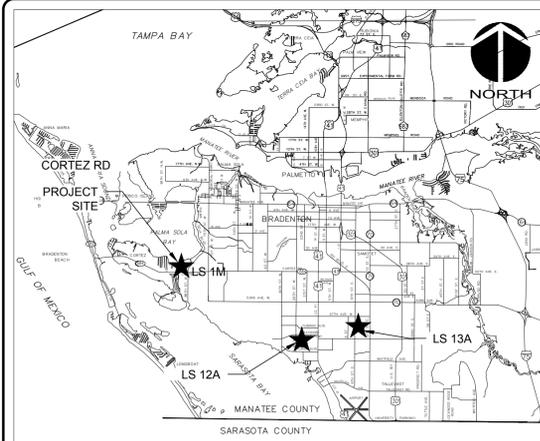


LIFT STATION 1M ELECTRICAL REHABILITATION MANATEE COUNTY

PROJ. NO. 01024-0180
DECEMBER 13, 2021
ISSUED FOR BID



VICINITY MAP NOT TO SCALE

PROJECT NAME: LIFT STATION 1M ELECTRICAL REHABILITATION

OWNER/DEVELOPER:
8720 44TH AVE WEST
BRADENTON FLORIDA
34210
EMAIL



1365 Hamlet Avenue
Clearwater, Florida 33756
Phone: (727) 442-7196, Fax: (727) 461-3827

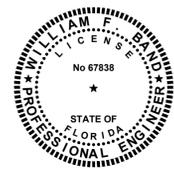
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PROJECT INFORMATION



MITCHEL A. CHIAVAROLI, STATE OF FLORIDA, PROFESSIONAL ENGINEER, LICENSE NO. 56335
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GENERAL
G0.02 CIVIL-MECHANICAL LEAD SHEET
MECHANICAL
M0.00 WETWELL INTAKE AND EXHAUST FAN REPLACEMENT



WILLIAM F. BAND, STATE OF FLORIDA, PROFESSIONAL ENGINEER, LICENSE NO. 67838
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SHEET NUMBER SHEET TITLE
S0.00 GENERAL NOTES, DESIGN LOADS, DESIGN CRITERIA & LEGEND
S1.00 LIFT STA. MODS & ELECTR. BLDG. FDN. PLAN, SECTIONS & DETAILS
S1.01 LIFT STA. MODS & ELECTR. BLDG. FRMG. PLAN, SECTIONS & DETAILS
S1.02 LIFT STA. MODS ADDL SECTIONS & DETAILS



AUBREY A. HAUDRICOURT, STATE OF FLORIDA, PROFESSIONAL ENGINEER, LICENSE NO. 66861
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SHEET NUMBER SHEET NAME
GENERAL
G0.01 GENERAL NOTES
CIVIL- CIVIL SITE
C0.00 SITE PLAN
ELECTRICAL
E0.00 SYMBOLS, ABBREVIATIONS AND NOTES
E0.01 SYMBOLS
E0.02 SYMBOLS
E1.00 ELECTRICAL SITE PLAN POWER AND GROUND
E1.01 DEMOLITION PLAN
E1.02 SINGLE LINE DIAGRAM
E1.03 PUMP BUILDING POWER PLAN
E1.04 ELECTRICAL BUILDING POWER PLAN
E1.05 ELECTRICAL BUILDING LAYOUT
E1.06 GROUNDING AND LIGHTNING PROTECTION PLAN
E1.07 MCB, ATS AND MCC ELEVATION
E1.08 LIGHTING PLAN
E1.09 ELECTRICAL INTERCONNECTION DIAGRAM
E1.10 PANELBOARD SCHEDULES
E1.11 DETAILS
E1.12 ELECTRICAL CONTROLS SCHEMATICS



MICHAEL FADINI, STATE OF FLORIDA, PROFESSIONAL ENGINEER, LICENSE NO. 87173
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SHEET NUMBER SHEET TITLE
INSTRUMENTATION
I0.00 INSTRUMENTATION SYMBOLS SHEET 1
I0.01 INSTRUMENTATION SYMBOLS SHEET 2
I1.00 PROCESS AND INSTRUMENT DIAGRAM
I1.01 CONTROL PANEL

SITE MAP

SCALE: 1" = 200'

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Sheet Number	Sheet Title
GENERAL	
G0.00	COVER SHEET
G0.01	GENERAL NOTES
G0.02	CIVIL-MECHANICAL LEAD SHEET
CIVIL: CIVIL SITE	
C0.00	SITE PLAN
MECHANICAL	
M0.00	WETWELL INTAKE AND EXHAUST FAN REPLACEMENT
STRUCTURAL	
S0.00	GENERAL NOTES, DESIGN LOADS, DESIGN CRITERIA & LEGEND
S1.00	LIFT STA. MODS & ELECTR. BLDG. FDN. PLAN, SECTIONS & DETAILS
S1.01	LIFT STA. MODS & ELECTR. BLDG. FRMG. PLAN, SECTIONS & DETAILS
S1.02	LIFT STA. MODS ADDL SECTIONS & DETAILS
ELECTRICAL	
E0.00	SYMBOLS, ABBREVIATIONS AND NOTES
E0.01	SYMBOLS
E0.02	SYMBOLS
E1.00	ELECTRICAL SITE PLAN POWER AND GROUND
E1.01	DEMOLITION PLAN
E1.02	SINGLE LINE DIAGRAM
E1.03	PUMP BUILDING POWER PLAN
E1.04	ELECTRICAL BUILDING POWER PLAN
E1.05	ELECTRICAL BUILDING LAYOUT
E1.06	GROUNDING AND LIGHTNING PROTECTION PLAN
E1.07	MCB, ATS AND MCC ELEVATION
E1.08	LIGHTING PLAN
E1.09	ELECTRICAL INTERCONNECTION DIAGRAM
E1.10	PANELBOARD SCHEDULES
E1.11	DETAILS
E1.12	ELECTRICAL CONTROLS SCHEMATICS
INSTRUMENTATION	
I0.00	INSTRUMENTATION SYMBOLS SHEET 1
I0.01	INSTRUMENTATION SYMBOLS SHEET 2
I1.00	PROCESS AND INSTRUMENT DIAGRAM
I1.01	CONTROL PANEL

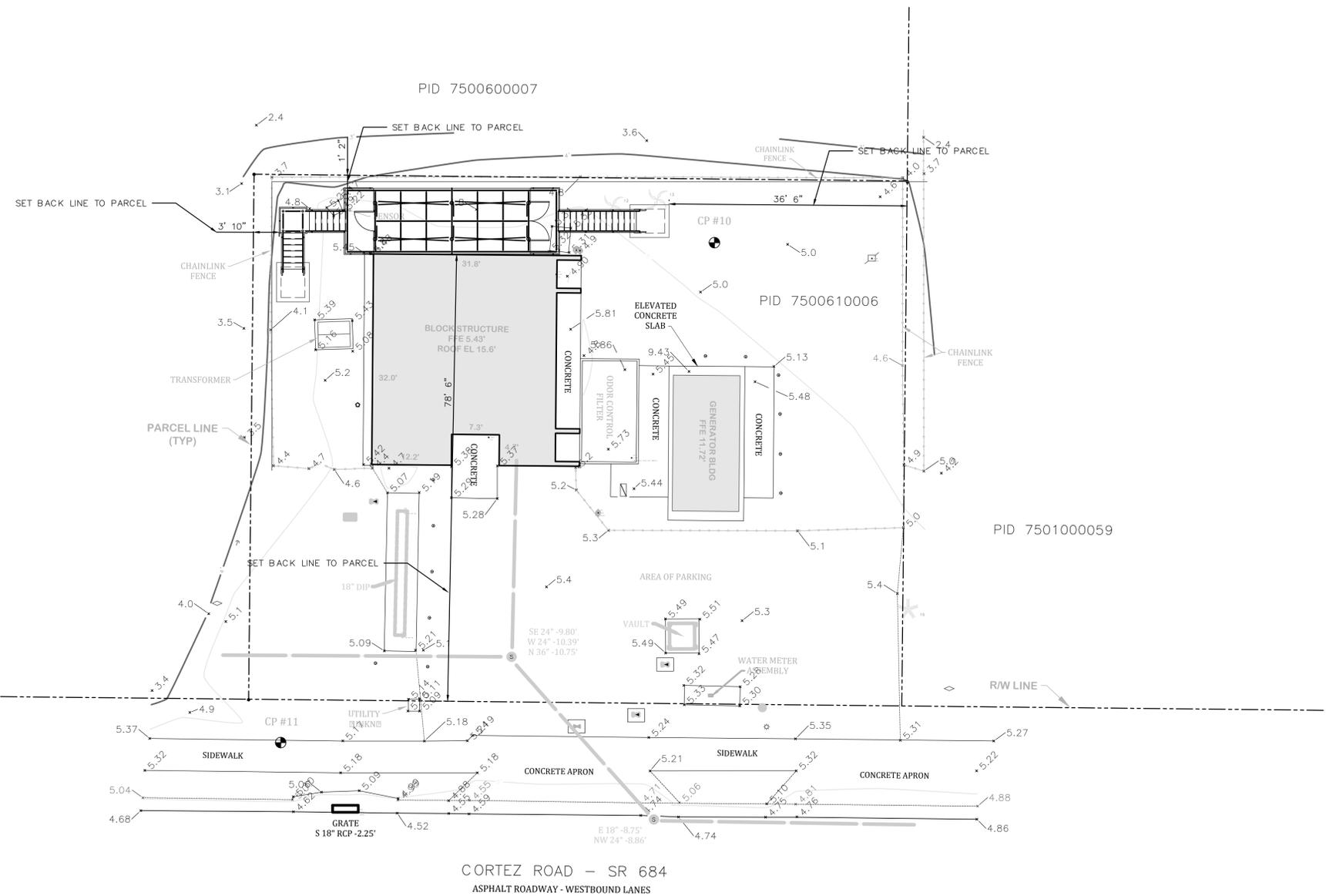
SHEET INDEX



PROJ. NO. 01024-0180 LIFT STATION 1M ELECTRICAL REHABILITATION
SUBMITTAL DATE: DECEMBER 13, 2021



5 0 5 10
SCALE: 1" = 10'



DESIGNATION	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP #10	1137677.56	444951.05	5.02'	IR (LB 7203)
CP #11	1137601.39	444884.66	5.26'	ND (LB 7203)

LEGEND

PID	PARCEL IDENTIFICATION		CONTROL POINT
CP	CONTROL POINT		CONTROL POINT
R/W	RIGHT OF WAY		UTILITY POLE
ND	NAIL W/ DISC		GUY WIRE
IR	IRON ROD		SEWER VALVE
SR	STATE ROAD		WATER VALVE
EL	ELEVATION		SANITARY MANHOLE
FFE	FINISHED FLOOR ELEVATION		LIGHT POLE
UNKN	UNKNOWN		BOLLARD
	PINE		AIR RELEASE VALVE
	PALM		UTILITY RISER
			BLOW OFF
			UTILITY BOX
			OUTLET
			SPIGOT
			ANTENNA

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

GENERAL NOTES

1. THE FOLLOWING MANATEE COUNTY VERTICAL CONTROL MONUMENT WAS RECOVERED AND UTILIZED FOR THE ELEVATIONS INDICATED HEREON:
"BREVARD" NAVD 1988 ELEVATION 20.00'
2. THIS SURVEY IS REFERENCED TO A GRID PROJECTION OF THE FLORIDA STATE PLANE COORDINATE SYSTEM (WEST ZONE NAD 1983/2011 ADJUSTMENT).
3. THIS IS NOT A BOUNDARY SURVEY. PARCEL AND R/W LINES INDICATED HEREON ARE APPROXIMATE.
4. THIS SURVEY IS SUBJECT TO PERTINENT EASEMENTS, RIGHTS-OF-WAY AND RESTRICTIONS OF RECORD, IF ANY.
5. THIS SURVEY DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF THE PARTY OR PARTIES CERTIFIED TO BELOW FOR THE EXPRESS PURPOSE STATED HEREON AND/OR CONTAINED IN THE CONTRACT BETWEEN HYATT SURVEY SERVICES, INC. AND THE CLIENT FOR THIS PROJECT. COPYING, DISTRIBUTING AND/OR USING THIS DRAWING, IN WHOLE OR IN PART FOR ANY PURPOSE OTHER THAN ORIGINALLY INTENDED WITHOUT WRITTEN CONSENT FROM HYATT SURVEY SERVICES, INC. IS STRICTLY PROHIBITED AND RENDERS THE SURVEYOR'S CERTIFICATION, SIGNATURE AND SEAL NULL AND VOID. ANY QUESTIONS CONCERNING THE CONTENT OR PURPOSE OF THIS DRAWING SHOULD BE DIRECTED TO HYATT SURVEY SERVICES, INC.

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

SEAL	AUBREY A. HAUDRICOURT, P.E. No. 66861
------	--

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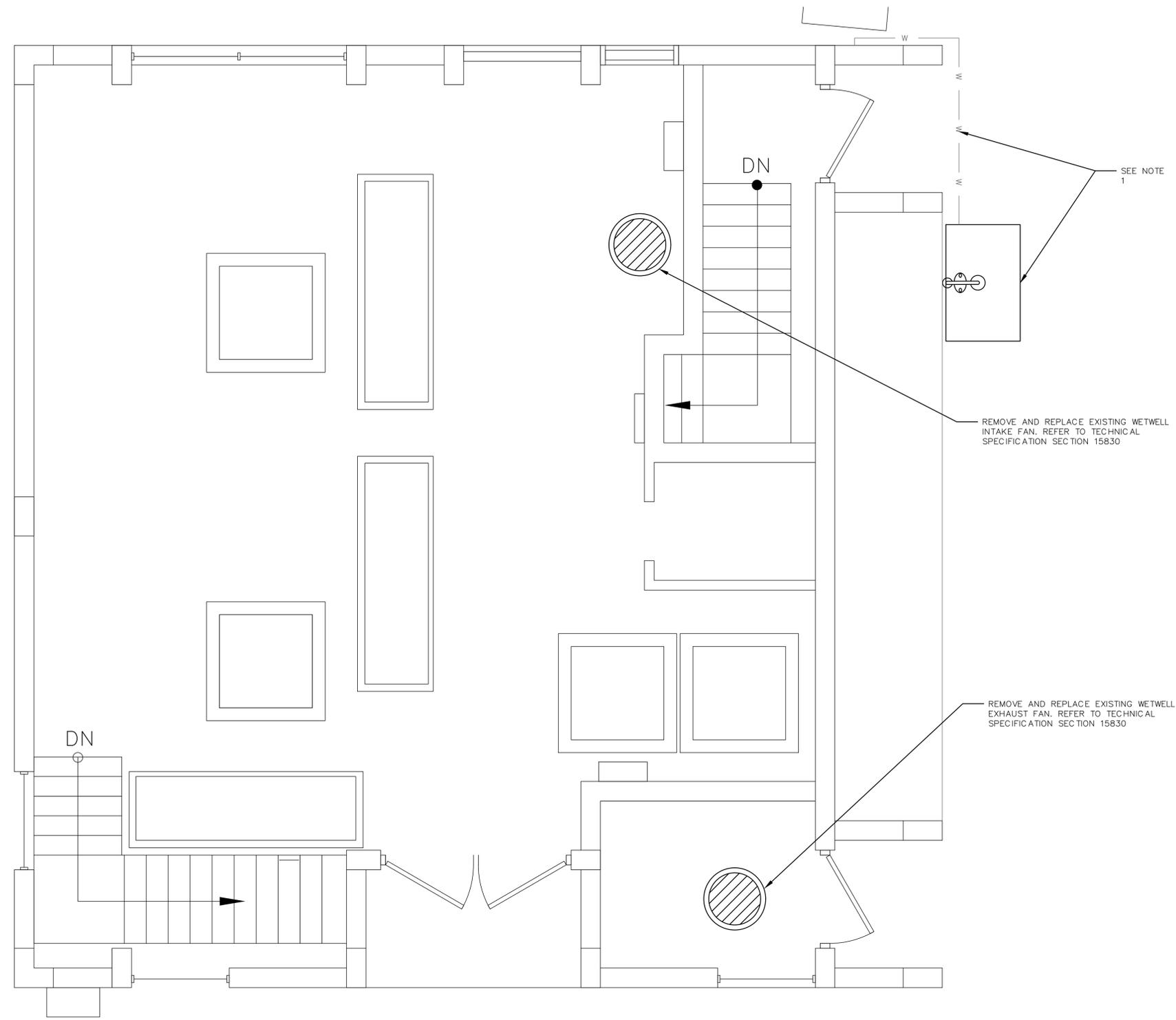


LIFT STATION 1M ELECTRICAL REHABILITATION
 CIVIL SITE
 SITE PLAN

PROJ. START DATE: 2020 JUN	SCALE: C0.00
MCE PROJ. # 01024-0180	HORIZONTAL: 1"=10'-0"
DRAWN JG	VERTICAL: TBD
DESIGNED AAH	0 REVISION
CHECKED MAC	
PROJ. MGR. AAH	
STATUS: ISSUED FOR BID	



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



- NOTES:
1. EXTEND WATER LINE UNDERGROUND WITH NEW SHUTOFF VALVE TO NEW LOCATION. PROVIDE NEW 3'x4' CONCRETE PAD UNDER NEW EYEWASH/SHOWER. ALL EXPOSED PIPING TO BE GALVANIZED.
 2. CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE ROOFING SYSTEM RESULTING FROM REMOVING AND REPLACING THE INTAKE AND EXHAUST FANS.

PARTIAL FLOOR PLAN
SCALE: 1/2"=1'-0"

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

SEAL

MITCHEL A. CHIAVAROLI, P.E.
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Manatee County
FLORIDA

LIFT STATION 1M ELECTRICAL REHABILITATION

MECHANICAL

WETWELL INTAKE AND EXHAUST FAN REPLACEMENT

PROJ. START DATE: 2020 JUN
MCE PROJ. # 01024-0180
DRAWN CW
DESIGNED DC
CHECKED MAC
PROJ. MGR. AAH

SCALE	M0.00
HORIZONTAL: 1/2"=1'-0"	DRAWING NUMBER
VERTICAL: N/A	0
REVISION	REVISION

STATUS: ISSUED FOR BID

1		ABBREVIATIONS	
NOTE: ALL ABBREVIATIONS MAY NOT BE UTILIZED FOR THIS PROJECT			
A, AMP	AMPERE	NA	NON-AUTOMATIC
AFD	ADJUSTABLE FREQUENCY DRIVE	N/A	NOT APPLICABLE
AFF	ABOVE FINISHED FLOOR	NC	NORMALLY CLOSE
AFG	ABOVE FINISHED GRADE	NEC	NATIONAL ELECTRIC CODE
AHU	AIR HANDLING UNIT	N, NEU	NEUTRAL
AIC	AMPERE INTERRUPTING CAPACITY	NO	NORMALLY OPEN
AIT	ANALYTICAL INDICATION TRANSMITTER	NIC	NOT IN CONTRACT
AL	ALUMINUM	NTS	NOT TO SCALE
ARMS	ARC-FLASH REDUCTION SYSTEM	OF CI	OWNER FURNISHED, CONTRACTOR INSTALLED
ATS	AUTOMATIC TRANSFER SWITCH	OL	OVERLOAD RELAY
AUX	AUXILIARY	P	POLE
AWG	AMERICAN WIRE GAUGE	PA	PUBLIC ADDRESS
AGD	ARC QUENCHING DEVICE	PB	PUSH BUTTON
BKR	BREAKER	P/B	PULL BOX
BLDG	BUILDING	PCP	PUMP CONTROL PANEL
BV	BUTTERFLY VALVE	PF	POWER FACTOR
C	CONDUIT	PFC	POWER FACTOR CORRECTION CAPACITORS
CAB	CABINET	PFD	PULL FUSE DISCONNECT
CB	CIRCUIT BREAKER	PH	PHASE
CBV	CABLE BY VENDOR, INSTALLED BY CONTRACTOR	PIT	PRESSURE INDICATION TRANSMITTER
CCTV	CLOSED CIRCUIT TELEVISION	PLC	PROGRAMMABLE LOGIC CONTROLLER
CKT	CIRCUIT	PNL	PANEL
CLG	CEILING	PP	POWER PANEL, POWER POLE
CL2	CHLORINE	PR	PAIR
CP	CONTROL PANEL	PRI	PRIMARY
CPT	CONTROL POWER TRANSFORMER	PS	PRESSURE SWITCH
CR	CONTROL RELAY, CORROSION RESISTANT	PT	POTENTIAL TRANSFORMER
CS	CONTROL STATION	PTZ	PAN-TILT-ZOOM
CT	CURRENT TRANSFORMER	PVC	POLYVINYL CHLORIDE
CTRL	CONTROL	REC	RECEPTACLE
CU	COPPER	REQ'D	REQUIRED
CV	CONTROL VALVE	RGS	RIGID GALVANIZED STEEL
DB	DECIBEL	RMC	RIGIDREMOTE TELEMETRY UNIT
DC	DIRECT CURRENT	R/S	RUN/STOP HAND SWITCH
DCS	DISTRIBUTED CONTROL SYSTEM	RVSS	REDUCED VOLTAGE SOFT STARTER
DET	DUAL ELEMENT TIME DELAY	SCCR	SHORT CIRCUIT CURRENT RATING
DISC	DISCONNECT	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
DN	DOWN	SEC	SECONDARY
DPDT	DOUBLE POLE DOUBLE THROW	SP	SPARE
DS	DISCONNECT SWITCH	SPEC	SPECIFICATION
DWG	DRAWING	SPD	SURGE PROTECTION DEVICE
EC	EMPTY CONDUIT	SS	SELECTOR SWITCH
EF	EXHAUST FAN	SST	STAINLESS STEEL
EHH	ELECTRICAL HANDHOLE	SV	SOLENOID VALVE
EL, ELEV	ELEVATION	SW	SWITCH
ELTU	ELECTRONIC TRIP UNIT	SWBD	SWITCHBOARD
EMER	EMERGENCY	SWGR	SWITCH GEAR
EMH	ELECTRICAL MANHOLE	TEL	TELEPHONE
EMT	ELECTRICAL METALLIC TUBING	TEMP	TEMPERATURE
ENCL	ENCLOSURE	TEW	THERMOUPLE EXTENSION WIRE
EPFR	EXPLOSION PROOF	TMTU	THERMAL-MAGNETIC TRIP UNIT
EQUIP	EQUIPMENT	TS	TEMPERATURE SWITCH
EWC	ELECTRIC WATER COOLER	TYP	TYPICAL
EWH	ELECTRIC WATER HEATER	UG	UNDERGROUND
EXIST	EXISTING	UH	UNIT HEATER
FA	FIRE ALARM	UON	UNLESS OTHERWISE NOTED
FAAP	FIRE ALARM ANNUNCIATOR PANEL	UPS	UNINTERRUPTIBLE POWER SUPPLY
FACP	FIRE ALARM CONTROL PANEL	V	VOLTS
FDR	FEEDER	VAC	VOLTS ALTERNATING CURRENT
FIXT	FIXTURE	VFD	VARIABLE FREQUENCY DRIVE
FLA	FULL LOAD AMPS	WH	WATT-HOUR
FLOUR	FLUORESCENT	WP	WEATHERPROOF
FMC	FLEXIBLE METALLIC CONDUIT	XPFR	TRANSFORMER
FS	FLOW SWITCH	XP	EXPLOSION PROOF
FT	FEET OR FOOT		
FUT	FUTURE		
FVNR	FULL VOLTAGE NON-REVERSING STARTER		
FWE	FURNISHED WITH EQUIPMENT		
G, GND	GROUND		
GALV	GALVANIZED		
GEC	GROUNDING ELECTRODE CONDUCTOR		
GEN	GENERATOR		
GFI	GROUND FAULT INTERRUPTER		
GFCI	GROUND FAULT CIRCUIT INTERRUPTER		
HDG	HOT DIPPED GALVANIZED		
HH	HANDHOLE		
HOA	HAND-OFF-AUTO		
HP	HORSE POWER		
HPF	HIGH POWER FACTOR		
HPS	HIGH PRESSURE SODIUM		
HTR	HEATER		
HV	HIGH VOLTAGE		
HZ	HERTZ		
ID	INTERIOR DIAMETER		
IMC	INTERMEDIATE METALLIC CONDUIT (GALVANIZED)		
IMT	INTERMEDIATE METALLIC		
IN, "	INCHES		
ITB	INSTRUMENT TERMINAL BOX		
JB	JUNCTION BOX		
K	THOUSAND		
KA	KILOVOLT AMPERE		
KIAC	THOUSAND AMPERES INTERRUPTING CURRENT		
KCMIL	THOUSAND CIRCULAR MILLS		
KVA	THOUSAND VOLT AMPERES		
KW	KILOWATTS		
KWH	KILOWATT-HOURS		
LA	LIGHTNING ARRESTOR		
LCP	LOCAL CONTROL PANEL		
LED	LIGHT-EMITTING DIODE		
LFCM	LIQUIDTIGHT FLEXIBLE METAL CONDUIT		
LFNC	LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT		
LI	LEVEL INDICATION TRANSMITTER		
LP	LIGHTING PANEL, LIGHT POLE		
LS	LEVEL SWITCH		
LTG	LIGHTING		
LV	LOW VOLTAGE		
M	MOTOR		
MA	MILLIAMPERE		
MCB	MAIN CIRCUIT BREAKER		
MCC	MOTOR CONTROL CENTER		
MCP	MOTOR CIRCUIT PROTECTOR		
MDP	MAIN DISTRIBUTION PANEL		
MFR	MANUFACTURER		
MH	MANHOLE		
MIN	MINIMUM		
MLO	MAIN LUGS ONLY		
MSB	MAIN SWITCHBOARD		
MTD	MOUNTED/MOUNTING		
MTG	MOUNTING		
MTS	MANUAL TRANSFER SWITCH		
MV	MEDIUM VOLTAGE		

2		FIRE ALARM SYSTEM	
	110	AUDIO/VISUAL ALARM INDICATOR (HORN/STROBE) NUMBER INDICATES STROBE CANDELLA RATING WHEN OTHER THAN 15	
		HORN	
		MANUAL PULL STATION	
		FIRE ALARM CONTROL PANEL	
		BELL	
		FIRE ALARM ANNUNCIATOR STATION	
		FLOW SWITCH	
		VALVE TAMPER SWITCH	
		END OF LINE RESISTOR	
		FLAME DETECTOR	
		SMOKE DETECTOR, MULTISENSOR	
	I	SMOKE DETECTOR IONIZATION	
	P	SMOKE DETECTOR PHOTOELECTRIC	
	D	DUCT MOUNTED SMOKE DETECTOR	
	H	THERMAL DETECTOR (FIXED AND RATE OF RISE) H-HIGH TEMPERATURE	
		SIGNAL INPUT MODULE	
		SIGNAL MODULE	

4		GENERAL ELECTRICAL NOTES	
1. CONTRACTOR RESPONSIBILITIES:			
1.1.	THE CONTRACTOR SHALL READ AND UNDERSTAND THE ENTIRE SET OF CONSTRUCTION DOCUMENTS. THIS INCLUDES BUT IS NOT LIMITED TO THE PLANS AND SPECIFICATIONS FOR ALL DISCIPLINES. THIS WILL ENSURE THAT HE UNDERSTANDS THE FULL SCOPE OF WORK AND IS ABLE TO CONVEY THE REQUIRED MATERIALS AND METHODS OF INSTALLATION TO THE HIS ESTIMATORS, SUPPLIERS AND INSTALLERS.		
1.2.	THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS.		
1.3.	PROVIDE MEANS TO FURNISH AND INSTALL.		
1.4.	THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE. DO NOT SCALE FROM THESE DRAWINGS.		
1.5.	WHERE JOB CONDITIONS REQUIRE CHANGES FROM THE CONTRACT DOCUMENTS THAT DO NOT CHANGE THE SCOPE OF INSTALLATION OR NATURE OF THE WORK REQUIRED, THE CONTRACTOR SHALL MAKE SUCH CHANGES WITHOUT ANY ADDITIONAL COST TO THE OWNER. NO OTHER CHANGES MAY BE MADE WITHOUT WRITTEN CONSENT FROM THE ENGINEER AND OWNER.		
1.6.	MOUNTING HEIGHTS INDICATED ARE TO THE CENTER OF THE DEVICE U.O.N.		
1.7.	REFERENCE ALL SPECIFICATIONS, DRAWINGS AND CONTRACT DOCUMENTS FOR ADDITIONAL REQUIREMENTS AND CONTRACT RESPONSIBILITIES PRIOR TO COMMENCING WORK.		
1.8.	THE GENERAL NOTES STATED ON THIS DRAWING ARE APPLICABLE TO ALL DRAWINGS AND SCOPE OF WORK UNDER THIS CONTRACT UNLESS NOTED OTHERWISE.		
1.9.	ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT NFPA, NEC, NESC AND LOCAL CODES INCLUDING OWNERS STANDARDS AND REQUIREMENTS.		
1.10.	CONTRACTOR SHALL COORDINATE WITH THE LOCAL ELECTRICAL UTILITY TO ESTABLISH NEW ELECTRICAL SERVICE(S) AND FINAL CONNECTIONS TO PROVIDE UTILITY POWER AS REQUIRED TO INCLUDE ESTABLISHING TEMPORARY UTILITY ACCOUNT TO PROVIDE ELECTRICAL POWER FOR START-UP AND COMMISSIONING.		
1.11.	THE ELECTRICAL INSTALLATION SHALL EXCEED THE REQUIREMENTS OF ALL APPLICABLE NECA/NEIS STANDARDS.		
1.12.	CONTRACTOR SHALL PLAN AND COORDINATE ELECTRICAL CONSTRUCTION WITH ALL CRAFT/TRADE TO ACHIEVE AN EFFICIENT AND EFFECTIVE ELECTRICAL INSTALLATION.		
1.13.	THE SCHEDULING AND DURATION OF ANY PROCESS OR FACILITY SHUTDOWN TO REMOVE AND/OR INSTALL EQUIPMENT SHALL BE COORDINATED IN ADVANCE WITH FACILITY MANAGEMENT, ENGINEER, OWNER OR OWNER REPRESENTATIVE.		
2. ELECTRICAL EQUIPMENT:			
2.1.	600V RATED ELECTRICAL EQUIPMENT SHALL HAVE AN AMPERE INTERRUPTING CAPACITY (AIC) RATINGS AS SHOWN ON THE CONTRACT DRAWINGS.		
2.2.	EQUIPMENT SHALL BE ARRANGED AND INSTALLED TO COMPLY WITH ALL CODE-REQUIRED, MANUFACTURER-RECOMMENDED AND HEAT-DISSIPATION CLEARANCES.		
2.3.	EQUIPMENT INSTALLATIONS AND PLACEMENTS SHALL COMPLY WITH NEC ARTICLE 110 FOR ALL CLEARANCE REQUIREMENTS.		
2.4.	EQUIPMENT SHALL FIT INTO THOSE SPACES AS SHOWN ON THE CONTRACT DRAWINGS. CONTRACTOR IS RESPONSIBLE TO PROVIDE EQUIPMENT WHICH MEETS THE SPACE REQUIREMENTS.		
2.5.	CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS REQUIRED FOR MAKING FINAL CONNECTIONS FOR ALL EQUIPMENT INSTALLED AND/OR MODIFIED UNDER CONTRACT.		
3. POWER AND CONTROL SYSTEM RACEWAYS:			
3.1.	EXPOSED CONDUIT SHALL BE RIGID ALUMINUM CONDUIT (RAC), GRS, IMC AND EMT ARE NOT ACCEPTABLE.		
3.2.	CONCEALED CONDUIT EMBEDDED IN CONCRETE SHALL BE SCH-40 PVC		
3.4.	DIRECT-BURIED CONDUIT SHALL BE DIRECT-BURIED SCH-80 PVC		
3.5.	TRANSITIONS THROUGH FINISHED GRADE AND/OR CONCRETE SHALL BE PVC-COATED RAC CONDUIT.		
3.6.	DRAWINGS DEPICT MAJOR DUCTBANK, CABLE-TRAY, BUS-DUCT, WIRE-WAY, TRENCH/FLOOR DUCTS, RACEWAY, CONDUIT, ETC., TO INCLUDE CABLE, CONDUCTOR AND WIRING IN SCHEMATIC AND/OR DIAGRAMMATIC FORMATS. THE CONTRACTOR SHALL REFERENCE ALL EQUIPMENT SPECIFICATIONS AND MANUFACTURER INSTRUCTIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.		
3.7.	RACEWAY INSTALLATION AND/OR ARRANGEMENT LAYOUTS ARE NOT TYPICALLY SHOWN ON THE DRAWINGS. CONTRACTOR SHALL DEVELOP LOGICAL GROUPINGS, ROUTING AND MARSHALLING OF DUCTBANK, CABLE-TRAY, BUS-DUCT, WIRE-WAY, TRENCH/FLOOR DUCT, RACEWAY, CONDUIT, ETC., THESE SHALL NOT BE ROUTED THROUGH OR INTERFERE WITH ANY STRUCTURAL ELEMENTS. CONTRACTOR SHALL SUBMIT THESE RACEWAY INSTALLATION AND/OR ARRANGEMENT LAYOUTS PER THE SPECIFICATIONS FOR ENGINEER REVIEW PRIOR TO INSTALLATION.		
3.8.	RACEWAY ROUTINGS SHALL BE ORGANIZED AND GROUPED IN A PRACTICAL MANNER TO MINIMIZE CROSS-OVERS AND SADDLES. RACEWAY INSTALLATIONS SHALL BE ARRANGED TO ENTER EQUIPMENT FOR DIRECT CONDUCTOR TERMINATIONS.		
3.9.	RACEWAYS SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED OR SHOWN. THESE SHALL RUN PARALLEL TO LANDSCAPE AND STRUCTURAL FEATURES WHILE THE BENDS AND TURNS SHALL BE MADE BY MEANS OF LARGE RADIUS FITTINGS.		
3.10.	PROVIDE FLEXIBLE RACEWAY CONNECTIONS TO ALL EQUIPMENT SUBJECT TO MOVEMENT AND/OR VIBRATION. CONTRACTOR SHALL MAKE RACEWAY CONNECTIONS COMPLETE AND IN ACCORDANCE WITH THE SPECIFICATIONS.		
3.11.	CONTRACTOR SHALL PROVIDE ALL REQUIRED PULL BOXES, TERMINAL BOXES AND JUNCTION BOXES FOR INSTALLATION FOR THE WIRING SYSTEMS IN ACCORDANCE WITH THE SPECIFICATIONS THOUGH ALL BOXES MAY NOT BE INDICATED ON THE DRAWINGS.		
3.12.	SPARE CONDUITS SHALL BE CAPPED OR PLUGGED WITH A PVC FITTING AND INCLUDE 200# TEST POLYPROPYLENE PULL STRING.		
4. CABLES/CONDUCTORS/WIRES:			
4.1.	GENERAL		
4.1.1.	QUANTITY AND SIZING OF CONDUCTORS, CABLING, WIRING AND RESPECTIVE RACEWAYS DEPICTED ON THE DRAWINGS ARE BASED UPON SELECTED STANDARD ELECTRICAL COMPONENTS OR EQUIPMENT WITH DIRECT ROUTED CONNECTIONS. CONTRACTOR MAY SUBMIT FOR REVIEW BY ENGINEER AND PRIOR TO INSTALLATION, LOGICAL CONDUCTOR AND RACEWAY GROUPINGS IN COMPLIANCE WITH APPLICABLE CODES, STANDARDS AND SPECIFICATIONS WITHOUT ADDITIONAL COST TO OWNER.		
4.1.2.	CONTRACTOR SHALL PROVIDE A CIRCUIT IDENTIFICATION LABEL AT EACH END OF EACH POWER, BRANCH, CONTROL AND INSTRUMENTATION CIRCUIT CABLE ASSEMBLY, CONDUCTOR OR WIRE.		
4.2.	POWER/FEEDER		
4.2.1.	CONTRACTOR SHALL NOT EXCEED CABLE MANUFACTURER SPECIFICATIONS FOR SIDE-WALL AND TENSION LIMITS WHEN DRAWING POWER CABLES INTO RACEWAYS.		
4.2.2.	CONTRACTOR SHALL DRAW POWER CABLES AND CONDUCTORS WITHIN RACEWAYS UTILIZING POLYMER LUBRICANT J OR APPROVED EQUAL.		
4.2.3.	NO SPLICES TO POWER CONDUCTORS AND/OR CABLING SHALL BE MADE WITHOUT ENGINEER APPROVAL. NO JUNCTIONS SHALL BE MADE BELOW GRADE WITHOUT APPROVAL OF ENGINEER.		
4.3.	POWER/BRANCH		
4.3.1.	RACEWAY AND WIRING FOR LIGHTING, RECEPTACLES AND BRANCH CIRCUITS ARE NOT TYPICALLY SHOWN ON THE CONTRACT DRAWINGS BUT SHALL BE PROVIDED AS REQUIRED UNDER THIS CONTRACT		
5. HARDWARE AND SUPPORTS:			
5.1.	ALL FASTENERS AND HARDWARE SHALL BE STAINLESS-STEEL 316L.		
5.2.	STRUT-CHANNEL SHALL NOT BE BENT, DRILLED, CUT OR OTHERWISE MODIFIED TO PRODUCE FITTINGS, BRACES OR BRACKETS FOR CONDUIT AND EQUIPMENT SUPPORTS.		
5.3.	MANUFACTURED STRUT-CHANNEL BRACES, BRACKETS, FITTINGS OR POST BASES SHALL BE PROVIDED AND INSTALLED WITH ASSOCIATED HARDWARE AND FASTENERS FOR CONDUIT AND EQUIPMENT SUPPORTS.		
5.4.	CONTRACTOR SHALL PROVIDE ALL SUPPORTS AND FASTENING HARDWARE FOR SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, CONTROL PANELS, ETC., AS REQUIRED IN THE SPECIFICATIONS.		
5.5.	CONTRACTOR SHALL PROVIDE AND INSTALL CONCRETE EMBEDDED LEVELING CHANNEL SUPPORTS FOR FLOOR MOUNTED EQUIPMENT SPANNING DISTANCES 48" AND GREATER IN LENGTH OR 36" AND GREATER IN DEPTH.		
5.6.	STRUCTURAL MEMBERS SHALL NOT BE DRILLED, CUT, WELDED TO, OR OTHERWISE MODIFIED WITHOUT PRIOR APPROVAL OF THE ENGINEER OF RECORD.		
6. RECEPTACLES/SWITCHES:			
6.1.	GENERAL		
6.2.0.2.	INDOORS OR NON PROCESS AREAS SHALL BE INSTALLED CONCEALED AND FLUSH WITH STAINLESS-STEEL DEVICE COVER PLATES.		
6.2.0.3.	OUTDOORS OR IN PROCESS AREAS SHALL BE INSTALLED WITHIN WEATHER-PROOF, CORROSION RESISTANT DEVICE BOXES WITH METALLIC IN-USE AND/OR WATER-TIGHT DEVICE COVER PLATES.		
6.3.	RECEPTACLES/GROUND FAULT CURRENT INTERRUPTING (GFCI)		
6.3.1.	SHALL BE INDIVIDUAL GFCI RECEPTACLE DEVICES RATED FOR 20A/120V WITH LED POWER INDICATOR.		
6.3.2.	GFCI RECEPTACLE DEVICES SHALL NOT SHARE NEUTRAL CONDUCTORS ON THREE-PHASE SYSTEMS		

REVNO	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021

SEAL
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LIFT STATION 1M ELECTRICAL REHABILITATION

ELECTRICAL

SYMBOLS, ABBREVIATIONS AND NOTES

PROJ. START DATE: 2020 JUN	SCALE	E0.00
MCE PROJ. # 01024-0180	HORIZONTAL: TBD	
DRAWN JG	VERTICAL: TBD	0
DESIGNED SS		REVISION
CHECKED MAC		
PROJ. MGR. AAH		

STATUS: ISSUED FOR BID

1 POWER SYMBOLS

MEDIUM VOLTAGE DRAWOUT POWER CIRCUIT BREAKER
NUMBER INDICATES CURRENT RATING

DISCONNECT SWITCH WITH FUSING WHERE NOTED

3 POLE THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKER
(FRAME SIZE)
(TRIP SIZE)

2 POLE THERMAL-MAGNETIC CIRCUIT BREAKER

DRAWOUT POWER CIRCUIT BREAKER WITH RMS TYPE SOLID STATE TRIP PROGRAMMER
(600P) DENOTES PLUG RATING WHEN LESS THAN SENSOR RATING IS REQUIRED

FIXED MOUNTED POWER OR MOLDED CASE CIRCUIT BREAKER WITH RMS TYPE SOLID STATE TRIP PROGRAMMER.
(400P)

AC COMBINATION FULL VOLTAGE NON-REVERSING STARTER (CONTINUOUS AMP RATING) (MOTOR CIRCUIT PROTECTOR) MAGNETIC BREAKER

MAGNETIC MOTOR STARTER

OVERLOAD RELAY

AC COMBINATION FULL VOLTAGE NON-REVERSING TWO SPEED TWO WINDING STARTER

AC COMBINATION FULL VOLTAGE REVERSING STARTER

AC COMBINATION REDUCED VOLTAGE NON-REVERSING STARTER

AUTO-TRANSFORMER TYPE STARTER

ELECTRONIC REDUCED VOLTAGE SOLID STATE STARTER -RVSS -B DENOTES WITH FULL SPEED BYPASS

CURRENT TRANSFORMER, RATIO AND QUANTITY DENOTED

POTENTIAL TRANSFORMER

TRANSFORMER- SIZE AS NOTED ON THE DRAWINGS

SHIELDED ISOLATION TRANSFORMER

DELTA/WYE TRANSFORMER CONNECTION W/GROUND

LIGHTNING ARRESTOR

FUSE- VOLTAGE AS REQUIRED AND SIZE NOTED ON THE DRAWINGS. CL DENOTES CURRENT LIMITING TYPE. NUMBER INDICATES QUANTITY WHEN LESS THAN 3.

PFD DENOTES PULL FUSE DISCONNECT TYPE

MICROPROCESSOR BASED METERING DEVICE

AMMETER - AMMETER SWITCH

VOLTMETER - VOLTMETER SWITCH

VARIABLE FREQUENCY DRIVE - VFD -B WHEN INDICATED DENOTES WITH STARTING AND FULL SPEED BYPASS

SUBMERSIBLE CABLES BY VENDOR

SHUNT TRIP

OVERLOAD DEVICE

OVER-TEMPERATURE DEVICE

PUSH-BUTTON STATION

PUSH-BUTTON STATION WITH LOCK-OUT FEATURE

SELECTOR SWITCH

INDICATING LIGHT

CONTROL STATION

LOCAL-OFF-REMOTE SELECTOR SWITCH CONTROL STATION

CONTROL STATION FURNISHED BY EQUIPMENT VENDOR

AUTOMATIC TRANSFER SWITCH -ATS, WITH SOLID STATE CONTROLS AND ACCESSORIES. -BI WHEN INDICATED DENOTES WITH BYPASS-ISOLATION SWITCH

DISCONNECT SWITCH - 480V 3POLE UNFUSED OR FUSED F DENOTES FUSING, ONLY WHERE INDICATED FIRST NUMBER DENOTES SWITCH AMP RATING SECOND NUMBER DENOTES FUSE SIZE WHEN PROVIDED.

JUNCTION BOX; SIZE AS REQUIRED BY N.E.C.

TERMINAL BOX; SIZE AS REQUIRED BY N.E.C. AND TO ACCOMMODATE ALL TERMINATIONS ON TERMINAL BLOCKS. TERMINATIONS TO INCLUDE SPARE WIRING.

PULL BOX; SIZE AS REQUIRED BY N.E.C.

LOCK FOR RESPECTIVE KEY INTERLOCK WITH KEY CAPTIVE IN LOCK

LOCK FOR RESPECTIVE KEY INTERLOCK

MOTOR STARTER/CONTROLLER (NON-COMBINATION - COMBINATION - MANUAL) RV DENOTES REDUCED VOLTAGE

LOCAL CONTROL PANEL WITH CONTROLLERS FURNISHED BY EQUIPMENT VENDOR.

ELECTRIC MOTOR (NUMBER INDICATES HORSEPOWER).

ELECTRIC NON-MOTOR LOAD (NUMBER INDICATES KVA).

POWER RECPT. WITH DISCONNECT-600V, 3 PHASE, 4 WIRE NUMBER DENOTES AMPERE RATING

POWER RECPT. 600V, 3 PHASE, 4 WIRE

POWER ON-OFF SNAP SWITCH, 1PH, 120V AC, 20A S2-DENOTES, 2 POLE, 240 VOLTS, 20A

20A TWO OR THREE POLE MANUAL STARTER,

MOTORIZED VALVE WITH CONTROLLER BY VENDOR

MOTORIZED VALVE

SOLENOID VALVE

SURGE SUPPRESSION DEVICE

ANSI DEVICE DESIGNATIONS
27 - UNDER VOLTAGE RELAY
32 - DIRECTIONAL POWER RELAY
40 - FIELD(OVER/UNDER EXCITATION)RELAY
45 - REV. PHASE OR PHASE-BAL. CURRENT RELAY
50 - INSTANTANEOUS OVERCURRENT
50G- GROUND INSTANTANEOUS OVERCURRENT
51 - AC INVERSE TIME OVERCURRENT RELAY
51G- GROUND AC INVERSE TIME OVERCURRENT RELAY
59 - OVERVOLTAGE RELAY
81 - FREQUENCY RELAY
86 - LOCKOUT RELAY
87 - DIFFERENTIAL PROTECTIVE RELAY

CONDUIT HOMERUN TO EQUIPMENT SHOWN. LINE TYPE DESIGNATES CONCEALED, EXPOSED, ETC. NUMBERS/TEXT DESIGNATE HOMERUN EQUIPMENT (I.E. PANEL BOARD CIRCUIT NUMBER).

GENERAL CONDUIT RUN CONCEALED IN FURRED WALLS AND CEILINGS, EXPOSED ELSEWHERE UNLESS OTHERWISE NOTED OR SPECIFIED.

CONCEALED CONDUIT IN FLOOR SLAB, UNDERGROUND, ETC.

EXISTING CABLE OR CONDUIT

CONDUIT TURNED DOWN

CONDUIT TURNED UP

INSTRUMENT DEVICE: LETTERS IDENTIFY DEVICE FUNCTION, NUMBERS WHERE INDICATED DENOTE LOOP NUMBER

PRESSURE CONTROLLER

PRESSURE SWITCH (PSH DENOTES PRESSURE SWITCH HIGH AND PSL DENOTES PRESSURE LOW)

DIFFERENTIAL PRESSURE SWITCH (dPSH DENOTES PRESSURE SWITCH HIGH AND dPSL DENOTES PRESSURE SWITCH LOW)

DIAPHRAGM LEAK DETECTOR

FLOW SWITCH (FSH DENOTES FLOW SWITCH HIGH AND FSL DENOTES FLOW SWITCH LOW)

LIMIT SWITCH

LIMIT SWITCH OPEN

LIMIT SWITCH CLOSED

PRESSURE TRANSMITTER (I DENOTES INDICATING TYPE AND PE DENOTES PRESSURE ELEMENT)

LEVEL TRANSMITTER (LE DENOTES LEVEL ELEMENT)

FLOW TRANSMITTER (FE DENOTES FLOW ELEMENT)

ANALYSIS TRANSMITTER (AE DENOTES ANALYSIS ELEMENT)

TEMPERATURE TRANSMITTER (TE DENOTES TEMPERATURE ELEMENT)

TEMPERATURE SWITCH (TSH DENOTES TEMPERATURE SWITCH HIGH AND TSL DENOTES TEMPERATURE SWITCH LOW)

LEVEL SWITCH (LSH DENOTES LEVEL SWITCH HIGH AND LSL DENOTES LEVEL SWITCH LOW. LE DENOTES LEVEL ELEMENT)

MANUAL OPERATED VALVE WITH POSITION CONTROLS

AIR OPERATED CONTROL VALVE

VIBRATION SWITCH (VE INDICATES VIBRATION ELEMENT)

MOISTURE SENSOR

TORQUE SWITCH

STROKE POSITIONER

SPEED TRANSMITTER (1 DENOTES INDICATOR)

STROBE LIGHT

SHEAR PIN

HORN

STROBE/HORN COMBINATION

MOTOR BEARING DETECTOR P= PUMP BEARING

MOTOR VIBRATION DETECTOR P= PUMP VIBRATION

— E — SITE ELECTRICAL
— E — EXISTING SITE ELECTRICAL
— T — SITE TELEPHONE
— T — EXISTING SITE TELEPHONE
— OHE — OVERHEAD ELECTRICAL UTILITY
— OHT — OVERHEAD TELEPHONE UTILITY
— UGE — UNDERGROUND ELECTRICAL UTILITY
— UGT — UNDERGROUND TELEPHONE UTILITY
— G — SITE GROUND
— G — EXISTING SITE GROUND

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Manatee County
FLORIDA

LIFT STATION 1M ELECTRICAL REHABILITATION

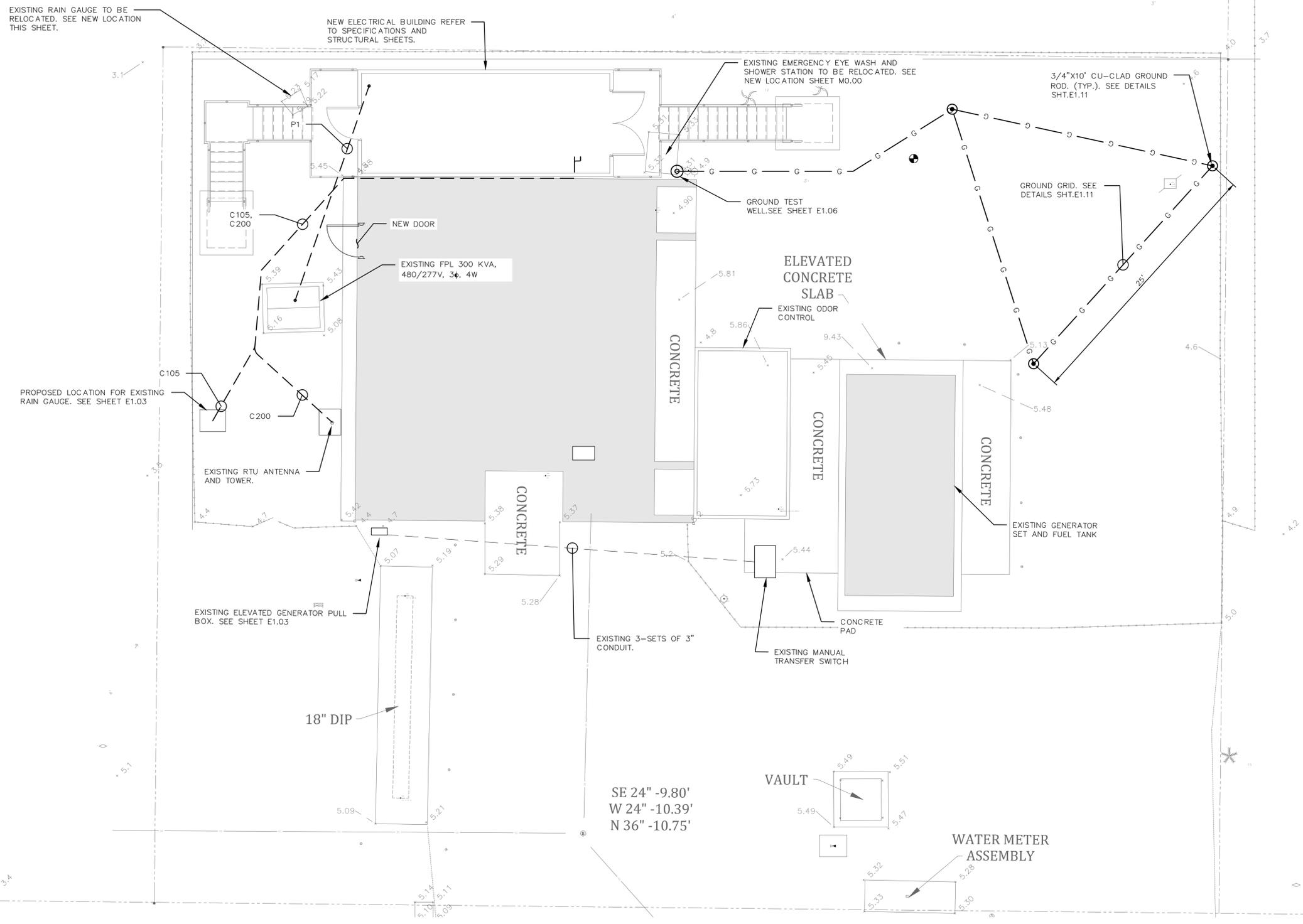
ELECTRICAL SYMBOLS

PROJ. START DATE: 2020 JUN
MCE PROJ. # 01024-0180
DRAWN: JG
DESIGNED: SS
CHECKED: MAC
PROJ. MGR: AAH

SCALE: TBD
HORIZONTAL: TBD
VERTICAL: TBD

E0.02
DRAWING NUMBER
0
REVISION

STATUS: ISSUED FOR BID



ELECTRICAL PARTIAL SITE PLAN

SCALE: 1"=5'-0"

REV. NO.	DESCRIPTION	DATE
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LIFT STATION 1M ELECTRICAL REHABILITATION

ELECTRICAL

ELECTRICAL SITE PLAN

POWER AND GROUND

PROJ. START DATE: 2020 JUN
MCE PROJ. # 01024-0180
DRAWN JG
DESIGNED XXX
CHECKED AAH
PROJ. MGR. AAH

SCALE	E1.00
HORIZONTAL: TBD	DRAWING NUMBER
VERTICAL: TBD	0
	REVISION

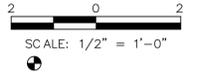
STATUS: ISSUED FOR BID

DEMO CONCRETE PAD AND RELOCATE RAIN GAUGE. COORDINATE NEW LOCATION WITH OWNER. SEE SHEET E1.03 FOR PROPOSED LOCATION.

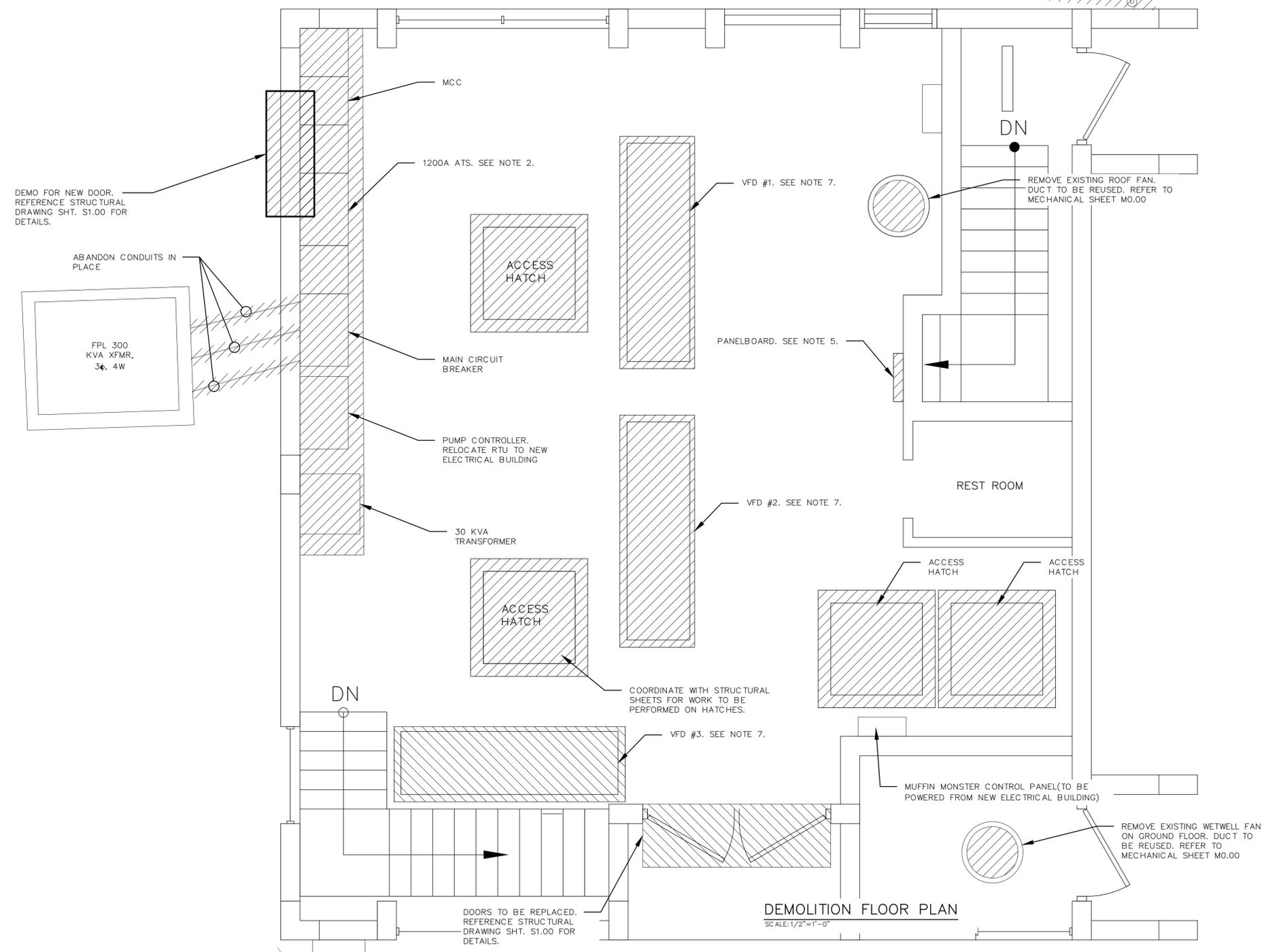
DEMO CONCRETE PAD AND RELOCATE EYE WASH AND SHOWER. SEE SHEET E1.03 FOR NEW LOCATION.

NOTES:

1. PROVIDE TEMPORARY POWER FOR CONSTRUCTION. REFER TO BYPASS PUMP SPECIFICATIONS.
2. EXISTING ATS SHALL BE RELOCATED TO NEW ELECTRICAL BUILDING AND INSTALLED IN A NEMA 1 ENCLOSURE.
3. REMOVE ALL EXPOSED CONDUIT AND WIRE NOT USED PER EQUIPMENT DEMOLITION.
4. REMOVE ALL WIRING IN UNDERGROUND CONDUIT THAT IS TO BE ABANDONED. CAP ALL ABANDONED CONDUIT.
5. INTERCEPT EXISTING CONDUIT BY INSTALLING NEMA 4X SS 42 CKT PANELBOARD. REPULL ALL NEW WIRE.
6. REMOVE EQUIPMENT PADS UNDERNEATH EQUIPMENT BEING DEMOLISHED. INSTALL NEW PADS UNDER NEW EQUIPMENT, SUCH AS NEW VFD JUNCTION BOXES. REFER TO STRUCTURAL DRAWINGS.
7. MAS711 PUMP MONITORING UNITS TO BE RELOCATED TO NEW VFDs. COORDINATE INSTALLATION IN FIELD.



- EQUIPMENT TO BE DEMOLISHED OR RELOCATED.



REV. NO.	DESCRIPTION	DATE
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REVISIONS		

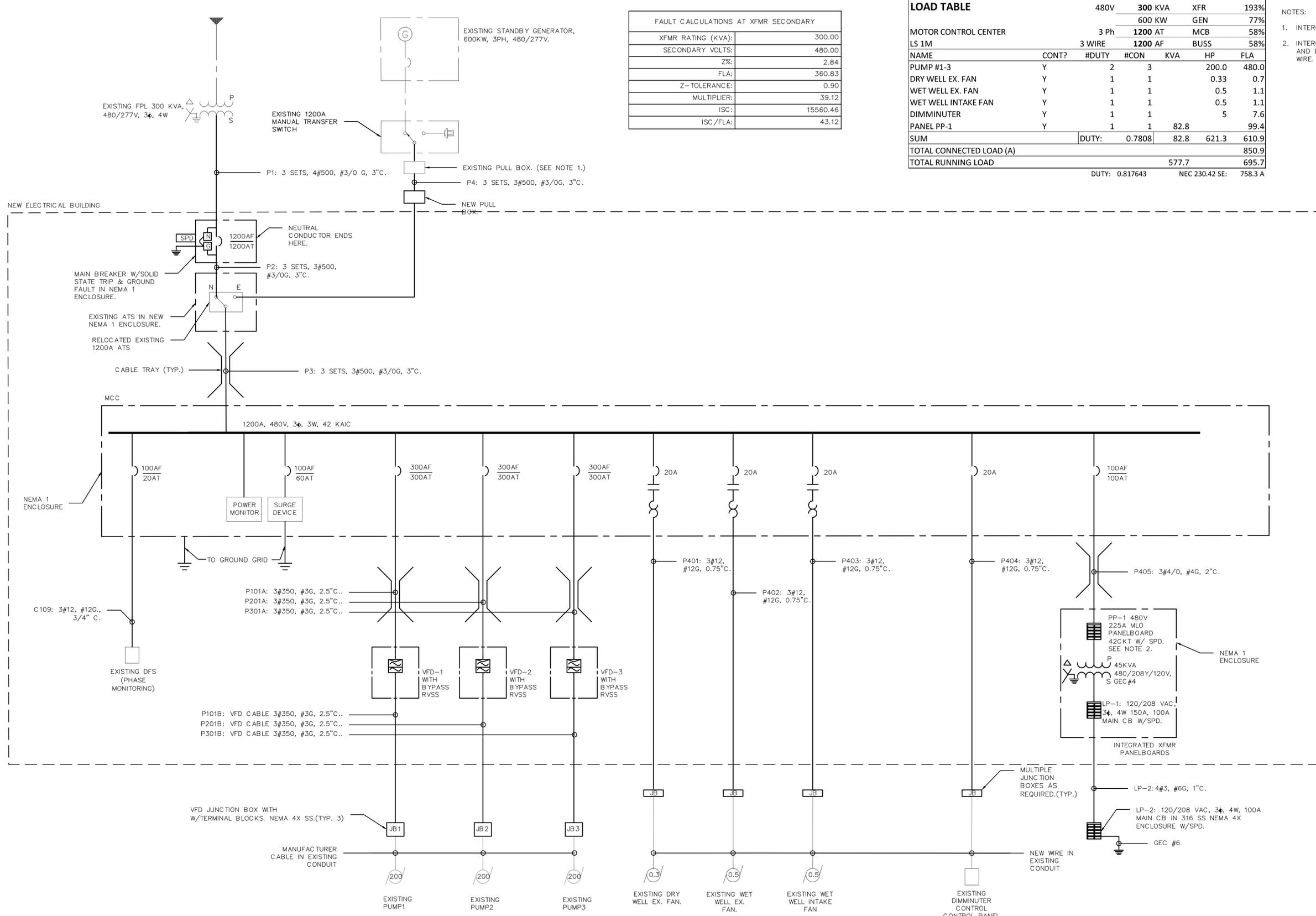
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LIFT STATION 1M ELECTRICAL REHABILITATION
ELECTRICAL DEMOLITION PLAN

PROJ. START DATE: 2020 JUN	SCALE	E1.01 DRAWING NUMBER
MCE PROJ. # 01024-0180	HORIZONTAL: 1/2"=1'-0"	
DRAWN JG	VERTICAL: TBD	
DESIGNED SS	0 REVISION	
CHECKED MAC		
PROJ. MGR. AAH		
STATUS: ISSUED FOR BID		



XFMR RATING (KVA):	300.00
SECONDARY VOLTS:	480.00
Z%:	2.84
FLA:	360.83
Z-TOLERANCE:	0.90
MULTIPLIER:	39.12
ISC:	15560.46
ISC/FLA:	43.12

MOTOR CONTROL CENTER LS 1M	480V		300 KVA	XFR	193%	
	3 Ph		600 KW	GEN	77%	
	3 WIRE		1200 AT	MCB	58%	
	3 WIRE		1200 AF	BUSS	58%	
NAME	CONT?	#DUTY	#CON	KVA	HP	FLA
PUMP #1-3	Y	2	3		200.0	480.0
DRY WELL EX. FAN	Y	1	1		0.33	0.7
WET WELL EX. FAN	Y	1	1		0.5	1.1
WET WELL INTAKE FAN	Y	1	1		0.5	1.1
DIMMINUTER	Y	1	1		5	7.6
PANEL PP-1	Y	1	1	82.8		99.4
SUM		DUTY:	0.7808	82.8	621.3	610.9
TOTAL CONNECTED LOAD (A)						850.9
TOTAL RUNNING LOAD				577.7		695.7
		DUTY:	0.817643	NEC 230.42 SE:		758.3 A

- NOTES:
- INTERCEPT EXISTING CONDUITS AND PULL NEW WIRES.
 - INTERCEPT CONDUIT FOR GENERATOR BATTERY CHARGER AND BLOCK HEATER AND ROUTE TO PP-1, PULL NEW WIRE.

REV. NO.	DESCRIPTION	DATE
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LIFT STATION 1M ELECTRICAL REHABILITATION

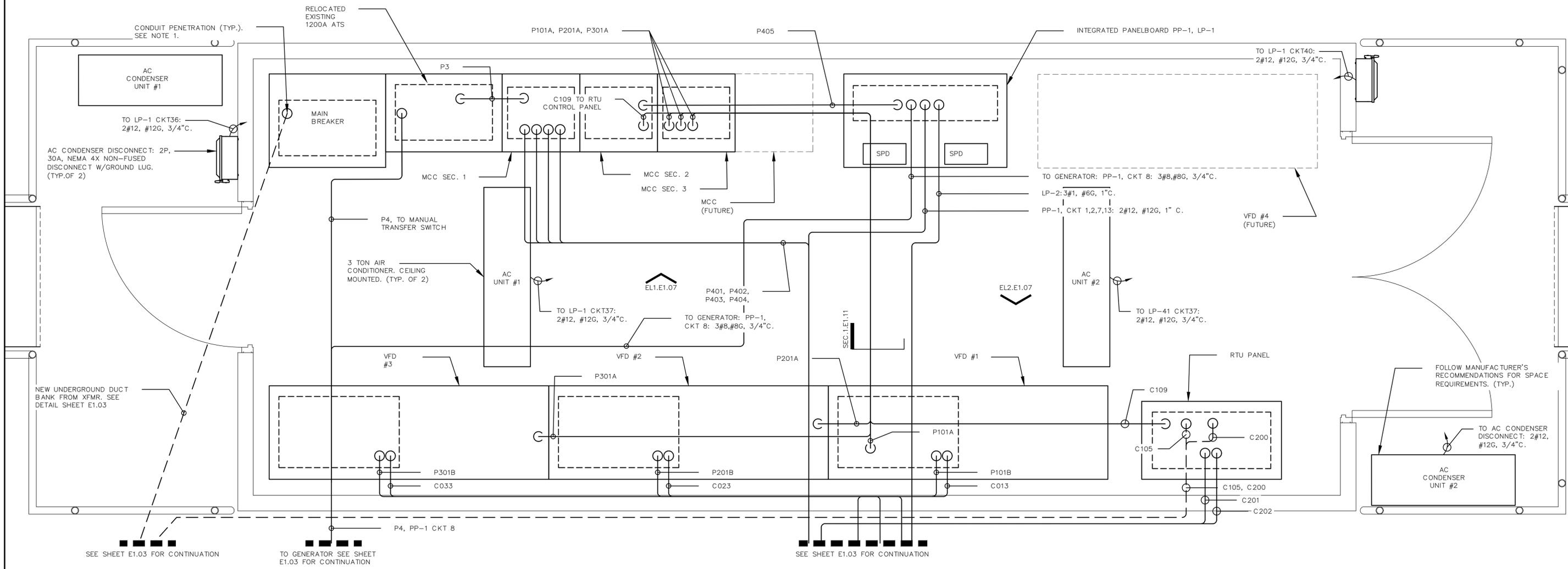
ELECTRICAL SINGLE LINE DIAGRAM

PROJ. START DATE: 2020 JUN	SCALE	E1.02
MCE PROJ. # 01024-0180	HORIZONTAL: TBD	
DRAWN: JG	VERTICAL: TBD	0
DESIGNED: SS		REVISION
CHECKED: MAC		
PROJ. MGR: AAH		

STATUS: ISSUED FOR BID

NOTES:

1. CONTRACTOR TO CORE DRILL ALL CONDUIT PENETRATIONS THROUGH CONCRETE AND SEAL AFTER INSTALLATION WITH ECOFLEX PRODUCT OR EQUAL. DUCT SEAL NOT ALLOWED. SEE SHEET E1.08 - LIGHTING PLAN FOR EQUIPMENT CUTOUT LOCATIONS.
2. CABLE TRAY REMOVED FOR CLARITY. SEE E1.05
3. EXISTING ATS TO BE MOUNTED IN 91.5"H X 30"W X 24" D, NEMA 1 ENCLOSURE BY UL CERTIFIED PANEL SHOP W/LABEL



ELECTRICAL BUILDING POWER PLAN
SCALE: 1"=1'-0"

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

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LIFT STATION 1M ELECTRICAL REHABILITATION

ELECTRICAL

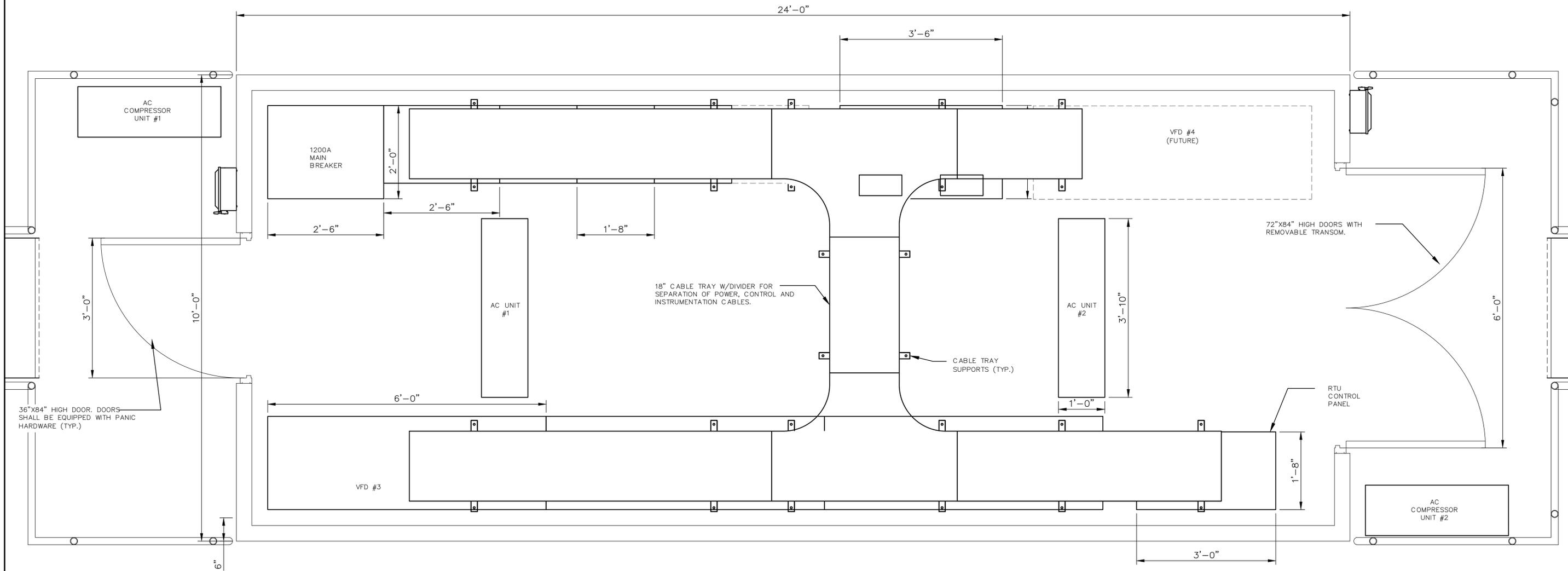
ELECTRICAL BUILDING POWER PLAN

PROJ. START DATE: 2020 JUN	SCALE: 1/2"=1'-0"	E1.04 DRAWING NUMBER
MCE PROJ. # 01024-0180	HORIZONTAL: 1/2"=1'-0"	
DRAWN: JG	VERTICAL: TBD	0 REVISION
DESIGNED: SS		
CHECKED: MAC		
PROJ. MGR: AAH		

STATUS: ISSUED FOR BID



SCALE: 1" = 1'-0"



ELECTRICAL BUILDING LAYOUT
SCALE: 1"=1'-0"

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
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LIFT STATION 1M ELECTRICAL REHABILITATION

ELECTRICAL BUILDING LAYOUT

PROJ. START DATE: 2020 JUN	SCALE
MCE PROJ. # 01024-0180	HORIZONTAL: 1"=1'-0"
DRAWN: JG	VERTICAL: TBD
DESIGNED: SS	
CHECKED: MAC	
PROJ. MGR: AAH	

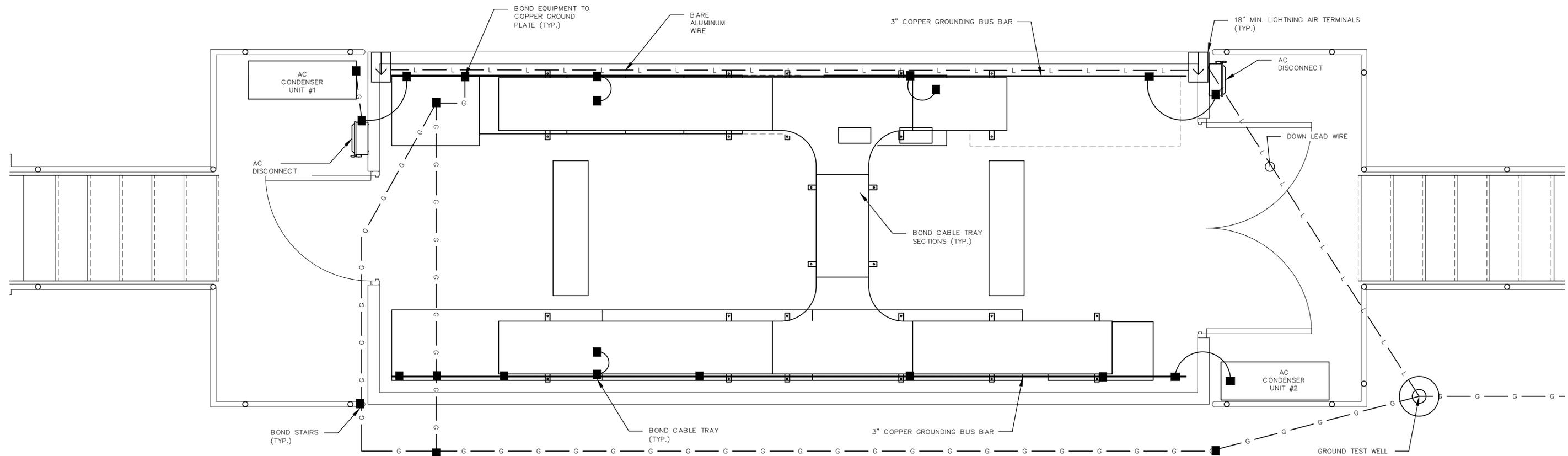
E1.05
DRAWING NUMBER
0
REVISION

STATUS: ISSUED FOR BID



NORTH

0 1 2
SCALE: 3/4" = 1'-0"



GROUNDING AND LIGHTNING PROTECTION PLAN
SCALE: 3/4"=1'-0"

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

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**LIFT STATION 1M ELECTRICAL
REHABILITATION**

**ELECTRICAL
GROUNDING AND LIGHTNING
PROTECTION PLAN**

PROJ. START DATE: 2020 JUN
MCE PROJ. # 01024-0180
DRAWN JG
DESIGNED SS
CHECKED MAC
PROJ. MGR. AAH

SCALE
HORIZONTAL: 3/4"=1'-0"
VERTICAL: TBD

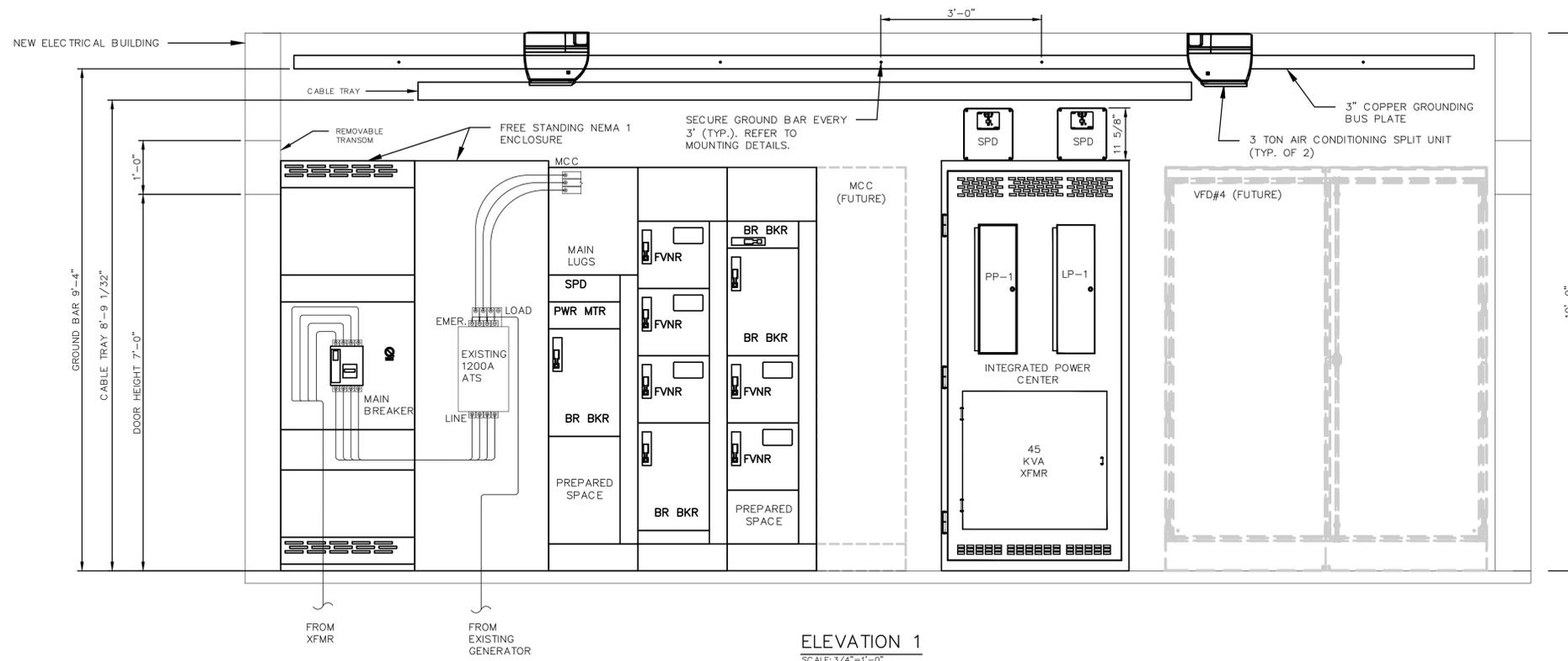
E1.06

DRAWING NUMBER

0

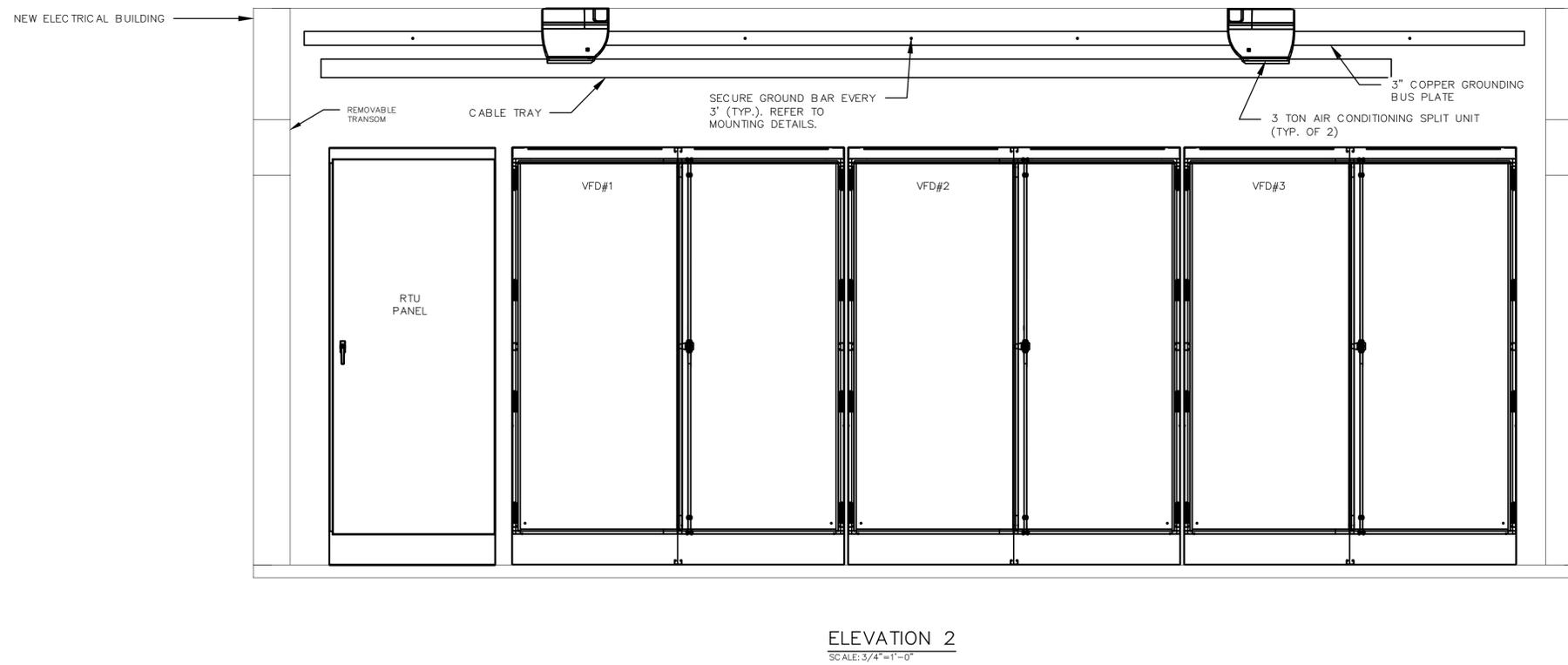
REVISION

STATUS: **ISSUED FOR BID**



NOTES:

- ATS TO BE MOUNTED IN THE FIELD BY UL CERTIFIED PANEL SHOP. ALL WIRING PERFORMED IN FIELD BY CONTRACTOR.



REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

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LIFT STATION 1M ELECTRICAL REHABILITATION

ELECTRICAL

MCB, ATS AND MCC ELEVATION

PROJ. START DATE: 2020 JUN	SCALE
MCE PROJ. # 01024-0180	HORIZONTAL: TBD
DRAWN JG	VERTICAL: TBD
DESIGNED SS	
CHECKED MAC	
PROJ. MGR. AAH	
STATUS:	

E1.07

DRAWING NUMBER

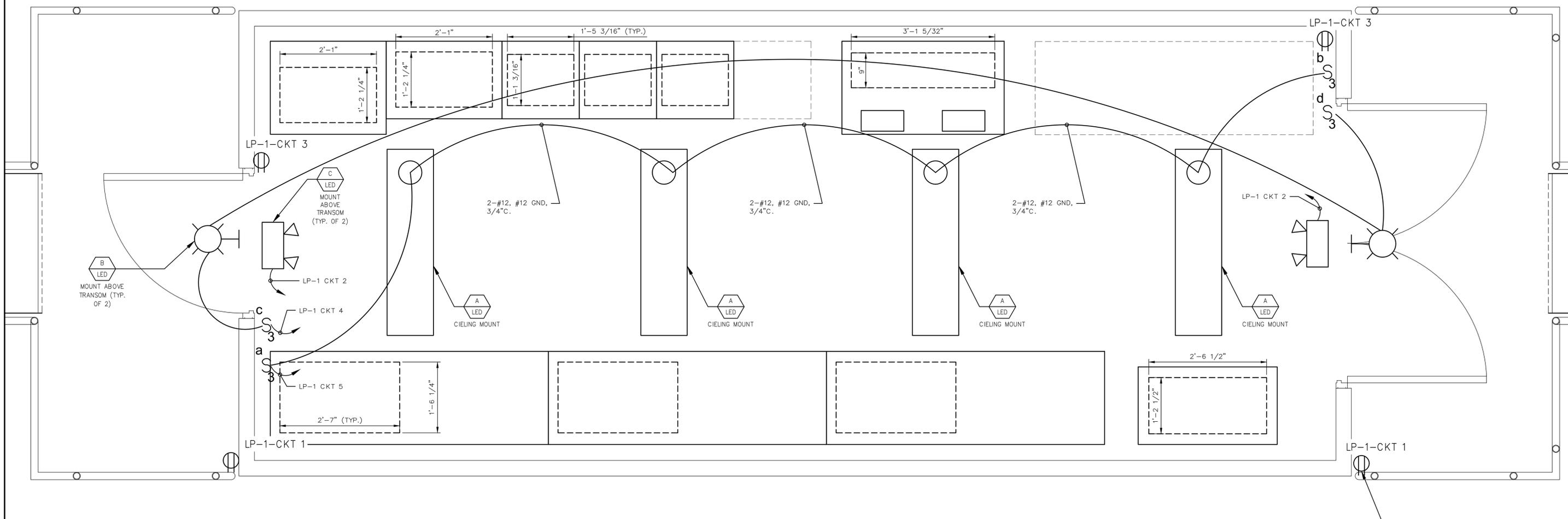
0

REVISION

ISSUED FOR BID



SCALE: 1" = 1'-0"



LIGHTING SCHEDULE

LETTER	DESCRIPTION	LAMPS	REMARKS	SYMBOL
A	4' SURFACE MOUNT LED LUMINAIRE. ROLLED STEEL HOUSING. IMPACT MODIFIED LINEAR FACETED REFRACTOR. INTEGRAL OCCUPANCY SENSOR.	LED MIN CRI 82, L90/60,000HRS, 39W, 4000K	LITHONIA LIGHTING MOD. WL4-40L-LPB40-NE57-SC OR APPROVED EQUAL.	
B	LED OUTDOOR RATED WALL PACK, TYPE II/WIDE DISTRIBUTION. INTEGRAL BALLAST & PHOTOCELL. FULL CUTOFF. DARK BRONZE.	20 LED 73W 4000K	LITHONIA LIGHTING DSXW2 LED, LSI INDUSTRIES XGBWM3, OR APPROVED ALTERNATE	
C	WALL MOUNT EMERGENCY EXIT LIGHT W/SIGN. INJECTION-MOLDED, FLAME-RETARDANT, HIGH-IMPACT, THERMOPLASTIC HOUSING. BATTERY BACKUP. TEST SWITCH FOR MANUAL ACTIVATION OF 30-SECOND DIAGNOSTIC TESTING. SELF DIAGNOSTIC TESTING EVERY 30 DAYS.	LED, RED LENS <1W, 120V	LITHONIA LIGHTING MOD. LHQM OR APPROVED EQUAL	
D	LED, CLASS 1, DIV 2 RATED, EXPLOSION PROOF FIXTURE WITH DOME REFLECTOR AND GLOBE GUARD.	LED, 40W, 120V.	KILLARK MODEL NO. EMLC-50-30 OR APPROVED EQUAL. WALL MOUNT AND CEILING MOUNT AS NECESSARY.	

LIGHTING PLAN
SCALE: 1"=1'-0"

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021

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LIFT STATION 1M ELECTRICAL REHABILITATION
ELECTRICAL LIGHTING PLAN

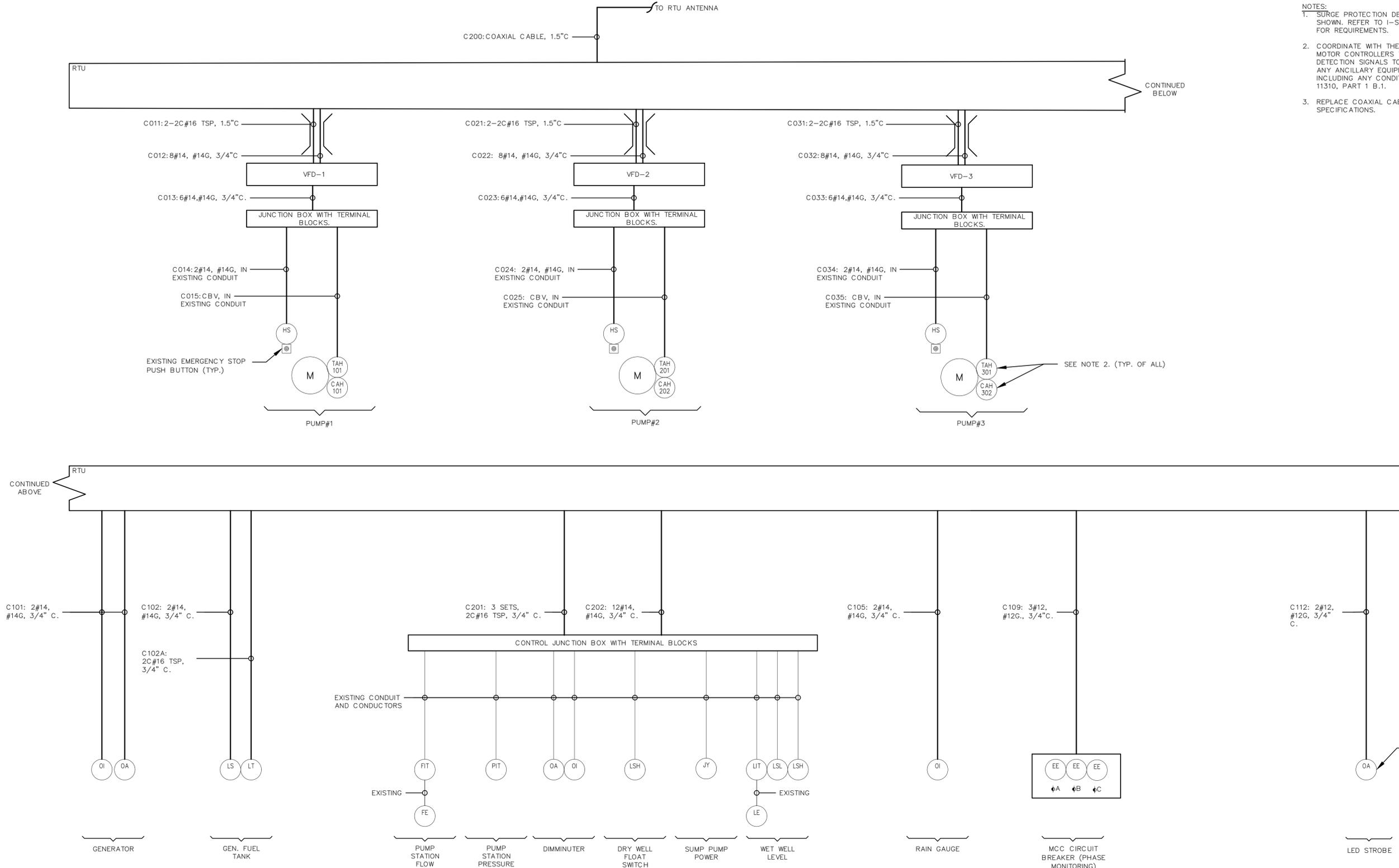
PROJ. START DATE: 2020 JUN
MCE PROJ. # 01024-0180
DRAWN JG
DESIGNED SS
CHECKED MAC
PROJ. MGR. AAH

SCALE
HORIZONTAL: 1"=1'-0"
VERTICAL: TBD

E1.08
DRAWING NUMBER
0
REVISION

STATUS:
ISSUED FOR BID

- NOTES:
1. SURGE PROTECTION DEVICES REQUIRED, THOUGH GENERALLY NOT SHOWN. REFER TO I-SHEETS AND CONTRACT SPECIFICATIONS FOR REQUIREMENTS.
 2. COORDINATE WITH THE PROVIDER OF THE VARIABLE FREQUENCY MOTOR CONTROLLERS TO PROVIDE THE THERMAL AND LEAK DETECTION SIGNALS TO THE DRIVE MANUFACTURER AND SUPPLY ANY ANCILLARY EQUIPMENT REQUIRED FOR THESE SIGNALS, INCLUDING ANY CONDITIONING DEVICES. SEE SPECIFICATIONS 11310, PART 1 B.1.
 3. REPLACE COAXIAL CABLE IN IT'S ENTIRETY PER DFS SPECIFICATIONS.



ELECTRICAL INTERCONNECTION
DIAGRAM
SCALE: NTS

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

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LIFT STATION 1M ELECTRICAL REHABILITATION

ELECTRICAL INTERCONNECTION DIAGRAM

PROJ. START DATE: 2020 JUN	SCALE	E1.09
MCE PROJ. # 01024-0180	HORIZONTAL: TBD	
DRAWN JG	VERTICAL: TBD	0
DESIGNED SS		REVISION
CHECKED MAC		
PROJ. MGR. AAH		

STATUS: ISSUED FOR BID

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE			POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.		
						A	B	C								
1	20	HOIST DRYWELL	0.27	1.0	3	2.1			3	6.5	1.8	ODOR CONTROL	20	2		
			0.27				2.1			1.8						
			0.27					2.1		1.8						
7	20	HOIST GROUND FLOOR	0.27	1.0	3	10.3			3	36.1	10	30KVA EXISTING GENERATOR TRANSFORMER	50	8		
			0.27				10.3			10						
			0.27					10.3		10						
13	20	HOIST OVER WET WELL	0.27	1.0	3	15.3			3	54.1	15	45KVA TRANSFORMER	70	14		
			0.27				15.3			15						
			0.27					15.3		15						
19	20	SPARE			3	0.0			3			SURGE PROTECTION DEVICE	20	20		
							0.0									
								0.0								
25	20	SPARE			3	0.0			3			SPARE	30	26		
							0.0									
								0.0								
31	20	SPARE			3	0.0			3			SPACE	20	32		
							0.0									
								0.0								
37	20	SPARE			3	0.0			3			SPACE		38		
							0.0									
								0.0								
PANEL PP-1 LOCATION MANATEE COUNTY LS1M BUILDING ELECTRICAL BUILDING NOTES: INTEGRATED PANELBOARD			TOTAL KVA 27.6 27.6 27.6			GRAND CONNECTED TOTAL KVA 82.8			SERVICE CHARACTERISTICS VOLTS: 480 PHASE: 3 WIRE: 3 10K MIN AIC SYMM, FULLY RATED ASSEMBLY						225 A MLO 0 A MCB	

PANEL SCHEDULE PP-1
SCALE: NTS

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE			POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.		
						A	B	C								
1	20	ELEC. BUILDING RECEPTACLES OUTSIDE	0.36	3.0	1	0.5			1	1.5	0.18	ELEC. BUILDING EMERG. EXIT LIGHT	20	2		
3	20	ELEC. BUILDING RECEPTACLES INSIDE	0.72	6.0	1		1.5		1	6.7	0.8	ELEC. BUILDING LIGHTING INSIDE	20	4		
5	20	ELEC. BUILDING OUTSIDE WALL PACKS	0.5	4.2	1			2.1	2	15.4	1.6	ELEC. BUILDING AC OUTDOOR UNIT #1	25	6		
7	15	ELEC. BUILDING AC INDOOR UNIT #1	0.1	1.0	2	1.7			2	15.4	1.6	ELEC. BUILDING AC OUTDOOR UNIT #2	25	10		
			0.1				1.7			1.6						
11	15	ELEC. BUILDING AC INDOOR UNIT #2	0.1	1.0	2			1.7	2	15.4	1.6	ELEC. BUILDING AC OUTDOOR UNIT #2	25	10		
			0.1					1.7		1.6						
15	20	SURGE PROTECTION DEVICE	0.1	0.8	3	5.4			3	44.1	5.3	PANEL LP-2	100	14		
			0.1				5.5			5.4						
			0.1					5.3		5.2						
21	20	SPARE			1	1.6			1	12.5	1.5	RTU CONTROL PANEL	20	20		
							0.0		1			SPARE	20	22		
23	20	SPARE			1			0.0	1			SPARE	20	24		
25	20	SPARE			1	0.0			1			SPARE	20	26		
27	20	SPARE			1			0.0	1			SPARE	20	28		
29	20	SPARE			1			0.0	1			SPARE	20	30		
31	20	SPARE			1	0.0			1			SPARE	20	32		
33	20	SPARE			1			0.0	1			SPARE	20	34		
35	20	SPARE			1			0.0	1			SPARE	20	36		
37	20	SPARE			1	0.0			1			SPARE	20	38		
39	20	SPARE			1			0.0	1			SPARE	20	40		
41	20	SPARE			1			0.0	1			SPARE	20	42		
PANEL LP-1 LOCATION MANATEE COUNTY LS1M BUILDING NEW ELECTRICAL BUILDING NOTES: INTEGRATED PANELBOARD			TOTAL KVA 9.2 8.7 9.1			GRAND CONNECTED TOTAL KVA 27.1			SERVICE CHARACTERISTICS VOLTS: 208Y/120 PHASE: 3 WIRE: 4 10K MIN AIC SYMM, FULLY RATED ASSEMBLY						150 A MLO A MCB	

PANEL SCHEDULE LP-1
SCALE: NTS

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE			POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.		
						A	B	C								
1	20	WEST DESK OUTLET	0.18	1.5	1	0.4			1	1.5	0.18	EMERGENCY LIGHTS	20	2		
3	15	FLOW METER	0.06	0.5	1		0.1		1			SPARE	20	4		
5	20	SPARE			1			0.2	1	1.7	0.2	BATHROOM LIGHT	20	6		
7	30	SPARE			1	0.2			1	1.7	0.2	OUTSIDE FLOODS	20	8		
9	20	E. WALL DRY LIGHTS	0.2	1.7	1		0.4		1	1.5	0.18	E. OUTLET	20	10		
11	20	SUMP PUMP	1.2	10.0	1			1.2	1			SPARE	20	12		
13	20	SCUBBER			1	0.0			1			SPARE	20	14		
15	20	ENTRANCE LIGHT	0.2	1.7	1		0.4		1	1.7	0.2	WEST DRY WELL LIGHTS	20	16		
17	20	CONTROL ROOM LIGHTS E	0.25	2.1	1			0.4	1	1.5	0.18	S. WALL DIMM. OUTLET	20	18		
19	20	CONTROL ROOM LIGHTS W	0.2	1.7	1	0.4			1	1.5	0.18	OUTSIDE E. WALL (SKID)	20	20		
21	20	SPARE			1		1.8		3	15.0	1.8	3 PHASE, 20AMP, RECEPT E. WALL	20	22		
23	20	SPARE			1			1.8			1.8					
25	30	UPS/GFI RECEPTICLE	2.5	20.8	1	4.3					1.8					
27	20	DAY TANK(FUEL)	1.5	12.5	1		2.7		1	10.0	1.2	CONTROL RM. EX.FAN	20	28		
29	20	WET WELL LIGHTS	0.2	1.7	1			1.5	1	10.8	1.3	FUTURE EX. FAN CR.	20	30		
31	20	SURGE PROTECTION DEVICE	0.1	0.8	3	0.1			1			SPARE	20	32		
			0.1				0.1		1			SPARE	20	34		
			0.1					0.1	1			SPARE	20	36		
37	20	SPARE			1	0.0			1			SPARE	20	38		
39	20	SPARE			1		0.0		1			SPARE	20	40		
41	20	SPARE			1			0.0	1			SPARE	20	42		
PANEL LP-2 LOCATION MANATEE COUNTY BUILDING OLD PUMP BUILDING NOTES:			TOTAL KVA 5.3 5.4 5.2			GRAND CONNECTED TOTAL KVA 16.0			SERVICE CHARACTERISTICS VOLTS: 208Y/120 PHASE: 3 WIRE: 4 10K MIN AIC SYMM, FULLY RATED ASSEMBLY						100 A MLO A MCB	

PANEL SCHEDULE LP-2
SCALE: NTS

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021

SEAL
AUBREY A. HAUDRICOURT, P.E.
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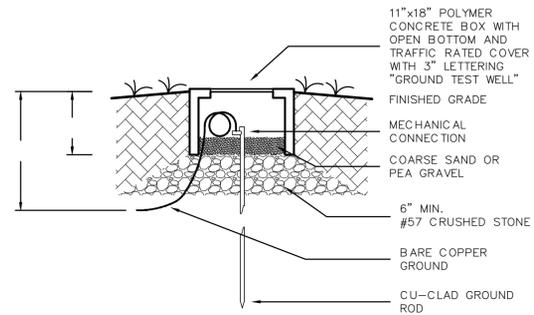
LIFT STATION 1M ELECTRICAL REHABILITATION
ELECTRICAL PANELBOARD SCHEDULES

PROJ. START DATE: 2020 JUN
 MCE PROJ. # 01024-0180
 DRAWN: JG
 DESIGNED: SS
 CHECKED: MAC
 PROJ. MGR: AAH

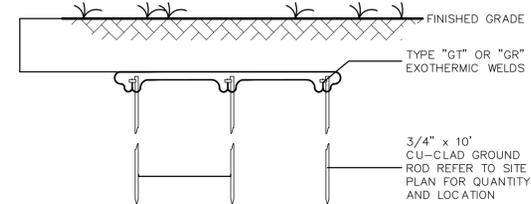
SCALE: HORIZONTAL: TBD
 VERTICAL: TBD

E1.10
 0 REVISION

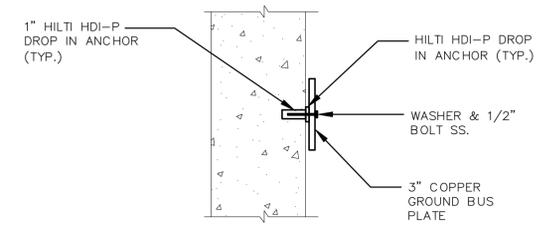
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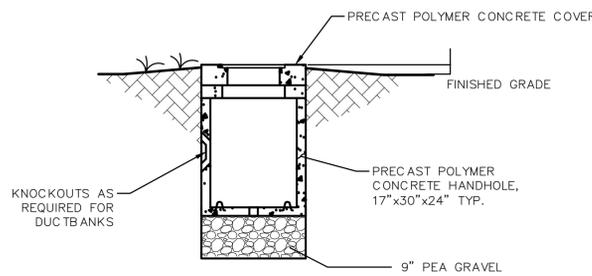
GROUND ROD TEST WELL
SCALE: N.T.S.



BELOW GRADE GROUND ROD/CABLE CONNECTION DETAIL
SCALE: N.T.S.

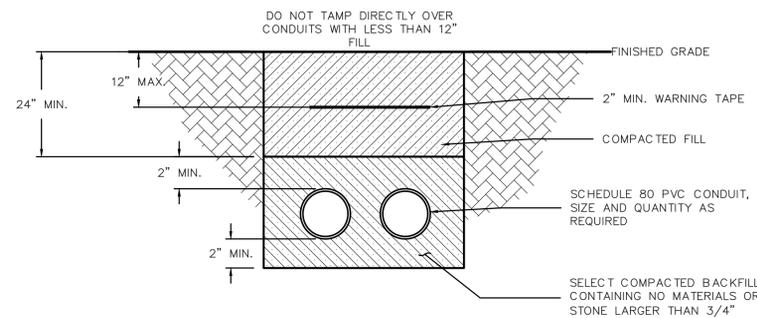


COPPER GROUND BUS PLATE MOUNTING DETAIL
SCALE: N.T.S.

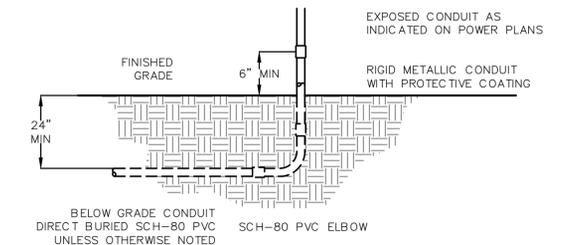


SMALL HANDHOLE DETAIL
SCALE: N.T.S.

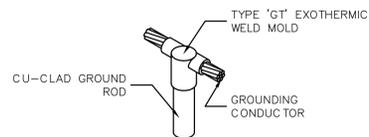
- SMALL HANDHOLE NOTES:**
- PROVIDE PRODUCTS OF ONE OF THE FOLLOWING:
 - STRONGWELL QUAZITE
 - OLD CASTLE
 - OR APPROVED EQUAL
 - MATERIAL: PRECAST POLYMER CONCRETE.
 - DUCT ENTRANCES SIZED AND LOCATED TO SUIT DUCTBANKS.
 - ENCLOSURES AND COVERS SHALL BE UL-LISTED.
 - ENCLOSURES, BOXES, AND COVERS SHALL COMPLY WITH TEST PROVISIONS OF ANSI/SCTE 77 FOR TIER 15 & 22 APPLICATIONS.
 - COVERS SHALL HAVE COEFFICIENT OF FRICTION OF NOT LESS THAN 0.50, IN ACCORDANCE WITH ASTM C1028.



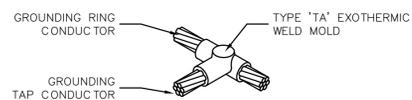
DIRECT BURIED DUCT BANK
SCALE: N.T.S.



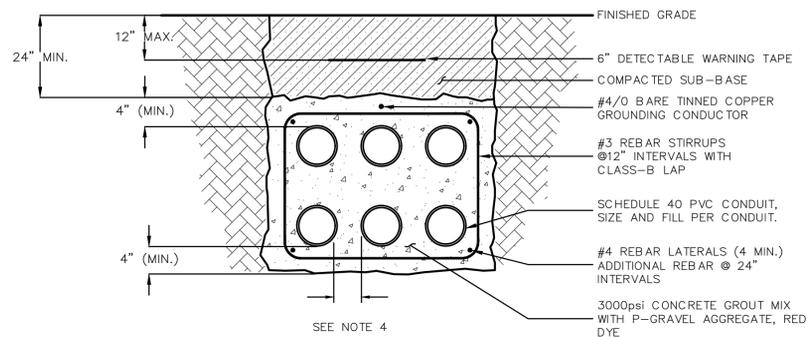
CONDUIT TRANSITION DETAIL
SCALE: N.T.S.



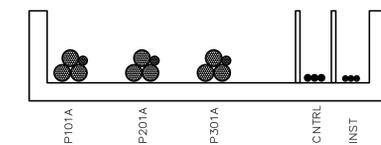
EXOTHERMIC WELD 'GT' CONNECTION
SCALE: N.T.S.



EXOTHERMIC WELD 'TA' CONNECTION
SCALE: N.T.S.



REINFORCED CONCRETE DUCT BANK
SCALE: N.T.S.



SECTION 1
NTS

NOTES:

- MINIMUM WIRE SIZE FOR ALL POWER CIRCUITS IS #12AWG CU UNLESS OTHERWISE NOTED.
- MINIMUM CONDUIT SIZE IS 3/4" TRADE SIZE.
- SWAB CLEAN EXISTING CONDUITS PRIOR TO PULLING NEW CIRCUITS.
- FOR LOW VOLTAGE DUCTBANKS MINIMUM SEPARATION BETWEEN CONDUITS SHALL BE 2".

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

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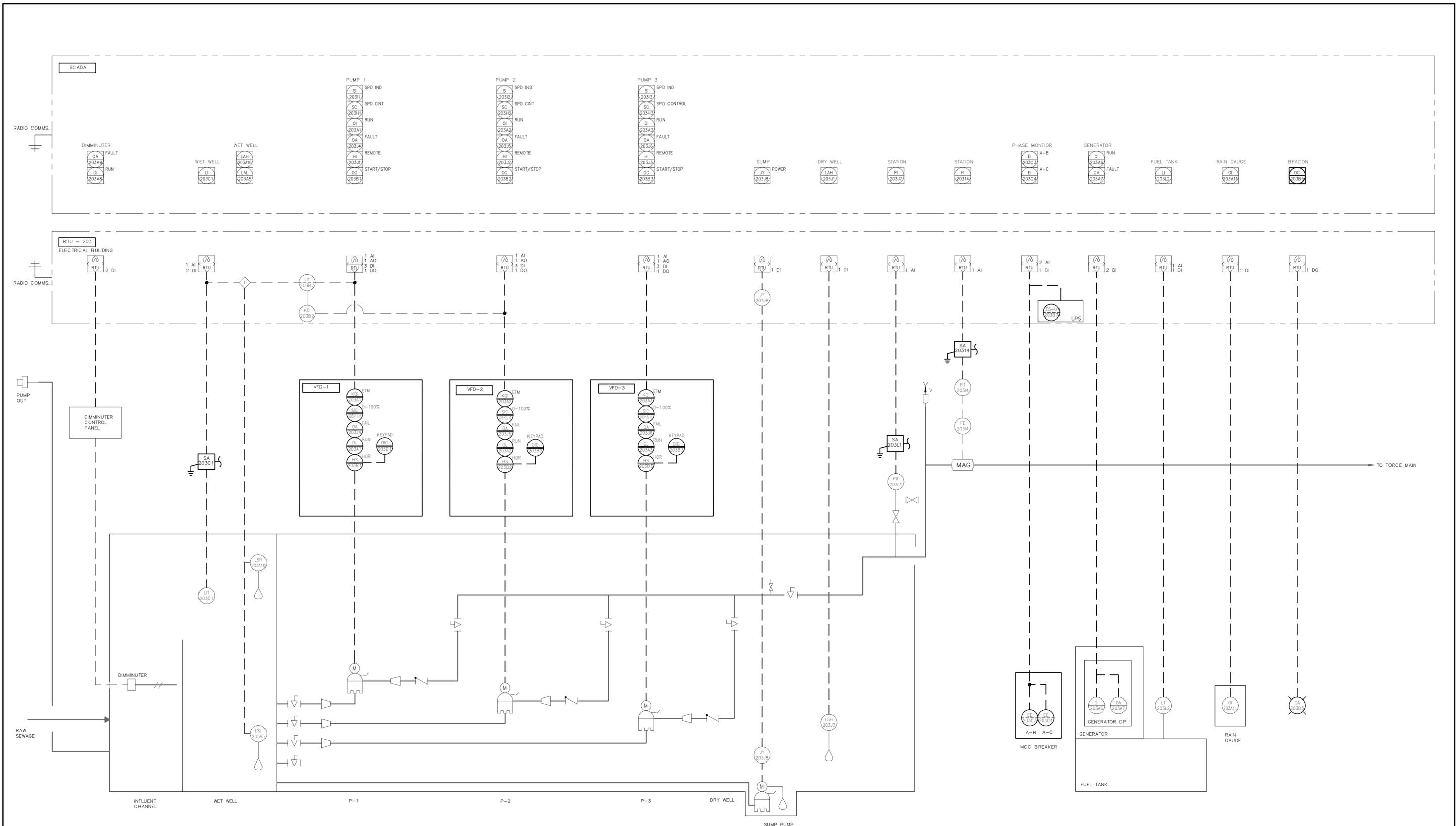
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LIFT STATION 1M ELECTRICAL REHABILITATION

ELECTRICAL DETAILS

PROJ. START DATE: 2020 JUN	SCALE	E1.11 DRAWING NUMBER
MCE PROJ. # 01024-0180	HORIZONTAL: TBD	
DRAWN JG	VERTICAL: TBD	
DESIGNED SS		
CHECKED MAC		
PROJ. MGR. AAH		0 REVISION
STATUS: ISSUED FOR BID		



REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021

SEAL

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LIFT STATION 1M ELECTRICAL REHABILITATION

INSTRUMENTATION

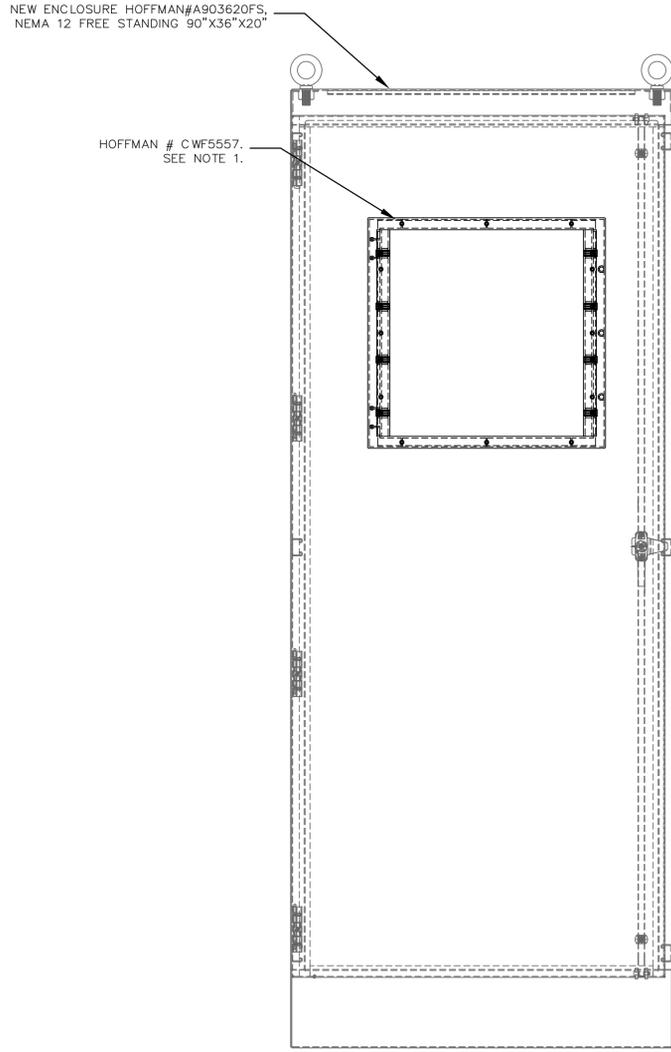
PROCESS AND INSTRUMENT DIAGRAM

PROJ. START DATE: 2020 JUN	SCALE	11.00
MCE PROJ. # 01024-0180	HORIZONTAL: TBD	
DRAWN JG	VERTICAL: TBD	0
DESIGNED MFF		REVISION
CHECKED MAC		
PROJ. MGR. AAH		

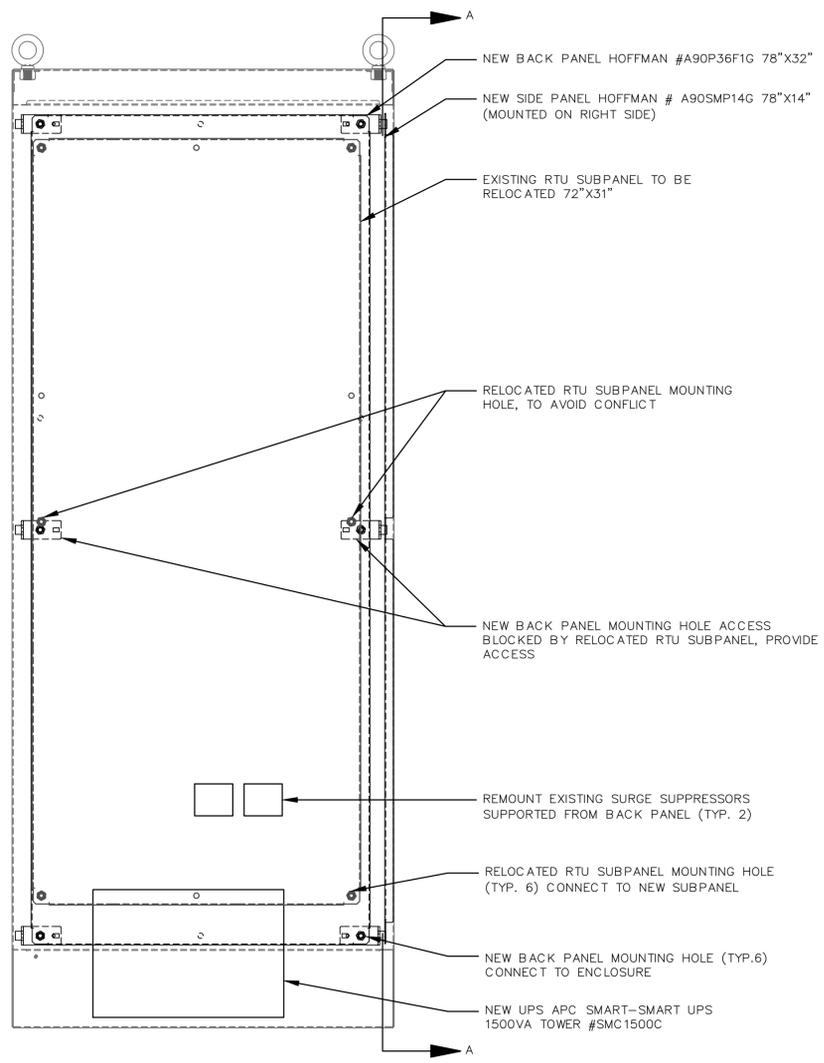
STATUS: ISSUED FOR BID

NOTES:

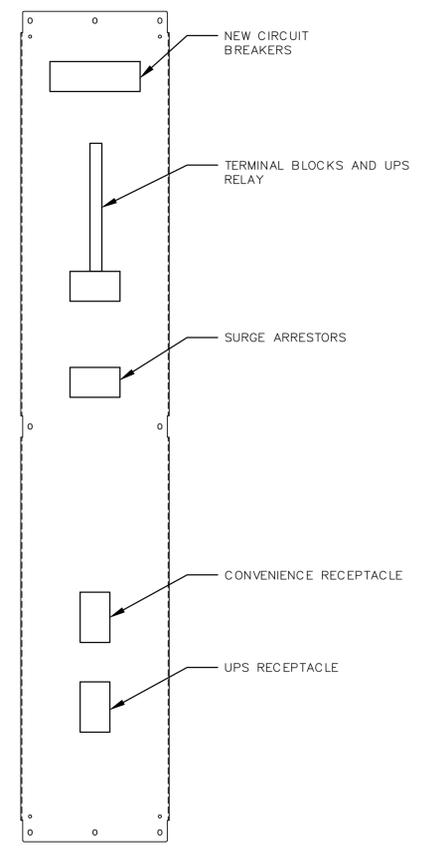
1. LOCATE WINDOW IN POSITION WHICH ALLOWS DFS-RTU TO BE VISIBLE WITHOUT OPENING THE PANEL DOOR
2. SUBPANEL LAYOUT AND SCHEMATIC ARE DIAGRAMATIC TO CONVEY MINIMUM REQUIREMENTS FOR FABRICATION AND INSTALLATION.
3. NEW SHUNT AND UPS COMMON ALARM SHALL BE WIRED TO SPARE INPUT B7. B7 IS NORMALLY CONFIGURED FOR ALARM IS SILENCED INDICATION AND SHALL BE CHANGED IN DFS SOFTWARE.



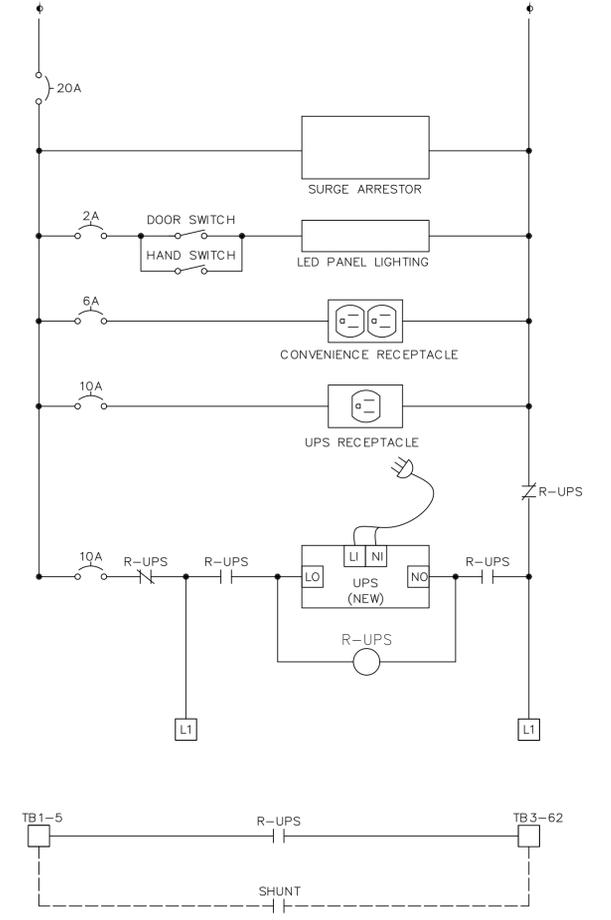
FRONT ELEVATION
SCALE: NTS



BACK PANEL
SCALE: NTS, SEE NOTE 2.



SIDE PANEL ELEVATION A
SCALE: NTS, SEE NOTE 2.



CONTROL PANEL SCHEMATIC DIAGRAM
SCALE: NTS, SEE NOTE 2.

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
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LIFT STATION 1M ELECTRICAL REHABILITATION

INSTRUMENTATION CONTROL PANEL

PROJ. START DATE: 2020 JUN	SCALE	11.01 DRAWING NUMBER
MCE PROJ. # 01024-0180	HORIZONTAL: TBD	
DRAWN JG	VERTICAL: TBD	0 REVISION
DESIGNED MFF	STATUS: ISSUED FOR BID	
CHECKED MAC		
PROJ. MGR. AAH		