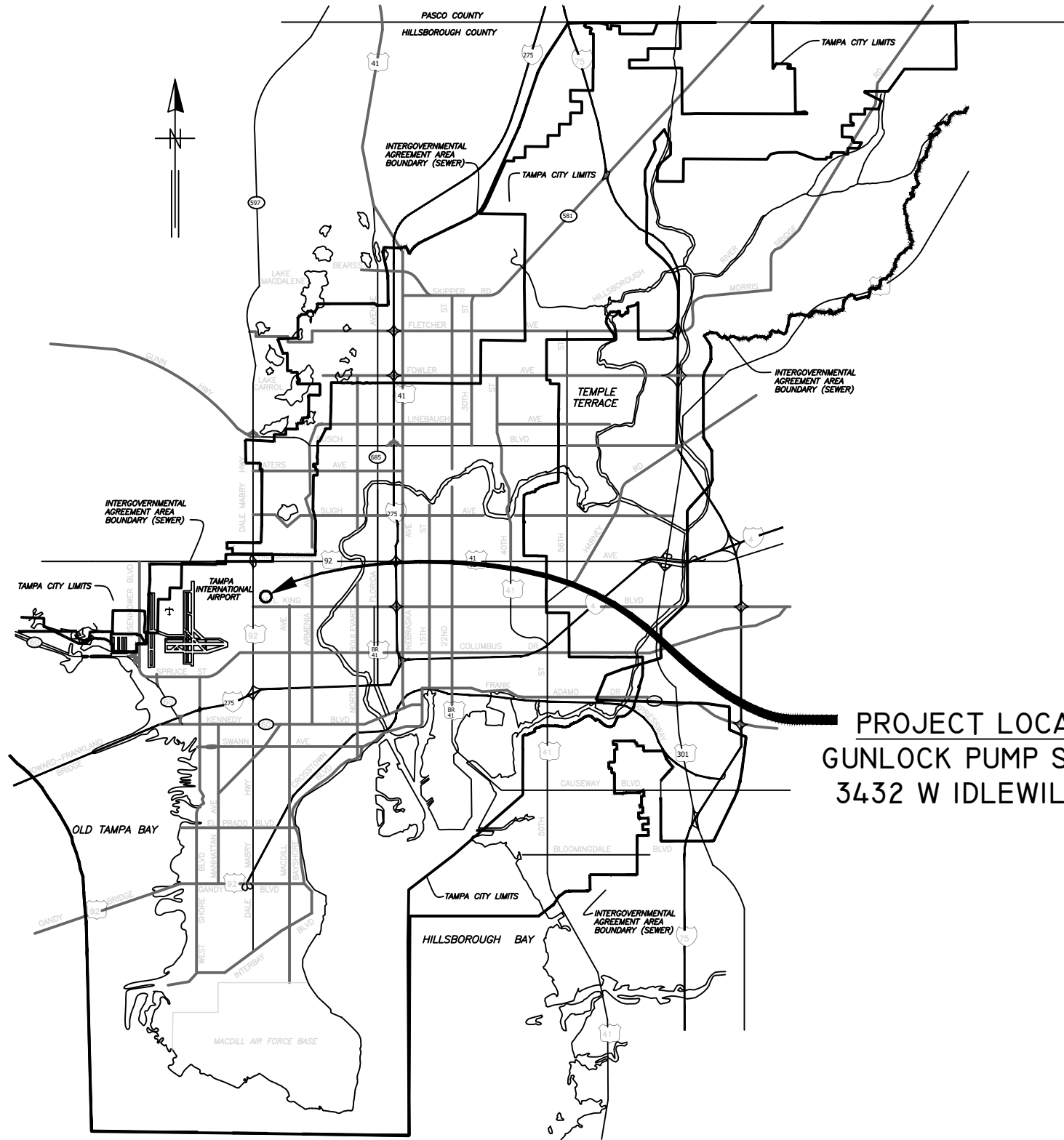


LOCATION MAP



PROJECT LOCATION
GUNLOCK PUMP STATION
3432 W IDLEWILD AVE.

CITY of TAMPA



WASTEWATER DEPARTMENT

PLANS FOR GUNLOCK PUMP STATION GENERATOR ADDITION

CONTRACT No.
 23-C-00022

NOTE:
 ATTENTION IS DIRECTED TO THE FACT THAT
 THESE PLANS MAY HAVE BEEN REDUCED IN
 SIZE BY REPRODUCTION. THIS MUST BE
 CONSIDERED WHEN OBTAINING SCALED DATA.

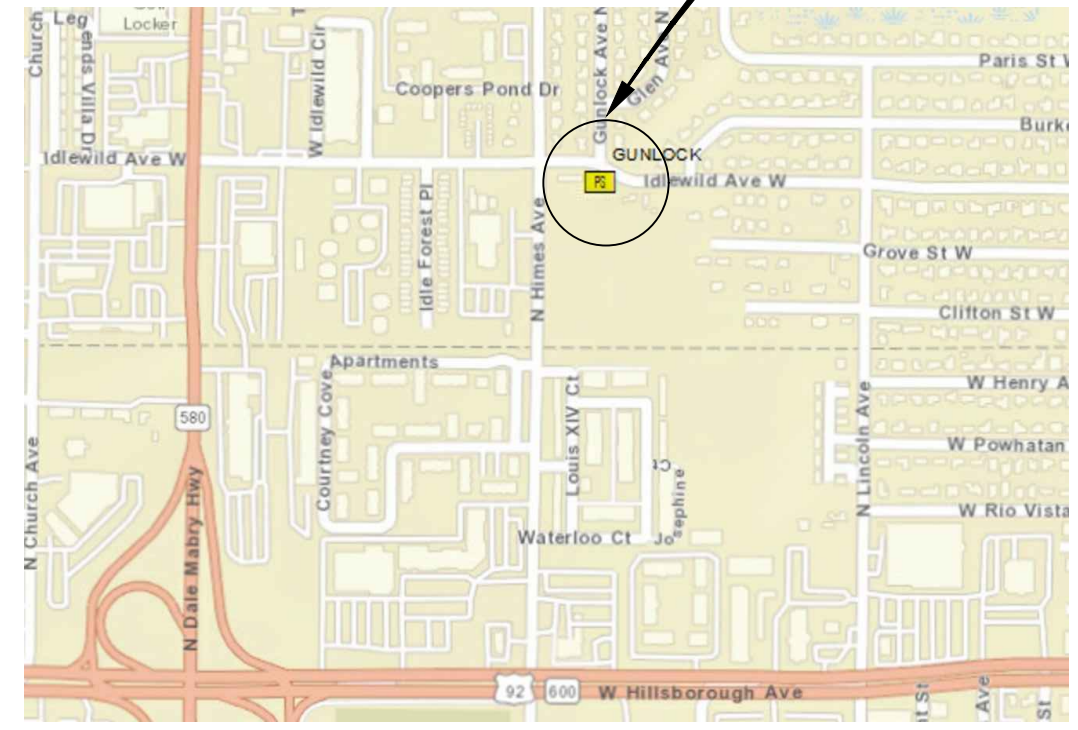
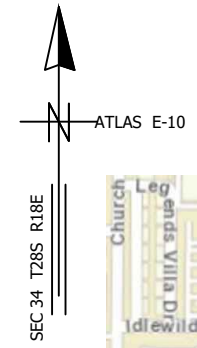
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JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	#	DATE	REVISIONS	DES: VT	CITY of TAMPA WASTEWATER DEPARTMENT	GUNLOCK PUMP STATION GENERATOR ADDITION COVER	SHEET 1
	1			DRN: MRL			
	2			CKD:			
	3			DATE:			

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LEGEND	
FEATURES	SYMBOLS
EX GRAVITY MAIN	← - - - -
EX PRIVATE GRAVITY MAIN	← - - - -
EX FORCE MAIN	- - - - -
EX MANHOLE	○
EX PUMP STATION	PS
EX PRIVATE PUMP STATION	PS
EX ELEVATION	x
EX WATER METER	M
EX GAS METER	G
PROP GRAVITY MAIN	← - - - -
PROP FORCE MAIN	← - - - -
RIGHT OF WAY LINE	— R/W
EDGE OF PAVEMENT	—
WATER LINE	—
GAS LINE	—
ELECTRICAL CABLE OR DUCT	—
TELEPHONE CABLE OR DUCT	—
TV CABLE	—
FENCE	- x - x -

ABBREVIATIONS	
CONCRETE PIPE	CP
GRAVITY MAIN	GM
FORCE MAIN	FM
MANHOLE	MH or M
POLYVINYL CHLORIDE PIPE	PVCP
REINFORCED CONCRETE PIPE	RCP
VITRIFIED CLAY PIPE	VCP
HIGH DENSITY POLYETHYLENE PIPE	HDPE
DUCTILE IRON PIPE	DIP



PROJECT LOCATION MAP
N.T.S.

INDEX	
SHEET #	SHEET NAME
1	COVER
2	LOCATION, LEGEND AND INDEX
3	NOTES
4	EXISTING SITE PLAN
5	DEMOLITION SITE PLAN
6	PROPOSED SITE PLAN
7	STRUCTURAL ANTENNA DETAIL
8	ELECTRICAL CONTROL PANEL SUPPORT POST
9	SAFETY GUARD RAIL DETAIL
E1	ELECTRICAL SYMBOLS LEGEND (SHEET 1 OF 2)
E2	ELECTRICAL SYMBOLS LEGEND (SHEET 2 OF 2)
E3	GENERAL NOTES
E4	SCOPE OF WORK
E5	EXISTING ELECTRICAL PLAN (DEMOLITION SHEET)
E6	EXISTING ELECTRICAL PLAN (DEMOLITION DRAWING)
E7	PARTIAL ELECTRICAL PLAN
E8	ELECTRICAL EQUIPMENT RACK FRONT ELEVATION
E9	ELECTRICAL EQUIPMENT RACK BACK ELEVATION
E10	MOTOR CONTROL PANEL 'MCP' DETAILS
E11	PUMP CONTROL PANEL 'PCP' DETAILS
E12	ONE LINE DIAGRAM
E13	ELECTRICAL SCHEMATIC (SHEET 1 OF 4) MOTOR CONTROL PANEL (MCP)
E14	ELECTRICAL SCHEMATIC (SHEET 2 OF 4) PUMP CONTROL PANEL (PCP)
E15	ELECTRICAL SCHEMATIC (SHEET 3 OF 4) PUMP CONTROL PANEL (PCP)
E16	ELECTRICAL SCHEMATIC (SHEET 4 OF 4) MOTOR CONTROL PANEL (MCP)
E17	MCP TO PCP INTERCONNECTION WIRING DIAGRAM
E18	ELECTRICAL SCHEMATIC LEGEND
E19	PARTS SCHEDULE (SHEET 1 OF 2)
E20	PARTS SCHEDULE (SHEET 2 OF 2)
E21	ELECTRICAL DETAILS (SHEET 1 OF 5)
E22	ELECTRICAL DETAILS (SHEET 2 OF 5)
E23	ELECTRICAL DETAILS (SHEET 3 OF 5)
E24	ELECTRICAL DETAILS (SHEET 4 OF 5)
E25	ELECTRICAL DETAILS (SHEET 5 OF 5)

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	#	DATE	REVISIONS	DES: VT	CITY of TAMPA WASTEWATER DEPARTMENT	GUNLOCK PUMP STATION GENERATOR ADDITION LOCATION, LEGEND AND INDEX	SHEET 2
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	2			CKD:			
	3			DATE:			

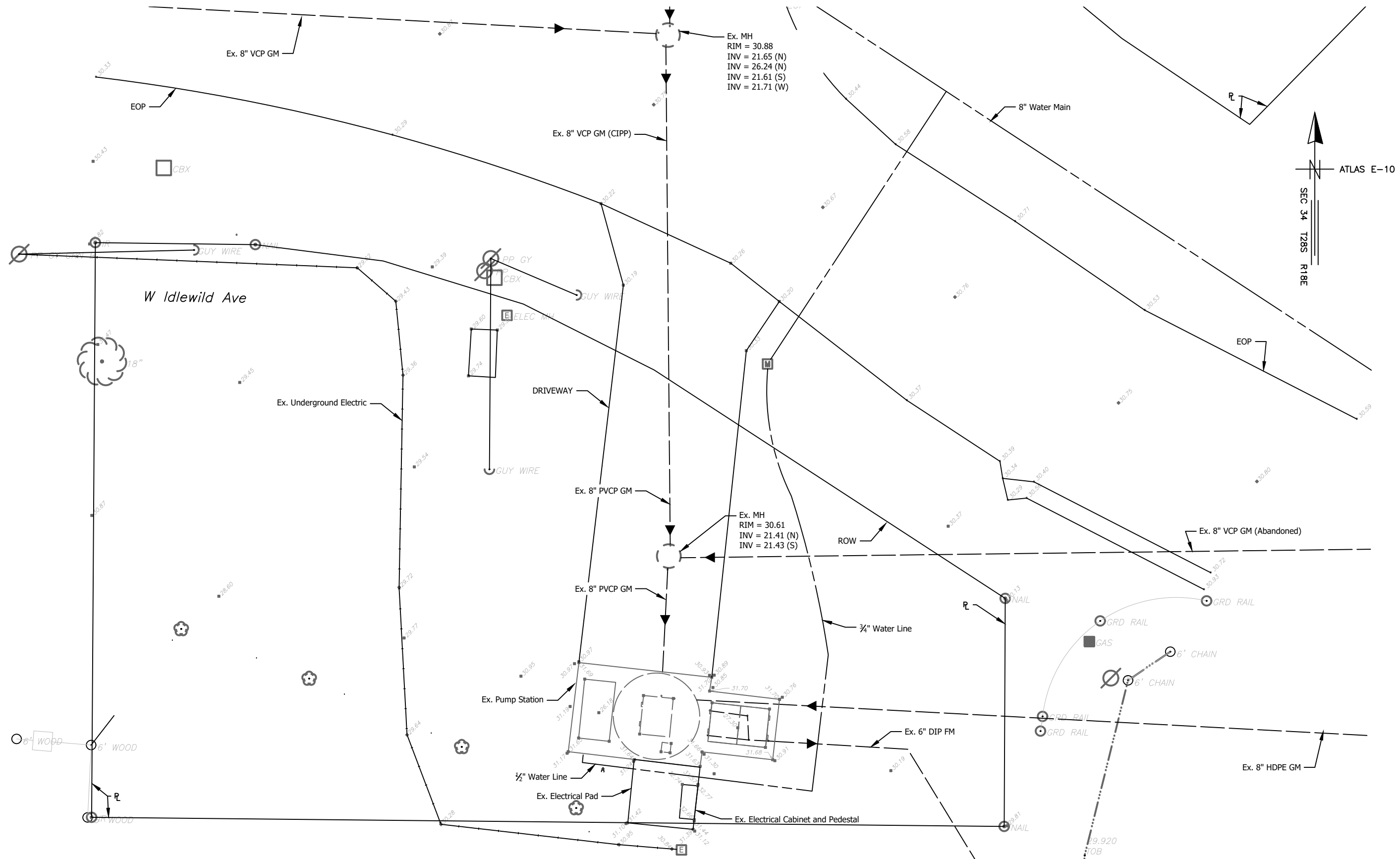
GENERAL NOTES:

1. ELEVATION INFORMATION SHOWN ON THESE PLANS IS REFERENCED TO NAVD88 UNLESS OTHERWISE STATED
2. THE CONSTRUCTION SITE SHALL BE MAINTAINED IN AS NEAT AND ORDERLY CONDITION AS POSSIBLE DURING CONSTRUCTION OPERATIONS. SITE SHALL BE SECURED WITH TEMPORARY FENCING AND STRUCTURES DURING HOURS WHEN CONTRACTOR IS NOT PRESENT TO ENSURE SAFETY OF CITY EMPLOYEES AND THE PUBLIC.
3. CONTRACTOR SHALL RESTORE ALL LANDSCAPING, SODDING, SPRINKLER SYSTEM PIPING AND PAVEMENT THAT MAY HAVE BEEN DAMAGED DURING CONSTRUCTION TO ITS ORIGINAL CONDITION OR BETTER. CONTRACTOR SHALL SOD ALL UNPAVED AREAS.
4. CONTRACTOR SHALL CALL SUNSHINE (1-800-432-4770) AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY.
5. NORMAL WORKING HOURS SHALL BE WEEKDAYS FROM 7:30 AM TO 4:00 PM UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. IT IS THE ENGINEER'S INTENT THAT CONTINUOUS WASTEWATER SERVICE WILL BE MAINTAINED THROUGHOUT THE PROJECT.
7. ALL HARDWARE, UNLESS OTHERWISE NOTED, SHALL BE TYPE 316 STAINLESS STEEL.
8. ALL CEMENTITIOUS CONCRETE AND GROUT, UNLESS OTHERWISE NOTED, SHALL BE CLASS "B", 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS. ALL REINFORCING STEEL SHALL BE GRADE 60. THE 28-DAY COMPRESSIVE STRENGTH FOR FLOWABLE FILL SHALL BE BETWEEN 50-100 PSI.
9. OSHA STANDARD SAFETY EQUIPMENT SUCH AS SAFETY HARNESES, GAS MONITORS, LOWER EXPLOSIVE LIMIT (LEL) DETECTORS, BREATHING APPARATUS, ETC. SHALL BE UTILIZED WHERE THE WORK DICTATES THEIR USE.
10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL TREES WITHIN THE VICINITY OF THE PROPOSED CONSTRUCTION IN ACCORDANCE WITH CHAPTER 27 OF THE CITY OF TAMPA CODE. PRUNING OF BRANCHES IS NOT AUTHORIZED WITHOUT PRIOR APPROVAL FROM THE CITY OF TAMPA PLANNING AND DEVELOPMENT DEPARTMENT, NATURAL RESOURCE SECTION, AND SHALL BE COMPLETED BY A CERTIFIED ARBORIST. EXCAVATION WITHIN THE PROTECTIVE RADIUS OF TREES (20' FOR A GRAND TREE (32" OR GREATER DBH), 15' FOR A SPECIMEN TREE (24"- 31" DBH) AND 10' FROM PROTECTED TREE (5" - 23" DBH, OR ANY MITIGATION TREE) WILL REQUIRE ROOT PRUNING BY AN ARBORIST WITH THE APPROPRIATE EQUIPMENT TO ASSURE ROOTS ARE SEVERED CLEAN AT THE APPROVED RADIUS. NO ROOTS LARGER THAN 2" ARE TO BE SEVERED. IF ROOTS OVER 2" ARE ENCOUNTERED, NATURAL RESOURCES WILL BE CONSULTED. FOR QUESTIONS REGARDING THESE REQUIREMENTS, PLEASE CONTACT THE PLANNING DEPARTMENT, NATURAL RESOURCES SECTION AT 274-3100 OR 1400 N. BOULEVARD, TAMPA, FLORIDA 33607.
11. CONTRACTOR SHALL UTILIZE THE EXISTING WETWELL OR UPSTREAM MANHOLE FOR BYPASS PUMP SUCTION AND DISCHARGE INTO THE EXISTING 6" BYPASS CONNECTION WITHIN THE VALVE VAULT. BYPASS PUMPS SHALL BE CAPABLE OF 500GPM AT 69' TOTAL DYNAMIC HEAD. REFER TO SPECIFICATIONS FOR ADDITIONAL BYPASS PUMPING REQUIREMENTS.
12. DIMENSIONS SHOWN ARE NOT NECESSARILY ACCURATE TO THE DEGREE REQUIRED FOR FABRICATION. EXISTING DIMENSIONS AND VIEWS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT DIMENSIONS AND REFLECT THEM ON SHOP DRAWINGS FOR APPROVAL BEFORE ANY FABRICATION.
13. PLANS ARE DESIGNED IN ACCORDANCE WITH THE 7TH EDITION 2020 OF THE FLORIDA BUILDING CODE, AND THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL ENSURE THAT ALL WORK PERFORMED SHALL ADHERE TO THE SAME ACCORDANCE AND ALL APPLICABLE LOCAL ORDINANCES.
14. SALVAGEABLE MATERIAL, AS DETERMINED BY CITY PERSONNEL, SHALL BE DELIVERED TO THE CITY OF TAMPA'S HOWARD F. CURREN AWTP AT 2700 MARITIME BOULEVARD. NON-SALVAGEABLE MATERIALS ARE TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
15. PROPOSED FENCE SHALL BE 6 FEET HIGH GALVANIZED CHAIN LINK FENCE WITH DARK GREEN PVC COATING AND 12 FEET WIDE DOUBLE SWING GATES (PER FDOT STANDARD PLANS INDEX 550-002 & 550-003 AND DESIGN STANDARDS INDEX 802 & 803 FOR FENCE TYPE B.
16. ALL CONCRETE PAVEMENT, UNLESS NOTED OTHERWISE, SHALL BE MINIMUM 6" THICK CONCRETE WITH 4x4 W6xW6 WWF STEEL REINFORCEMENT. CONCRETE SHALL BE CONSTRUCTED ON COMPACTED SUBBASE MIN 98% MODIFIED PROCTOR WITH 1.5" DEEP CONTROL JOINTS SAWCUT @ 15' MAX, CUT WITHIN 12 HRS OF CONCRETE PLACEMENT.
17. ALL METAL PIPE, FITTINGS, VALVES, ETC. SHALL RECEIVE:
 - 17.1. SHOP COAT - ONE COAT, 3-5 MILS (DRY) TNEMEC N140-1211 EPOXY PRIMER.
 - 17.2. SHOP COAT - ONE COAT, 3-5 MILS (DRY) TNEMEC N69
 - 17.3. SHOP COAT - ONE COAT, 2.5-5 MILS (DRY) TNEMEC 1074U ENDURASHIELD (WITH FACTORY ADDED UV BLOCKER)

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JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	#	DATE	REVISIONS	DES: VT	CITY of TAMPA WASTEWATER DEPARTMENT	GUNLOCK PUMP STATION GENERATOR ADDITION NOTES	SHEET 3
	1			DRN: MRL			
	2			CKD:			
	3			DATE:			

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EXISTING SITE PLAN
SCALE 1" = 10'

#	DATE	REVISIONS
1		
2		
3		

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

DES: VT
DRN: MRL
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

GUNLOCK PUMP STATION GENERATOR ADDITION

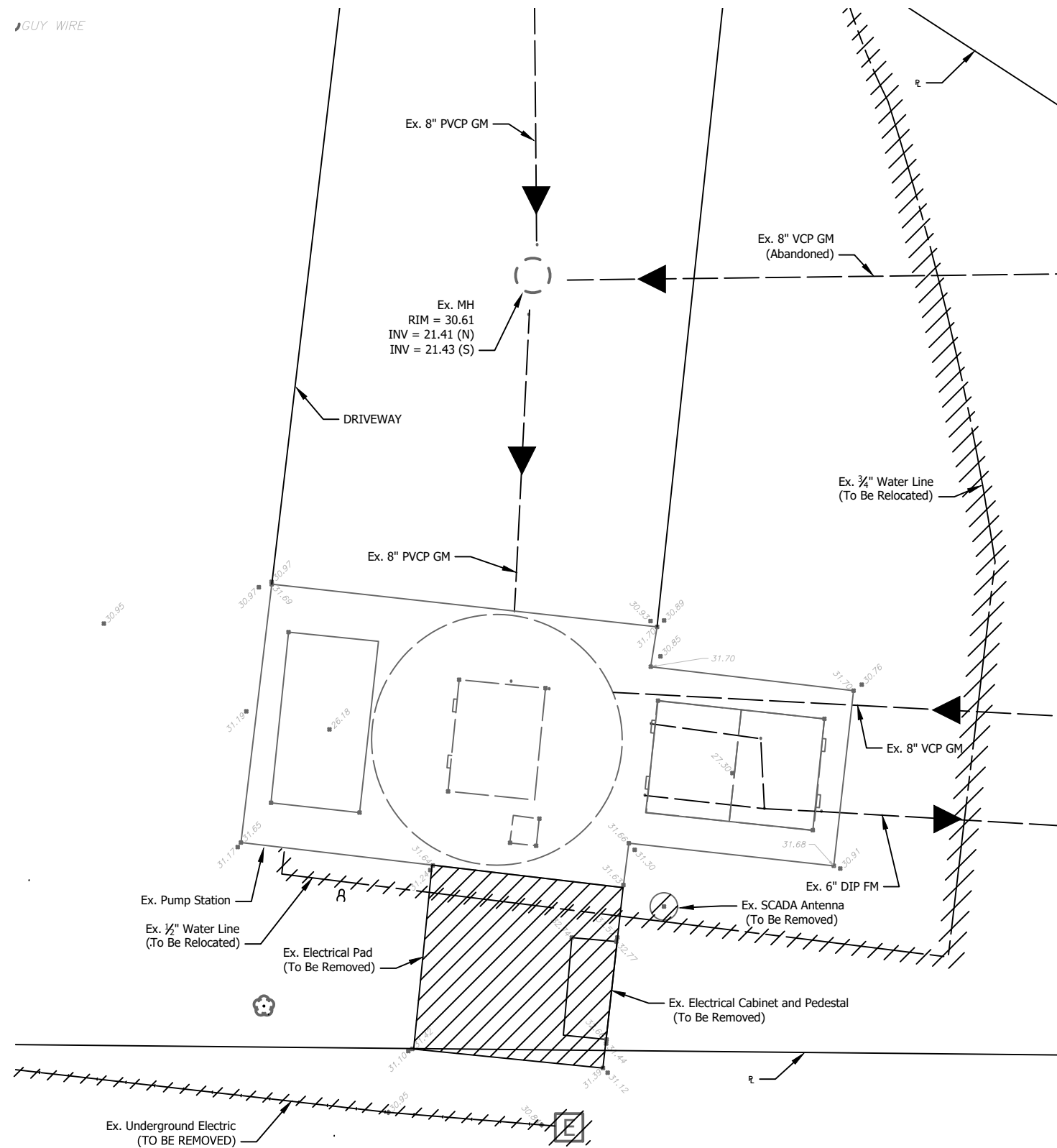
EXISTING SITE PLAN

SHEET

4

ATLAS E-10
SEC 34 T28S R18E

GUY WIRE



HATCHED AREAS ON THIS SHEET
INDICATE ITEMS TO BE REMOVED

EXISTING/DEMO VIEW
SCALE 1" = 5'

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WASTEWATER DEPARTMENT

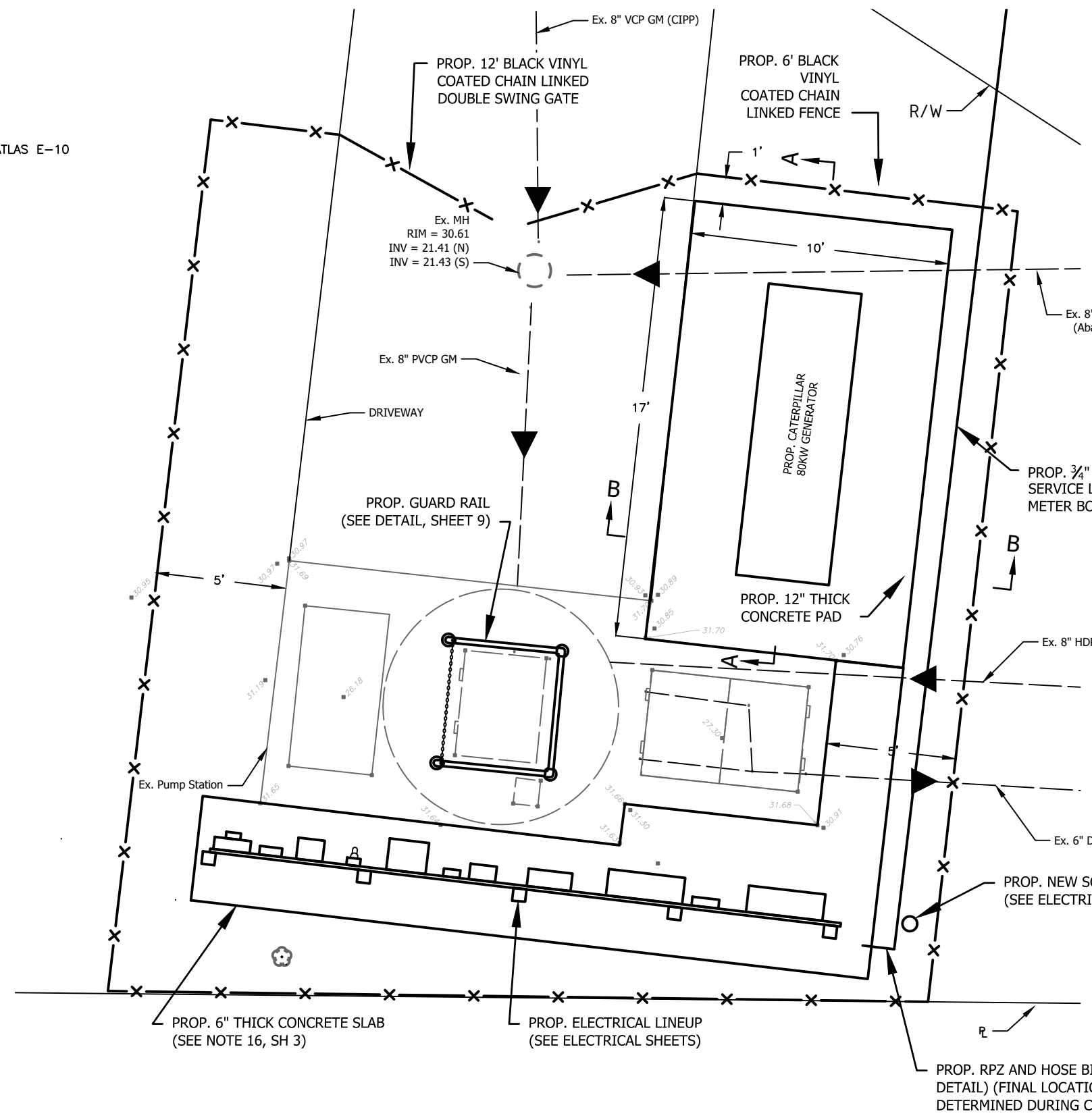
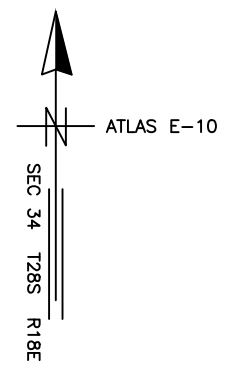
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CITY of TAMPA
WASTEWATER DEPARTMENT

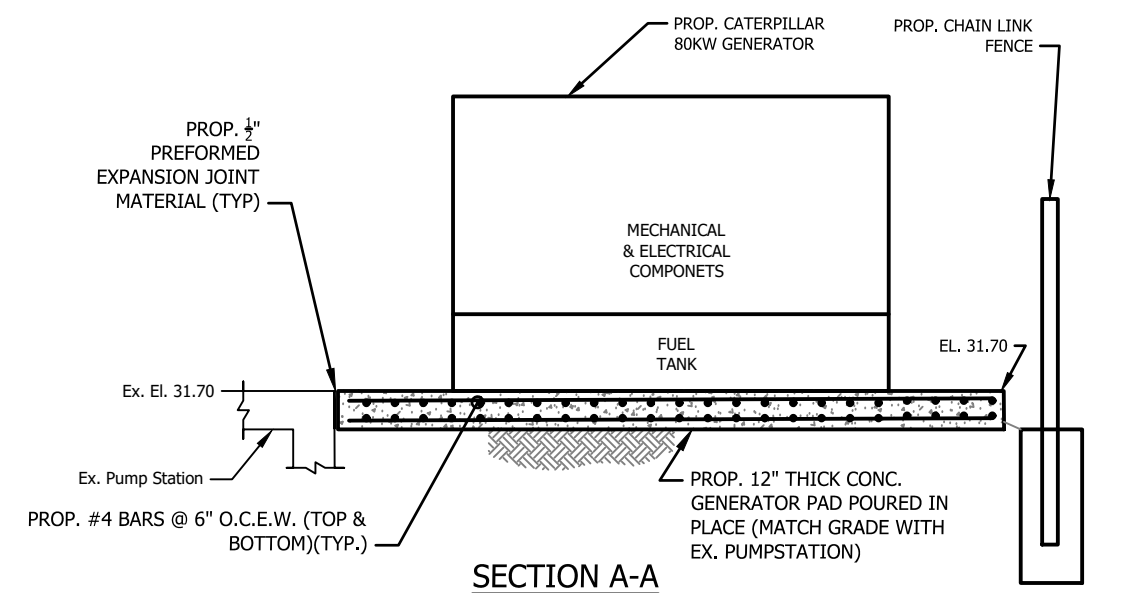
GUNLOCK PUMP STATION GENERATOR ADDITION
DEMOLITION SITE PLAN

SHEET
5

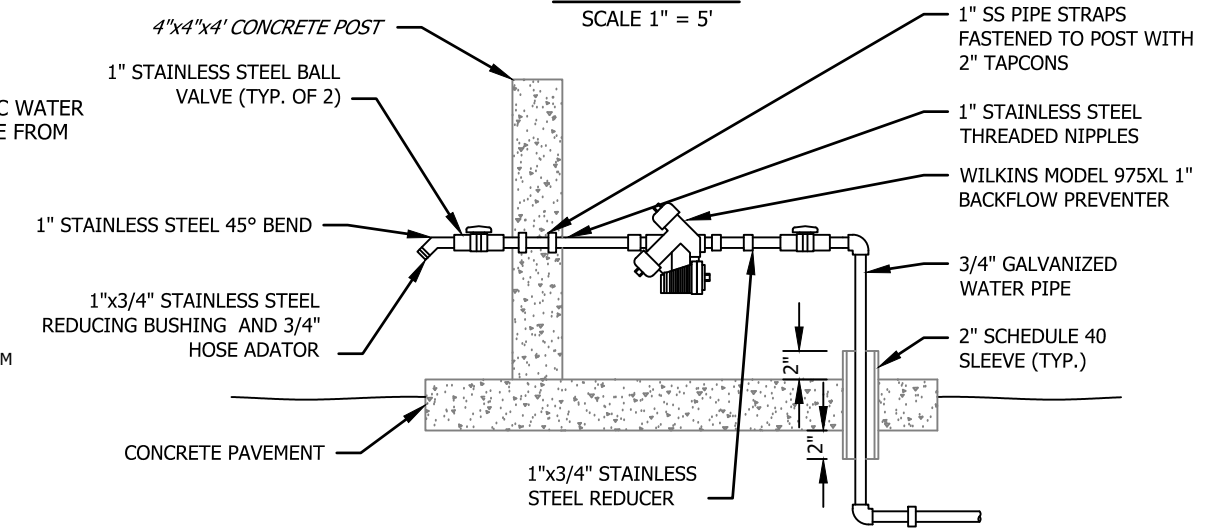
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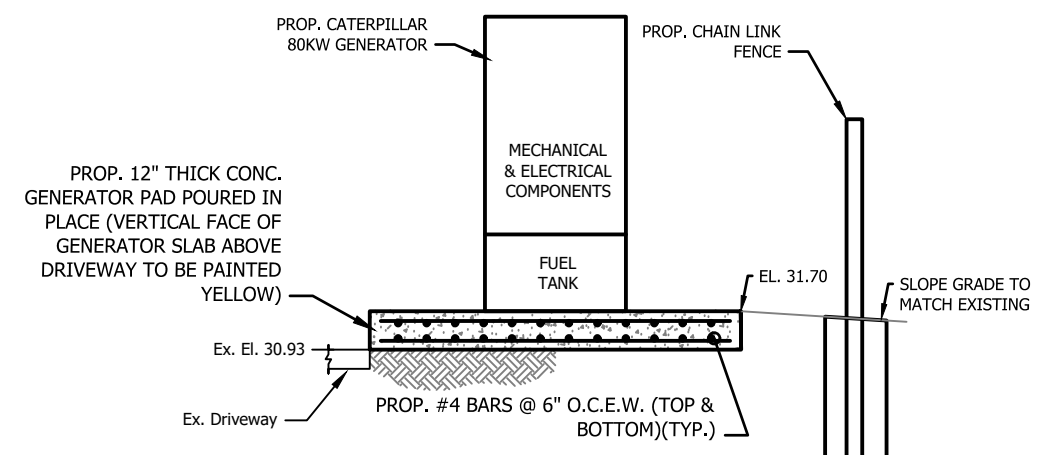
PROPOSED VIEW
SCALE 1" = 5'



SECTION A-A
SCALE 1" = 5'



BACKFLOW PREVENTER AND HOSE BIBB
N.T.S.



SECTION B-B
SCALE 1" = 5'

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	#	DATE	REVISIONS
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DES: VT
DRN: MRL
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DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

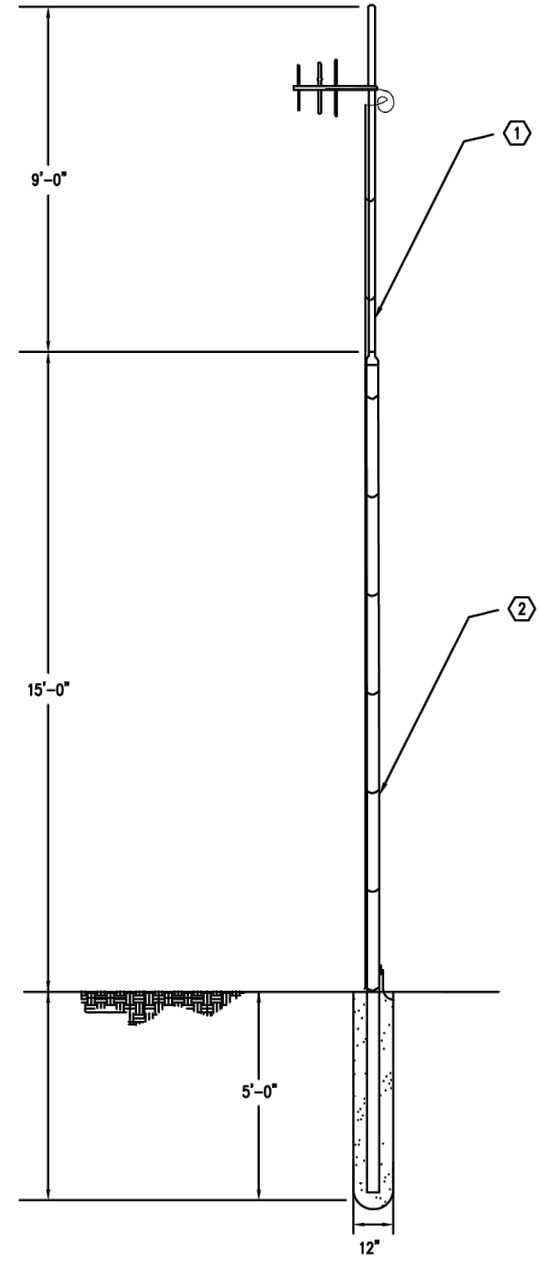
GUNLOCK PUMP STATION GENERATOR ADDITION
PROPOSED SITE PLAN

SHEET
6

WIND DESIGN DATA:

CODE: FLORIDA BUILDING CODE 2020,
7TH EDITION AND ASCE/SEI 7-22

BASIC WIND SPEED (VULT): 152 MPH
 NOMINAL WIND SPEED (VASD): 118 MPH
 CATEGORY (RISK): III
 WIND EXPOSURE: B
 DESIGN AND WIND PRESSURE (PSF): 45.9



NOTES

- ① 1-1/4" GALVANIZED PIPE (SCH 40)
- ② 3" GALVANIZED PIPE (SCH 40)

STRUCTURAL ANTENNA DETAIL

SCALE: N.T.S.

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 DESIGN DIVISION HEAD
 WASTEWATER DEPARTMENT

DES: VT
 DRN: MRL
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 DATE:

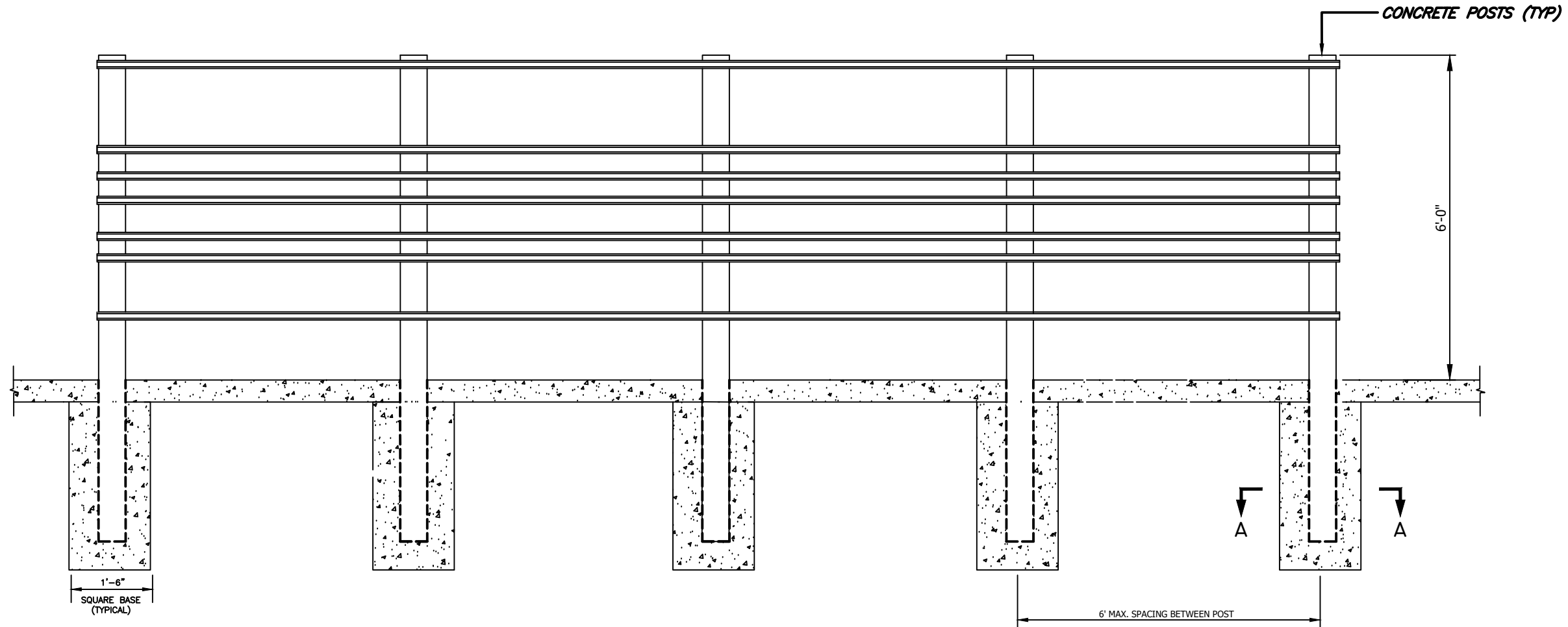
CITY of TAMPA
WASTEWATER DEPARTMENT

GUNLOCK PUMP STATION GENERATOR ADDITION

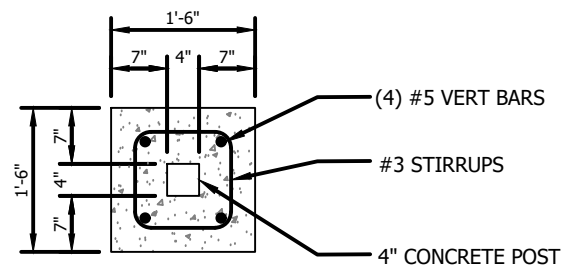
STRUCTURAL ANTENNA DETAIL

SHEET

7



FRONT VIEW
N.T.S.



PROPOSED SECTION A-A
SCALE: 1/2" = 1'-0"

WIND DESIGN DATA:

CODE: FLORIDA BUILDING CODE 2020,
7TH EDITION AND ASCE/SEI 7-22

BASIC WIND SPEED (VULT): 152 MPH
 NOMINAL WIND SPEED (VASD): 118 MPH
 CATEGORY (RISK): III
 WIND EXPOSURE: B
 DESIGN AND WIND PRESSURE (PSF): 45.9

STRUCTURAL GENERAL NOTES:

1. THE DETAILING, BENDING, AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI STANDARD 318-14 CODE AND ACI DETAILING MANUAL, SP-66 (94). FIELD BENDING WILL NOT BE PERMITTED UNLESS APPROVED BY ENGINEER.
2. ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL DEFORMED BARS CONFORMING TO ASTM A614, GRADE 60.
3. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 4,000 PSI @ 28 DAY UNLESS OTHERWISE NOTED.
4. ALL STIRRUPS AND TIES SHALL BE CLOSED TYPE WITH 135 DEGREE HOOKS, U.N.O.
5. CONCRETE COVER OVER REINFORCEMENT SHALL BE 2 INCHES MINIMUM, UNLESS NOTED OTHERWISE, AND 3-INCHES MINIMUM WHERE CAST AGAINST EARTH.
6. POST FOUNDATIONS WERE DESIGNED USING CONSTRAINED CRITERIA.

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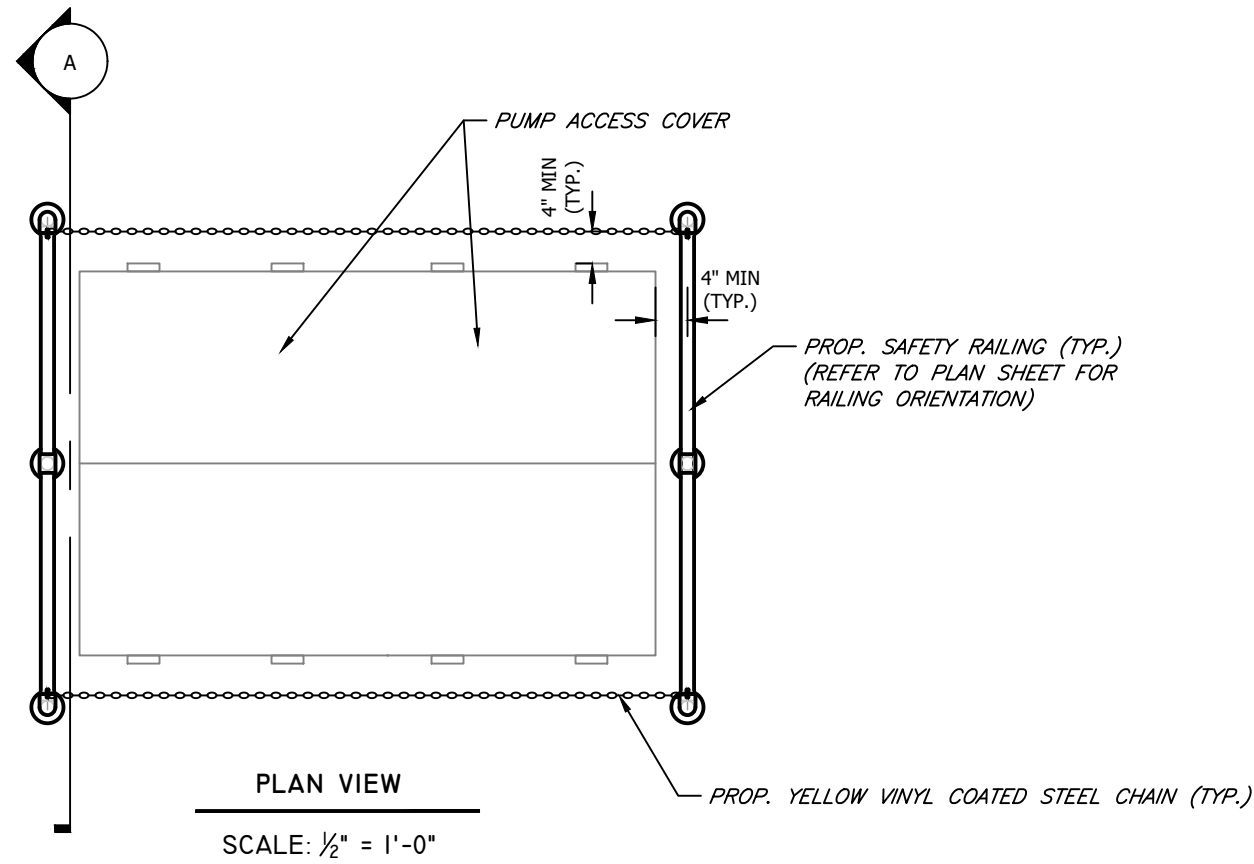
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JACINTO CARLOS FERRAS, P.E. #49454
 DESIGN DIVISION HEAD
 WASTEWATER DEPARTMENT

CITY of TAMPA
 WASTEWATER DEPARTMENT

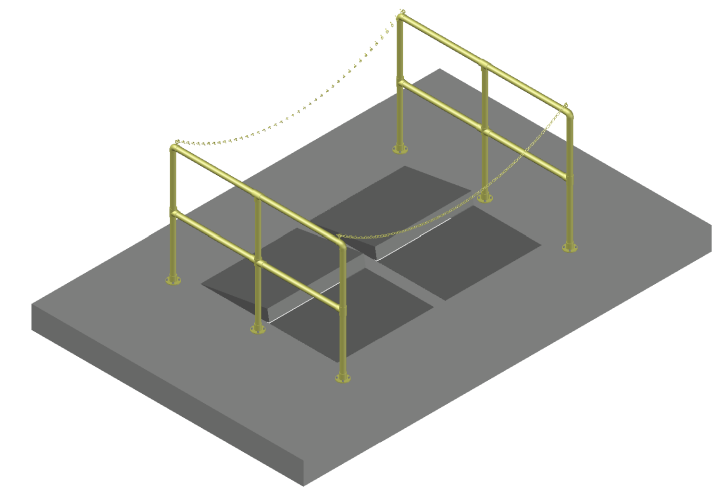
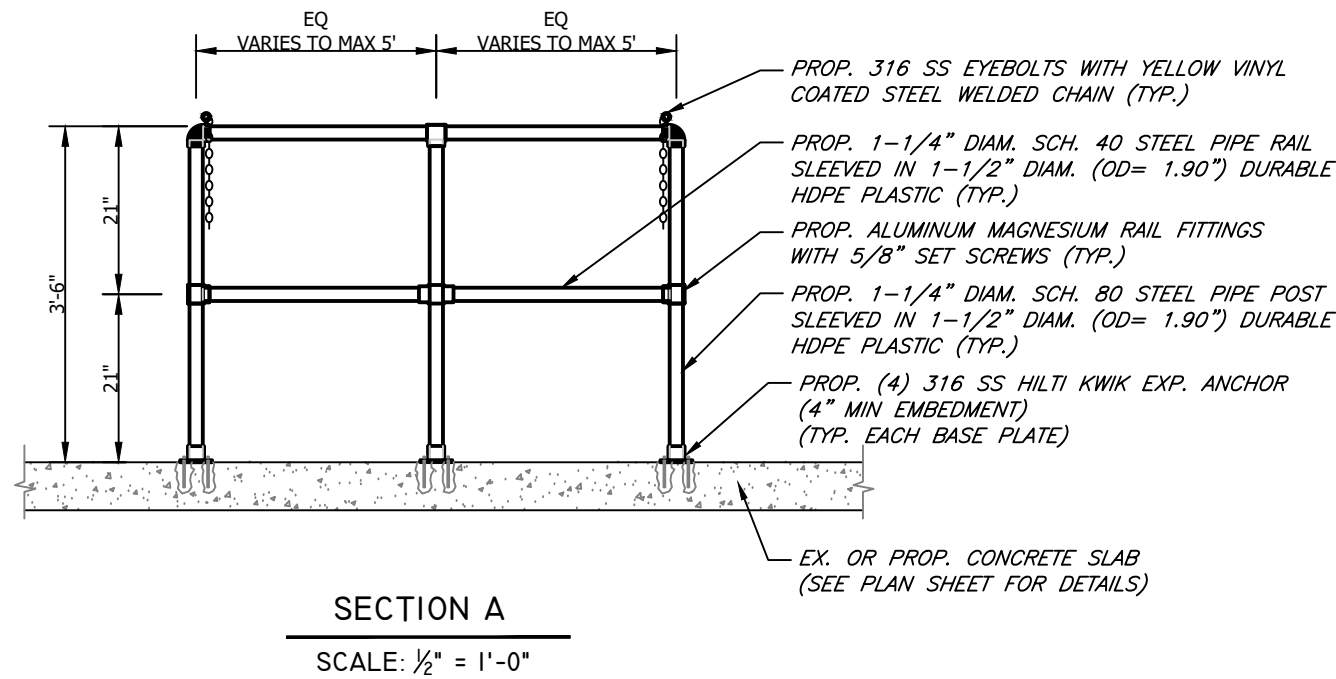
GUNLOCK PUMP STATION GENERATOR ADDITION
 ELECTRICAL CONTROL PANEL SUPPORT POST

SHEET
 8



NOTES:

1. SAFETY RAILS AND PARTS SHALL BE STANDARD YELLOW, ULTRAVIOLET RESISTANT AND MANUFACTURED BY IDEAL SHIELD OR APPROVED EQUAL.
2. SAFETY CHAINS SHALL BE 1/4" DIAMETER WELDED YELLOW, ULTRAVIOLET RESISTANT, VINYL COATED STEEL WITH WORKING LOAD LIMIT OF 1,300 LBS WITH TWO 316 SS SPRING LOADED END SNAPHOOKS.



ISO VIEW
SCALE: N.T.S.

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#	DATE	REVISIONS	DES:	VT
1			DRN:	MRL
2			CKD:	
3			DATE:	

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

CITY of TAMPA
WASTEWATER DEPARTMENT

GUNLOCK PUMP STATION GENERATOR ADDITION

SAFETY GUARD RAIL DETAIL

SHEET

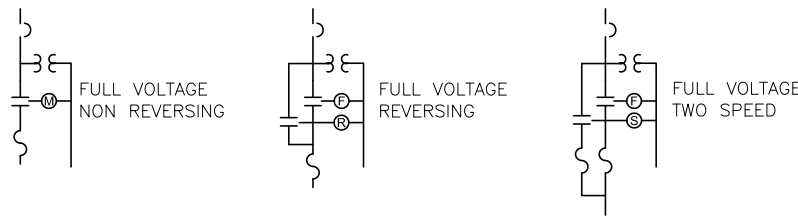
9

ONE LINE DIAGRAM SYMBOLS

- 600 A BUS-RATING AS SHOWN
- INCOMING LINE
- OUTCOMING LINE
- DISCONNECTING DEVICE
- CONDUCTORS CONNECTED
- CONDUCTORS NOT CONNECTED
- 100A FUSE-RATING AS SHOWN
- 100A SINGLE THROW DISCONNECT SWITCH-RATING AS SHOWN
- 100A/70A FUSED DISCONNECT SWITCH-100A SWITCH, 70A FUSE
- 100A LOW VOLTAGE AIR CIRCUIT BREAKER WITHOUT TRIP DEVICE 100A FRAME
- 225A/125A LOW VOLTAGE AIR CIRCUIT BREAKER WITH 225A FRAME AND 125A TRIP
- MEDIUM VOLTAGE DRAWOUT TYPE AIR CIRCUIT BREAKER
- GROUND CONNECTION
- LIGHTNING OR SURGE ARRESTOR
- SURGE CAPACITOR
- POWER TRANSFORMER WITH WINDING CONNECTIONS INDICATED
- CONTROL POWER TRANSFORMER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER

- THERMAL OVERLOAD ELEMENT (OL)
- SQUIRREL CAGE MOTOR (INDICATE HORSEPOWER)
- GENERATOR
- INDICATING LIGHT (R-RED, G-GREEN, A-AMBER, B-BLUE, W-WHITE)

COMBINATION STARTER WITH CONTROL TRANSFORMERS AND OVERLOAD RELAYS AND MOTOR CIRCUIT PROTECTOR



SCHEMATIC AND WIRING DIAGRAM SYMBOLS

- OPERATING COIL
- M-MOTOR STARTER
- C- CONTACTOR
- F- FORWARD
- R- REVERSE
- AR- AUXILIARY RELAY
- CR- CONTROL RELAY
- TR- TIME DELAY RELAY
- NORMALLY OPEN CONTACT (N.O.)
- NORMALLY CLOSED CONTACT (N.C.)
- NORMALLY OPEN CONTACT WITH TIME DELAY CLOSING (ON-DELAY)
- INSTANT OPEN- TIME DELAY CLOSED CONTACT (OFF DELAY)

- NORMALLY CLOSED CONTACT WITH TIME DELAY OPENING (ON-DELAY)
- INSTANT CLOSE- TIME DELAY OPEN CONTACT (OFF DELAY)
- INDICATING LIGHT- PUSH TO TEST (R-RED, G-GREEN, A-AMBER, B-BLUE, W-WHITE)
- 3-POSITION SELECTOR SWITCH (SHOWN IN "H" POS.)
- NORMALLY OPEN PUSHBUTTON-MOMENTARY CONTACT
- NORMALLY CLOSED PUSHBUTTON-MOMENTARY CONTACT
- DOUBLE CIRCUIT PUSHBUTTON WITH SPRING RETURN TO NORMAL
- TRANSFORMER
- OVERLOAD RELAY CONTACT
- THERMAL OVERLOAD ELEMENT (OL)
- ON-OFF SWITCH
- GROUND BUS
- NEUTRAL BUS (INSULATED)
- SINGLE-POLE CIRCUIT BREAKER

- NORMALLY OPEN N.O.
- NORMALLY CLOSED N.C.
- LIMIT SWITCH
- FLOAT SWITCH
- PRESSURE SWITCH
- FLOW SWITCH
- TEMPERATURE

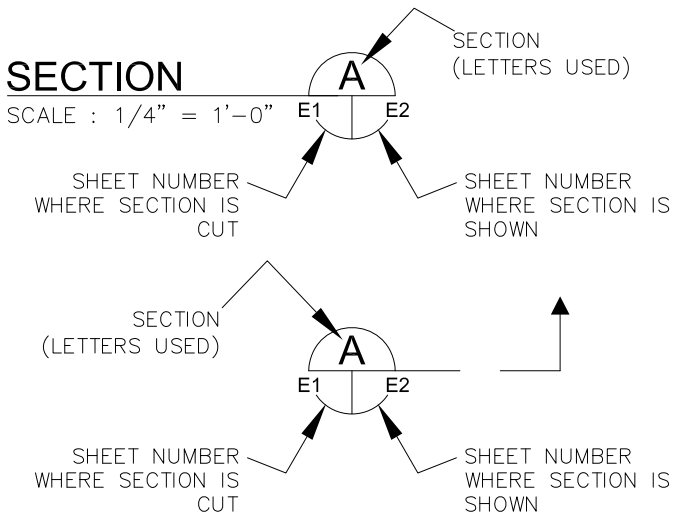
NOTE:

THE SYMBOLS SHOWN COMPRISE A GENERAL LEGEND TO FACILITATE THE USE OF PLANS. REFER TO THE PLANS AND SPECIFICATIONS FOR ITEMS REQUIRED.

EXAMPLE OF SECTION CUT AND DETAIL

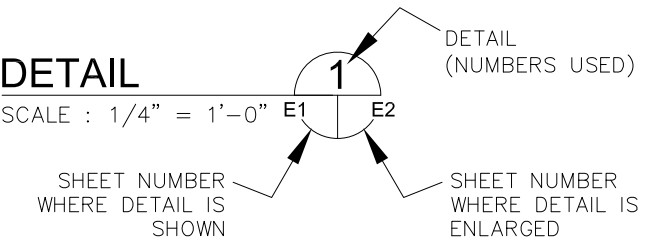
SECTION

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



DETAIL

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



#	DATE	REVISIONS
1		
2		
3		

DES: TDT
DRN: JLT
CKD:
DATE:

POWER AND LIGHTING SYMBOLS

- EXPOSED CONDUIT RUN
- - - - CONDUIT RUN CONCEALED IN FLOOR OR UNDERGROUND
- — — OVERHEAD ELECTRICAL SERVICE CONDUCTORS OR OVERHEAD COMMUNICATIONS CONDUCTORS
- ////// CONDUIT WITH HOT, NEUTRAL AND GROUND WIRES (LONG LINE IS NEUTRAL; LONG LINE WITH DOTS DENOTE GROUND)
- PNL-1
1,3,5 HOMERUN TO LIGHTING PANELBOARD (PNL-1 INDICATES PANELBOARD AND 1, 3, 5 INDICATES 20A-1P CKTS. 1, 3 AND 5)
- Flexible LIQUIDTIGHT CONDUIT
- CONDUIT-UP (OR TOWARDS VIEWER)
- CONDUIT-DOWN (OR AWAY FROM VIEWER)
- GROUNDING CONDUCTOR
- ⊙ GROUND ROD
- × LIGHTNING ROD
- CEILING MOUNTED INCANDESCENT OR MERCURY VAPOR FIXTURE. "A" INDICATES FIXTURE TYPE LISTED IN SCHEDULE
- WALL MOUNTED LIGHTING FIXTURE
- ⊗ EXIT SIGN
- EMERGENCY INCANDESCENT OR MERCURY VAPOR LIGHTING FIXTURE
- ▭ FLUORESCENT FIXTURE
- ▬ EMERGENCY FLUORESCENT FIXTURE

- ○ POLE MOUNTED LIGHTING FIXTURE
- ⊕ 4 DUPLEX RECEPTACLE- 20 A, 120 V, 3 WIRE (TO PNL- CIRCUIT No.4)
- ⊕ 30 A SINGLE RECEPTACLE - 2 POLE, 3 WIRE, 240V, RATING NOTED
- ⊕ 60 A 3 POLE, 4 WIRE, 240V WELDING OUTLET (60 A)
- /— SINGLE POLE SWITCH
- /— 2P TWO POLE SWITCH
- /— 3 THREE WAY SWITCH
- ⊙ OUTLET BOX WITH BLANK COVER
- ⊠ JUNCTION BOX
- ⊠ PB PULL BOX
- ⊠ TB TERMINAL BOX

GENERAL SYMBOLS

- ⬮ START-STOP PUSHBUTTON
- ⬮ ON/OFF/L ON-OFF MAINTAINED CONTACT PUSHBUTTON WITH LOCK ATTACHMENT
- ⬮ S/L INDICATING LIGHT AND START-STOP PUSHBUTTON WITH LOCK ATTACHMENT ON STOP
- ⬮ RESUME STOP/L PUSH/PULL BUTTON WITH STOP LOCK. (PULL TO RESUME- PUSH TO STOP)
- ⬮ SELECTOR SWITCH ("HOA" INDICATES HAND, OFF, AND AUTO; "MOR" INDICATES MANUAL, OFF, AND REMOTE; ETC.)
- ⬮ ON-OFF SWITCH WITH LOCK ATTACHMENT ON OFF POSITION

- ⊖ FL FLOW SWITCH
- ⊖ LS LIMIT SWITCH
- ⊖ P PRESSURE SWITCH
- ⊖ S SOLENOID OPERATED VALVE
- ⊖ T TEMPERATURE SWITCH
- ⊖ F FLOAT SWITCH
- ⊖ L LEVEL TRANSMITTER (PRESSURE ANALOG TYPE)
- ⊖ LC LEVEL TRANSMITTER (FLOAT TYPE)
- ⊖ T TEMPERATURE TRANSMITTER
- ⊖ FT FLOW TRANSMITTER
- MH DESIGNATES MOUNTING HEIGHT
- WP DESIGNATES WATERPROOF EQUIPMENT
- XP DESIGNATES EXPLOSIONPROOF EQUIPMENT
- MOV DESIGNATES MOTOR OPERATED VALVE
- EX. DESIGNATES EXISTING EQUIPMENT
- PROP. DESIGNATES PROPOSED EQUIPMENT

NOTE:

THE SYMBOLS SHOWN COMPRISE A GENERAL LEGEND TO FACILITATE THE USE OF PLANS. REFER TO THE PLANS AND SPECIFICATIONS FOR ITEMS REQUIRED.



TIMOTHY THOMAS, P.E. #47079	#	DATE	REVISIONS	DES: TDT	CITY of TAMPA WASTEWATER DEPARTMENT	GUNLOCK PUMP STATION GENERATOR INSTALLATION ELECTRICAL SYMBOLS LEGEND (SHEET 2 OF 2)	SHEET
	1			DRN: JLH			E2
	2			CKD:			
	3			DATE:			

GENERAL NOTES:

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. ALL POWER CONDUCTORS SHALL BE STRANDED COPPER, #12 AWG MIN. W/XHHW-2 INSULATION, UNLESS OTHERWISE NOTED.
3. ALL WIRING SHALL BE IDENTIFIED W/NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS.
4. VERIFY ALL MECHANICAL EQUIPMENT SIZES AND RATING PRIOR TO CONNECTING.
5. FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
6. PLANS ARE DESIGNED IN ACCORDANCE WITH THE 7TH EDITION 2020 OF THE FLORIDA BUILDING CODE AND THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL ENSURE THAT ALL ELECTRICAL WORK PERFORMED SHALL ADHERE TO THE SAME ACCORDANCE AND ALL APPLICABLE LOCAL ORDINANCES.
7. ALL THREADED CONNECTIONS SHALL BE COATED W/ ALUMA-SHIELD ANTI-SIEZE COMPOUND MANUFACTURED BY THOMAS & BETTS (T & B) OR EQUAL.
8. ALL PANELS, DISCONNECTS, SWITCHES, AND EQUIPMENT COVERPLATES SHALL BE LABELED W/ NAMEPLATES. NAMEPLATES SHALL BE THREE-PLY PHENOLIC BLACK-WHITE-BLACK ENGRAVED THROUGH THE FIRST BLACK LAYER. LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGE OF NAMEPLATE SHALL BE BEVELED 45 DEG.
9. ALL CONDUIT SHALL BE SUPPORTED AT MAXIMUM 5'-0" INTERVALS.
10. ALL CIRCUITS SHALL HAVE A PROPERLY SIZED GROUNDING CONDUCTOR ROUTED INSIDE EACH CONDUIT W/ POWER CONDUCTORS.
11. ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS, NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNED IN THE DRAWINGS.
12. NEATLY COIL ALL SPARE CONDUCTORS & TAPE W/ VINYL ELECTRICAL TAPE (SCOTCH 33+).
13. PROVIDE A MINIMUM OF 3'-6" CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE W/ ARTICLE 110 OF THE NEC.
14. ALL FASTENING HARDWARE (SCREW, BOLTS, NUTS ETC.) SHALL BE 316-STAINLESS STEEL, FASTENING HARDWARE CONSTRUCTED OF FERROUS MATERIAL ARE NOT ACCEPTABLE.
15. EXPOSED CONDUITS SHALL BE NON-COATED RIGID ALUMINUM CONDUIT, UNLESS OTHERWISE NOTED (UON). INSTALL PVC COATED RIGID ALUMINUM CONDUIT TO THE WET WELL, UNLESS OTHERWISE NOTED (UON).
16. DIRECT BURIED AND CONCRETE ENCASED CONDUIT SHALL BE SCHEDULE 80 PVC, UNLESS OTHERWISE NOTED. TRANSITIONS FROM ABOVE-GRADE RIGID ALUMINUM CONDUIT TO NONMETALLIC CONDUIT SHALL BE ACCOMPLISHED WITH A THREADED ADAPTER. RIGID ALUMINUM CONDUIT INSTALLED ABOVE GRADE AND EXTENDING BELOW GRADE SHALL INCLUDE THE FIRST 90° ELBOW. ALL RIGID ALUMINUM CONDUITS EXTENDING BELOW GRADE SHALL BE COATED WITH TWO COATS OF ASPHALTUM-TYPE PAINT ALONG ITS ENTIRE LENGTH BELOW GRADE AND EXTENDING 6" ABOVE GRADE OR ABOVE THE TOP OF THE FINISHED SLAB.
17. ABOVE GRADE INDOOR, AND NON-WASHDOWN AREAS, RIGID ALUMINUM CONDUIT CONNECTIONS TO CONTROL BOXES, ETC. SHALL BE MADE WITH ALUMINUM DOUBLE LOCKNUTS AND BUSHINGS. TURN DOWN ON THREADS TO SOLIDLY CONNECT RACEWAY TO BOX OR ENCLOSURE.
18. ALUMINUM WATERTIGHT HUBS (MYERS HUBS) SHALL BE USED FOR CONNECTIONS TO CONTROL BOXES, ETC. MOUNTED OUTDOORS, BELOW GRADE, OR WASHDOWN AREAS.
19. A 316-STAINLESS STEEL CHANNEL ERECTOR SYSTEM SHALL BE USED TO SUPPORT ALL CONDUITS, BOXES ETC. USE 316 STAINLESS STEEL MOUNTING HARDWARE.
20. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY TO EXECUTE THE PROPOSED INSTALLATIONS.
21. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR THE CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
22. PULL BOXES SHALL BE INSTALLED AS NECESSARY TO FACILITATE WIRE PULLS AND AVOID EXCESSIVE PULLING TENSION ON WIRING. IN NO CASE SHALL CONDUIT LENGTHS EXCEED 150' OR THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) WITHOUT A PULL BOX. PULL BOXES SHALL BE SIZED IN ACCORDANCE WITH ARTICLE 314 OF THE NEC.
23. THE WET WELL CLASSIFICATION IS CLASS 1, DIVISION 2, GROUP D, (HAZARDOUS AREA) NEC CHAPTER 5 IS APPLICABLE FOR INTERFACING WET WELL AND THE CONTROL ENCLOSURE.
24. ALL ELECTRICAL WORK SHALL BE PERFORMED WITHIN 2017 NEC AND CITY OF TAMPA/ HILLSBOROUGH COUNTY CODES AND SHALL BE INSPECTED BY CITY OF TAMPA/ ELECTRICAL INSPECTORS AS APPLICABLE.
25. ALL ELECTRICAL COMPONENTS SHALL BE UL LISTED AND AS SPECIFIED, OR AS APPROVED BY THE ENGINEER. THE PANEL BUILDER SHALL BE UL-508A CERTIFIED AND A UL LABEL SHALL BE ATTACHED TO THE INSIDE OF THE ENCLOSURE. THE DOUBLE THROW DISCONNECT MUST BE LABELED "SUITABLE FOR USE AS SERVICE EQUIPMENT."
26. THE ENCLOSURES SHALL BE NEMA 4X, THEY SHALL BE CONSTRUCTED OF MINIMUM 14 GAUGE 304SS, THEY SHALL HAVE RAL 9003 WHITE POWDER COAT AND THE CLOSING SURFACES SHALL HAVE ROLLED LIPS. PROVIDE HINGED DOORS WITH 3-POINT LATCHED AND LOCKABLE HANDLES.
27. ALL COMPONENTS TO BE MOUNTED ON PANEL USING TAPPED HOLES.
28. ALL CONTROL WIRING SHALL BE STRANDED XHHW-2 COPPER, MINIMUM AWG #14. INSTALL FERRULES FOR ALL WIRE TERMINATIONS SMALLER THAN #8 AWG.
29. ALARM FLOAT SWITCH WILL BE SUPPLIED BY THE CITY, BUT INSTALLED BY CONTRACTOR.
30. DIMENSIONS, ITEMS, OR ELEVATIONS MARKED "*" TO BE DETERMINED AFTER EQUIPMENT SELECTION.
31. ALL MECHANICAL CONNECTORS SHALL BE TORQUED PER NEC, UL OR MANUFACTURER'S SPECIFICATIONS.
32. INSTALL LAMINATED SCHEMATIC, LAMINATED DATA SHEET AND LAMINATED SOFT STARTER SETUP PARAMETERS ON BACK FACE OF THE DOOR INSIDE THE ENCLOSURE.
33. ENSURE THAT LINE CONNECTIONS TO METER SOCKET PROVIDE CORRECT MOTOR ROTATION.
34. CONDUCTORS WITHIN THE ENCLOSURE AND NOT ROUTED IN WIREWAYS, SHALL BE SECURED TO THE BACK PANEL WITH MECHANICAL FASTENERS, FASTENERS SECURED WITH ADHESIVE ARE NOT ACCEPTABLE.
35. ALL HINGED SURFACES SHALL BE GROUNDED WITH A BONDING JUMPER SECURED TO THE ENCLOSURE OR BACKPANEL.
36. THE PCSR SHALL BE MOTOROLA ACE 3600 PACKAGE AS DISTRIBUTED BY STAR CONTROLS, AUTOMATED CONTROLS, CURRY CONTROLS, ROCHA CONTROLS, OR CAYZO CONSULTING, INC.. THE PUMPING STATION CONTRACTOR SHALL COORDINATE HIS EFFORTS WITH STAR CONTROLS, AUTOMATED CONTROLS, ROCHA CONTROLS, REVERE CONTROL SYSTEMS OR CAYZO CONSULTING, INC.. TO ENSURE SYSTEM COMPATIBILITY. THE PCSR SHALL STORE AND FORWARD SITE ID'S IF REQUIRED. THE CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE DUPLEX CONTROL SYSTEM/SCADA PACKAGE, AS PROGRAMMED BY STAR CONTROLS, AUTOMATED CONTROLS, ROCHA CONTROLS, REVERE CONTROL SYSTEMS OR CAYZO CONSULTING, INC.. - THE EXISTING PUMPING STATION DCR CONTROLS SHALL REVERT TO THE CITY AS A SPARE.
37. THE CONTRACTOR SHALL SCHEDULE A PUMP STATION SCADA TESTING DATE, PUMP STATION PRE-STARTUP DATE, AND PUMP STATION STARTUP DATE. THE CITY SHALL BE GIVEN 14 DAYS' NOTICE OF THE SCHEDULED SCADA TESTING DATE. ON THE SCADA TESTING DATE, THE SCADA PROGRAMMER SHALL PROVIDE TEMPORARY POWER TO THE CONTROL PANEL PLC, PLACE THE NEW PLC ON LINE WITH THE CITY'S VT SCADA SYSTEM, AND PERFORM ANY NEEDED TROUBLESHOOTING OR DEBUGGING. THE CITY SHALL PROVIDE REQUIRED ADDRESSING FOR TESTING. AFTER THE SCADA PROGRAMMER DETERMINES THAT THE NEW PLC AND THE VT SCADA ARE PROPERLY COMMUNICATING WITHOUT ISSUE, THE CONTRACTOR SHALL SCHEDULE AN ONSITE PLC WITNESS TEST BETWEEN THE CITY OR CITY REPRESENTATIVE, SCADA PROGRAMMER, AND ANY OTHER REQUIRED PARTIES. DURING THE PLC WITNESS TEST, THE SCADA PROGRAMMER MUST DEMONSTRATE THAT THE NEW PLC IS ONLINE, COMMUNICATING WITH VT SCADA, AND ALL LEVEL AND STATUS INDICATIONS ARE FREE FROM ERROR. ONCE THE CITY HAS WITNESSED AND APPROVED SCADA TESTING, THE CONTRACTOR SHALL SCHEDULE A PRE-STARTUP AND START UP DATE. THE CITY RESERVES THE RIGHT TO CANCEL THE PRE-STARTUP DATE, IF IT DEEMS THE PRE-STARTUP DATE IS NOT NECESSARY.
38. THE CONTROL PANELS SHALL BE FACTORY TESTED. THE CONTRACTOR SHALL PROVIDE A CERTIFIED TESTING REPORT DETAILING ALL I/O POINTS, CONNECTION AND EQUIPMENT ARE IN WORKING ORDER. A COPY OF THE REPORT SHALL BE PROVIDED TO THE CITY PRIOR TO DELIVERY AND A COPY SHALL BE INCLUDED WITH THE CONTROL PANELS AT THE TIME OF THE DELIVERY.
39. A WET WELL LEVEL DETECTION SYSTEM SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. THE OUTPUT SHALL BE A LINEAR 4-20mA SIGNAL WITH RANGE AND CALIBRATION SUITABLE FOR THIS APPLICATION. THE SYSTEM SHALL BE OF THE ULTRASONIC TYPE-PULSAR, INC. MODEL dB10 W/ ULTRA-4 TRANSMITTER. CITY INSTRUMENTATION PERSONNEL WILL ASSIST THE CONTRACTOR WITH SPECIFYING THE TRANSDUCER MOUNTING LOCATION AND CALIBRATION. THE dB10 TRANSDUCER SHALL BE MOUNTED USING A 2 1/2" x 1/4" S.S. BRACKET, SEE dB10 MOUNTING BRACKET DETAIL, SHEET E23.
40. PROVIDE FINGER SAFE POWER DISTRIBUTION BLOCKS.
41. XHHW-2 CONDUCTORS (3-#8 AWG + #10 AWG GND. CU FOR EACH MOTOR) SHALL EXTEND FROM THE JUNCTION BOX. PROVIDE SEAL-OFF BETWEEN MOTOR CONTROL CABINET TO PUMP MOTOR CONNECTION AND JUNCTION BOX AS INDICATED. THE SHOWN SEAL-OFFS SHALL BE ALUMINUM BODY, CROUSE-HINDS, OR EQUIVALENT.
42. ALUMINUM CONDUIT SURFACES THAT ARE IN CONTACT WITH SOIL OR CONCRETE SHALL BE COATED WITH TWO COATS ASPHALT VARNISH (FED. SPEC. TT-V-51) EXTENDING 4" BEYOND FINAL CONTACT POINT.
43. STAINLESS STEEL HANGERS TO SUPPORT THE EXCESS LENGTH OF MOTOR CABLES SHALL BE INSTALLED IN THE WET WELL. THESE HANGERS SHALL BE LOCATED IN A SEPARATE AREA FROM THE HANGERS SUPPORTING THE PUMP CHAINS.



TIMOTHY THOMAS, P.E. #47079	#	DATE	REVISIONS	DES: TDT	WASTEWATER DEPARTMENT	GUNLOCK PUMP STATION GENERATOR INSTALLATION GENERAL NOTES	SHEET E3
	1			DRN: JLH			
	2			CKD:			
	3			DATE:			

ELECTRICAL SERVICE LOAD SUMMARY

480 VAC, 3Ø, 4W

LOAD	CONNECTED	DEMAND	APPROX. PHASE CURRENTS		
			L1	L2	L3
PUMP #1	13.8 KVA	13.8 KVA	21.0 A	21.0 A	21.0 A
PUMP #2	13.8 KVA	13.8 KVA	21.0 A	21.0 A	21.0 A
MINI POWER-ZONE	10.0 KVA	10.0 KVA	0.0 A	20.8 A	20.8 A
TOTAL	37.6 KVA	37.6 KVA	42.0 A	62.8 A	62.8 A

PUMP MOTOR DATA

H.P.: 15

480V, 3-PHASE, 21 FLA

TOTAL PUMP LOAD: 21 AMPS, 13.8 KVA

SHORT CIRCUIT CALCULATIONS

AVAILABLE SHORT-CIRCUIT CURRENT AT 480V UTILITY SERVICE IS 4,510 AMPERES. CONTRACTOR TO CONFIRM WITH TECO

TECO CONTACT: BROCK BLACKMORE (813) 228-1008

UTILITY SERVICE: 480/277, 3 PH, POLE-MOUNTED TRANSFORMERS AVAILABLE FAULT CURRENT AT SECONDARY SIDE OF TECO'S TRANSFORMERS: 4,510 AMP RMS SYM. SERVICE CONDUCTOR LENGTH: 140 FEET SERVICE CONDUCTOR SIZE: #3 XHHW CU. FUSE RATING: 100 AMPS

ISCA AT LINE SIDE OF FTDS:

$$ISCA = \left[1 + \frac{1}{\frac{(1.73)(140)(4,510)}{(3,860)(480)}} \right] * 4,510 = 2,837$$

SHORT CIRCUIT CURRENT AVAILABLE AT LINE SIDE LUGS OF THE FUSED DOUBLE THROW SWITCH = 2,837 AMPS RMS. THE LET-THROUGH CURRENT OF THE FUSES = 2,241 AMPS WHICH IS THE SYMMETRICAL CURRENT AVAILABLE AT THE MOTOR CONTROL PANEL (MCP).

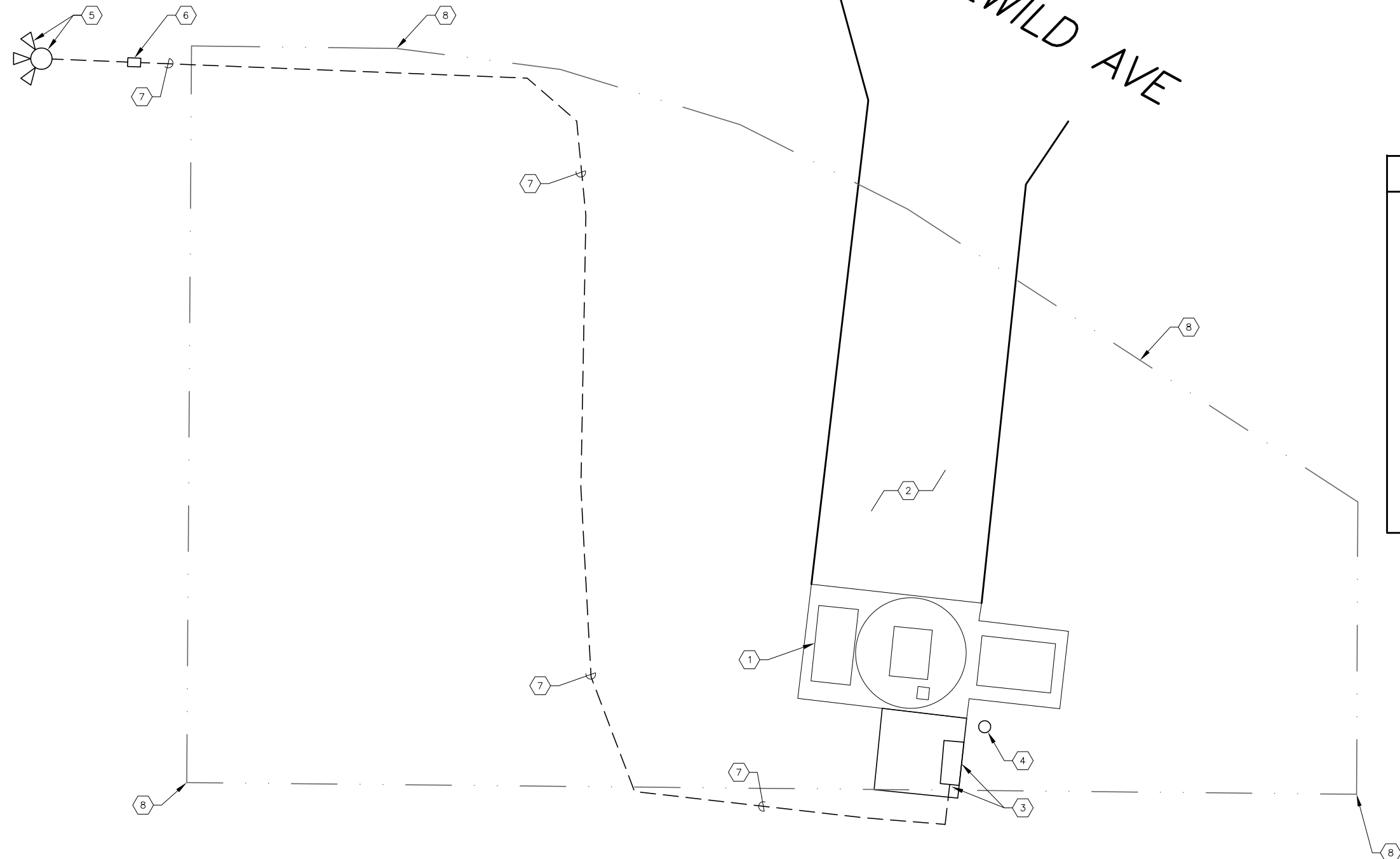
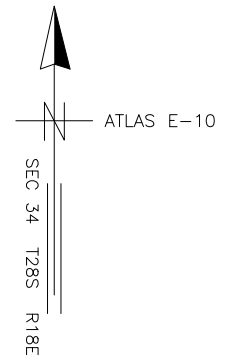
SCOPE OF WORK:

- THE SERVICE VOLTAGE FOR THIS FACILITY SHALL REMAIN AS A 277/480 VAC, 3-PHASE, 4-WIRE, WYE SYSTEM.
- REMOVE THE EXISTING METER SOCKET, LIGHTNING ARRESTOR, CONTROL PANEL, CONCRETE PEDESTAL, AND ALL ASSOCIATED CONDUIT AND CONDUCTORS, AS SHOWN ON PLANS.
- CAREFULLY REMOVE THE EXISTING DCR SCADA RTU CABINET. DELIVER THIS RTU PACKAGE TO THE CITY FOR MAINTENANCE INVENTORY.
- ANY SALVAGEABLE MATERIALS, AS DETERMINED BY THE ENGINEER, SHALL BE DELIVERED, BY THE CONTRACTOR, TO THE HOWARD F. CURREN AWTP. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL OTHER REMOVED EQUIPMENT.
- PROVIDE AND INSTALL A NEW ELECTRICAL METER SOCKET, LIGHTNING ARRESTOR AND GROUNDING, AS SHOWN ON PLANS.
- PREPARE THE SITE FOR THE INSTALLATION OF THE PROPOSED CONTROL EQUIPMENT.
- PROVIDE AND INSTALL A NEW DUPLEX PUMP CONTROL PANEL. THE PUMP CONTROL PANEL SHALL CONTAIN CONTROL COMPONENTS, INDICATOR LIGHTS, AND SCADA RTU, AS SHOWN ON PLANS AND DETAILED IN SPECIFICATIONS.
- PROVIDE AND INSTALL NEMA 4X WET WELL ISOLATION JUNCTION BOX FOR PUMP MOTOR CONNECTIONS.
- PROVIDE AND INSTALL A NEW DUPLEX MOTOR CONTROL PANEL. THE MOTOR CONTROL PANEL SHALL CONTAIN CIRCUIT BREAKERS AND NEMA SIZE 2 MOTOR STARTERS AS SHOWN ON PLANS AND DETAILED IN SPECIFICATIONS.
- PROVIDE AND INSTALL NEMA 4X WET WELL ISOLATION BOX FOR INSTRUMENTATION AND CONTROL CONNECTIONS.
- PROVIDE AND INSTALL A NEMA 4X, SERVICE ENTRANCE RATED, FUSED DOUBLE THROW SWITCH, AS SHOWN ON PLANS.
- PROVIDE AND INSTALL A NEMA 4X, EMERGENCY POWER CONNECTOR AS SHOWN ON THE PLANS.
- THE EXISTING SCADA ANTENNA AND ASSOCIATED MAST SHALL BE CAREFULLY REMOVED AND PROVIDED TO THE CITY FOR MAINTENANCE INVENTORY.
- PROVIDE AND INSTALL A NEW ANTENNA AND MAST.
- PROVIDE AND INSTALL AREA LIGHT, AS SHOWN ON PLANS.
- PROVIDE AND INSTALL PROPOSED RAIN GAUGE.
- CALIBRATE AND ADJUST SETPOINTS FOR ALL SENSING DEVICES, ALARM DEVICES, AND TIMERS. CALIBRATION AND SETPOINTS SHALL BE PROVIDED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE FOR PROPER GROUNDING AS SHOWN, SPECIFIED, AND REQUIRED.
- PROVIDE AND INSTALL ALL NECESSARY CONDUITS AND CONDUCTORS, AS SHOWN, SPECIFIED AND REQUIRED.
- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2017 EDITION OF THE NATIONAL ELECTRIC CODE AND CHAPTER 5 OF THE CITY OF TAMPA CODE.
- REFER TO CIVIL/MECHANICAL SHEETS FOR BYPASS PUMPING REQUIREMENTS. IF ELECTRICALLY DRIVEN BYPASS PUMPS ARE UTILIZED, THE CONTRACTOR SHALL COORDINATE ALL TEMPORARY ELECTRICAL SERVICE REQUIREMENTS WITH TAMPA ELECTRIC COMPANY (TECO). ANY COSTS ASSOCIATED WITH TEMPORARY ELECTRIC POWER ARE TO BE INCLUDED IN THE LUMP SUM PRICE AND NO SEPARATE PAYMENT WILL BE MADE.
- AS PART OF THE SHOP DRAWING PROCESS, THE CONTRACTOR SHALL SUBMIT A PLAN TO ENSURE SCADA COMMUNICATIONS ARE MAINTAINED DURING CONSTRUCTION. COORDINATE ALL REQUIREMENTS WITH THE CITY OF TAMPA.
- PROVIDE AND INSTALL A 80 KW GENERATOR SET IN A WEATHERPROOF, SOUND-ATTENUATED ENCLOSURE WITH SUBBASE DIESEL FUEL TANK.
- PROVIDE AND INSTALL A 100 AMP, 480V, 3-POLE, SOLID-NEUTRAL AUTOMATIC TRANSFER SWITCH (ATS) IN A NEMA 4X, 316 STAINLESS STEEL ENCLOSURE.



TIMOTHY THOMAS, P.E. #47079	#	DATE	REVISIONS	DES: TDT	CITY of TAMPA WASTEWATER DEPARTMENT	GUNLOCK PUMP STATION GENERATOR INSTALLATION	SCOPE OF WORK	SHEET E4
	1			DRN: JLH				
	2			CKD:				
	3			DATE:				

W IDLEWILD AVE

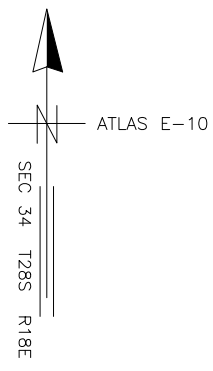
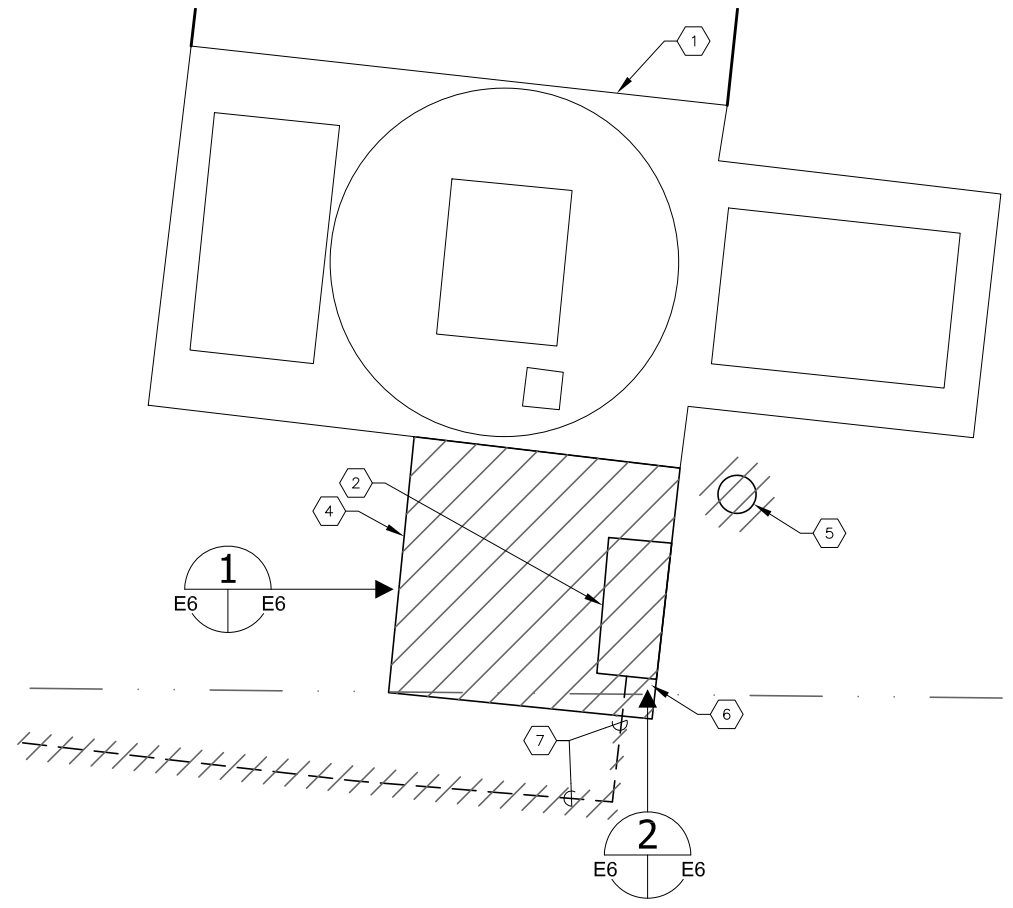


- KEYED NOTES:**
- ① EXISTING GUNLOCK PUMPING STATION.
 - ② EXISTING DRIVEWAY.
 - ③ EXISTING CONTROL PANEL AND ELECTRIC METER.
 - ④ EXISTING SCADA TOWER AND ANTENNA.
 - ⑤ EXISTING TAMPA ELECTRIC COMPANY (TECO) DISTRIBUTION POLE WITH POLE-MOUNTED TRANSFORMERS CREATING A 277/480V, 3 ϕ , 4-WIRE SERVICE.
 - ⑥ EXISTING TECO HANDHOLE. CONTRACTOR TO FIELD LOCATE AND VERIFY WITH TECO.
 - ⑦ EXISTING ELECTRICAL SERVICE CONDUIT AND CONDUCTORS. EXISTING ELECTRICAL SERVICE CONDUIT AND CONDUCTORS TO BE REMOVED. PROVIDE AND INSTALL 3-#3 XHHW-2 CU + 1-#3 XHHW-2 CU NEUTRAL IN 1-1/2" C. ADJACENT TO EXISTING CONDUIT FROM HANDHOLE IN KEYED NOTE #6 TO NEW ELECTRIC METER ON SHEET E9, KEYED NOTE #6.
 - ⑧ EXISTING PROPERTY LINE.

EXISTING ELECTRICAL SITE PLAN
SCALE: 1"=10'-0"

THOMAS ENGINEERING
777 S. Harbour Island Blvd.
Suite 350
Tampa, FL 33602
813.227.9190
Certificate of Authorization No. 31028

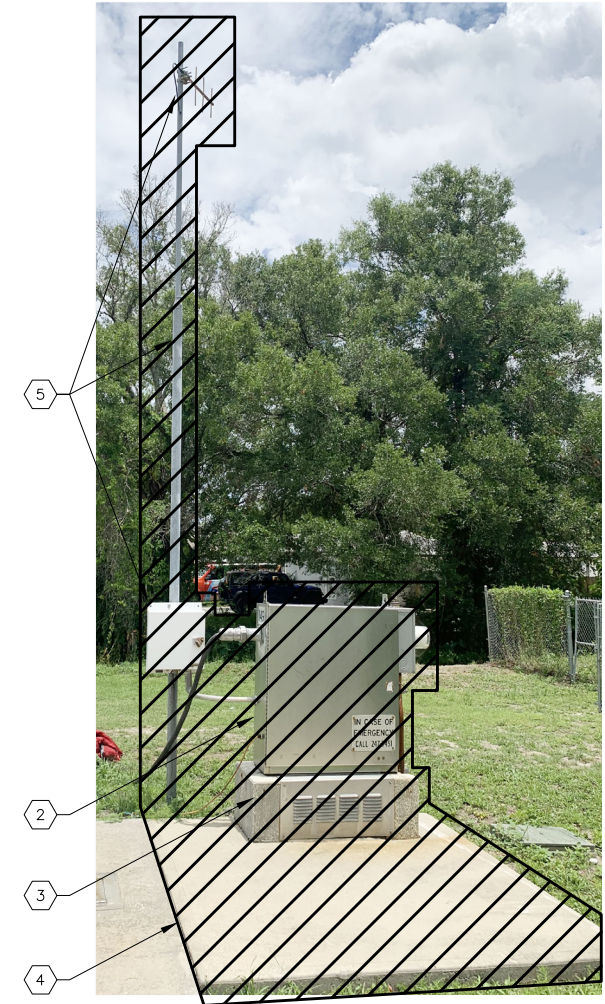
TIMOTHY THOMAS, P.E. #47079	#	DATE	REVISIONS	DES: TDT	CITY of TAMPA WASTEWATER DEPARTMENT	GUNLOCK PUMP STATION GENERATOR INSTALLATION EXISTING ELECTRICAL PLAN (DEMOLITION SHEET)	SHEET E5
	1			DRN: JLH			
	2			CKD:			
	3			DATE:			



**EXISTING ELECTRICAL SITE PLAN
(DEMOLITION DRAWING)**

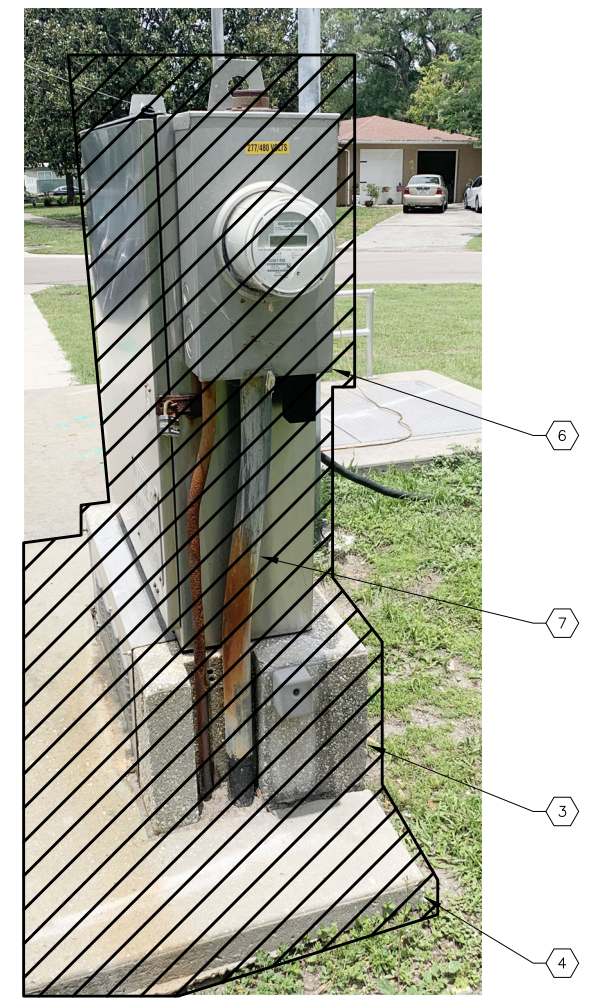
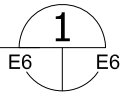
SCALE: 1"=5'-0"

KEYED NOTES:	
1	EXISTING GUNLOCK PUMPING STATION.
2	EXISTING CONTROL PANEL TO BE REMOVED.
3	EXISTING CONCRETE PEDESTAL TO BE REMOVED.
4	EXISTING CONTROL PANEL CONCRETE SLAB TO BE REMOVED.
5	EXISTING SCADA TOWER, RTU CABINET AND ANTENNA TO BE REMOVED.
6	EXISTING ELECTRIC METER TO BE REMOVED.
7	EXISTING ELECTRICAL SERVICE CONDUIT AND CONDUCTORS TO BE REMOVED.



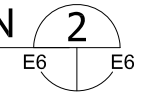
**CONTROL PANEL AND
TOWER DEMOLITION**

SCALE: N.T.S.



METER DEMOLITION

SCALE: N.T.S.



TIMOTHY THOMAS, P.E. #47079

#	DATE	REVISIONS
1		
2		
3		

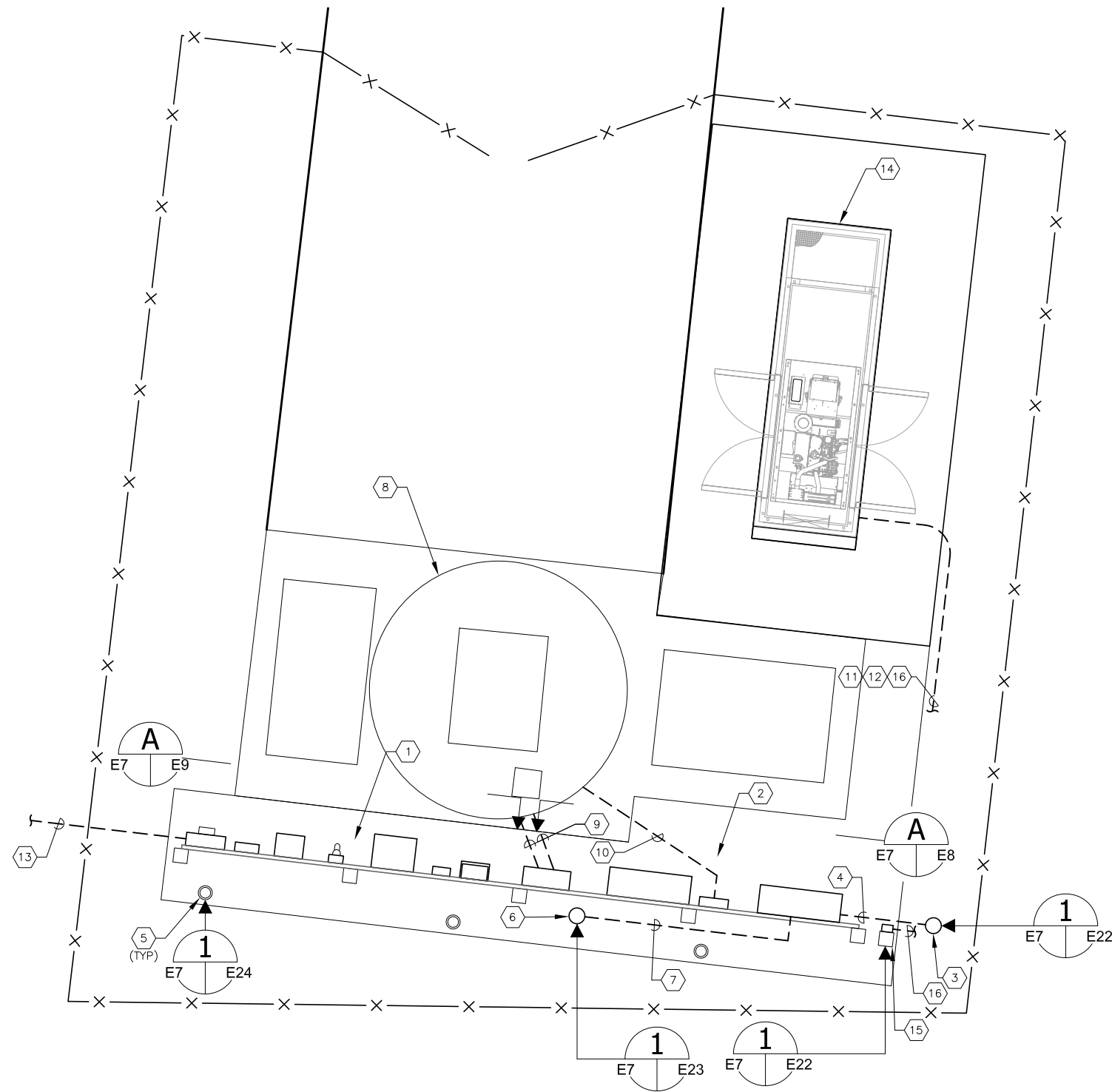
DES: TDT
DRN: JLH
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

GUNLOCK PUMP STATION GENERATOR INSTALLATION
EXISTING ELECTRICAL PLAN (DEMOLITION DRAWING)

SHEET
E6





ATLAS E-10
 SEC 34 128S R18E

KEYED NOTES:

- 1 PROPOSED ELECTRIC METER, DOUBLE-THROW, FUSED DISCONNECT SWITCH, AUTOMATIC TRANSFER SWITCH, 100 AMP GENERATOR RECEPTACLE AND MINI POWER-ZONE. REFER TO ELEVATION ON SHEET E9.
- 2 PROPOSED MOTOR CONTROL PANEL, PUMP CONTROL PANEL AND ASSOCIATED DEMARCATION BOXES. REFER TO ELEVATION ON SHEET E8.
- 3 NEW SCADA ANTENNA/MAST. REFER TO DETAIL ON SHEET E22.
- 4 PROVIDE AND INSTALL NEW COAXIAL CABLE IN 1" CONDUIT FROM PUMP CONTROL PANEL TO NEW SCADA ANTENNA/MAST.
- 5 PROVIDE AND INSTALL NEW GROUND ROD TEST WELL (TYPICAL OF 3). REFER TO SHEET E24 FOR GROUND TEST WELL DETAIL.
- 6 PROVIDE AND INSTALL NEW AREA LIGHT (AL), TYPE 'A'. REFER TO SHEET E23 FOR DETAIL.
- 7 PROVIDE AND INSTALL 2-#12 + 1-#12 GND BETWEEN NEW AREA LIGHT AND PUMP CONTROL PANEL (PCP).
- 8 EXISTING WET WELL.
- 9 PROVIDE AND INSTALL TWO (2) 2" CONDUITS WITH MANUFACTURER SUPPLIED PUMP POWER CABLES TO WET WELL.
- 10 PROVIDE AND INSTALL 2" CONDUIT WITH MANUFACTURER SUPPLIED FLOAT AND LEVEL SENSOR CABLES TO WET WELL.
- 11 PROVIDE AND INSTALL 4-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4"C. TO PCP FOR GENERATOR RUNNING, GENERATOR FAIL AND BATTERY LOW VOLTAGE INDICATION. ALSO PROVIDE AND INSTALL 4-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4"C. TO PCP TANK LEAK, TANK LOW LEVEL AND TANK HIGH LEVEL. ALSO PROVIDE AND INSTALL 2/C-#16 TWISTED SHIELDED (BELDEN 8719) IN 1"C. TO PCP FOR GENERATOR FUEL TANK LEVEL.
- 12 PROVIDE AND INSTALL 2-#10 + 4-#12 + 1-#10 GND IN 1"C. TO MINI POWER-ZONE 'LP'. 2-#12 FOR BATTERY CHARGER, 2-#10 FOR COOLANT HEATER, 2-#12 FOR CONDENSATION HEATER.
- 13 PROVIDE AND INSTALL 3-#3 XHHW-2 CU + 1-#3 XHHW-2 CU NEUTRAL IN 1-1/2"C. FROM HANDHOLE AT TECO DISTRIBUTION POLE TO METER. REFER TO SHEET E5, KEYED NOTES #6 AND #7 FOR CONTINUATION.
- 14 PROPOSED 80KW GENERATOR WITH SUB-BASE DIESEL FUEL TANK. REFER TO GENERATOR NOTE BELOW.
- 15 PROVIDE AND INSTALL NEW GENERATOR EMERGENCY SHUT DOWN PUSHBUTTON STATION. REFER TO SHEET E22 FOR DETAIL.
- 16 PROVIDE AND INSTALL 2-#12 + 1-#12 GND BETWEEN NEW GENERATOR EMERGENCY SHUT DOWN PUSHBUTTON STATION AND GENERATOR.

GENERAL NOTE:

- 1. THE PROPOSED GENERATOR SHALL BE A CAT PACKAGE MODEL #D80-8 WITH A C4.4 ENGINE. CAT GENERATORS ARE STANDARDIZED CITY OF TAMPA EQUIPMENT AND "OR EQUAL" GENERATORS WILL NOT BE CONSIDERED.
- 2. NOT ALL CONDUCTORS AND CONDUIT SHOWN FOR CLARITY. REFER TO SHEETS E8, E9 AND DETAIL SHEETS FOR OTHER REQUIREMENTS.



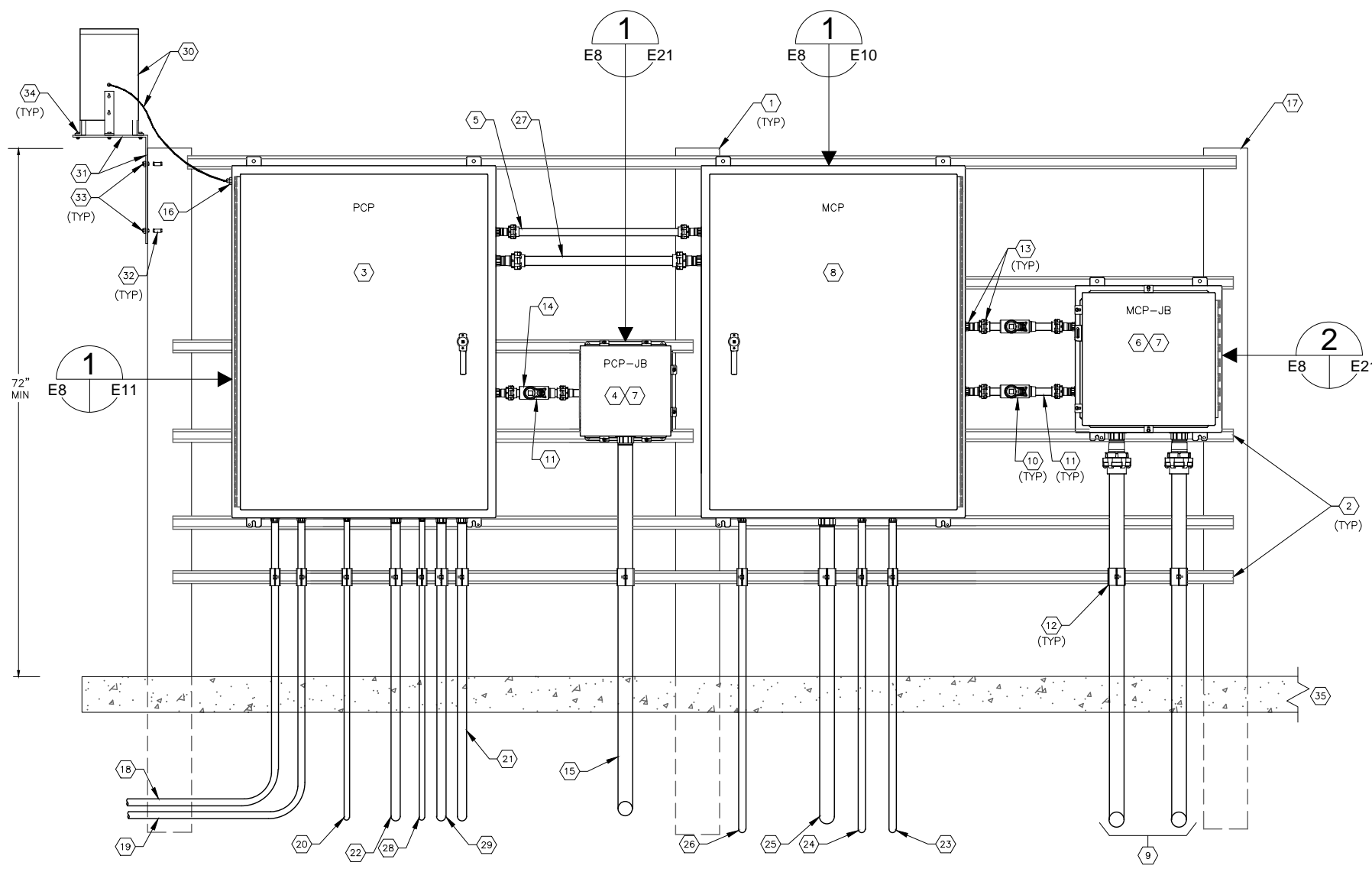
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
 PARTIAL ELECTRICAL PLAN

SHEET
E7



ELECTRICAL EQUIPMENT RACK FRONT ELEVATION LEFT SIDE

SCALE: N.T.S.

A
E7 | E8

GENERAL NOTES:

1. POSTS SPACED 6'-0" ON CENTER.

KEYED NOTES:

- 1 PROVIDE AND INSTALL FIVE (5) 6" X 6" X 9' REINFORCED SQUARE CONCRETE POSTS.
- 2 PROVIDE AND INSTALL 1-5/8" X 1-5/8" 316 STAINLESS STEEL UNISTRUT WITH 316 STAINLESS STEEL HARDWARE. NOTE: INSTALL ALL BOLTS FOR UNISTRUT COMPLETELY THROUGH CONCRETE POSTS.
- 3 PROVIDE AND INSTALL PUMP CONTROL PANEL (PCP). REFER TO DETAIL ON SHEET E11.
- 4 INSTRUMENTATION AND CONTROLS J.B.-USED AS DEMARCATION BOX TO PROVIDE ISOLATION BETWEEN THE WET WELL AND PUMP CONTROLS. PROVIDE AND INSTALL A 12"x12"x6" NEMA 4X, STAINLESS STEEL JUNCTION BOX WITH HINGED DOOR, WIEGMANN #BN4121206CHSS. INSTALL A STAINLESS STEEL LOUVER PLATE KIT (4.75"x4.5") ON SIDE OF BOX TO PROVIDE NATURAL ASPIRATION, WIEGMANN #WAVK0304SSA. SEE SHEET E21 FOR J.B. DETAILS.
- 5 PROVIDE AND INSTALL 18-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 1" C. FOR 24V DC CONTROL SIGNALS. REFER TO MCP TO PCP INTERCONNECTION WIRING DIAGRAM ON SHEET E17.
- 6 PUMP MOTOR CONNECTIONS J.B.-USED AS A DEMARCATION BOX TO PROVIDE ISOLATION BETWEEN THE WET WELL AND PUMP CONTROLS. PROVIDE AND INSTALL A 16"x16"x6" NEMA 4X, STAINLESS STEEL JUNCTION BOX WITH HINGED DOOR, HAMMOND #1418N4SSG6. INSTALL A STAINLESS STEEL LOUVER PLATE KIT (4.75"x4.5") ON SIDE OF BOX TO PROVIDE NATURAL ASPIRATION, WIEGMANN #WAVK0304SSA. TERMINATIONS SHALL BE MADE USING POWER DISTRIBUTION BLOCKS. SEE SHEET E21 FOR J.B. DETAILS.
- 7 PROVIDE DUCT SEALING COMPOUND IN ALL CONDUITS EXTENDING TO THE WET WELL.
- 8 PROVIDE AND INSTALL MOTOR CONTROL PANEL (MCP). REFER TO DETAIL ON SHEET E10.
- 9 PROVIDE AND INSTALL NEW 2" CONDUITS WITH NEW MANUFACTURER SUPPLIED SUBMERSIBLE PUMP POWER CABLES TO WET WELL. INSTALL PVC COATED RIGID ALUMINUM CONDUIT TO THE WET WELL.
- 10 PROVIDE AND INSTALL 3-#8 XHHW-2 CU + 1-#10 XHHW-2 CU GND + 2-#12 XHHW-2 CU (LEAK/TEMP) IN 1-1/4" CONDUIT FOR SUBMERSIBLE PUMP POWER.
- 11 PROVIDE AND INSTALL CROUSE-HINDS EYS TYPE SEALS W/CHICO COMPOUNDS.
- 12 PROVIDE AND INSTALL ALUMINUM CONDUIT CLAMPS (TYPICAL).
- 13 PROVIDE AND INSTALL WATER-TIGHT / DUST-TIGHT MYERS HUB AND UNION (TYP.).
- 14 PROVIDE AND INSTALL 3-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND + ONE 3/C-#18 TWISTED SHIELDED CABLE IN 1" CONDUIT FOR FLOAT AND WET WELL LEVEL TRANSMITTER.
- 15 MANUFACTURER SUPPLIED CABLES FOR FLOAT SWITCH AND WET WELL LEVEL TRANSMITTER INSTALL IN 2" CONDUIT TO WET WELL FROM JUNCTION BOX. INSTALL PVC COATED RIGID ALUMINUM CONDUIT TO THE WET WELL.
- 16 PROVIDE AND INSTALL WATERTIGHT GROMMET FOR RAIN GAUGE CABLE.
- 17 CENTER POST (3 OF 5) COMMON TO BOTH SHEET E8 AND E9.
- 18 PROVIDE AND INSTALL 1" CONDUIT FOR ANTENNA COAXIAL CABLE REFER TO SHEET E7 FOR CONTINUATION.
- 19 PROVIDE AND INSTALL 2-#12 XHHW-2 CU + 1-#12 XHHW-2 CU GND. IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO AREA LIGHT FOR 120V POWER CIRCUITS.
- 20 PROVIDE AND INSTALL 2-#12 XHHW-2 CU + 1-#12 XHHW-2 CU GND. IN 3/4" CONDUIT FROM MINI POWER-ZONE 'LP' TO PUMP CONTROL PANEL FOR 120V POWER CIRCUITS.
- 21 PROVIDE AND INSTALL 2/C-#16 TWISTED SHIELDED (BELDEN 8719) IN 1"C. TO GENERATOR FOR GENERATOR FUEL TANK LEVEL.
- 22 PROVIDE AND INSTALL 4-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4"C. TO GENERATOR FOR GENERATOR RUNNING, GENERATOR FAIL AND BATTERY LOW VOLTAGE INDICATION.
- 23 PROVIDE AND INSTALL 2-#12 XHHW-2 CU + 1-#12 XHHW-2 CU GND. IN 1" CONDUIT FROM MINI POWER-ZONE 'LP' TO MOTOR CONTROL PANEL FOR 120V POWER CIRCUITS.
- 24 PROVIDE AND INSTALL 2-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4"C. TO PM1 JUNCTION BOX.
- 25 PROVIDE AND INSTALL 3-#3 XHHW-2 CU + 1-#3 XHHW-2 CU NEUTRAL + 1-#8 XHHW-2 CU GND IN 1-1/2"C. FROM AUTOMATIC TRANSFER SWITCH TO MOTOR CONTROL PANEL FOR MOTOR CONTROL PANEL 480V FEEDER.
- 26 PROVIDE AND INSTALL 2-#10 XHHW-2 CU + 1-#10 XHHW-2 CU GND. IN 1" CONDUIT FROM MOTOR CONTROL PANEL TO MINI POWER-ZONE FOR 480V FEEDER.
- 27 PROVIDE AND INSTALL 2-#12 XHHW-2 CU + 1-#12 XHHW-2 CU GND. IN 1-1/4" C. FOR 120VAC CONTROL SIGNALS. REFER TO MCP TO PCP INTERCONNECTIONS WIRING DIAGRAM ON SHEET E17. COUNT INCLUDES SPARES.
- 28 PROVIDE AND INSTALL 4-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4"C. TO AUTOMATIC TRANSFER SWITCH FOR UTILITY POWER AVAILABLE, GENERATOR POWER AVAILABLE AND ATS FAULT.
- 29 PROVIDE AND INSTALL 4-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4"C. TO GENERATOR FOR TANK LEAK, TANK LOW LEVEL AND TANK HIGH LEVEL.
- 30 PROVIDE AND INSTALL NEW RAIN GAUGE. NOVALYNX CORPORATION PART NO. 260-2501-A. 8" RAIN GAUGE, 0.01"/TIP WITH 25' CABLE.
- 31 PROVIDE AND INSTALL 1/2" THICK ALUMINUM BRACKET. 6" WIDTH, 14" LENGTH VERTICAL SECTION AT CONCRETE POST. WIDTH AS REQUIRED TO SECURE RAIN GAUGE.
- 32 PROVIDE AND INSTALL STAINLESS STEEL WEDGE ANCHORS (TYPICAL OF 4 TOTAL).
- 33 PROVIDE AND INSTALL 1/2" STAINLESS STEEL BOLTS (TYP).
- 34 PROVIDE AND INSTALL STAINLESS STEEL NUT AND BOLT. SIZED TO ACCOMMODATE RAIN GAUGE (TYP OF 3).
- 35 CONCRETE SLAB CONTINUES TO SHEET E9.

THOMAS ENGINEERING
777 S. Harbour Island Blvd,
Suite 350
Tampa, FL 33602
813.227.9190
Certificate of Authorization No. 31028

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WASTEWATER DEPARTMENT

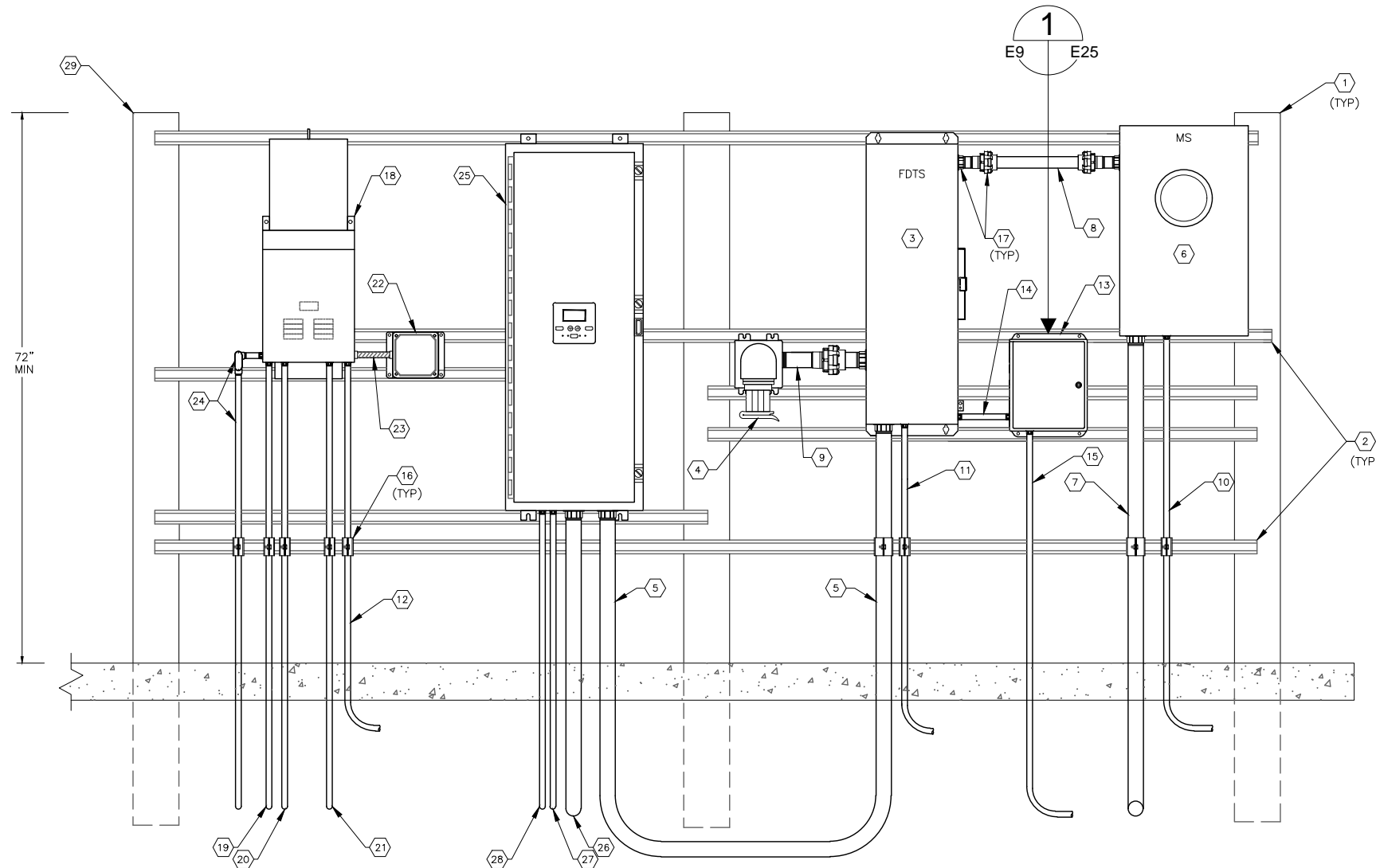
GUNLOCK PUMP STATION GENERATOR INSTALLATION
ELECTRICAL EQUIPMENT RACK FRONT RACK ELEVATION

SHEET E8

TIMOTHY THOMAS, P.E. #47079

KEYED NOTES:

- ① PROVIDE AND INSTALL FIVE (5) 6" X 6" X 9' REINFORCED SQUARE CONCRETE POSTS.
- ② PROVIDE AND INSTALL 1-5/8" X 1-5/8" 316 STAINLESS STEEL UNISTRUT WITH 316 STAINLESS STEEL HARDWARE. NOTE: INSTALL ALL BOLTS FOR UNISTRUT COMPLETELY THROUGH CONCRETE POSTS.
- ③ PROVIDE AND INSTALL HEAVY DUTY, DOUBLE THROW, SERVICE ENTRANCE RATED FUSIBLE SWITCH 'FDTS'. 3-POLE, 600 VAC, 200 AMP IN NEMA 4X TYPE ENCLOSURE PROVIDE 100A, 600 VOLT, DUAL-ELEMENT, TIME-DELAY CLASS RK5 FUSES; SWITCH--EATON DT363FWK, DT100NK-NEUTRAL KIT, DS100GK-GROUND LUG KIT, DS36FK-"R" FUSE ADAPTER KIT.
- ④ PROVIDE AND INSTALL GENERATOR RECEPTACLE 'EC'. 600V, 100 AMP, REVERSE SERVICE. CROUSE HINDS ARKITTE AREA10416-S22.
- ⑤ PROVIDE AND INSTALL 3-#3 XHHW-2 CU + 1-#3 XHHW-2 CU NEUTRAL + 1-#8 XHHW-2 CU GND IN 1-1/2". FROM DOUBLE-THROW, FUSIBLE DISCONNECT SWITCH TO AUTOMATIC TRANSFER SWITCH.
- ⑥ PROVIDE AND INSTALL 125 AMPERE METER SOCKET IN ALUMINUM ENCLOSURE. ELEVATION TO THE CENTER OF THE METER SHALL NOT EXCEED 5'-0" PER TECO STANDARDS. PROVIDE SURGE PROTECTION DEVICE PER TECO STANDARDS.
- ⑦ PROVIDE AND INSTALL 3-#3 XHHW-2 CU + 1-#3 XHHW-2 CU NEUTRAL IN 1-1/2". FROM TECO HANDHOLE TO METER. REFER TO SHEET E5 FOR CONTINUATION.
- ⑧ PROVIDE AND INSTALL 3-#3 XHHW-2 CU + 1-#3 XHHW-2 CU NEUTRAL IN 1-1/2". FROM METER TO DOUBLE THROW, SERVICE ENTRANCE RATED FUSIBLE SWITCH 'FDTS'.
- ⑨ PROVIDE AND INSTALL 3-#3 XHHW-2 CU + 1-#3 XHHW-2 CU NEUTRAL + 1-#8 XHHW-2 CU GND IN 1-1/2". FROM DOUBLE THROW, SERVICE ENTRANCE RATED FUSIBLE SWITCH 'FDTS' TO GENERATOR RECEPTACLE 'EC'.
- ⑩ PROVIDE AND INSTALL #8 BARE COPPER GROUNDING ELECTRODE CONDUCTOR IN 3/4" SCHEDULE 80 PVC CONDUIT FROM METER TO GROUND ROD TEST WELL. CONFIRM CONDUCTOR SIZE WITH TECO.
- ⑪ PROVIDE AND INSTALL #4 BARE COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" SCHEDULE 80 PVC CONDUIT FROM SERVICE DISCONNECT 'FDTS' TO GROUND ROD TEST WELL.
- ⑫ PROVIDE AND INSTALL #8 BARE COPPER GROUNDING ELECTRODE CONDUCTOR IN 3/4" SCHEDULE 80 PVC CONDUIT FROM MINI POWER-ZONE 'LP' TO GROUND ROD TEST WELL.
- ⑬ PROVIDE AND INSTALL A 3Ø, POWER MONITOR RELAY 'PM1' JUNCTION BOX WITH 480 VAC LINE INPUT - ALARM ON PHASE LOSS, UNDERVOLTAGE, OR WRONG ROTATION. PANEL MOUNT, ATC DIVERSIFIED MODEL SUA-440-ASA, FUSE BOX DISCONNECT (FBD1) - ALLEN BRADLEY 1492-FB3630-L WITH BUSSMAN KTK-R-2 FUSES IN NEMA 4X 316 STAINLESS STEEL 12" X 10" X 8" ENCLOSURE WITH CONTINUOUS HINGE - HAMMOND MANUFACTURING EJ1210BS16. REFER TO DETAIL ON SHEET E25. PROVIDE AND INSTALL WARNING LABEL. LABEL TO READ: 'WARNING - PHASE MONITOR TO DETERMINE ELECTRIC UTILITY SERVICE AVAILABILITY - 480VAC MAY BE PRESENT REGARDLESS OF POSITION OF MAIN DISCONNECT OPERATOR.' REFER TO DETAIL ON SHEET E25.
- ⑭ PROVIDE AND INSTALL 3-#12 XHHW-2 CU + 1-#12 XHHW-2 CU GND. IN 3/4".
- ⑮ PROVIDE AND INSTALL 2-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4". TO MOTOR CONTROL PANEL.
- ⑯ PROVIDE AND INSTALL ALUMINUM CONDUIT CLAMPS (TYPICAL).
- ⑰ PROVIDE AND INSTALL WATER-TIGHT / DUST-TIGHT MYERS HUB AND UNION (TYP.).
- ⑱ PROVIDE AND INSTALL 480V-120/240V, 10KVA MINI POWER-ZONE 'LP' IN NEMA 3R STAINLESS STEEL ENCLOSURE. SQUARE-D MPZB10S40FSS. REFER TO SHEET E24 FOR PANEL SCHEDULE.
- ⑲ PROVIDE AND INSTALL 2-#12 XHHW-2 CU + 1-#12 XHHW-2 CU GND. IN 3/4" CONDUIT FROM MINI POWER-ZONE 'LP' TO PUMP CONTROL PANEL FOR 120V POWER CIRCUIT.
- ⑳ PROVIDE AND INSTALL 2-#10 + 4-#12 + 1-#10 GND IN 1". TO GENERATOR. 2-#12 FOR BATTERY CHARGER, 2-#10 FOR COOLANT HEATER, 2-#12 FOR CONDENSATION HEATER.
- ㉑ PROVIDE AND INSTALL 2-#12 XHHW-2 CU + 1-#12 XHHW-2 CU GND. IN 1" CONDUIT FROM MINI POWER-ZONE 'LP' TO MOTOR CONTROL PANEL FOR 120V POWER CIRCUIT.
- ㉒ PROVIDE AND INSTALL SURGE PROTECTION DEVICE (SPD) UNIT, 120/240V, 1Ø, TYPE 1, ASCO SERIES 430, IN NEMA 4X ENCLOSURE.
- ㉓ PROVIDE AND INSTALL 2-#10 THWN + 1-#10 THWN CU NEUTRAL + 1-#10 THWN CU GND IN 3/4" SEAL-TITE CONDUIT TO SPD CIRCUIT BREAKER.
- ㉔ PROVIDE AND INSTALL 2-#10 XHHW-2 CU + 1-#10 XHHW-2 CU GND. IN 1" CONDUIT FROM MOTOR CONTROL PANEL TO MINI POWER-ZONE FOR 480V FEEDER. PROVIDE CONDUIT L.B. AS REQUIRED.
- ㉕ PROVIDE AND INSTALL 600V, 100A, 3-POLE, SOLID-NEUTRAL, AUTOMATIC TRANSFER SWITCH IN NEMA 4X 316 STAINLESS STEEL ENCLOSURE.
- ㉖ PROVIDE AND INSTALL 3-#3 XHHW-2 CU + 1-#3 XHHW-2 CU NEUTRAL + 1-#8 XHHW-2 CU GND IN 1-1/2". FROM AUTOMATIC TRANSFER SWITCH TO MOTOR CONTROL PANEL.
- ㉗ PROVIDE AND INSTALL 2-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4". TO GENERATOR FOR GENERATOR START SIGNAL.
- ㉘ PROVIDE AND INSTALL 4-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4". TO PUMP CONTROL PANEL FOR UTILITY POWER AVAILABLE, GENERATOR POWER AVAILABLE AND ATS FAULT.
- ㉙ CENTER POST (3 OF 5) COMMON TO BOTH SHEET E8 AND E9.



ELECTRICAL EQUIPMENT RACK FRONT ELEVATION RIGHT SIDE A

SCALE: N.T.S.

GENERAL NOTES:

1. POSTS SPACED 6'-0" ON CENTER.

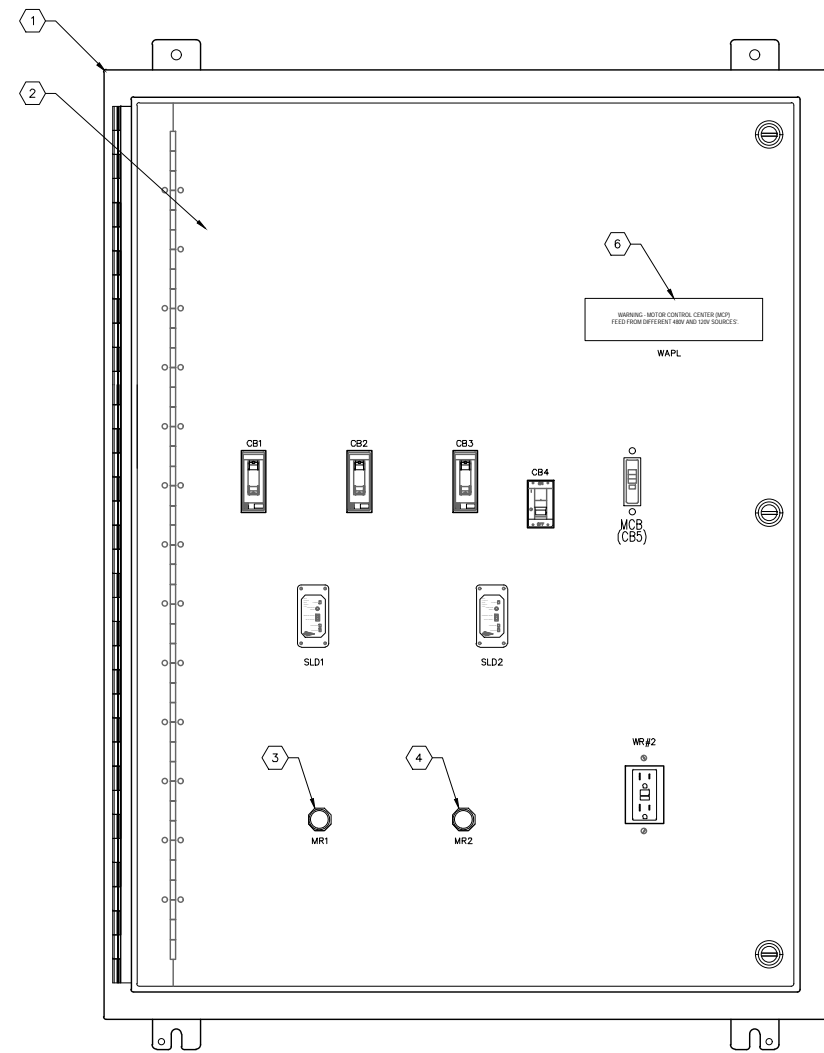
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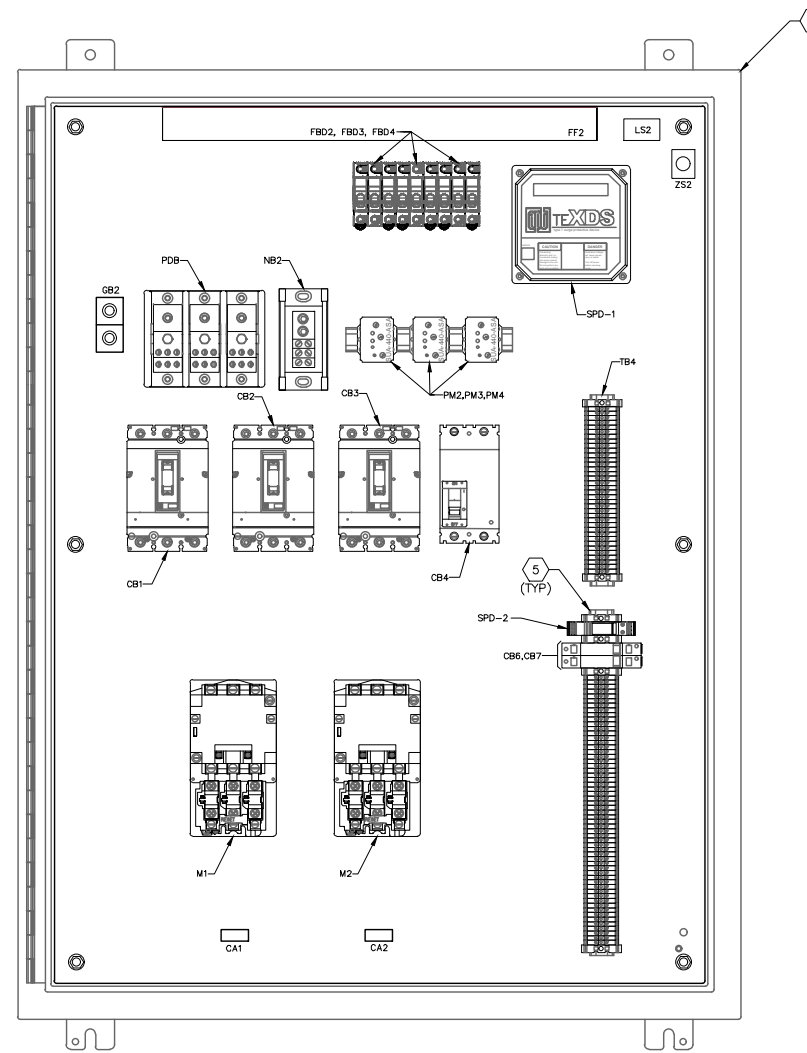
GUNLOCK PUMP STATION GENERATOR INSTALLATION
 ELECTRICAL EQUIPMENT RACK BACK ELEVATION

SHEET
E9



MOTOR CONTROL PANEL INTERIOR DOOR ELEVATION

SCALE: N.T.S.



MOTOR CONTROL PANEL INTERIOR ELEVATION

SCALE: N.T.S.



KEYED NOTES:

- ① MOTOR CONTROL PANEL 'MCP'. 48" X 36" X 12" NEMA 4X SS, POWDER COAT WHITE.
- ② PROVIDE AND INSTALL ALUMINUM DEADFRONT DOOR WITH STOP KIT.
- ③ PROVIDE AND INSTALL NEW MOTOR STARTER #1 RESET PUSHBUTTON. REFER ALSO TO PARTS SCHEDULE ON SHEET 19.
- ④ PROVIDE AND INSTALL NEW MOTOR STARTER #2 RESET PUSHBUTTON. REFER ALSO TO PARTS SCHEDULE ON SHEET 19.
- ⑤ PROVIDE AND INSTALL ALUMINUM RAIL WHERE REQUIRED.
- ⑥ PROVIDE AND INSTALL WARNING LABEL. LABEL TO READ: 'WARNING - MOTOR CONTROL CENTER FEED FROM DIFFERENT 480V AND 120V SOURCES'.

GENERAL NOTES:

- 1. ALL HINGED SURFACES SHALL BE GROUNDED WITH A #12 COPPER BOND CONDUCTOR (WITH GREEN INSULATION) SECURED TO THE ENCLOSURE OR BACKPANEL. THIS SHALL INCLUDE THE OUTER DOOR AND INNER DOOR.

LEGEND PLATE SCHEDULE

SYMBOL	DEVICE	LEGEND
CB1	CIRCUIT BREAKER	PUMP NO. 1 CIRCUIT BREAKER
CB2	CIRCUIT BREAKER	PUMP NO. 2 CIRCUIT BREAKER
CB3	CIRCUIT BREAKER	FUTURE ODDR CONTROL
CB4	CIRCUIT BREAKER	MINI POWER-ZONE 'LP' 480V FEEDER
MR1	MOTOR STARTER RESET	MOTOR STARTER NO. 1 RESET
MR2	MOTOR STARTER RESET	MOTOR STARTER NO. 2 RESET
SLD1	PUMP MONITORING UNIT	PUMP NO. 1 SEAL LEAK DETECTOR
SLD2	PUMP MONITORING UNIT	PUMP NO. 2 SEAL LEAK DETECTOR
WAPL	WARNING PLACARD	REFER TO NOTE 6 FOR VERBIAGE

TIMOTHY THOMAS, P.E. #47079

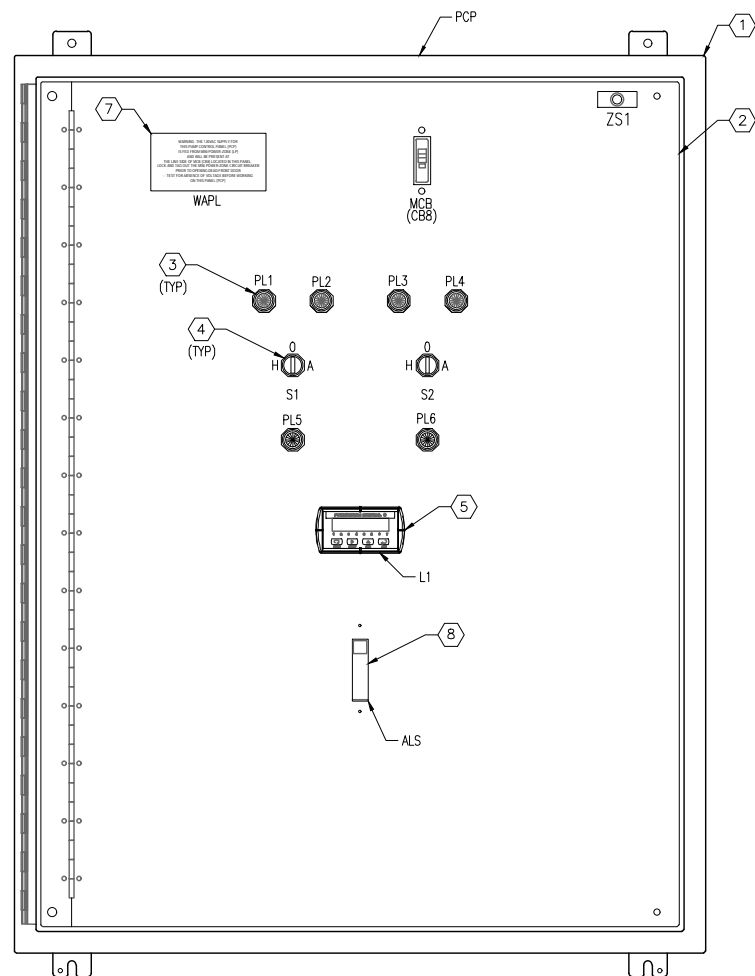
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
 MOTOR CONTROL PANEL 'MCP' DETAILS

SHEET
E10

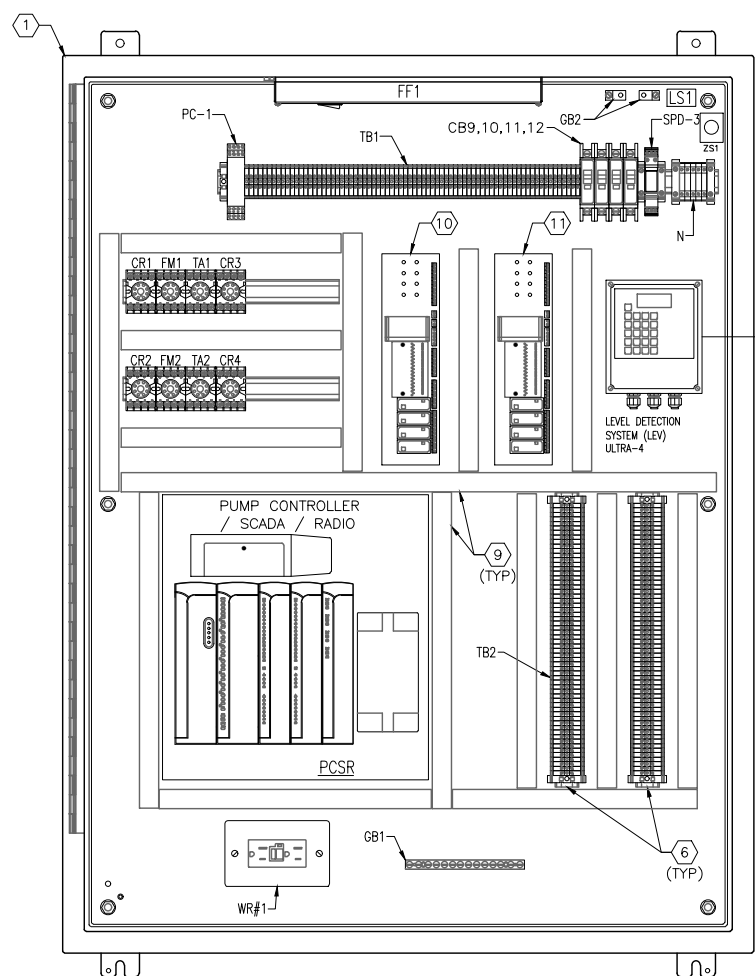


**PUMP CONTROL PANEL
INTERIOR DOOR ELEVATION**

SCALE: N.T.S.

NOTE: FRONT ENCLOSURE DOOR NOT SHOWN FOR CLARITY

1
E8 | E11



**PUMP CONTROL PANEL
INTERIOR ELEVATION**

SCALE: N.T.S.

TO dB10
ULTRASONIC
SENSOR (VIA LOW
VOLTAGE JUNCTION
BOX)

LEGEND PLATE SCHEDULE

SYMBOL	DEVICE	LEGEND
PL1	YELLOW PILOT LIGHT	PUMP NO. 1 ON
PL2	RED ILLUMINATED PUSH BUTTON	PUMP NO. 1 TEMP. ALARM
PL3	YELLOW PILOT LIGHT	PUMP NO. 2 ON
PL4	RED ILLUMINATED PUSH BUTTON	PUMP NO. 2 TEMP. ALARM
PL5	RED PILOT LIGHT	PUMP NO. 1 SEAL LEAK ALARM
PL6	RED PILOT LIGHT	PUMP NO. 2 SEAL LEAK ALARM
S1	3 POSITION SWITCH	PUMP NO. 1 HAND-OFF-AUTO
S2	3 POSITION SWITCH	PUMP NO. 2 HAND-OFF-AUTO
MCB	PUMP CONTROL PANEL MAIN CIRCUIT BREAKER	MAIN CIRCUIT BREAKER (CB9)
L1	DIGITAL PROCESS METER	WET WELL LEVEL
WAPL	WARNING PLACARD	REFER TO NOTE 8 FOR VERBIAGE
ALS	TOGGLE SWITCH	AREA LIGHT SWITCH

KEYED NOTES:

- ① PUMP CONTROL PANEL. 48" X 36 X 12" NEMA 4X SS, PAINTED WHITE.
- ② PROVIDE AND INSTALL ALUMINUM DEADFRONT DOOR WITH STOP KIT.
- ③ PROVIDE AND INSTALL NEW PILOT LIGHT. REFER ALSO TO PARTS SCHEDULE ON SHEET E20.
- ④ PROVIDE AND INSTALL NEW SELECTOR SWITCH. REFER ALSO TO PARTS SCHEDULE ON SHEET E20.
- ⑤ PROVIDE AND INSTALL PRECISION DIGITAL PROCESS METER, MODEL PD765-6X3-00 WITH 4-20mA OUTPUT (WET WELL LEVEL). REFER ALSO TO PARTS SCHEDULE ON SHEET E20.
- ⑥ PROVIDE AND INSTALL ALUMINUM DIN RAIL WHERE REQUIRED.
- ⑦ PROVIDE IN INSTALL WARNING PLACARD WHICH STATES: "WARNING: THE 120VAC SUPPLY FOR THIS PUMP CONTROL PANEL (PCP) IS FED FROM MINI POWER-ZONE 'LP' AND WILL BE PRESENT AT THE LINE SIDE OF MCB (CB8) LOCATED IN THIS PANEL. LOCK AND TAG OUT THE MINI POWER-ZONE CIRCUIT BREAKER PRIOR TO OPENING DEAD FRONT DOOR-- TEST FOR ABSENCE OF VOLTAGE, BEFORE WORKING ON THIS PANEL (PCP)."
- ⑧ PROVIDE AND INSTALL NEW SINGLE-POLE 120/277V, 20A LIGHT SWITCH TO CONTROL AREA LIGHTS. REFER ALSO TO PARTS SCHEDULE ON SHEET E20.
- ⑨ PROVIDE AND INSTALL PANDUIT WIRING DUCT. SIZE AS REQUIRED.
- ⑩ PROVIDE AND INSTALL MIXED I/O AUXILLARY INTERFACE #1. WILKERSON BOARD PART #SIB V245/V453. REFER ALSO TO PARTS SCHEDULE ON SHEET E20.
- ⑪ PROVIDE AND INSTALL MIXED I/O AUXILLARY INTERFACE #2. WILKERSON BOARD PART #SIB V245/V453. REFER ALSO TO PARTS SCHEDULE ON SHEET E20.

GENERAL NOTES:

1. ALL HINGED SURFACES SHALL BE GROUNDED WITH A #12 COPPER BOND CONDUCTOR (WITH GREEN INSULATION) SECURED TO THE ENCLOSURE OR BACKPANEL. THIS SHALL INCLUDE THE OUTER DOOR AND INNER DOOR.



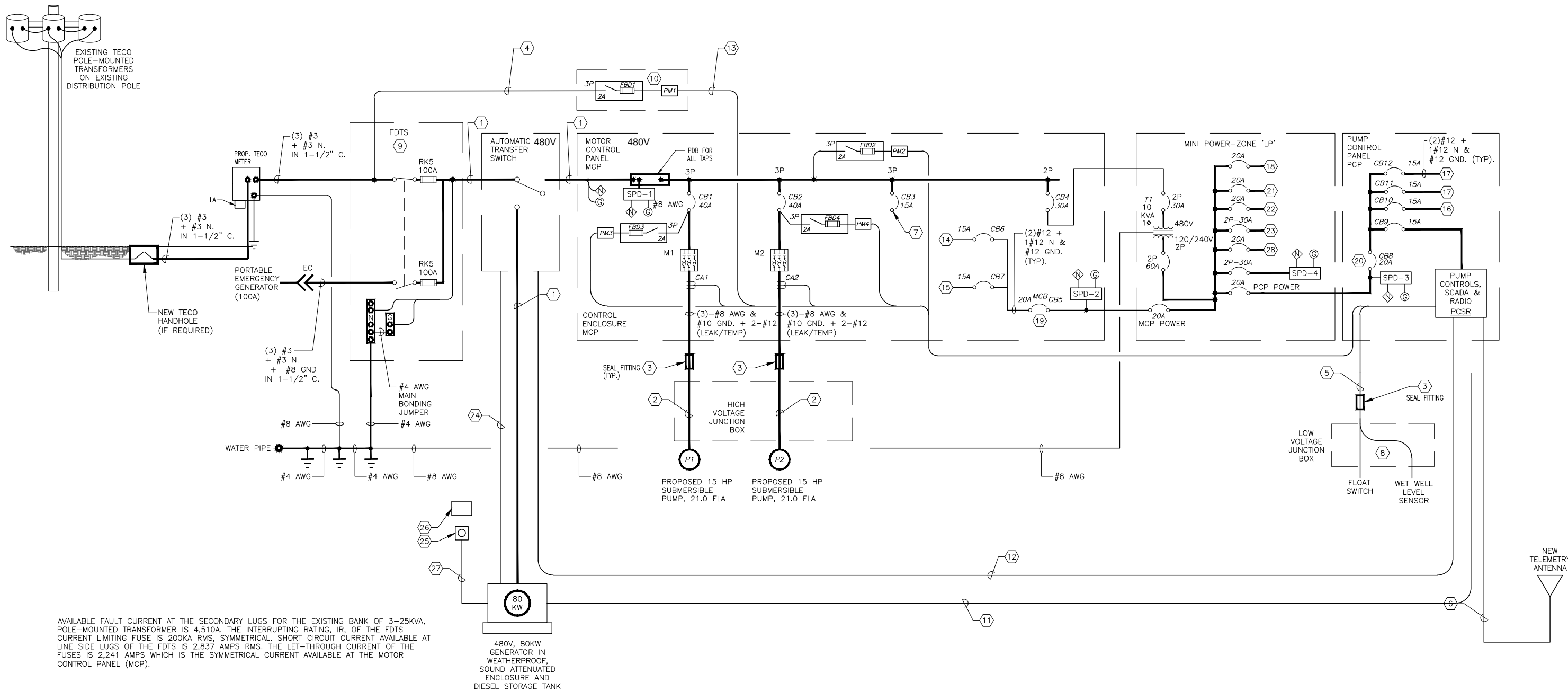
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
PUMP CONTROL PANEL 'PCP' DETAILS

SHEET
E11



AVAILABLE FAULT CURRENT AT THE SECONDARY LUGS FOR THE EXISTING BANK OF 3-25KVA, POLE-MOUNTED TRANSFORMER IS 4,510A. THE INTERRUPTING RATING, IR, OF THE FDTs CURRENT LIMITING FUSE IS 200KA RMS, SYMMETRICAL. SHORT CIRCUIT CURRENT AVAILABLE AT LINE SIDE LUGS OF THE FDTs IS 2,837 AMPS RMS. THE LET-THROUGH CURRENT OF THE FUSES IS 2,241 AMPS WHICH IS THE SYMMETRICAL CURRENT AVAILABLE AT THE MOTOR CONTROL PANEL (MCP).

480V, 80KW GENERATOR IN WEATHERPROOF, SOUND ATTENUATED ENCLOSURE AND DIESEL STORAGE TANK

ONE LINE DIAGRAM NOTES:

- | | | | |
|--|---|---|--|
| <p>① PROVIDE AND INSTALL 3-#3 + 1-#3 NEUTRAL + 1-#8 GND IN 1-1/2" CONDUIT.</p> <p>② NEW SUBMERSIBLE PUMP POWER CABLE IN NEW 2" CONDUIT.</p> <p>③ PROVIDE SEAL FITTING, REFER TO SHEETS E8 AND E9.</p> <p>④ PROVIDE AND INSTALL 3-#12 + 1-#12 IN 3/4" CONDUIT. REFER TO DETAILS ON SHEET E9.</p> <p>⑤ PROVIDE NEW 1" CONDUIT FROM NEW PUMP CONTROL PANEL TO PCP-JB FOR FLOAT SWITCH AND LEVEL SENSOR CABLES. REFER TO DETAILS ON SHEET E8.</p> <p>⑥ PROVIDE NEW 1" CONDUIT FROM NEW PUMP CONTROL PANEL TO NEW ANTENNA MAST FOR NEW COAX CABLE, REFER TO DETAIL ON SHEET E22.</p> <p>⑦ SPARE CIRCUIT BREAKER FOR FUTURE ODOR CONTROL UNIT.</p> | <p>⑧ SEE CONNECTION DETAILS ON SHEET E21.</p> <p>⑨ SERVICE ENTRANCE RATED, FUSED DOUBLE THROW SWITCH.</p> <p>⑩ PM1 JUNCTION BOX, SEE SHEETS E9 AND E25 FOR DETAILS.</p> <p>⑪ PROVIDE AND INSTALL 4-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4" CONDUIT. TO GENERATOR FOR GENERATOR RUNNING, GENERATOR FAIL AND BATTERY LOW VOLTAGE INDICATION. ALSO PROVIDE AND INSTALL 4-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4" CONDUIT. TO GENERATOR FOR TANK LEAK, TANK LOW LEVEL AND TANK HIGH LEVEL. ALSO PROVIDE AND INSTALL 2/C-#16 TWISTED SHIELDED (BELDEN 8719) IN 1" CONDUIT. TO GENERATOR FOR GENERATOR FUEL TANK LEVEL.</p> <p>⑫ PROVIDE AND INSTALL 4-#14 XHHW-2 CU + 1-#14 XHHW-2 CU GND. IN 3/4" CONDUIT. TO AUTOMATIC TRANSFER SWITCH FOR UTILITY POWER AVAILABLE, GENERATOR POWER AVAILABLE AND ATS FAULT.</p> <p>⑬ PROVIDE AND INSTALL 2-#14 + 1-#14 GND IN 3/4" CONDUIT. (24VDC CONTROLS).</p> | <p>⑭ MOTOR STARTER CONTROL POWER.</p> <p>⑮ RECEPTACLE & PANEL LIGHTS.</p> <p>⑯ RECEPTACLE & PANEL LIGHTS AND AREA LIGHT.</p> <p>⑰ SPARE.</p> <p>⑱ SPARE.</p> <p>⑲ MCP CONTROL POWER MAIN CIRCUIT BREAKER.</p> <p>⑳ PCP CONTROL POWER MAIN CIRCUIT BREAKER.</p> <p>㉑ SPARE.</p> <p>㉒ GENERATOR CONDENSATE HEATER.</p> <p>㉓ GENERATOR COOLANT HEATER.</p> <p>㉔ PROVIDE AND INSTALL 2-#14 + 1-#14 GND IN 3/4" CONDUIT. FOR GENERATOR START/STOP COMMAND.</p> | <p>㉕ GENERATOR EMERGENCY SHUT DOWN PUSH BUTTON STATION. MAINTAINED 2 POSITION SWITCH WITH 1-5/8" OPERATOR, 1 N.O. & 1 N.C. CONTACT MOUNTED IN A NEMA 4X 316 STAINLESS STEEL ENCLOSURE, 4"-6" ABOVE FINISHED CONCRETE SLAB GRADE. BREAK-GLASS OPERATORS ARE NOT ACCEPTABLE.</p> <p>㉖ PROVIDE PHENOLIC NAMEPLATE ABOVE PUSH BUTTON STATION. NAMEPLATE SHALL BE THREE-PLY PHENOLIC RED-WHITE-RED ENGRAVED THROUGH THE FIRST RED LETTERING SHALL BE 1/2" MIN., EDGES OF NAMEPLATE SHALL BE BEVELED 45 DEG. NAMEPLATE SHALL READ AS FOLLOWS: "GENERATOR EMERGENCY SHUT DOWN".</p> <p>㉗ PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT. FIELD ROUTE CONDUIT FROM PUSH BUTTON STATION TO NEW GENERATOR FOR SHUT DOWN SIGNAL.</p> <p>㉘ GENERATOR BATTERY CHARGER.</p> |
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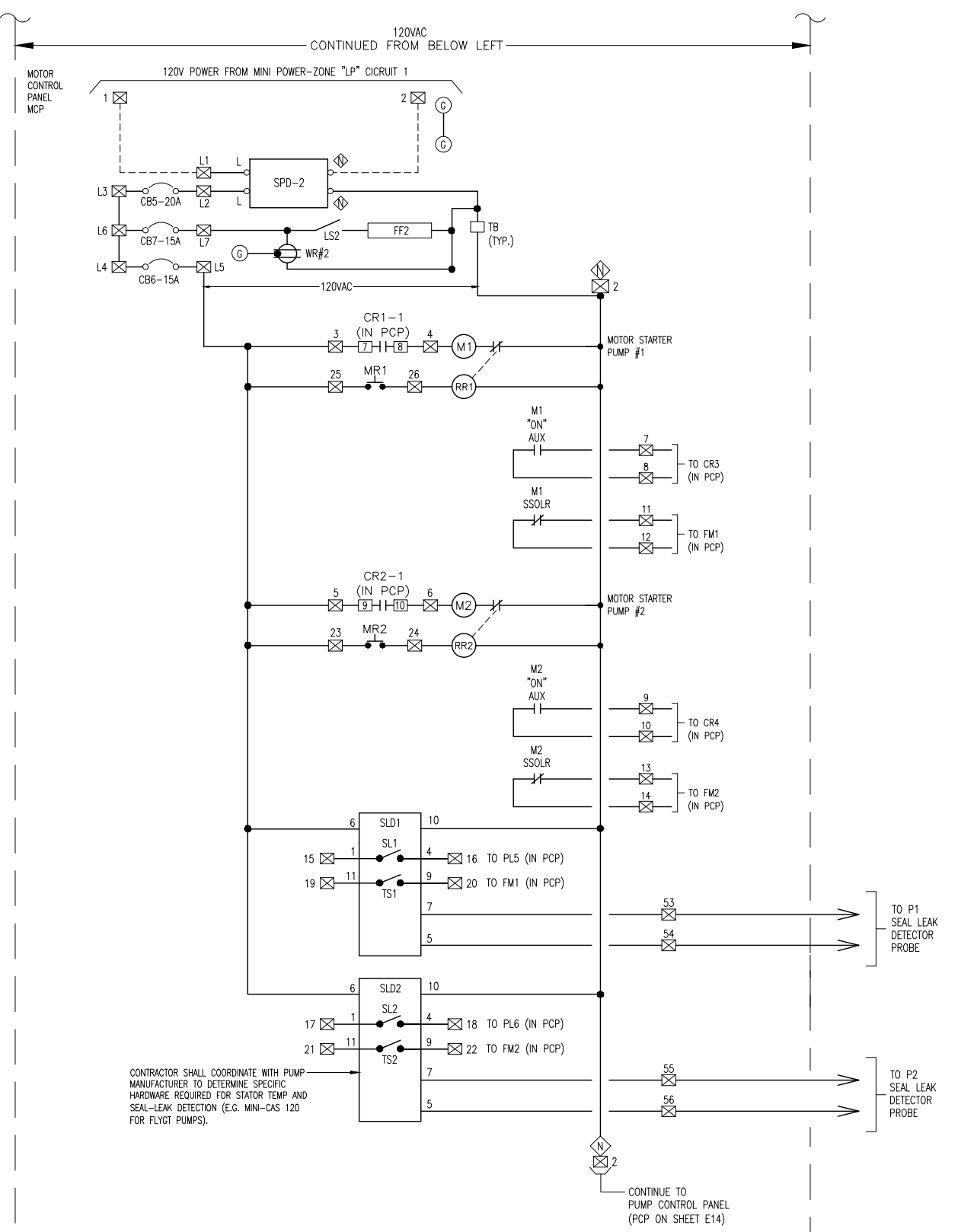
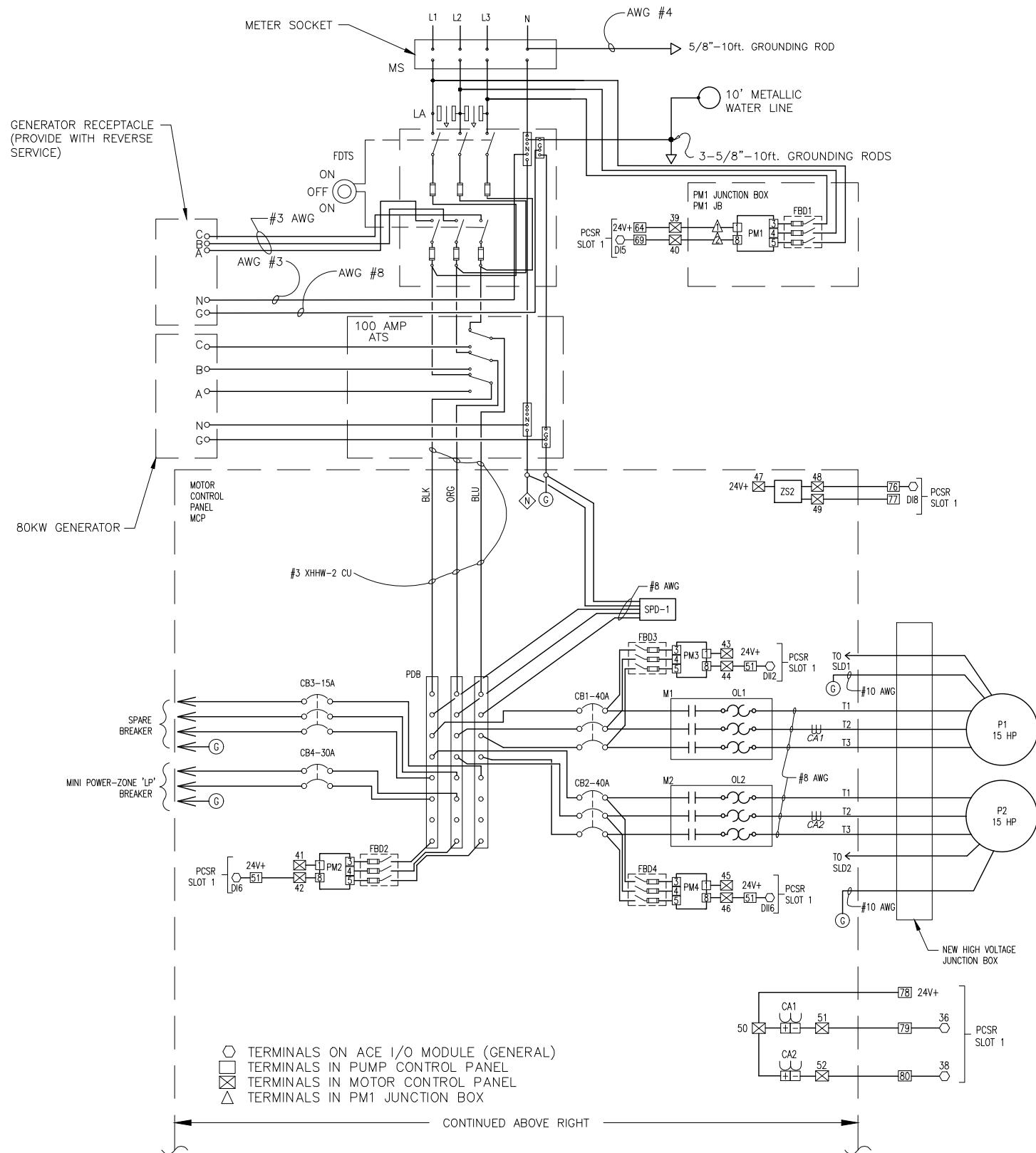
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
 ONE LINE DIAGRAM

SHEET E12



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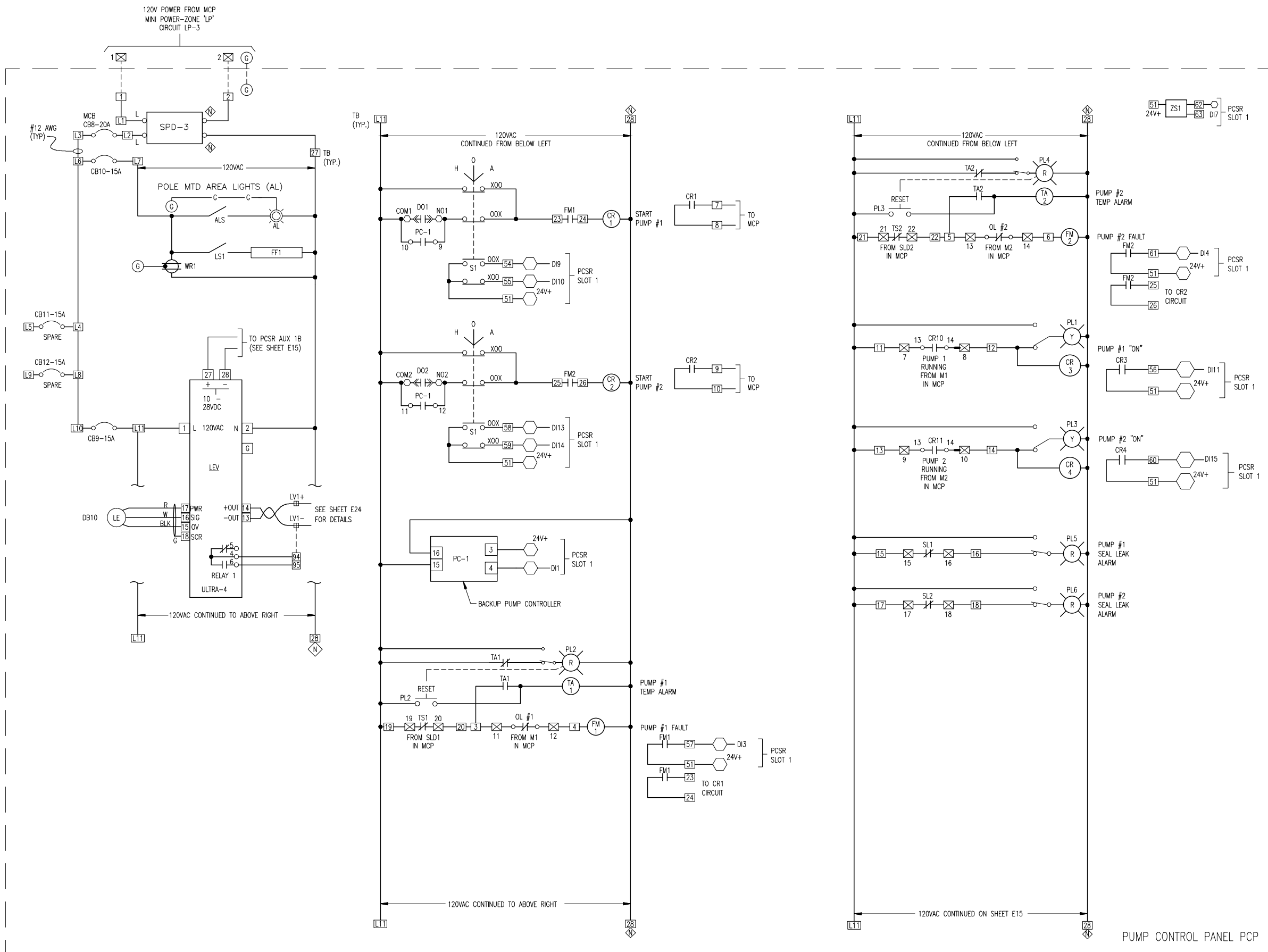
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
 ELECTRICAL SCHEMATIC (SHEET 1 OF 4)
 MOTOR CONTROL PANEL (MCP)

SHEET E13

TIMOTHY THOMAS, P.E. #47079



- TERMINALS ON ACE I/O MODULE (GENERAL)
- TERMINALS IN PUMP CONTROL PANEL (PCP)
- ⊗ TERMINALS IN MOTOR CONTROL PANEL (MCP)
- △ TERMINALS IN PM1 JUNCTION BOX (PM1-JB)



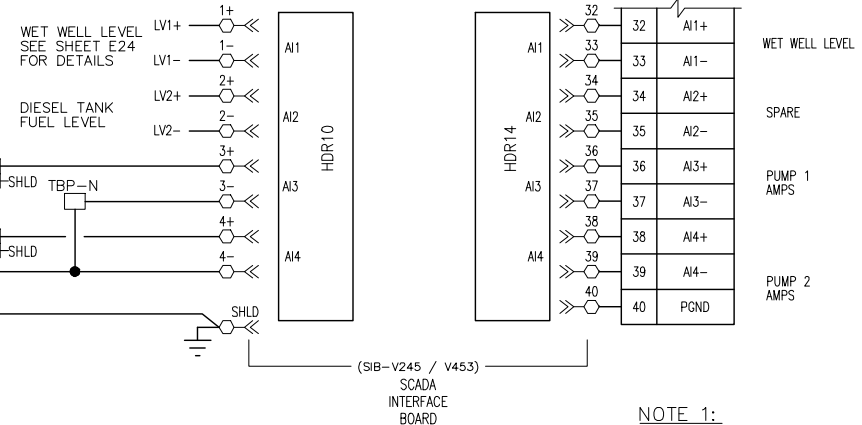
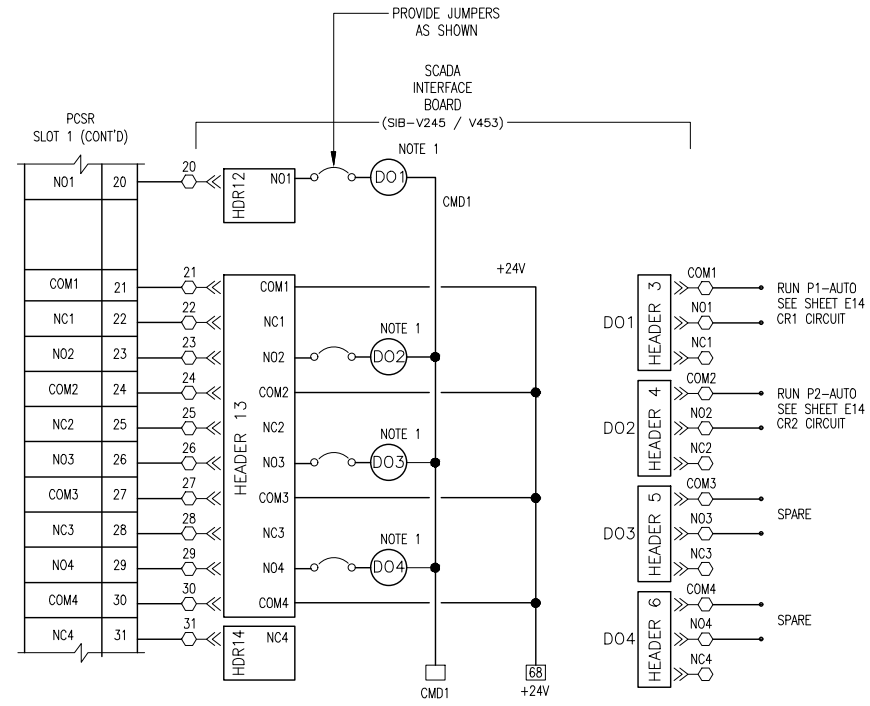
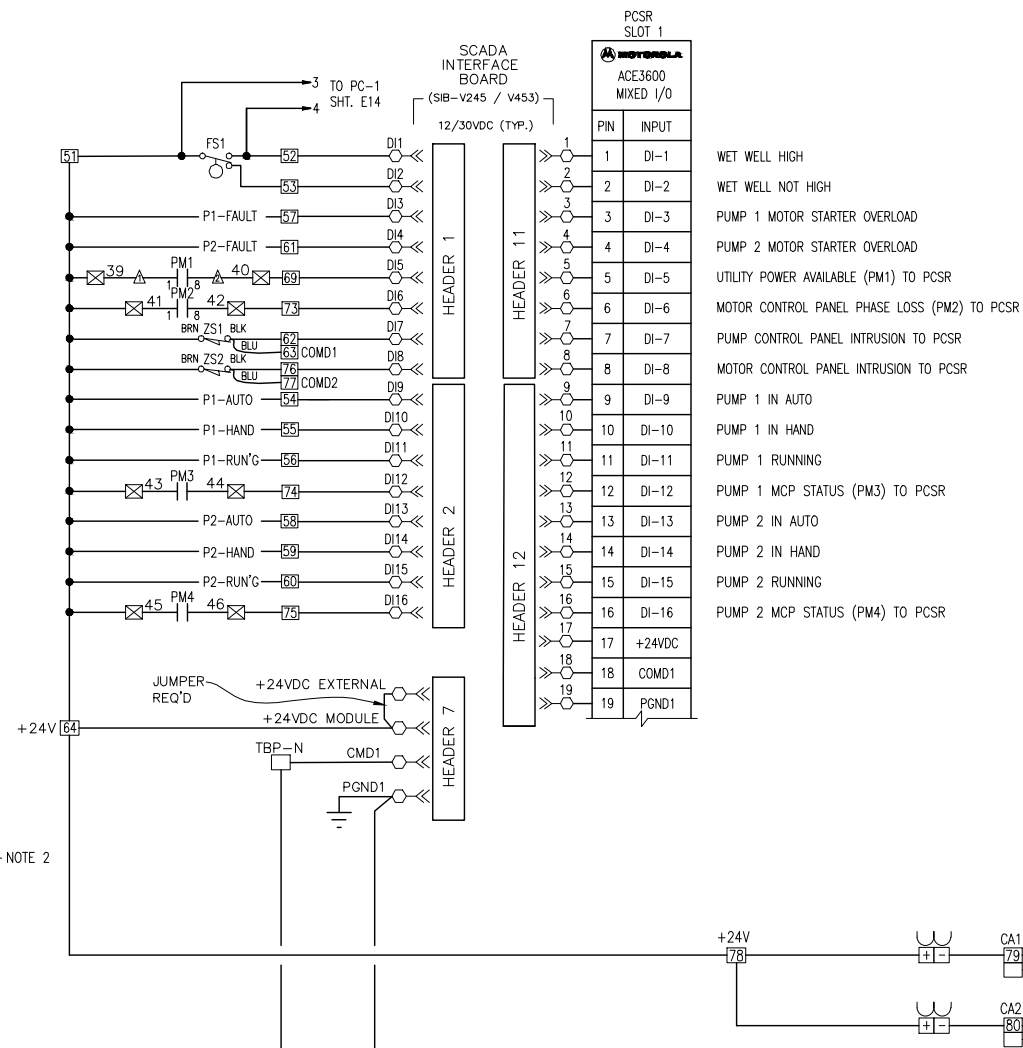
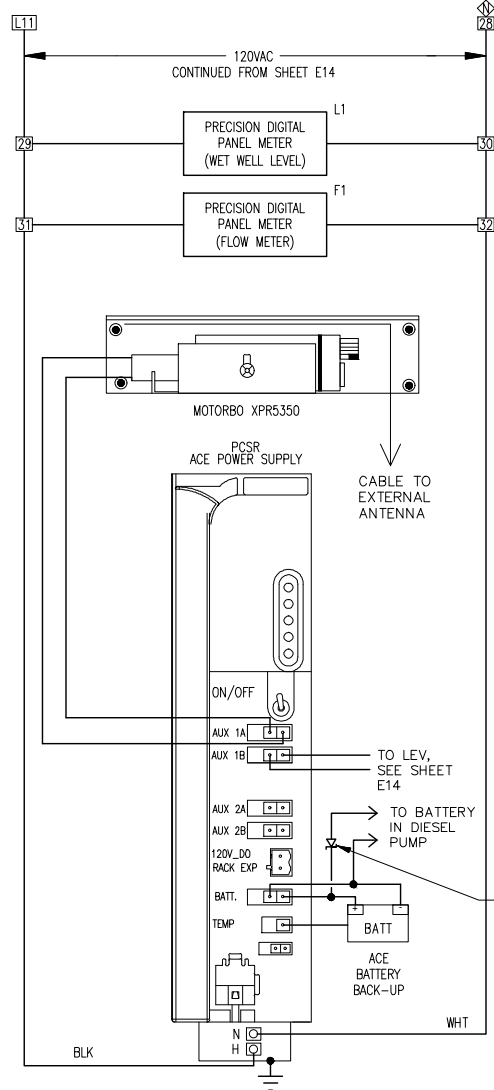
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
 ELECTRICAL SCHEMATIC (SHEET 2 OF 4)
 PUMP CONTROL PANEL (PCP)

SHEET E14



- 1 DI-1 WET WELL HIGH
- 2 DI-2 WET WELL NOT HIGH
- 3 DI-3 PUMP 1 MOTOR STARTER OVERLOAD
- 4 DI-4 PUMP 2 MOTOR STARTER OVERLOAD
- 5 DI-5 UTILITY POWER AVAILABLE (PM1) TO PCSR
- 6 DI-6 MOTOR CONTROL PANEL PHASE LOSS (PM2) TO PCSR
- 7 DI-7 PUMP CONTROL PANEL INTRUSION TO PCSR
- 8 DI-8 MOTOR CONTROL PANEL INTRUSION TO PCSR
- 9 DI-9 PUMP 1 IN AUTO
- 10 DI-10 PUMP 1 IN HAND
- 11 DI-11 PUMP 1 RUNNING
- 12 DI-12 PUMP 1 MCP STATUS (PM3) TO PCSR
- 13 DI-13 PUMP 2 IN AUTO
- 14 DI-14 PUMP 2 IN HAND
- 15 DI-15 PUMP 2 RUNNING
- 16 DI-16 PUMP 2 MCP STATUS (PM4) TO PCSR

NOTE 1:
OUTPUT RELAYS (DO) ARE INTEGRAL TO THE WILKERSON MIXED I/O AUXILIARY INTERFACE BOARD

NOTE 2:
PROVIDE AND INSTALL 5 AMP SCHOTTKY DIODE - 40V MAX. DC BLOCKING -0.5V MAX FORWARD VOLTAGE AT 5A. TYPE SR540 OR EQUAL.

- TERMINALS ON ACE I/O MODULE (GENERAL)
- TERMINALS IN PUMP CONTROL PANEL (PCP)
- ⊗ TERMINALS IN MOTOR CONTROL PANEL (MCP)
- △ TERMINALS IN PM1 JUNCTION BOX (PM1-JB)



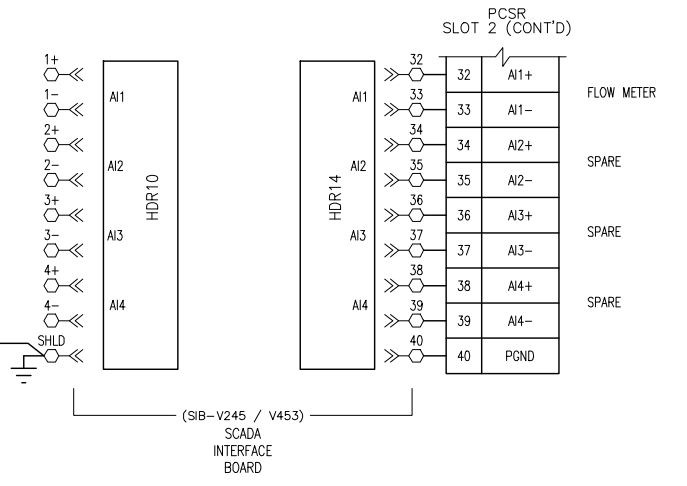
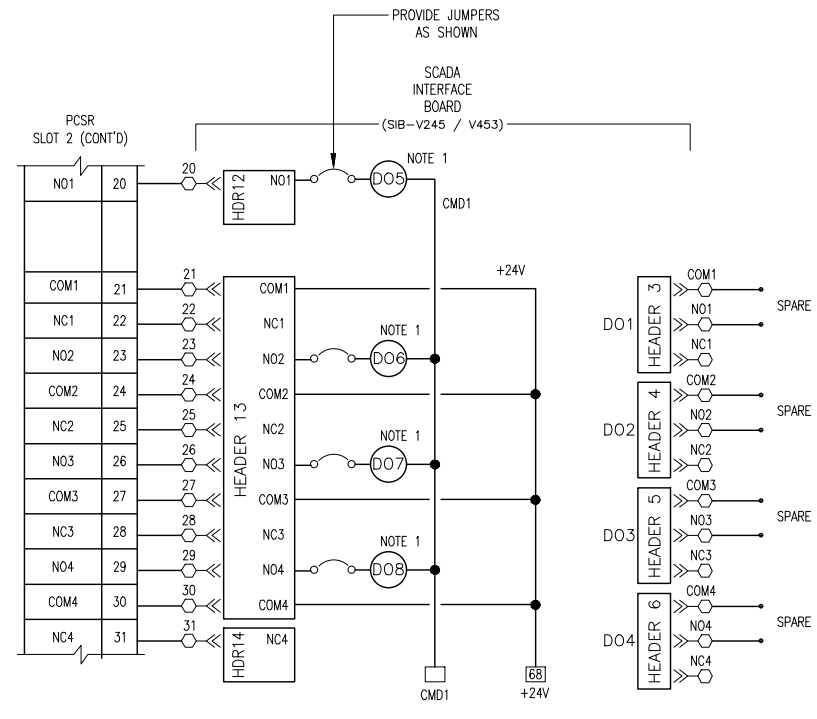
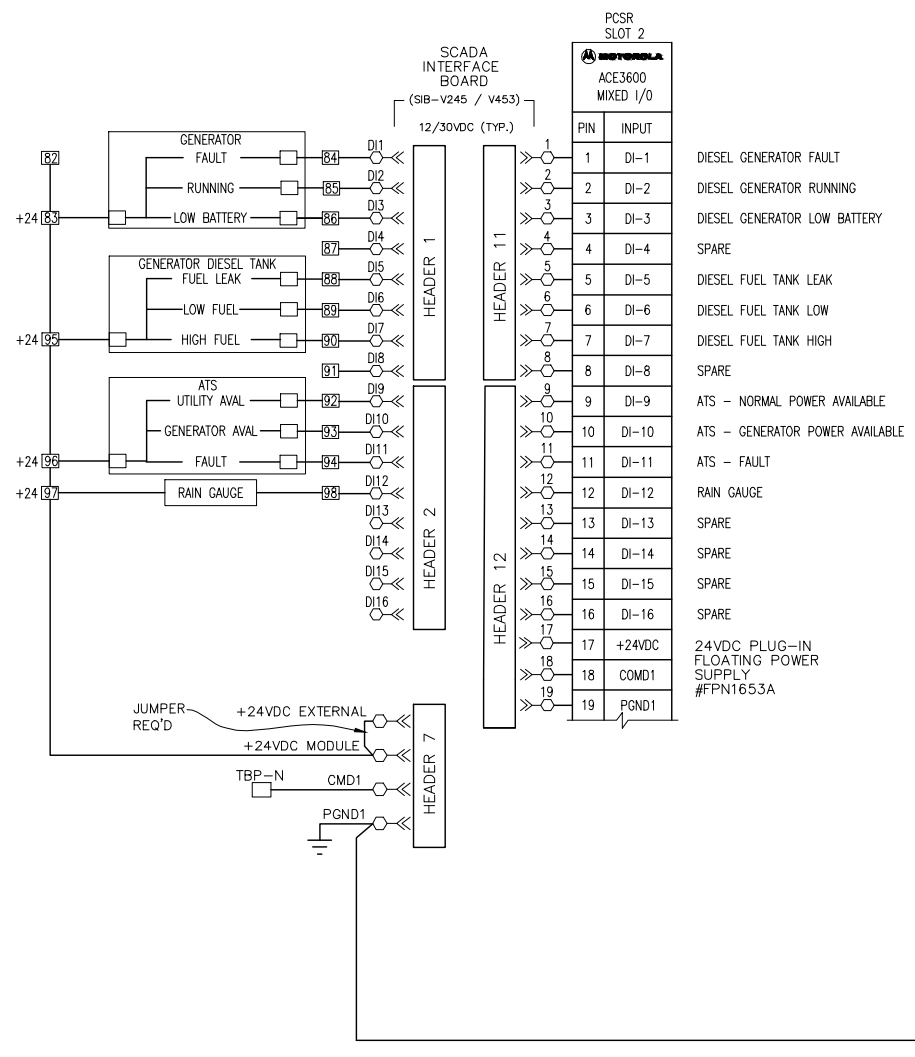
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
ELECTRICAL SCHEMATIC (3 OF 4)
PUMP CONTROL PANEL (PCP)

SHEET
E15



NOTE 1:
OUTPUT RELAYS (DO) ARE INTEGRAL TO THE WILKERSON MIXED I/O AUXILIARY INTERFACE BOARD

□ TERMINALS ON ACE I/O MODULE (GENERAL)
 □ TERMINALS IN PUMP CONTROL PANEL (PCP)
 ⊗ TERMINALS IN MOTOR CONTROL PANEL (MCP)
 △ TERMINALS IN PM1 JUNCTION BOX (PM1-JB)



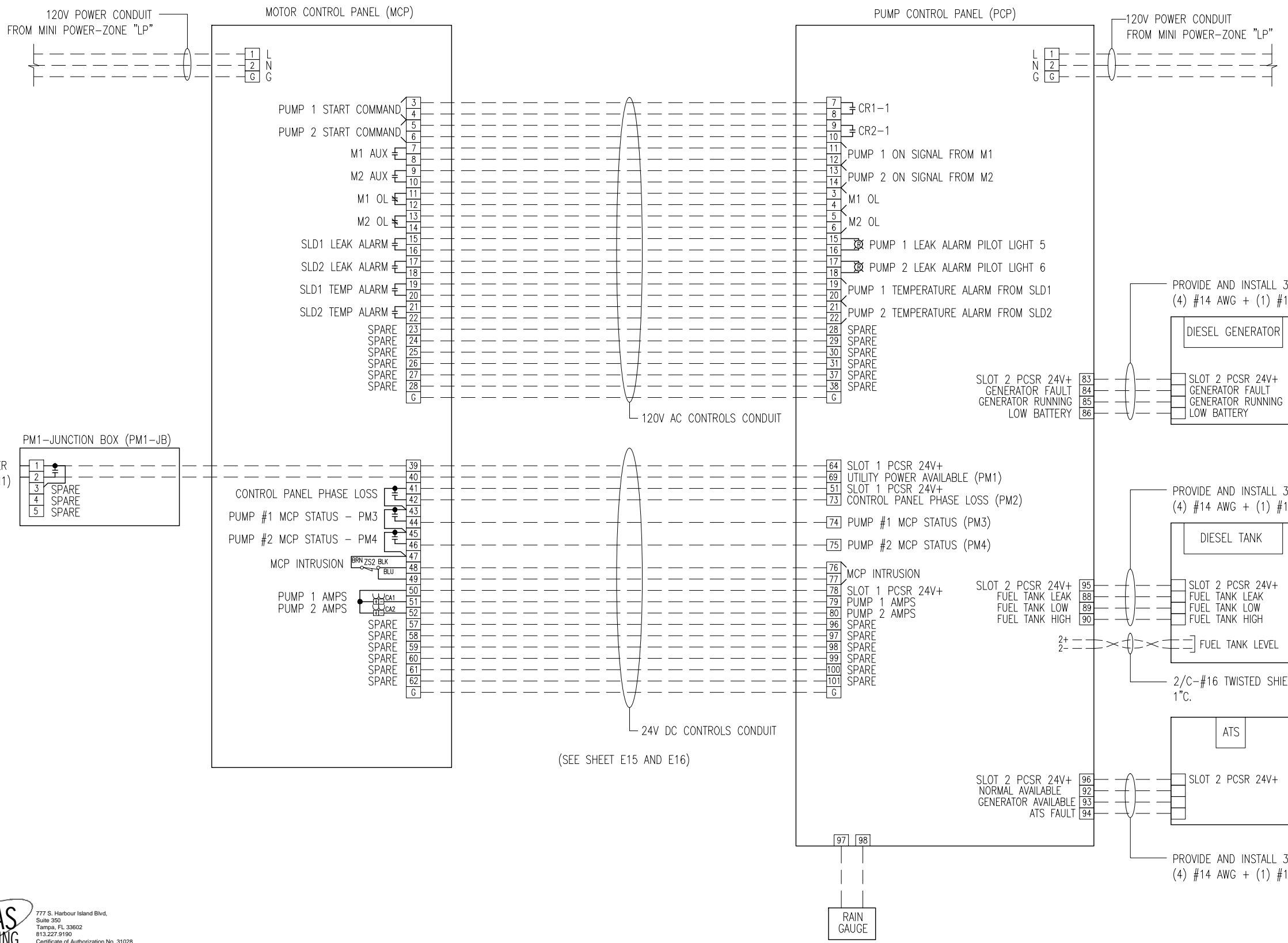
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
 ELECTRICAL SCHEMATIC (4 OF 4)
 PUMP CONTROL PANEL (PCP)

SHEET
 E16



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GUNLOCK PUMP STATION GENERATOR INSTALLATION
 MCP TO PCP INTERCONNECTION WIRING DIAGRAM

SHEET E17

TB1 (□) (120V AC) MOUNTED ON PUMP CONTROL PANEL (PCP)	
TERM.	DESCRIPTION
1	120V FROM MINI POWER ZONE
2	NEUTRAL FROM MINI POWER ZONE
3	MOTOR STARTER OL FROM M1
4	MOTOR STARTER OL FROM M1
5	MOTOR STARTER OL FROM M2
6	MOTOR STARTER OL FROM M2
7	PUMP 1 START COMMAND TO M1 (IN MCP)
8	PUMP 1 START COMMAND TO M1 (IN MCP)
9	PUMP 2 START COMMAND TO M2 (IN MCP)
10	PUMP 2 START COMMAND TO M2 (IN MCP)
11	P1 "ON" SIGNAL FROM M1 (IN MCP)
12	P1 "ON" SIGNAL FROM M1 (IN MCP)
13	P2 "ON" SIGNAL FROM M2 (IN MCP)
14	P2 "ON" SIGNAL FROM M2 (IN MCP)
15	PUMP 1 LEAK ALARM FROM MCP
16	PUMP 1 LEAK ALARM FROM MCP
17	PUMP 2 LEAK ALARM FROM MCP
18	PUMP 2 LEAK ALARM FROM MCP
19	PUMP 1 TEMPERATURE ALARM FROM MCP
20	PUMP 1 TEMPERATURE ALARM FROM MCP
21	PUMP 2 TEMPERATURE ALARM FROM MCP
22	PUMP 2 TEMPERATURE ALARM FROM MCP
23	PUMP 1 FAULT RELAY CONTACT
24	PUMP 1 FAULT RELAY CONTACT
25	PUMP 2 FAULT RELAY CONTACT
26	PUMP 2 FAULT RELAY CONTACT
27	SPD-3-NEUTRAL OUT
28	NEUTRAL
29	WET WELL LEVEL PANEL METER (L1)
30	NEUTRAL
31	FLOW METER PANEL METER (F1)
32	NEUTRAL
33-43	SPARE
L1	SPD-3 LINE
L2	CB8 LINE
L3	CB8 LOAD
L4	CB11 LINE
L5	CB11 LOAD
L6	CB10 LINE
L7	CB10 LOAD
L8	CB12 LINE
L9	CB12 LOAD
L10	CB9 LINE
L11	CB9 LOAD

TB2 (□) (24V DC) MOUNTED ON PUMP CONTROL PANEL (PCP)	
TERM.	DESCRIPTION
51	SLOT 1 PCSR 24V+
52	WET WELL HIGH
53	WET WELL NOT HIGH
54	PUMP 1 "AUTO" TO PCSR
55	PUMP 1 "HAND" TO PCSR
56	PUMP 1 "ON" TO PCSR
57	PUMP 1 "FAULT" TO PCSR
58	PUMP 2 "AUTO" TO PCSR
59	PUMP 2 "HAND" TO PCSR
60	PUMP 2 "ON" TO PCSR
61	PUMP 2 "FAULT" TO PCSR
62	} PUMP CONTROL PANEL INTRUSION
63	
64	SLOT 1 PCSR 24V+
65	SPARE
66	SLOT 1 PCSR 24V+
67	SLOT 1 PCSR 24V+
68	SLOT 1 PCSR 24V+
69	UTIL POWER AVAILABLE (PM1) TO PCSR
70	SPARE
71	SPARE
72	SLOT 1 PCSR 24V+
73	MOTOR CONTROL PANEL PHASE LOSS (PM2)
74	PUMP #1 MCP STATUS (PM3) TO PCSR
75	PUMP #2 MCP STATUS (PM4) TO PCSR
76	} MOTOR CONTROL PANEL INTRUSION
77	
78	SLOT 1 PCSR 24V+
79	PUMP 1 AMPS
80	PUMP 2 AMPS
81	SPARE
82	SLOT 2 PCSR 24V+
83	SLOT 2 PCSR 24V+ TO DIESEL GENERATOR
84	DIESEL GENERATOR FAULT
85	DIESEL GENERATOR RUNNING
86	DIESEL GENERATOR BATTERY LOW
87	SPARE
88	DIESEL TANK FUEL LEAK
89	DIESEL TANK FUEL LOW ALARM
90	DIESEL TANK FUEL HIGH ALARM
91	SPARE
92	ATS - NORMAL POWER AVAILABLE
93	ATS - GENERATOR POWER AVAILABLE
94	ATS - FAULT
95	SLOT 2 PCSR 24V+ TO DIESEL GENERATOR TANK
96	SLOT 2 PCSR 24V+ TO ATS
97-98	RAIN GAUGE
99-101	SPARE

TB3 (⊗) (120V AC) MOUNTED ON MOTOR CONTROL PANEL (MCP)	
TERM.	DESCRIPTION
1	120VAC FROM MINI POWER ZONE
2	NEUTRAL FROM MINI POWER ZONE
3	PUMP 1 START COMMAND FROM CR1-1 (IN PCP)
4	PUMP 1 START COMMAND FROM CR1-1 (IN PCP)
5	PUMP 2 START COMMAND FROM CR2-1 (IN PCP)
6	PUMP 2 START COMMAND FROM CR2-1 (IN PCP)
7	PUMP 1 "ON" SIGNAL TO CR3 (IN PCP)
8	PUMP 1 "ON" SIGNAL TO CR3 (IN PCP)
9	PUMP 2 "ON" SIGNAL TO CR4 (IN PCP)
10	PUMP 2 "ON" SIGNAL TO CR4 (IN PCP)
11	M1 OL TO PCP
12	M1 OL TO PCP
13	M2 OL TO PCP
14	M2 OL TO PCP
15	PUMP 1 LEAK DETECTED TO PILOT LIGHT 5 (IN PCP)
16	PUMP 1 LEAK DETECTED TO PILOT LIGHT 5 (IN PCP)
17	PUMP 2 LEAK DETECTED TO PILOT LIGHT 6 (IN PCP)
18	PUMP 2 LEAK DETECTED TO PILOT LIGHT 6 (IN PCP)
19	PUMP 1 TEMPERATURE ALARM TO FM1 (IN PCP)
20	PUMP 1 TEMPERATURE ALARM TO FM1 (IN PCP)
21	PUMP 2 TEMPERATURE ALARM TO FM2 (IN PCP)
22	PUMP 2 TEMPERATURE ALARM TO FM2 (IN PCP)
23	OLR1 PB1
24	OLR1 PB1
25	OLR2 PB2
26	OLR2 PB2
27-38	SPARE
L1	SPD-2 LINE
L2	CB5 (MCB) LINE
L3	CB5 (MCB) LOAD
L4	CB6 LINE
L5	CB6 LOAD
L6	CB7 LINE
L7	CB7 LOAD

TB4 (⊗) (24V DC) MOUNTED ON MOTOR CONTROL PANEL (MCP)	
TERM.	DESCRIPTION
39	SLOT 1 PCSR 24V+
40	UTILITY POWER AVAILABLE (PM1)
41	SLOT 1 PCSR 24V+
42	MOTOR CONTROL PANEL PHASE LOSS (PM2) TO PCSR
43	SLOT 1 PCSR 24V+
44	PUMP #1 MCP STATUS PHASE LOSS (PM3) TO PCSR
45	SLOT 1 PCSR 24V+
46	PUMP #2 MCP STATUS PHASE LOSS (PM4) TO PCSR
47	SLOT 1 PCSR 24V+
48	} MOTOR CONTROL PANEL INTRUSION
49	
50	SLOT 1 PCSR 24V+
51	PUMP 1 AMPS
52	PUMP 2 AMPS
53	PUMP 1 SEAL LEAK DETECTOR PROBE
54	PUMP 1 SEAL LEAK DETECTOR PROBE
55	PUMP 2 SEAL LEAK DETECTOR PROBE
56	PUMP 2 SEAL LEAK DETECTOR PROBE
57-66	SPARE

TB5 (△) (24V YDC) MOUNTED ON PM1-JUNCTION BOX (PM1-JB)	
TERM.	DESCRIPTION
1	SLOT 1 PCSR 24V+
2	UTIL POWER AVAILABLE (PM1) TO PCSR
3	SPARE
4	SPARE
5	SPARE

X-Y TERMINAL POINT MOUNTED ON PCP (INTERFACE TO PCSR)
 ○ TERMINAL POINT ON PCSR
 □ TERMINAL POINT IN PUMP CONTROL PANEL (PCP)
 ⊗ TERMINAL POINT IN MOTOR CONTROL PANEL (MCP)
 △ TERMINAL POINT IN PM1 JUNCTION BOX (PM1-JB)

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GUNLOCK PUMP STATION GENERATOR INSTALLATION
 ELECTRICAL SCHEMATIC LEGEND

SHEET
E18

PARTS SCHEDULE (MOTOR CONTROL PANEL)

SYMBOL	NAME	PART				REMARKS
		MAKE	TYPE	MODEL OR CAT. #	RATING	
CB 1	CIRCUIT BREAKER	SQUARE D	THREE POLE	HDL 36040	600 V, 40A	18 KAIC @ 480VAC
CB 2	CIRCUIT BREAKER	SQUARE D	THREE POLE	HDL 36040	600 V, 40A	
CB 3	CIRCUIT BREAKER	SQUARE D	THREE POLE	HDL 36015	600 V, 15A	
CB 4	CIRCUIT BREAKER	SQUARE D	TWO POLE	HDL26030	600 V, 30A	
CB 5	CIRCUIT BREAKER	SQUARE D	SINGLE POLE	QOU-120	120 V, 20A	
CB 6, 7	CIRCUIT BREAKER	SQUARE D	SINGLE POLE	QOU-115	120 V, 15A	
M1, 2	MOTOR STARTER	SQUARE D	NEMA SIZE 2	SD01V02H312SX10	45 A	
RR1, RR2	MOTOR STARTER REMOTE RESET	SQUARE D	CLASS 9999	TYPE RR04		
MR1, MR2	PUSHBUTTON	SQUARE D	CLASS 9001	SKR1BH5	3A @ 240V	BLACK - 1 NO (KA2) FULL GUARD
CA1, CA2	CIRCUIT SENSOR	ENERCORP INSTRUMENTS	4-20mA OUTPUT	SC200-2	0-100A, 0-150, 0-200A	ADJUSTABLE RANGE
FF2 & LS2	LED LIGHTING FIXTURE	HOFFMAN	LED	LEDA1S35	120 V, 5W	W/TOGGLE SWITCH-TS
SPD-1	SURGE PROTECTIVE DEVICE TYPE 1	ASCO POWER TECHNOLOGIES	MOTOR CONTROL PANEL SPD	430277YP20ACSJ10	277/480 V, 3Ø, 4W	200 kA SURGE CAPACITY
TB3, TB4	TERMINALS	PHOENIX CONTACT		UK5N TERMINALS	30 A W/ ALUM. DIN RAIL	50 CONTACTS (MIN)
ITS	INSULATED TERMINAL STRIP	ALLEN-BRADLEY	STYLE AA	1492-15-T	600 V AC NEUTRAL BLOCK	4 CONTACTS (MIN) W/ SHORTING BARS
MCP	MOTOR CONTROL PANEL ENCLOSURE	SCHAEFER'S	NEMA 4X, 3P LATCH, 48"x36"x12"	SPN4SS-483612	304 SS, POWDER COATED WHITE	3P LATCH W/STOP KIT. EXTERNAL FINISH DURABLE RAL 9003 WHITE POWER COAT.
MP	ENCLOSURE PANEL	SCHAEFER'S	45" X 33", STEEL	SPP-4236	STEEL, 12 GAUGE	
PM2, PM3, PM4	3-PHASE POWER MONITOR	ATC DIVERSIFIED ELECTRONICS	8 PIN PLUG-IN	SUA-440-ASA	440 VAC	W/ OPTIONAL 5-SEC RELEASE AND DIN RAIL SOCKET-RB08PC
PDB	PWR DIST. BLOCK	BUSSMANN/EATON	THREE POLE	PDBFS330	600 V, 380 AMP	FINGER-SAFE, ENCLOSED
FBD 2, 3, 4	FUSE BLOCK / DISCONNECT	ALLEN BRADLEY	THREE PHASE- HIGH INTER. CAP.	1492-FB3C30-L	600 VAC, 200KAIC	W/ BUSSMANN KTK-R-2 FAST ACTING, REJECTION FUSES
ZS2	CONTROL PNL INTRUSION SENSOR	OMRON	CYLINDRICAL, SHORT BARREL	E2F-X5F1 (GRAINGER-1EA77)	12-24VDC, 3-WIRE PNP	W/ TELEMECANIQUE MTG. BRACKET (GRAINGER - 5B233)
FTB2	FUSED TERMINAL BLOCKS	PHOENIX CONTACT		UK 5-HESI	PROVIDE 1, 2, & 5A FUSES	PROVIDE COOPER BUSSMAN GDB SERIES FUSES
SLD1, SLD2	PUMP MONITORING UNIT	XYLEM		MINI-CAS 120	10A AT 240V AC	
GB2	GROUNDING BLOCK	ILSCO	AS REQUIRED	AS REQUIRED		
NB2	NEUTRAL DISTRIBUTION BLOCK	BUSSMAN	SINGLE POLE	16220-1	600V, 175A	
SPD-2	SURGE PROTECTION DEVICE TYPE 3	PHOENIX CONTACT	3 CONDUCTOR SYSTEM (L, N, G)	2905228	120V, 25A	
WR#2	FLUSH RECEPTACLE	HUBBELL	DUPLEX W/GFI	GF5262	120V AC, 15A GFI	W/ALUMINUM OUTLET BOX AND COVER

PARTS SCHEDULE (MISCELLANEOUS)

PM1- JUNCTION BOX

SYMBOL	NAME	PART				REMARKS
		MAKE	TYPE	MODEL OR CAT. #	RATING	
PM1	3-PHASE POWER MONITOR	ATC DIVERSIFIED ELECTRONICS	8 PIN PLUG-IN	SUA-440-ASA	440 VAC	W/ OPTIONAL 5-SEC RELEASE AND DIN RAIL SOCKET-RB08PC
FBD1	FUSE BLOCK / DISCONNECT	ALLEN BRADLEY	THREE PHASE- HIGH INTER. CAP.	1492-FB3C30-L	600 VAC, 200KAIC	W/ BUSSMANN KTK-R-2 FAST ACTING, REJECTION FUSES
PM1-JB	PHASE MONITOR JUNCTION BOX	HAMMOND MANUFACTURING	NEMA 4X, 12"x10"x8"	EJ12108S16	316 S.S.	INSTALL DIN RAILS TO MOUNT PM1 AND FBD1
TB5	TERMINALS	PHOENIX CONTACT		UK5N TERMINALS	30 A W/ ALUM. DIN RAIL	5 CONTACTS (MIN)

EXTERNAL ELECTRICAL

SYMBOL	NAME	PART				REMARKS
		MAKE	TYPE	MODEL OR CAT. #	RATING	
FDTS	FUSED DOUBLE THROW DISCONNECT SWITCH	EATON	SERVICE ENTRANCE RATED, HEAVY DUTY	DT363FWK DH100NK NEUTRAL KIT DS100GK GROUND KIT DS36FK R FUSE ADADTOR KIT	100A, 600V, NEMA 4X, S/S	TIME DELAY CLASS RK5 FUSES (6) EDISON ECSR 100 PROVIDE (3) SPARES FOR EACH
MS	METER SOCKET	MILBANK	7 TERMINAL, RINGLESS	UAP3506-XL-TG-HSP	600 VAC, 125 AMP	ALUMINUM WITH POWDER COAT FINISH
EC	EMERGENCY CONNECTOR	CROUSE & HINDS	ARKTITE	AREA10416-S22 W/ BACK BOX, ANGLE ADAPTER, 2" HUB AND SPRING COVER	600V 100 AMP	
SPD-4	SURGE PROTECTIVE DEVICE TYPE 1	ASCO POWER TECHNOLOGIES	MINI POWER-ZONE SPD	430120SP10ACSJ10	120/240 V, 1Ø, 3W	100 kA SURGE CAPACITY
MCP-JB	MOTOR CONTROL PANEL JUNCTION BOX	HAMMOND	NEMA 4X, 16"x16"x6"	#1418N4SSG6	304 S.S.	INSTALL S.S. LOUVER PLATE KIT WIEGMANN #WAVK0304SSA
PCP-JB	PUMP CONTROL PANEL JUNCTION BOX	WIEGMANN	NEMA 4X, 12"x12"x6"	BN4121206CHSS	304 S.S.	INSTALL S.S. LOUVER PLATE KIT WIEGMANN #WAVK0304SSA
FL	FLOAT SWITCH	ANCHOR SCIENTIFIC	SPDT	S20NONC	10 A @ 120 V	PROVIDED BY THE CITY INSTALLED BY CONTRACTOR
PDB	PWR DIST. BLOCK	BUSSMANN/EATON	THREE POLE	PDBFS220	600 V, 175 AMP	BARRIER TERMINAL BLOCKS
	SEAL FITTING	CROUSE-HINDS	COPPER-FREE ALUMINUM	AS REQUIRED		
	CONDUIT BODIES	CROUSE-HINDS	COPPER-FREE ALUMINUM, FORM 7 OR 9	AS REQUIRED		
ATS	AUTOMATIC TRANSFER SWITCH	ASCO	NEMA 4X	J7ADTSA30100N5XV, 31BG, 44G	480V, 3-POLE, S/N, 100A	DELAYED TRANSITION
LP	MINI POWER-ZONE	SQUARE D	NEMA 3R	MPZB10S40FSS	480V-120/240V, 10.0 KVA	18 KA INTERRUPT RATING



TIMOTHY THOMAS, P.E. #47079	#	DATE	REVISIONS
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
PARTS SCHEDULE (SHEET 1 OF 2)

SHEET
E19

PARTS SCHEDULE (PUMP CONTROL PANEL)

SYMBOL	NAME	PART				REMARKS
		PCSR PARTS LIST				
		MAKE	TYPE	MODEL OR CAT. #	RATING	
PCSR	PLC BASED PUMP CONTROLLER, SCADA, AND RADIO SYSTEM	MOTOROLA CORP.	DUPLEX PUMP CONTROLLER BASED ON ACE 3600 PROGRAM CONTROLLER	PART F7509	BASIC MODEL	PROVIDE (1) SPARE
		MOTOROLA CORP.	MOTORBO ANALOG RADIO INSTALLATION KIT	VA00194 (PART #FLN1059)		
		MOTOROLA CORP.	MOTORBO XPR5350 RADIO	VA00161 (PART #UE1078A)	UHF RI: 403-470MHZ	
		MOTOROLA CORP.	METAL CHASIS	PART #V214	MEDIUM 14" x 14"	
		MOTOROLA CORP.	AC POWER SUPPLY 85-264V	PART #V261	100-240 VAC W/ 12V SMART CHARGER	PROVIDE (1) SPARE
		MOTOROLA CORP.	BACKUP BATTERY	PART #V328	10.0 Ah SEALED LEAD-ACID	FITS IN SEPARATE LOCATION FROM METAL CHASSIS; INCLUDE: FKN8376 BATTERY POWER CABLE, FHN601 MOUNTING BRACKET, AND FNN7898 10 AH BACKUP BATTERY
		MOTOROLA CORP.	3-1/0 SLOT FRAME	PART #V103		
		MOTOROLA CORP.	20 PIN TB HOLDER KIT	PART #V158		
		MOTOROLA CORP.	1/0 SLOT COVER	PART #V20	BLANK MODULE	UTILIZE WHERE NEEDED
		MOTOROLA CORP.	16 DI + 4 DO (EE) + (4)± 20 mA AI	PART #V245	PART #V245	MIXED I/O, PROVIDE (2) SPARES
		MOTOROLA CORP.	24 VDC PLUG-IN POWER SUPPLY	PART #V260 (FPN1653A)	24V FLOATING MAX, 150 mA OUTPUT	FLOATING POWER SUPPLY
		WILKERSON	SCADA INTERFACE BOARD	PART #SIB-V 245/V453		PROVIDE (2) SPARES

SYMBOL	NAME	PART				REMARKS
		REMAINING PARTS LIST				
		MAKE	TYPE	MODEL OR CAT. #	RATING	
PC-1	BACKUP PUMP CONTROLLER	WILKERSON	DUPLEX LIFT STATION	DR1920	10 AMP CONTACTS	DIN RAIL MOUNTING
FTB1	FUSED TERMINAL BLOCKS	PHOENIX CONTACT		UK 5-HESI	PROVIDE 1, 2, & 5A FUSES	PROVIDE COOPER BUSSMAN GDB SERIES FUSES
F1, L1	PROCESS METER	PRECISION DIGITAL	4 DIGIT, 1.2" DISPLAY	PD765-6R3-10		PROVIDE 4-20 mA OUTPUT
CB 9, 10, 11, 12	CIRCUIT BREAKER	SQUARE D	SINGLE POLE	QOU-115	120 V, 15A	
CB 8	CIRCUIT BREAKER	SQUARE D	SINGLE POLE	QOU-120	120 V, 20A	
PL1, PL3	INDICATOR LIGHT	SQUARE D	CLASS 9001	SKT - 38LYA9	120 V, LED TYPE	YELLOW LENS & PRESS TEST
PL2, PL4	ILLUMINATED PUSH BUTTON	SQUARE D	CLASS 9001	SK2L38LRRH13	120 V, LED TYPE	RED LENS - 1 N.O., 1 N.C.
PL5, PL6	INDICATOR LIGHT	SQUARE D	CLASS 9001	SKT - 38LRR9	120 V, LED TYPE	RED LENS & PRESS TEST
S1, S2	HOA SWITCH ASSEMBLY	SQUARE D	OIL-TIGHT CLASS 9001	SKS - 43B H2	10A @ 120V	
ALS	AREA LIGHT SWITCH	HUBBELL	SINGLE POLE	HBL1221	277V, 20A	
ZS1	CONTROL PNL INTRUSION SENSOR	OMRON	CYLINDRICAL, SHORT BARREL	E2F-X5F1 (GRAINGER-1EA77)	12-24VDC, 3-WIRE PNP	W/ TELEMECANIQUE MTG. BRACKET (GRAINGER - 5B233)
FF1 & LS1	LED LIGHTING FIXTURE	HOFFMAN	LED	LEDA1S35	120 V, 5W	W/TOGGLE SWITCH-TS
WR#1	WALL RECEPTACLE	HUBBELL	DUPLEX W/GFI	GF5262	120V AC, 15A GFI	W/ALUMINUM OUTLET BOX AND COVER
TB1, TB2	TERMINALS	PHOENIX CONTACT		UK5N TERMINALS	30 A W/ ALUM. DIN RAIL	50 CONTACTS (MIN)
ITS	INSULATED TERMINAL STRIP	ALLEN-BRADLEY	STYLE AA	1492-15-T	600 V AC NEUTRAL BLOCK	4 CONTACTS (MIN) W/ SHORTING BARS
GB1	GROUND BAR SYSTEM	PANDUIT	12 PORT WITH MAIN LUG	UGB2/0-414-12		COPPER CONSTRUCTION
GB2	GROUNDING BLOCK	ILSCO	AS REQUIRED	AS REQUIRED		
TA1, TA2	CONTROL RELAY	POTTER & BRUMFIELD	8 PIN PLUG-IN	KRPA-11AG-120	120V AC COIL, 10A CONTACTS	DPDT W/ SOCKET AND HOLD DOWN SPRING
FM1, FM2	CONTROL RELAY	POTTER & BRUMFIELD	11 PIN PLUG-IN	KRPA-14AG-120	120V AC COIL, 10A CONTACTS	3PDT W/ SOCKET AND HOLD DOWN SPRING
LEV	WET WELL LEVEL SENSOR	PULSAR, INC.	ULTRASONIC	dB10 TRANSDUCER W/ ULTRA-4	1 TD 32.8 FT RANGE 115VAC/24VDC POWERED W/ 4-20MA AND (2) RELAY OUT W/ KEY PAD, DISPLAY, AND TROPICALIZATION	CITY FORCES WILL PROVIDE ASSISTANCE WITH MOUNTING AND CALIBRATION
CR1, CR2, CR3, CR4	CONTROL RELAY	POTTER & BRUMFIELD	14-BLADE SQUARE PLUG-IN	KUP-17A19-120	120V AC COIL, 10A CONTACTS	4PDT W/ SOCKET AND HOLD DOWN SPRING
PCP	PUMP CONTROL PANEL ENCLOSURE	SCHAEFER'S	NEMA 4X, 3P LATCH, 48"x36"x12"	SPN4SS-483612	304 SS, POWDER COATED WHITE	3P LATCH W/STOP KIT. EXTERNAL FINISH DURABLE RAL 9003 WHITE POWER COAT.
PP	ENCLOSURE PANEL	SCHAEFER'S	45" X 33", STEEL	SPP-4236	STEEL, 12 GAUGE	
NB1, 2	NEUTRAL DISTRIBUTION BLOCK	BUSSMAN	SINGLE POLE	16220-1	600V, 175A	
SPD-3	SURGE PROTECTION DEVICE TYPE 3	PHOENIX CONTACT	3 CONDUCTOR SYSTEM (L, N, G)	2905228	120V, 25A	



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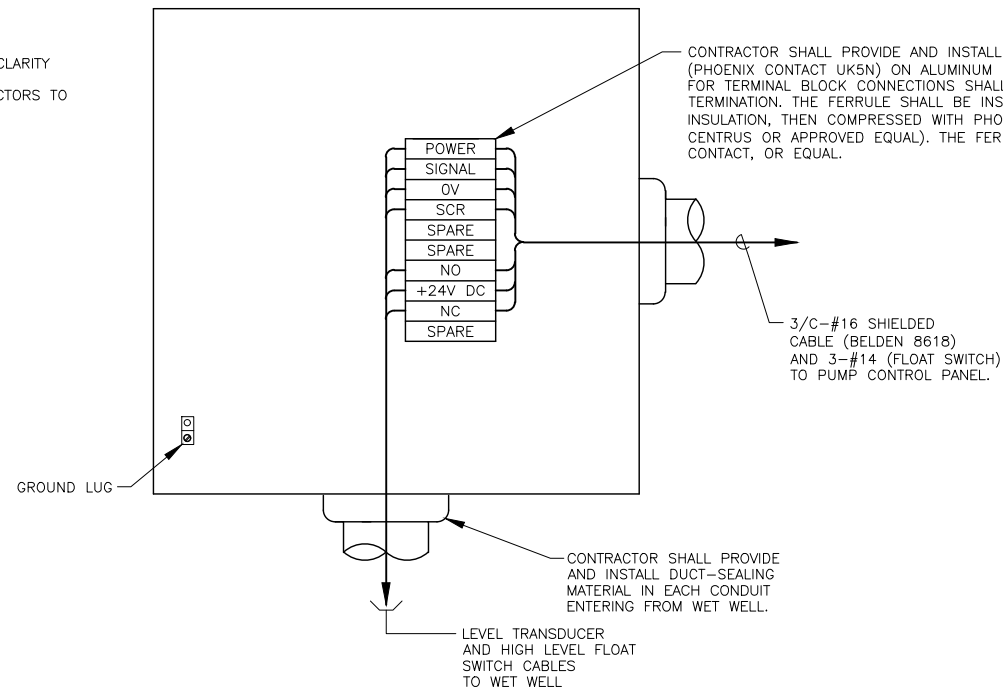
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
PARTS SCHEDULE (SHEET 2 OF 2)

SHEET
E20

NOTES:

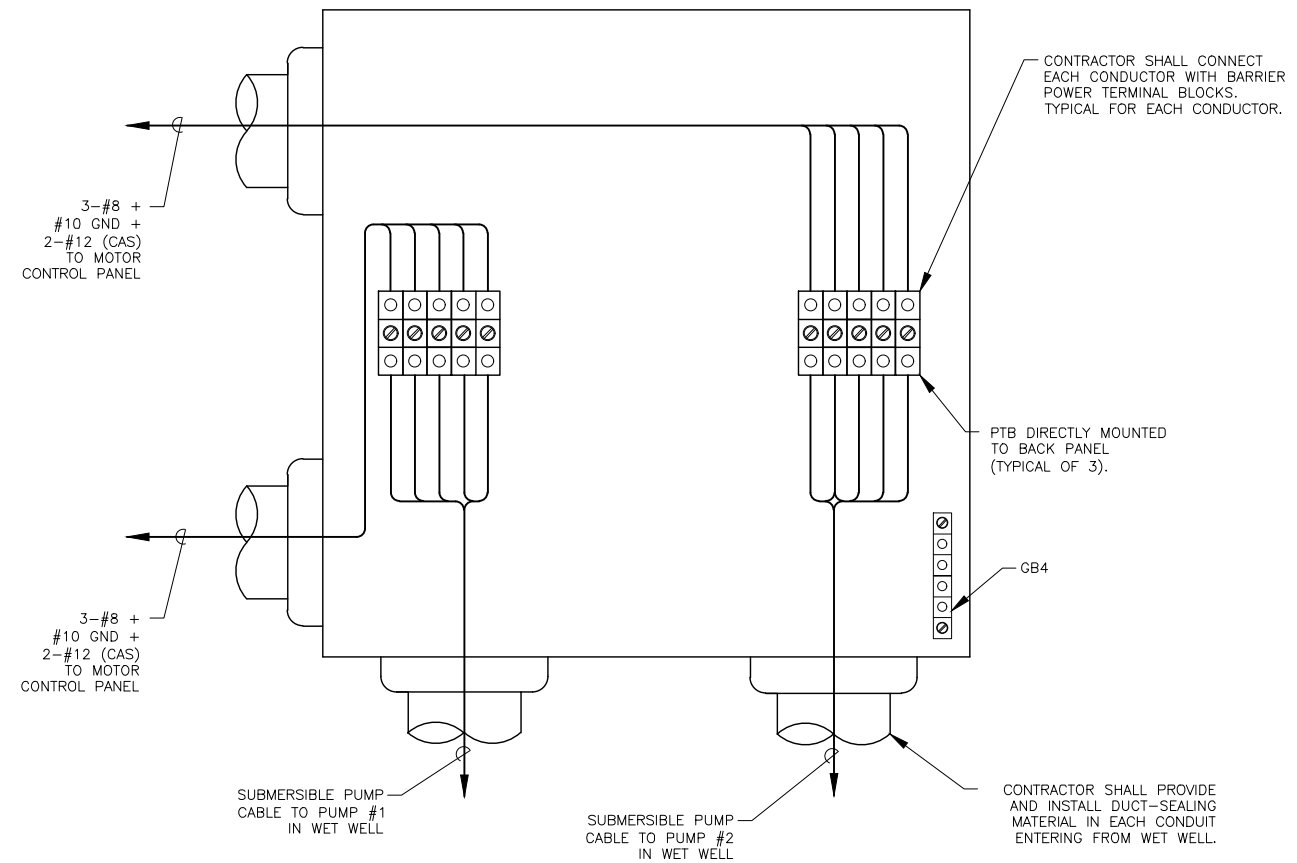
- COVER NOT SHOWN FOR CLARITY
- BOND GROUNDING CONDUCTORS TO ENCLOSURE BACK PANEL.



INSTRUMENTATION AND CONTROLS JUNCTION BOX DETAIL

SCALE: N.T.S.

1
E8 | E21



PUMP MOTOR CONNECTIONS JUNCTION BOX DETAIL

SCALE: N.T.S.

2
E8 | E21

NOTES:

- COVER NOT SHOWN FOR CLARITY
- BOND GROUNDING CONDUCTORS TO ENCLOSURE BACK PANEL.



#	DATE	REVISIONS
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GUNLOCK PUMP STATION GENERATOR INSTALLATION

ELECTRICAL DETAILS (SHEET 1 OF 5)

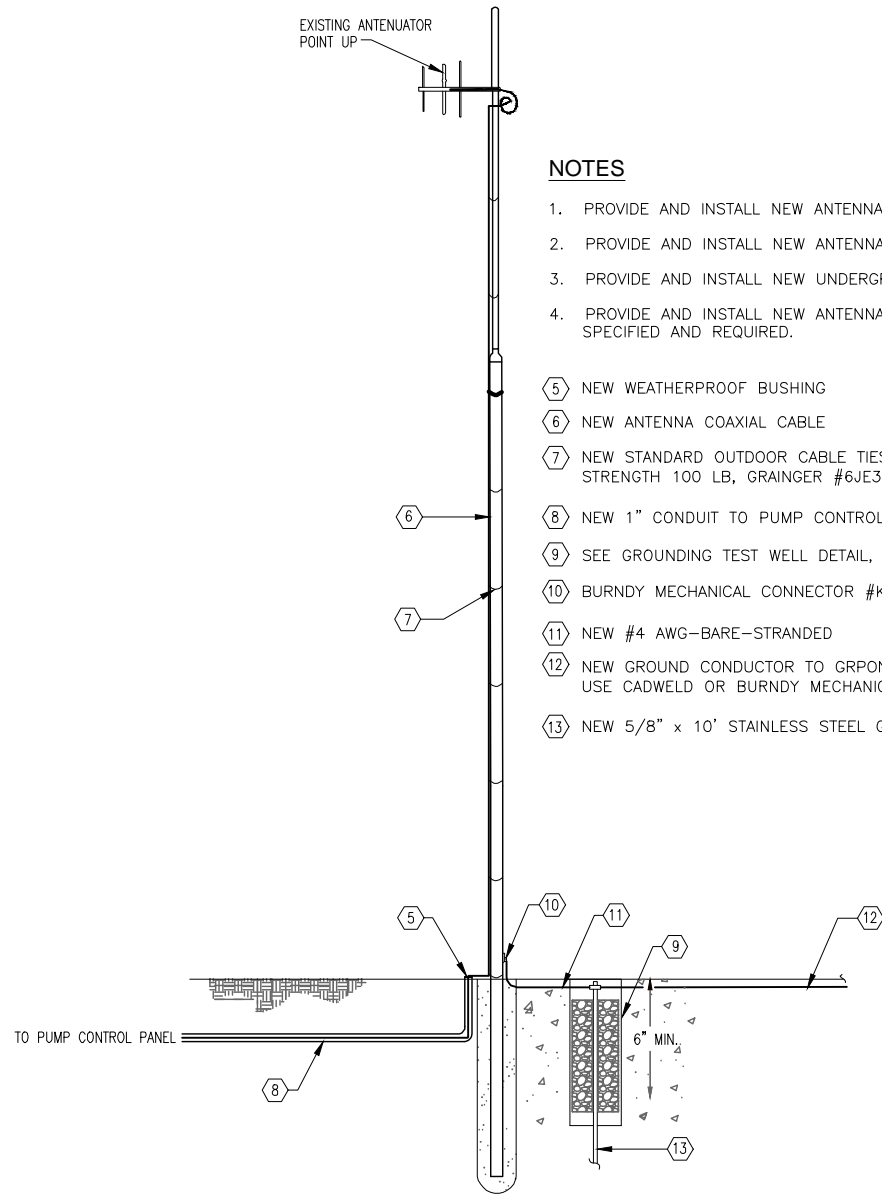
SHEET
E21

EXISTING ANTENUATOR
POINT UP

NOTES

1. PROVIDE AND INSTALL NEW ANTENNA AND MAST.
2. PROVIDE AND INSTALL NEW ANTENNA COAX CABLE, AS REQUIRED.
3. PROVIDE AND INSTALL NEW UNDERGROUND CONDUIT, AS REQUIRED.
4. PROVIDE AND INSTALL NEW ANTENNA GROUNDING SYSTEM, AS SHOWN, SPECIFIED AND REQUIRED.

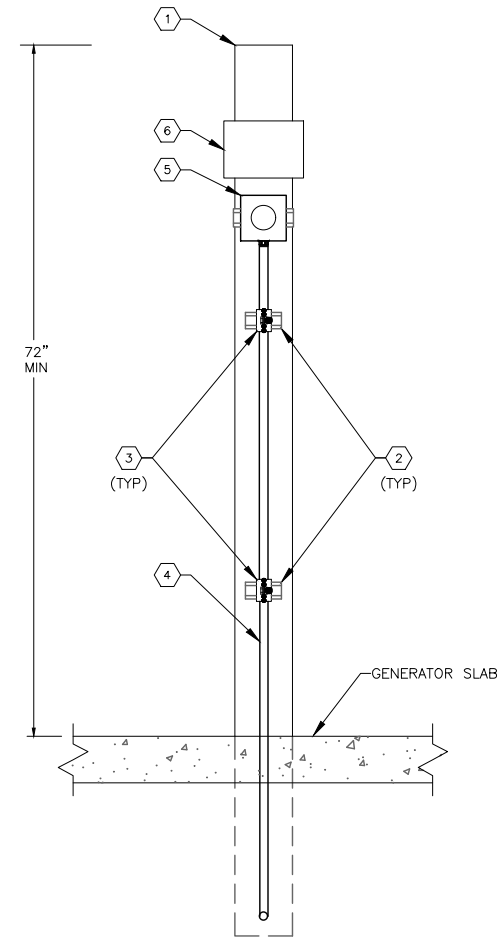
5. NEW WEATHERPROOF BUSHING
6. NEW ANTENNA COAXIAL CABLE
7. NEW STANDARD OUTDOOR CABLE TIES, 304 STAINLESS STEEL, TENSILE STRENGTH 100 LB, GRAINGER #6JE35
8. NEW 1" CONDUIT TO PUMP CONTROL PANEL
9. SEE GROUNDING TEST WELL DETAIL, SHEET E24
10. BURNDY MECHANICAL CONNECTOR #KA25-4-1/0
11. NEW #4 AWG-BARE-STRANDED
12. NEW GROUND CONDUCTOR TO GRPONDING GRID SYSTEM, USE CADWELD OR BURNDY MECHANICAL CONNECTOR #VT2525
13. NEW 5/8" x 10' STAINLESS STEEL GROUND ROD



ANTENNA DETAIL

SCALE: N.T.S.

1
E7 | E22



GENERATOR SHUT DOWN STATION DETAIL

SCALE: N.T.S.

2
E7 | E22

KEYED NOTES:

1. PROVIDE AND INSTALL 6" X 6" X 9' REINFORCED SQUARE CONCRETE POST.
2. PROVIDE AND INSTALL 1-5/8" X 1-5/8" 316 STAINLESS STEEL UNISTRUT WITH 316 STAINLESS STEEL HARDWARE.
3. PROVIDE AND INSTALL ALUMINUM CONDUIT CLAMPS.
4. PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT. FIELD ROUTE CONDUIT FROM PUSH BUTTON STATION TO NEW GENERATOR FOR SHUT DOWN SIGNAL.
5. GENERATOR EMERGENCY SHUT DOWN PUSH BUTTON STATION. MAINTAINED 2 POSITION SWITCH WITH 1-5/8" OPERATOR, 1 N.O. & 1 N.C. CONTACT MOUNTED IN A NEMA 4X 316 STAINLESS STEEL ENCLOSURE, 4'-6" ABOVE FINISHED CONCRETE SLAB GRADE. BREAK-GLASS OPERATORS ARE NOT ACCEPTABLE.
6. PROVIDE PHENOLIC NAMEPLATE ABOVE PUSH BUTTON STATION. NAMEPLATE SHALL BE THREE-PLY PHENOLIC RED-WHITE-RED ENGRAVED THROUGH THE FIRST RED LETTERING SHALL BE 1/2" MIN., EDGES OF NAMEPLATE SHALL BE BEVELED 45 DEG. NAMEPLATE SHALL READ AS FOLLOWS: "GENERATOR EMERGENCY SHUT DOWN".

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777 S. Harbour Island Blvd.
Suite 350
Tampa, FL 33602
813.227.9190
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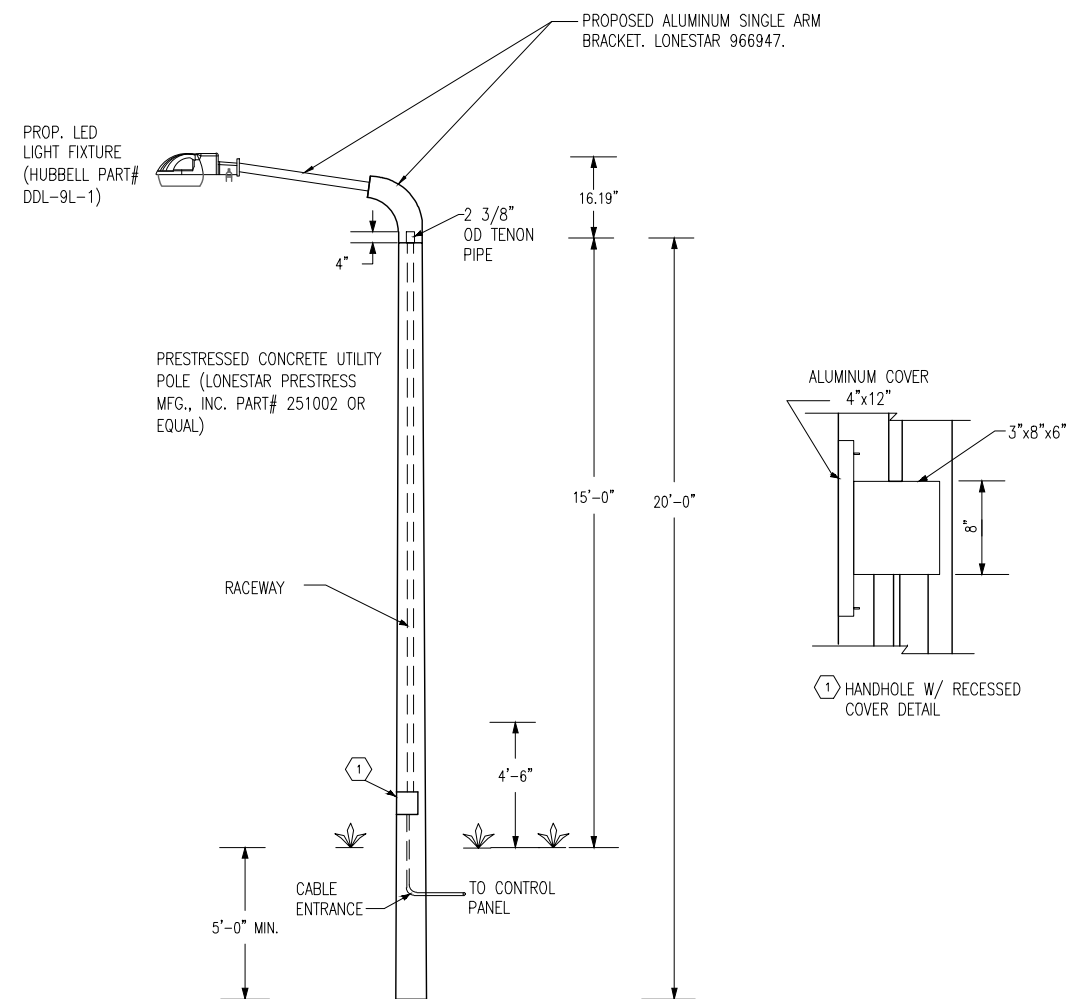
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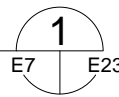
ELECTRICAL DETAILS (SHEET 2 OF 5)

SHEET
E22



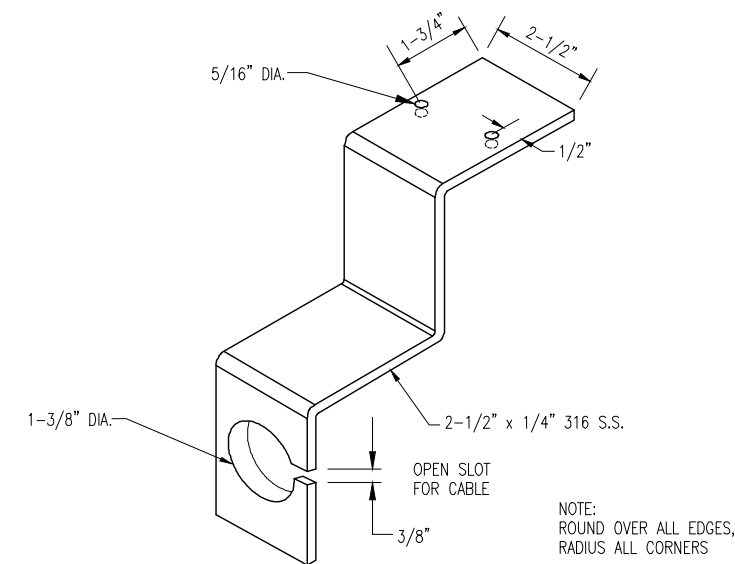
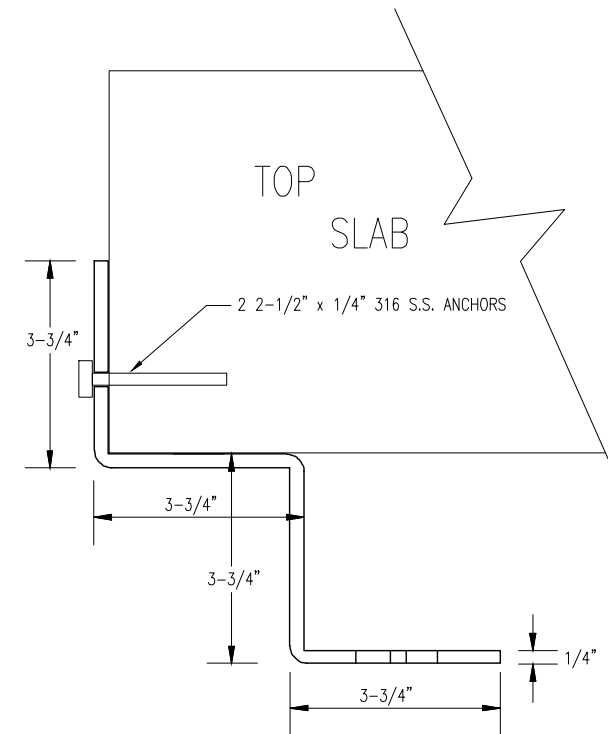
AREA LIGHT (AL) TYPE 'A' DETAIL

SCALE: NONE



NOTES:

1. OVERALL 20'-0" POLE HEIGHT
2. MIN. 5'-0" POLE BURIAL
3. COORDINATE LOCATION OF THE AREA LIGHT WITH PLANT PERSONNEL
4. USE STAINLESS STEEL PIPE STRAPS SPACED 2'-0" APART TO MOUNT CONDUIT



DB10 OR PULSAR MOUNTING BRACKET DETAIL

SCALE: NONE



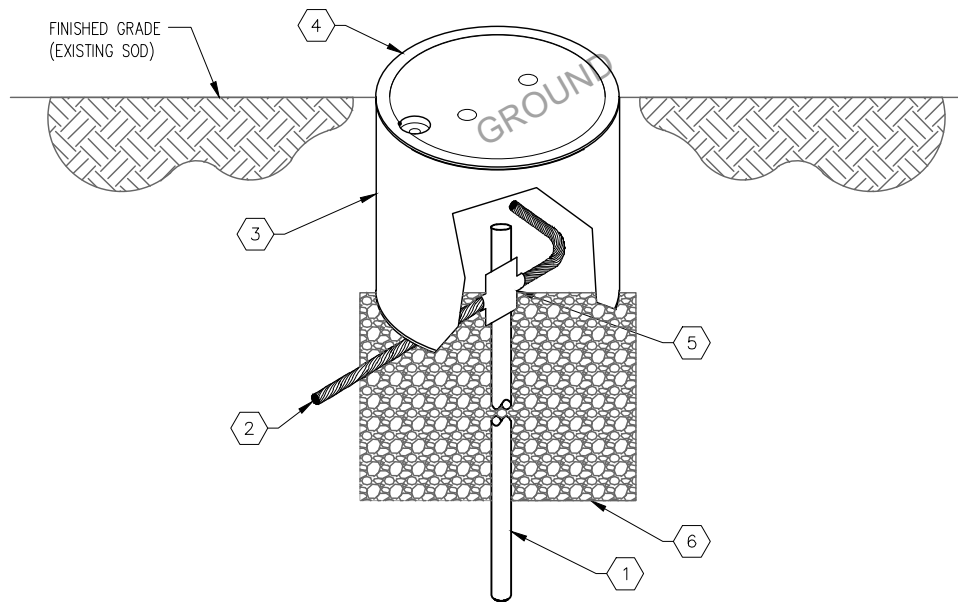
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
 ELECTRICAL DETAILS (SHEET 3 OF 5)

SHEET
E23



GROUND TEST WELL DETAIL

SCALE: N.T.S.

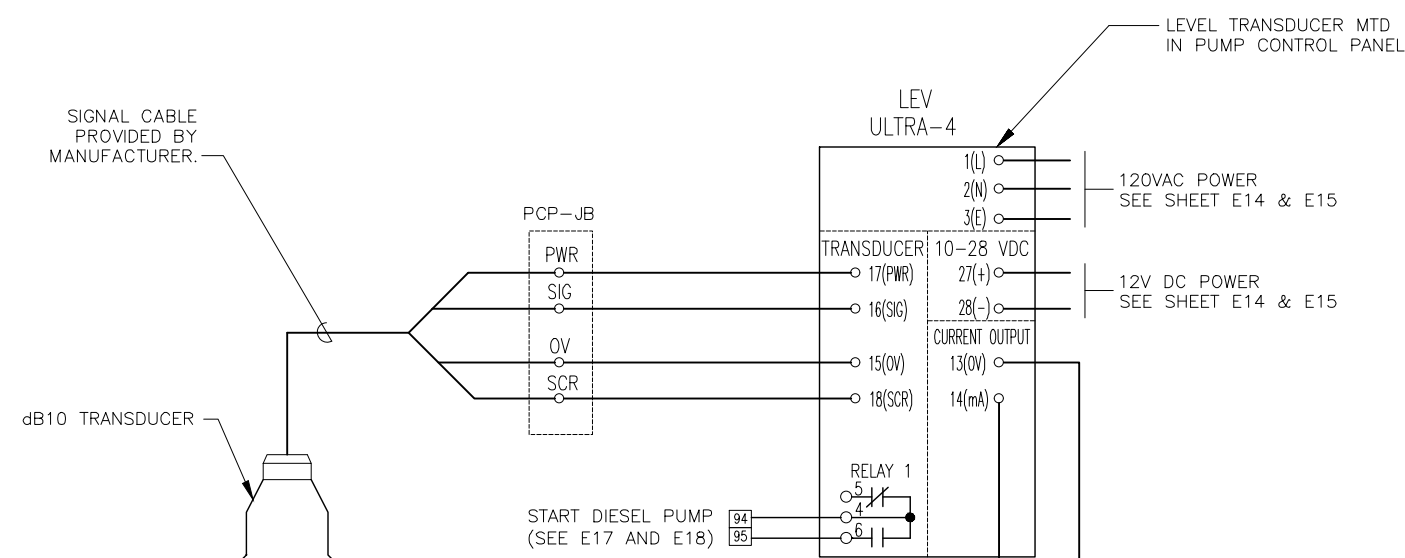
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E7 E24

GROUND TEST WELL DETAIL KEYED NOTES:

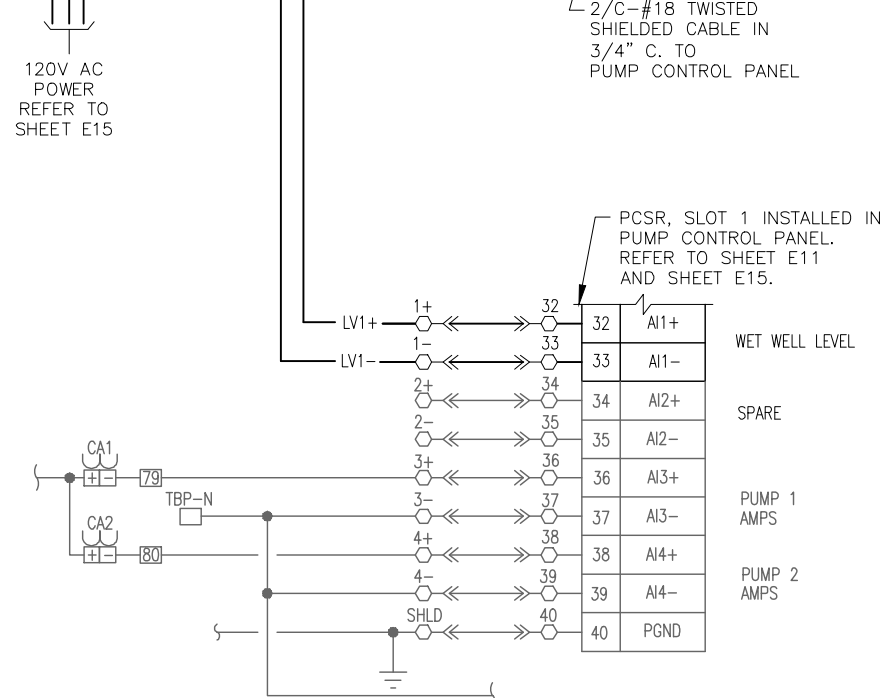
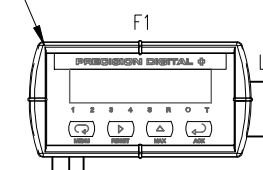
- 1 NEW GROUND ROD, STAINLESS STEEL, 5/8" X 10'-0" (TYP).
- 2 #2, #4 OR #8 BARE STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR AS REQUIRED.
- 3 PROVIDE AND INSTALL GROUND ROD TEST WELL, OLDCASTLE PRECAST ENCLOSURE SOLUTIONS #F08 BOX. MINIMUM SPACING BETWEEN GROUND ROD TEST WELLS/GROUND RODS SHALL BE 6'-0". PROVIDE AND INSTALL APPROVED GROUNDING ROD AND ATTACH BARE COPPER GROUND CONDUCTOR (AWG #4 MINIMUM) UTILIZING APPROVED GROUND CLAMPS. REFER TO SHEET E24 FOR GROUND TEST WELL DETAIL.
- 4 PROVIDE AND INSTALL OLDCASTLE #F08C CAST IRON LID MARKED "GROUND".
- 5 EXOTHERMIC WELD.
- 6 PROVIDE 6" MINIMUM OF CRUSHED STONE.

PROPOSED PANEL SCHEDULE

PANEL 'LP' ; SQUARE D CO. 120/240 VOLTS, 1Ø, 3W 60 AMP MAIN SURFACE ENCLOSURE TOP AT 5'-6" AFF													
MINI POWER-ZONE PROVIDE EQUIPMENT GROUND BAR													
EQUIPMENT SERVED	CIRCUIT BREAKER			KVA/PHASE		CIRC. NO.		KVA/PHASE		CIRCUIT BREAKER			EQUIPMENT SERVED
	POLE	AMPS	FRAME	A	B	NO.	NO.	A	B	POLE	AMPS	FRAME	
MOTOR CONTROL PANEL	1	20	QOB	0.5		1	2	1.0		1	20	QOB	BATTERY CHARGER
PUMP CONTROL PANEL	1	20	QOB		0.4	3	4		0.3	1	20	QOB	CONDENSATION HEATER
SPARE	1	20	QOB			5	6	3.0		2	30	QOB	COOLANT HEATER
SPARE	1	20	QOB			7	8		3.0	---	---	---	" "
SPACE	---	---	---			9	10			---	---	---	SPACE
SPACE	---	---	---			11	12			---	---	---	SPACE
SURGE PROTECTION DEVICE (SPD)	2	30	QOB			13	14			---	---	---	SPACE
" "	---	---	---			15	16			---	---	---	SPACE
SUB-TOTAL KVA				0.5	0.4			4.0	3.3				
TOTAL CONNECTED LOAD = 8.2 KVA													
TOTAL DEMAND LOAD = 8.2 KVA													



PRECISION DIGITAL PROCESS METER INSTALLED IN PUMP CONTROL PANEL. REFER TO SHEET E11.



LEVEL TRANSDUCER WIRING SCHEMATIC

ALL WIRING TO BE VERIFIED/CONFIRMED WITH MANUFACTURER PRIOR TO INSTALLATION



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Suite 350
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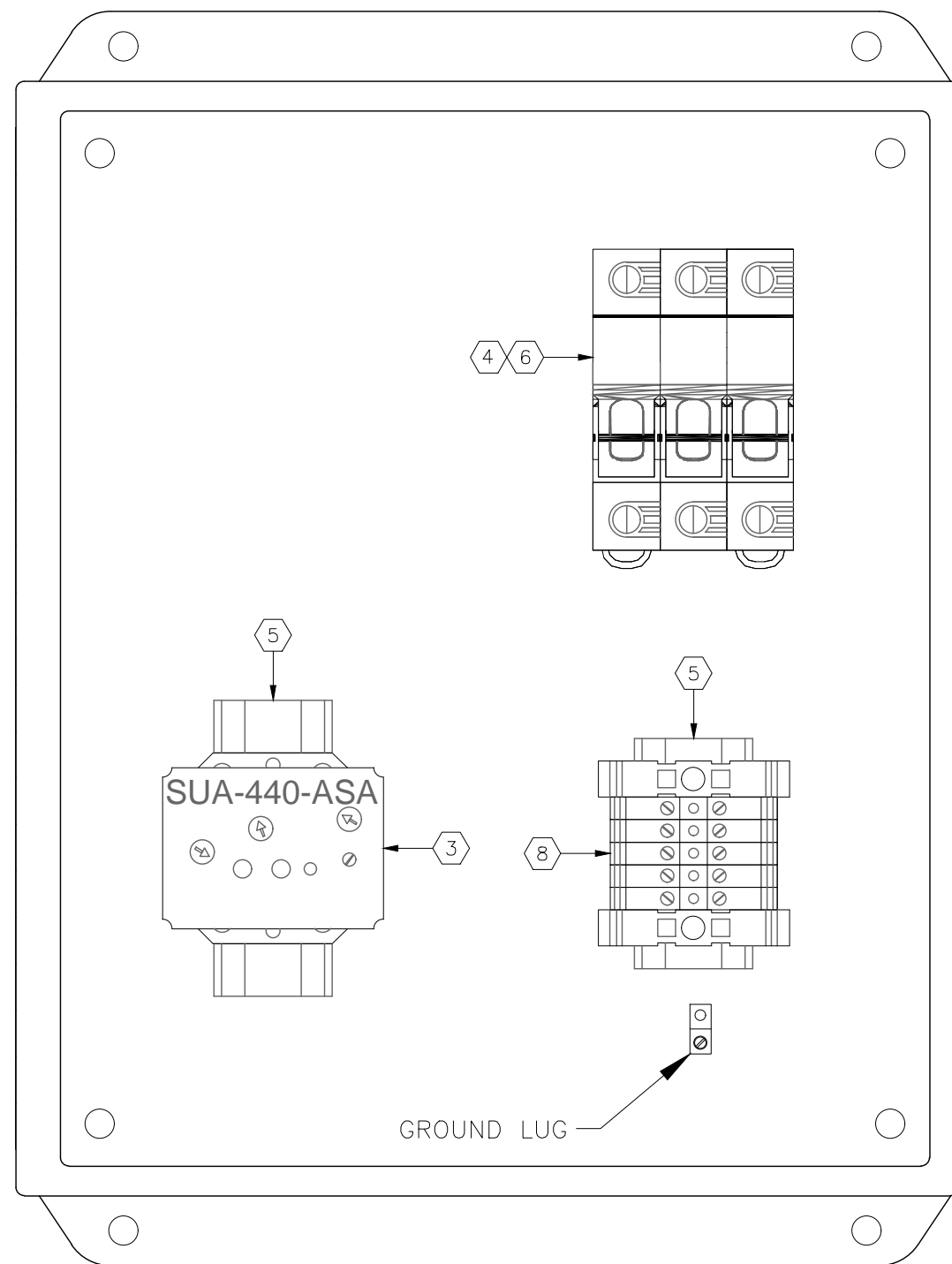
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GUNLOCK PUMP STATION GENERATOR INSTALLATION
ELECTRICAL DETAILS (SHEET 4 OF 5)

SHEET
E24



PM1 JUNCTION BOX FRONT ELEVATION

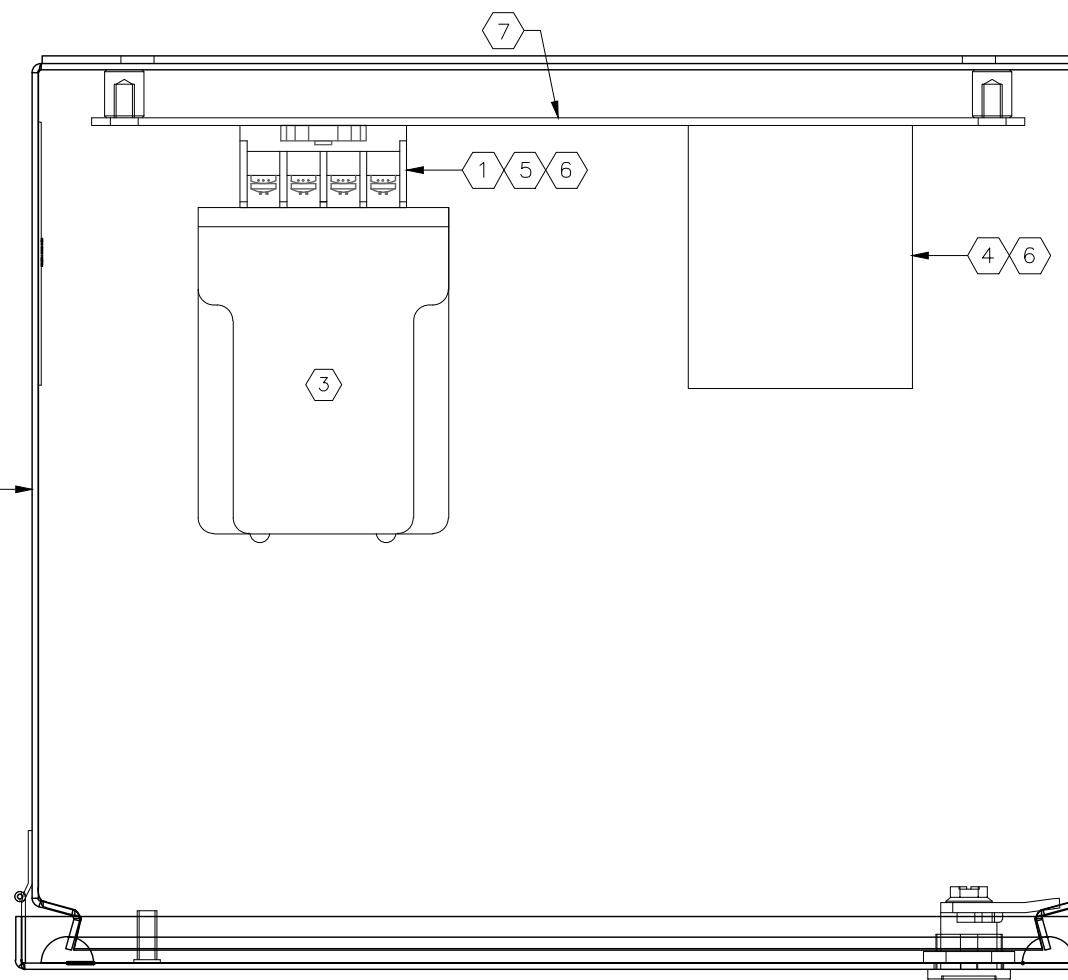
SCALE: N.T.S.

1
E9 | E25

NOTE: ENCLOSURE SHOWN WITH OUTER DOOR OPEN

GENERAL NOTES:

1. ALL HINGED SURFACES SHALL BE GROUNDED WITH A #12 COPPER BOND CONDUCTOR (WITH GREEN INSULATION) SECURED TO THE ENCLOSURE OR BACKPANEL. THIS SHALL INCLUDE THE OUTER DOOR AND INNER DOOR.



PM1 JUNCTION BOX TOP ELEVATION

SCALE: N.T.S.

KEYED NOTES:

- 1 8 PIN OCTAL SOCKET, DIN RAIL MOUNTED OT08
- 2 NEMA 4X 316 STAINLESS STEEL, 12" x 10" x 8" ENCLOSURE, HAMMOND EJ12108S16 WITH BACK PANEL
- 3 3-PHASE POWER MONITOR, PM1
- 4 FUSE DISTRIBUTION BLOCK, FDB1
- 5 PROVIDE ALUMINUM DIN RAIL
- 6 DIRECTLY MOUNTED TO BACK PANEL OF ENCLOSURE
- 7 ENCLOSURE BACK PANEL
- 8 PROVIDE A MINIMUM OF 5 (FIVE) TERMINAL BLOCKS

WARNING: OPENING FUSED
DOUBLE THROW SWITCH
DOES NOT DE-ENERGIZE
VOLTAGE TO THIS ENCLOSURE

**WARNING PLACARD
ON FRONT OF DOOR**



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GUNLOCK PUMP STATION GENERATOR INSTALLATION
ELECTRICAL DETAILS (SHEET 5 OF 5)

**SHEET
E25**