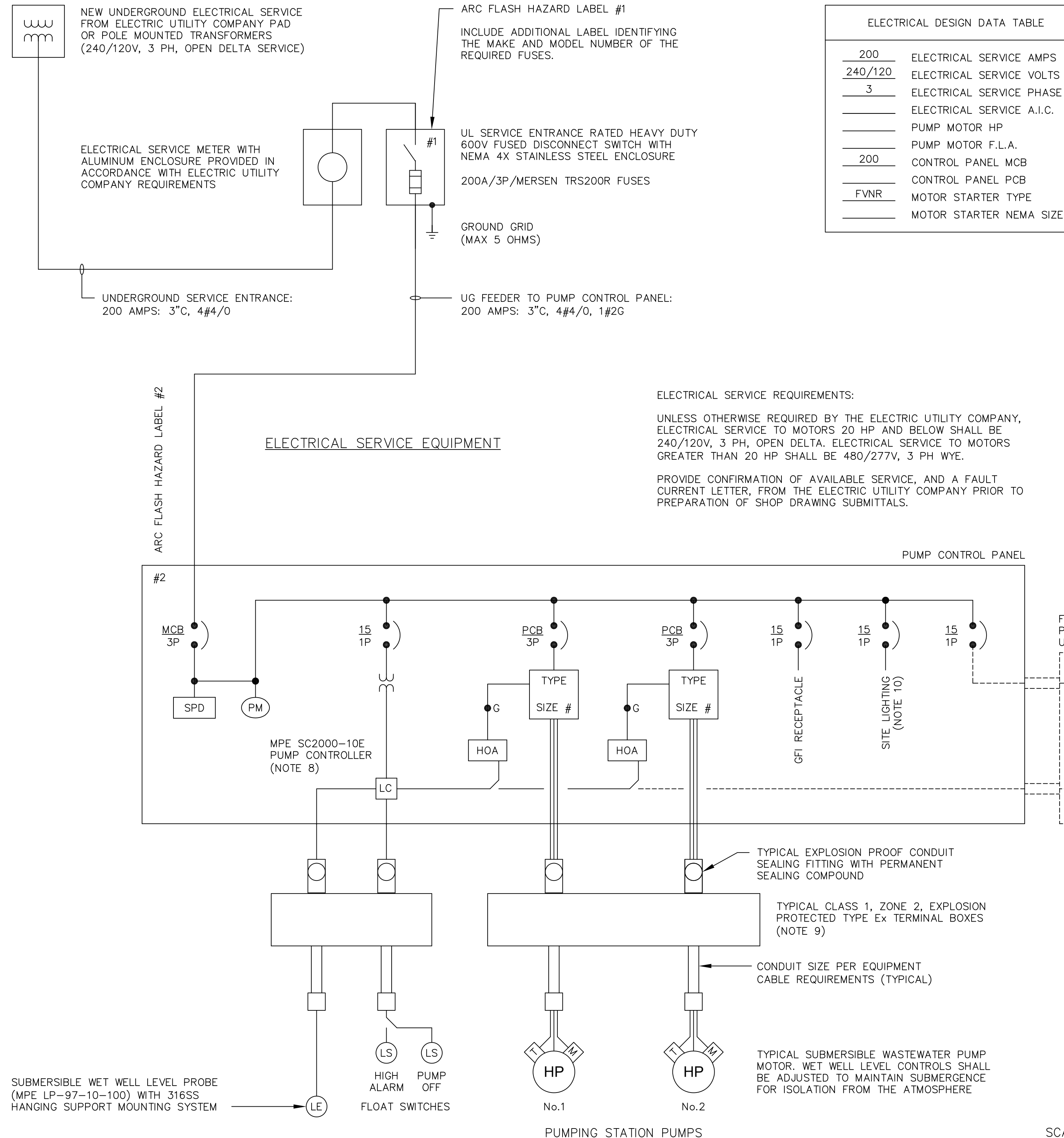


NOTES:

- DESIGN DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW THE GENERAL REQUIREMENTS. ALL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH ST. JOHNS COUNTY DESIGN STANDARDS AND SPECIFICATIONS.
- ALL MATERIAL SHALL BE NEW AND SHALL CONFORM WITH THE STANDARDS OF THE UNDERWRITERS' LABORATORIES, INC., AMERICAN NATIONAL STANDARDS INSTITUTE, NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION, INSULATED POWER CABLE ENGINEERS ASSOCIATION, AND INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIALS IN QUESTION.
- THE INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, APPLICABLE CITY, STATE, AND LOCAL CODES AND REGULATIONS AND OTHER APPLICABLE CODES, INCLUDING UTILITY COMPANY CODES.
- ALL PERMITS REQUIRED BY STATE OR LOCAL ORDINANCES SHALL BE OBTAINED, AND AFTER COMPLETION OF THE WORK, A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTOR SHALL BE FURNISHED TO THE OWNER. ALL PERMITS FOR INSTALLATION, INSPECTIONS, CONNECTIONS, ETC., SHALL BE TAKEN OUT AND PAID FOR BY THE CONTRACTOR AS PART OF THE WORK UNDER THIS SECTION.
- ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS. ANY PART OF THE SYSTEM CONSIDERED DEFECTIVE BY THE ENGINEER WITHIN THE GUARANTEE PERIOD SHALL BE IMMEDIATELY REPLACED OR CORRECTED TO THE ENGINEER'S SATISFACTION WITHOUT FURTHER EXPENSE TO THE OWNER.
- THE PROJECTS GROUNDING SYSTEM SHALL CONSIST OF A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC SPECIFICATIONS, BONDED TO A MAIN GROUND BUS INTERCONNECTING ALL POWER DISTRIBUTION EQUIPMENT. GROUND ROD SECTIONS SHALL BE COUPLED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING SYSTEM.
- UNLESS OTHERWISE INDICATED, ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE NEMA 12/3R ALUMINUM OR 316 STAINLESS STEEL; CONDUCTORS SHALL BE STRANDED AWG TYPE XHHW-2 COPPER; CONDUCTORS WITHIN THE WET WELL TERMINAL BOXES SHALL BE TYPE XHHW-2 TINNED COPPER; UNDERGROUND CONDUIT SHALL BE SCH 40 PVC; EXPOSED CONDUIT SHALL BE SCH 80 PVC; CONDUIT INTO THE WET WELL SHALL BE PVC COATED RIGID ALUMINUM; SUPPORT CHANNEL AND MOUNTING STRUT SHALL BE MINIMUM 1.5" x 1.5" ALUMINUM. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL, INCLUDING BUT NOT LIMITED TO NUTS, BOLTS, WASHERS, BRACKETS, ETC. NUTS AND BOLTS WITH ANTI-SEIZE COMPOUND SHALL BE USED. SCREWS ARE NOT ALLOWED. ALL MATERIALS AND INSTALLATION SHALL BE SUITABLE FOR "CORROSIVE ATMOSPHERES".
- THE PUMP CONTROL PANEL WET WELL LEVEL CONTROL SYSTEM SHALL INCLUDE A MULTIPLEX PUMP CONTROLLER AND SUBMERSIBLE MULTI-POINT LEVEL PROBE FOR AUTOMATIC LEAD/LAG PUMP CONTROL AND ALTERNATION; AND 24V CONTROL POWER TRANSFORMER AND HIGH/OFF LEVEL FLOAT SWITCHES FOR HIGH LEVEL ALARM AND BACKUP PUMP CONTROL.
- DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE EQUIPMENT CABLE TERMINAL BOXES. ADDITIONALLY, DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE PUMP CONTROL PANEL.
- PROVIDE SITE LIGHT POLE WITH SERVICE FROM THE PUMP CONTROL PANEL (3/4"C, 3#12). PROVIDE WP DUPLEX GFI RECEPTACLE WITH CAST ALUMINUM BOX AND COVER, AND WP LIGHT SWITCH WITH CAST ALUMINUM BOX AND COVER, MOUNTED ADJACENT TO THE PUMP CONTROL PANEL. SITE LIGHT POLE SHALL BE FIBERGLASS DIRECT BURIED POLE WITH BLACK FINISH. LUMINAIRE SHALL BE AEL MODEL LN42-LU5-MVOLT-R5-BA-SH WITH 18" LONG ALUMINUM SPOKE BRACKET ARM. LUMINAIRE MOUNTING HEIGHT SHALL BE 12'. LOCATE LIGHT POLE ON RIGHT-HAND SIDE OF THE PUMP CONTROL PANEL.
- IN ACCORDANCE WITH THE LATEST ST. JOHNS COUNTY UTILITIES DEPARTMENT STANDARDS, THE NEW PUMP CONTROL PANEL, EXPLOSION PROTECTED TYPE EX TERMINAL BOXES, WET WELL LEVEL CONTROLS, AND UL SERVICE ENTRANCE MAIN FUSED DISCONNECT SWITCH SHALL BE FURNISHED BY THE SJCUD APPROVED LIFT STATION ELECTRICAL EQUIPMENT SUPPLIER.
- IN ACCORDANCE WITH THE LATEST ST. JOHNS COUNTY UTILITIES DEPARTMENT STANDARDS, THE SCADA SYSTEM RTU, ANTENNA MAST, AND ANTENNA, SHALL BE PROVIDED BY A SJCUD APPROVED SCADA SYSTEM INTEGRATOR. FOR STATIONS EQUIPPED WITH FORCE MAIN PRESSURE SENSORS AND/OR WATER MAIN PRESSURE SENSORS, THE PRESSURE SENSORS SHALL BE PROVIDED BY THE SCADA SYSTEM INTEGRATOR.

ELECTRICAL SYSTEMS ANALYSIS:

- THE CONTRACTOR SHALL INCLUDE A BID ALLOWANCE IN THE AMOUNT OF \$2,000.00 TO OBTAIN THE SERVICES OF AN INDEPENDENT SPECIALTY ENGINEERING FIRM TO PROVIDE A PRELIMINARY AND A FINAL SHORT CIRCUIT, DEVICE EVALUATION, PROTECTIVE DEVICE COORDINATION, AND ARC FLASH STUDY OF THE COMPLETE ELECTRICAL DISTRIBUTION SYSTEM, IN ACCORDANCE WITH SJCUD STANDARDS
- THE CONTRACTOR SHALL PROVIDE, WITH THE SHOP DRAWING SUBMITTALS, A LISTING OF THE FOLLOWING INFORMATION FOR EACH POWER DISTRIBUTION FEEDER: CONDUIT SIZE, CONDUIT TYPE, CONDUCTOR SIZE, CONDUCTOR TYPE, CONDUCTOR LENGTH.
- THE SERVICE ENTRANCE MAIN FUSED DISCONNECT SWITCH FUSE SELECTION SHALL BE IN ACCORDANCE WITH THE SJCUD STANDARDIZED FUSES: FERRAZ SHAWMUT TRS100R AND TRS200R. HOWEVER, SELECTION OF AN INTERMEDIATE TRS-R FUSE SHALL BE UTILIZED WHEN POSSIBLE TO REDUCE THE DOWNSTREAM HAZARD RISK CATEGORY.
- THE CONTRACTOR SHALL PROVIDE THE SERVICE ENTRANCE FUSE SIZE DETERMINED BY THE FINAL APPROVED ELECTRICAL SYSTEMS ANALYSIS.



ELECTRICAL DESIGN DATA TABLE	
200	ELECTRICAL SERVICE AMPS
240/120	ELECTRICAL SERVICE VOLTS
3	ELECTRICAL SERVICE PHASE
	ELECTRICAL SERVICE A.I.C.
	PUMP MOTOR HP
	PUMP MOTOR F.L.A.
200	CONTROL PANEL MCB
	CONTROL PANEL PCB
FVNR	MOTOR STARTER TYPE
	MOTOR STARTER NEMA SIZE

- ELECTRICAL LEGEND**
- CIRCUIT BREAKER (TRIP RATING/POLES)
  - "MCB" MAIN BREAKER, "ECB" EMERGENCY BREAKER
  - "PCB" PUMP MOTOR BREAKER
  - MAGNETIC TYPE COMBINATION MOTOR STARTER, NEMA SIZE AS INDICATED, ("FV" FULL VOLTAGE, "RV" REDUCED VOLTAGE, "NR" NON-REVERSING, "SS" SOLID STATE SOFT START, "VFD" VARIABLE FREQUENCY DRIVE)
  - MOTOR (NUMERAL INDICATES HORSEPOWER)
  - TRANSFORMER ("CT" CURRENT TRANSFORMER; "CPT" CONTROL POWER TRANSFORMER)
  - GREEN "RUNNING" PILOT LIGHT (LED TYPE)
  - HAND OFF AUTO SELECTOR SWITCH
  - AUTOMATIC ALTERNATOR
  - THREE PHASE POWER MONITOR
  - LEVEL SWITCH
  - LEVEL CONTROLLER
  - SURGE PROTECTION DEVICE

**ELECTRICAL SERVICE REQUIREMENTS:**  
 UNLESS OTHERWISE REQUIRED BY THE ELECTRIC UTILITY COMPANY, ELECTRICAL SERVICE TO MOTORS 20 HP AND BELOW SHALL BE 240/120V, 3 PH, OPEN DELTA. ELECTRICAL SERVICE TO MOTORS GREATER THAN 20 HP SHALL BE 480/277V, 3 PH WYE.  
 PROVIDE CONFIRMATION OF AVAILABLE SERVICE, AND A FAULT CURRENT LETTER, FROM THE ELECTRIC UTILITY COMPANY PRIOR TO PREPARATION OF SHOP DRAWING SUBMITTALS.

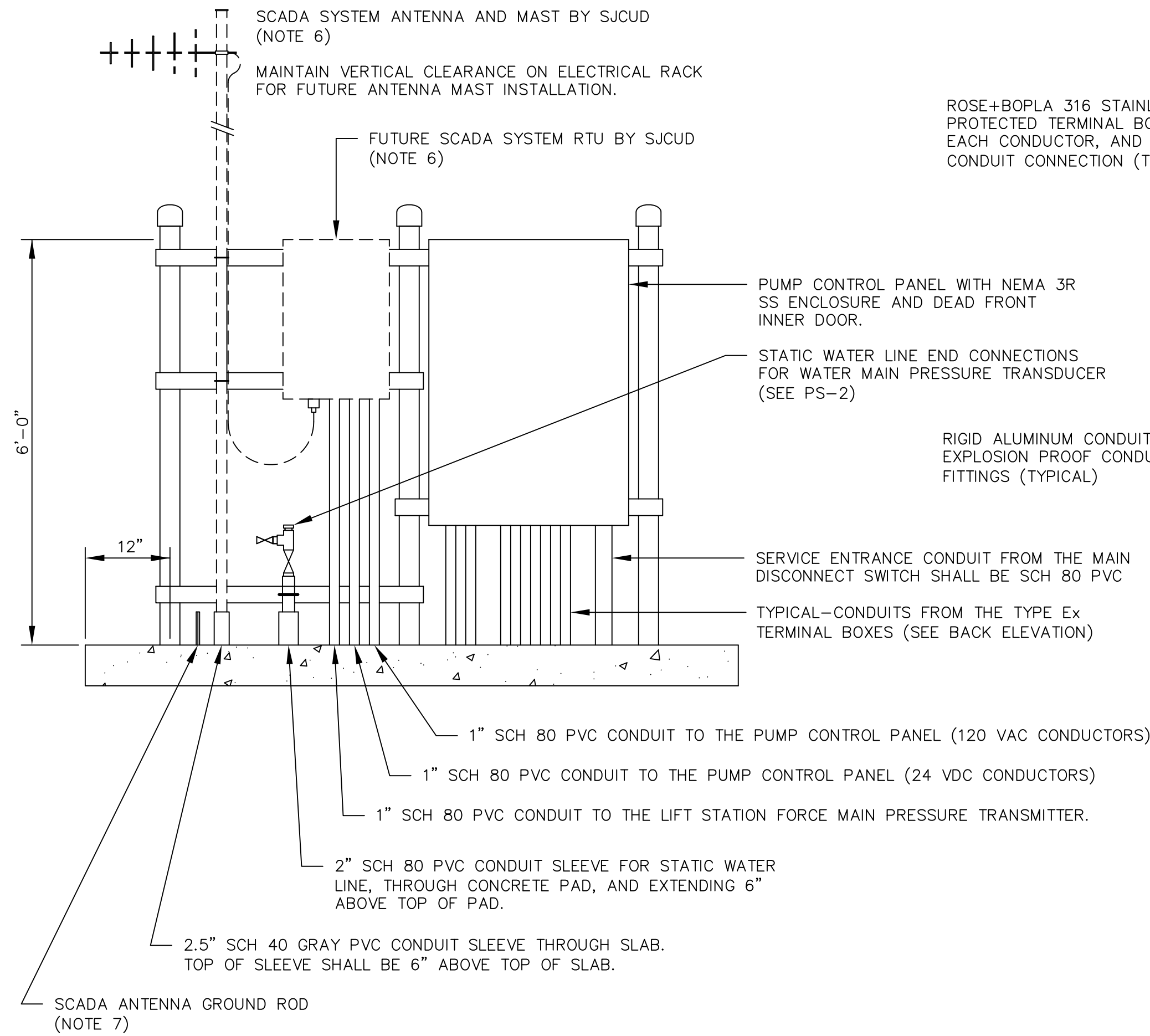
ALL ALL EQUIPMENT LOCATED WITHIN THE WET WELL AND EXPOSED TO POTENTIAL HAZARDOUS CONCENTRATIONS OF FLAMMABLE GASES OR VAPORS, SHALL BE RATED FOR CLASS I, DIVISION 1, GROUP D LOCATIONS. ALL ELECTRICAL EQUIPMENT AND INSTALLATION SHALL BE SUITABLE FOR CORROSIVE CONDITIONS.

TYPICAL SJCUD LIFT STATION - SINGLE LINE DIAGRAM

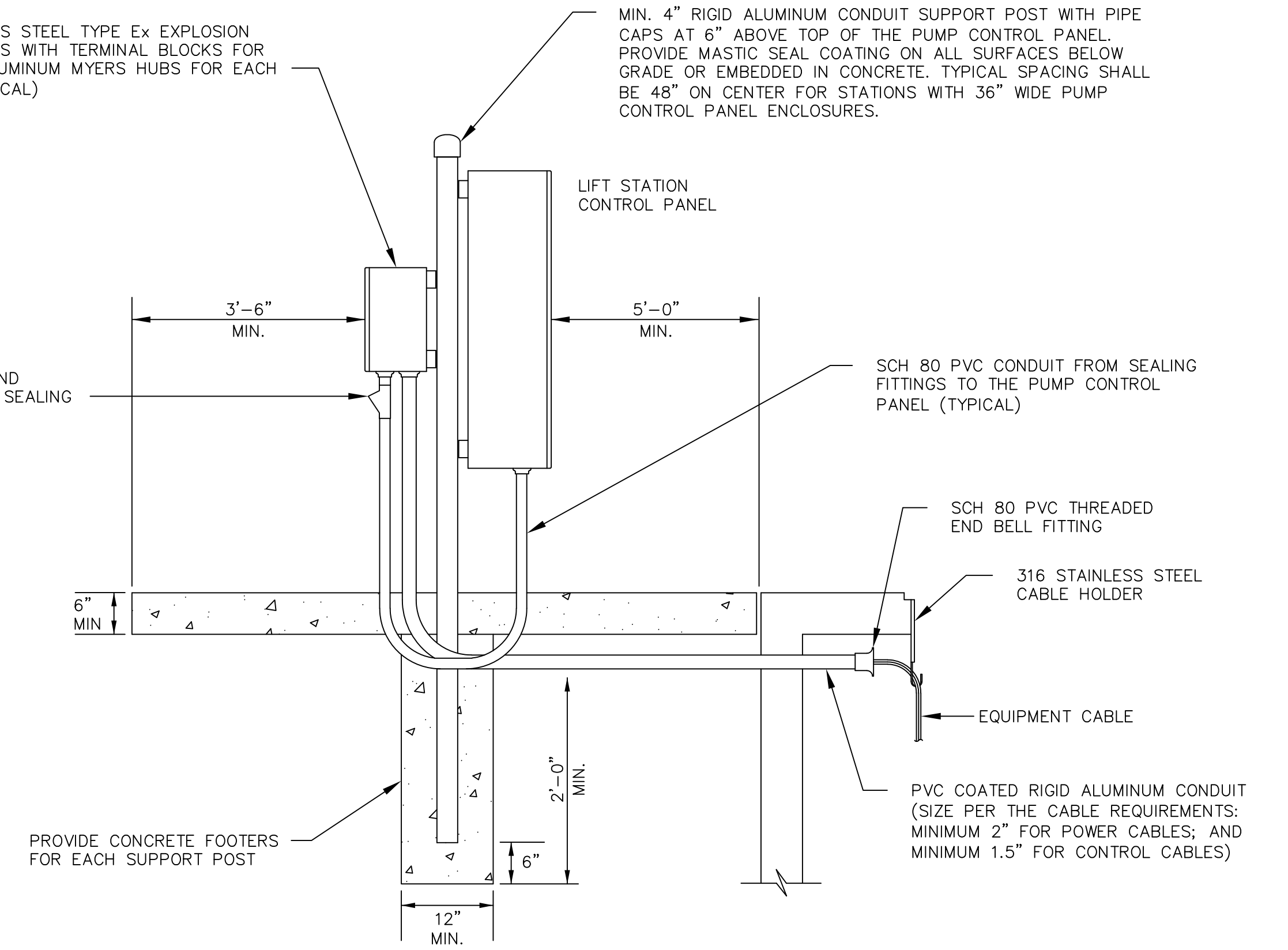
NO.	BY	DATE	SYMBOL	REVISIONS	DESIGNER:	DESIGN ENGINEER	<p>ST. JOHNS COUNTY                  UTILITY DEPARTMENT                  1205 STATE ROAD 16                  ST AUGUSTINE, FLORIDA 32084-8646                  Phone (904) 209-2700 • Fax, (904) 209-2702</p>	<p>SJCUD STANDARD SUBMERSIBLE LIFT STATION                  ELECTRICAL SINGLE LINE DIAGRAM                  200 AMP 240/120V 3 PHASE</p>	NO. SHEETS
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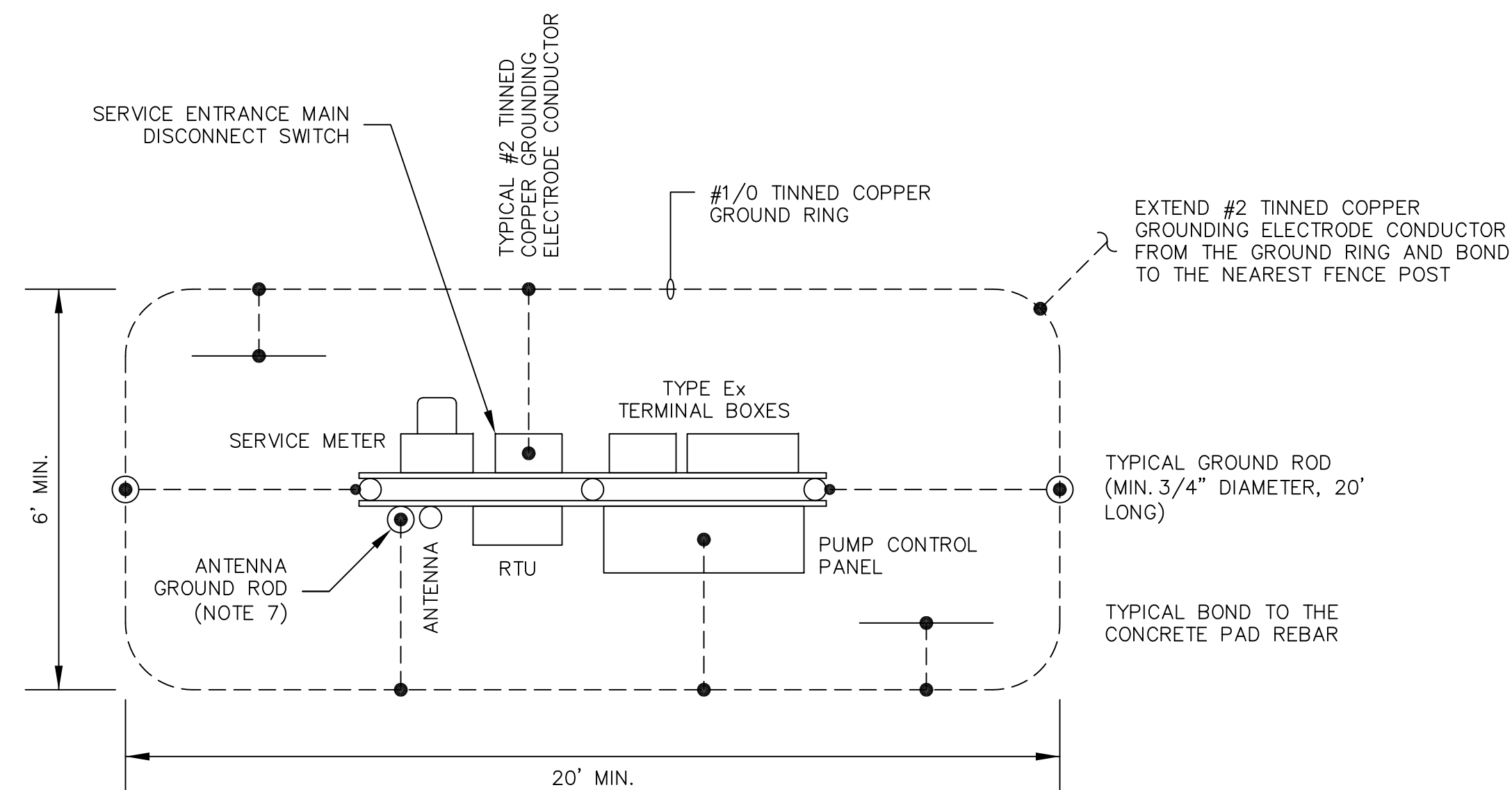
1. THE CONTRACTOR SHALL SCHEDULE AN ELECTRICAL PRE-CONSTRUCTION COORDINATION SITE MEETING WITH SJUCD AND THE ELECTRICAL DESIGN ENGINEER TO COORDINATE SITE SPECIFIC REQUIREMENTS OF THE ELECTRICAL EQUIPMENT INSTALLATION.
2. THE CONTRACTOR SHALL SCHEDULE AN ELECTRICAL ROUGH-IN SITE INSPECTION WITH SJUCD AND THE ELECTRICAL DESIGN ENGINEER TO INSPECT THE ELECTRICAL EQUIPMENT INSTALLATION PRIOR TO POURING CONCRETE.
3. GROUNDING ELECTRODE SYSTEM: PROVIDE A GROUND RING PER NEC 250.52, ENCIROLING THE ELECTRICAL SERVICE EQUIPMENT, CONSISTING OF CONTINUOUS #1/0 TINNED COPPER CONDUCTOR AT 30" BELOW GRADE.
4. PROVIDE GROUND RODS (MINIMUM 3/4" DIAMETER, 20' LONG COPPER CLAD STEEL) BONDED TO EACH END OF THE GROUND RING, AT LEAST 20' APART. GROUND ROD SECTIONS SHALL BE COUPLED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING ELECTRODE SYSTEM.
5. GROUNDING ELECTRODE CONDUCTOR: PROVIDE MINIMUM #2 TINNED COPPER GROUNDING ELECTRODE CONDUCTOR FROM THE GROUND RING TO THE SERVICE ENTRANCE DISCONNECT SWITCH, PUMP CONTROL PANEL, RTU, SCADA SYSTEM ANTENNA TOWER, ELECTRICAL EQUIPMENT RACK END POSTS, AND FENCE. USE GROUND CLAMPS RATED FOR CONNECTIONS TO END POSTS AND FENCE POSTS. GROUND CLAMPS SHALL BE RATED FOR DIRECT BURIAL. INSTALL GROUNDING ELECTRODE CONDUCTORS IN 3/4" SCH 80 PVC CONDUIT SLEEVE FOR MECHANICAL PROTECTION.
6. THE CONTRACTOR SHALL REVIEW THE SCADA SYSTEM DETAILS AND SHALL MAKE ALL PROVISIONS REQUIRED FOR THE FUTURE INSTALLATION OF THE SCADA SYSTEM RTU AND ANTENNA INCLUDING: SLEEVE FOR THE ANTENNA MAST, GROUND ROD FOR THE ANTENNA MAST, RTU POWER AND CONTROL CONDUITS, FORCE MAIN PRESSURE TRANSMITTER CONDUIT, AND THE WATER MAIN PRESSURE TRANSMITTER STATIC WATER LINE.
7. THE TOP OF THE GROUND ROD FOR THE SCADA SYSTEM ANTENNA SHALL EXTEND NO MORE THAN 6" AND NO LESS THAN 4" ABOVE THE CONCRETE SLAB.



FRONT ELEVATION



SIDE VIEW

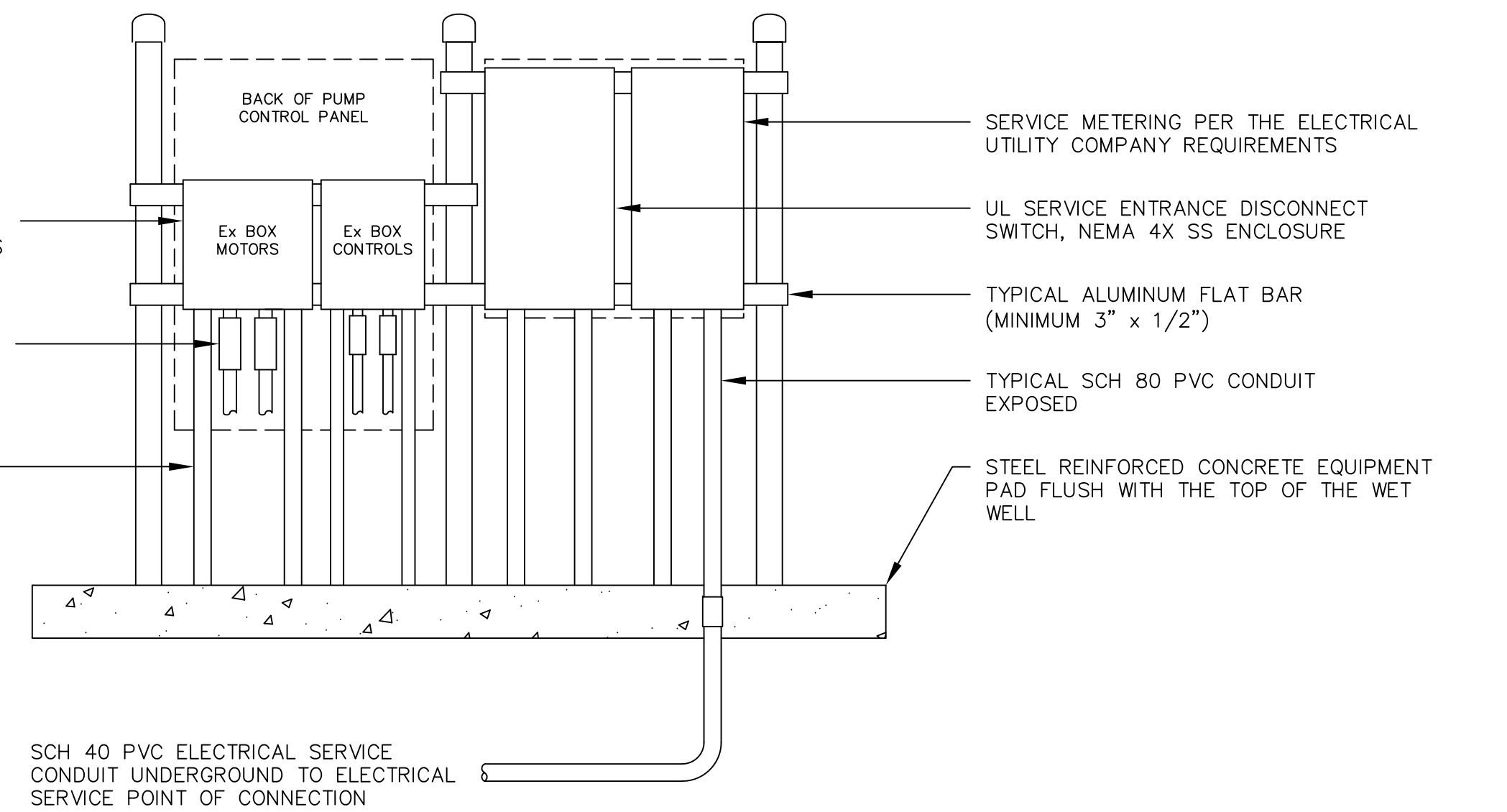


ELECTRICAL EQUIPMENT GROUNDING SYSTEM DETAIL  
NOT TO SCALE

EXPLOSION PROTECTED TYPE Ex TERMINAL BOXES:  
MIN. 15.8"H, 19.7"W, 6.3"D PUMP MOTOR FEEDERS  
MIN. 15.8"H, 11.8"W, 6.3"D LEVEL CONTROLS

TYPICAL-FRONT ROW OF CONDUITS TO THE PUMP CONTROL PANEL SHALL BE SCH 80 PVC WITH XP CONDUIT SEALING FITTING AT THE TERMINAL BOX

TYPICAL-BACK ROW OF CONDUITS TO THE WET WELL SHALL BE PVC COATED RIGID ALUMINUM



BACK ELEVATION

TYPICAL LIFT STATION ELECTRICAL EQUIPMENT INSTALLATION DETAIL  
NOT TO SCALE

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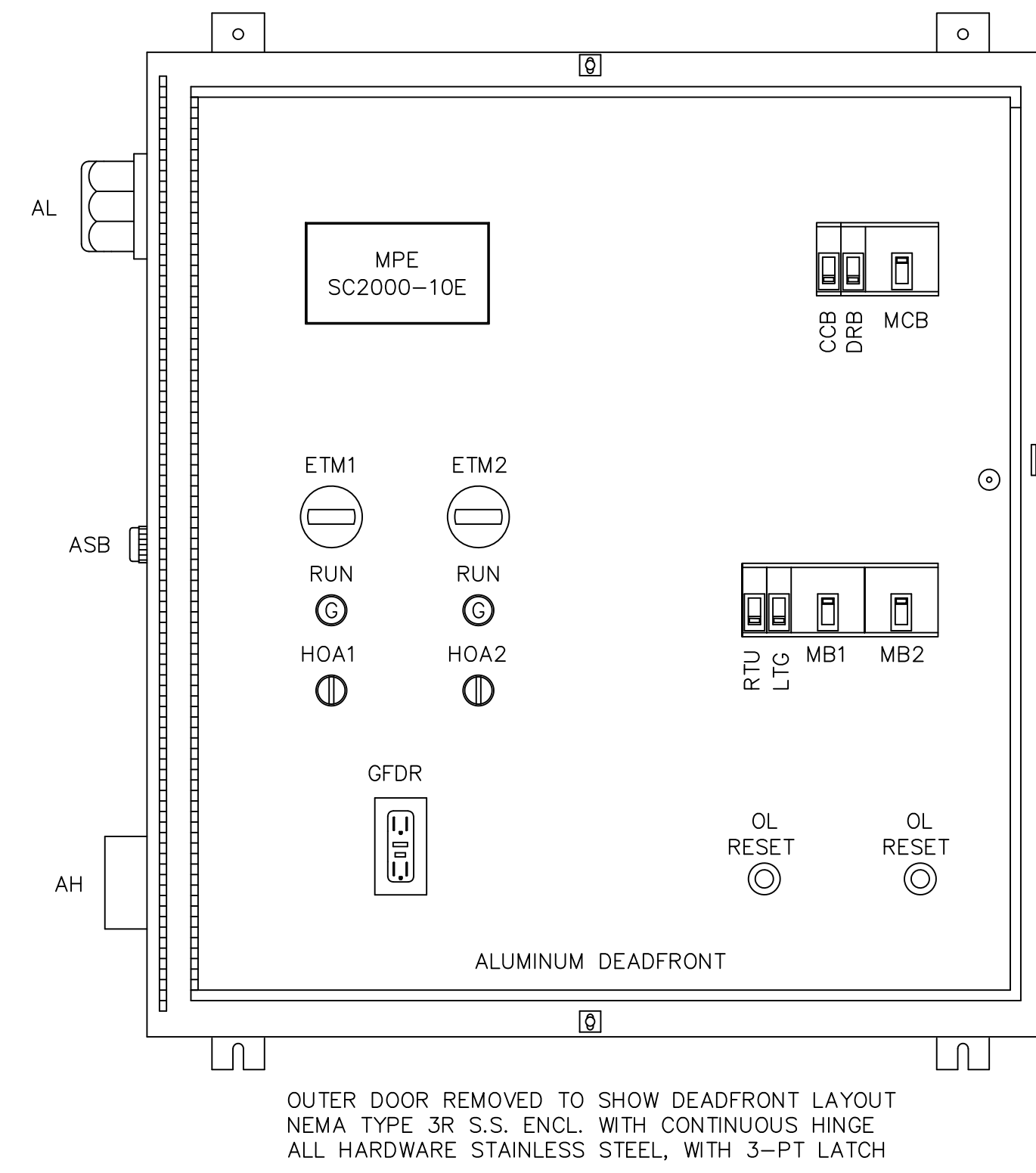
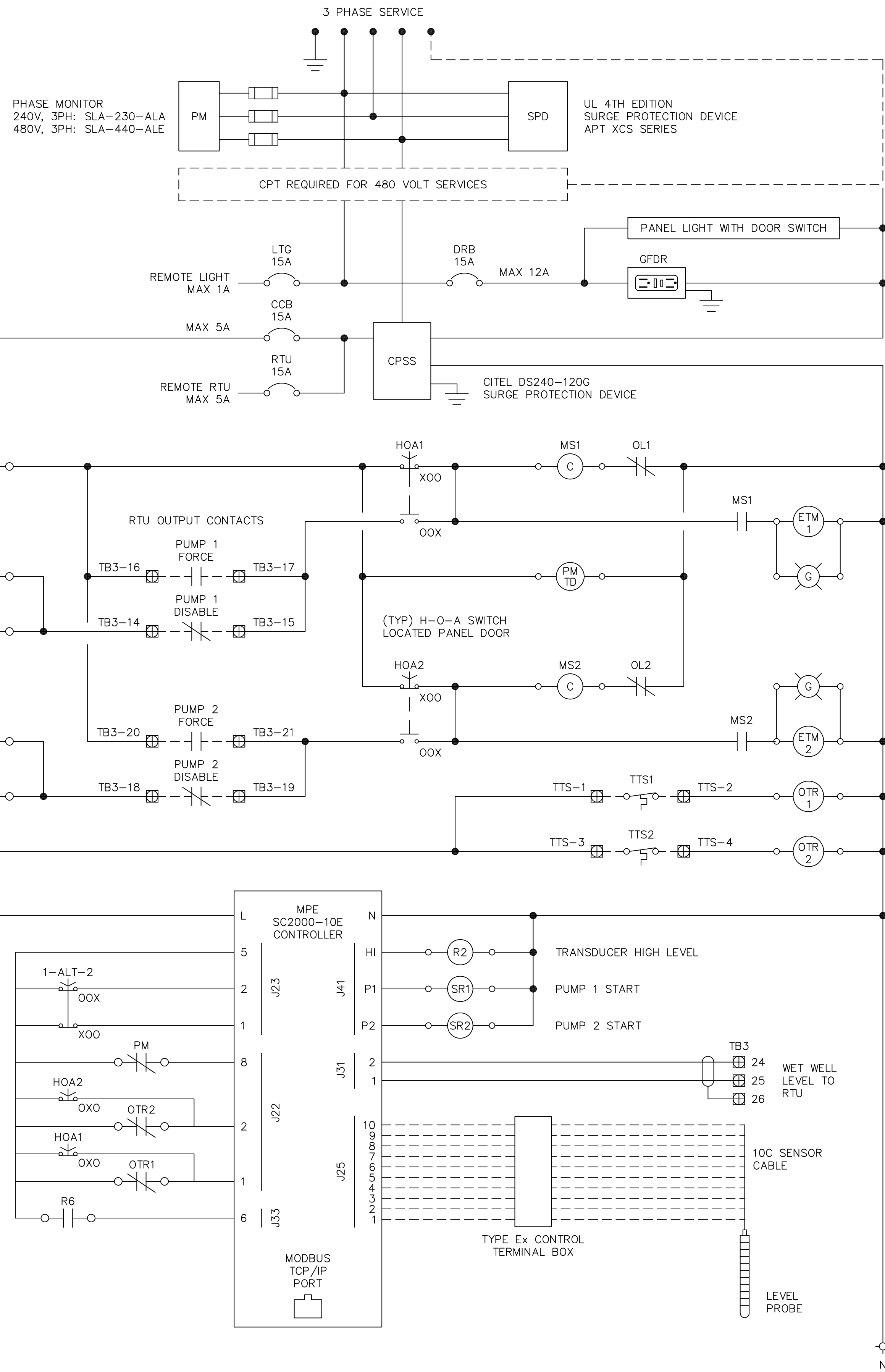
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ST. JOHNS COUNTY  
UTILITY DEPARTMENT  
1205 STATE ROAD 16  
ST AUGUSTINE, FLORIDA 32084-8646  
Phone (904) 209-2700 • Fax, (904) 209-2702

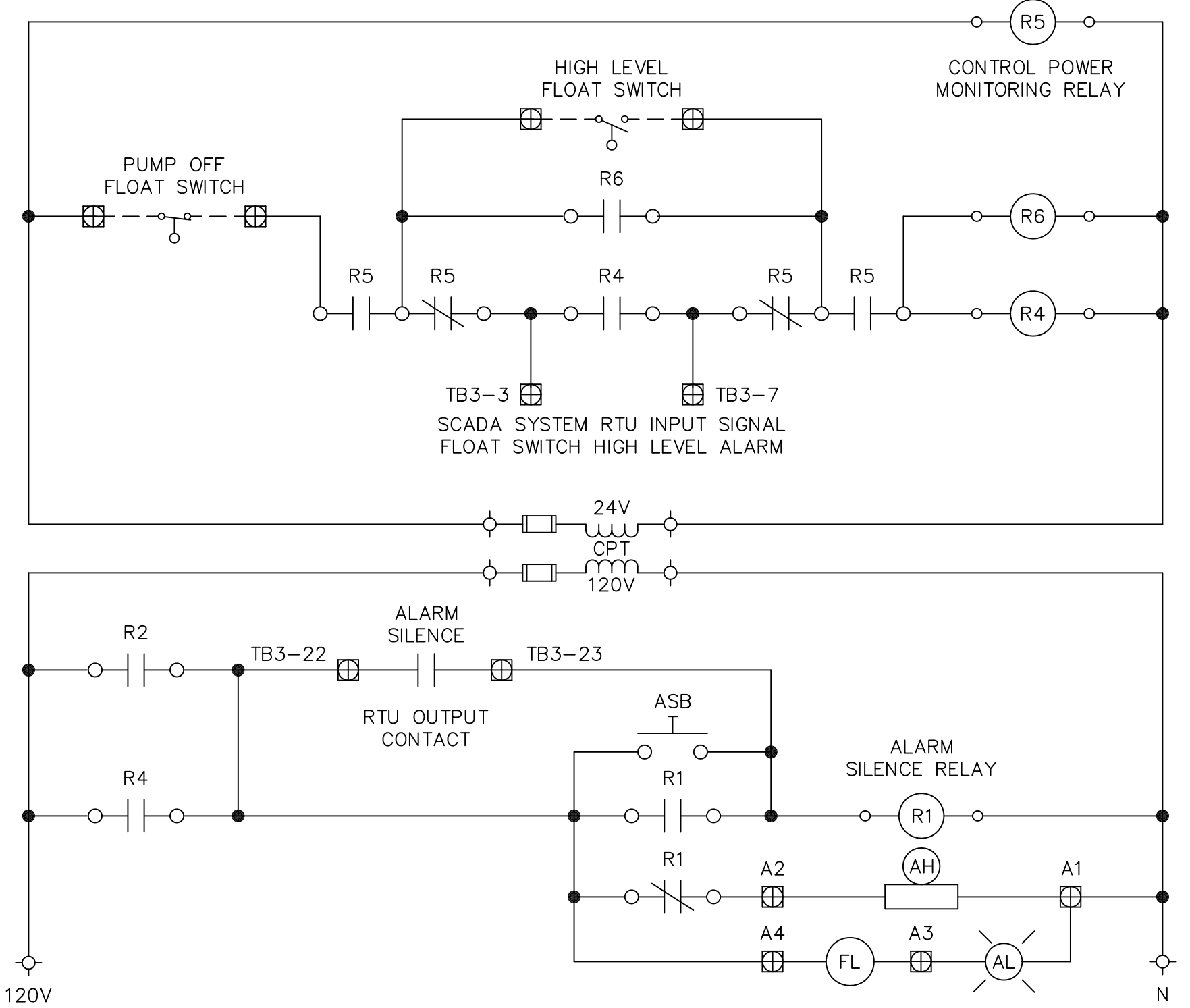
SJUCD STANDARD SUBMERSIBLE LIFT STATION  
ELECTRICAL DETAILS  
200 AMP 240/120V 3 PHASE

NO. SHEETS
SHEET NO.
DRAWING NO. E-202



- CONTROL PANEL LEGEND**
- AH - ALARM HORN
  - AL - ALARM LIGHT
  - ASB - ALARM SILENCE BUTTON
  - ASR - ALARM SILENCE RELAY
  - ALSS - ALTERNATOR LEAD SELECTOR SWITCH
  - CPSS - CONTROL POWER SURGE SUPPRESSOR
  - CCB - CONTROL CIRCUIT BREAKER
  - DPDT - DOUBLE POLE DOUBLE THROW
  - DRB - DUPLEX RECEPTACLE BREAKER
  - ETM - ELAPSED TIME METER
  - F - FUSE
  - FB - FUSE BLOCK
  - FL - FLASHER
  - G - GREEN LED "RUNNING" PILOT LIGHT
  - GFDR - GROUND FAULT DUPLEX RECEPTACLE
  - LCB - LIGHTING CIRCUIT BREAKER
  - MB - MOTOR BREAKER
  - MCB - MAIN CIRCUIT BREAKER
  - MS - MOTOR STARTER
  - OL - OVERLOAD
  - OT - OVERTEMP
  - PB - POWER BLOCK
  - PM - PHASE MONITOR
  - R - RELAY
  - RCB - RTU CIRCUIT BREAKER
  - RL - RUNNING LIGHT
  - SPD - SURGE PROTECTION DEVICE
  - TB - TERMINAL BLOCK
  - TTS - THERMAL TERMINAL STRIP

- NOTES:**
1. CONTROL PANEL TO BE UL AND SERVICE ENTRANCE RATED.
  2. ALL CONTROL PANEL WIRING, RTU WIRING, AND ALL WIRING FROM THE CONTROL PANEL TO THE RTU, SHALL BE TINNED CONDUCTORS.
  3. ALL CONTROL RELAYS SHALL BE TPDT.
  4. POWER MONITOR TIME DELAY RELAY "PMTD" SHALL BE EATON TMR6 TIME DELAY ON DE-ENERGIZE RELAY PROVIDING OFF DELAY FUNCTION WITHOUT REQUIRING INPUT VOLTAGE DURING OFF TIME DELAY. SET OFF TIME DELAY AT 60 SECONDS.
  5. FIELD TERMINAL BLOCKS SHALL BE ANGLE MOUNTED TO FACILITATE FIELD CONNECTIONS.
  6. TERMINALS FOR PUMP CONTROLS (RTU OUTPUTS, 120VAC) TB3-14 THRU TB3-23 SHALL BE COLOR CODED RED. TERMINALS FOR SCADA SIGNALS (RTU INPUTS, 24VDC) TB3-3 THRU TB3-13 SHALL BE COLOR CODED BLUE.

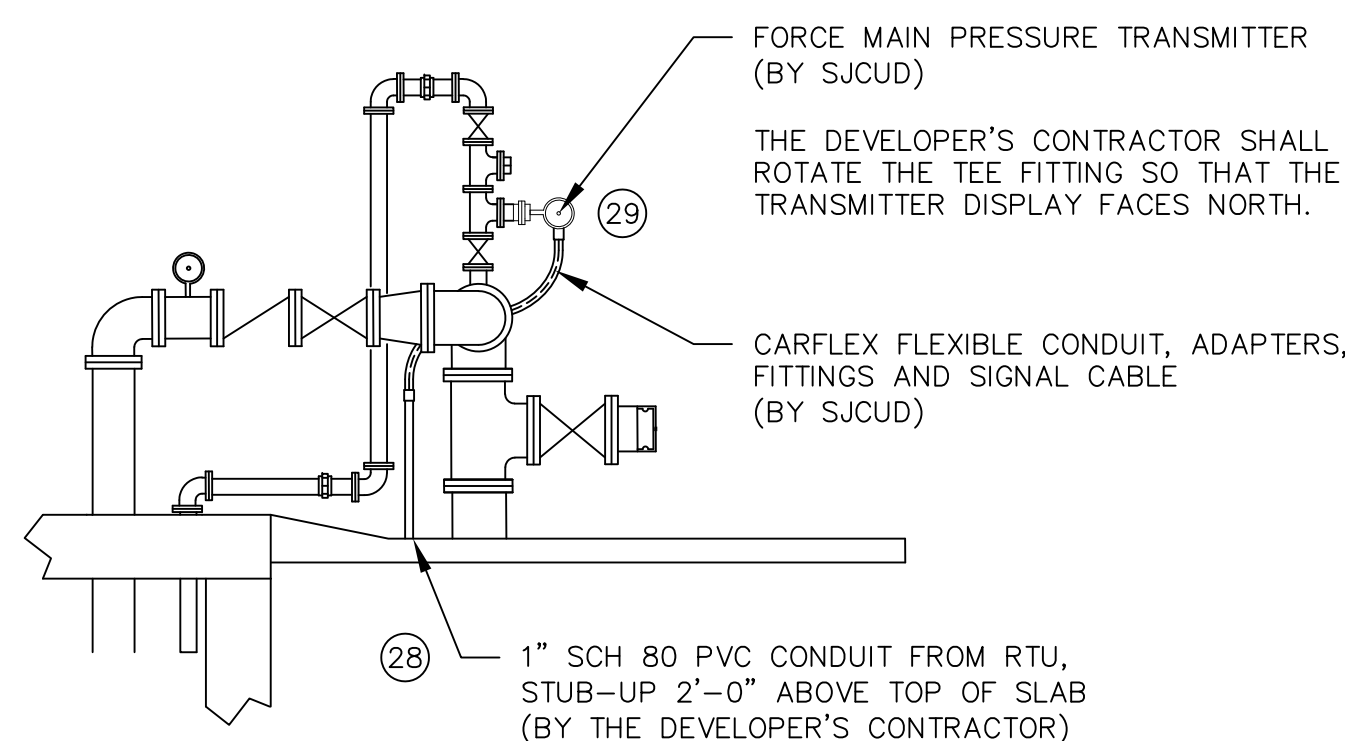


- SCADA SYSTEM RTU INPUT SIGNALS**
- TB3-3 24VDC FROM RTU PANEL
  - TB3-3 PMTD TO TB3-4 PHASE FAILURE
  - TB3-5 MS2 TB3-5 PUMP 2 RUNNING
  - TB3-6 MS1 TB3-6 PUMP 1 RUNNING
  - TB3-7 SEE SCHEMATIC TB3-7 HIGH LEVEL
  - TB3-8 OL1 TB3-8 PUMP 1 FAULT
  - TB3-9 OL2 TB3-9 PUMP 2 FAULT
  - TB3-10 OTR1 TB3-10 PUMP 1 OVERTEMP
  - TB3-11 OTR2 TB3-11 PUMP 2 OVERTEMP
  - TB3-12 R2 TB3-12 TRANSDUCER HIGH LEVEL
  - TB3-13 R5 TB3-13 CONTROL POWER FAIL

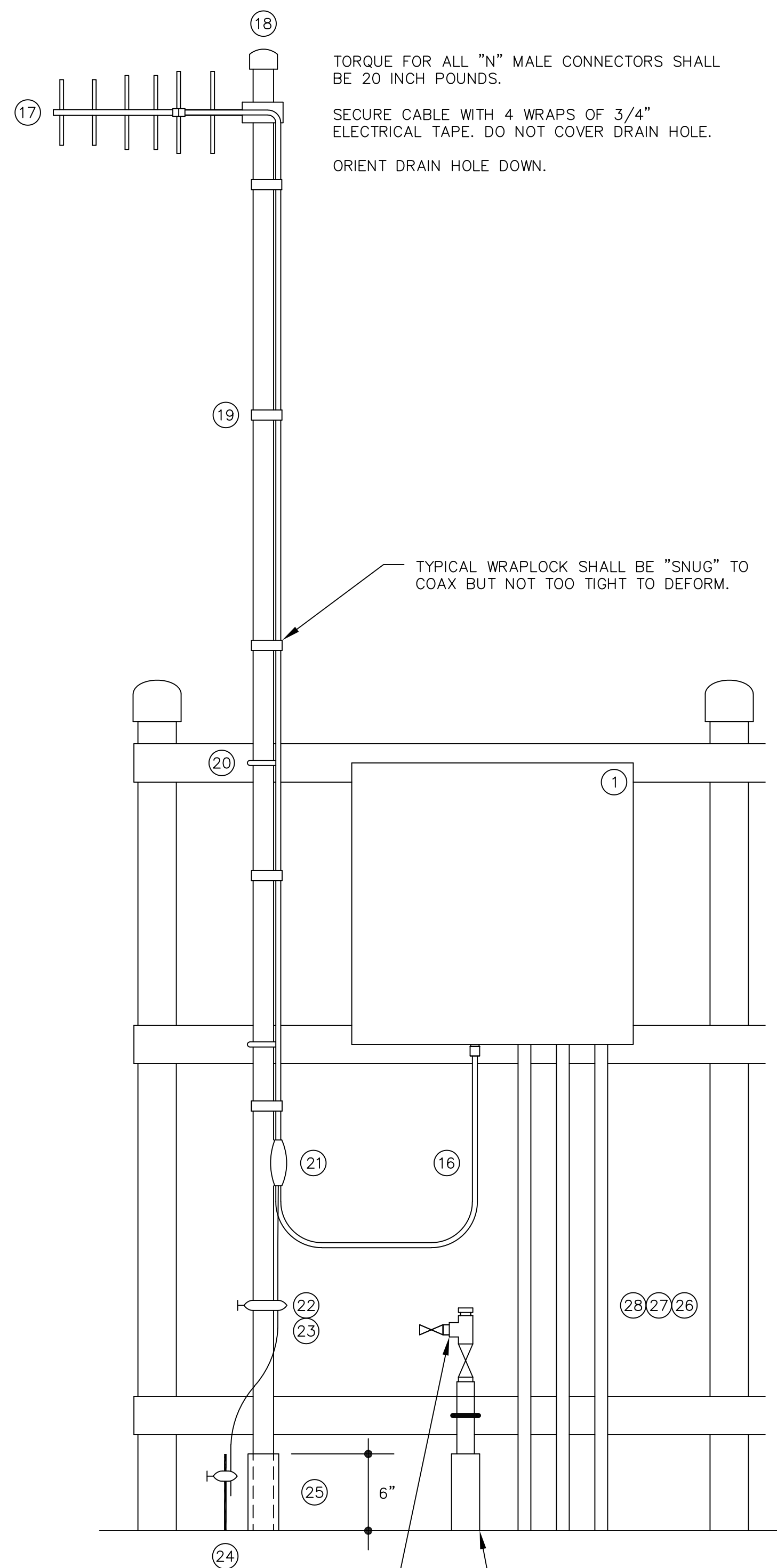
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SCADA SYSTEM NOTES:

- SJCUD SHALL EMPLOY THE SERVICES OF A SJCUD PRE-APPROVED SCADA SYSTEM INTEGRATOR TO PERFORM ALL SCADA SYSTEM ADDITIONS AND MODIFICATIONS INCLUDING: NEW RTU, ANTENNA, AND ANTENNA MAST.
- THE SCADA SYSTEM SUPPLIER SHALL MODIFY AND UPGRADE THE EXISTING SJCUD MASTER SCADA SYSTEM AS REQUIRED TO INCORPORATE THE NEW FACILITIES.
- THE CONTRACTOR AND THE SCADA SYSTEM SUPPLIER SHALL COORDINATE ALL SCADA SYSTEM INSTALLATION WITH THE SJCUD SCADA SYSTEM SUPERVISOR.
- THE SCADA SYSTEM RTU SHALL BE A SJCUD STANDARD LIFT STATION RTU WITH MOTOROLA ACE3600 RTU CONFIGURED WITH MIXED I/O MODULES AS INDICATED. PROVIDE POWER AND SIGNAL LINE SURGE PROTECTION.
- PRIOR TO SHOP DRAWING SUBMITTALS, THE SCADA SYSTEM SUPPLIER SHALL CONFIRM RADIO/ANTENNA SELECTION WITH THE SJCUD SCADA SYSTEM SUPERVISOR.
- IN ORDER TO MAINTAIN FCC PART 15 COMPLIANCE, ALL ANTENNA WORK MUST BE PERFORMED OR CERTIFIED BY AN FCC CERTIFIED TECHNICIAN. THE SJCUD SCADA SUPERVISOR WILL INSPECT AND CERTIFY (AT NO CHARGE) BUT WILL NOT PERFORM CORRECTIVE ACTIONS.
- ANTENNA MAST GROUND ROD SHALL BE BONDED (UNDERGROUND) TO THE STATION ELECTRICAL SYSTEM GROUNDING GRID.
- ALL GROUNDING CONDUCTORS SHALL HAVE AN EVEN SLOPE FROM POINT OF CONTACT TO THE GROUND ROD (NO 90° BENDS).
- ALL GROUND CONTACT POINTS SHALL BE PROTECTED BY AN ANTI-OXIDATION COMPOUND.
- ALL RF CONNECTORS SHALL BE TIGHTENED TO MANUFACTURER SPECIFICATIONS, AND SHALL BE PROPERLY SEALED. COLD SHRINK IS NOT ACCEPTABLE.
- DRAIN HOLES ON ANTENNAS MUST BE ORIENTED DOWN.
- ALL THREADED CONNECTIONS, EXCEPT ANTENNA CONNECTIONS, SHALL BE PROTECTED WITH ANTI-SEIZE TREATMENT.
- THE "POWER" CONDUIT FROM THE RTU TO THE PUMP CONTROL PANEL SHALL BE USED FOR ALL 120 VAC CONDUCTORS, INCLUDING THE RTU INPUT POWER AND THE DIGITAL OUTPUT CONDUCTORS.
- THE "CONTROL" CONDUIT FROM THE RTU TO THE PUMP CONTROL PANEL SHALL BE USED FOR ONLY 24 VDC CONDUCTORS, INCLUDING THE DIGITAL INPUT SIGNAL CONDUCTORS AND THE ANALOG INPUT SIGNAL CABLES. PROVIDE 1TSP#18 CABLE FOR EACH ANALOG INPUT SIGNAL.
- PROVIDE DIN RAIL ON BACK PLANE AT THE RTU RADIO MOUNTING LOCATION FOR THE 4RF RADIO MOUNTING BRACKET. MOUNT THE DIN RAIL USING EXISTING TAPPED SCREW HOLES. DO NOT DRILL AND TAP NEW HOLES.
- THE SCADA SYSTEM SUPPLIER SHALL PROVIDE THE FORCE MAIN PRESSURE TRANSMITTER, INCLUDING ASHCROFT TYPE 330 FLUSH DIAPHRAGM SEAL, AND ALUMINUM M20x1.5 METRIC TO 1/2" NPT CONDUIT CONNECTION ADAPTER.



FORCE MAIN PRESSURE TRANSMITTER DETAIL  
NOT TO SCALE

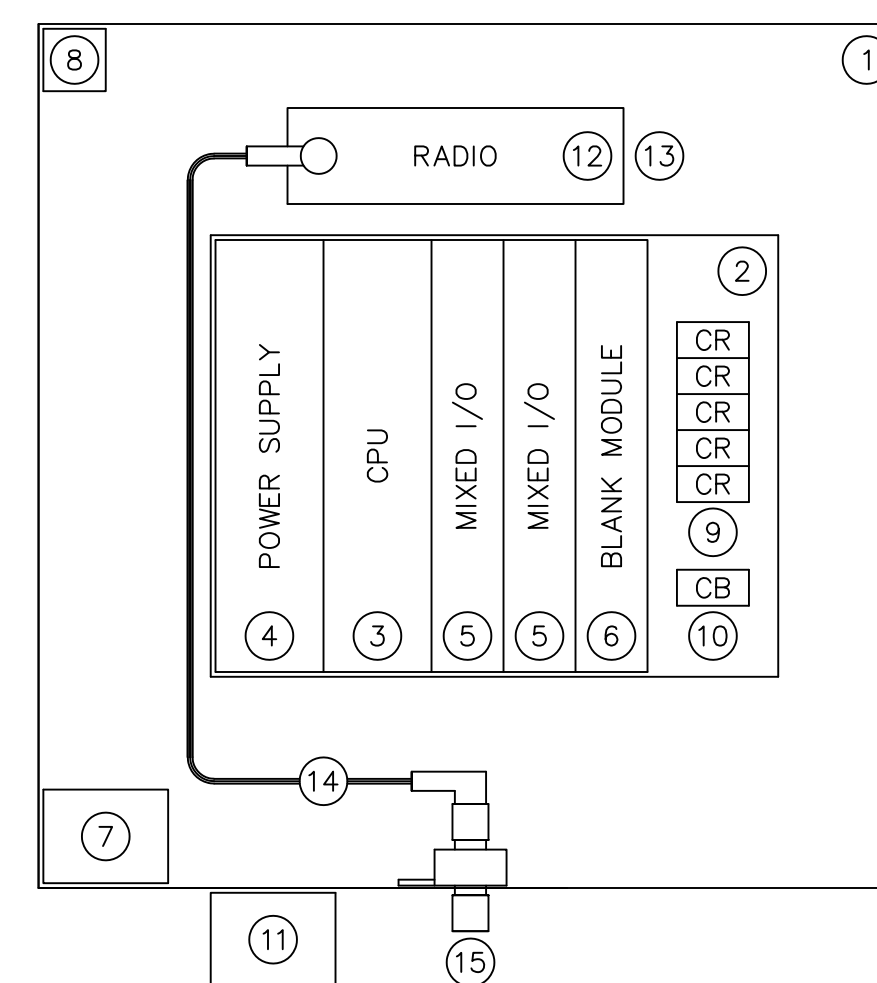


SCADA SYSTEM ANTENNA DETAIL  
NOT TO SCALE

PROVIDE 1" HDPE STATIC WATER LINE WITH 1"x 3/4" MNPT ADAPTER, 3/4" FPT WATTS BRASS FULL PORT BALL VALVE, 3/4" FPT BRASS TEE, 3/4" x 1/2" BRASS BUSHING, 1/2" FPT WATTS BRASS FULL PORT BALL VALVE, AND 3/4" MPT PLUG (BY THE DEVELOPER'S CONTRACTOR).

2" SCH 80 PVC CONDUIT SLEEVE FOR STATIC WATER LINE, THROUGH CONCRETE PAD, AND EXTENDING 6" ABOVE TOP OF PAD (BY THE DEVELOPER'S CONTRACTOR).

SCADA SYSTEM EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	RTU ENCLOSURE, SCHAEFER'S ELECTRICAL ENCLOSURE MODEL SPN4AL-20208-735, DO NOT SUBSTITUTE, NEMA 12/3R ALUMINUM ENCLOSURE, PADLOCK PROVISIONS, ALUMINUM TOP, SIDES, AND DOOR SUN SHIELDS
2	MOTOROLA ACE3600 METAL CHASSIS WITH 3 I/O SLOT FRAME V214/V103
3	MOTOROLA ACE3600 RTU WITH UPGRADE TO CPU3680 AND SECURITY ENABLE OPTION F7509/V448/VA00360AA
4	MOTOROLA CPU PLUG-IN ETHERNET 10/100 M PORT V212
5	MOTOROLA ACE3600 AC POWER SUPPLY WITH BATTERY CHARGER V261
6	MOTOROLA ACE3600 MIXED I/O MODULE 16DI, 4DO EE, 4AI, ±20 mA WITH FLOATING POWER SUPPLY V245/V260
7	MOTOROLA BATTERY POWER CABLE V20
8	BATTERY BACKUP 12V, 7AH, SEALED RECHARGEABLE SLA BATTERY, TOYO-USP 6FMS7 FKN8376
9	INTRUSION SWITCH WITH PULL TO DEFEAT FEATURE HONEYWELL MICRO SWITCH 1DM401
10	DIN RAIL MOUNTED DIGITAL OUTPUT CONTROL RELAYS OMRON G2R-1-SNI-DC12-S, 12VDC, SPDT, PTT
11	DITEK DTK-120HW SURGE PROTECTION DEVICE 120VAC
12	4RF DIGITAL RADIO MODEL APSQ-N220-SSC-HD-22-ENAA
13	4RF DIGITAL RADIO DIN RAIL MOUNTING BRACKET APSB-MBRK-DIN (NOTE 15)
14	RADIO POWER CABLE 12VDC WITH PLUG COMPATIBLE WITH MOTOROLA POWER SUPPLY
15	RADIO COMMUNICATION CABLE TYPE 568B ETHERNET CABLE, 1M
16	LMR-195 FLEXIBLE COAX, RIGHT ANGLE N MALE/RIGHT ANGLE TNC MALE CONNECTORS, 36" LONG
17	TIMES MICROWAVE LP-HBX-NFF COAX SURGE ARRESTER
18	TIMES MICROWAVE LMR-400-DB COAX, TYPE N MALE CONNECTORS EZ-400-NMH-D
19	ASTRON MODEL 220-6H ANTENNA (Contact: Marina Burgstahler MBurgstahler@tasmlc.com)
20	AMPHENOL PROCOM 7042220 YAGI ANTENNA & BRACKET KIT 0300064/00 (Contact: TESSCO 800-742-7373)
21	COMTELCO Y6625DHD YAGI ANTENNA (Contact: Technical Field Service, Inc. 904-591-9579)
22	ANTENNA MAST 2" x 20' LONG SCHEDULE 40 ALUMINUM PIPE, WHITE PVC CAP
23	1/2" SS WRAPLOCK BANDS, 3' ON CENTER. TIE WRAPS ARE NOT ACCEPTABLE.
24	3/8" SS U-BOLTS. ANTI-SEIZE MUST BE USED ON ALL THREADS.
25	TESSCO GK-S38 COAX GROUND KIT
26	GROUNDING CLAMP RATED FOR DIRECT BURIAL
27	NO.2 AWG SOLID TINNED COPPER CONDUCTOR
28	COPPER CLAD STEEL GROUND ROD, 3/4" DIAMETER, 20' LONG
29	2.5" SCHEDULE 40 GRAY PVC CONDUIT SLEEVE THROUGH SLAB
*	1" SCH 80 PVC "POWER" CONDUIT TO PUMP CONTROL PANEL, 120 VAC CONDUCTORS
*	1" SCH 80 PVC "CONTROL" CONDUIT TO PUMP CONTROL PANEL, 24 VDC CONDUCTORS
*	1" SCH 80 PVC CONDUIT TO THE LIFT STATION FORCE MAIN PRESSURE TRANSMITTER
*	FORCE MAIN PRESSURE TRANSMITTER: WIKA UPT-20 PART NUMBER 52571718 (SEE NOTE 16)
*	BY THE DEVELOPER'S CONTRACTOR



SCADA SYSTEM RTU DETAIL  
NOT TO SCALE

RTU I/O SCHEDULE			
MIXED I/O MODULE		MIXED I/O MODULE	
DI	SIGNAL DESCRIPTION	DI	SIGNAL DESCRIPTION
01	RTU INTRUSION SWITCH	01	SPARE
02	HIGH LEVEL	02	SPARE
03	PHASE FAILURE	03	SPARE
04	PUMP 1 RUNNING	04	SPARE
05	PUMP 2 RUNNING	05	SPARE
06	PUMP 1 FAIL	06	SPARE
07	PUMP 2 FAIL	07	SPARE
08	CONTROL POWER	08	SPARE
09	PUMP 1 OVERTEMP	09	SPARE
10	PUMP 2 OVERTEMP	10	SPARE
11	TRANSDUCER HIGH LEVEL	11	SPARE
12	SPARE	12	SPARE
13	SPARE	13	SPARE
14	SPARE	14	SPARE
15	SPARE	15	SPARE
16	SPARE	16	SPARE
DO	SIGNAL DESCRIPTION	DO	SIGNAL DESCRIPTION
01	PUMP 1 DISABLE	01	ALARM SILENCE
02	PUMP 2 DISABLE	02	SPARE
03	PUMP 1 REMOTE RUN	03	SPARE
04	PUMP 2 REMOTE RUN	04	SPARE
AI	SIGNAL DESCRIPTION	AI	SIGNAL DESCRIPTION
01	WET WELL LEVEL	01	SPARE
02	FORCE MAIN PRESSURE	02	SPARE
03	WATER MAIN PRESSURE	03	SPARE
04	SPARE	04	SPARE

NO.	BY	DATE	SYMBOL	REVISIONS
6.				
5.				
4.				
3.				
2.				
1.				

DESIGNER:	DESIGN ENGINEER
DRAWN BY:	
DATE:	
CHECKED BY:	FLORIDA REGISTRATION NO.
DATE:	

ST. JOHNS COUNTY UTILITY DEPARTMENT
1205 STATE ROAD 16 ST AUGUSTINE, FLORIDA 32084-8646 Phone (904) 209-2700 • Fax, (904) 209-2702

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<p>SJCUD STANDARD SUBMERSIBLE LIFT STATION SCADA SYSTEM DETAILS (BY SJCUD) 200 AMP 240/120V 3 PHASE</p>
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NO. SHEETS
SHEET NO.
DRAWING NO. E-204