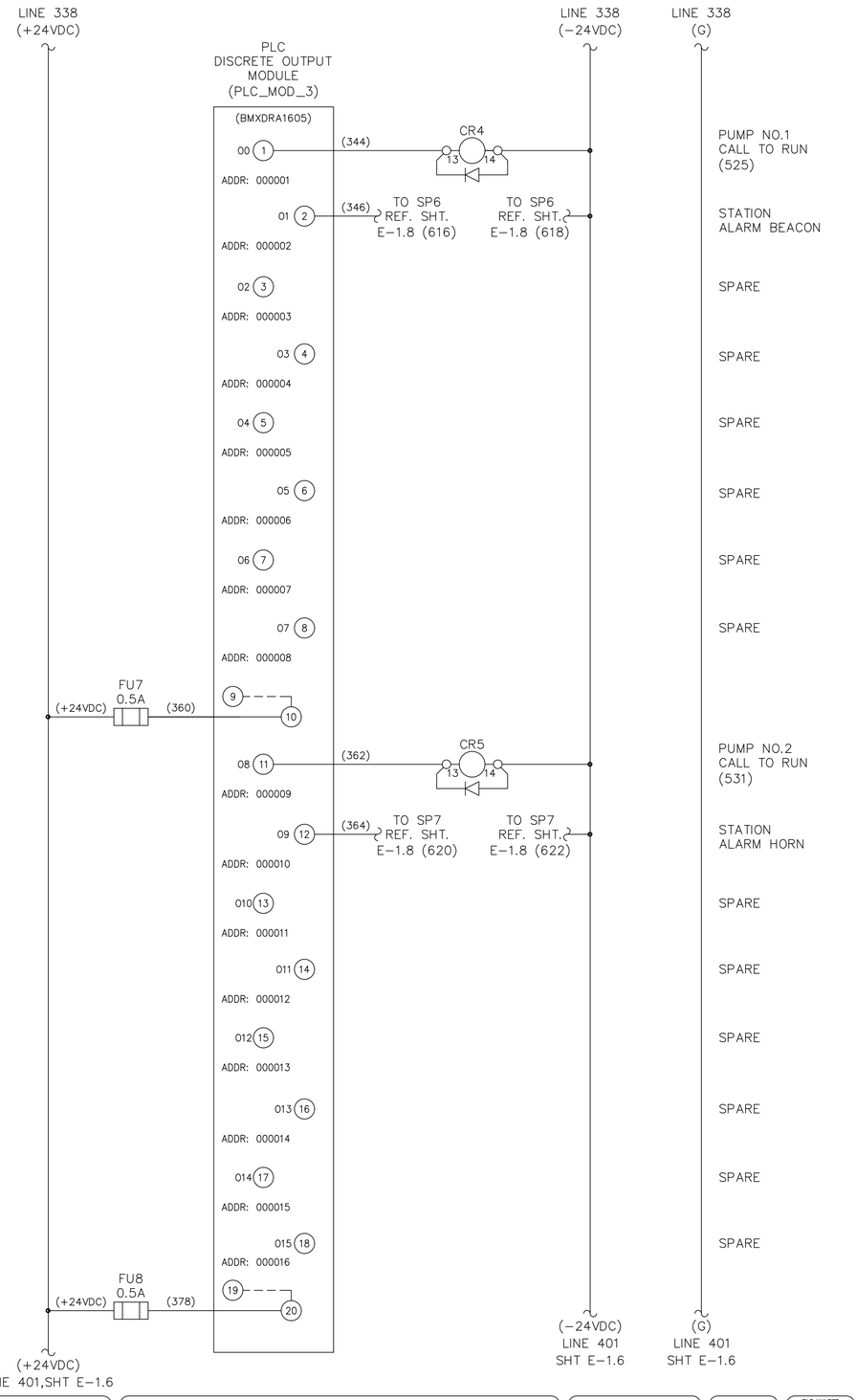


NOTES:

1. 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

2. DASHED LINES INDICATE ENTITIES EXTERNAL TO CAB.



REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	
2	REVISED TO REFLECT CURRENT COUNTY STANDARDS	4/07/23
1	CONFORMED	6/18/18

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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 LIFT STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

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

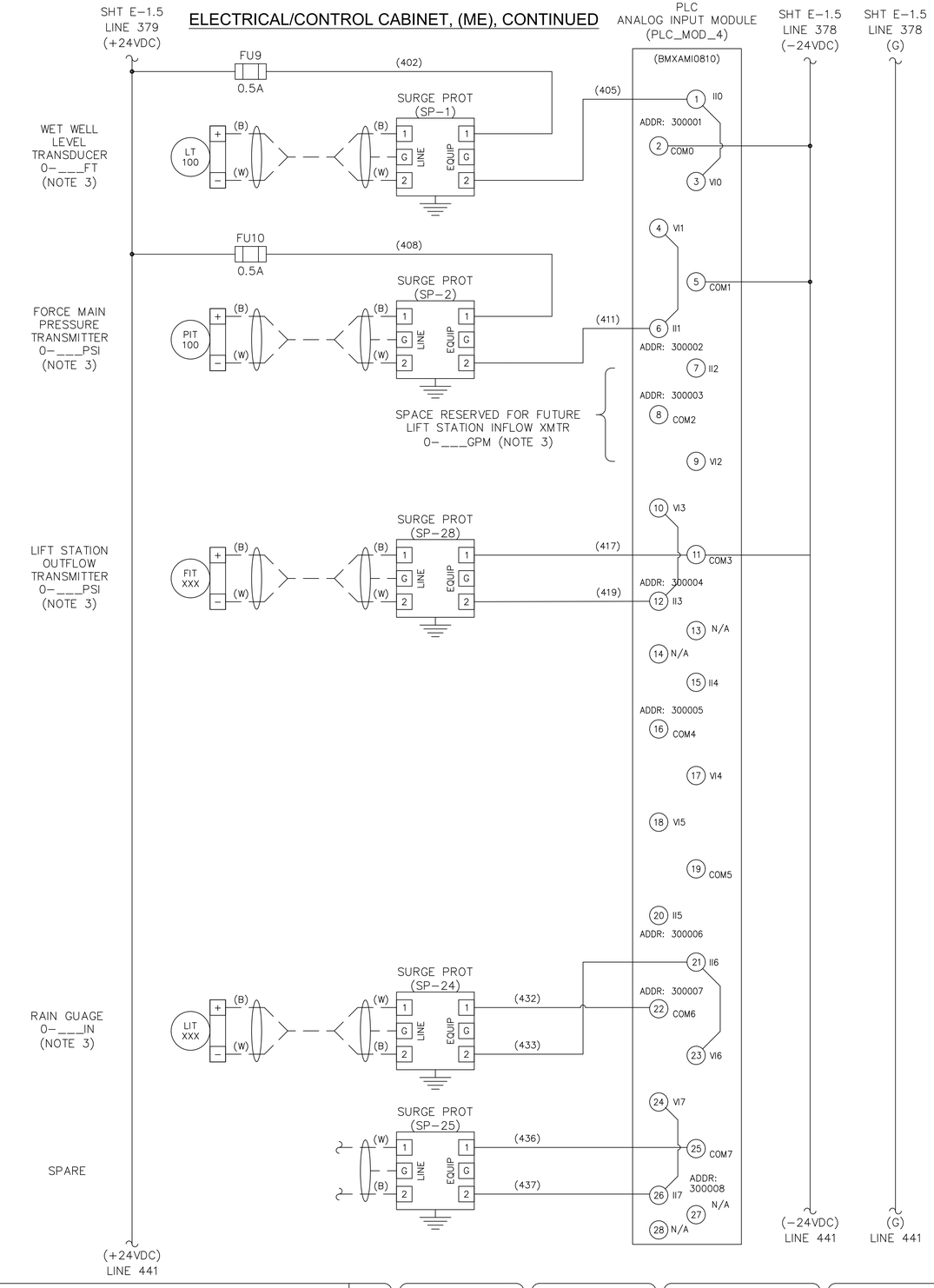
ISSUE DATE: OCTOBER 2025
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL: NA

FILE NUMBER
DRAWING NUMBER
E-1.5

STATUS:
REVISION 2

ELECTRICAL/CONTROL CABINET, (ME), CONTINUED



NOTES:

1. 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

2. DASHED LINES INDICATE ENTITIES EXTERNAL TO CAB.
3. COORDINATE RANGE FOR EACH INSTALLATION.

REV.NO.	DESCRIPTIONS	DATE
2	REVISED TO REFLECT CURRENT COUNTY STANDARDS	4/07/23
1	CONFORMED	6/18/18

REVISIONS

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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 LIFT STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

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

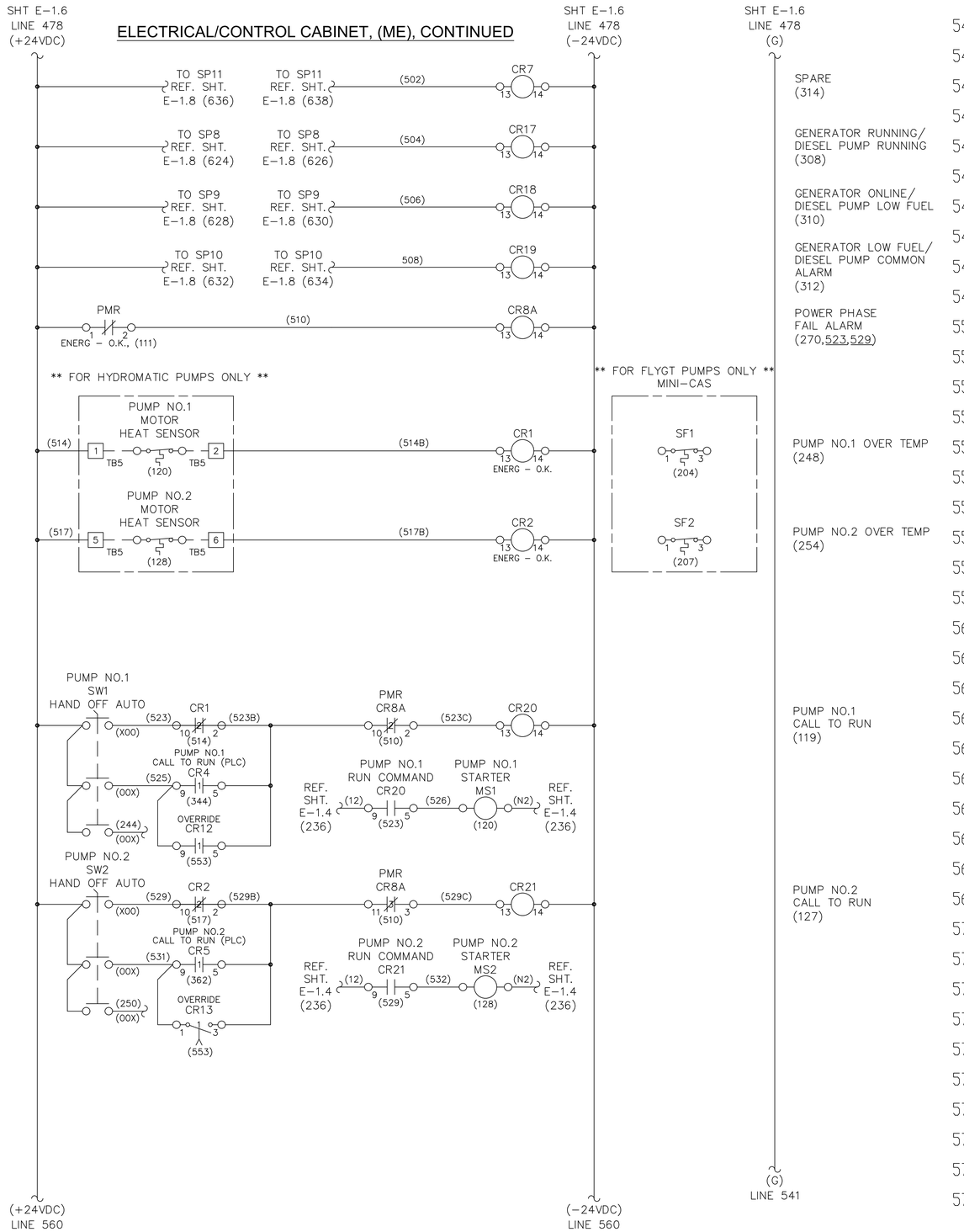
ISSUE DATE: OCTOBER 2025
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

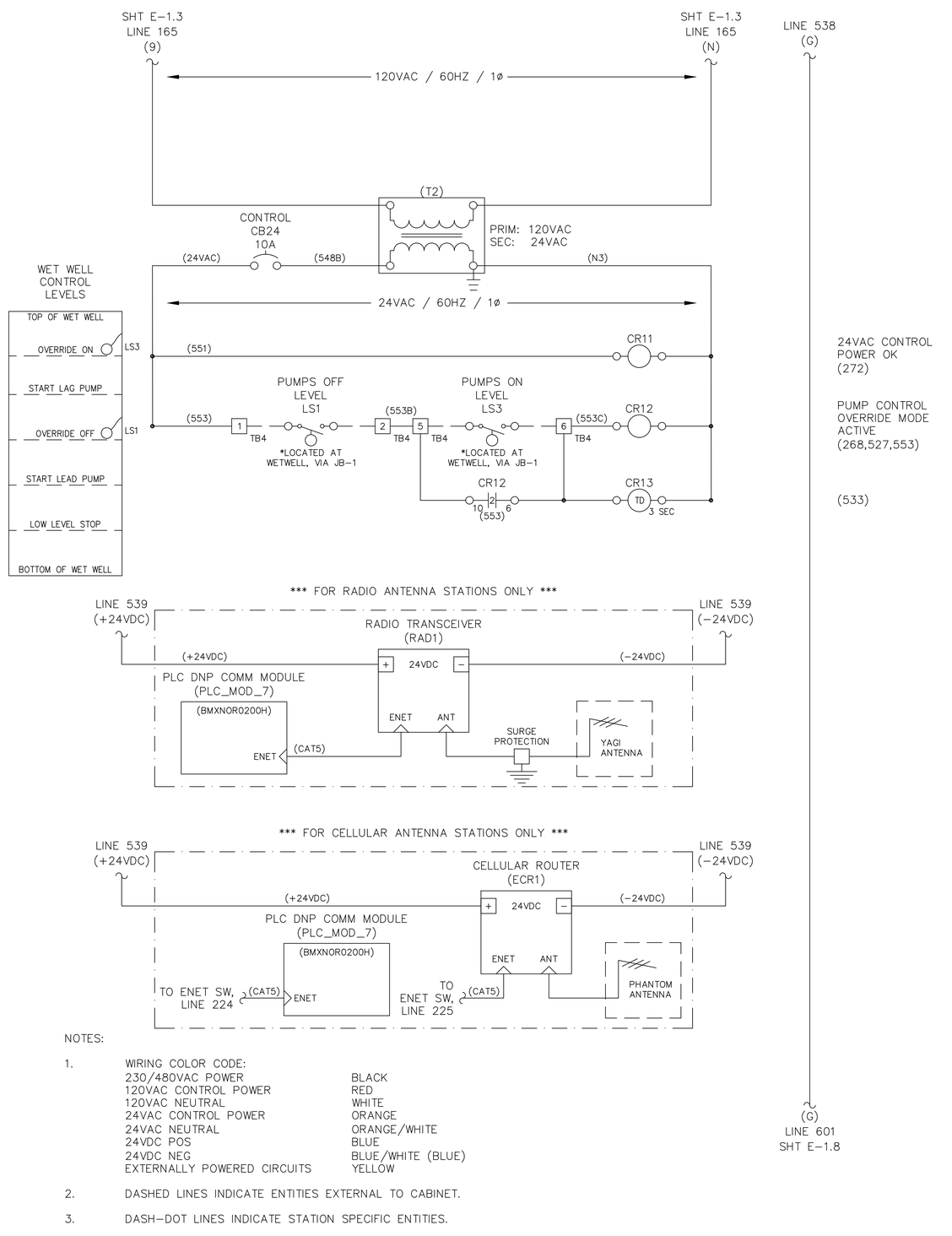
SCALE
HORIZONTAL:
VERTICAL: NA

FILE NUMBER
DRAWING NUMBER
E-1.6

STATUS:
REVISION 2

ELECTRICAL/CONTROL CABINET, (ME), CONTINUED





NOTES:

1. 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

2. DASHED LINES INDICATE ENTITIES EXTERNAL TO CABINET.

3. DASH-DOT LINES INDICATE STATION SPECIFIC ENTITIES.

REV.NO.	DESCRIPTIONS	DATE
2	REVISED TO REFLECT CURRENT COUNTY STANDARDS	4/07/23
1	CONFORMED	6/18/18

REVISIONS

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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 LIFT STATION ELECTRICAL, CONTROL & INSTRUMENTATION

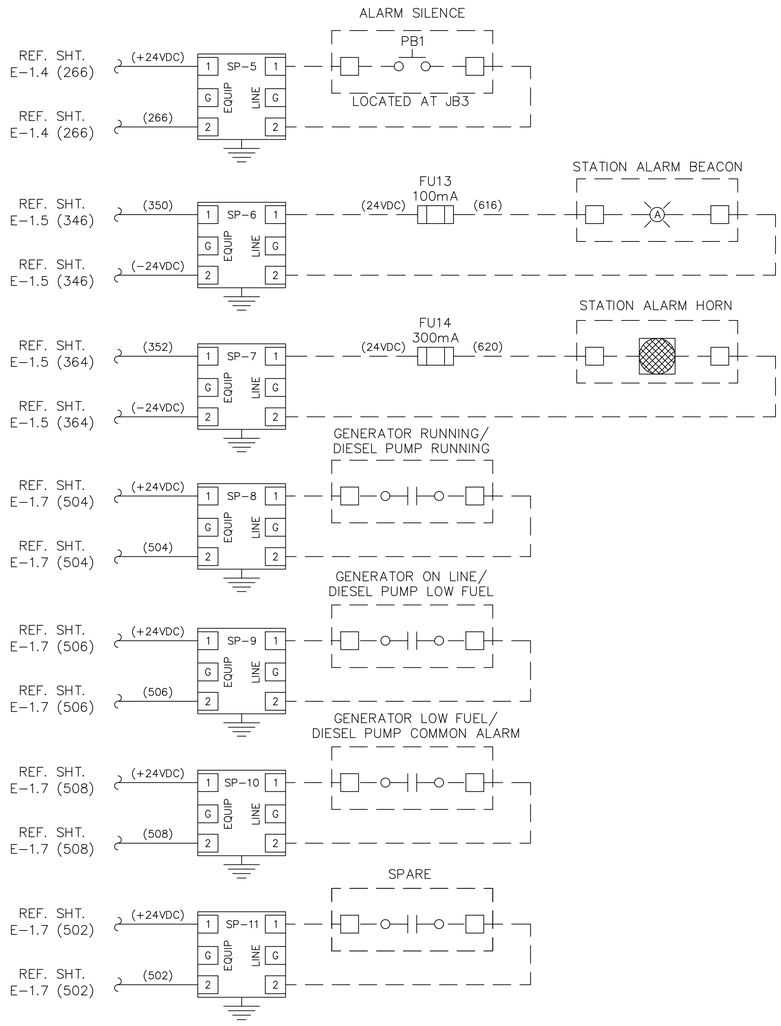
ELECTRICAL/CONTROL ENCLOSURE ELECTRICAL SCHEMATICS (3PH)(480V/3-20HP)

ISSUE DATE:	OCTOBER 2025
PROJ. #	
DRAWN	
DESIGNED	
CHECKED	
PROJ. MGR.	

SCALE
HORIZONTAL:
VERTICAL: NA

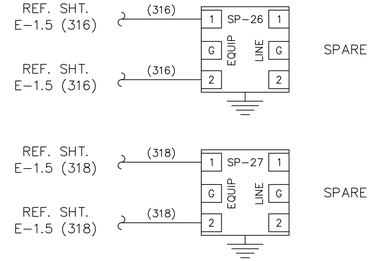
FILE NUMBER
DRAWING NUMBER
E-1.7

STATUS:
REVISION 2



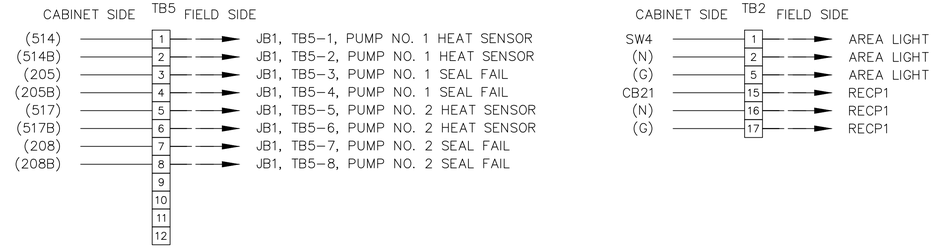
SHT E-1.7
LINE 576
(G)

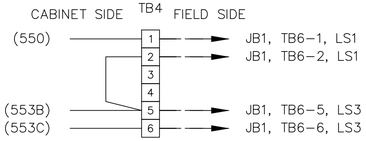
(G)
LINE 641



LINE 638
(G)

(G)





NOTES:

1. 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

2. DASHED LINES INDICATE ENTITIES EXTERNAL TO CABINET.

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	
2	REVISED TO REFLECT CURRENT COUNTY STANDARDS	4/07/23
1	CONFORMED	6/18/18

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

DUPLEX WASTEWATER LIFT STATION
ELECTRICAL, CONTROL & INSTRUMENTATION

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

ISSUE DATE: OCTOBER 2025
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL:
NA

FILE NUMBER
DRAWING NUMBER
E-1.8

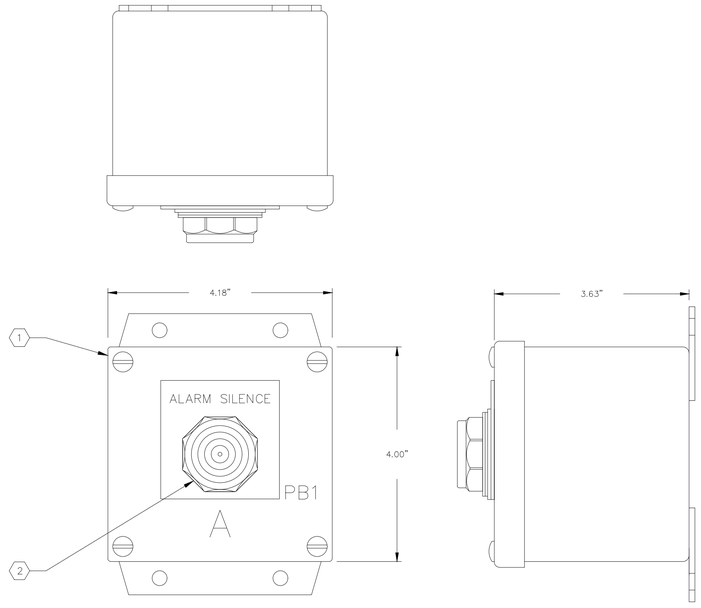
STATUS:
REVISION
2

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"	ALARM/SILENCE



ALARM SILENCE STATION (JB-3)

3/4"=1"

NOTES:

1. 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	DATE
4	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	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

REVISIONS

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Hillsborough County Florida

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

ALARM SILENCE STATION

ENCLOSURE LAYOUT AND BILL OF MATERIAL

ISSUE DATE: OCTOBER 2025
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL: NA

FILE NUMBER
DRAWING NUMBER
E-2.0

STATUS: REVISED

REVISION 4

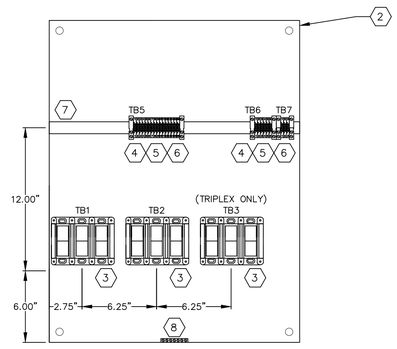
LIST OF MAJOR COMPONENTS

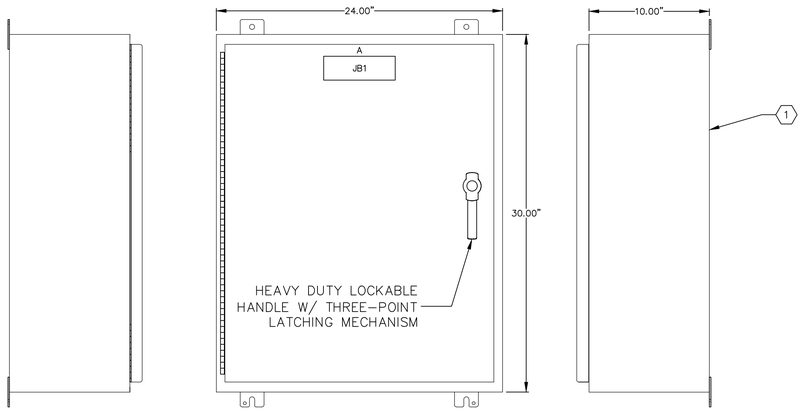
WETWELL JUNCTION BOX (JB1)

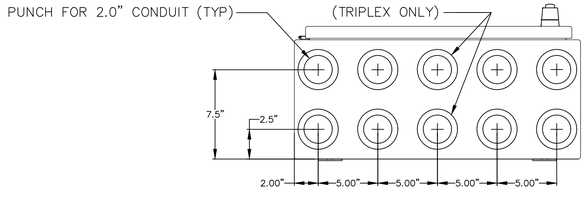
ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
1	1	JB1	HOFFMAN**	A30H2410SSLP-3PT	ENCLOSURE, 30"Hx24"Wx10"D, NEMA 4X, 304 SS, 3-PT LATCHES, EPOXY WHITE FINISH
2	1		HOFFMAN**	A30P24AL	SUBPANEL, 27"Hx21"W, 0.10" THICK, ALUMINUM
3	2	TB1, TB2, TB3*	MARATHON	1333554	POWER DISTRIBUTION BLK, 3 POLE, 310A, 600VAC, PRIM: 1 CONN 6-350 CU, SEC: 2 CONN 14-2/0 CU
4	25	TB5, TB6, TB7	PHOENIX CONTACT	UK5-N	TERMINAL BLOCK
5	3		PHOENIX CONTACT	D-UKK3/5	TERMINAL BLOCK END BARRIER
6	6		PHOENIX CONTACT	1201442	TERMINAL BLOCK END STOP
7	AR		PHOENIX CONTACT		DIN RAIL
8	1	GND	SQUARE-D	PK7GTA	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





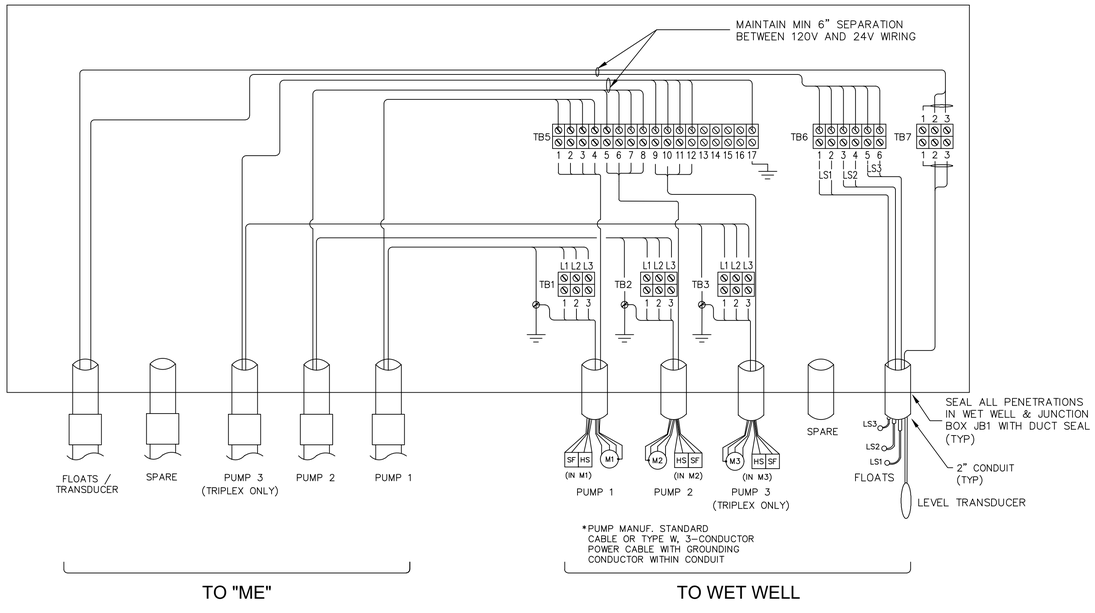


FRONT ROW – TO 'ME' ('ME2' FOR SINGLE PHASE)

REAR ROW – TO WET WELL

JB1 ENCLOSURE LAYOUT

2" = 1'



JB1 ELECTRICAL SCHEMATIC

NTS

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.

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	
5	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	9/6/19
4	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	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/TAMPA FLORIDA 33602/PH. (813) 272-5977

WET WELL JUNCTION BOX, (JB1)

CABINET LAYOUT, ELECTRICAL SCHEMATIC, AND BILL OF MATERIAL

ISSUE DATE: OCTOBER 2025
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

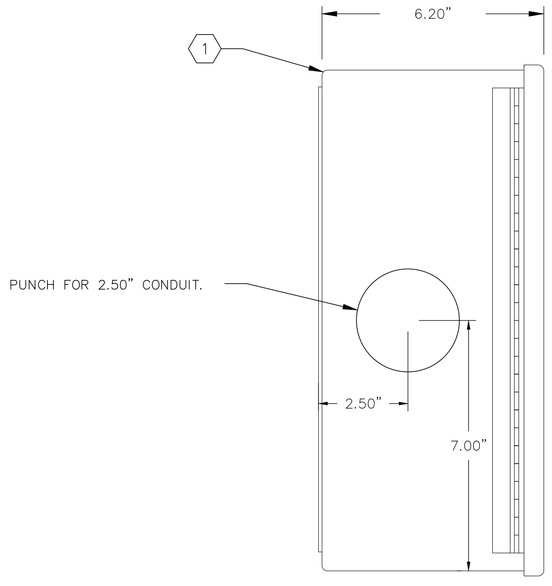
SCALE
HORIZONTAL:
VERTICAL: NA

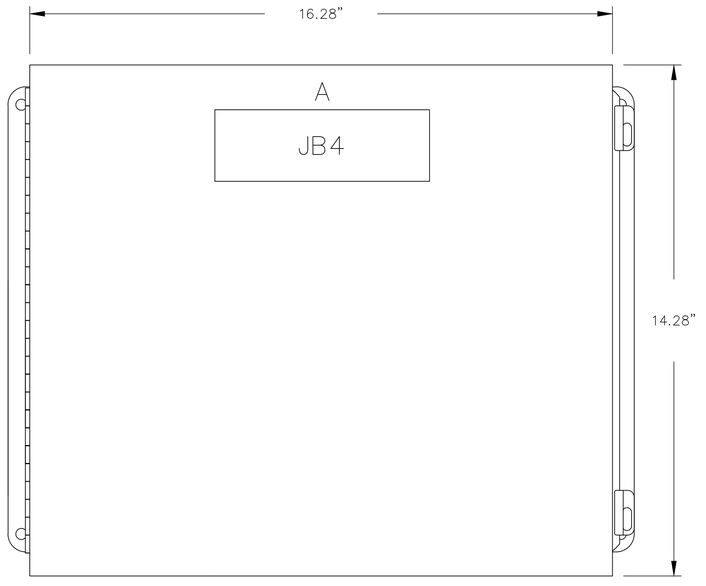
FILE NUMBER
DRAWING NUMBER
E-3.0

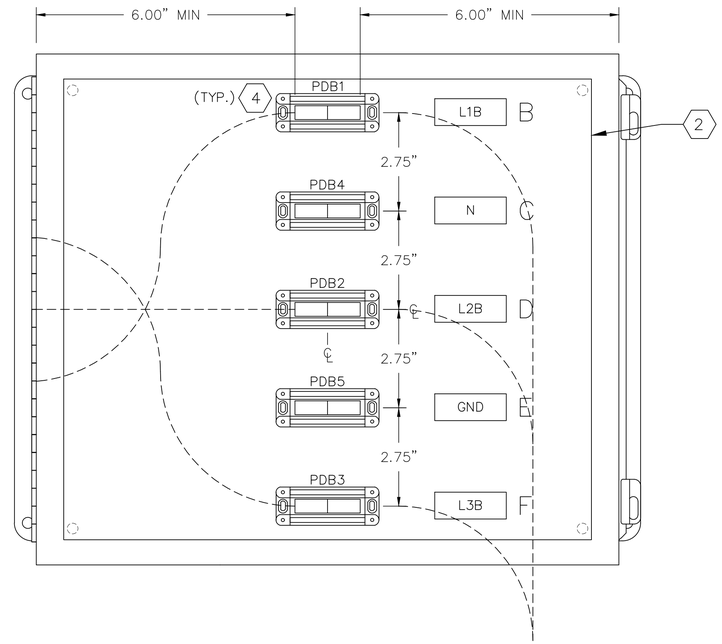
STATUS:
REVISION 5

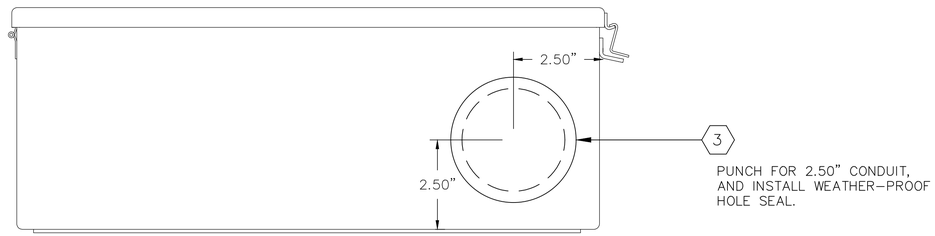
LIST OF MAJOR COMPONENTS

ITEM NO.	QTY	DEVICE ID	MANUFACTURER	PART NO.	DESCRIPTION
GENERATOR TERMINATION BOX (JB4):					
1	1	JB4	HOFFMAN**	A1614CHNFSS6	ENCLOSURE, 16"Hx14"Ww6"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.	DESCRIPTIONS	DATE
4	REVISED, TO REFLECT CURRENT COUNTY STANDARDS	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

REVISIONS

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

GENERATOR TERMINATION BOX, JB4
(SMALL)

CABINET LAYOUT
AND BILL OF MATERIAL

ISSUE DATE: OCTOBER 2025
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL: NA

FILE NUMBER
DRAWING NUMBER
E-5.0

STATUS: REVISED

REVISION 4