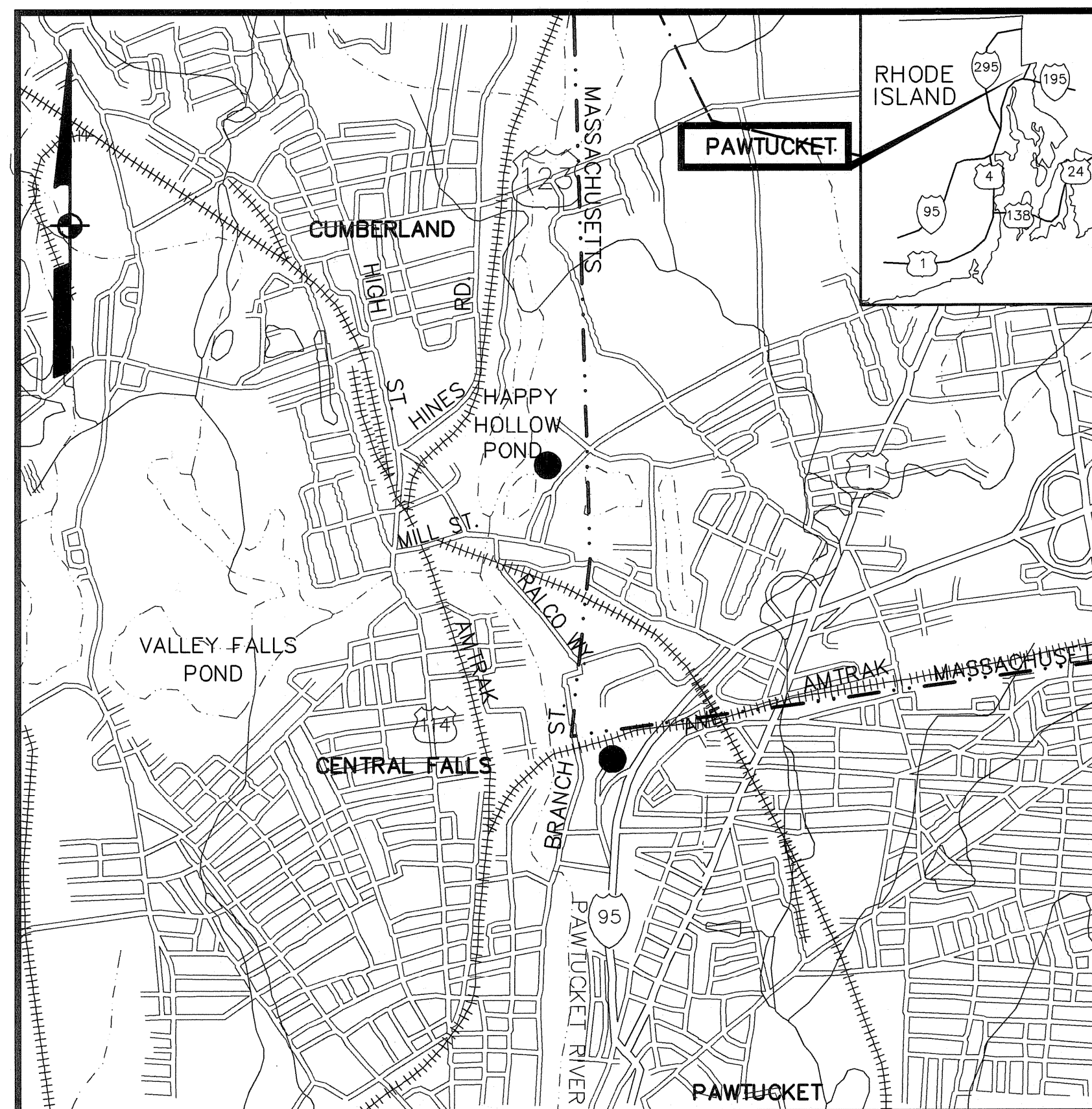


CONTRACT DRAWINGS - FOR - Pawtucket Regional Water Treatment Facility Pkg 8 - Electrical

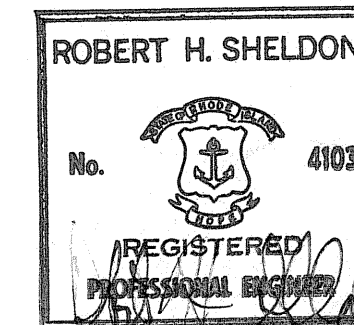
Pawtucket, Rhode Island

OCTOBER 31, 2006

INDEX



LOCUS
NOT TO SCALE



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GENERAL NOTES

LOCATIONS OF ALL UTILITIES AND SUB-SURFACE STRUCTURES ARE FROM SURVEY AND RECORDS OF TOWN, CORPORATIONS, ETC., AND ARE CONSIDERED APPROXIMATE BOTH AS TO SIZE AND LOCATION AND ARE INDICATED ON THESE DRAWINGS TO GIVE BIDDERS A GENERAL IDEA OF EXISTING CONDITIONS TO BE INVESTIGATED BY THE BIDDER. IT IS UNDERSTOOD AND AGREED THAT EACH BIDDER WILL NOT RELY UPON THESE DRAWINGS FOR SUCH INFORMATION, BUT THAT EACH BIDDER SHALL MAKE EXAMINATIONS IN THE FIELD BY VARIOUS AVAILABLE METHODS AND SHALL OBTAIN INFORMATION FROM UTILITY CORPORATIONS AND INDIVIDUALS AS TO THE LOCATION OF ALL SUB-SURFACE STRUCTURES.

ALL ELEVATIONS REFER TO NATIONAL GEODETIC VERTICAL DATUM OF 1929.



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SINGLE LINE AND SCHEMATIC DIAGRAM SYMBOLS

	COMBINATION DISCONNECT SWITCH AND MAGNETIC STARTER
	COMBINATION MOLDED CASE BREAKER AND MAGNETIC CONTACTOR
	COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC ACROSS THE LINE STARTER
	COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC STARTER AS FOLLOWS:
	2S2W = 2 SPEED 2 WINDING
	2S1W = 2 SPEED 1 WINDING
	RVNR = REDUCED VOLTAGE NON-REVERSING AUTO-TRANSFORMER
	FVR = FULL VOLTAGE REVERSING
	SSRV = SOLID STATE REDUCED VOLTAGE
	MOLDED CASE AIR CIRCUIT BREAKER (3 POLE UNLESS OTHERWISE NOTED)
	100 REFERS TO TRIP RATING
	TRANSFORMER (AS NOTED)
	DELTA
	GROUNDING WYE
	LIGHTNING ARRESTER, NUMERAL DENOTES QUANTITY
	SURGE CAPACITOR
	GROUND
	FUSE - CLF DENOTES CURRENT LIMITING TYPE
	MOTOR, NUMBER INDICATES HORSEPOWER
	2 WINDING, 2 SPEED MOTOR
	ELECTRIC HEATING UNIT
	LOW VOLTAGE POWER CIRCUIT BREAKER, DRAW OUT TYPE, MANUALLY OR ELECTRICALLY OPERATED WITH STATIC TRIP DEVICES AND GROUND SENSOR. UPPER NUMERAL INDICATES FRAME SIZE, LOWER NUMERAL INDICATES TRIP SETTING. "E" INDICATES ELECTRICALLY OPERATED.
	CPT = CONTROL POWER TRANSFORMER
	PT = POTENTIAL TRANSFORMER
	NUMERAL DENOTES QUANTITY
	CURRENT TRANSFORMER, NUMERAL DENOTES QUANTITY
	A=AMMETER V=VOLTMETER W=WATTMETER D=DEMAND METER
	PF=POWER FACTOR METER VAR=VARMETER KWH=KILOWATT-HOUR METER F=FREQUENCY METER
	INDICATING LIGHTS
	R=RED, B=BLUE, G=GREEN, A=AMBER
	MECHANICALLY INTERLOCKED (KEY)
	ELECTRICALLY INTERLOCKED
	NORMALLY OPEN CONTACT (DENERGIZED POSITION)
	NORMALLY CLOSED CONTACT (DENERGIZED POSITION)
	VOLTMETER SELECTOR SWITCH
	AMMETER SELECTOR SWITCH
	CIRCUIT BREAKER CONTROL SWITCH
	CURRENT TEST BLOCK
	POTENTIAL TEST BLOCK
	SYNCHRONIZING SWITCH
	TEST BLOCK
	GROUND FAULT PROTECTION
	REWIRING PACKAGE MOTOR WITH COMPLETE MOTOR, MOTOR STARTER AND ALL NECESSARY CONTROLS. NUMERAL INDICATES KILOWATT RATING OR HORSEPOWER.
	PROTECTIVE RELAY
	25 - SYNCHROCHECK 27 - UNDERVOLTAGE 43 - TRANSFER DEVICE 49 - TRANSFORMER OVERTEMPERATURE 51 - INVERSE TIME OVERCURRENT 64 - GROUND PROTECTIVE 71 - TRANSFORMER LIQUID LEVEL 83 - TRANSFER 87 - DIFFERENTIAL
	26 - THERMAL DEVICE 32 - REVERSE POWER 50 - INSTANTANEOUS OVERCURRENT 62 - TIME DELAY 67 - DIRECTIONAL OVERCURRENT 74 - ALARM 86 - LOCKOUT RELAY, HAND RESET
	NEUTRAL GROUNDING RESISTOR (MEDIUM VOLTAGE)
	SURGE ARRESTOR
	MEDIUM VOLTAGE POWER CIRCUIT BREAKER DRAWOUT TYPE, ELECTRICALLY OPERATED, STORED-ENERGY. NUMERAL INDICATES CONTINUOUS AMPERE RATING
	DRAW OUT STYLE
	CPT = CONTROL POWER TRANSFORMER PT = POTENTIAL TRANSFORMER NUMERAL DENOTES QUANTITY
	KIRK KEY INTERLOCK
	CONTROL SWITCH
	UNINTERRUPTABLE POWER SUPPLY
	DIGITAL POWER METERING

LIGHTING LEGEND

	CEILING OUTLET AND INCANDESCENT OR HIGH INTENSITY DISCHARGE FIXTURE "G" INDICATES FIXTURE TYPE, "b" INDICATES CONTROLLED BY SWITCH "b" "2" INDICATES CIRCUIT NUMBER
	WALL MOUNTED LIGHTING FIXTURES. NOTATION SAME AS ABOVE
	FLUORESCENT LIGHTING FIXTURE. NOTATION SAME AS ABOVE
	FLUORESCENT NIGHT LIGHTING FIXTURE. NOTATION SAME AS ABOVE FIXTURE SHALL BE UNSWITCHED
	WALL OUTLET AND EXIT SIGN
	CEILING OUTLET AND EXIT SIGN (ARROW INDICATES DIRECTION OF EGRESS)
	EMERGENCY LIGHTING BATTERY UNIT WITH LIGHT HEADS. 1 DENOTES UNIT NUMBER
	REMOTE EMERGENCY LIGHTING HEAD, WALL MOUNTED
	REMOTE EMERGENCY LIGHTING HEAD, CEILING MOUNTED
	POLE MOUNTED LIGHT FIXTURE
	PHOTOCELL

SWITCH LEGEND

	S _c SINGLE POLE SWITCH CONTROLLING LIGHTS "C"
	S ₂ DOUBLE POLE SWITCH
	S ₃ THREE WAY SWITCH
	S ₄ FOUR WAY SWITCH
	ST WALL MOUNTED TIMER SWITCH

WIRING DEVICE LEGEND

	20A-2P-3W-208V RECEPTACLE
	DUPLEX RECEPTACLE, GROUNDED TYPE-13 INDICATES CIRCUIT NUMBER UON MOUNTING HEIGHT SHALL BE AS PER SPEC. SECTION 16,500
	SIMPLEX RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE, 240, 2P, 3 WIRE, OR AS OTHERWISE INDICATED (30 INDICATES AMPERE RATING)
	GROUND FAULT RECEPTACLE (MOUNT 4'-0" A.F.F.)

BRANCH CIRCUIT AND FEEDER LEGEND

	CONDUIT RUN EXPOSED (DIAGONALS DENOTE THE NUMBER OF NO. 12 AWG WIRES. IF NO DIAGONALS, 2 NO. 12 WIRES & 1#12 GND IN 3/4" CONDUIT U.O.N.)
	HOMERUN. RUN TO PANEL LPT ¹ CIRCUITS 1 & 3
	CONDUIT RUN CONCEALED (2 NO. 12 WIRES & 1#12 GND IN 3/4" CONDUIT UNLESS OTHERWISE NOTED)
	CONDUIT RUN UNDERGROUND
	FLEXIBLE CONDUIT
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN

MOTOR AND CONTROL LEGEND

	DISCONNECT SWITCH, 600 VOLT-30A, 3P, UON F INDICATES FUSED TYPE
	MANUAL MOTOR STARTER. "P" DENOTES WITH PILOT LIGHT
	MAGNETIC MOTOR STARTER
	UNIT HEATER
	LIGHTING OR HEATING CONTACTOR, M-MECHANICALLY, E-ELECTRICALLY HELD TYPE
	THERMOSTAT
	EMERGENCY PUSH BUTTON
	MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOAD PROTECTION

FIRE ALARM SYSTEM SYMBOLS

	MANUAL FIRE ALARM STATION
	FIRE ALARM AUDIO/VISUAL DEVICE
	FIRE ALARM BEACON
	FIRE ALARM VISUAL DEVICE
	SMOKE DETECTOR, PHOTOELECTRIC TYPE.
	"ER" ELEVATOR RECALL
	DUCT SMOKE DETECTOR
	REMOTE TEST STATION FOR DUCT SMOKE DETECTOR
	HEAT DETECTOR, COMBINATION RATE-OF-RISE AND FIXED TEMPERATURE
	HEAT DETECTOR, FIXED TEMPERATURE, NUMBER INDICATES TEMPERATURE SETTING
	FLOW SWITCH
	TAMPER SWITCH
	FIRE ALARM CONTROL PANEL
	FIRE ALARM ANNUNCIATOR PANEL
	REMOTE ALARM INDICATING LIGHT

ABBREVIATIONS

2(3#8,1"C.)	2, 1-INCH CONDUITS EACH CONDUIT CONTAINING 3-#8 AWG COPPER WIRES	MCC	MOTOR CONTROL CENTER
3/4" CE	EMPTY CONDUIT, WITH PULL STRING. NUMERAL DENOTES SIZE	MH	MANHOLE
1-2/C#14TS	ONE-TWO CONDUCTOR, NO. 14 AWG, TWISTED SHIELDED PAIR CABLE	MeH	METAL HALIDE MANUFACTURER
ACV	AIR CONTROL VALVE	MOV	MOTOR OPERATED VALVE
AE	ANALYZER ELEMENT	MS	MOISTURE SENSOR
AIT	ANALYZER INDICATING TRANSMITTER	NC	NORMALLY CLOSED
AFF	ABOVE FINISHED FLOOR	NO	NORMALLY OPEN
AFG	ABOVE FINISHED GRADE	NTS	NOT TO SCALE
AR	AUXILIARY RELAY	OH	OVERHEAD
ATC	AUTOMATIC TEMPERATURE CONTROL	OL	MOTOR OVERLOAD HEATER
ATS	AUTOMATIC TRANSFER SWITCH	P	PUMP
BC	BATTERY CHARGER	PB	PUSHBUTTON CONTROL STATION MOMENTARY CONTACT TYPE, STOP START
BDS	BLOWER DISCHARGE TEMPERATURE SWITCH	PBL	PUSHBUTTON CONTROL STATION MOMENTARY TYPE WITH LOCK-OUT DEVICE, STOP-START
BP	BYPASS (CONTACT AT MOTOR STARTER)	PBM	PUSHBUTTON CONTROL STATION MAINTAINED CONTACT TYPE, STOP START
BWCV	BACKWASH WASTE CONTROL VALVE	PC	PHOTOCELL
CFPWTF	CHEMICAL FILL PANEL WATER TREATMENT FACILITY	PF	POWER FACTOR
CP	CONTROL PANEL	PFCC	POWER FACTOR CORRECTION CAPACITOR
CPT	CONTROL POWER TRANSFORMER	PFRL	PHASE FAILURE RELAY
CR	CONTROL RELAY	PIT	PRESSURE INDICATOR TRANSMITTER
DMFM	DIGITAL MULTIFUNCTION METER	PL	PUSHBUTTON CONTROL STATION MOMENTARY TYPE WITH LOCK-OUT DEVICE, STOP
DPIT	DIFFERENTIAL PRESSURE INDICATING TRANSMITTER	PMG	PERMANENT MAGNET GENERATOR
DRG. DWG.	DRAWING	POT	POTENTIOMETER
DS	DOOR SWITCH FOR SECURITY SYSTEM	PS	PRESSURE SWITCH
EF	EXHAUST FAN	PSH	PRESSURE SWITCH HIGH
EMH	ELECTRICAL MANHOLE	PSL	PRESSURE SWITCH LOW
EPO	EMERGENCY PUSH BUTTON	PT	PRESSURE TRANSMITTER
ETM	ELAPSED TIME METER	RGS	RIGID GALVANIZED STEEL
EUH	ELECTRIC UNIT HEATER	RP	RELAY PANEL
EW	ELECTRIC WATER HEATER	RTCP	REMOTE TELEMETRY CONTROL PANEL
FOP	FILTER CONTROL PANEL	RTU	REMOTE TELEMETRY UNIT
FCV	FLOW CONTROL VALVE	SOV	SOLENOID VALVE
FE	FLOW ELEMENT	SS	SELECTOR SWITCH
FIT	FLOW INDICATOR TRANSMITTER	ST	SHUNT TRIP RELAY
FLUOR	FLUORESCENT	SWP	SAMPLE WATER PUMP
FS	FLOW SWITCH	TB	TERMINAL BOX
FSL	FLOW SWITCH LOW	TD	MOTOR TEMPERATURE DETECTOR
FT	FLOW TRANSMITTER	TDC	TIME DELAY CLOSING
FV	FLOW VALVE	TDO	TIME DELAY OPENING
FWCV	FILTER WASTE CONTROL VALVE	TDM	TEMPERATURE DETECTION MODULE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TE/TT	TEMPERATURE ELEMENT/TEMPERATURE TRANSMITTER
GFR	GROUND FAULT RELAY	TG	TACH GENERATOR
GND, GRD	GROUNDING CONDUCTOR (EQUIPMENT)	TOC	TOP OF CONCRETE
HOA	HAND-OFF-AUTOMATIC	TQ	TORQUE OVERLOAD SWITCH
HH	HANDHOLE	TS	TEMPERATURE SWITCH
HPS	HIGH PRESSURE SODIUM	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
HTR	HEATER	TYP	TYPICAL
J	JUNCTION BOX	UG	UNDERGROUND
K	KEY INTERLOCK	UPS	UNINTERRUPTIBLE POWER SUPPLY
LC	LOAD CENTER	USP	UNINTERRUPTIBLE SUPPLY PANELBOARD
LCP	LIGHTING CONTROL PANEL	UV	ULTRAVIOLET
LE	LEVEL ELEMENT	VD	VIBRATION DETECTOR
LIT	LEVEL INDICATOR TRANSMITTER	VFD	VARIABLE FREQUENCY DRIVE
LL	LOW LEVEL	VFDC	VFD POWERED FROM A DC SOURCE
LSL	LEVEL SWITCH LOW	WP	WEATHERPROOF (NEMA 4 UNLESS OTHERWISE NOTED)
LSH	LEVEL SWITCH HIGH	WTPCP	WATER TREATMENT PLANT CONTROL PANEL
LO	LOCKOUT		
LR	LATCHING RELAY		
LS	LIMIT SWITCH		
LT	LEVEL TRANSMITTER		
MAU	MAKE UP AIR UNIT		

SECURITY LEGEND

	MAGNETIC DOOR SWITCH
	SECURITY ALARM CONTROL PANEL
	DOOR BELL
	KEY PAD
	CARD READER
	SECURITY ALARM BEACON

COMMUNICATIONS SYSTEM SYMBOLS

	TELEPHONE OUTLET - WALL TYPE
	CEILING SPEAKER FLUSH MOUNTED
	WALL SPEAKER
	WALL MOUNTED INTERCOM HORN, W=WIDE ANGLE, WP=WEATHERPROOF, CR=CORROSION RESISTANT
	SPEAKER AMPLIFIER
	SPEAKER AMPLIFIER WITH HANDSET
	HANDSET-WALL MOUNTED
	ADDRESSABLE RELAY

POWER DISTRIBUTION LEGEND

	SURFACE MOUNTED POWER PANEL
	FLUSH MOUNTED POWER PANEL
	SURFACE MOUNTED LIGHTING PANEL
	FLUSH MOUNTED LIGHTING PANEL
	TRANSFORMER

SITE AND GROUNDING LEGEND

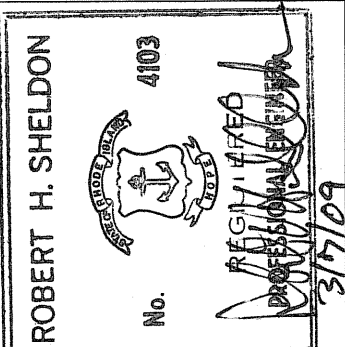
	POWER COMPANY POLE
	GROUND ROD
	BUILDING GROUND GRID

GENERAL NOTES

- ALL CONDUIT AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
- PROVIDE GROUND CONNECTIONS TO WATER PIPES, IN EACH FACILITY BONDING JUMPERS, CONDUIT CLAMPS AND POINTS OF ATTACHMENT ARE NOT SHOWN ON DRAWINGS. SIZE BONDING JUMPERS IN ACCORDANCE WITH TABLE 250-122 OF THE NATIONAL ELECTRICAL CODE. THE POINTS OF ATTACHMENT OF THE GROUND CLAMPS SHALL BE ACCESSIBLE LOCATIONS.
- CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
- CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
- NO CONDUIT SMALLER THAN 3/4" PIPE SIZE NOR WIRE SMALLER THAN NO. 12 A.W.G. SHALL BE USED UNLESS OTHERWISE NOTED.
- THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
- SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. RECEPTACLES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED, EXCEPT RECEPTACLES IN OFFICES OR AREAS WITH SUSPENDED CEILINGS SHALL BE MOUNTED 1'-6" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
- ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INSIDE OF THE EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED AS DAMP, SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
- ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE TOP CIRCUIT BREAKER OPERATING HANDLE TO THE FLOOR SHALL NOT EXCEED 6'-6".
- LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS, WITH THE DISTANCE BEING MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.
- FOR EXPLANATION OF INSTRUMENTATION SYMBOLS SHOWN ON ELECTRICAL DRAWINGS, SEE INSTRUMENTATION LEGEND AND NOTES ON SHEET 1-1.
- PROVIDE CONDUIT AND WIRE FOR ALL SURGE PROTECTION DEVICES AT INSTRUMENTS AND INSTRUMENTATION PANELS. SURGE PROTECTION DEVICES TO BE PROVIDED BY DIVISION 13 SUPPLIER. INSTALLATION OF INSTRUMENTATION AND ACCESSORIES BY DIVISION 13 CONTRACTOR.
- CONDUIT AND WIRE (NOT SHOWN) FOR THE HVAC CONTROL EQUIPMENT AND MISCELLANEOUS DEVICES SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 15 OF SPECIFICATIONS AND SHALL BE:
 - 3/4" (MIN.) CONDUIT.
 - NO. 14 CU. WIRE (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED
- CONDUIT AND WIRE (NOT SHOWN) FOR LIGHTING FIXTURES, SWITCHES AND/OR RECEPTACLES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND SHALL BE:
 - 3/4" (MIN.) CONDUIT OR MC CABLE IN FINISHED WALLS/CEILINGS
 - EXPOSED IN UNFINISHED AREAS.
 - CONCEALED ABOVE SUSPENDED CEILINGS AND IN WALLS IN FINISHED AREAS.
 - NO. 12 CU. WIRE (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED, INCLUDING GROUND.
- OUTLET, SWITCH, JUNCTION, PULL AND TERMINAL BOXES SHALL BE PROVIDED WITH NEMA ENCLOSURE AS INDICATED ON THE EQUIPMENT ENCLOSURE SCHEDULE.
- DUCTLINE CONDUIT SIZES ARE GIVEN IN THE DUCTLINE CABLE/CONDUIT SCHEDULE, WHERE THE SAME CONDUIT NUMBER IS USED BOTH IN THE DUCTLINE AND IN A BUILDING. THE CONDUIT SIZE GIVEN IN THE CONDUIT SCHEDULE APPLIES TO THE CONDUIT IN THE BUILDING ONLY.
- ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS AS REQUIRED. FOR EXACT LOCATIONS OF EXPANSION JOINTS SEE STRUCTURAL DRAWINGS.
- SWITCHGEAR AND MCC COMPARTMENT DESIGNATIONS AS INDICATED BELOW:
 - BLANK: NOT INTENDED FOR USE. PLATE ONLY.
 - SPACE: CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS WITHIN SIZE RANGE SHOWN.
 - SPARE: CONTAINS A COMPLETE BREAKER OR STARTER INSTALLED, SIZE AS INDICATED AVAILABLE FOR FUTURE USE.
- ALL MOTOR STARTER CONTROL TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT-AMPERE CAPACITY FOR OPERATING ALL ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR: IN ADDITION TO THE STARTER COIL, IT SHALL INCLUDE RELAYS, TIMERS, MOTOR HEATERS, INDICATING LIGHTS, ETC.



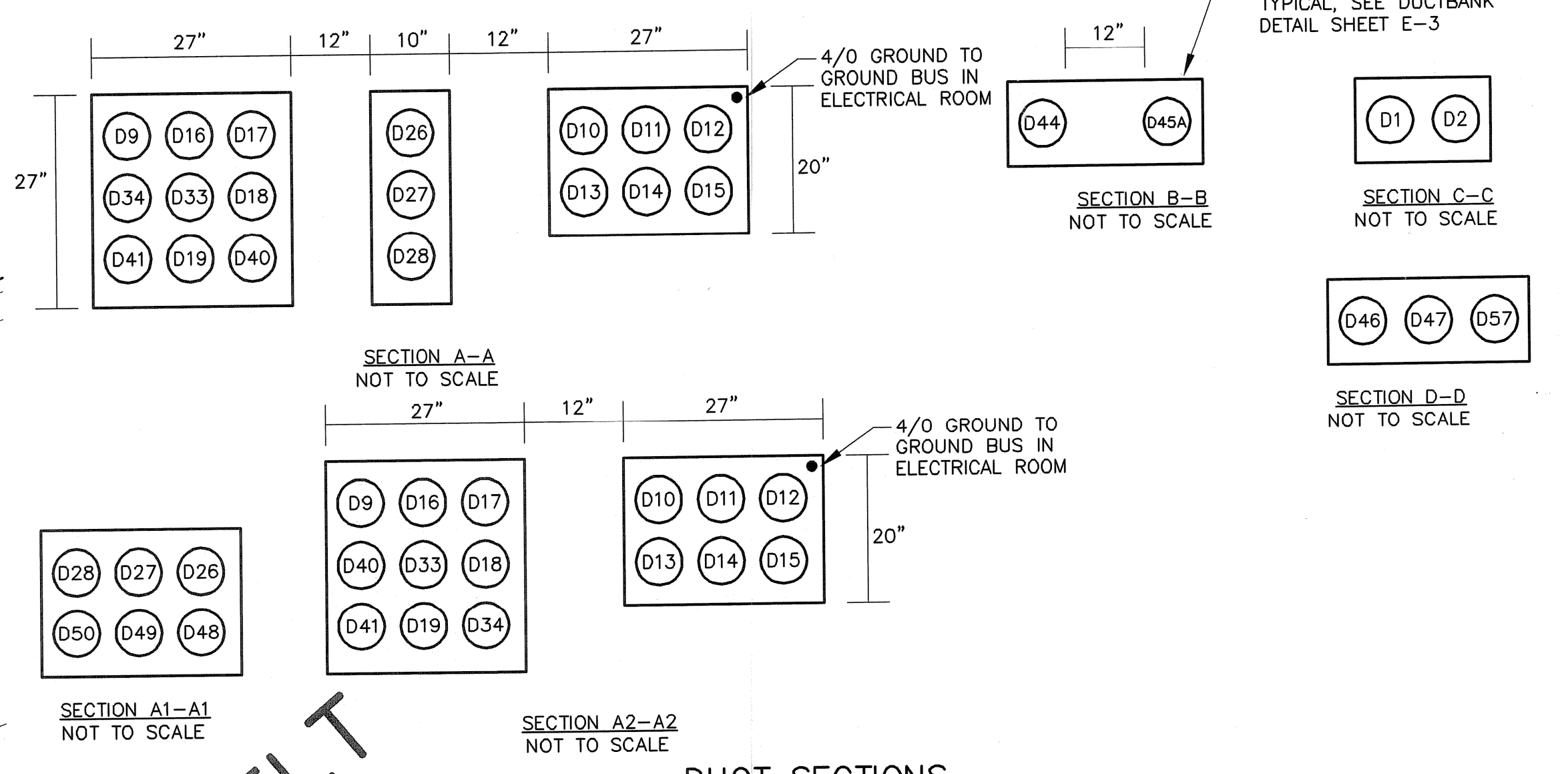
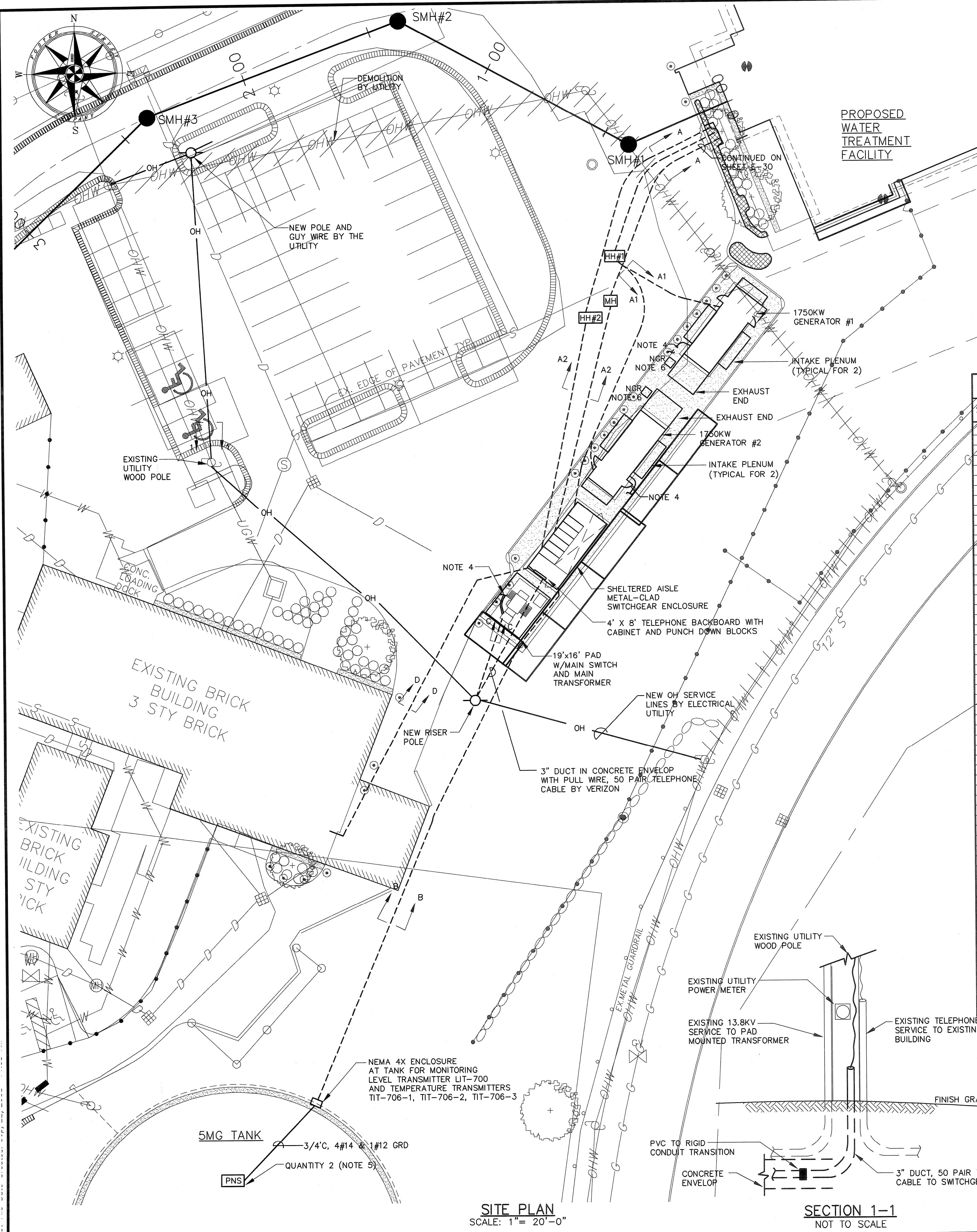
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DM	02/22/08
DM	01/14/08
DM	10/31/06
DM	07/27/06
DM	JULY 2006



PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
 LEGEND, ABBREVIATIONS AND GENERAL NOTES

DESIGNED BY	DM	DWG SCALE	AS NOTED
DRAWN BY	DM	CONTRACT NO.	
CHECKED BY	WS	DATE	OCTOBER 31, 2006

EARTH TECH
AS-BUILT FILE
JULY 2008



DUCTBANK CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE	CONDUCTORS	FROM	TO	REMARKS
D1	3"	PRIMARY CABLE	UTILITY POLE	MAIN PRIMARY SWITCH	
D2	5"	SPARE	UTILITY POLE	MAIN PRIMARY SWITCH	
D3	4"	3-350KCML (5KV) & 1#2/0G	PAD MOUNTED TRANSFORMER	SWITCHGEAR ENCLOSURE	
D4	4"	3-350KCML (5KV) & 1#2/0G	PAD MOUNTED TRANSFORMER	SWITCHGEAR ENCLOSURE	
D5	4"	SPARE	PAD MOUNTED TRANSFORMER	SWITCHGEAR ENCLOSURE	
D6	4"	3-350KCML (5KV) & 1#2/0G	SWITCHGEAR ENCLOSURE	GENERATOR #1	
D7	4"	SPARE	SWITCHGEAR ENCLOSURE	GENERATOR #1	
D8A	4"	SPARE	SWITCHGEAR ENCLOSURE	GENERATOR #1	
D8	4"	3-350KCML (5KV) & 1#2/0G	SWITCHGEAR ENCLOSURE	GENERATOR #2	
D9	2"	SPARE	SWITCHGEAR ENCLOSURE	WTF ELECTRICAL ROOM	
D10	4"	3#3/0 (5KV) & 1#2G	SWITCHGEAR ENCLOSURE	WTF MV-MCC1	
D11	4"	3#3/0 (5KV) & 1#2G	SWITCHGEAR ENCLOSURE	WTF MV-MCC1	
D12	4"	3#3/0 (5KV) & 1#2G	SWITCHGEAR ENCLOSURE	WTF MV-MCC1	
D13	4"	SPARE	SWITCHGEAR ENCLOSURE	WTF MV-MCC1	
D14	4"	SPARE	SWITCHGEAR ENCLOSURE	WTF MV-MCC1	
D15	4"	SPARE	SWITCHGEAR ENCLOSURE	WTF MV-MCC1	
D16	2"	DATA HIGHWAY	MV-MCC1	MV-SWGR-2	DIV 13 - DH CABLE
D17	2"	5/C#12	WTF ELECTRICAL ROOM	MV-SWGR-2	NOTE 2
D18	2"	DATA HIGHWAY	MV-MCC1	MV-SWGR-2	DIV 16 - GEN. SYSTEM CABLE
D19	3"	(QUANTITY 2) FIBER OPTIC	RTCP, WTCP	SWITCHGEAR ENCLOSURE (PMCP)	POWER MONITORING
D20	2"	DATA HIGHWAY	GENERATOR NO.1	MV-SWGR-2	POWER MONITORING
D21	2"	9/C#14	GENERATOR NO.1	MV-SWGR-2	
D22	2"	DATA HIGHWAY	GENERATOR NO.2	MV-SWGR-2	
D23	2"	9/C#14	GENERATOR NO.2	MV-SWGR-2	
D24	2"	QTY 2 - 9/C#12	MV-SWGR-1	MV-SWGR-2	
D25	2"	QTY 2 - 9/C#12	MV-T-1 CONTROL PANEL	MV-SWGR-2	
D26	2"	4#1 & 1#6G	PANEL LP1	GENERATOR NO.1 LOAD CENTER	120/208V, 3-PH
D27	2"	4#1 & 1#6G	PANEL LP1	GENERATOR NO.2 LOAD CENTER	120/208V, 3-PH
D28	2"	4#1 & 1#6G	PANEL LP1	SWITCHGEAR ENCLOSURE LOAD CENTER	120/208V, 3-PH
D29	2"	6#10 & 1#10G	MV-SWGR-2	MV-SWGR-1	RELAY PROTECTION CTRL PWR
D30	2"	6#10 & 1#10G	MV-SWGR-2	MV-T-1 CONTROL PANEL	
D31	2"	6#10 & 1#10G	PANEL USP	MV-T-1 CONTROL PANEL	
D32	2"	6#10 & 1#10G	PANEL USP	MV-SWGR-1	
D33	2"	SECURITY	SWITCHGEAR ENCLOSURE	WTF ELECTRICAL ROOM (SACP)	
D34	2"	FIRE ALARM CABLE	SWITCHGEAR ENCLOSURE	WTF ELECTRICAL ROOM (FACP)	
D35	2"	SECURITY	GENERATOR NO.1	GENERATOR NO.2	
D36	2"	FIRE ALARM CABLE	GENERATOR NO.1	GENERATOR NO.2	
D37	2"	SECURITY	GENERATOR NO.2	SWITCHGEAR ENCLOSURE	
D38	2"	FIRE ALARM CABLE	GENERATOR NO.2	SWITCHGEAR ENCLOSURE	
D39	2"	SPARE	WTF	SWITCHGEAR ENCLOSURE	CAP 6" AFF
D40	3"	SPARE	WTF	SWITCHGEAR ENCLOSURE	CAP 6" AFF
D41	3"	TELEPHONE	WTF ELECTRICAL ROOM	SWITCHGEAR ENCLOSURE	
D42	2"	DATA HIGHWAY	SWITCHGEAR ENCLOSURE	GENERATOR NO.1	DIV 16 - GEN. SYSTEM CABLE
D43	2"	DATA HIGHWAY	SWITCHGEAR ENCLOSURE	GENERATOR NO.2	DIV 16 - GEN. SYSTEM CABLE
D44	3"	5-2/C#16TSP	LIT-700, TIT-706-1,2,3	RTCP	
D45					
D45A	2"	4#14 & 1#12 GRD	TANK HATCH POSITION SWITCH	SECURITY PANEL (ELEC. ENCLOSURE)	
D46	3"	FIBER OPTIC CABLE	SWITCHGEAR ENCLOSURE	85 BRANCH ST. LAB	SCADA INTERFACE EQUIPMENT
D47	3"	30#14	SWITCHGEAR ENCLOSURE	85 BRANCH ST. BASEMENT	PUMP MONITORING
D48	2"	SPARE	HH#1	GENERATOR NO.1 ENCLOSURE	CAP 6" AFF
D49	2"	SPARE	HH#1	GENERATOR NO.2 ENCLOSURE	CAP 6" AFF
D50	2"	SPARE	HH#1	SWITCHGEAR ENCLOSURE	CAP 6" AFF
D51	2"	2#4	GENERATOR NO.1	SWITCHGEAR ENCLOSURE	BEST BATTERY SYSTEM
D52	2"	2#4	GENERATOR NO.2	SWITCHGEAR ENCLOSURE	BEST BATTERY SYSTEM
D53	2"	SPARE	GENERATOR NO.1	SWITCHGEAR ENCLOSURE	
D54	2"	SPARE	GENERATOR NO.2	SWITCHGEAR ENCLOSURE	
D55	2"	6#10 & 1#10GRD	MV-T-1 CONTROL PANEL	LOAD CENTER LC-1	COOLING FANS (CTRL PANEL
D56	2"	7#10 & 1#6GRD	MV-T-1 LOW VOLTAGE SECTION	SWITCHGEAR ENCLOSURE	GROUND FAULT CT WIRING
D57	3"	SPARE	SWITCHGEAR ENCLOSURE	85 BRANCH ST.	

- NOTES:
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES SEE SHEET E-1.
 - PROVIDE EPO IN ELECTRICAL ROOM HARDWIRED TO EACH GENERATOR BREAKER TO SHUT POWER TO FACILITY DURING EMERGENCY.
 - FOR DUCTBANK REQUIREMENTS BETWEEN ELECTRICAL EQUIPMENT ON SITE AND WATER TREATMENT FACILITY, SEE BLOCK DIAGRAMS ON SHEET E-4.
 - INTERCONNECTING DUCTS BETWEEN GENERATOR ENCLOSURE, MAIN SWITCH, SWITCHGEAR ENCLOSURE AND MAIN TRANSFORMER ARE NOT SHOWN. FIELD LOCATE THESE DUCTS TO EQUIPMENT PER BLOCK DIAGRAM ON SHEET E-4 AND APPROVED MANUFACTURER'S SHOP DRAWINGS.
 - PROVIDE POSITION SWITCHES AT TANK HATCHES, HEAVY DUTY, CAM OPERATED, AND WIRE BACK TO SECURITY PANEL.
 - NEUTRAL GROUNDING RESISTORS TO BE LOCATED NEXT TO EACH GENERATOR ENCLOSURE. ELECTRICAL CONTRACTOR TO INSTALL CABLE PER MANUFACTURER'S INSTRUCTIONS.

SITE PLAN
SCALE: 1" = 20'-0"

SECTION 1-1
NOT TO SCALE

EARTH TECH
AS-BUILT FILE
JULY 2008

PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
SITE PLAN

E-2
SHEET OF

DESIGNED BY: DM DWG SCALE: AS NOTED
DRAWN BY: DM CONTRACT NO:
CHECKED BY: WS DATE: OCTOBER 31, 2008

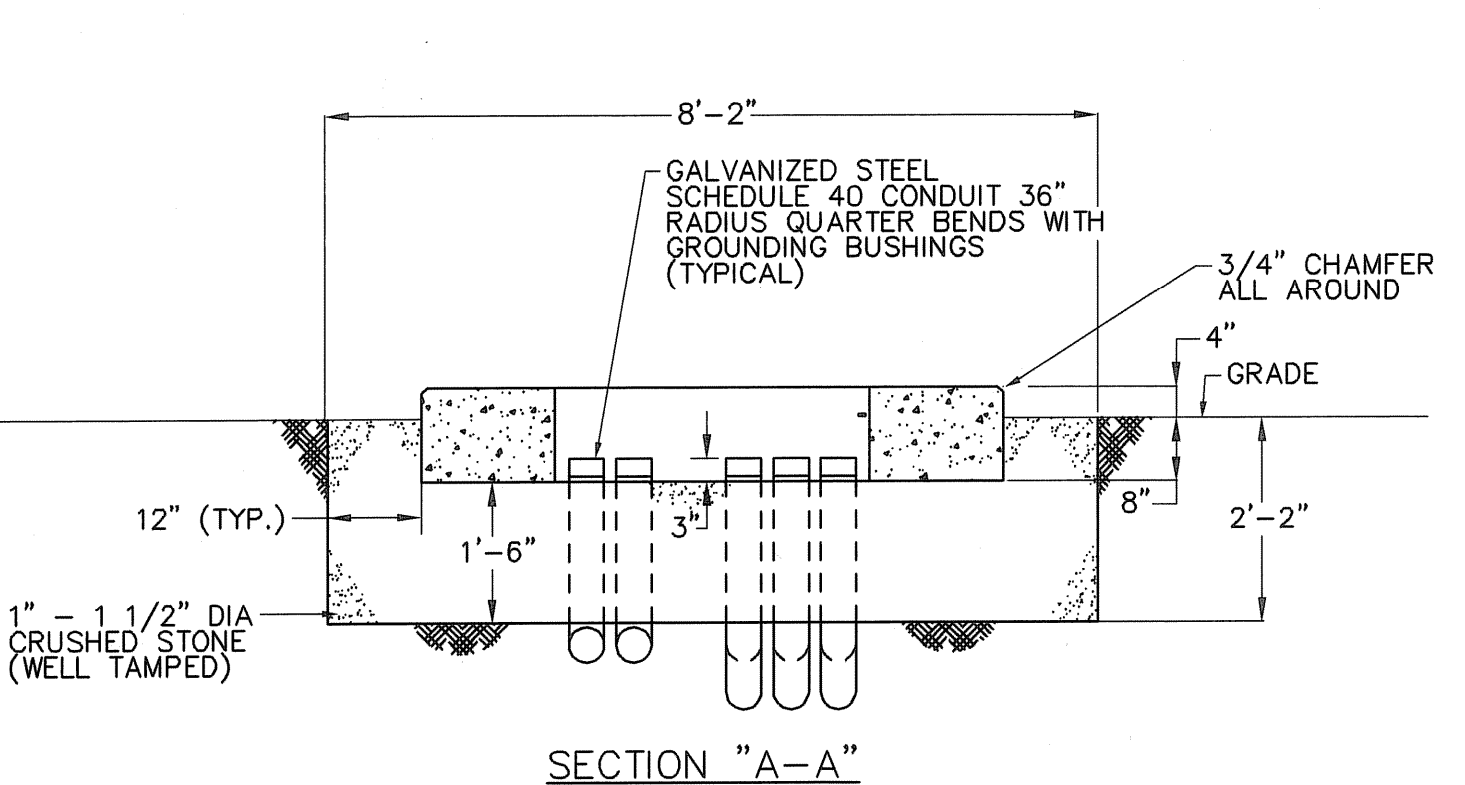
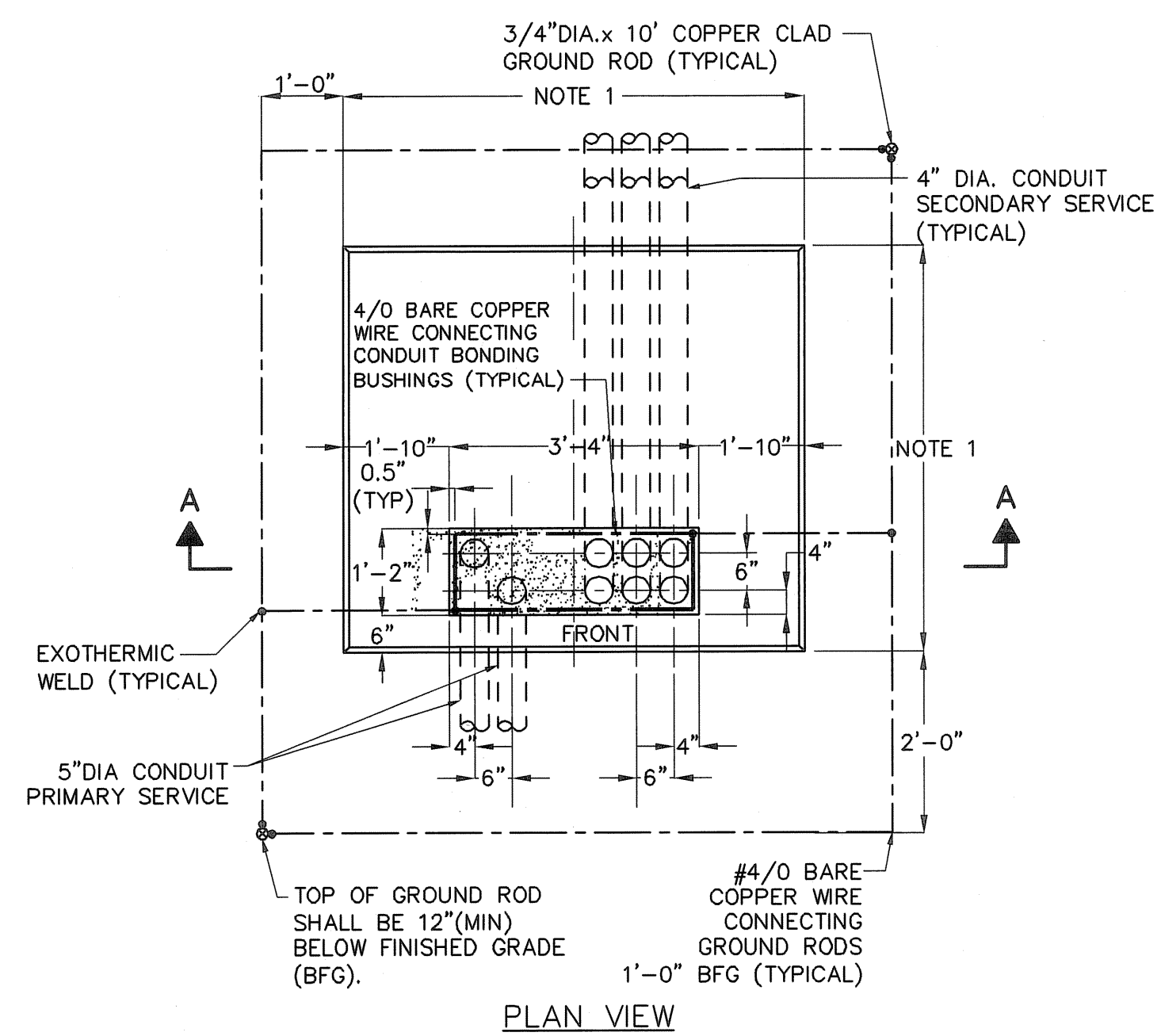
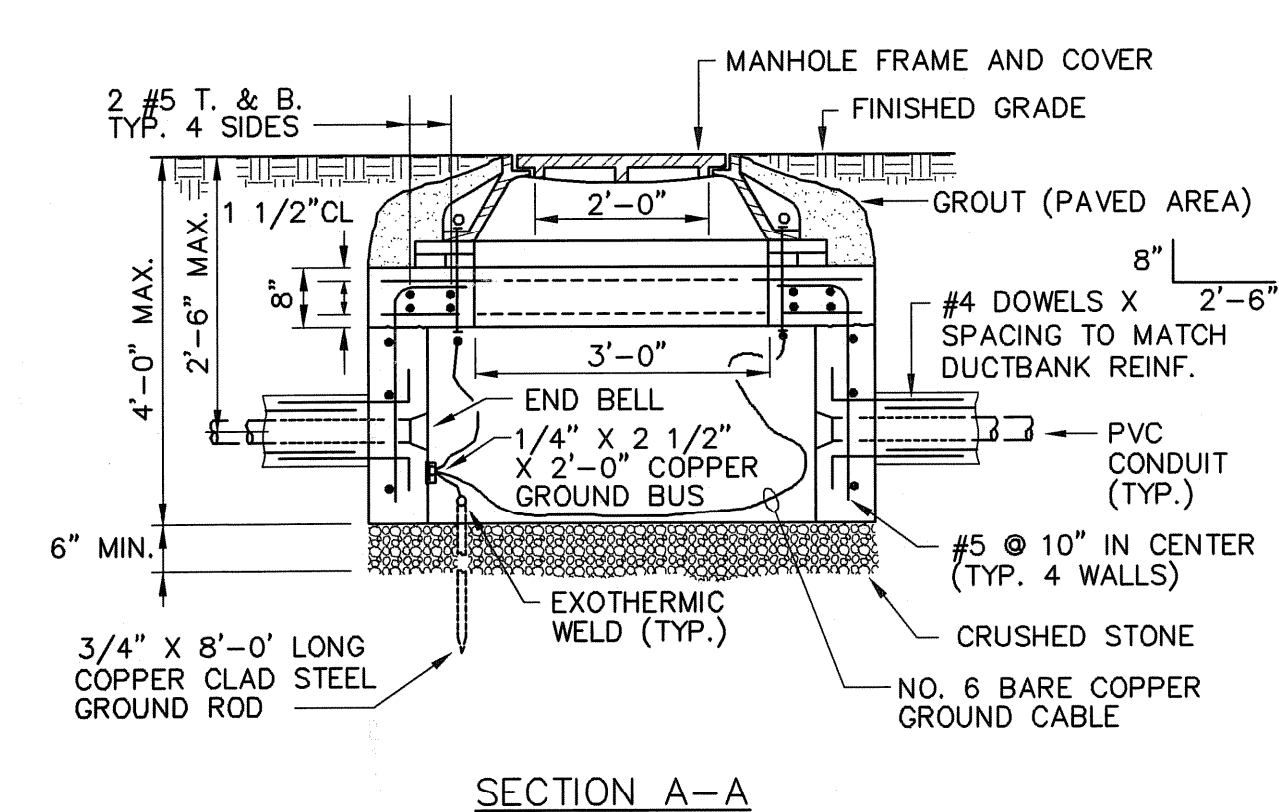
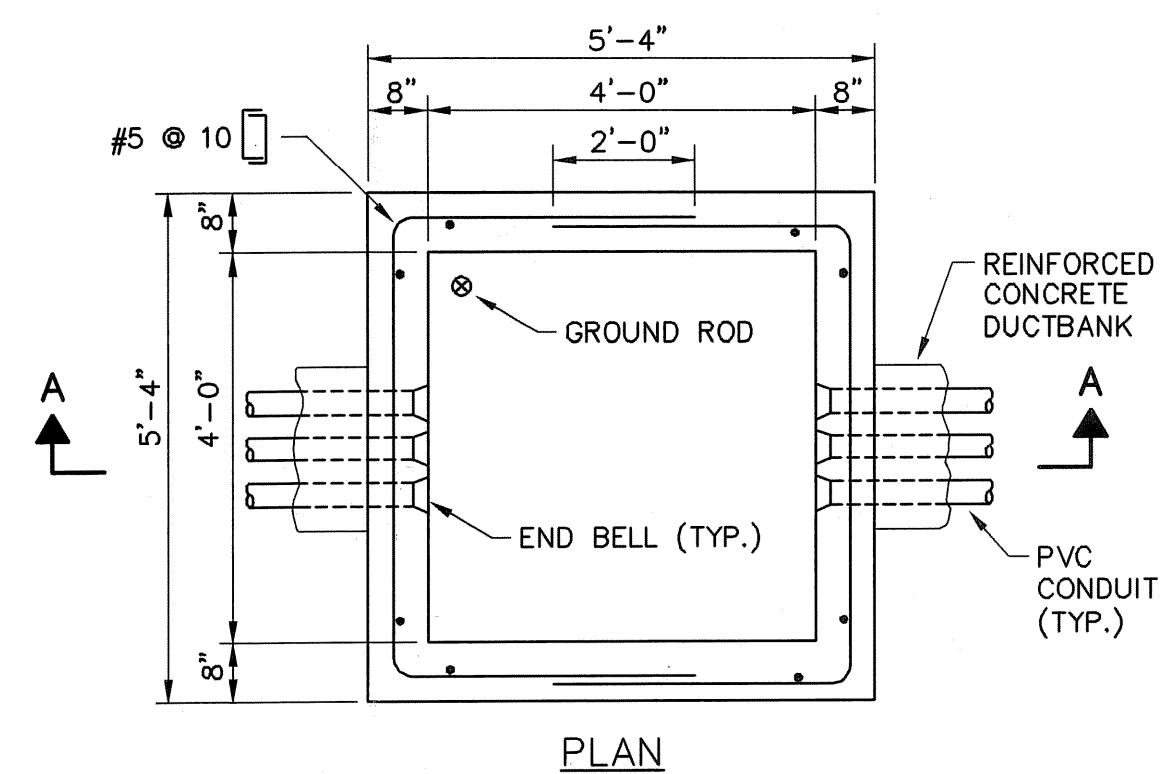
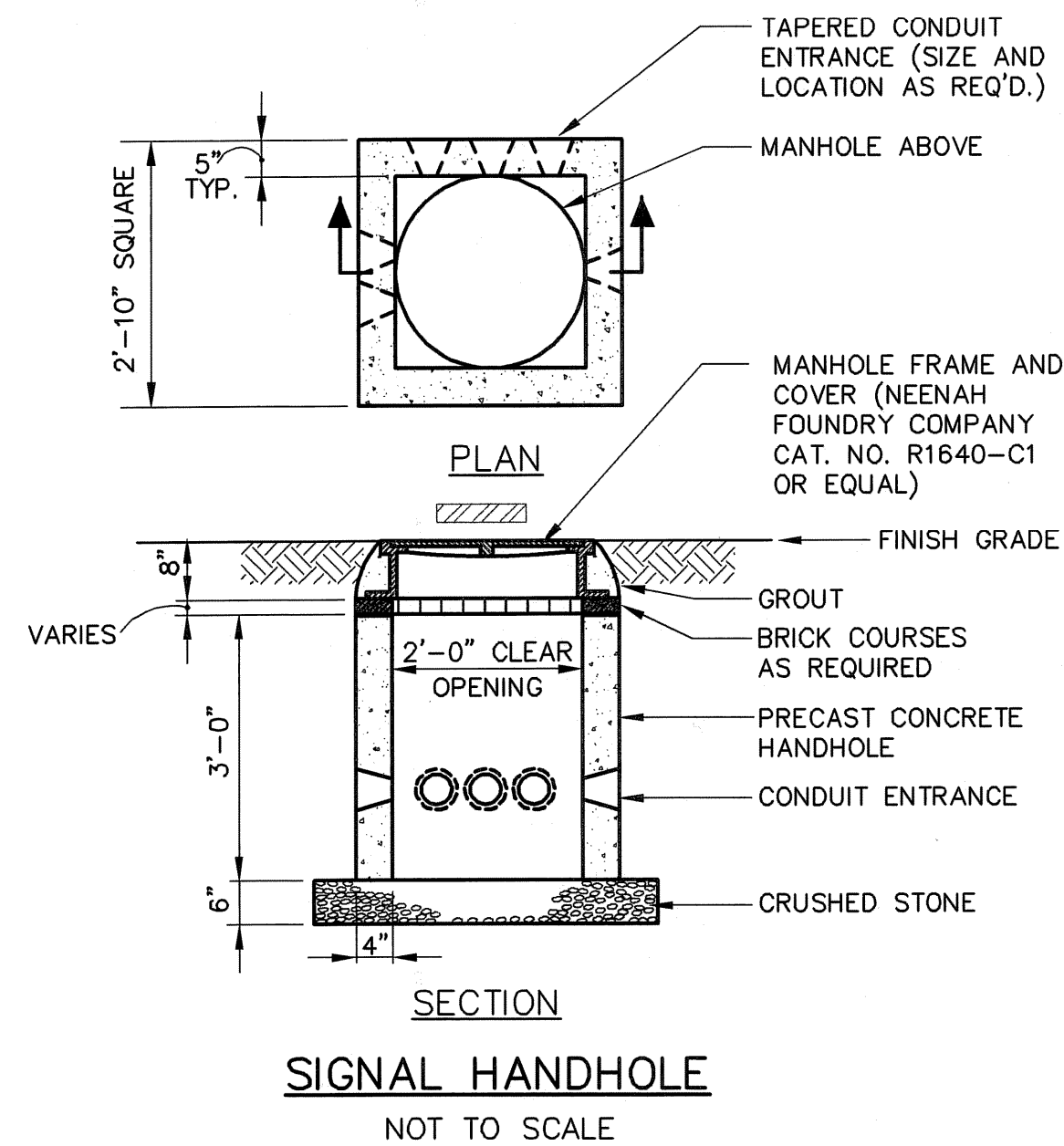
EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 200 CONCORD MA 01742 (978) 371-0000

REVISIONS

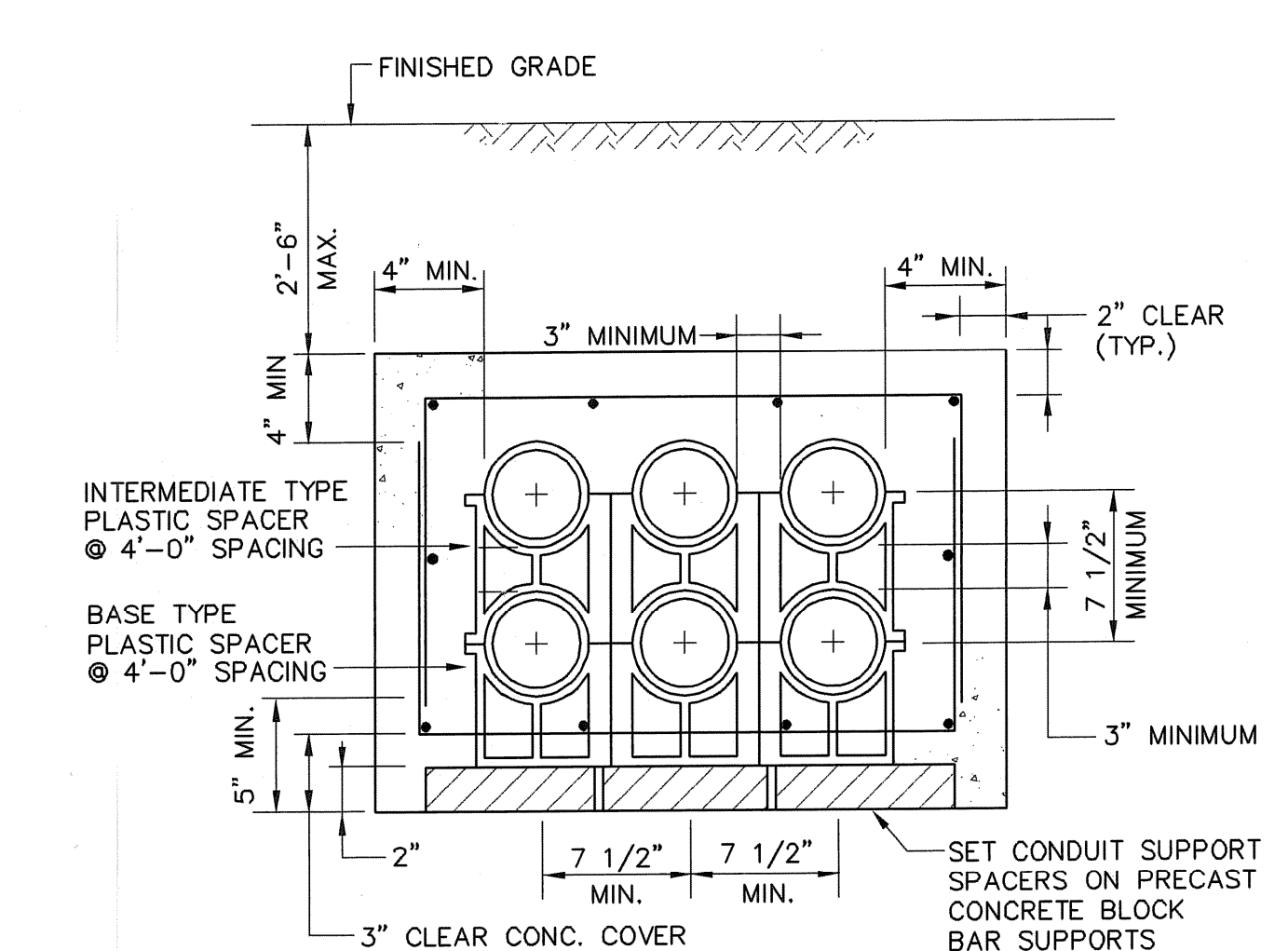
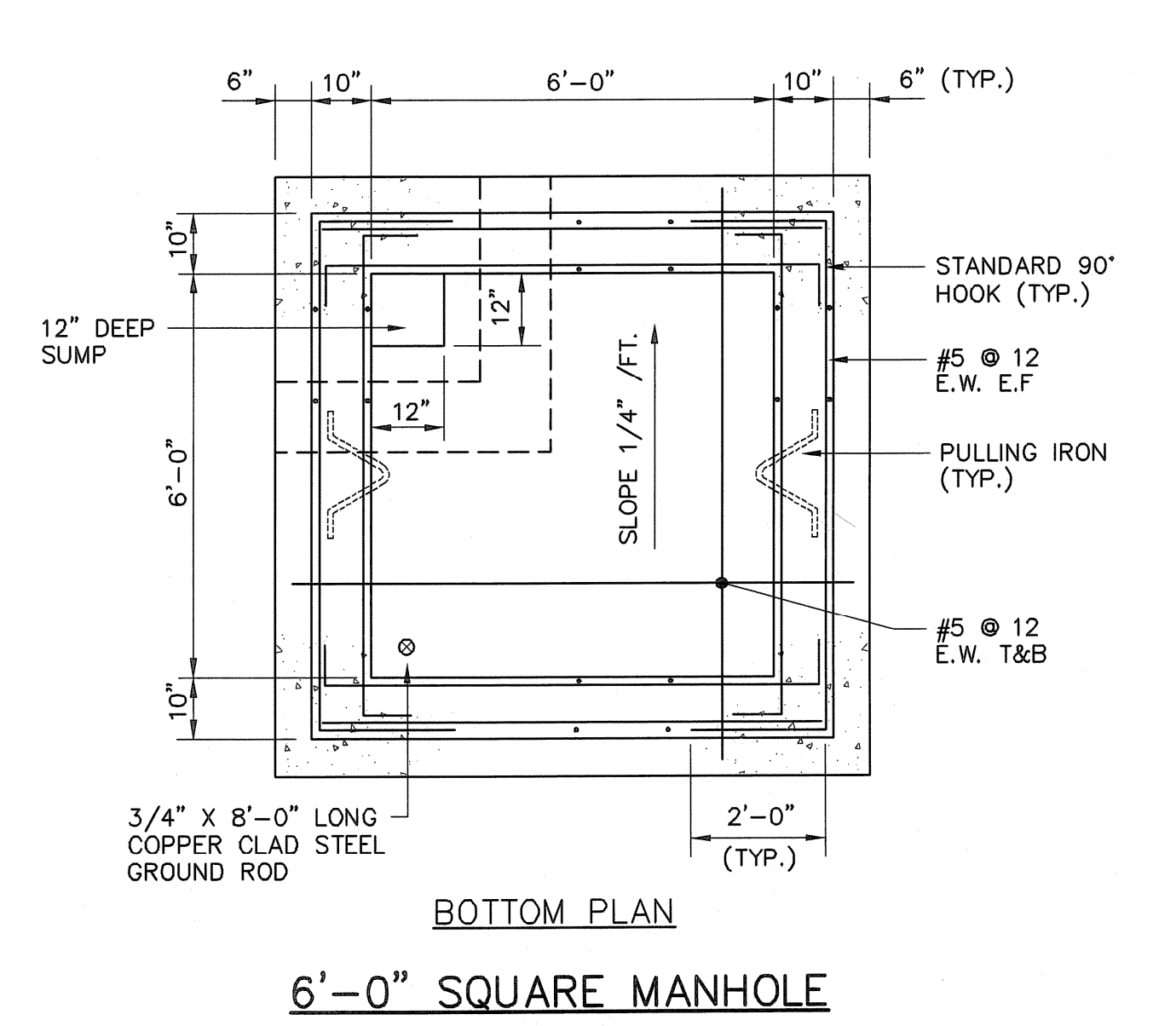
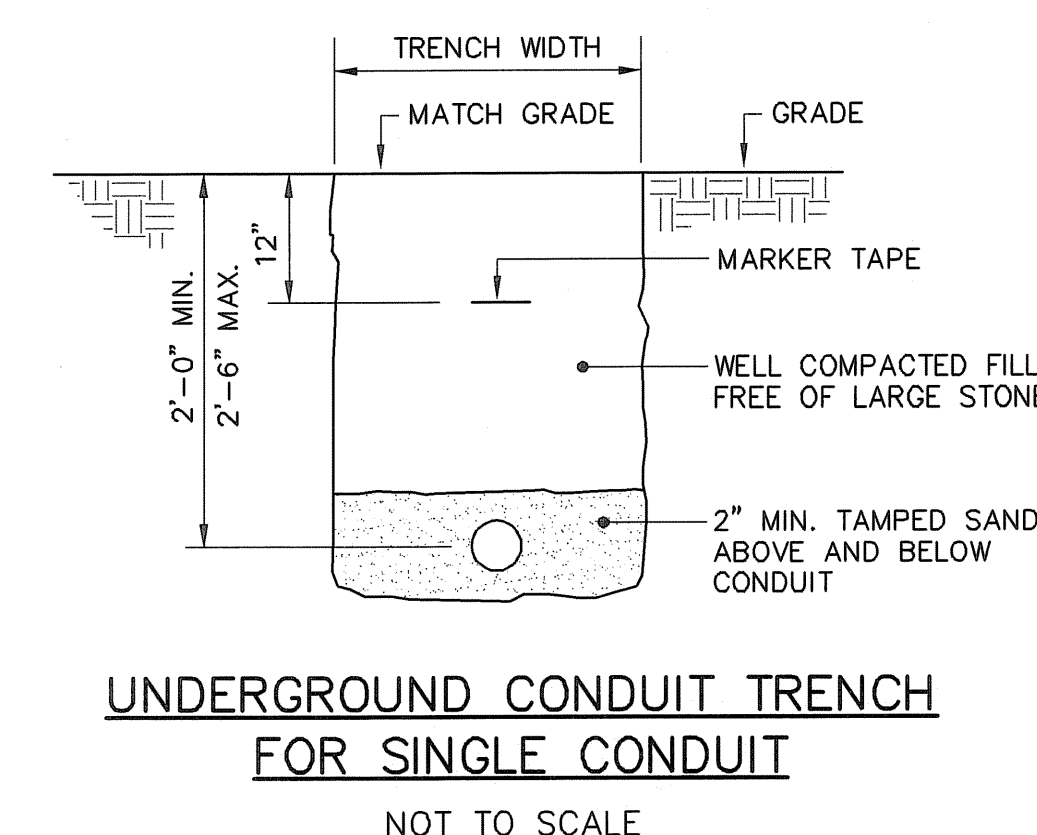
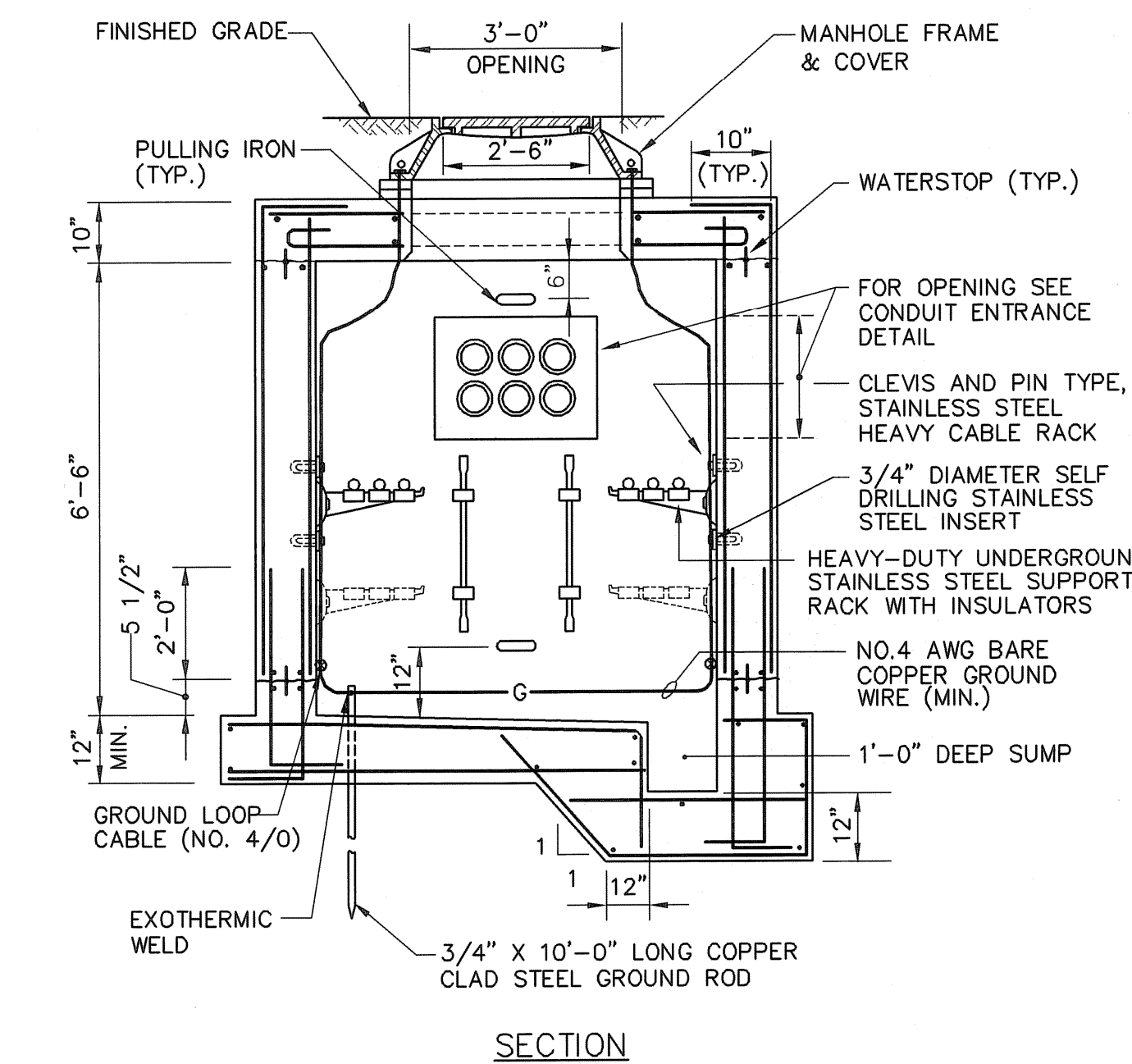
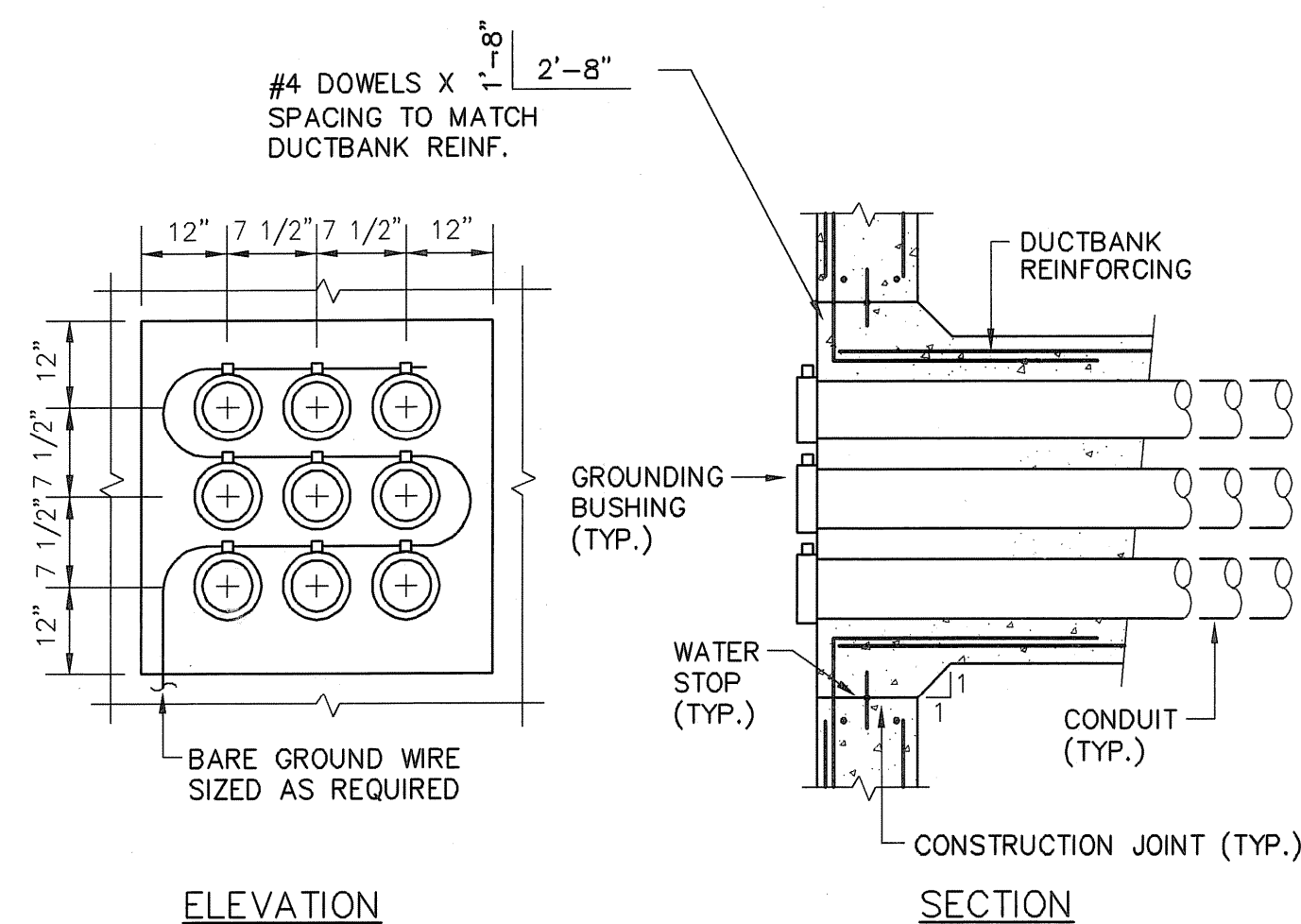
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2	ISSUED FOR RFI POSTED SET	MAC	
1	REVISED AS NOTED	MAC	
0	ISSUED FOR CONSTRUCTION	DM	
	09/27/05	DM	
	04/14/05	DM	
	04/14/05	DM	
	10/21/05	MAC	
	JULY 2008	DM	

FULL SIZE DRAWING = 4"

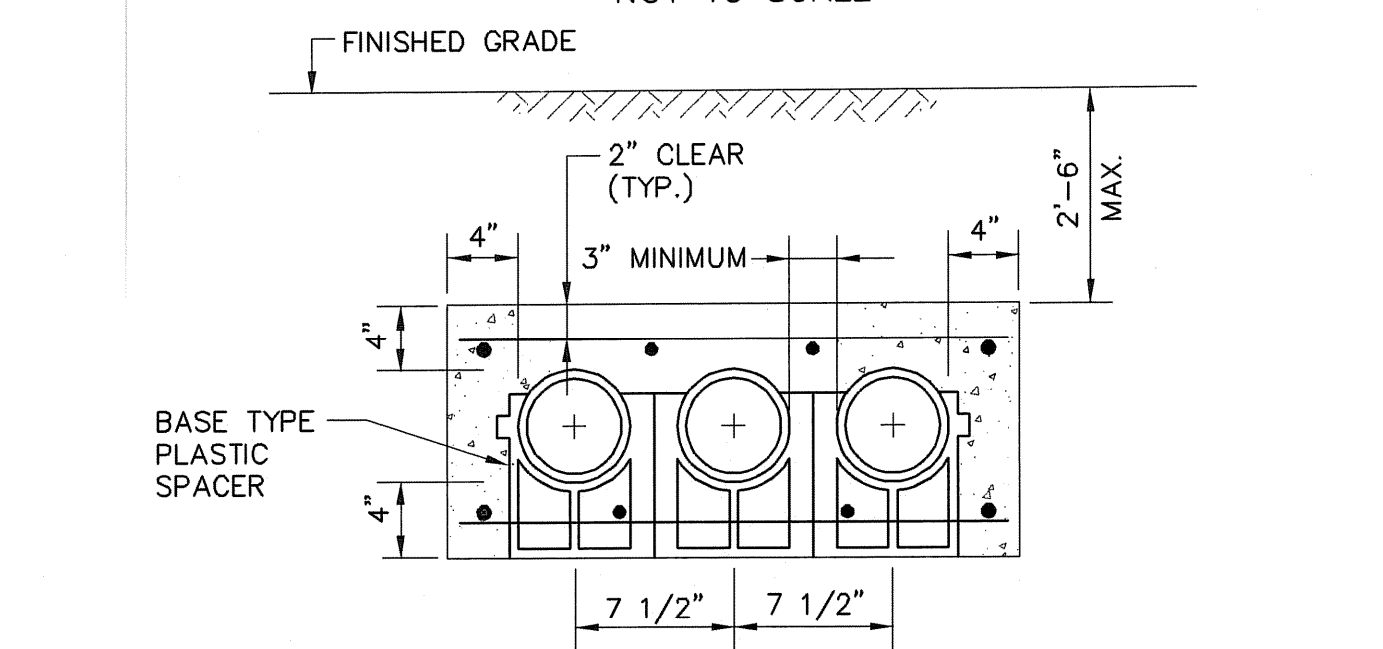
ROBERT H. SHELTON
No. 4103
Professional Engineer
State of Massachusetts
01/27/08



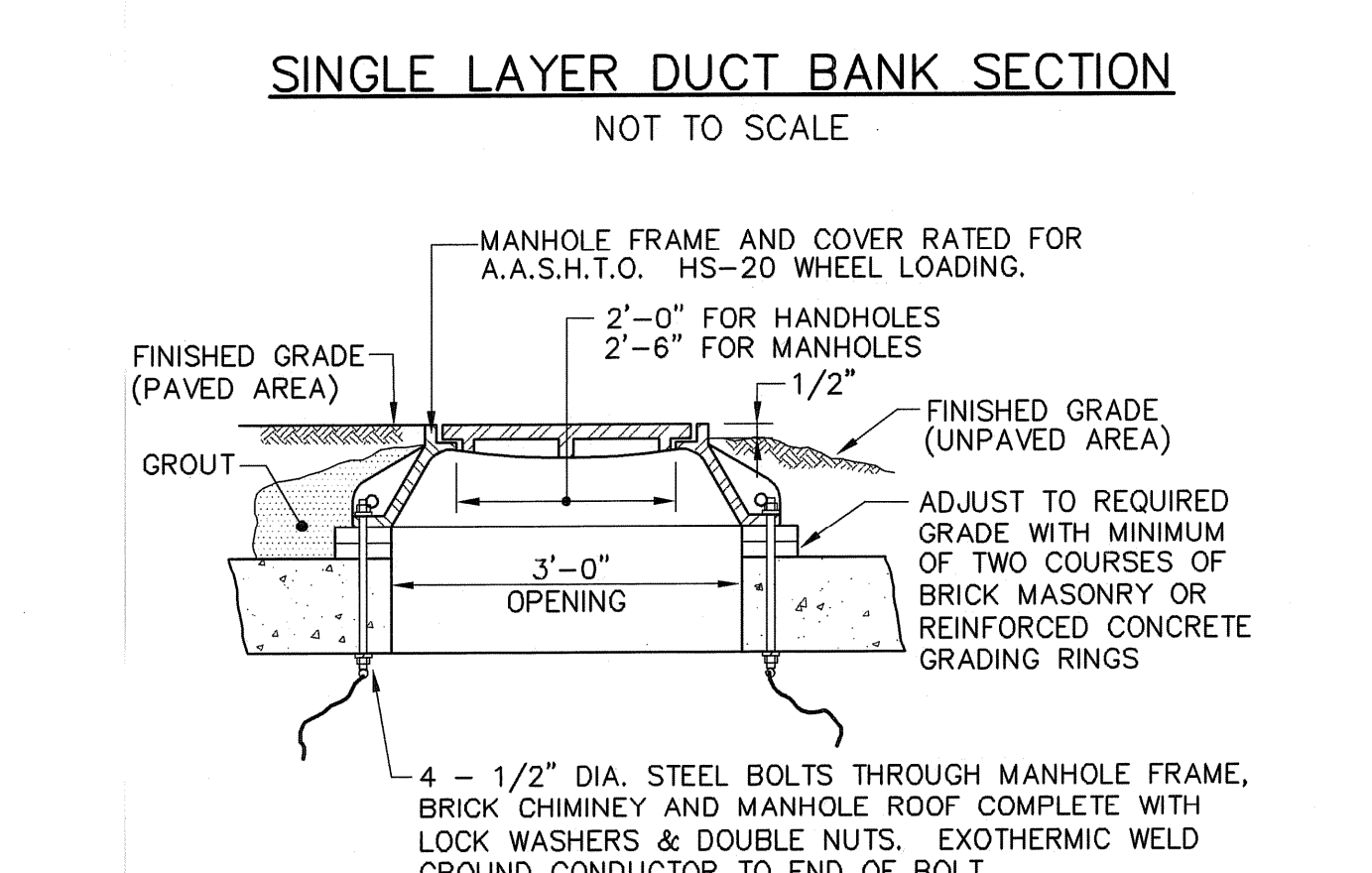
- NOTES:**
1. REFER TO UTILITY COMPANY REQUIREMENTS FOR PAD LAYOUT.
 2. ALL GROUND GRID CONNECTIONS SHALL BE EXOTHERMIC WELD.
 3. DO NOT ALLOW PRIMARY AND SECONDARY CONDUITS TO CROSS EACH OTHER INSIDE OR OUTSIDE THE PAD. LOCATE SECONDARY CONDUITS AS FAR TO THE RIGHT AS POSSIBLE IN THE PAD OPENING.
 4. CAP ALL CONDUIT ENDS TO PREVENT MOISTURE AND DEBRIS FROM ENTERING CONDUITS PRIOR TO TRANSFORMER INSTALLATION.
 5. PRIMARY DUCT GROUND SHALL BE CONNECTED TO PAD GROUND GRID.



- NOTE**
1. BACKFILL DUCT BANK IN LAYERS AND MANUALLY TAMP OR "PUDDLE" CONCRETE FILL. PROVIDE YELLOW DUCT BANK MARKER TAPES, READING "CAUTION - ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPES 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.
 2. SEE STRUCTURAL DRAWING FOR ALL REINFORCEMENT REQUIREMENTS.



- NOTE**
1. BACKFILL DUCT BANK IN LAYERS AND MANUALLY TAMP OR "PUDDLE" CONCRETE FILL. PROVIDE YELLOW DUCT BANK MARKER TAPES, READING "CAUTION - ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPES 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.
 2. SEE STRUCTURAL DRAWING FOR ALL REINFORCEMENT REQUIREMENTS.



- MANHOLE NOTES:**
1. CONCRETE FOR MANHOLES SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 POUNDS PER SQUARE INCH. SEE STRUCTURAL SPECIFICATIONS.
 2. ALL CONDUIT AND EQUIPMENT IN MANHOLES SHALL BE BONDED WITH A BARE NO.4 STRANDED COPPER CABLE.
 3. ALL CABLES SHALL BE TAGGED WITH A PROTECTED PLASTIC TAG OF DISTINCTIVE COLOR AND MARKING FOR EACH VOLTAGE. THE TAGS WILL INDICATE VOLTAGE AND CIRCUIT NUMBER ASSIGNED IN THE CONDUIT AND WIRE SCHEDULE.
 4. CONTRACTOR TO SIZE THE CIRCULAR OPENING IN THE MANHOLE ROOF AS REQUIRED BY MANHOLE FRAMES ACTUALLY FURNISHED.
 5. THE SIZE OF MANHOLE WINDOW DEPENDS ON THE NUMBER OF CONDUITS IN THE INCOMING DUCTBANK. THE WINDOW OPENING MUST ALSO BE A MINIMUM OF ONE FOOT ABOVE THE MANHOLE FLOOR AND ONE FOOT BELOW THE MANHOLE ROOF.
 6. INSTALL TWO PULLING IRONS OPPOSITE CENTER OF EACH ENTERING DUCT RUN, ONE 6" BELOW ROOF AND ONE 12" ABOVE FLOOR.

EARTH TECH AS-BUILT FILE JULY 2008

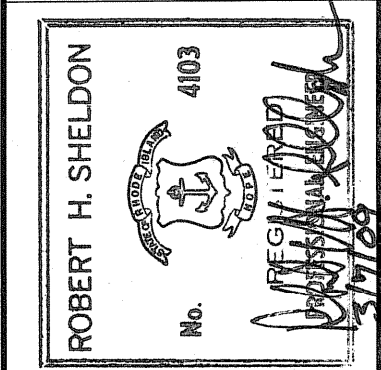
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DATE	BY	REVISIONS
02/22/05	DM	0
06/14/05	DM	1
09/11/05	DM	2
10/31/06	DM	3
LATE 2008	DM	4

DESIGNED BY: DM
DRAWN BY: DM
CHECKED BY: WS
DATE: OCTOBER 31, 2008
DWG SCALE: AS NOTED
CONTRACT NO: E-3
SHEET OF: 1

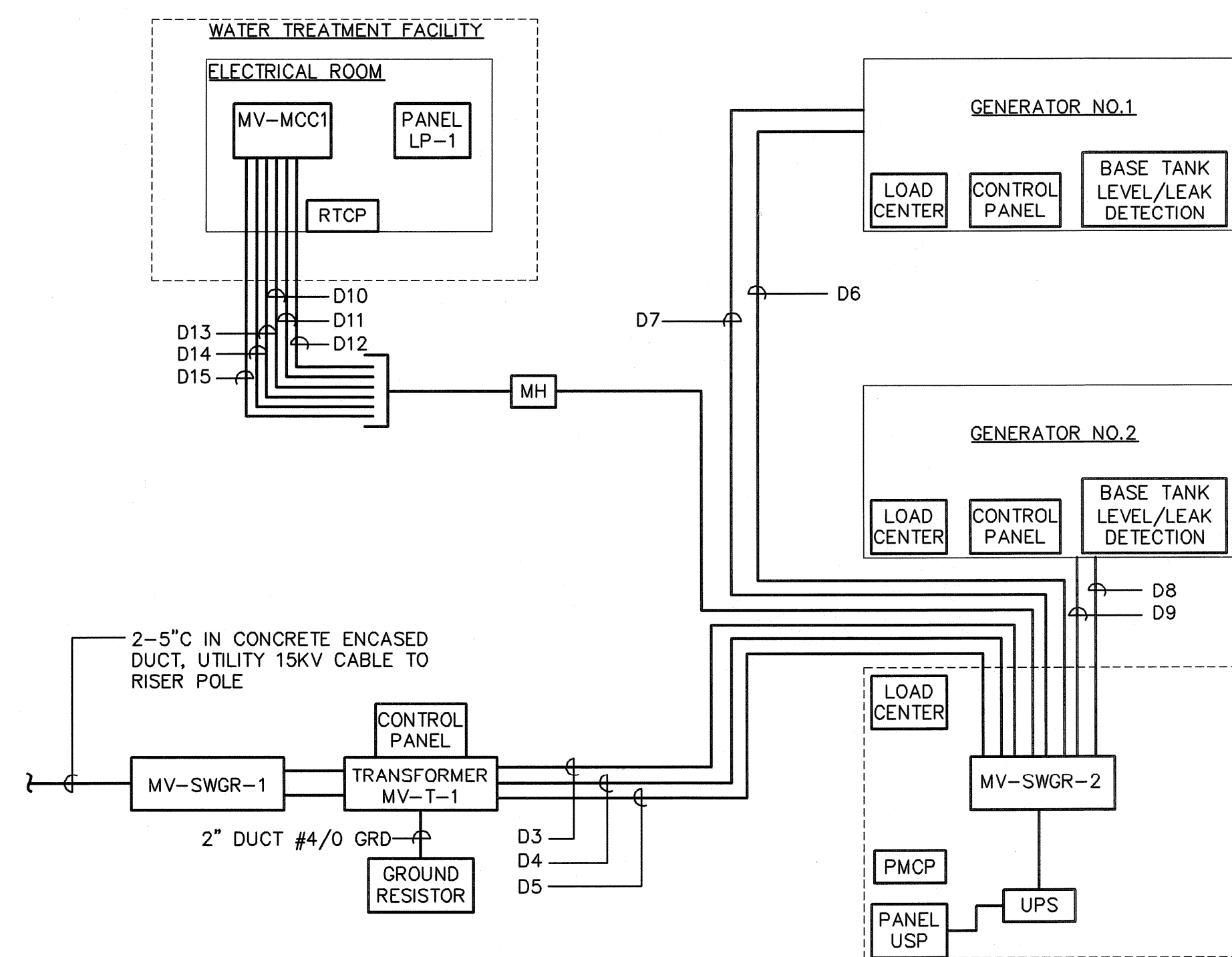
**PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
SITE DETAILS**

NO.	DATE	BY	REVISIONS
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2	10/31/06	DM	ISSUED FOR RFI POSTED SET
1	04/14/06	DM	REVISED AS NOTED
0	04/14/05	DM	ISSUED FOR CONSTRUCTION
	02/22/05	DM	C. MULLER

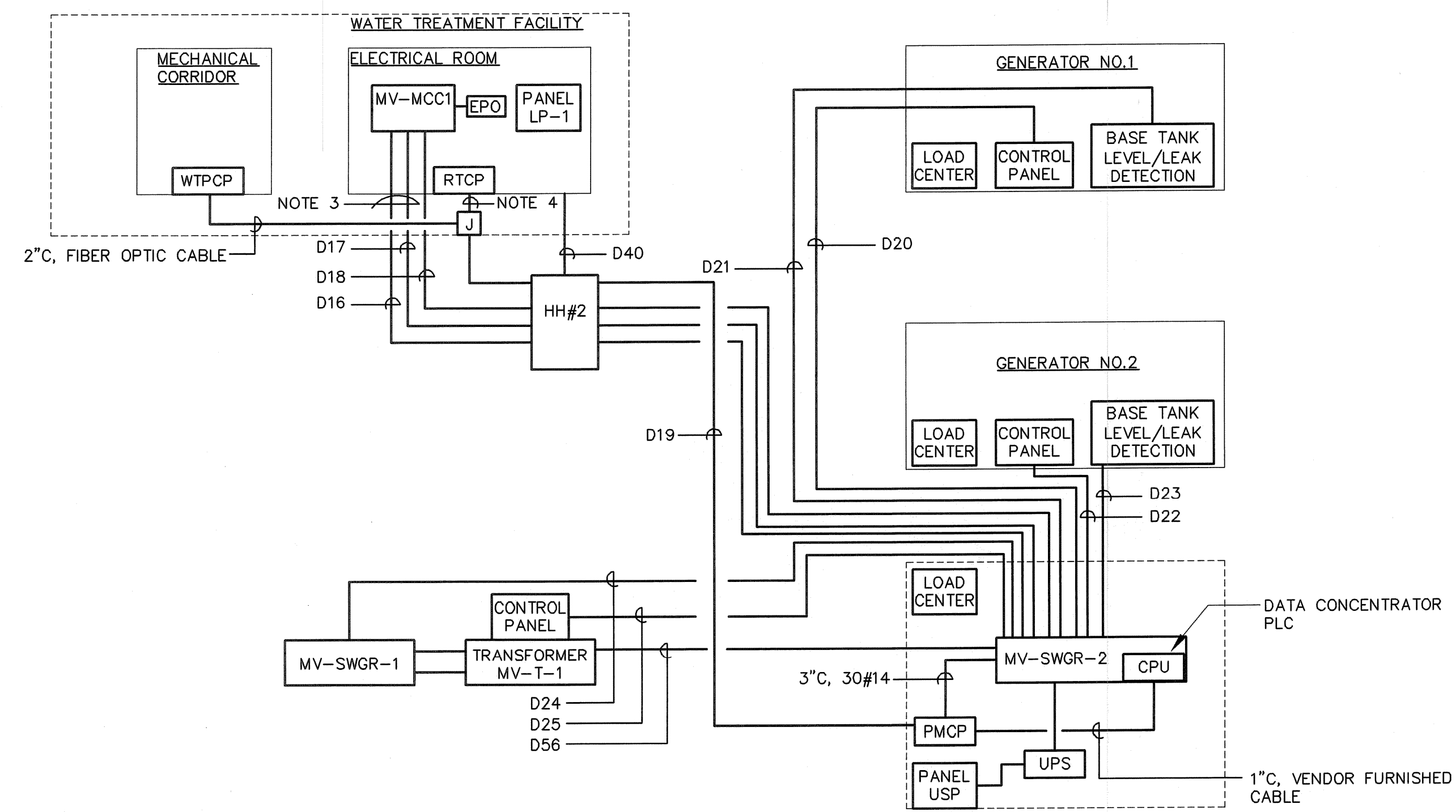


PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL**
5KV BLOCK WIRING DIAGRAMS

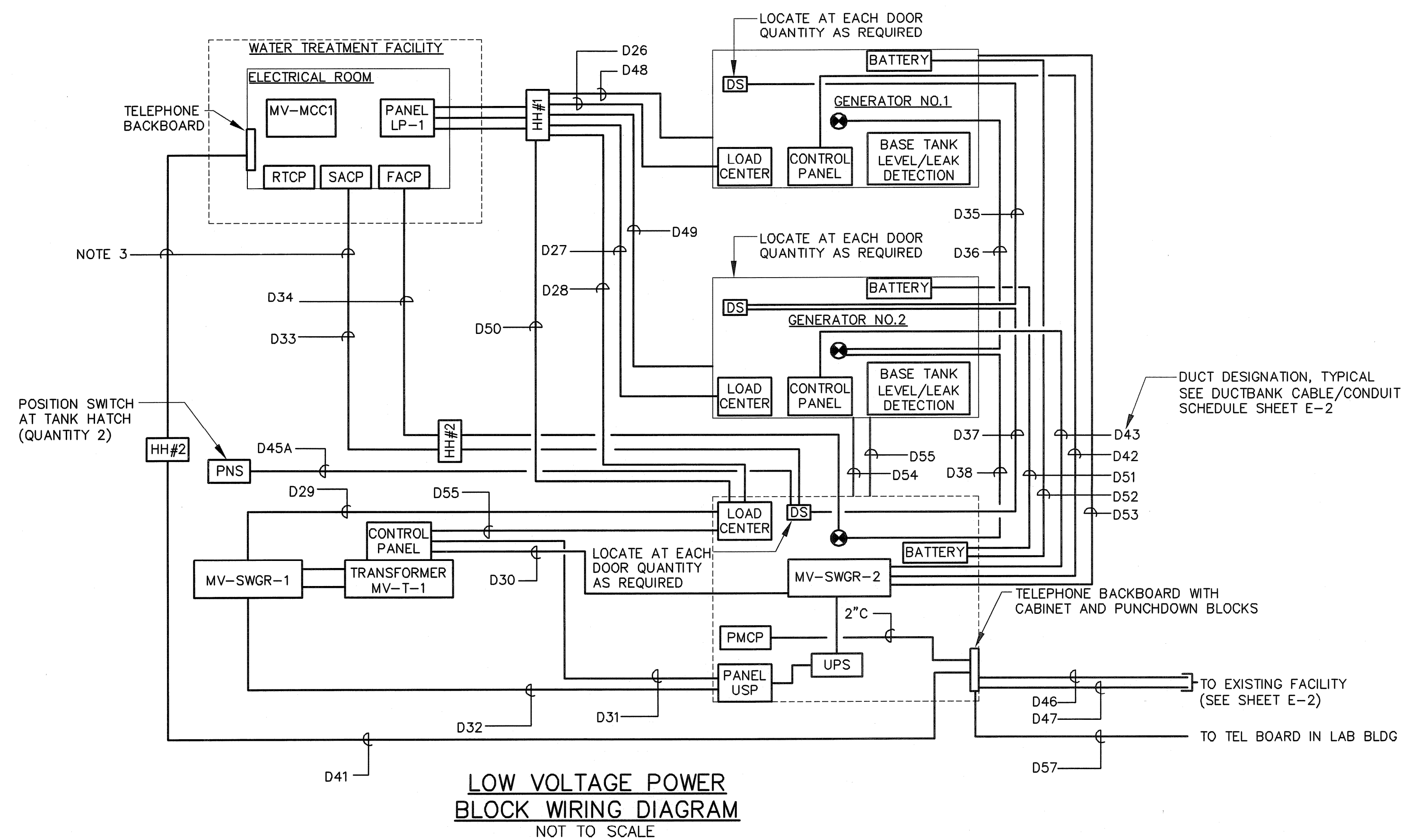
DESIGNED BY	DWG SCALE
DM	AS NOTED
DRAWN BY	CONTRACT NO
DM	
CHECKED BY	DATE
WS	OCTOBER 31, 2006



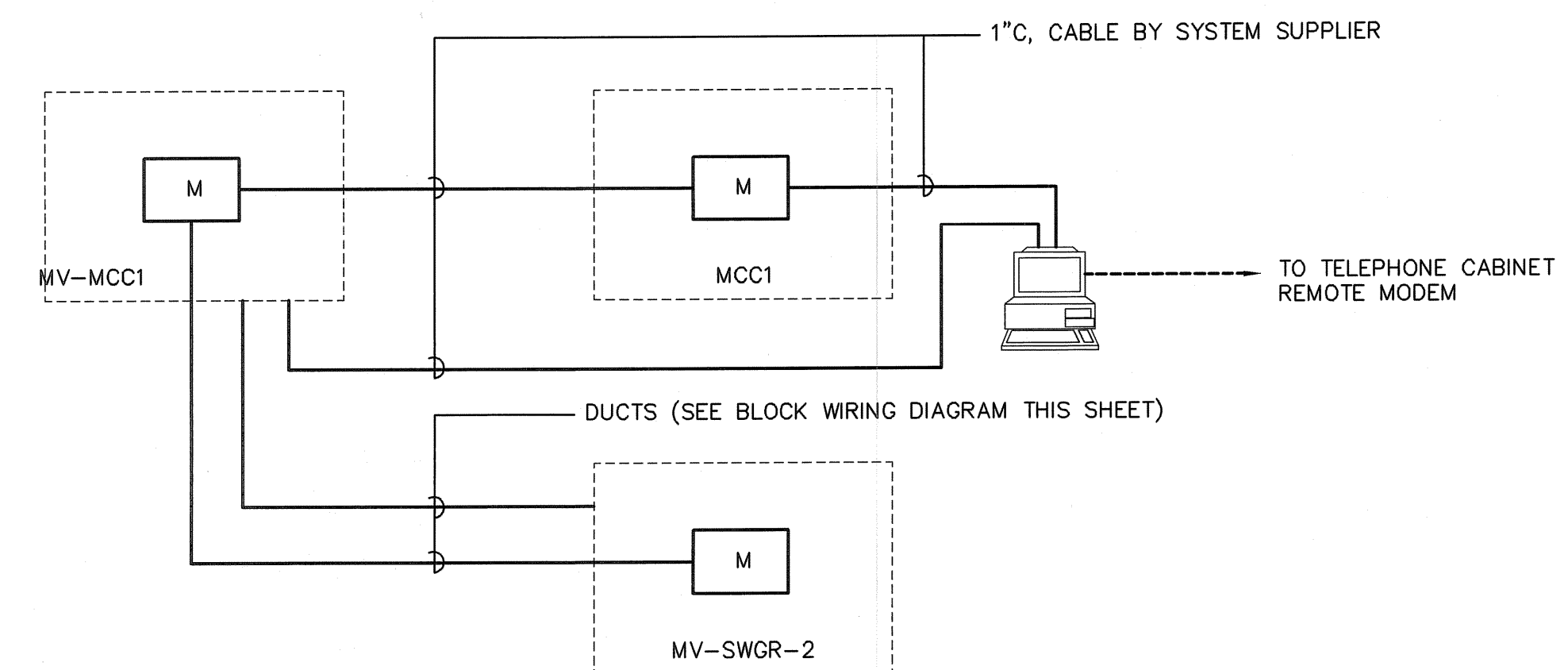
**5KV POWER
BLOCK WIRING DIAGRAM**
NOT TO SCALE



**CONTROL/ALARM
BLOCK WIRING DIAGRAM**
NOT TO SCALE



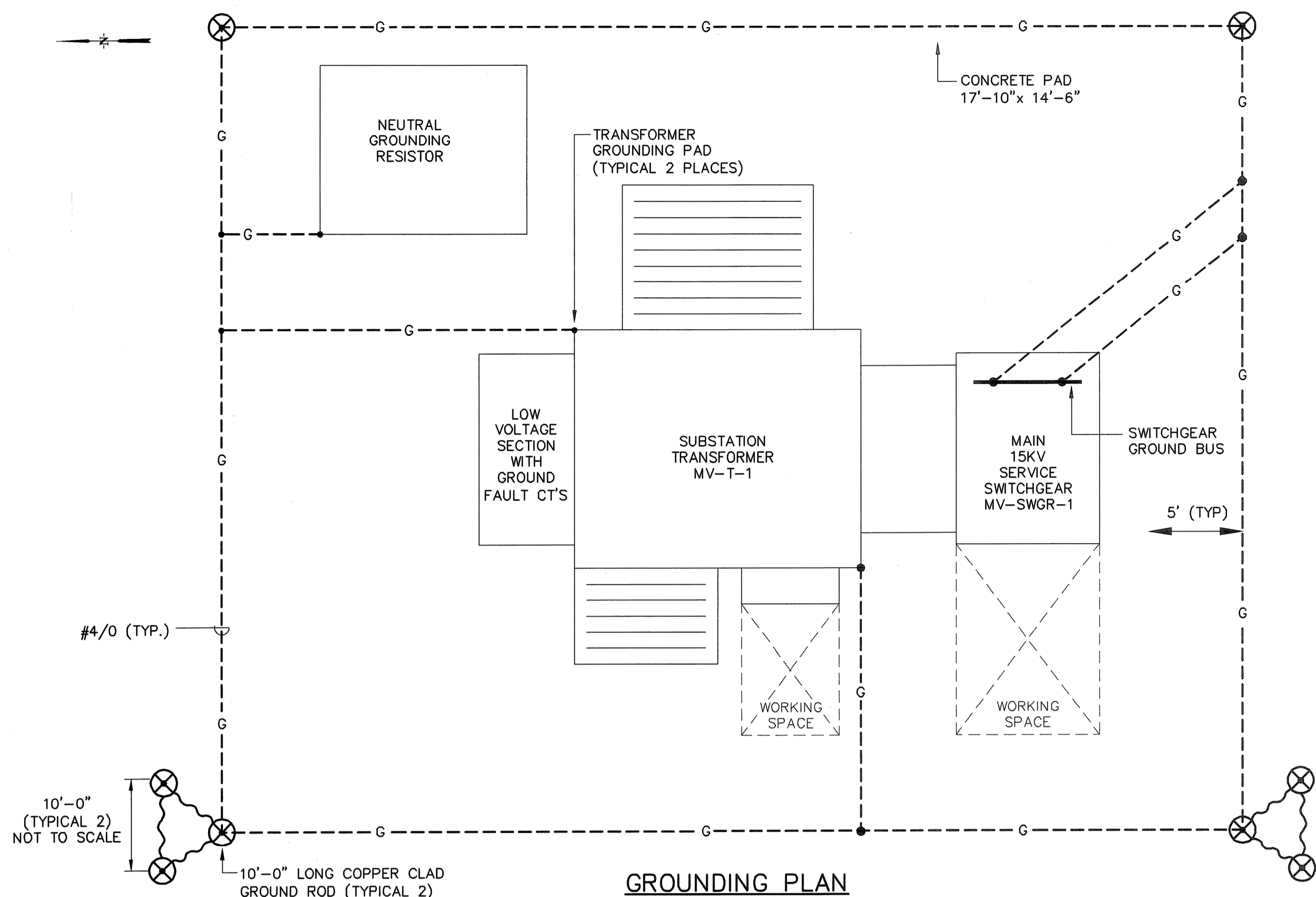
**LOW VOLTAGE POWER
BLOCK WIRING DIAGRAM**
NOT TO SCALE



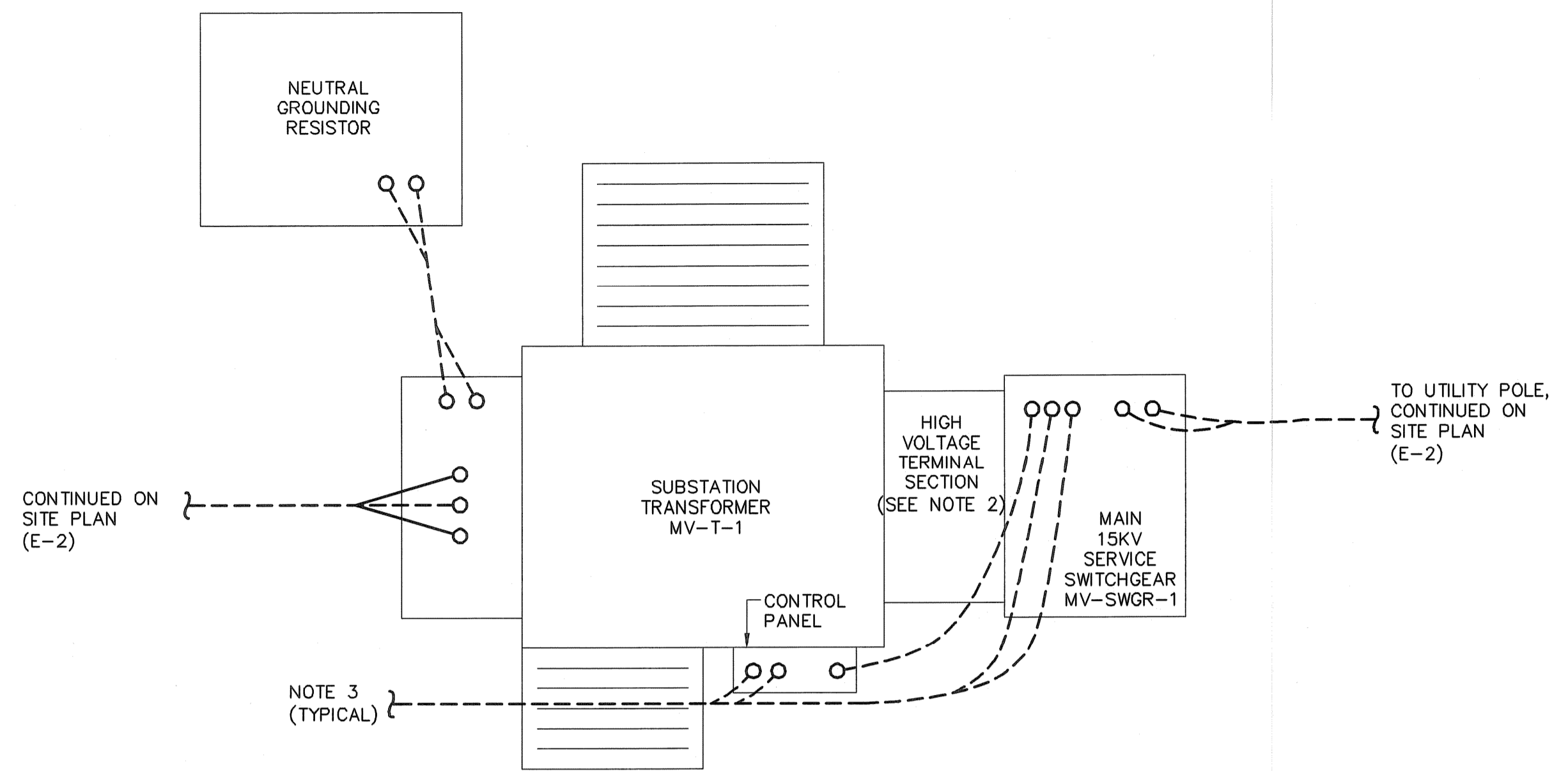
**GENERATOR CONTROL/POWER MONITORING
BLOCK WIRING DIAGRAM**
NOT TO SCALE

NOTES:

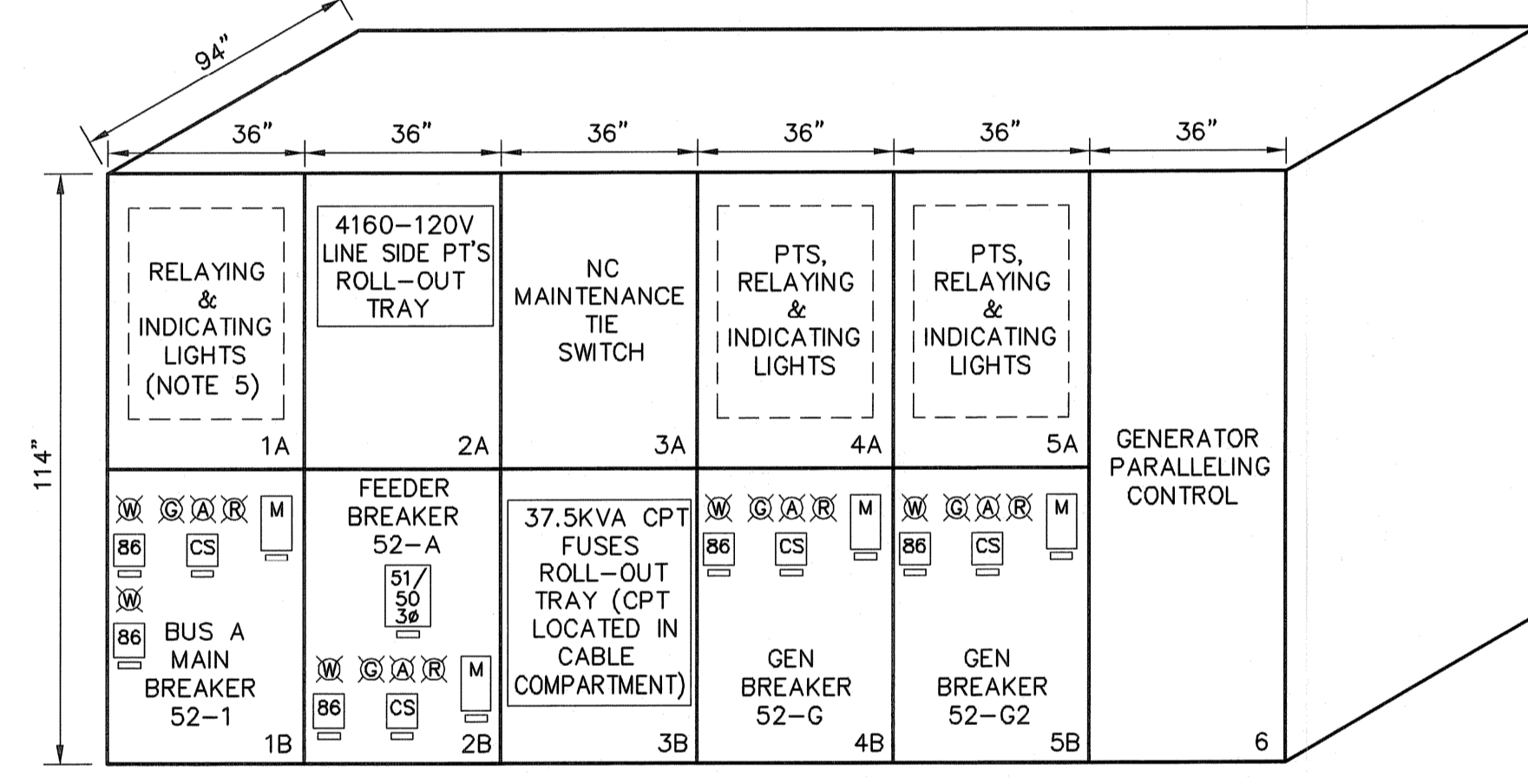
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, REFER TO DRAWING E-1
- SEE SITE PLAN SHEET E-2 FOR PROPOSED ROUTING OF DUCTS REFERENCED ON THIS SHEET.
- LOW VOLTAGE SYSTEM CABLES ROUTED IN CABLE TRAY AFTER ENTERING BUILDING. SEE SHEET E-30 FOR CABLE TRAY ROUTING.
- FIBER OPTIC CABLE ROUTED IN CABLE TRAY AFTER ENTERING BUILDING. SEE SHEET E-30 FOR CABLE TRAY ROUTING.



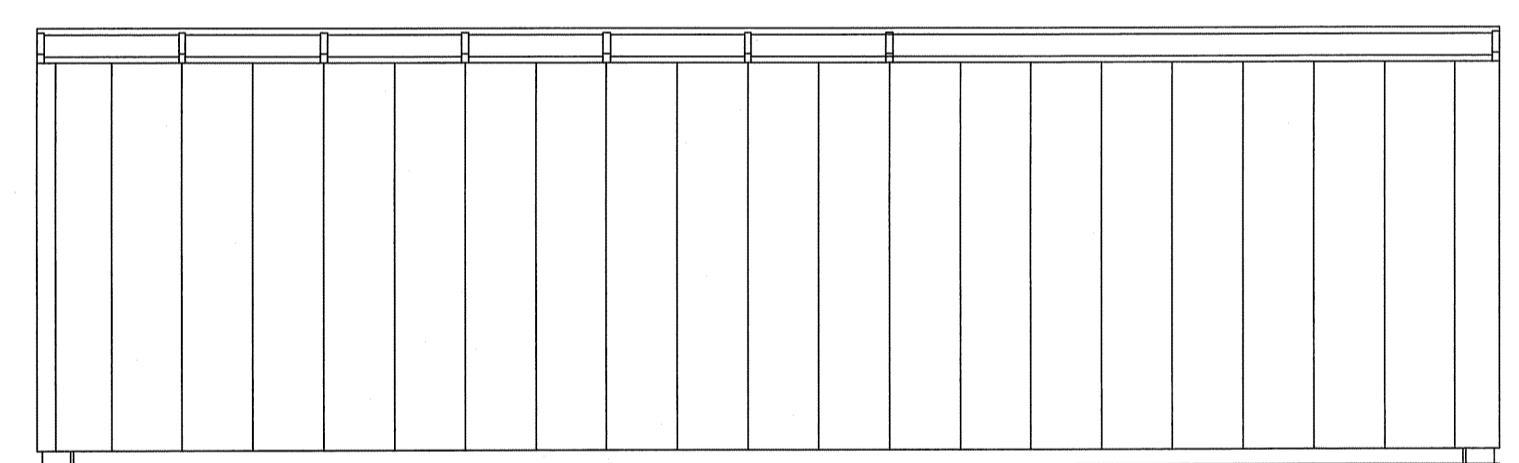
GROUNDING PLAN
MAIN SWITCHGEAR AND SUBSTATION TRANSFORMER
 SCALE: 1/2"=1'-0"



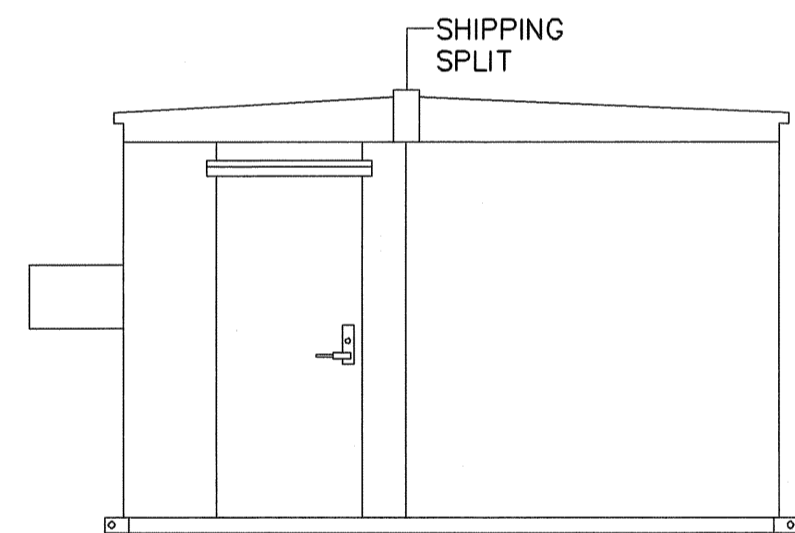
POWER PLAN
MAIN SWITCHGEAR AND SUBSTATION TRANSFORMER
 SCALE: 1/2"=1'-0"



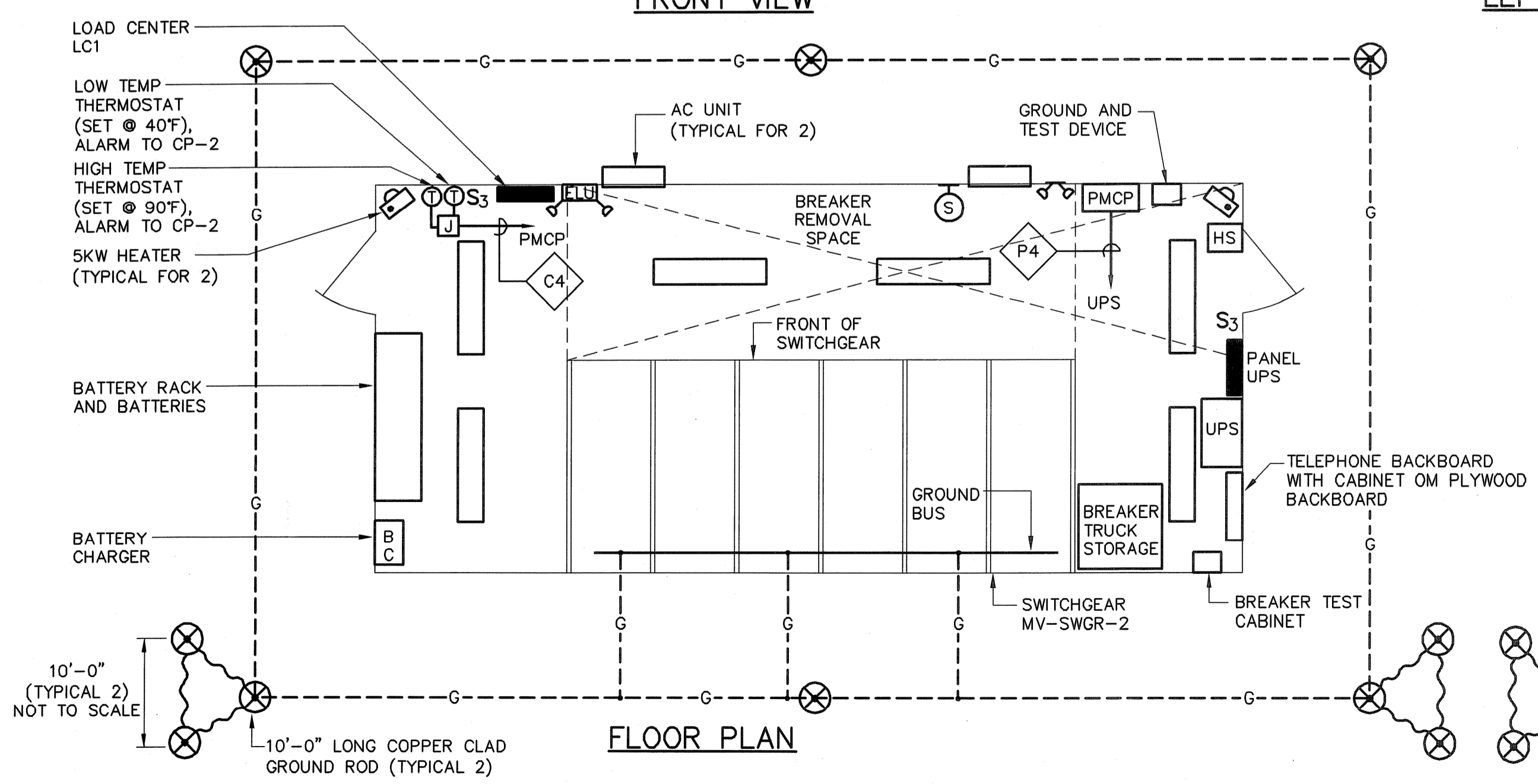
FRONT VIEW
MV-SWGR-2
MAIN LOAD BUS SWITCHGEAR
 NOT TO SCALE
 (SUGGESTED ARRANGEMENT - SEE DRAWING E-6 FOR DEVICE DETAILS)



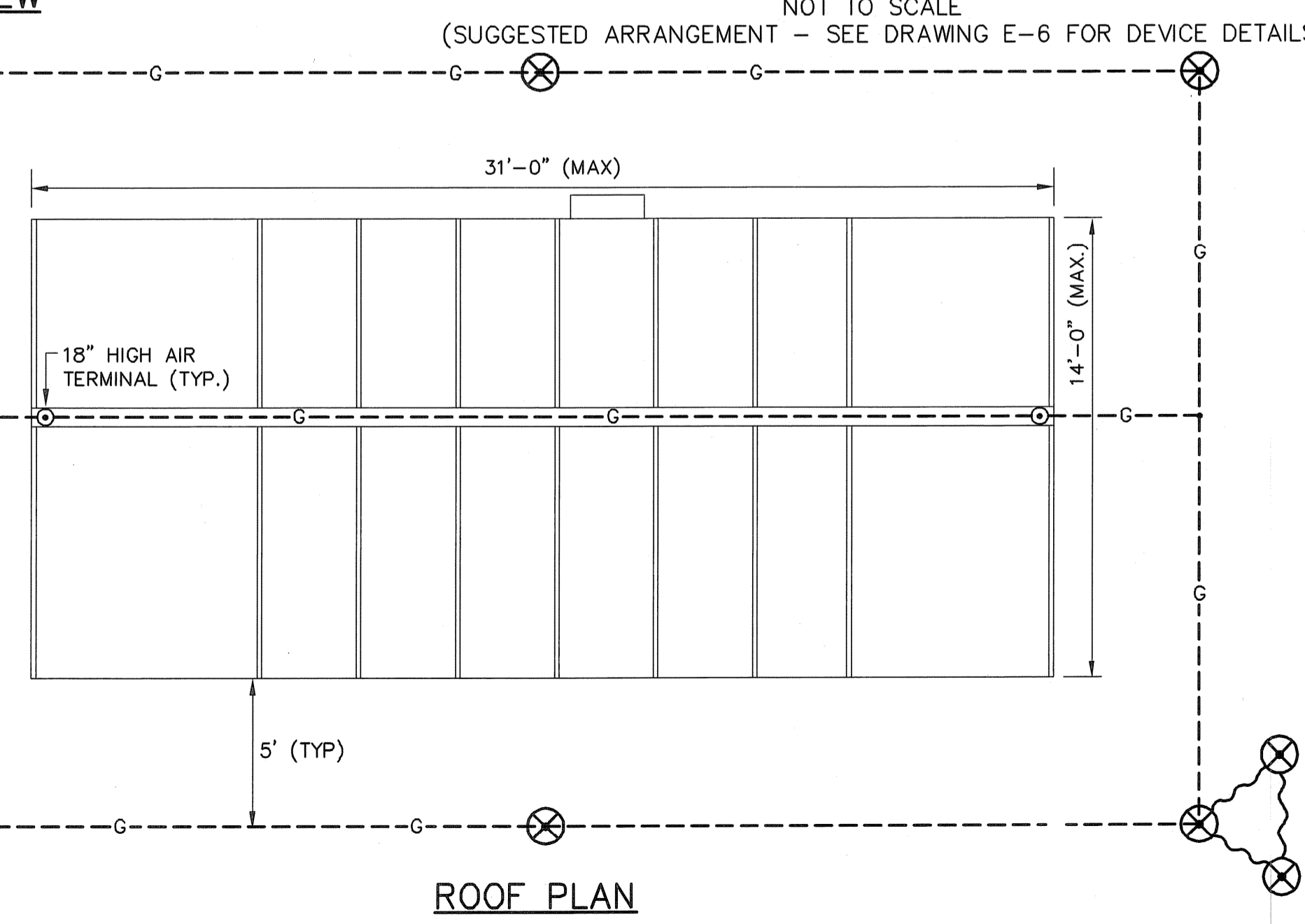
FRONT VIEW



LEFT SIDE VIEW



FLOOR PLAN
SHELTERED AISLE METAL-CLAD SWITCHGEAR
 SCALE: 1/4"=1'-0"



ROOF PLAN

- NOTES:**
1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, REFER TO DRAWING E-1
 2. EQUIPMENT PROVIDED W/FLEXIBLE COPPER BUS OR 15KV SHIELDED CABLE W/RAYCHEM 15KV HEAT SHRINK TERMINATION AND STRESS CONTROL TUBING.
 3. SEE BLOCK DIAGRAMS SHEET E-4 FOR DUCT AND WIRE REQUIREMENTS.
 4. SEE SITE PLAN ON FINAL SITE PACKAGE FOR LOCATION OF EQUIPMENT, SIZES OF CONCRETE PADS AND PLACEMENT OF BOLLARDS.
 5. BUS PT'S AT REAR NOT SHOWN.

FULL SIZE DRAWING = 4"

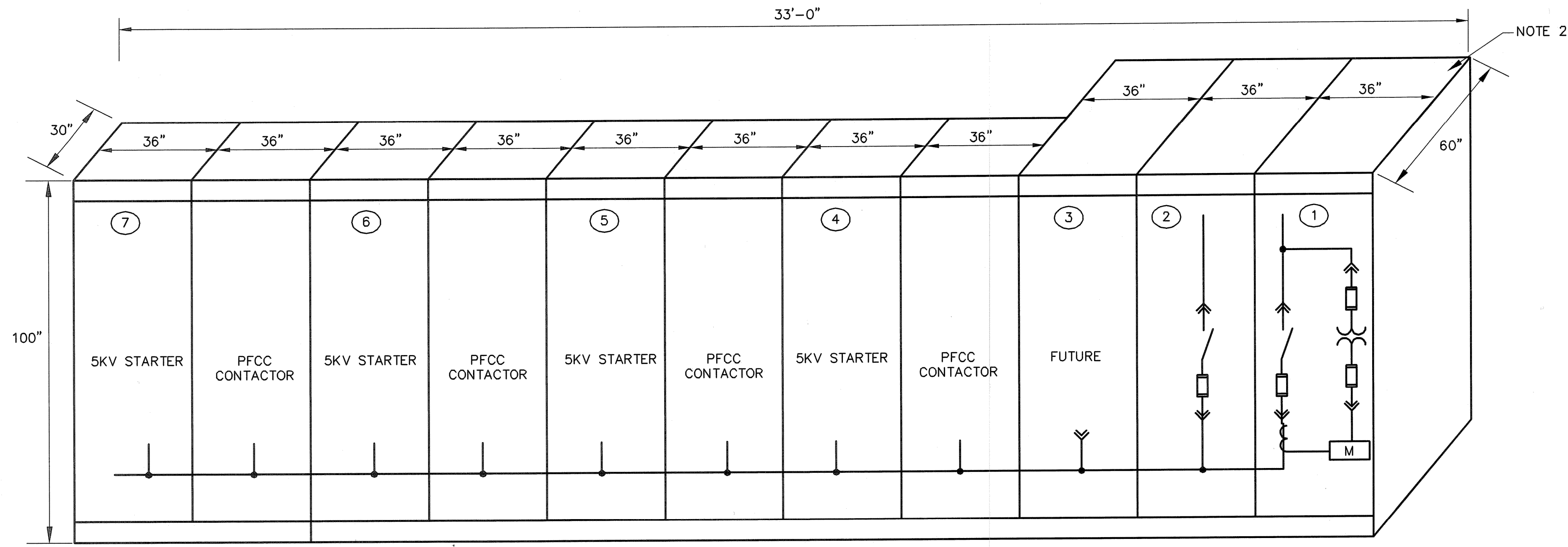
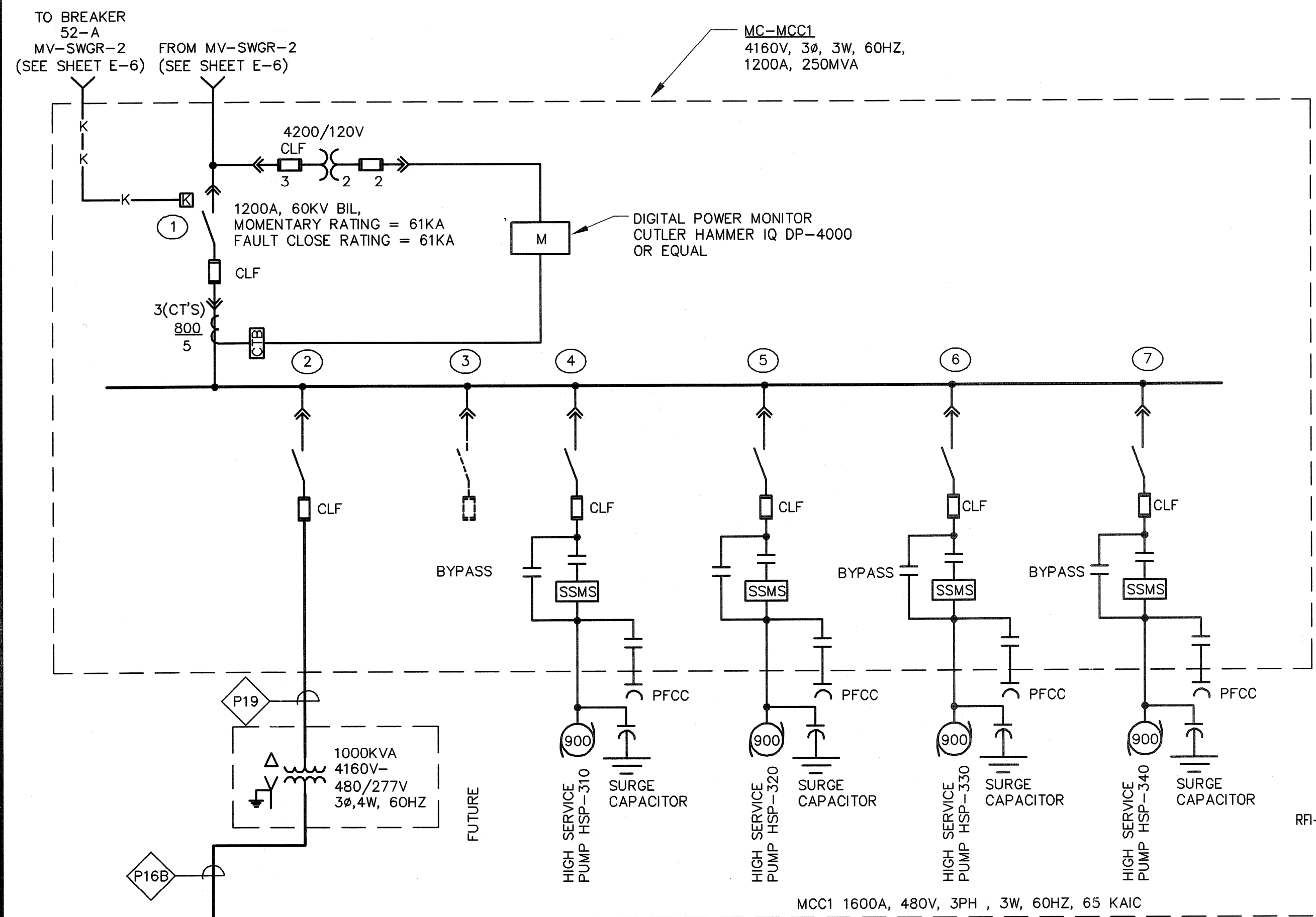
NO.	DATE	BY	REVISIONS
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2	ISSUED FOR RFI POSTED SET	DM	10/31/06
1	REVISED AS NOTED	DM	04/14/05
0	ISSUED FOR CONSTRUCTION	DM	04/14/05
		DM	02/22/05
		O. AHLBERG	

ROBERT H. SHELDON
 No. 4103
 Professional Engineer
 State of Rhode Island

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
 SWITCHGEAR-GROUNDING AND POWER PLANS

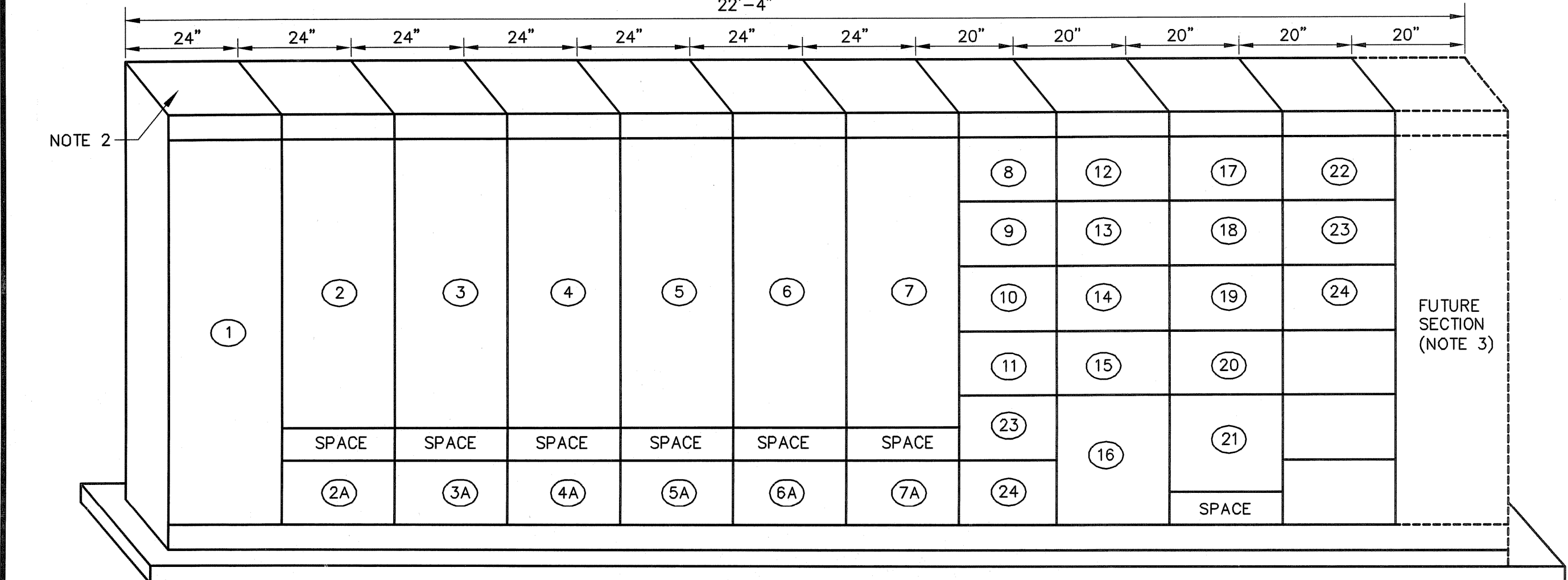
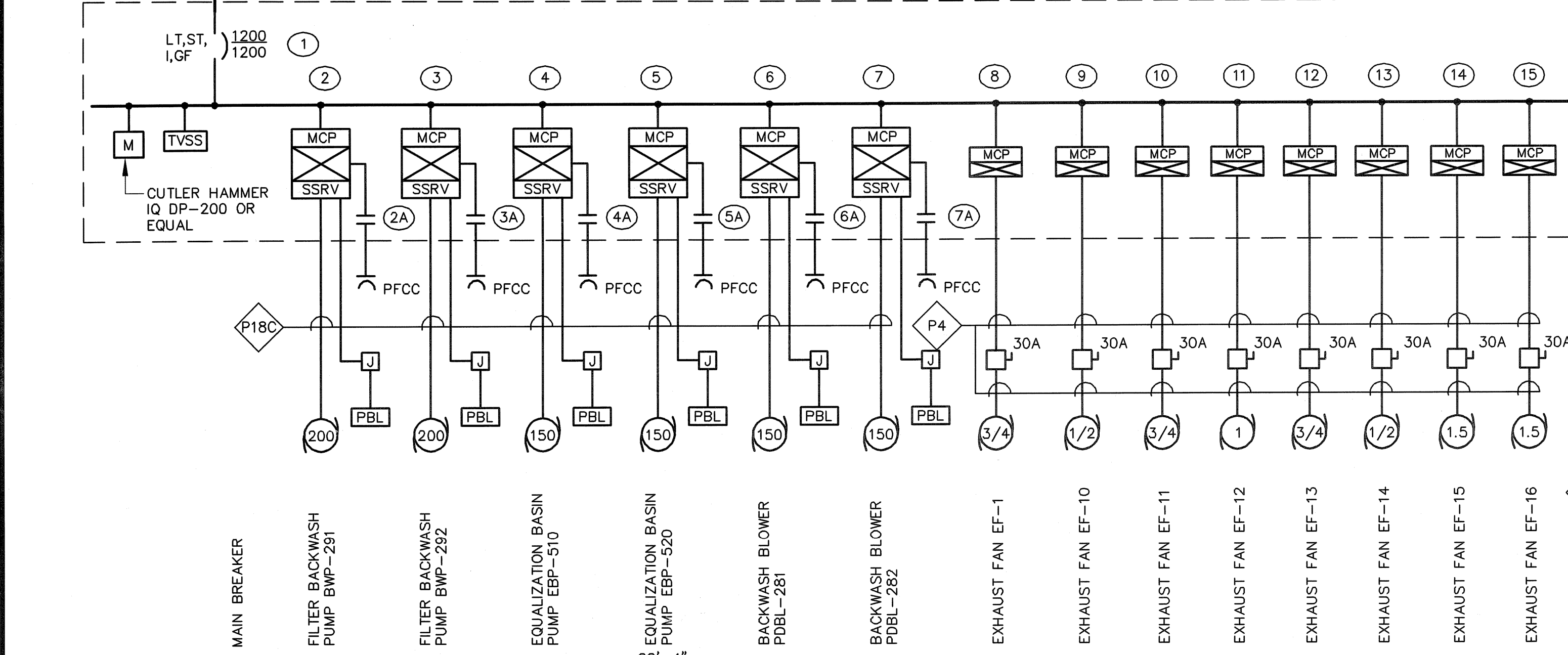
DESIGNED BY	DWG SCALE
DM	AS NOTED
DRAWN BY	CONTRACT NO.
DM	
CHECKED BY	DATE
WS	OCTOBER 31, 2006

EARTH TECH
AS-BUILT FILE
 JULY 2008

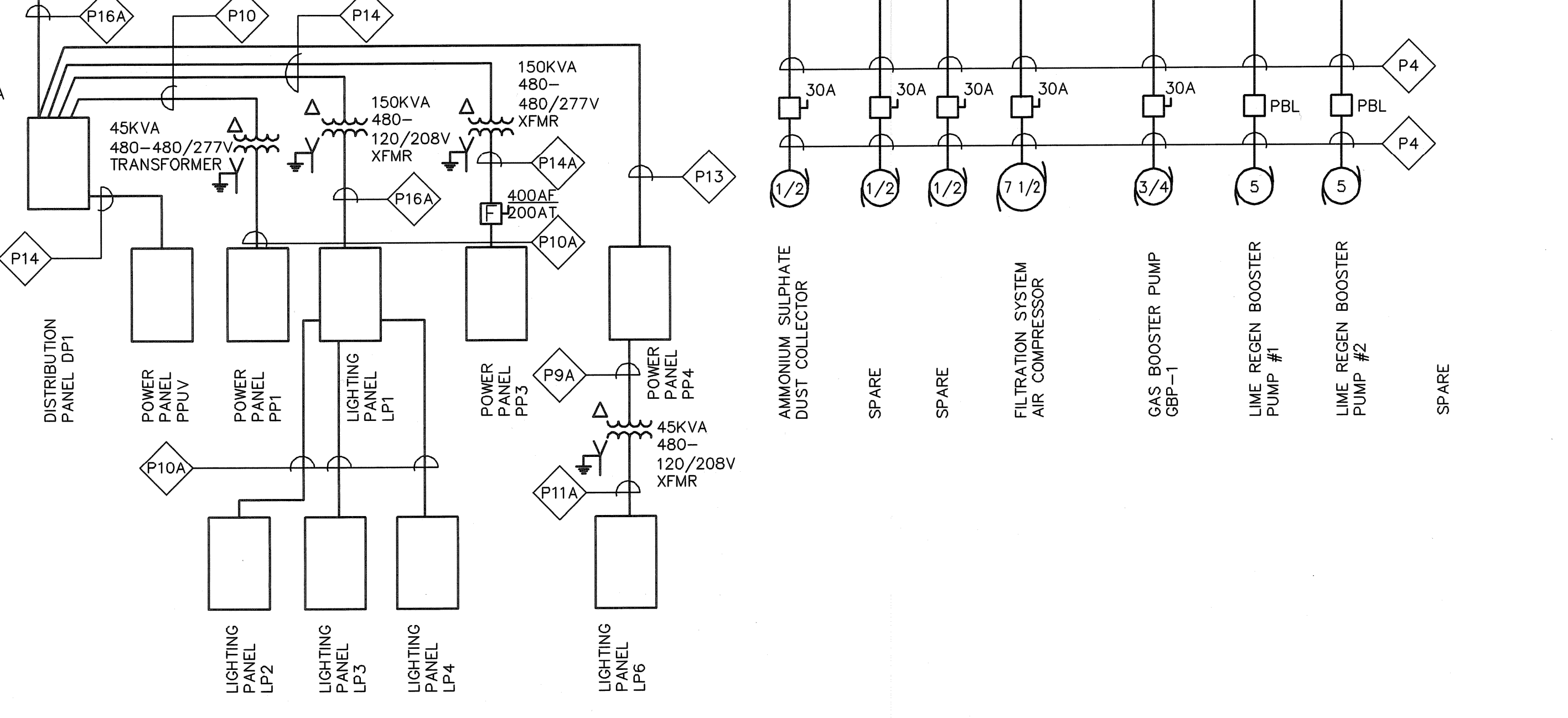


MV-MCC1 ELEVATION
NOT TO SCALE

- NOTES:**
- SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
 - ALL CABLES TOP ENTRY.
 - PROVIDE COVER PLATE AT MCC BUS EXTENSION LOCATIONS.

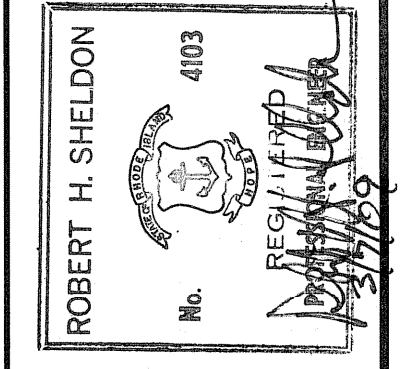


MCC1 ELEVATION
NOT TO SCALE



BRANCH STREET SINGLE LINE DIAGRAM
NOT TO SCALE

DATE	BY	REVISIONS
10/31/06	DM	ISSUED FOR RFI POSTED SET
04/14/08	DM	REVISED AS NOTED
02/22/08	DM	ISSUED FOR CONSTRUCTION
		G. MALLORC



PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
MOTOR CONTROL CENTER SINGLE LINE DIAGRAM

DESIGNED BY	DM	DWG SCALE	AS NOTED
DRAWN BY	DM	CONTRACT NO.	
CHECKED BY	WS	DATE	OCTOBER 31, 2006

EARTH TECH
AS-BUILT FILE
JULY 2008

POWER CABLE/CONDUIT SCHEDULE			
SYMBOL	CONDUIT SIZE	CONDUCTORS	GRD
P1	3/4"	2#12	1#12
P2	3/4"	2#10	1#10
P3	3/4"	2#8	1#10
P4	3/4"	3#12	1#12
P5	3/4"	3#10	1#10
P5A	3/4"	4#10	1#10
P6	3/4"	3#8	1#10
P7	1"	3#6	1#10
P8	1 1/2"	3#4	1#10
P9	1 1/2"	3#2	1#10
P9A	1 1/2"	3#3	1#10
P9B	1 1/2"	4#3	1#10
P10	1 1/2"	3#1	1#6
P10A	1 1/2"	4#1	1#6
P11	2"	3#1/0	1#2
P11A	2"	4#1/0	1#2
P12	2"	3#2/0	1#2
P13	2"	3#3/0	1#2
P13A	(2 SETS OF) 2"	(2 SETS OF) 3#3/0	(2 SETS OF) 1#2
P13B	(2 SETS OF) 2"	(2 SETS OF) 4#3/0	(2 SETS OF) 1#2
P14	2 1/2"	3#4/0	1#2
P14A	2 1/2"	4#4/0	1#2
P15	2 1/2"	3-250 KCMIL	1#2/0
P16	3"	3-350 KCMIL	1#2/0
P16A	(2 SETS OF) 3 1/2"	(2 SETS OF) 3-350 KCMIL	(2 SETS OF) 1#2/0
P16B	(4 SETS OF) 3 1/2"	(4 SETS OF) 3-350 KCMIL	(4 SETS OF) 1#2/0
P17	3 1/2"	3-500 KCMIL	1#2/0
P18	(2 SETS OF) 3 1/2"	(2 SETS OF) 3-300 KCMIL	(2 SETS OF) 1#2/0
P18A	(2 SETS OF) 3 1/2"	(2 SETS OF) 3-300 KCMIL 2#10	(2 SETS OF) 1#2/0
P18B	(4 SETS OF) 3 1/2"	(4 SETS OF) 3-300 KCMIL (5KV)	(4 SETS OF) 1#2/0 (5KV)
P18C	3 1/2"	3-300 KCMIL	1#2/0
P18D	3 1/2"	4-300 KCMIL	1#2/0
P18E	3 1/2"	3-300 KCMIL 2#10	1#2/0
P19	3"	3#4/0 (5KV)	1#2/0 (5KV)

CONTROL CABLE/CONDUIT SCHEDULE		
SYMBOL	CONDUIT SIZE	CONDUCTORS
C2	3/4"	2#14
C3	3/4"	3#14
C4	3/4"	4#14
C5	3/4"	5#14
C6	3/4"	6#14
C7	3/4"	7#14
C8	3/4"	8#14
C9	3/4"	9#14
C10	3/4"	10#14
C12	1"	12#14
C16	1-1/2"	16#14
C22	1-1/2"	22#14
C24	1-1/2"	24#14
C40	2"	40#14
C50	2"	50#14
C80	3"	80#14

SIGNAL CABLE/CONDUIT SCHEDULE		
SYMBOL	CONDUIT SIZE	CONDUCTORS
S	1"	EMPTY
S1	3/4"	1-2/C#16
S1A	3/4"	1-3/C#16
S2	3/4"	2-2/C#16
S3	1"	3-2/C#16
S4	1"	4-2/C#16
S5	1"	5-2/C#16
S6	1 1/2"	6-2/C#16
S7	1 1/2"	7-2/C#16
S8	1 1/2"	8-2/C#16
S9	1 1/2"	9-2/C#16
S10	2"	10-2/C#16
S11	3"	11-3/C#16
S13	3"	13-2/C#16

LIGHTING FIXTURE SCHEDULE									
FIXTURE TYPE	MANUFACTURER	CATALOG NO.	DESCRIPTION	WATTS FIXT.	FIXTURE				REMARKS
					TYPE	MTG	LAMPS	VOLTS	
A	LITHONIA HOLOPHANE HUBBELL	LA23277GEB10RS	1X4 FLUORESCENT INDUSTRIAL STRIP LIGHTING FIXTURE	65	FLUOR.	PENDANT	2-T8	277	
A1	APPLETON LITHONIA HUBBELL	FVH244277SOF	1X4 FLUORESCENT ENCLOSED AND GASKETED INDUSTRIAL LIGHTING FIXTURE	90	FLUOR.	PENDANT	2-T8HO	277	NEMA 4/4X RATED
A2	LITHONIA HOLOPHANE HUBBELL	CA232277GEB101RS	1X4 FLUORESCENT WRAPAROUND	65	FLUOR.	SURFACE	2	277	
A3	LITHONIA HOLOPHANE HUBBELL	HL232277GEB10RS	1X4 FLUORESCENT LOUVERED LIGHTING FIXTURE	65	FLUOR.	PENDANT	2	277	
A4	SPI	SFTWS0813277DFB	FLUORESCENT LIGHTING FIXTURE	35	FLUOR.	SURFACE	1-26QUAD, 1-9FL	277	
A5	SPI	SFT1831277DFB	FLUORESCENT LIGHTING FIXTURE	150	FLUOR.	PENDANT	4-32PLT, 1-22T5	277	STEM LENGTH AS REQUIRED
B	LITHONIA HOLOPHANE HUBBELL	2PMOGB2U3112LD277GEB10RS	2X2 FLUORESCENT PARABOLIC LIGHTING FIXTURE	63	FLUOR.	RECESSED	2-UT8	277	
C	GOTHAM HOLOPHANE HUBBELL	AFV-126TRT-6MB-277-GEB10R	6" DOWN LIGHT	26	FLUOR.	RECESSED	1-PL	277	
D	GAMMALUX HOLOPHANE HUBBELL	GR6AD232T8277EBL4WMAPLWH	1X2 FLUORESCENT BATHROOM WALL FIXTURE	64	FLUOR.	WALL	2-T8	277	
EL	HOLOPHANE GE HUBBELL	NAVIGATOR C4 SERIES	EMERGENCY BATTERY PACK, (12V) WITH TYPE WD 12 WATT DUAL REMOTE HEADS AND SHELF			WALL		277	WATTAGE AS REQUIRED, 20% SPARE CAPACITY
EL1	HOLOPHANE EMERGI LIGHT HUBBELL	LR SERIES	DUAL REMOTE HEADS	12(eo)		WALL		12	TYPE "NL" IN NEMA 4X AREAS TYPE "DTY" IN ALL OTHER AREAS
E	HOLOPHANE EMERGI LIGHT HUBBELL	MDCE SERIES	DUAL FACE EMERGENCY EXIT SIGN			WALL	LED	277	WITH LEAD ACID BATTERY
E1	HOLOPHANE LITHONIA HUBBELL	MDCE SERIES	SINGLE FACE EMERGENCY EXIT SIGN			WALL	LED	277	WITH LEAD ACID BATTERY
E2	HOLOPHANE LITHONIA HUBBELL	LNME SERIES	WET LOCATION NEMA 4/4X SINGLE FACE EMERGENCY EXIT SIGN			WALL	LED	277	WITH LEAD ACID BATTERY
E3	HOLOPHANE LITHONIA HUBBELL	LNME SERIES	WET LOCATION NEMA 4/4X DUAL FACE EMERGENCY EXIT SIGN			WALL	LED	277	WITH LEAD ACID BATTERY
S	FAILSAFE LITHONIA HUBBELL	MHTWHE70N277F1BLK	EXTERIOR WALL PACK	70	MH	WALL	1	277	WIRE WITH H-O-A AND PHOTOCELL ON BUILDING THROUGH LIGHTING CONTROL PANEL

FULL SIZE DRAWING = 4"

3	AS-BUILT DRAWING FILE	DATE	BY
2	ISSUED FOR RFI POSTED	10/31/06	DM
1	REVISED AS NOTED	04/14/06	DM
0	ISSUED FOR CONSTRUCTION	04/14/05	DM
	G. HILBERG	02/22/05	REVISIONS

ROBERT H. SHELDON
No. 4003
DATE: 7/1/08
BY: [Signature]

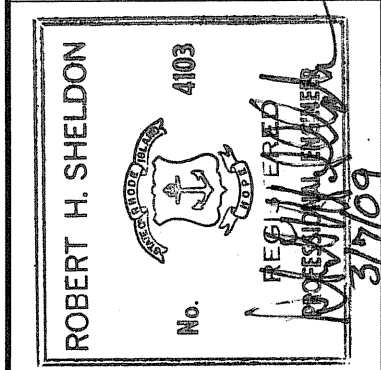
PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
MISCELLANEOUS SCHEDULES

DESIGNED BY	DWG SCALE
DM	AS NOTED
DRAWN BY	CONTRACT NO.
DM	
CHECKED BY	DATE
WS	OCTOBER 31, 2006

EARTH TECH
AS-BUILT FILE
JULY 2008

FULL SIZE DRAWING = 4"

3	AS-BUILT DRAWING FILE	DATE
2	ISSUED FOR RFI POSTED SET	DATE
1	REVISED AS NOTED	DATE
0	ISSUED FOR CONSTRUCTION	DATE
	D. HALLBORG	DATE
	REVISIONS	DATE



PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
PANELBOARD SCHEDULES SHEET 1

DESIGNED BY	DM	DWG SCALE	AS NOTED
DRAWN BY	DM	CONTRACT NO.	
CHECKED BY	WS	DATE	OCTOBER 31, 2006

EARTH TECH
AS-BUILT FILE
JULY 2008

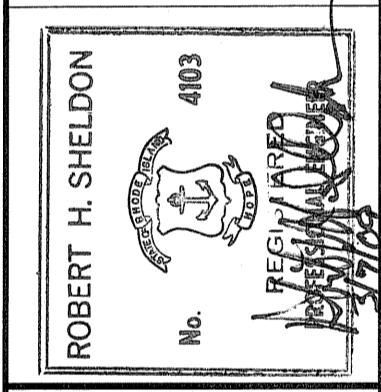
PANELBOARD SCHEDULE "PP1"											
PANEL		VOLTS		MOUNT.		SURFACE					
MAIN		480		AIC		25,000					
DP1		480/277		LOC.		ELEC. RM.					
600A MCB		3/3									
CIR.	AMPS/POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/POLES	CIR.	
1	20/1	LIGHTING CORRIDOR	1.22	1.22			0.25	EMERGENCY LIGHTING ELU-1	20/1	2	
3	20/1	LIGHTING ELECTRICAL ROOM	2.88		2.88		0.25	EMERGENCY LIGHTING ELU-2	20/1	4	
5	20/1	LIGHTING MECHANICAL ROOM	1.44			1.44	0.25	EMERGENCY LIGHTING ELU-6	20/1	6	
7	20/1	LIGHTING EXTERIOR	1.80	2.05			0.25	EMERGENCY LIGHTING ELU-7	20/1	8	
9	20/1	LIGHTING CHEMICAL ROOM	2.52		2.52		0.25	EMERGENCY LIGHTING ELU-9	20/1	10	
11	20/1	LIGHTING MECHANICAL CORRIDOR	2.52			2.52	0.25	EMERGENCY LIGHTING ELU-10	20/1	12	
13	20/1	LIGHTING PIPE GALLERY/BLOWER RM	2.45	2.45			1.00			14	
15	20/1	LIGHTING FILTER ROOM	2.50		3.50		1.00	MAKE UP AIR UNIT MAU-1	100/3	16	
17	20/1	SPARE				1.00	1.00			18	
19			1.00	2.00			1.00			20	
21	20/3	MAKE UP AIR UNIT MAU-2	1.00		2.00		1.00	MAKE UP AIR UNIT MAU-3	20/3	22	
23			1.00			2.00	1.00			24	
25			1.00	1.00						26	
27	20/3	MAKE UP AIR UNIT MAU-4	1.00	1.00	1.00			SPARE	20/3	28	
29			1.00			1.00				30	
31			3.00	3.00						32	
33	30/3	AIR COMPRESSOR	3.00		3.00			SPARE	20/3	34	
35			3.00			3.00				36	
37										38	
39	20/3	SPARE						SPARE	20/3	40	
41										42	
TOTAL kVA BY PHASE -				8.72	11.90	7.96		TOTAL kVA-	22.87		
DEMAND kVA BY PHASE -				6.98	9.52	6.37		TOTAL AMPERES-	27.55		

PANELBOARD SCHEDULE "DP1"											
PANEL		VOLTS		MOUNT.		SURFACE					
MAIN		480		AIC		25,000					
DP1		480		LOC.		ELEC. RM.					
600A MCB		3/3									
CIR.	AMPS/POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/POLES	CIR.	
1			17.88	24.86			6.98	PANELBOARD PP1	100/3	2	
3	225/3	PANELBOARD PP3	17.70		27.22		9.52			4	
5			17.62			23.99	6.37			6	
7			21.21	71.21			50.00	PANELBOARD PPUV	225/3	8	
9	250/3	PANELBOARD LP1	17.82		67.82		50.00			10	
11			19.78			69.78	50.00			12	
13			1.00	9.64			8.64			14	
15	20/3	ELECTRIC UNIT HEATER EUH-4	1.00		9.00		8.00	PANELBOARD PP4	200/3	16	
17			1.00			8.36	7.36			18	
19			1.00	2.00			1.00			20	
21	20/3	ELECTRIC UNIT HEATER EUH-5	1.00		2.00		1.00	MAKE UP AIR UNIT MAU-5	20/3	22	
23			1.00			2.00	1.00			24	
25			0.67	1.67			2.50			26	
27	20/3	ELECTRIC UNIT HEATER EUH-3	0.66		1.66		2.50	MAKE UP AIR UNIT MAU-6	30/3	28	
29			0.67			1.67	2.50			30	
31			0.67	0.67						32	
33	20/3	ELECTRIC UNIT HEATER EUH-1A	0.66		0.66			SPARE	225/3	34	
35			0.67			0.67				36	
37										38	
39	20/3	SPARE						SPARE	20/3	40	
41										42	
TOTAL kVA BY PHASE -				110.05	108.36	106.47		TOTAL kVA-	259.91		
DEMAND kVA BY PHASE -				88.04	86.69	85.18		TOTAL AMPERES-	313.14		

PANELBOARD SCHEDULE "PP3"											
PANEL		VOLTS		MOUNT.		SURFACE					
MAIN		480		AIC		25,000					
PP3		480		LOC.		MECH. CORR.					
225A MCB		3/3									
CIR.	AMPS/POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/POLES	CIR.	
1	20/1	LIGHTING CHEMICAL ROOM	2.52	10.85			8.33			2	
3	20/1	LIGHTING MECHANICAL CORRIDOR	2.52		10.86		8.34	ELECTRIC UNIT HEATER EUH-6	40/3	4	
5	20/1	LIGHTING PIPE GALLERY/BLOWER RM	2.45			10.78	8.33			6	
7			1.00	9.33			8.33			8	
9	20/3	ELECTRIC UNIT HEATER EUH-1	1.00		9.34		8.34	ELECTRIC UNIT HEATER EUH-7	40/3	10	
11			1.00			9.33	8.33			12	
13			0.67	1.67			1.00			14	
15	20/3	ELECTRIC UNIT HEATER EUH-2	0.66		1.66		1.00	FORK LIFT RECEPTACLE	20/3	16	
17			0.67		1.67		1.00			18	
19	20/1	EMERGENCY LIGHTING ELU-3, 3A	0.25	0.25						20	
21	20/1	EMERGENCY LIGHTING ELU-4	0.25		0.25			SPARE	100/3	22	
23	20/1	EMERGENCY LIGHTING ELU-5	0.25			0.25				24	
25	20/1	EMERGENCY LIGHTING ELU-8	0.25	0.25						26	
27	20/1	SPARE			0.00			SPARE	20/3	28	
29	20/1	SPARE			0.00					30	
31				0.00						32	
33	20/3	EUH-8			0.00			SPARE	20/3	34	
35						0.00				36	
37				0.00						38	
39	20/3	SPARE			0.00			SPARE	20/3	40	
41						0.00				42	
TOTAL kVA BY PHASE -				22.35	22.13	22.03		TOTAL kVA-	53.20		
DEMAND kVA BY PHASE -				17.88	17.70	17.62		TOTAL AMPERES-	64.10		

PANELBOARD SCHEDULE "PPUV"											
PANEL		VOLTS		MOUNT.		SURFACE					
MAIN		480/277		AIC		25,000					
PPUV		480/277		LOC.		ELEC. RM.					
225A MCB		3/3									
CIR.	AMPS/POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/POLES	CIR.	
1			25.00	50.00			25.00	UV POWER DISTRIBUTION CENTER NO. 1100		2	
3	150/3	UV POWER DISTRIBUTION CENTER NO. 1200	25.00		50.00		25.00		150/3	4	
5			25.00			50.00	25.00			6	
7										8	
9	150/3	SPARE						SPARE	20/3	10	
11										12	
13										14	
15	20/3	SPARE						SPARE	20/3	16	
17										18	
19										20	
21	20/3	SPARE						SPARE	20/3	22	
23										24	
25	20/3	SPARE						SPARE	20/3	26	
27										28	
29										30	
31										32	
33	20/3	SPARE						SPARE	20/3	34	
35										36	
37										38	
39	20/3	SPARE						SPARE	20/3	40	
41										42	
TOTAL kVA BY PHASE -				50.00	50.00	50.00		TOTAL kVA-	150.00		
DEMAND kVA BY PHASE -				50.00	50.00	50.00		TOTAL AMPERES-	180.72		

DATE	BY	REVISIONS
07/22/05	DM	0
04/14/05	DM	1
04/14/05	DM	2
10/31/05	DM	3
JULY 2008	DM	AS-BUILT DRAWING FILE



PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
WATER TREATMENT FACILITY**
PKG 8 - ELECTRICAL
PANELBOARD SCHEDULES SHEET II

DESIGNED BY	DM	DWG SCALE	AS NOTED
DRAWN BY	DM	CONTRACT NO.	
CHECKED BY	WS	DATE	OCTOBER 31, 2006

EARTH TECH
AS-BUILT FILE
JULY 2008

PANELBOARD SCHEDULE "LP3"													
PANEL		LP3	VOLTS	120/208	MOUNT.	SURFACE							
MAIN		100 MCB	AMPS	100	AIC	25,000							
			PH/WIRE	3/4	LOC.	MECH. CORR.							
CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.			
				A	B	C							
1	20/1	RECEPTACLES (SODIUM HYPO)	1.00	2.00			1.00	RECEPTACLES (MECH ROOM)	20/1	2			
3	20/1	RECEPTACLES (ALUM)	1.00		2.00		1.00	RECEPTACLES (PUMP ROOM)	20/1	4			
5	20/1	RECEPTACLES (WORKSHOP)	0.75			1.75	1.00	RECEPTACLES (OUTSIDE)	20/1*	6			
7	20/1	MOTORIZED DAMPERS (CHEM AREA)	0.50	1.25			0.75	RECEPTACLES (PIPE GALLERY)	20/1*	8			
9	20/1	SWP-201, SWP-202	1.00		2.00		1.00	SWP-230A, SWP-230B	20/1	10			
11	20/1*	RECEPTACLES (ACID ROOM)	0.75			1.75	1.00	SWP-240A, SWP-240B	20/1	12			
13	20/1*	RECEPTACLES (LIME ROOM)	1.00	2.00			1.00	SWP-210A, SWP-210B	20/1	14			
15	20/1	RECEPTACLES (MECH. CORRIDOR)	0.50		1.50		1.00	SWP-220A, SWP-220B	20/1	16			
17	30/1	CONTROL PANEL FCP	1.50			2.00	0.50	SWP-200	30/1	18			
19	30/1	CONTROL PANEL WTCP	1.50	3.00			1.50	UV CONTROL PANEL	20/1	20			
21	20/1	FV-310	1.00		2.00		1.00			22			
23	20/1	FV-320	1.00			2.00	1.00	PORTABLE SUMP PUMP	30/3	24			
25	20/1	FV-330	1.00	2.00			1.00			26			
27	20/1	FV-340	1.00		2.00		1.00	PORTABLE SUMP PUMP	30/3	28			
29			1.00			2.00	1.00			30			
31	30/3	PORTABLE SUMP PUMP	1.00	2.00			1.00			32			
33			1.00		1.00		.50	ELECTRIC DOOR RELEASE	20/1	34			
35			1.00			2.00	1.00	FV-703	20/1	36			
37	30/3	PORTABLE SUMP PUMP	1.00	1.00						38			
39			1.00		1.00			OVERHEAD DOOR	20/3	40			
41	20/1	SINK EJECTOR PUMP	0.25			0.25				42			
TOTAL kVA BY PHASE -				13.25	11.50	10.50		TOTAL kVA-	28.20				
DEMAND kVA BY PHASE -				10.60	9.20	8.40		TOTAL AMPERES-	76.33				

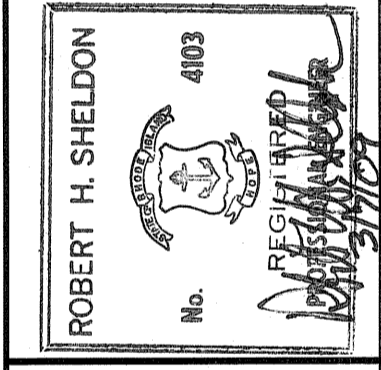
PANELBOARD SCHEDULE "LP4"													
PANEL		LP4	VOLTS	120/208	MOUNT.	SURFACE							
MAIN		100 MCB	AMPS	100	AIC	25,000							
			PH/WIRE	3/4	LOC.	SAMPLE ROOM							
CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.			
				A	B	C							
1	20/1	RECEPTACLE SAMPLE ROOM	0.25	1.25			1.00	SAMPLE ROOM FUME HOOD	20/1	2			
3	20/1	RECEPTACLE SAMPLE ROOM	0.25		1.25		1.00	SAMPLE ROOM POLISHING KIT	20/1	4			
5	20/1	RECEPTACLE SAMPLE ROOM	0.25			0.50	0.25	RECEPTACLE SAMPLE ROOM	20/1	6			
7	20/1	RECEPTACLE SAMPLE ROOM	0.25	0.50			0.25	RECEPTACLE SAMPLE ROOM	20/1	8			
9	20/1	RECEPTACLE SAMPLE ROOM	0.25		0.50		0.25	RECEPTACLE SAMPLE ROOM	20/1	10			
11	20/1	RECEPTACLE SAMPLE ROOM	0.25			0.50	0.25	RECEPTACLE SAMPLE ROOM	20/1	12			
13	20/1	RECEPTACLE CONTROL ROOM	0.25	0.50			0.25	RECEPTACLE SAMPLE ROOM	20/1	14			
15	20/1	RECEPTACLE CONTROL ROOM	0.25		0.50		0.25	RECEPTACLE CONTROL ROOM	20/1	16			
17	20/1	RECEPTACLE CONTROL ROOM	0.25			0.50	0.25	RECEPTACLE CONTROL ROOM	20/1	18			
19	20/1	RECEPTACLE CONTROL ROOM	0.25	0.50			0.25	RECEPTACLE CONTROL ROOM	20/1	20			
21	20/1	RECEPTACLE CONTROL ROOM	0.25		0.50		0.25	RECEPTACLE CONTROL ROOM	20/1	22			
23	20/1	RECEPTACLE CONTROL ROOM	0.25			0.50	0.25	RECEPTACLE CONTROL ROOM	20/1	24			
25	20/1	SPARE						SPARE	20/1	26			
27	20/1	SPARE						SPARE	20/1	28			
29	20/1	SPARE						SPARE	20/1	30			
31	20/1	SPARE						SPARE	20/1	32			
33	20/1	SPARE						SPARE	20/1	34			
35	20/1	SPARE						SPARE	20/1	36			
37	20/1	SPARE						SPARE	20/1	38			
39	20/1	SPARE						SPARE	20/1	40			
41	20/1	SPARE						SPARE	20/1	42			
TOTAL kVA BY PHASE -				2.75	2.75	2.00		TOTAL kVA-	6.00				
DEMAND kVA BY PHASE -				2.20	2.20	1.60		TOTAL AMPERES-	16.67				

* - GFCI

PANELBOARD SCHEDULE "LP1"													
PANEL		LP1	VOLTS	120/208	MOUNT.	SURFACE							
MAIN		400 MCB	AMPS	400	AIC	25,000							
			PH/WIRE	3/4	LOC.	ELEC. RM.							
CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.			
				A	B	C							
1	20/1	EF-4, EF-5, EF-9	1.00	2.00			1.00	MOTOR HEATER (HSP-310)	20/1	2			
3	20/1	EF-6, EF-7, EF-8	1.00		2.00		1.00	MOTOR HEATER (HSP-320)	20/1	4			
5	20/1	EF-19, EF-20	0.75			1.75	1.00	MOTOR HEATER (HSP-330)	20/1	6			
7	20/1	SPARE		1.50			1.00	MOTOR HEATER (HSP-340)	20/1	8			
9	20/1	EF-22, EF-23	0.75		1.50		0.75	EF-2, EF-3	20/1	10			
11	20/1	EF-21, SF-1	0.75			4.75	4.00			12			
13			3.87	8.67			4.80	LIGHTING PANEL LP2	100/3	14			
15	100/3	GENERATOR NO.1 LOAD CENTER	3.39		5.99		2.60			16			
17			3.14			13.74	10.60			18			
19			3.87	13.07			9.20	LIGHTING PANEL LP3	100/3	20			
21	100/3	GENERATOR NO.2 LOAD CENTER	3.39		11.79		8.40			22			
23			3.14			5.34	2.20			24			
25			3.87	6.07			2.20	LIGHTING PANEL LP4	100/3	26			
27	100/3	SWITCHGEAR ENCLOSURE LOAD CENTER	3.39		4.99		1.60			28			
29			3.14			3.14				30			
31	20/1	SPARE						AC-1/HP-1	20/2	32			
33	20/1	SPARE						SPARE	20/1	34			
35	20/1	SPARE						SPARE	20/1	36			
37	20/1	SPARE								38			
39	20/1	SPARE								40			
41	20/1	SPARE								42			
TOTAL kVA BY PHASE -				31.31	26.27	28.72		TOTAL kVA-	69.02				
DEMAND kVA BY PHASE -				25.05	21.02	22.98		TOTAL AMPERES-	191.72				

PANELBOARD SCHEDULE "LP2"													
PANEL		LP2	VOLTS	120/208	MOUNT.	SURFACE							
MAIN		100 MLO	AMPS	100	AIC	25,000							
			PH/WIRE	3/4	LOC.	ELEC. RM.							
CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.			
				A	B	C							
1	20/1	RECEPTACLES (CORRIDOR)	1.00	1.50			0.50	RECEPTACLES (CORRIDOR)	20/1	2			
3	20/1	RECEPTACLES (ELEC. ROOM)	1.00		2.00		1.00	RECEPTACLES (MECH. ROOM)	20/1	4			
5	20/1*	RECEPTACLE (TOILET ROOM)	0.50			1.25	0.75	RECEPTACLES (FILTER ROOM)	20/1*	6			
7	20/1	RECEPTACLES (WORK AREA)	1.00	1.75			0.75	RECEPTACLES (FILTER ROOM)	20/1*	8			
9	20/1	EMERGENCY EYEWASH (FSH-192-1)	0.25		1.25		1.00	LIGHTING CONTROL PANEL	20/1	10			
11	20/1	EMERGENCY EYEWASH (FSH-192-2)	0.25			1.25	1.00	FACP	20/1	12			
13	20/1	EMERGENCY EYEWASH (FSH-192-3)	0.25	0.75			0.50	FAA	20/1	14			
15	20/1	EMERGENCY EYEWASH (FSH-192-4)	0.25		1.25		1.00	ACSSP	20/1	16			
17	20/1	EMERGENCY EYEWASH (FSH-192-5)	0.25			0.75	0.50	EF-17, EF-18, MAU-7	20/1	18			
19	20/1	GUH-1, MD-6	0.50	1.00			0.50	DWH-1, CP-1, MD	20/1	20			
21	30/1	CONTROL PANEL RTCP	1.50		2.00		0.50	FILTRATION SYSTEM DRYERS	20/1	22			
23	20/1	RECEPTACLES (ROOF)	1.00			1.00	1.00			24			
25	20/1	RECEPTACLES (ROOF)	1.00	1.00			1.00	PORTABLE SUMP PUMP	30/3	26			
27	20/1	RECEPTACLES (ROOF)	1.00		1.00		1.00			28			
29			1.00				1.00			30			
31	30/3	PORTABLE SUMP PUMP	1.00				1.00	PORTABLE SUMP PUMP	30/3	32			
33			1.00				1.00			34			
35	30/3	PORTABLE SUMP PUMP	1.00				.50	ELECTRIC DOOR RELEASE	20/1	36			
37			1.00					SPARE	20/1	38			
39			1.00					SPARE	20/1	40			
41	20/1	SPARE						SPARE	20/1	42			
TOTAL kVA BY PHASE -				6.00	7.50	4.25		TOTAL kVA-	13.80				
DEMAND kVA BY PHASE -				4.80	6.00	3.40		TOTAL AMPERES-	38.33				

DATE	02/22/08
BY	DM
REVISIONS	
0	ISSUED FOR CONSTRUCTION
1	REVISED AS NOTED
2	ISSUED FOR RFI POSTED SET
3	AS-BUILT DRAWING FILE



PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
WATER TREATMENT FACILITY**
PKG 8 - ELECTRICAL
PANELBOARD SCHEDULES SHEET III

DESIGNED BY	DM	DWG SCALE	AS NOTED
DRAWN BY	DM	CONTRACT NO.	
CHECKED BY	WS	DATE	OCTOBER 31, 2008

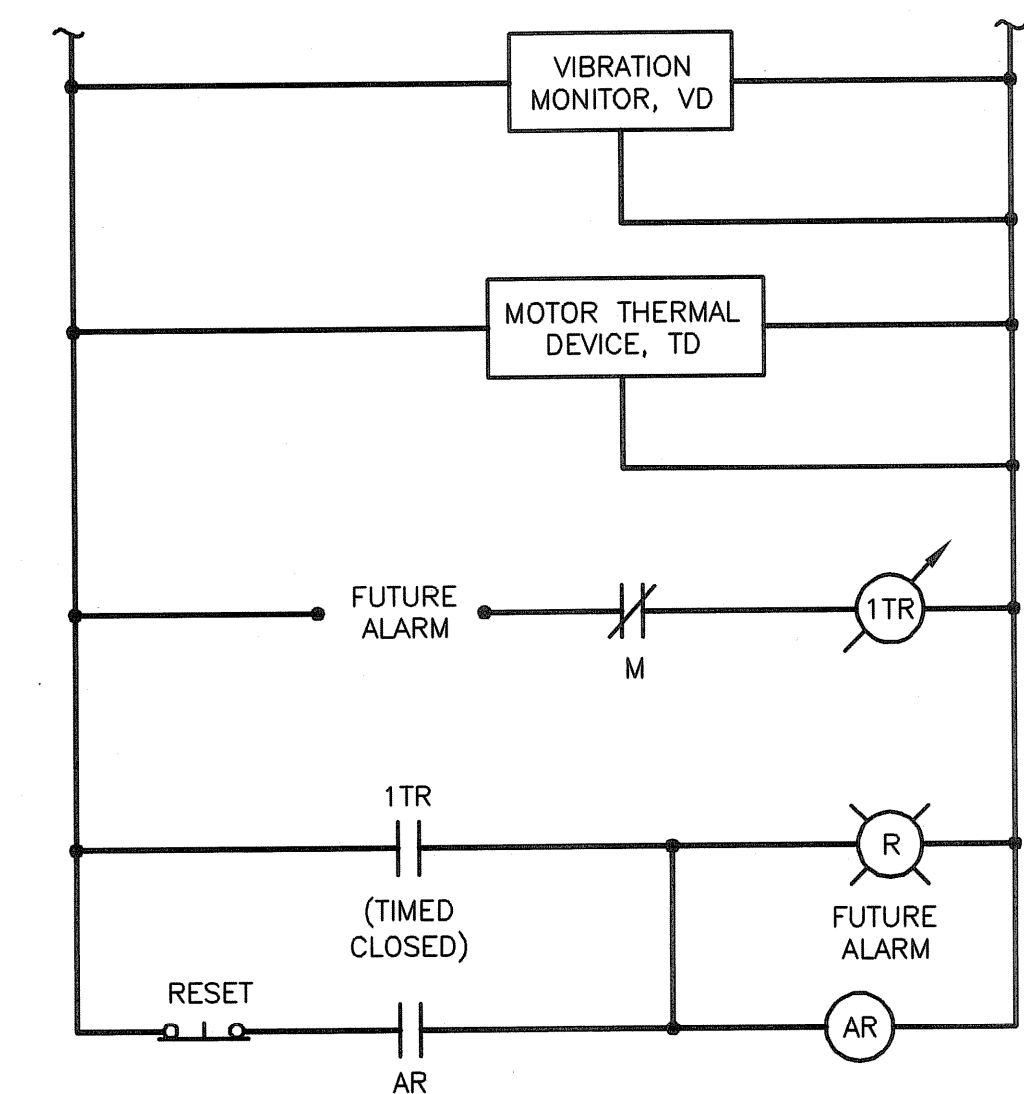
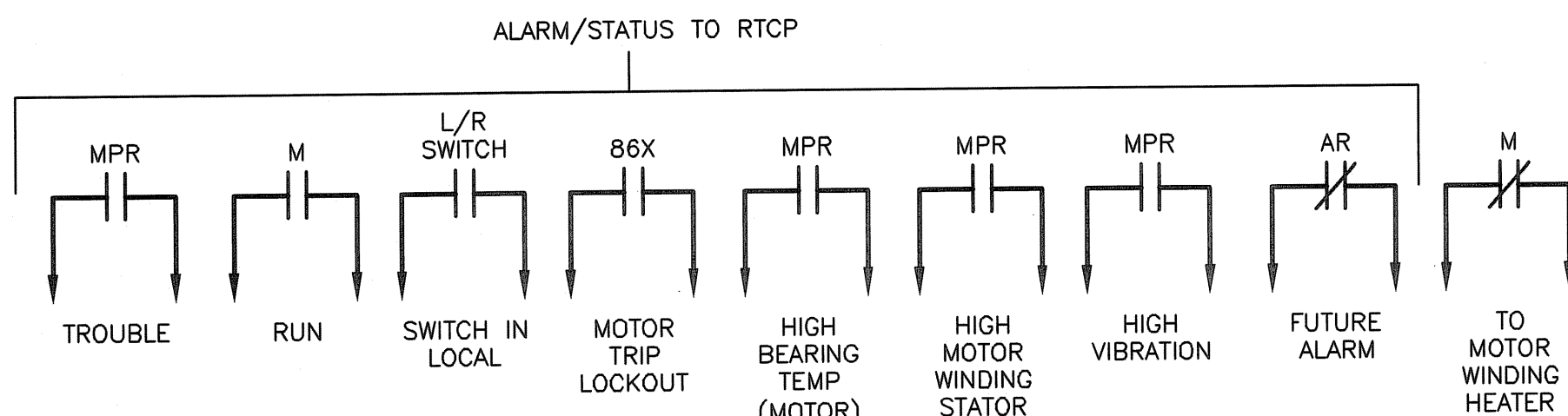
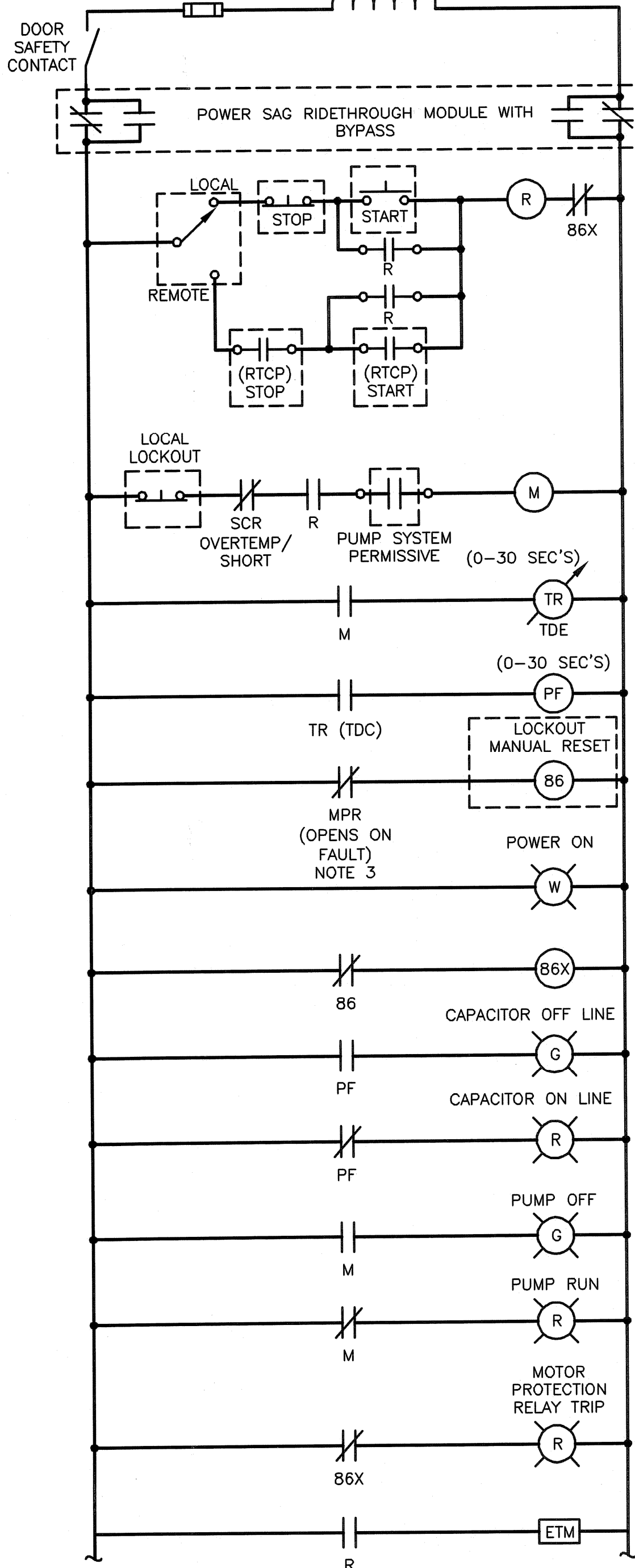
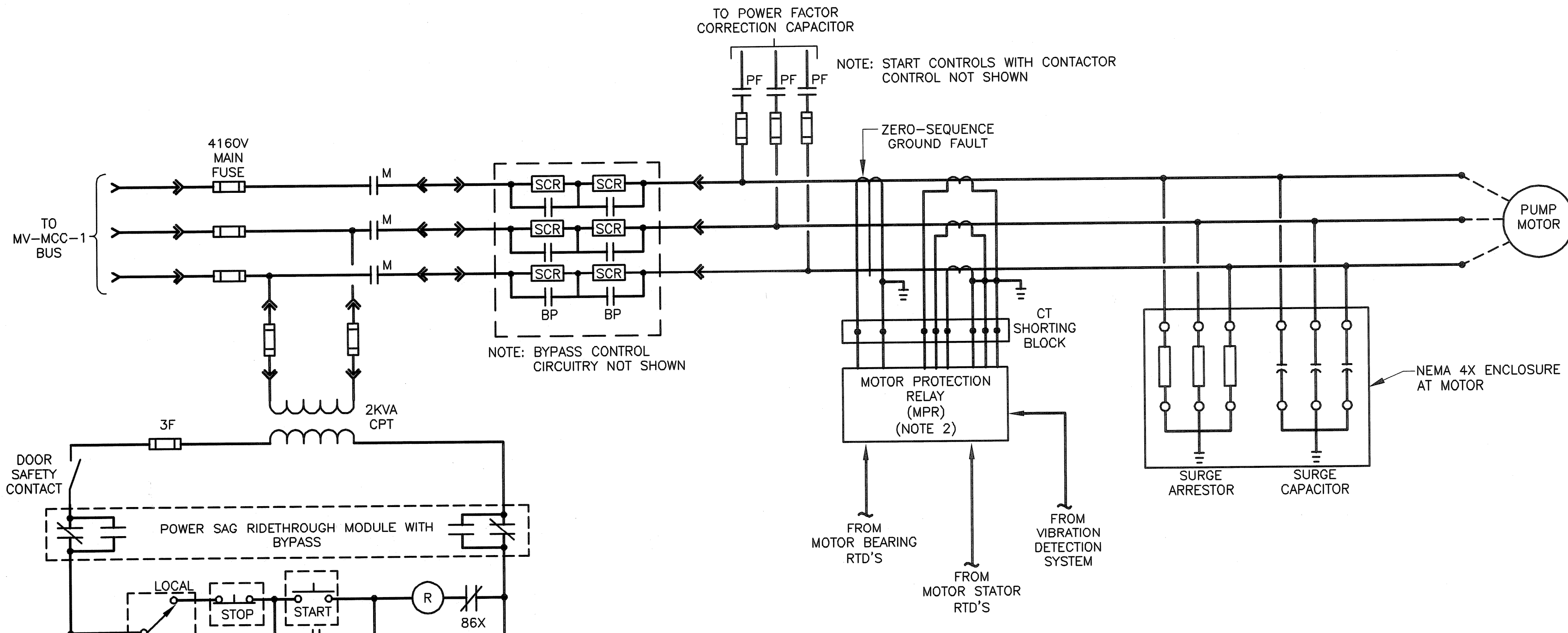
EARTH TECH
AS-BUILT FILE
JULY 2008

PANELBOARD SCHEDULE "PP4"											
PANEL		PP4	VOLTS	480	MOUNT.		SURFACE				
MAIN		225A MCB	AMPS	200	AIC		25,000				
			PH/WIRE	3/3	LOC.		VFD ROOM				
CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.	
				A	B	C					
1	20/3	LIME CHEMICAL FEED PUMP VFD-221	0.90	1.80			0.90	LIME CHEMICAL FEED PUMP VFD-413	20/3	2	
3			0.90		1.80		0.90			4	
5			0.90			1.80	0.90			6	
7			0.90							8	
9	20/3	LIME CHEMICAL FEED PUMP VFD-411	0.90					SPARE		10	
11			0.90							12	
13			0.90							14	
15	50/3	LIME FEED CONTROL PANEL "LFCP"	0.50	1.40			0.90	LIME CHEMICAL FEED PUMP VFD-412	20/3	16	
17			0.50			1.40	0.90			18	
19										20	
21	20/3	SPARE						SPARE	20/3	22	
23										24	
25											26
27											28
29										30	
31	20/3	SPARE						SPARE	20/3	32	
33										34	
35											36
37											38
39		LIGHTING PANEL LP6 TRANSFORMER						SPARE	20/3	40	
41										42	
TOTAL kVA BY PHASE -							TOTAL kVA-			24.00	
DEMAND kVA BY PHASE -							TOTAL AMPERES-			28.91	

PANELBOARD SCHEDULE "LP6"											
PANEL		LP6	VOLTS	120/208	MOUNT.		SURFACE				
MAIN		150	AMPS	150	AIC		14,000				
			PH/WIRE	3/4	LOC.		VFD ROOM				
CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.	
				A	B	C					
1	30/3	SODIUM HYPOCHLORITE CP	1.00	2.00			1.00	HYDROFLUOSILICIC ACID (FLUORIDE) CP	30/3	2	
3			1.00		2.00		1.00			4	
5			1.00			2.00	1.00			6	
7			1.00							8	
9	30/3	COAGULANT (ALUM) CP	1.00		2.00		1.00	ACID CONTROL PANEL	30/3	10	
11			1.00			2.00	1.00			12	
13			1.00							14	
15	30/1	POLYMER CONTROL PANEL	1.00	2.00			1.00	AMMONIUM SULFATE	30/3	16	
17			1.00		2.00		1.00			18	
19			1.00	2.00			1.00			20	
21	20/1	ALT. REGEN PUMPS					1.00	CHEM. FILL STA.-SOD. HYP.	20/1	22	
23	20/1	SPARE				1.00	1.00	CHEM. FILL STA.-ACID	20/1	24	
25	20/1	SPARE		1.00			1.00	CHEM. FILL STA.-COAGULANT	20/1	26	
27	20/1	SPARE			1.00		1.00	CHEM. FILL STA.-POLYPHOSPHATE	20/1	28	
29	20/1	SPARE						SPARE	20/1	30	
31	20/1	SPARE						SPARE	20/1	32	
33	20/1	SPARE						SPARE	20/1	34	
35	20/1	SPARE						SPARE	20/1	36	
37	20/1	SPARE		0.50			0.50			38	
39	20/1	SPARE			0.50		0.50	TVSS	30/3	40	
41	20/1	SPARE				0.50	0.50			42	
TOTAL kVA BY PHASE -				9.50	8.50		7.50	TOTAL kVA-			20.40
DEMAND kVA BY PHASE -				7.60	6.80		6.00	TOTAL AMPERES-			56.67

PANELBOARD SCHEDULE "LC1" *											
PANEL		LC1	VOLTS	120/208	MOUNT.		SURFACE				
MAIN		100 MCB	AMPS	100	AIC		14,000				
			PH/WIRE	3 PH, 4W	LOC.		GEN. ENCLOSURE				
CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA			LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.	
				A	B	C					
1		UTILITY, FDR #1, TIE HTRS.						LIGHTS		2	
3		GEN 1,2 & SYS. CTL. HTRS						RECEPT		4	
5		EX. FAN						UNIT HTR		6	
7		SYSTEM CTL., 120V POWER						UNIT HTR		8	
9		AC						UNIT HTR		10	
11		AC						UNIT HTR		12	
13		AC						125V DC CHARGER		14	
15		AC						24V DC CHARGER		16	
17		SPARE						XFMR FANS		18	
19		XFMR ALARMS						SPARE		20	
21		TEL. RECEPT						PMCP PANEL		22	
23		LBS HTRS						SPARE		24	
TOTAL kVA BY PHASE -								TOTAL kVA-			
DEMAND kVA BY PHASE -								TOTAL AMPERES-			

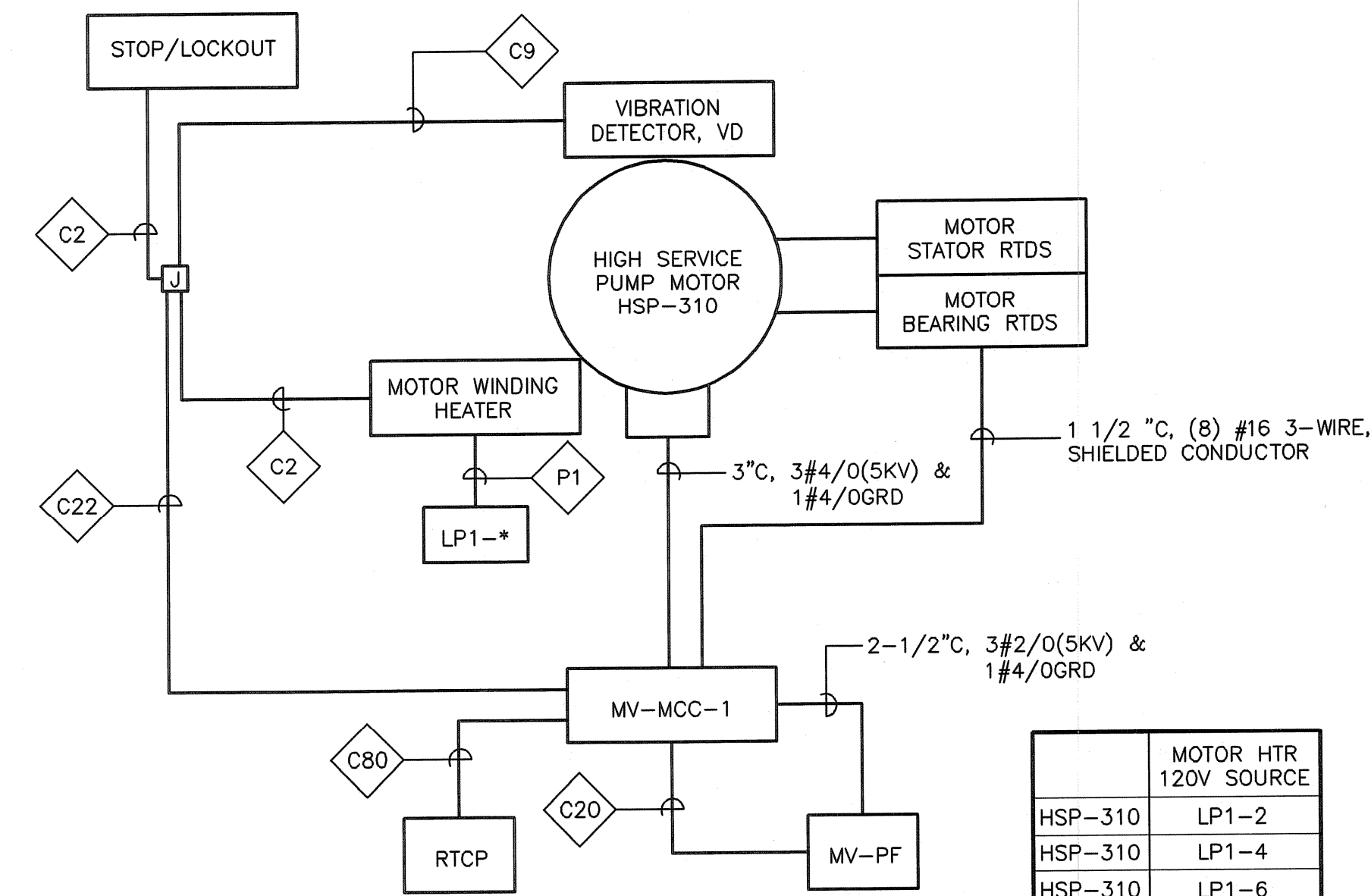
* - PROVIDED WITH ENCLOSURE UNDER SECTION 16950



CONTROL WIRING DIAGRAM
5KV HIGH SERVICE PUMP MOTOR
NOT TO SCALE

NOTES:

1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. MOTOR STARTER MANUFACTURER TO COORDINATE INPUTS FOR MOTOR PROTECTION RELAY (MPR) WITH VIBRATION DETECTORS, MOTOR WINDING TEMPERATURE SWITCHES, AND PUMP/MOTOR BEARING RTDS PROVIDED WITH HIGH LIFT PUMPS UNDER SPECIFICATION SECTION 11212.
3. VERIFY THAT MOTOR PROTECTION RELAY DOES NOT REQUIRE 86 LOCKOUT RELAY RESET EACH TIME MOTOR IS DEENERGIZED.



HIGH SERVICE PUMP
BLOCK WIRING DIAGRAM
NOT TO SCALE

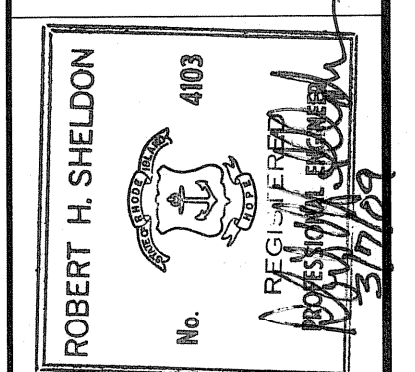
(WIRING SHOWN FOR HSP-310 AND ASSOCIATED 5K STARTER
SIMILAR FOR: HSP-320, HSP-330 & HSP-340)

	MOTOR HTR 120V SOURCE
HSP-310	LP1-2
HSP-310	LP1-4
HSP-310	LP1-6
HSP-310	LP1-8

PROVIDE SIGN AT MOTOR INDICATING
MOTOR HEATER IS ON SEPERATE POWER
SUPPLY THAN MOTOR.

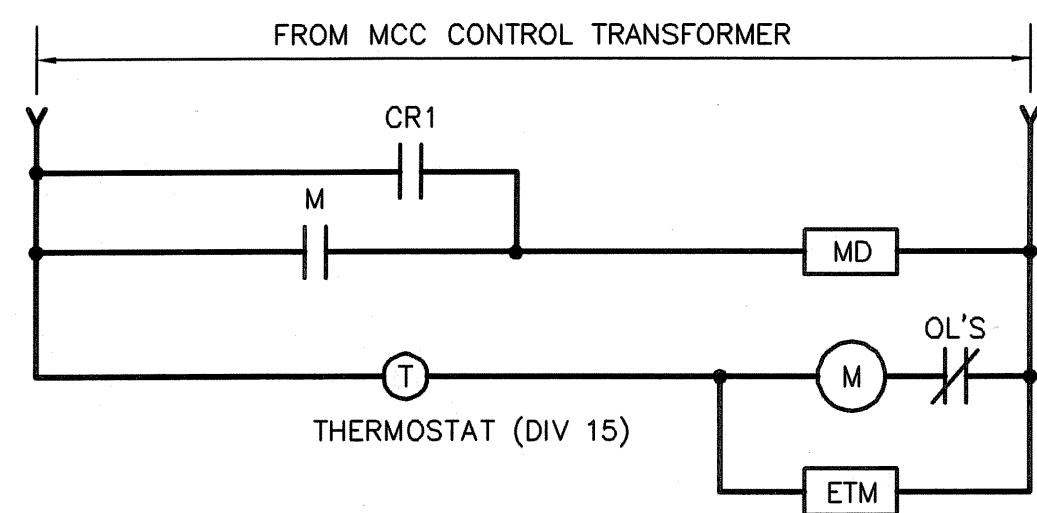
FULL SIZE DRAWING = 4"

NO.	DATE	BY	REVISIONS
3	AS-BUILT DRAWING FILE	DM	
2	ISSUED FOR RFI POSTED SET	DM	
1	REVISED AS NOTED	DM	
0	ISSUED FOR CONSTRUCTION	DM	
	D. WILKINS		

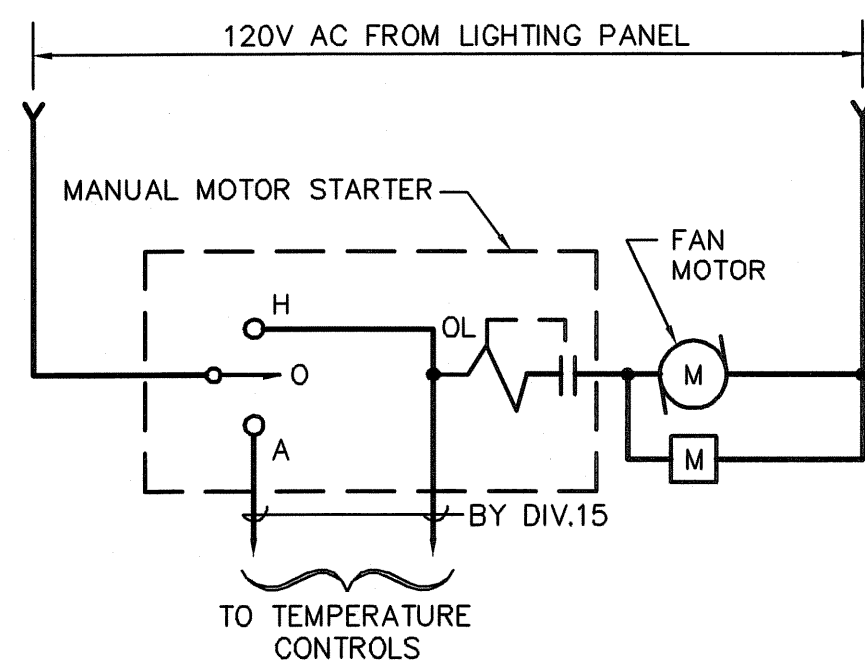


DESIGNED BY	DWG SCALE
DM	AS NOTED
DRAWN BY	CONTRACT NO.
DM	
CHECKED BY	DATE
WS	OCTOBER 31, 2008

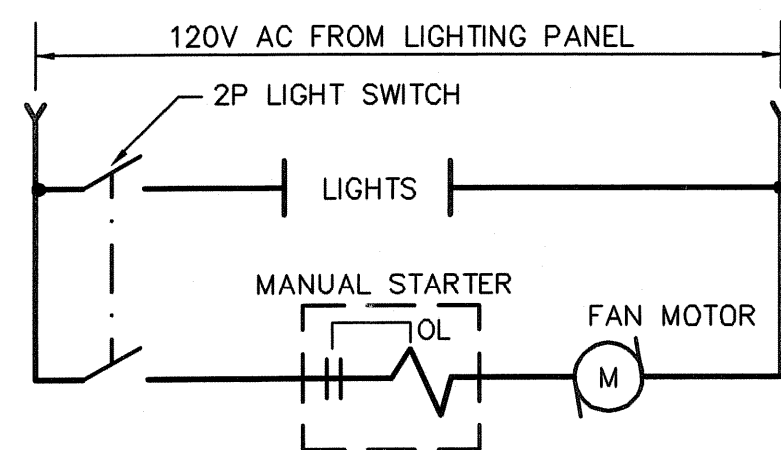
EARTH TECH
AS-BUILT FILE
JULY 2008



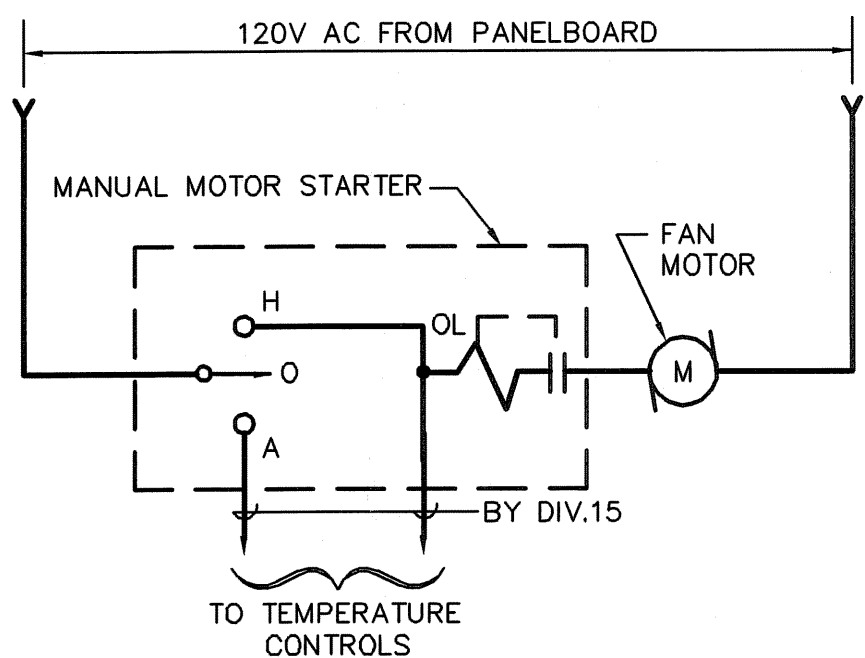
EXHAUST FAN AND DAMPER CONTROL
NOT TO SCALE



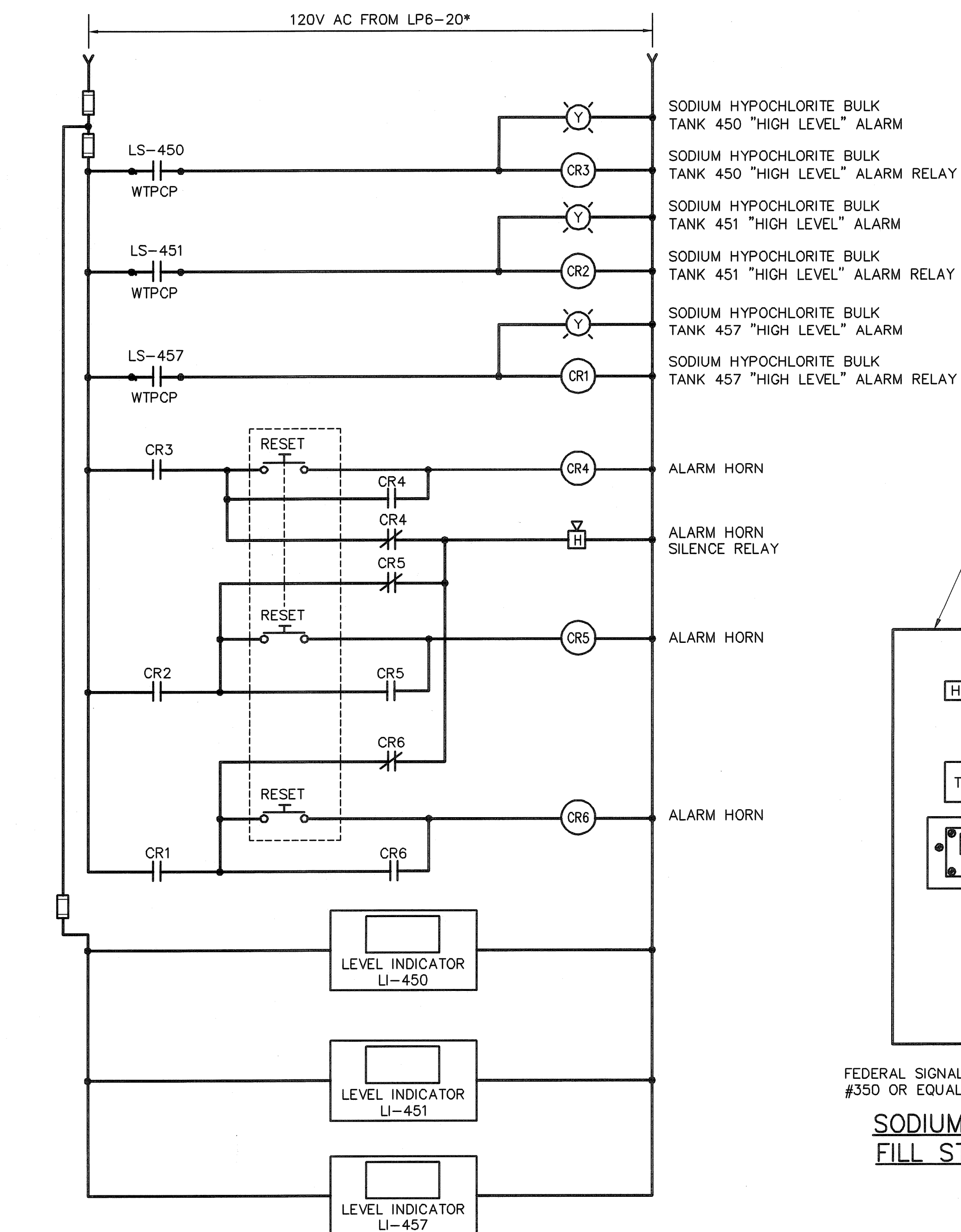
EXHAUST FAN
NOT TO SCALE



TOILET EXHAUST FAN
NOT TO SCALE

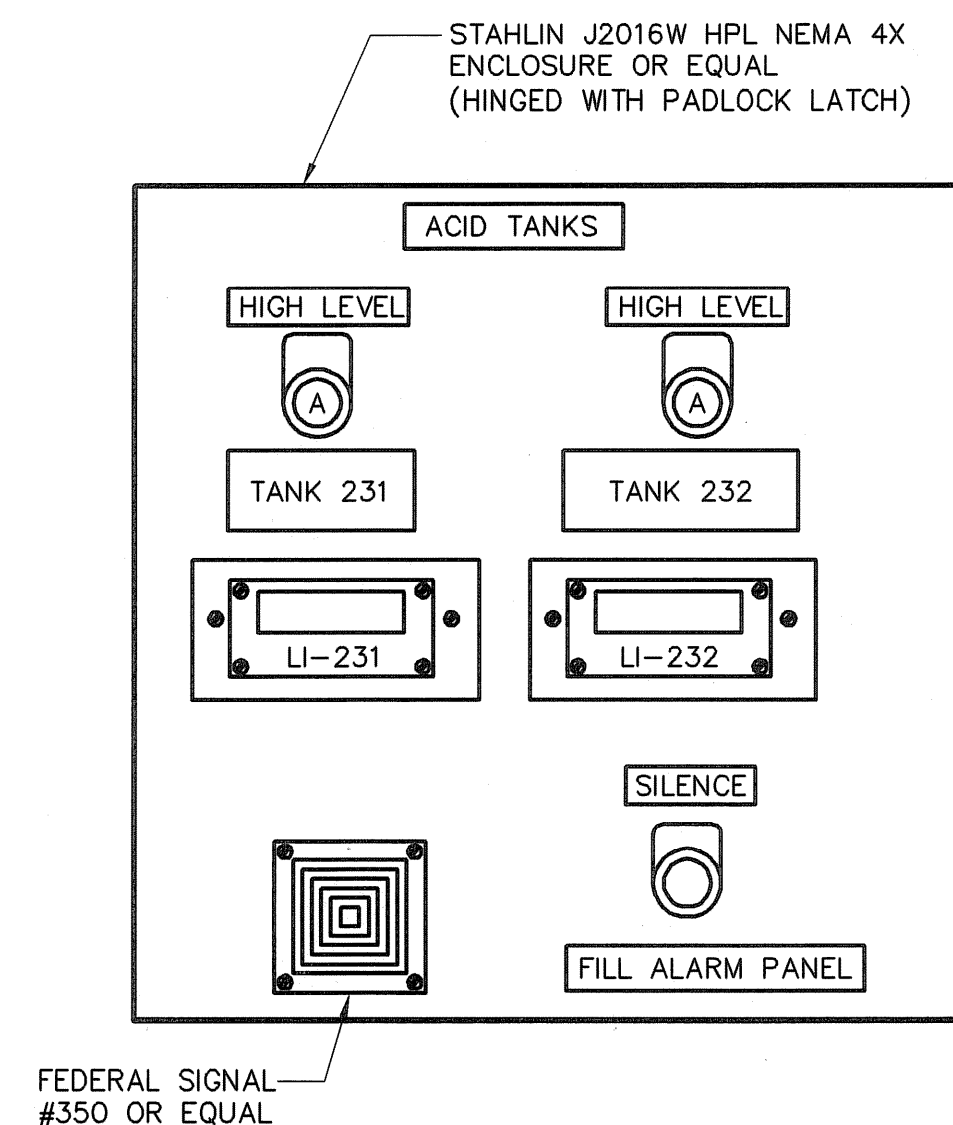


**HOT WATER UNIT HEATER FAN
HEATING SYSTEM PUMP**
NOT TO SCALE

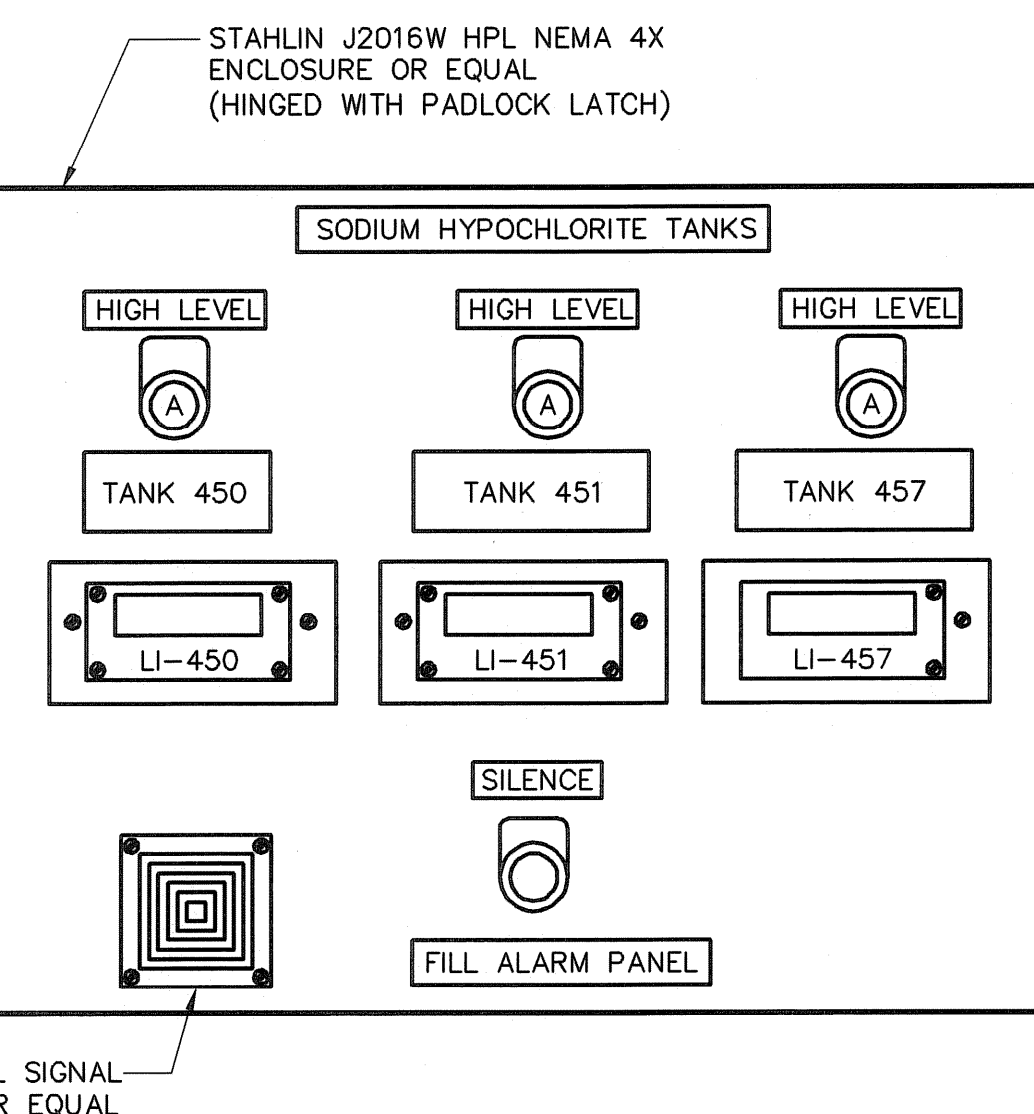


**SODIUM HYPOCHLORITE CHEMICAL SYSTEM
FILL STATION
WIRING DIAGRAM**
NOT TO SCALE

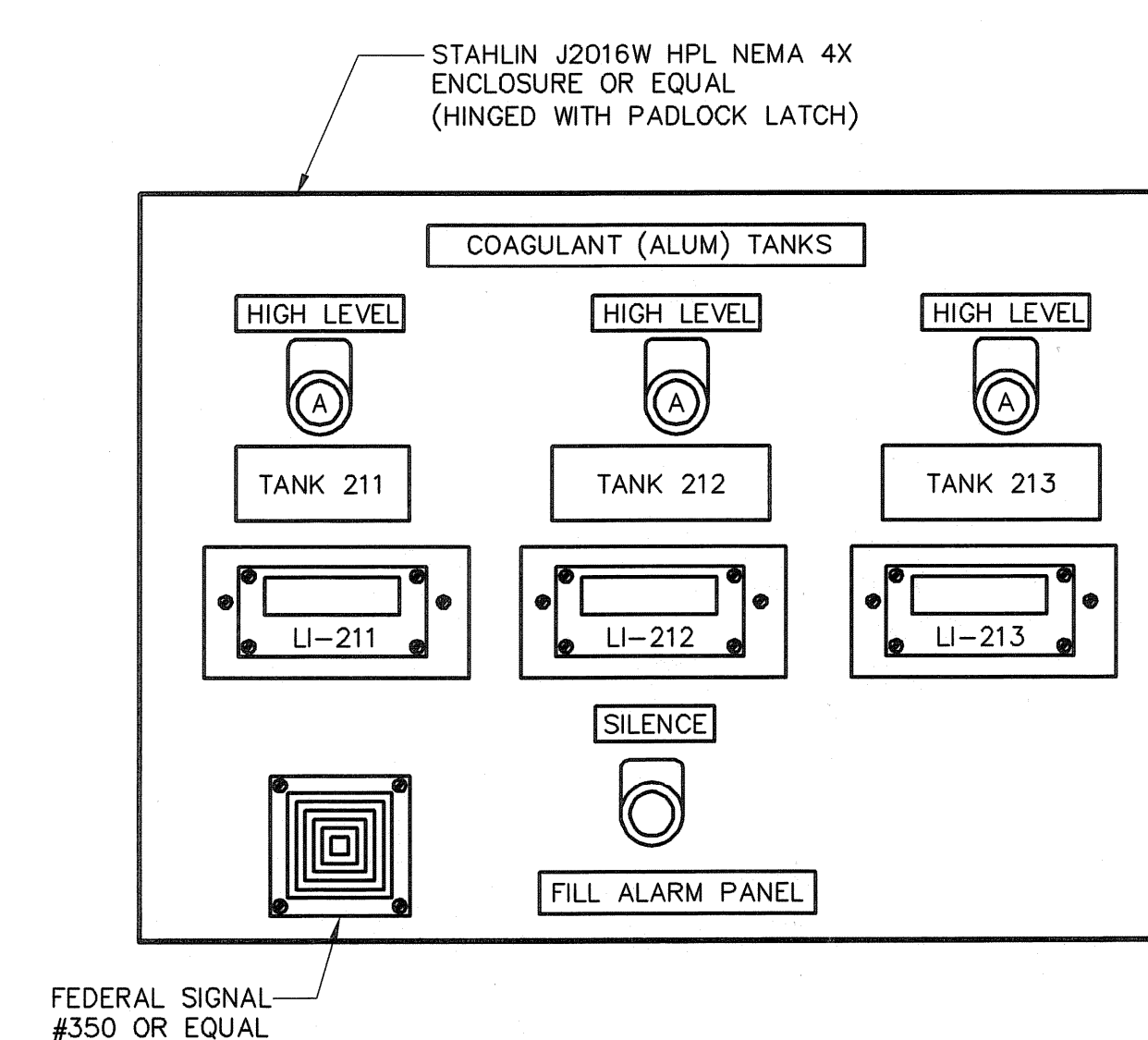
TYPICAL FOR THE FOLLOWING CHEMICALS:
HYDROFLUOSILICIC ACID (FLUORIDE)(LP6-22)
ACID (LP6-24)
COAGULANT (ALUM)(LP6-26)
ORTHOPHOSPHATE (LP6-28)



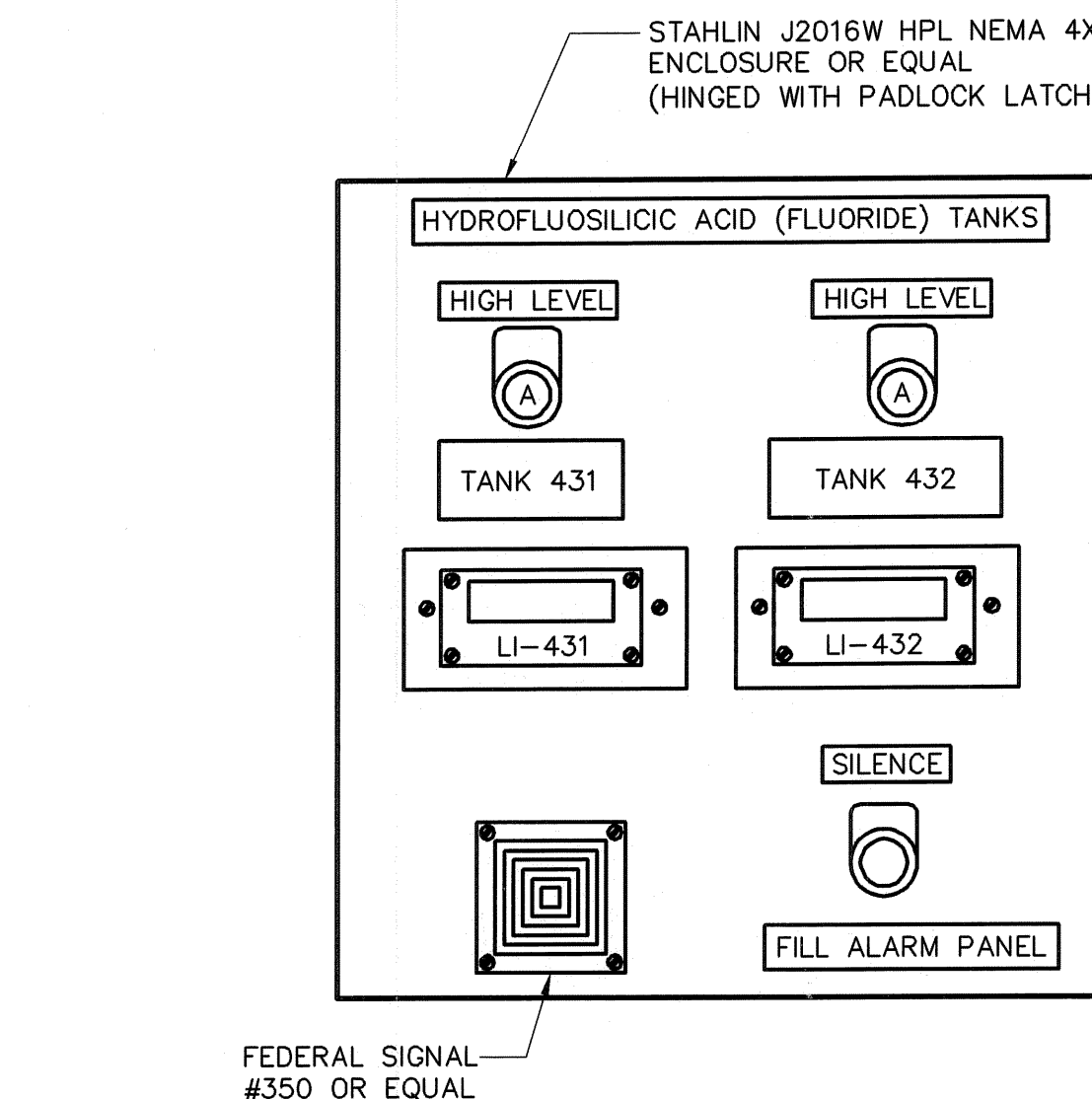
**ACID CHEMICAL SYSTEM
CONTROL PANEL FILL STATION (CFPWTF3)**
NOT TO SCALE
(PROVIDED UNDER DIVISION 13)



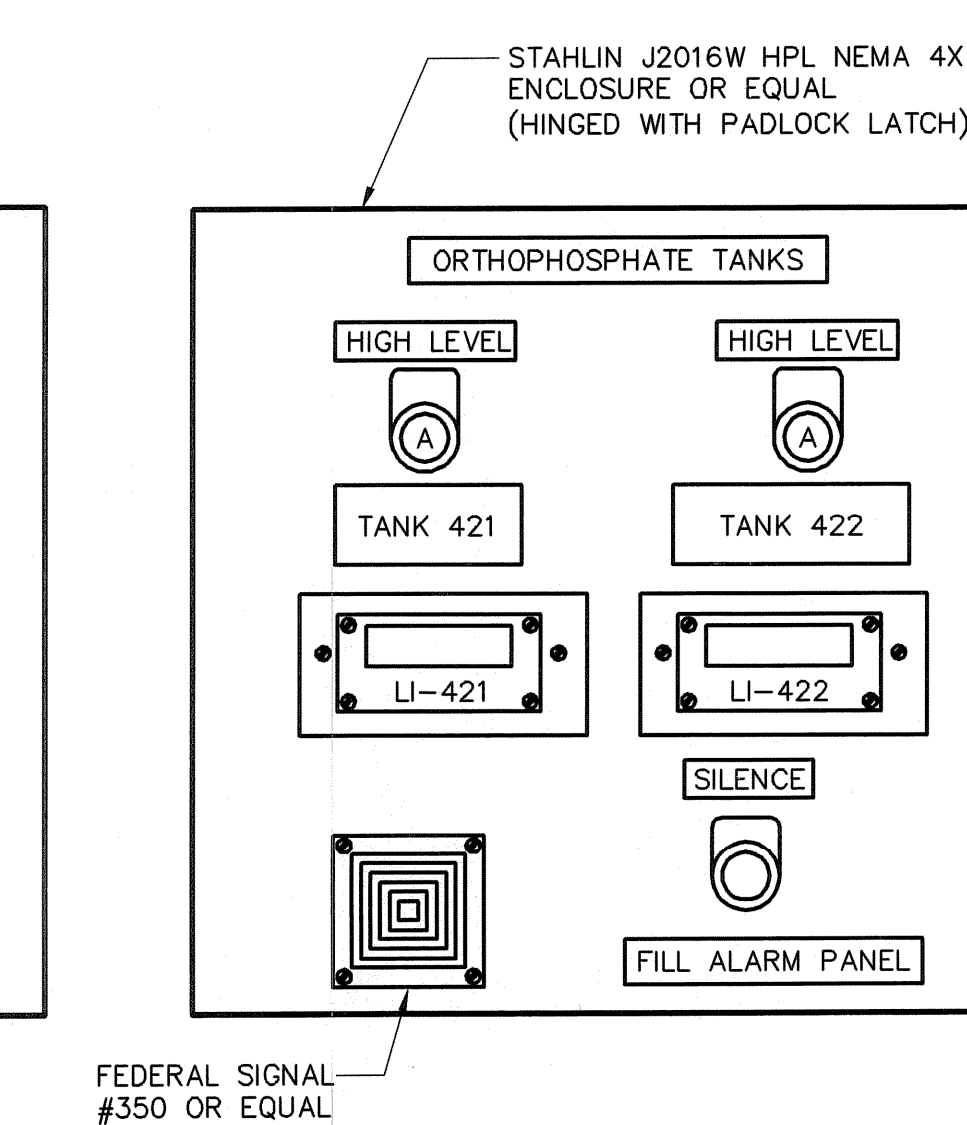
**SODIUM HYPOCHLORITE CHEMICAL SYSTEM
FILL STATION CONTROL PANEL (CFPWTF1)**
NOT TO SCALE
(PROVIDED UNDER DIVISION 13)



**COAGULANT (ALUM) CHEMICAL SYSTEM
CONTROL PANEL FILL STATION (CFPWTF4)**
NOT TO SCALE
(PROVIDED UNDER DIVISION 13)



**HYDROFLUOSILICIC ACID CHEMICAL SYSTEM FILL STATION
FILL STATION CONTROL PANEL (CFPWTF2)**
NOT TO SCALE
(PROVIDED UNDER DIVISION 13)



**ORTHOPHOSPHATE CHEMICAL SYSTEM
CONTROL PANEL FILL STATION (CFPWTF5)**
NOT TO SCALE
(PROVIDED UNDER DIVISION 13)

NOTES:
1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

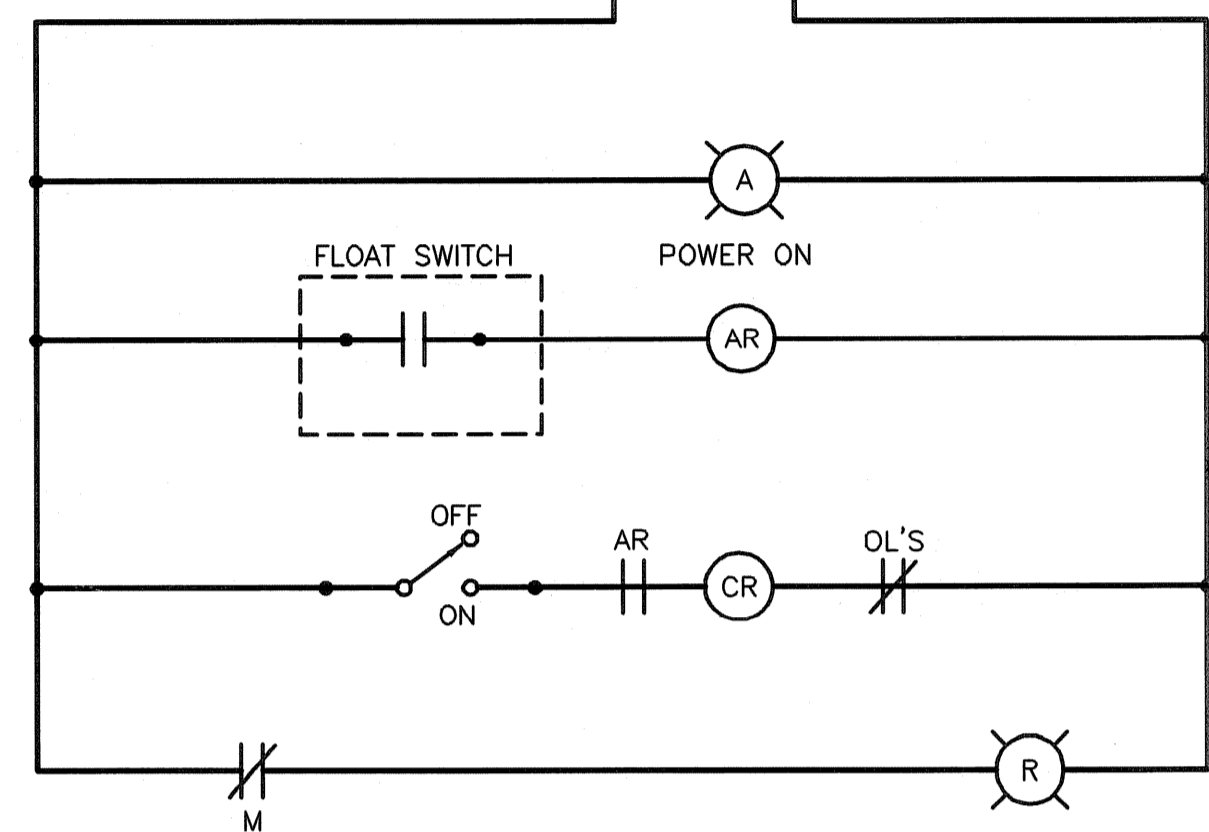
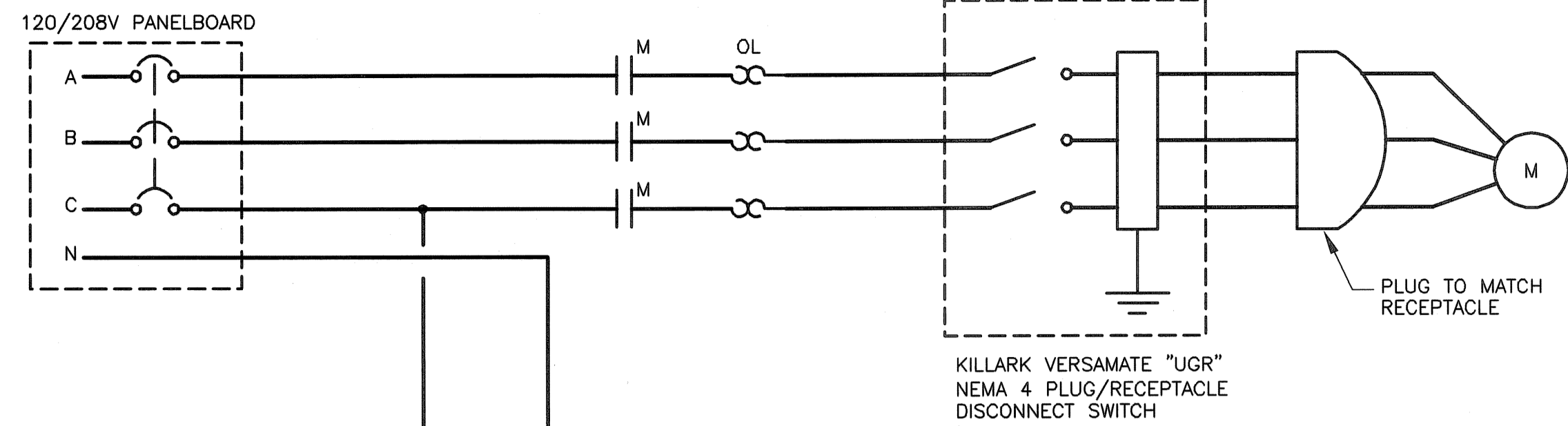
NO.	DATE	BY	REVISIONS
3	07/22/08	DM	AS-BUILT DRAWING FILE
2	10/31/06	DM	ISSUED FOR RFI POSTED SET
1	04/14/05	DM	REVISED AS NOTED
0	04/14/05	DM	ISSUED FOR CONSTRUCTION

ROBERT H. SHELDON
No. 4103
DATE: 07/22/08
317108

PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
WATER TREATMENT FACILITY**
PKG 8 - ELECTRICAL
CONTROL WIRING DIAGRAMS SHEET II

DESIGNED BY	DM	DWG SCALE	AS NOTED
DRAWN BY	DM	CONTRACT NO.	
CHECKED BY	WS	DATE	OCTOBER 31, 2006

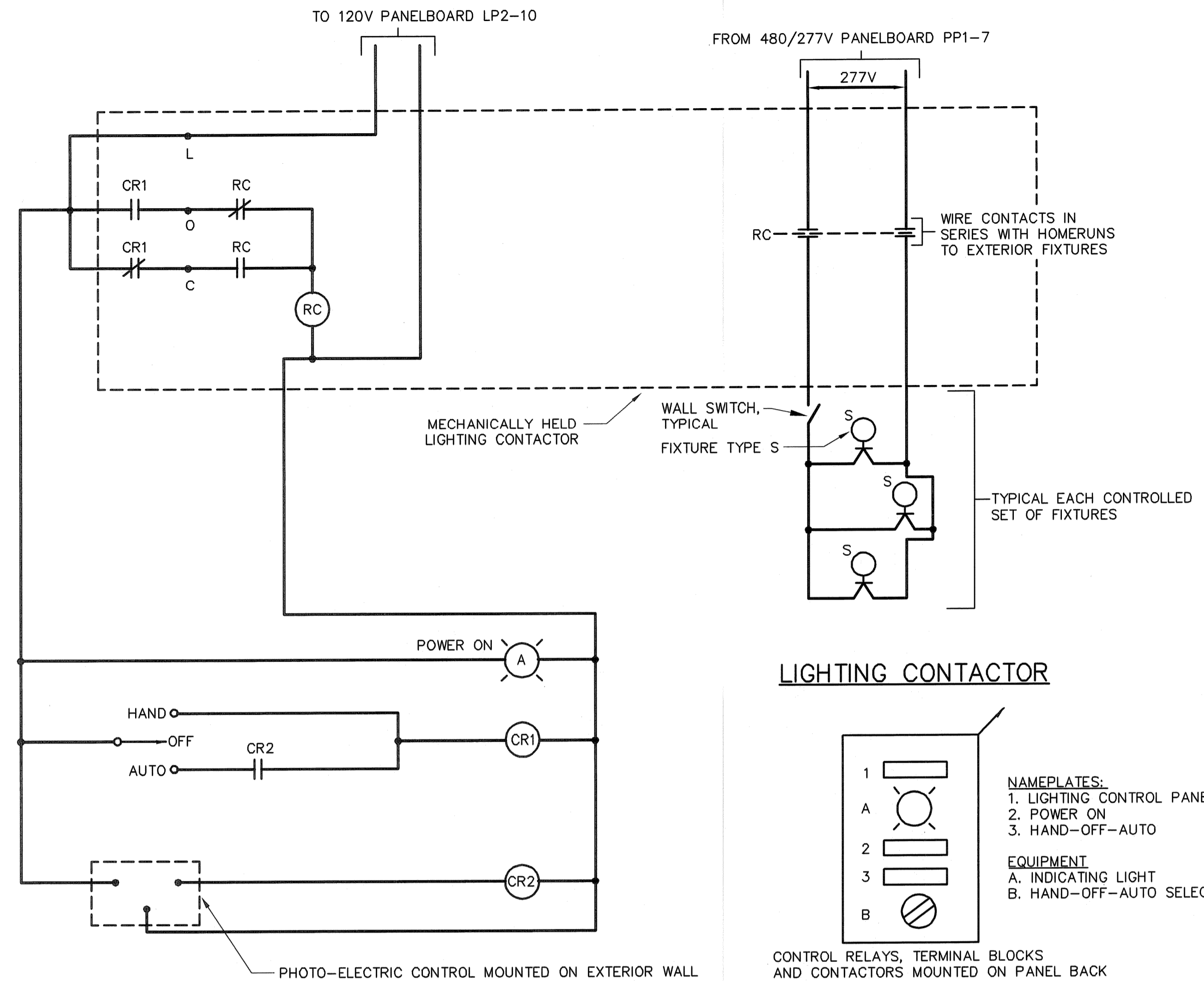
EARTH TECH
AS-BUILT FILE
JULY 2008



**PORTABLE 208V SUMP PUMP
WIRING DIAGRAM**

NOT TO SCALE

(ALL DEVICES AT WALL MOUNTED MOTOR STARTER NEAR SUMP PUMP DISCONNECT SWITCH)

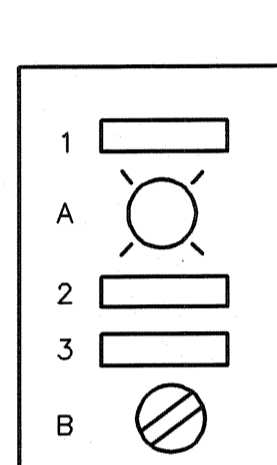


LIGHTING CONTROL CIRCUIT

NOT TO SCALE

(ALL CONTROL DEVICES LOCATED IN CONTROL PANEL UNLESS OTHERWISE NOTED)

LIGHTING CONTROL PANEL



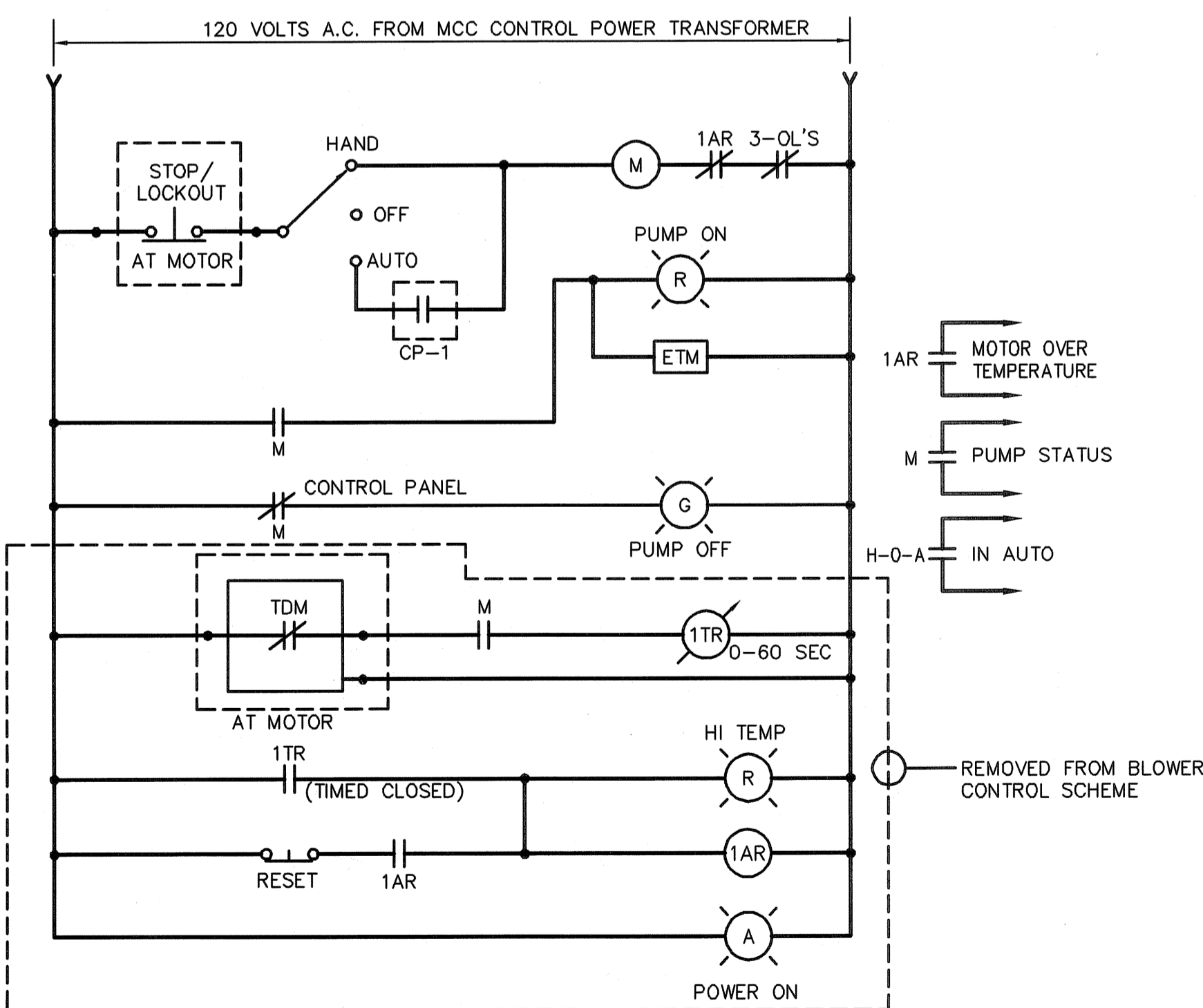
NAMEPLATES:
1. LIGHTING CONTROL PANEL
2. POWER ON
3. HAND-OFF-AUTO

EQUIPMENT:
A. INDICATING LIGHT
B. HAND-OFF-AUTO SELECTOR SWITCH

CONTROL RELAYS, TERMINAL BLOCKS
AND CONTACTORS MOUNTED ON PANEL BACK

LIGHTING CONTROL PANEL

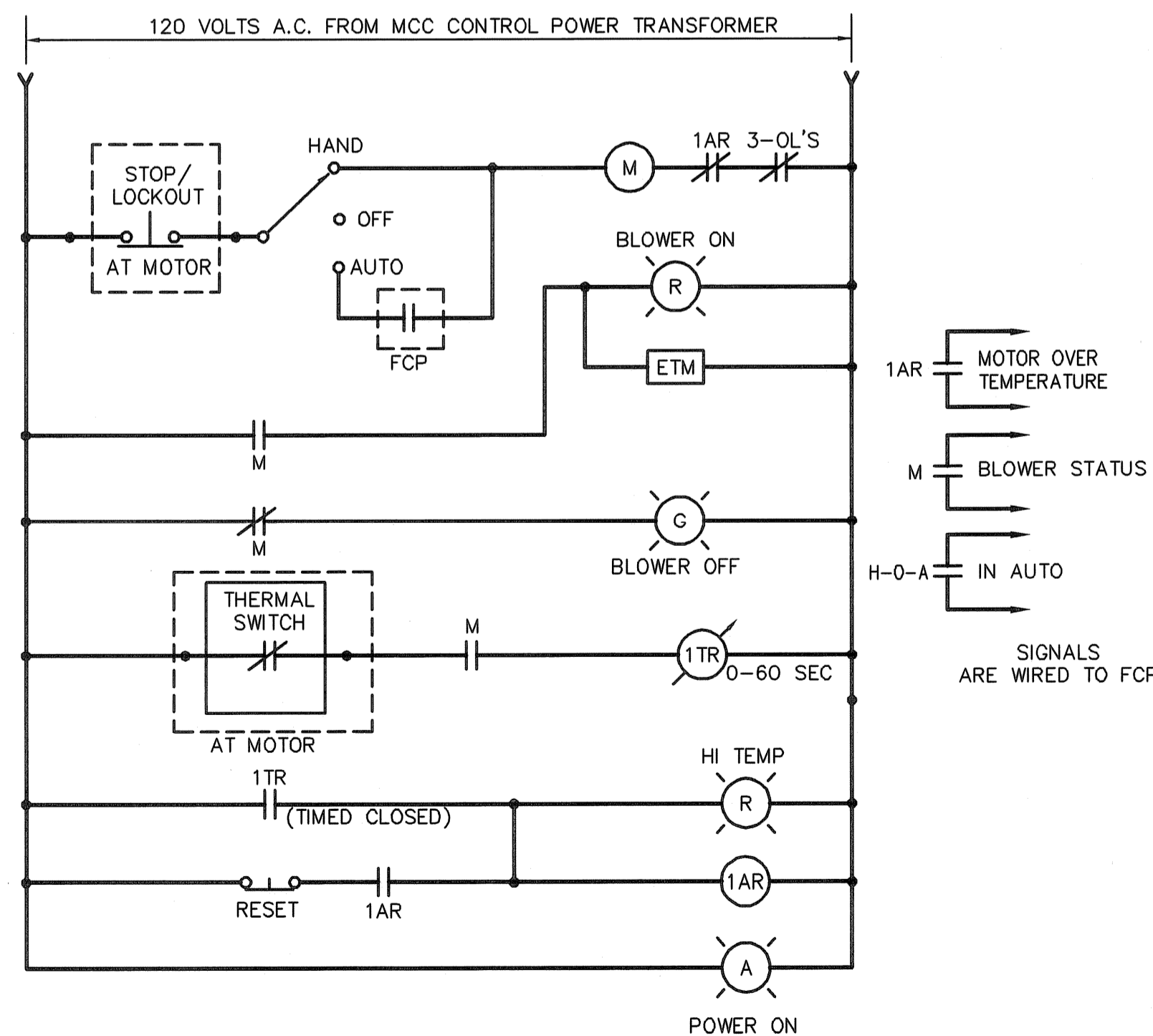
NOT TO SCALE



**CONTROL WIRING DIAGRAM
FILTER BACKWASH AND EQUALIZATION BASIN PUMPS AND BLOWERS**

NOT TO SCALE

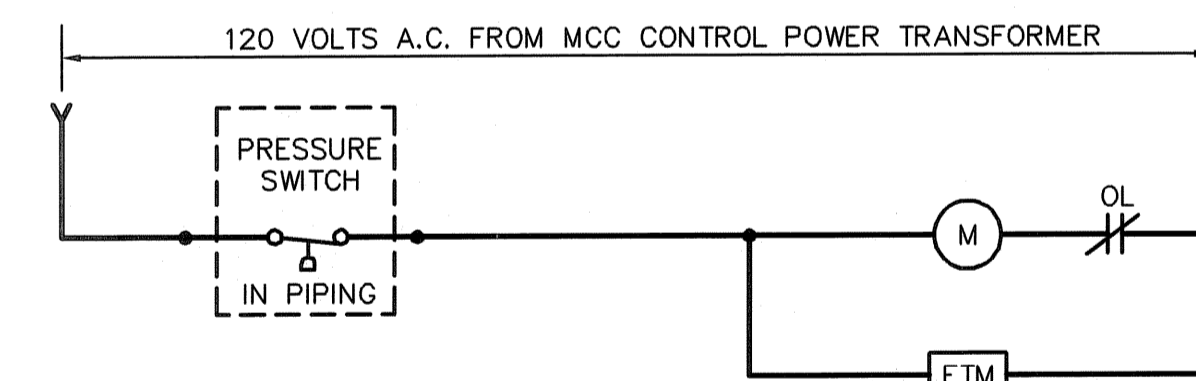
(ALL DEVICES AT MCC UNLESS OTHERWISE NOTED)



**CONTROL WIRING DIAGRAM
BACKWASH BLOWERS**

NOT TO SCALE

(ALL DEVICES AT MCC UNLESS OTHERWISE NOTED)



**CONTROL WIRING DIAGRAM
GAS BOOSTER PUMP**

NOT TO SCALE

(ALL DEVICES AT MCC UNLESS OTHERWISE NOTED)

FULL SIZE DRAWING = 4"

NO.	DATE	BY	REVISIONS
3	JULY 2008	DM	AS-BUILT DRAWING FILE
2	10/31/06	DM	ISSUED FOR RFI POSTED SET
1	04/14/06	DM	REVISED AS NOTED
0	04/14/05	DM	ISSUED FOR CONSTRUCTION
	02/22/05	DM	G. AMBERG

ROBERT H. SHELDON
No. 4103
PAWBUCKET, RHODE ISLAND

PAWBUCKET, RHODE ISLAND
PAWBUCKET REGIONAL
WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
CONTROL WIRING DIAGRAMS SHEET III

DESIGNED BY DM	DWG SCALE AS NOTED
DRAWN BY DM	CONTRACT NO.
CHECKED BY WS	DATE OCTOBER 31, 2004

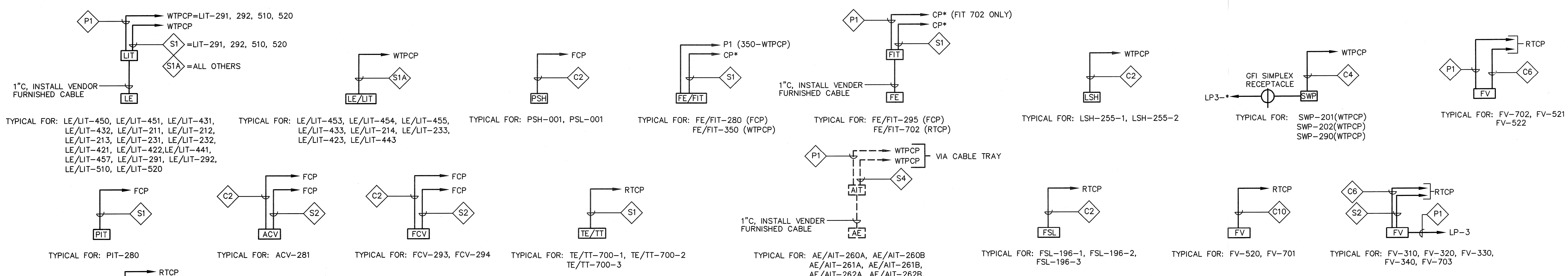
EARTH TECH
AS-BUILT FILE
JULY 2008

NO.	DATE	BY	REVISIONS
3	JULY 2006	DM	AS-BUILT DRAWING FILE
2	10/21/06	DM	ISSUED FOR RFI POSTED SET
1	04/14/06	DM	REVISED AS NOTED
0	04/14/05	DM	ISSUED FOR CONSTRUCTION
	02/22/05	DM	G. AHLBORG

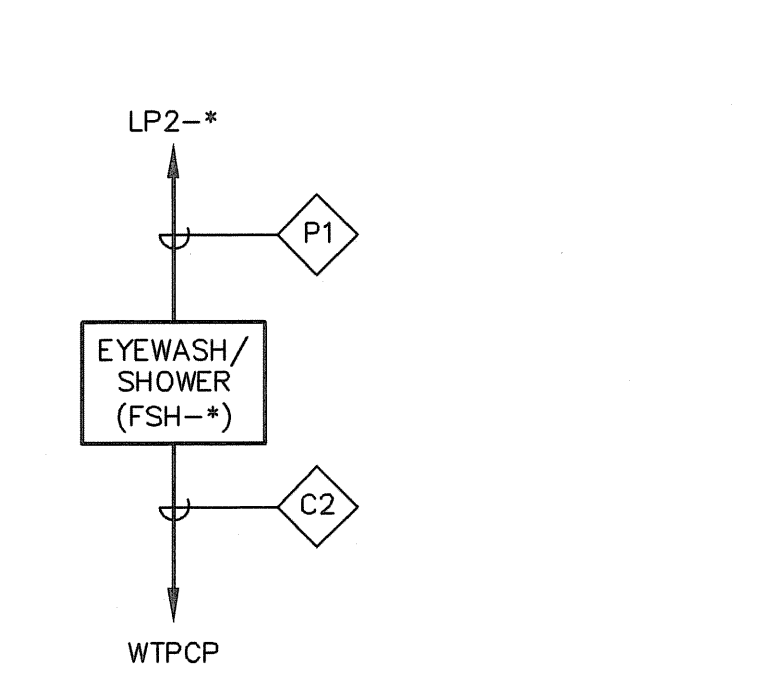
ROBERT H. SHELDON
No. 4003
2/12/06

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
BLOCK WIRING DIAGRAMS SHEET I

DESIGNED BY	DWG SCALE
DM	AS NOTED
DRAWN BY	CONTRACT NO.
DM	
CHECKED BY	DATE
WS	OCTOBER 31, 2006



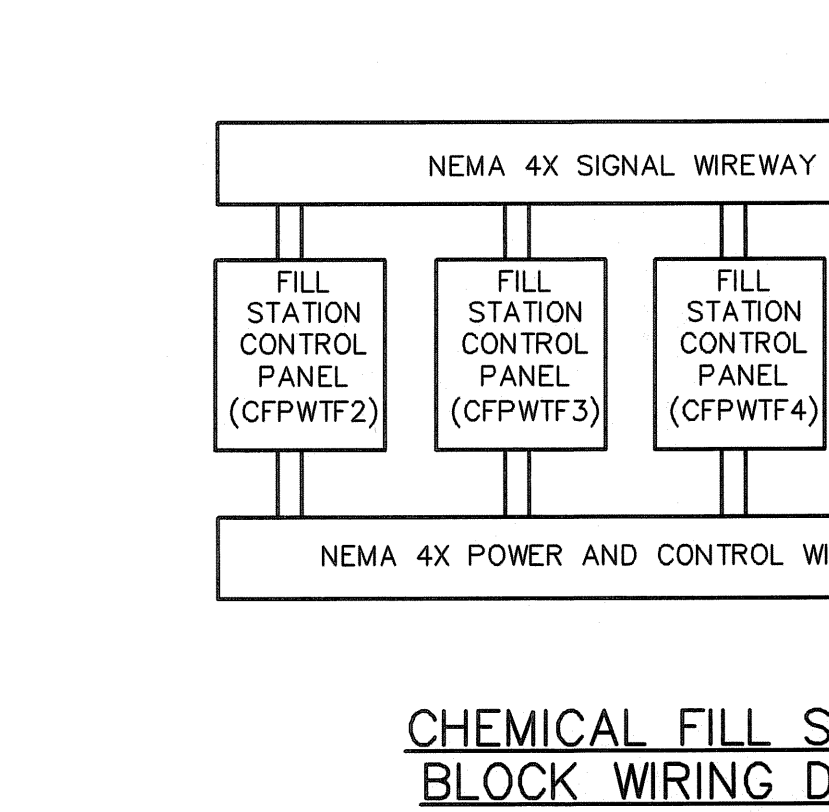
FUTURE AE/AIT WIRING
TYPICAL INSTRUMENTATION BLOCK WIRING DIAGRAMS
NOT TO SCALE



EMERGENCY EYEWASH/SHOWER BLOCK WIRING DIAGRAM
NOT TO SCALE

TYPICAL FOR: FSH-192-1 (LP2-9), FSH-192-1A (LP2-9), FSH-192-2 (LP2-11), FSH-192-3 (LP2-13), FSH-192-4 (LP2-15), FSH-192-5 (LP2-17)

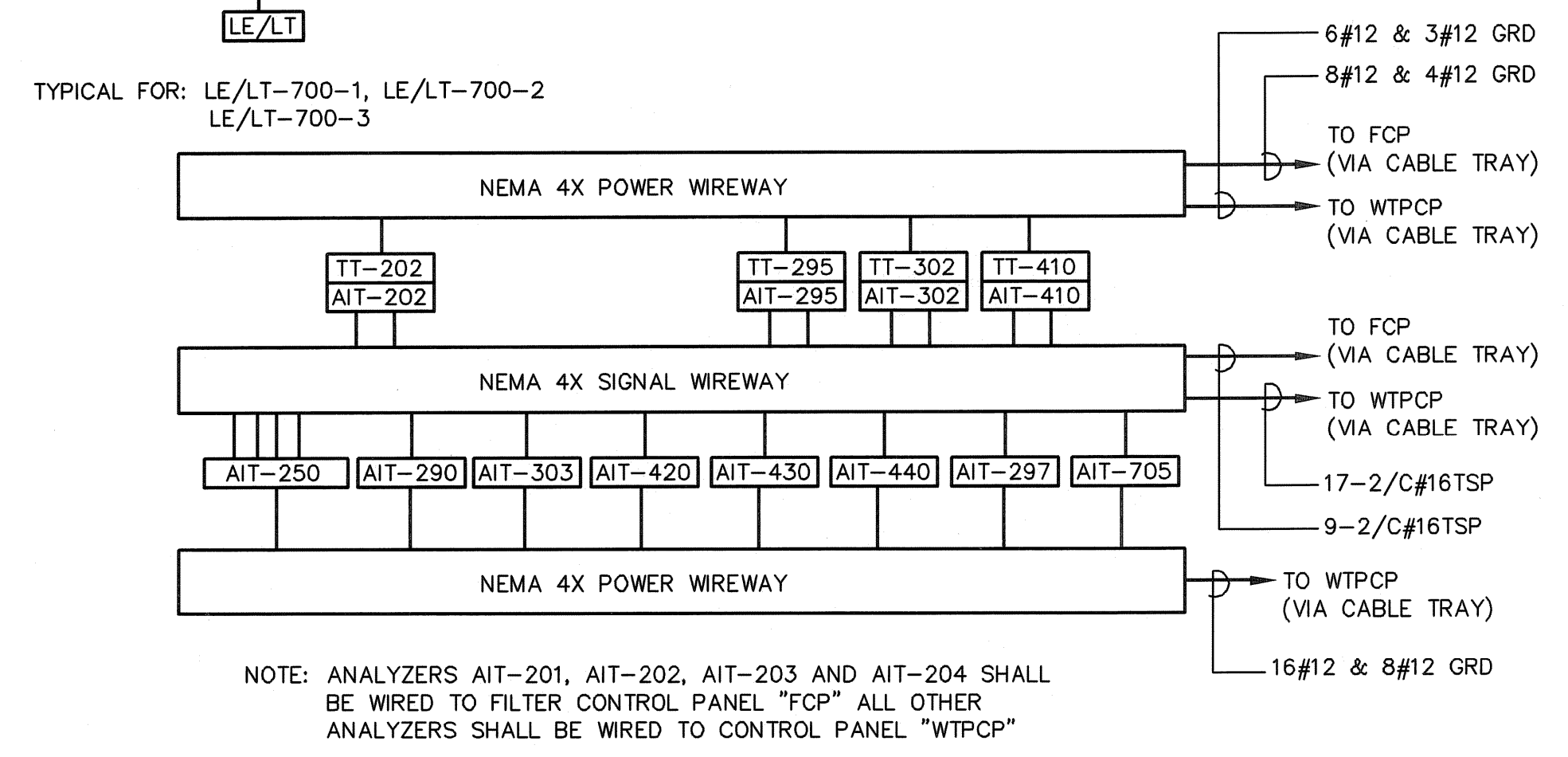
FILTER BACKWASH PUMPS EQUALIZATION BASIN PUMPS BLOCK WIRING DIAGRAM
NOT TO SCALE



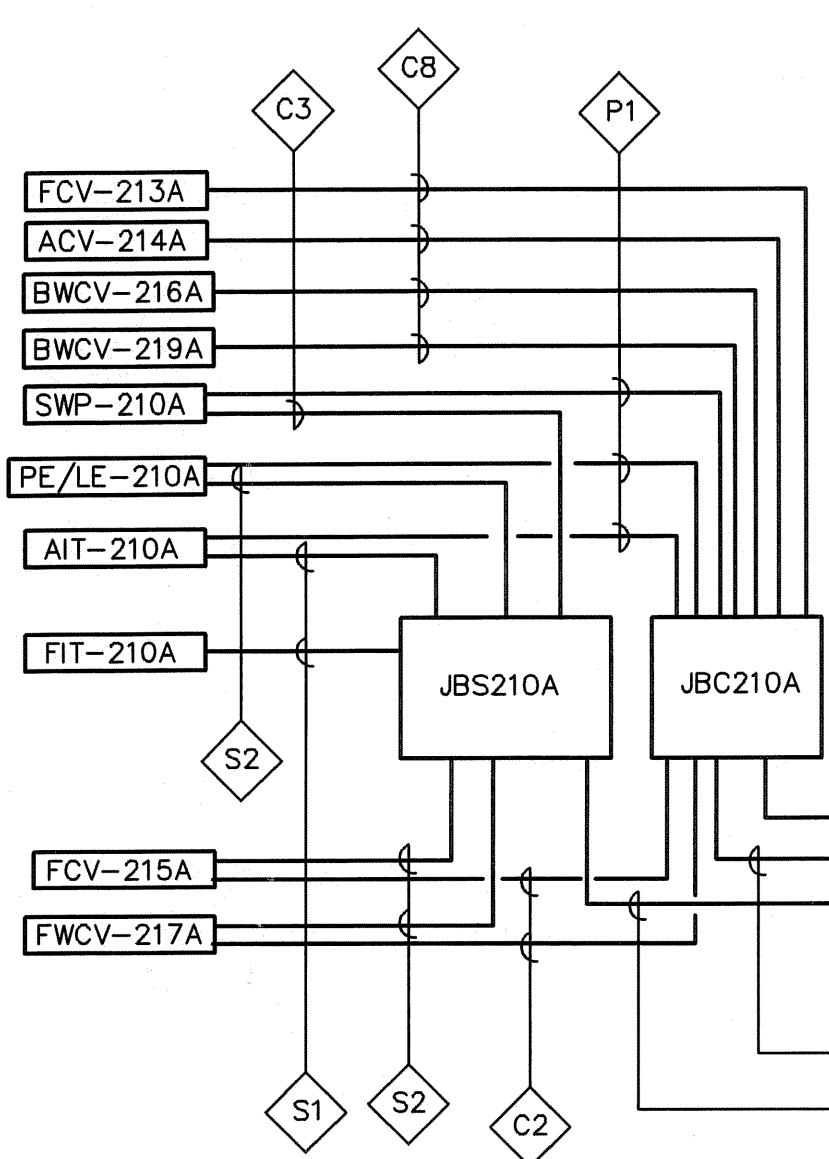
CHEMICAL FILL STATIONS BLOCK WIRING DIAGRAM
NOT TO SCALE

* - CFPWTF2 (LP6-22)
CFPWTF3 (LP6-24)
CFPWTF4 (LP6-26)
CFPWTF5 (LP6-28)

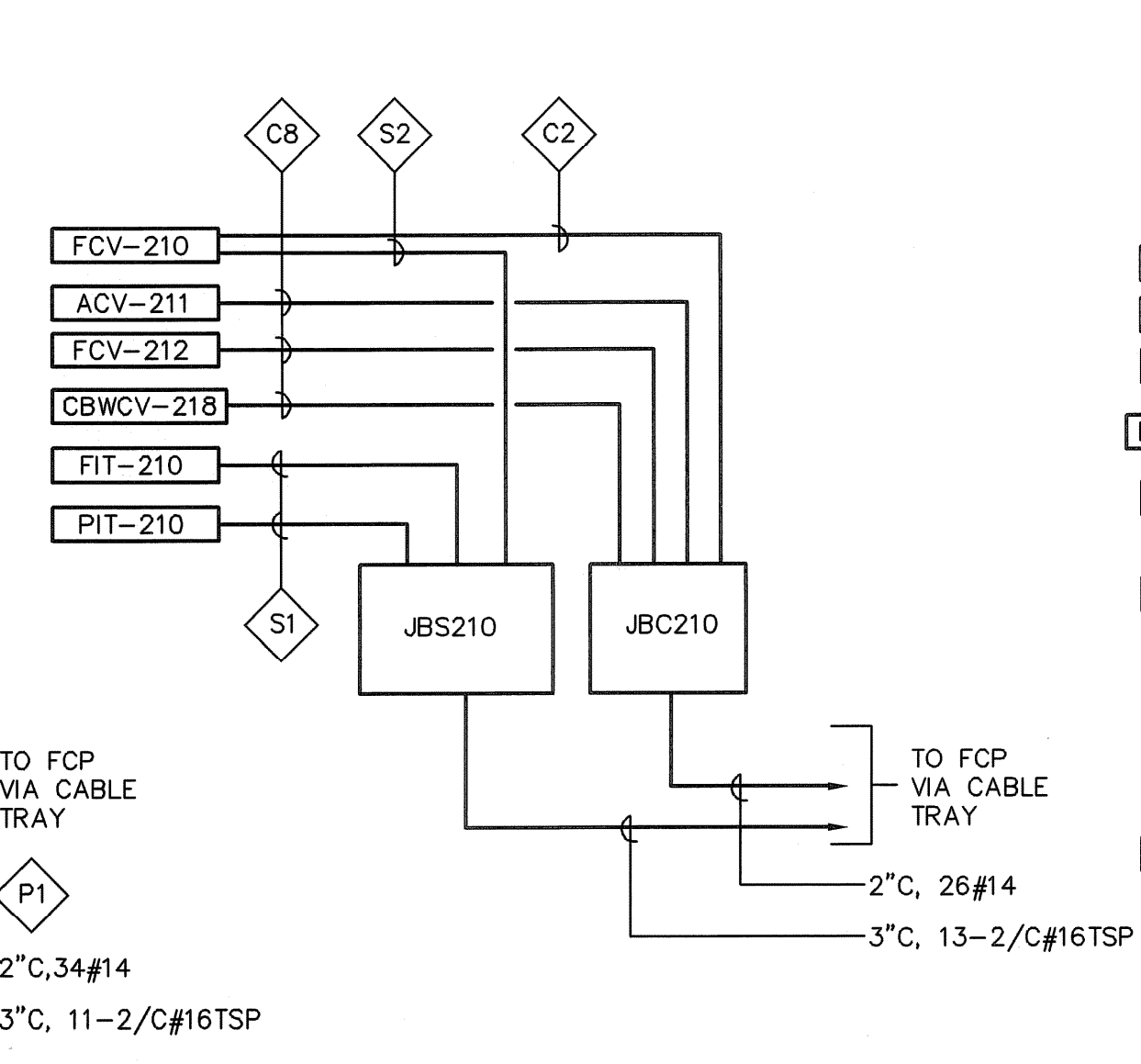
ANALYZERS BLOCK WIRING DIAGRAMS
NOT TO SCALE



FILTER 210A



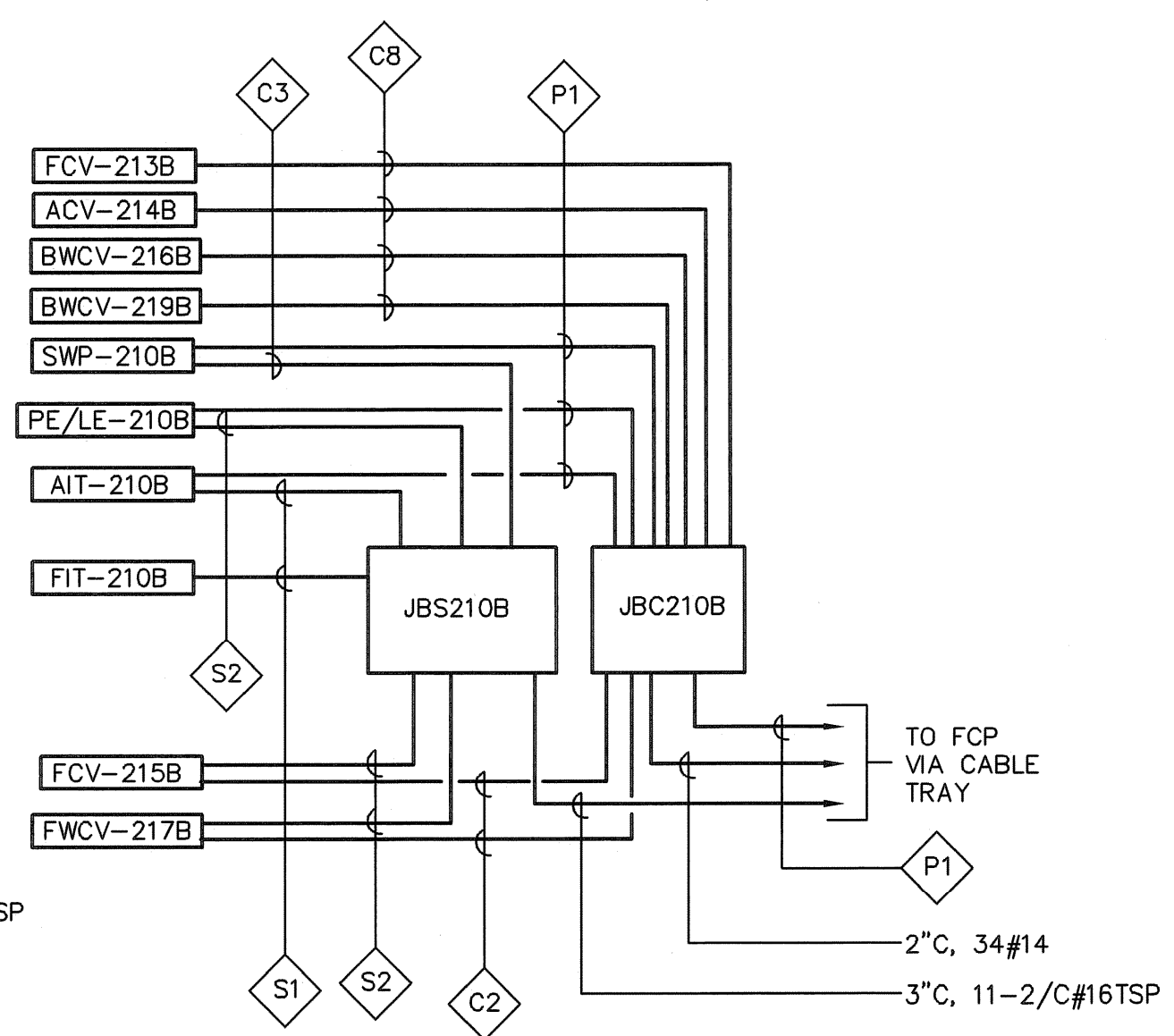
CLARIFIER 210



CLARIFIER 210/FILTER 210A & 210B BLOCK WIRING DIAGRAM
NOT TO SCALE

TYPICAL FOR CLARIFIER 220/FILTER 220A & 220B
ALL NUMBERS ARE SERIES 220 (EG - FCV-213A BECOMES FCV-223A)
TYPICAL FOR CLARIFIER 230/FILTER 230A & 230B
ALL NUMBERS ARE SERIES 230 (EG - FCV-213A BECOMES FCV-233A)
TYPICAL FOR CLARIFIER 240/FILTER 240A & 240B
ALL NUMBERS ARE SERIES 240 (EG - FCV-213A BECOMES FCV-243A)

FILTER 210B



NOTES:

- SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
- SEE SHEET E-8 FOR CABLE AND CONDUIT SCHEDULES.

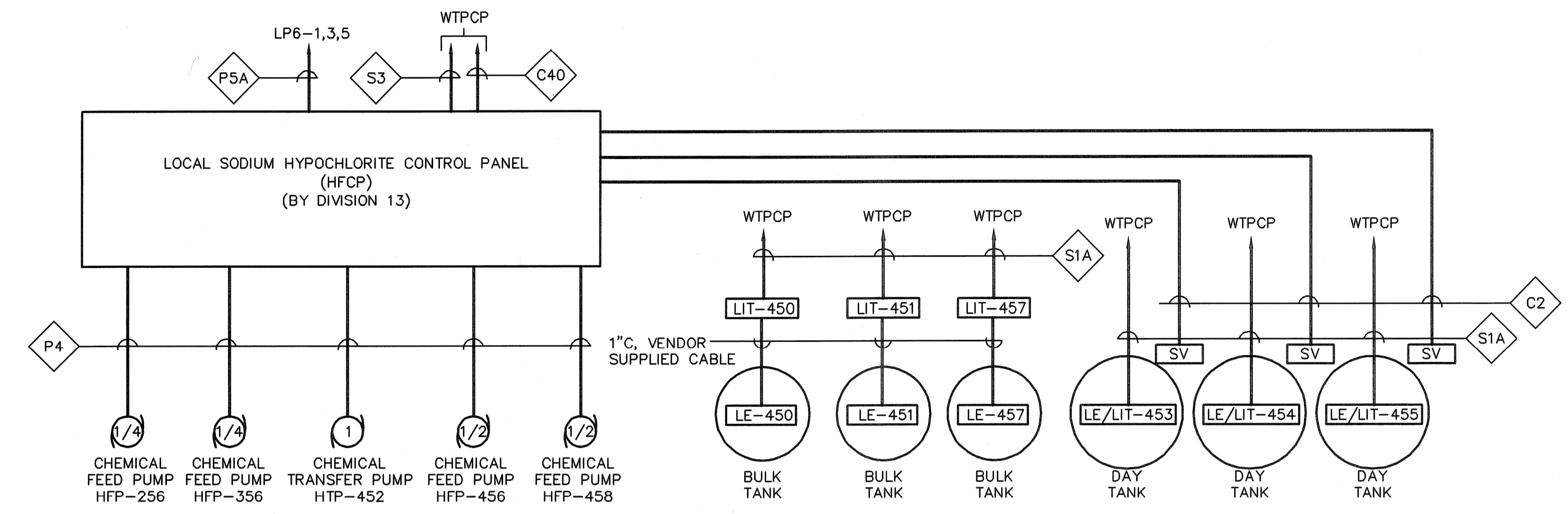
NO.	DATE	BY	REVISIONS
3	AS-BUILT DRAWING FILE	DM	JULY 2008
2	ISSUED FOR RFI POSTED SET	DM	10/31/06
1	REVISED AS NOTED	DM	04/14/05
0	ISSUED FOR CONSTRUCTION	DM	04/14/05
		G. AHLBORG	02/22/05

ROBERT H. SHELDON
No. 4103
[Signature]
DATE

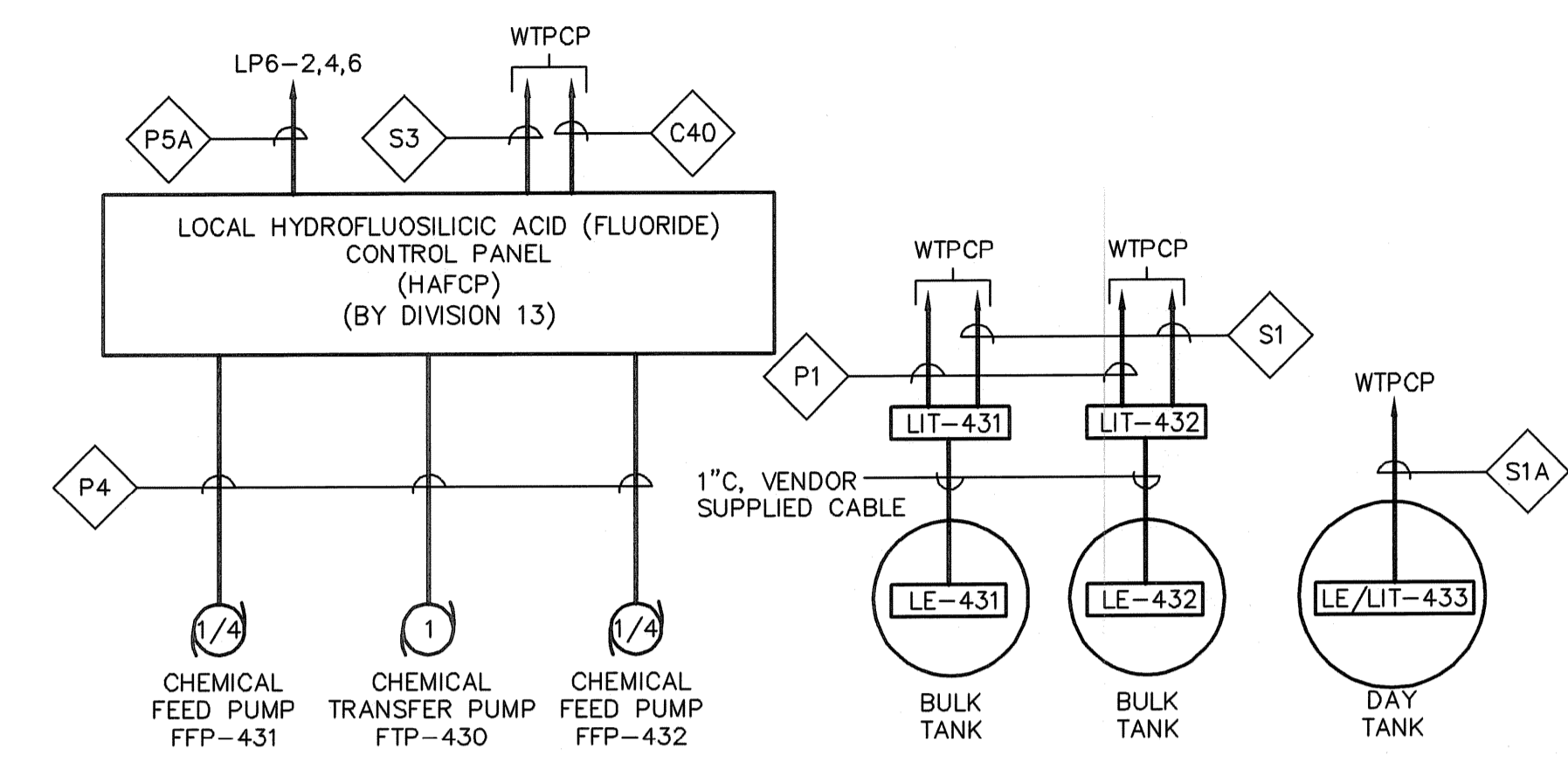
PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
WATER TREATMENT FACILITY**
PKG 8 - ELECTRICAL
BLOCK WIRING DIAGRAMS SHEET II

DESIGNED BY	DM	DWG SCALE	AS NOTED
DRAWN BY	DM	CONTRACT NO.	
CHECKED BY	WS	DATE	OCTOBER 31, 2008

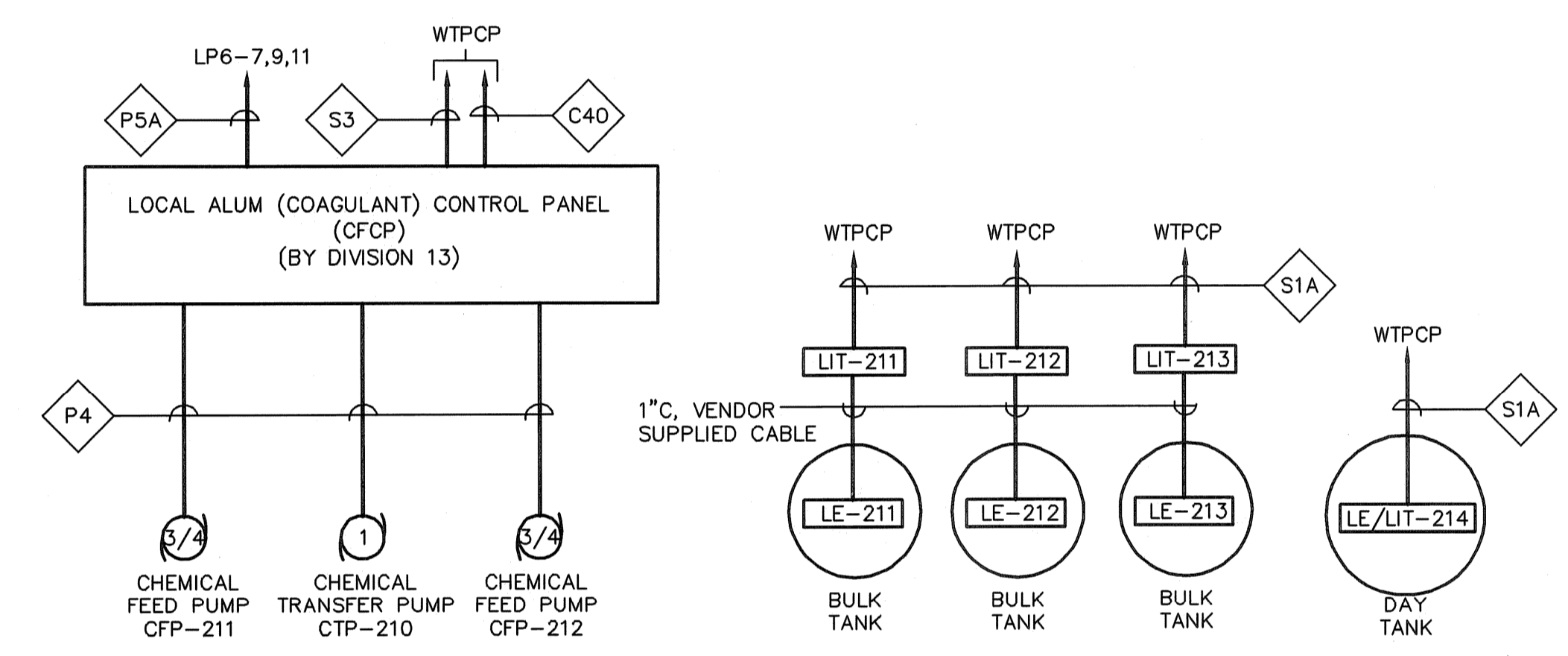
EARTH TECH
AS-BUILT FILE
JULY 2008



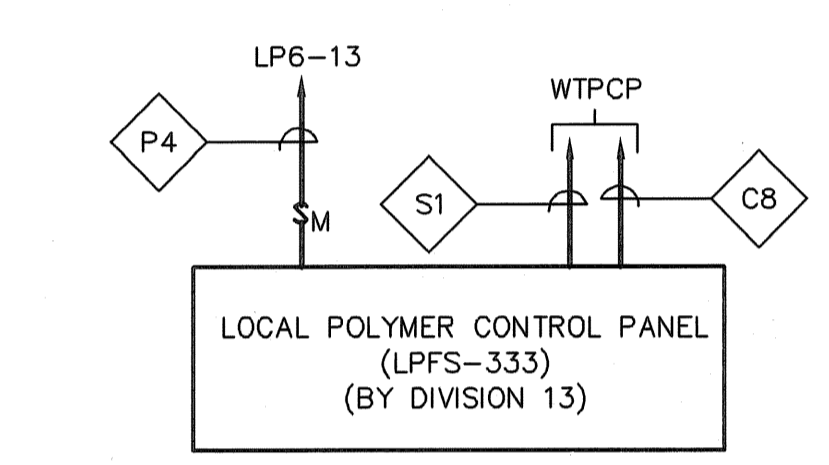
**BLOCK INTERCONNECTION DIAGRAM
SODIUM HYPOCHLORITE FEED SYSTEM**
NOT TO SCALE



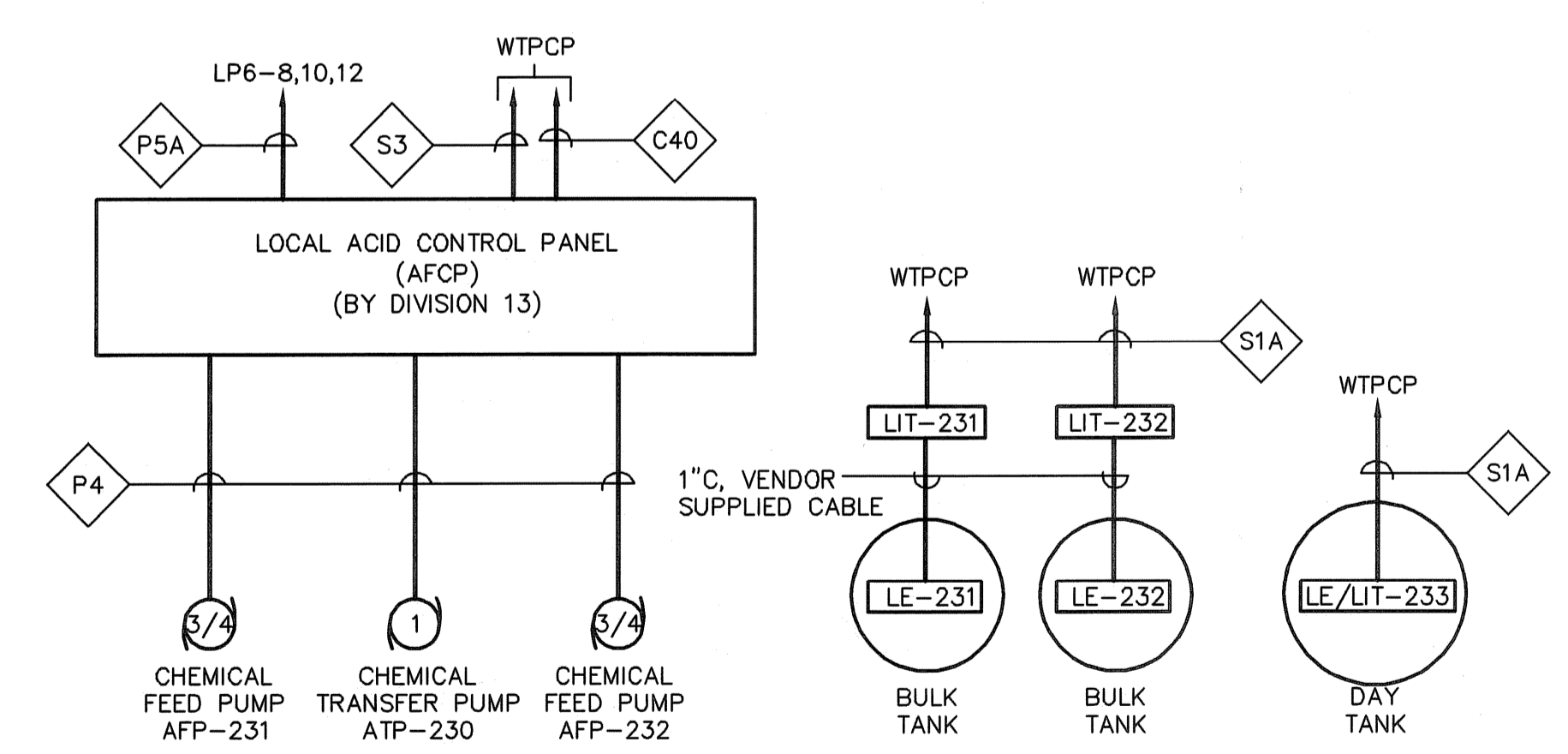
**BLOCK INTERCONNECTION DIAGRAM
HYDROFLUOSILICIC ACID (FLUORIDE) FEED SYSTEM**
NOT TO SCALE



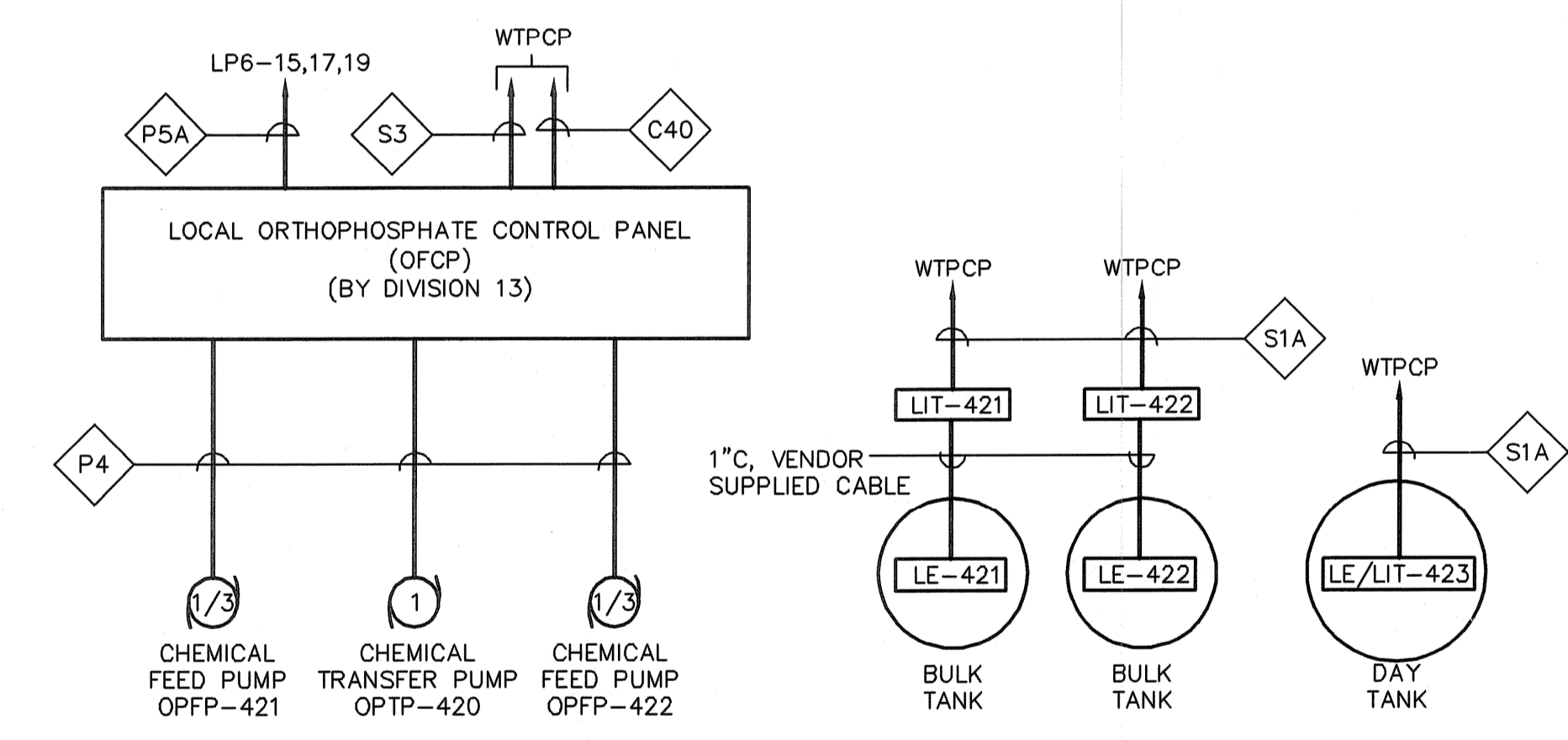
**BLOCK INTERCONNECTION DIAGRAM
ALUM (COAGULANT) FEED SYSTEM**
NOT TO SCALE



**BLOCK INTERCONNECTION DIAGRAM
POLYMER FEED SYSTEM**
NOT TO SCALE



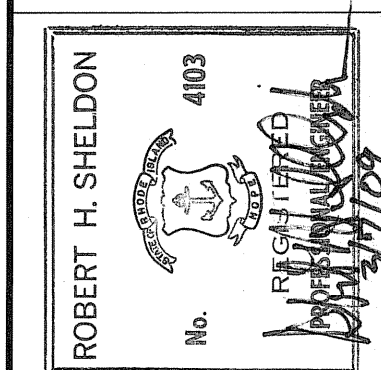
**BLOCK INTERCONNECTION DIAGRAM
ACID FEED SYSTEM**
NOT TO SCALE



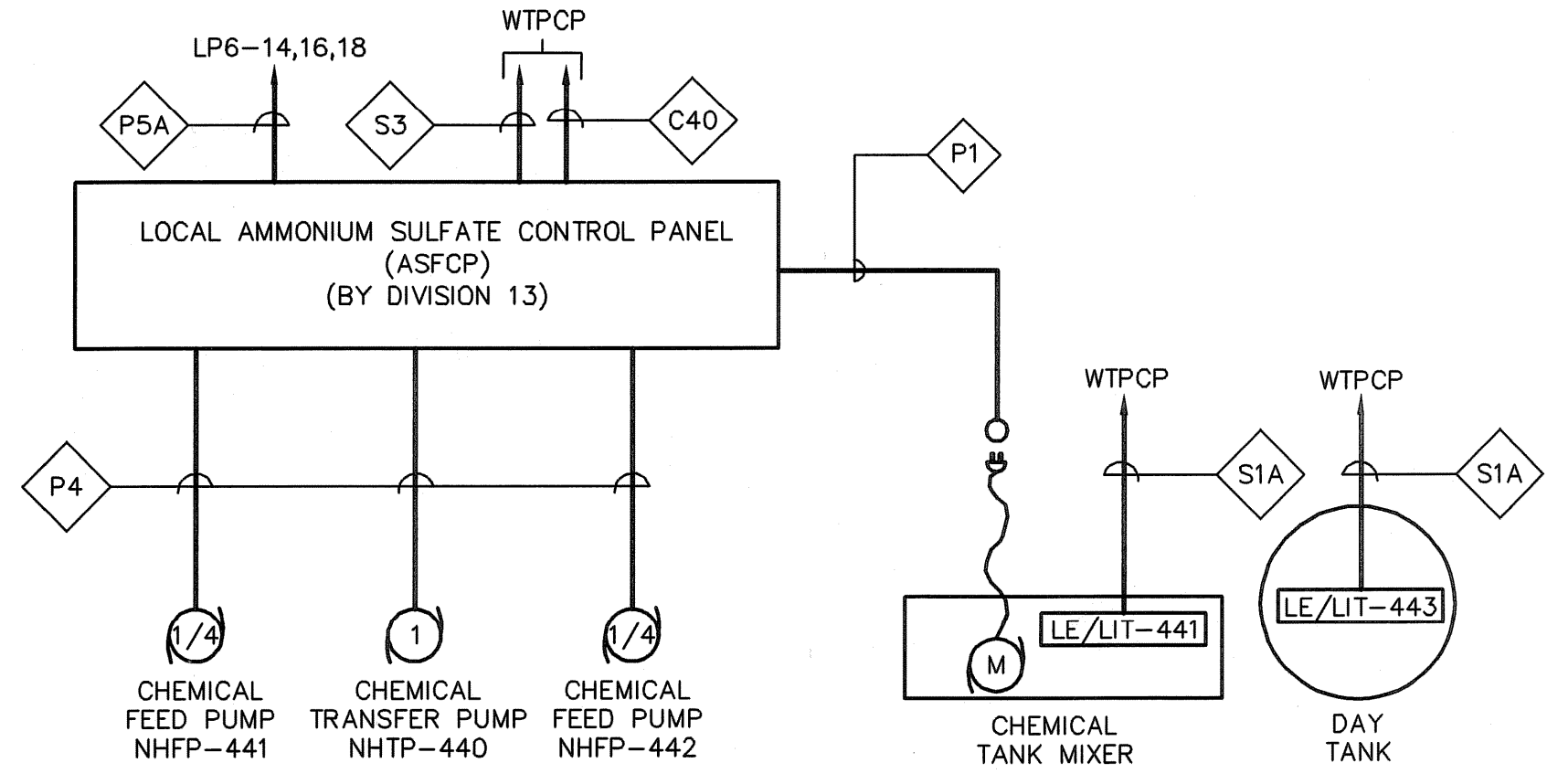
**BLOCK INTERCONNECTION DIAGRAM
ORTHOPHOSPHATE FEED SYSTEM**
NOT TO SCALE

- NOTES:**
- SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
 - SEE SHEET E-8 FOR CABLE AND CONDUIT SCHEDULES.

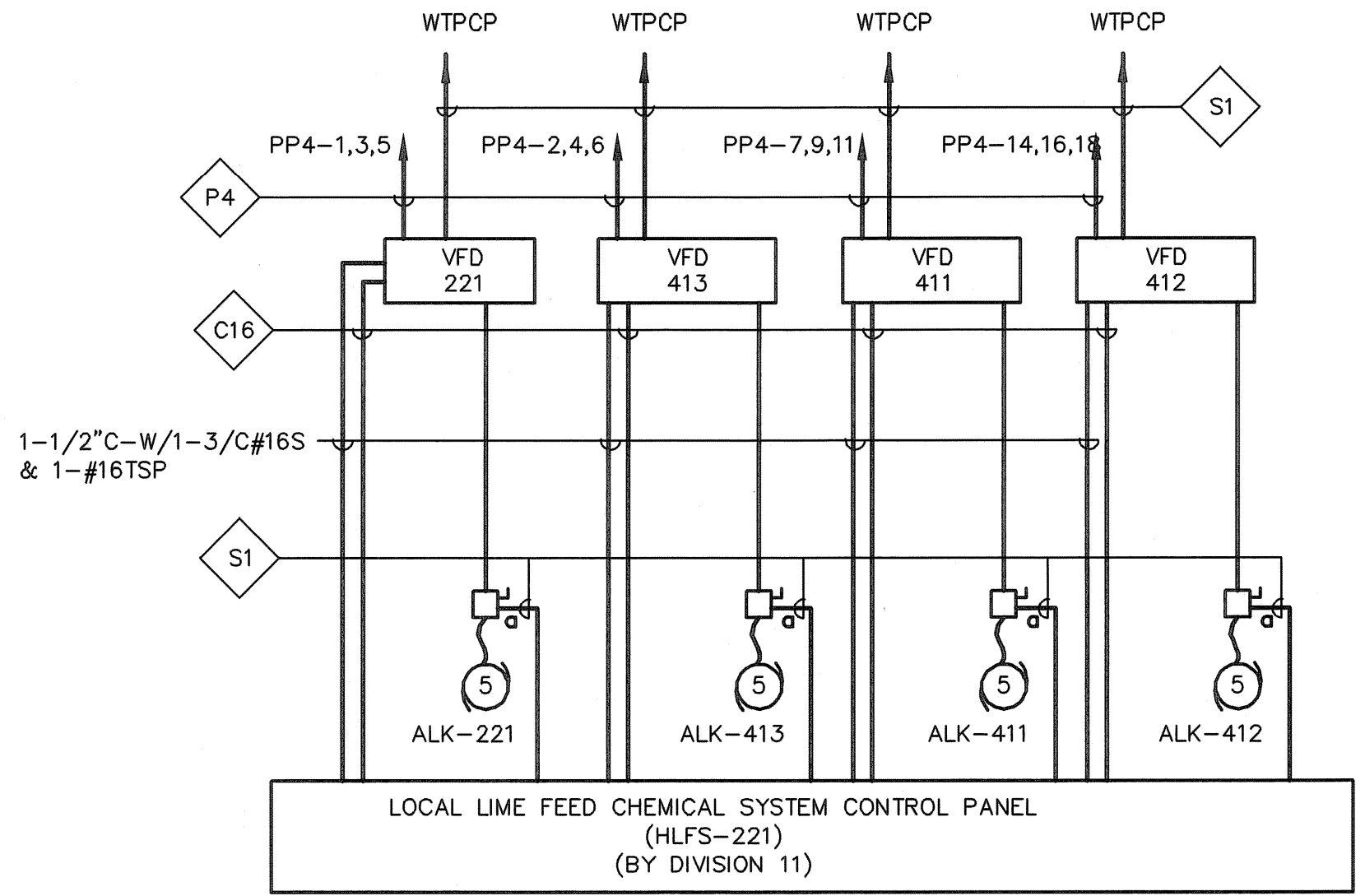
NO.	DATE	BY	REVISIONS
3	JULY 2008	DM	AS-BUILT DRAWING FILE
2	10/21/06	MAC	ISSUED FOR RFI POSTED SET
1	04/14/06	MAC	REVISED AS NOTED
0	04/14/05	DM	ISSUED FOR CONSTRUCTION
	02/22/05	DM	G. AHEADING



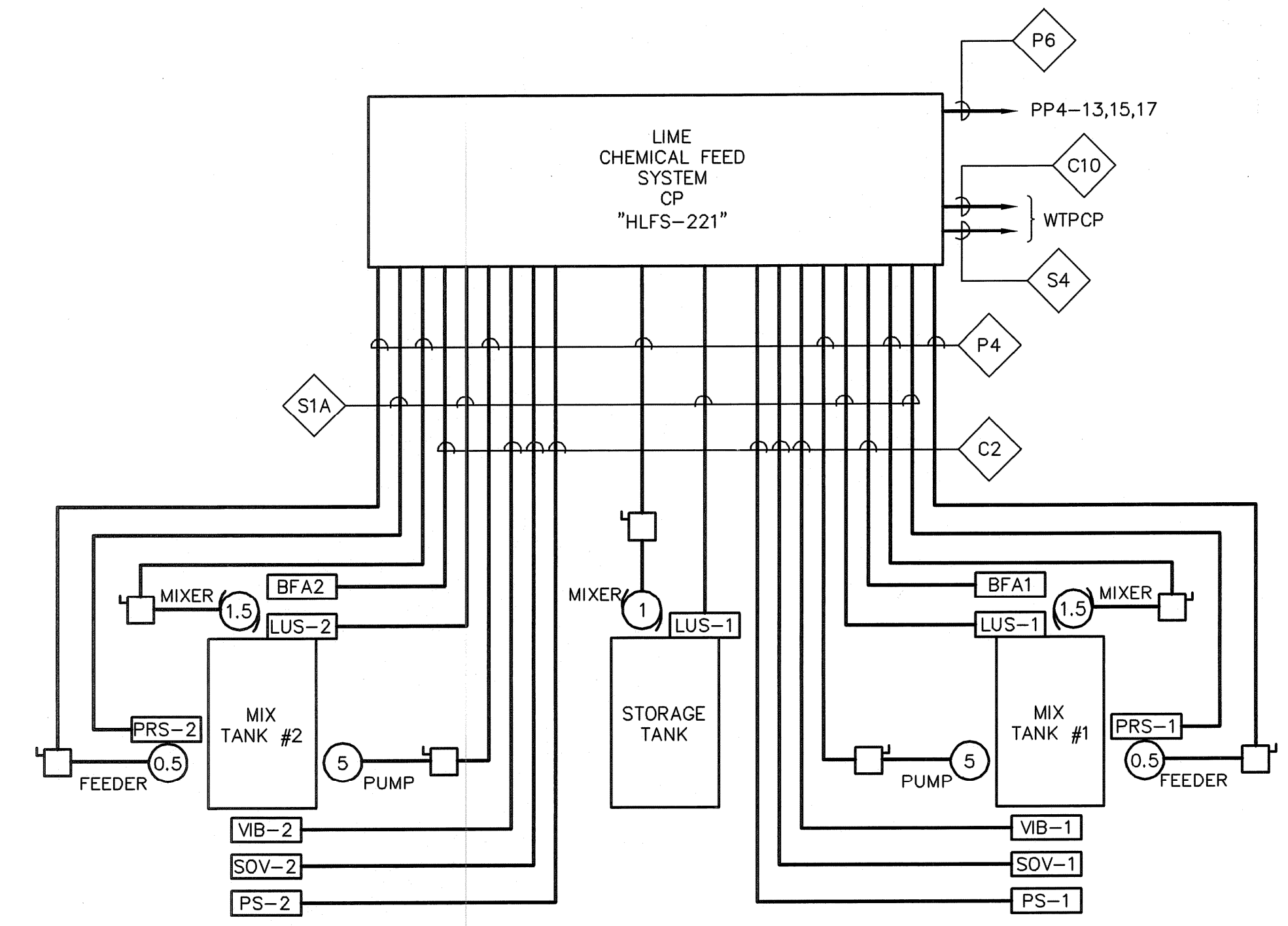
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DRAWN BY DM	CONTRACT NO.
CHECKED BY WS	DATE OCTOBER 31, 2008



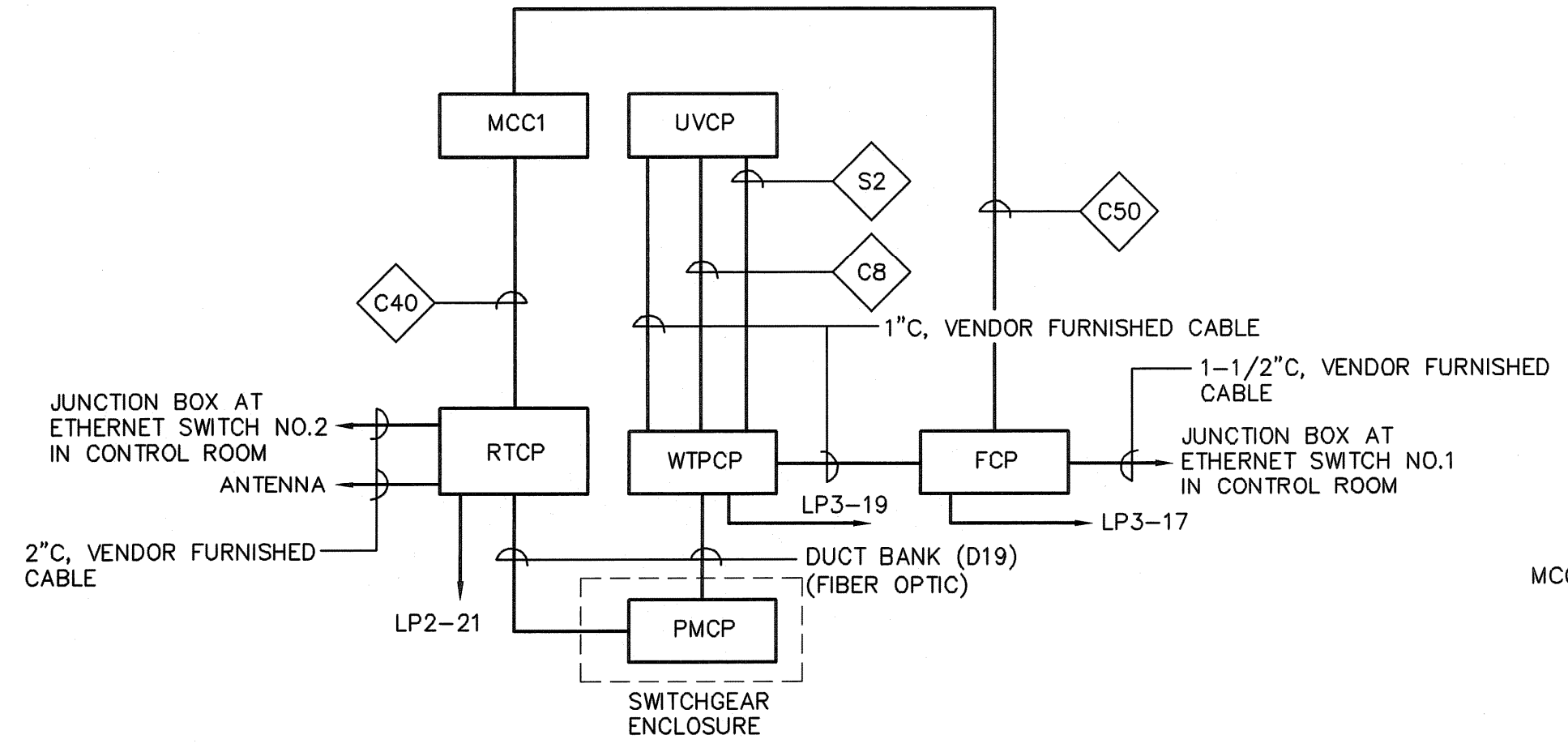
**BLOCK INTERCONNECTION DIAGRAM
AMMONIUM SULFATE FEED SYSTEM**
NOT TO SCALE



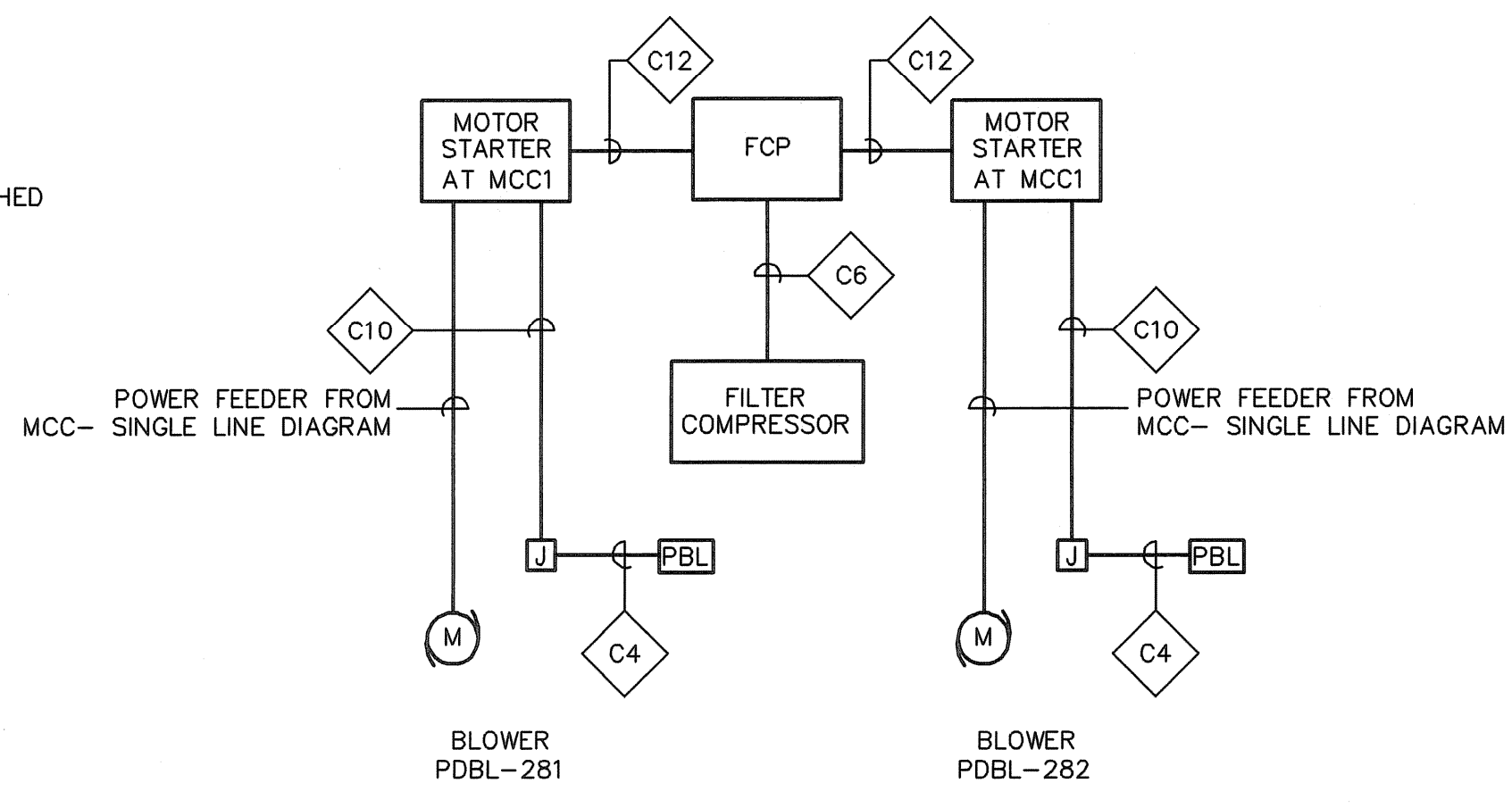
**BLOCK INTERCONNECTION DIAGRAM
LIME CHEMICAL FEED SYSTEM**
NOT TO SCALE



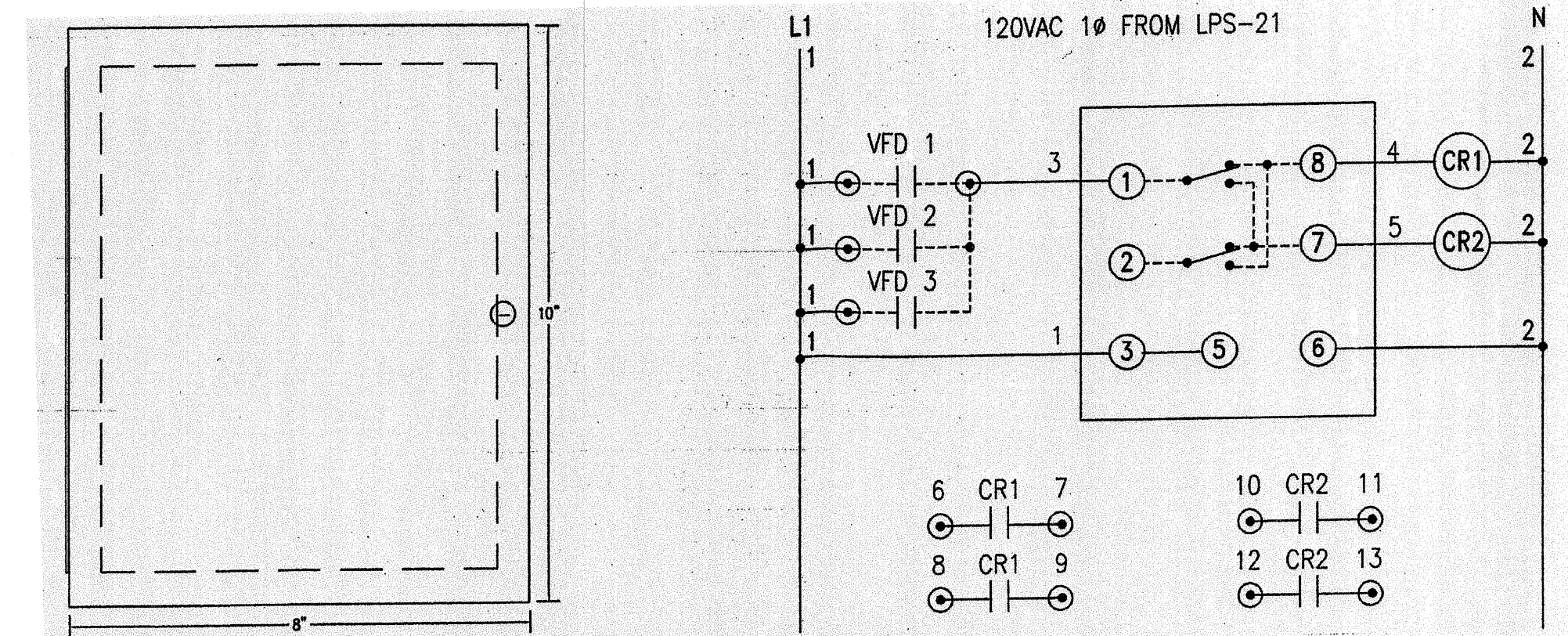
**BLOCK INTERCONNECTION DIAGRAM
LIME FEED SYSTEM**
NOT TO SCALE



**BLOCK INTERCONNECTION DIAGRAM
SCADA CONTROL SYSTEM**
NOT TO SCALE

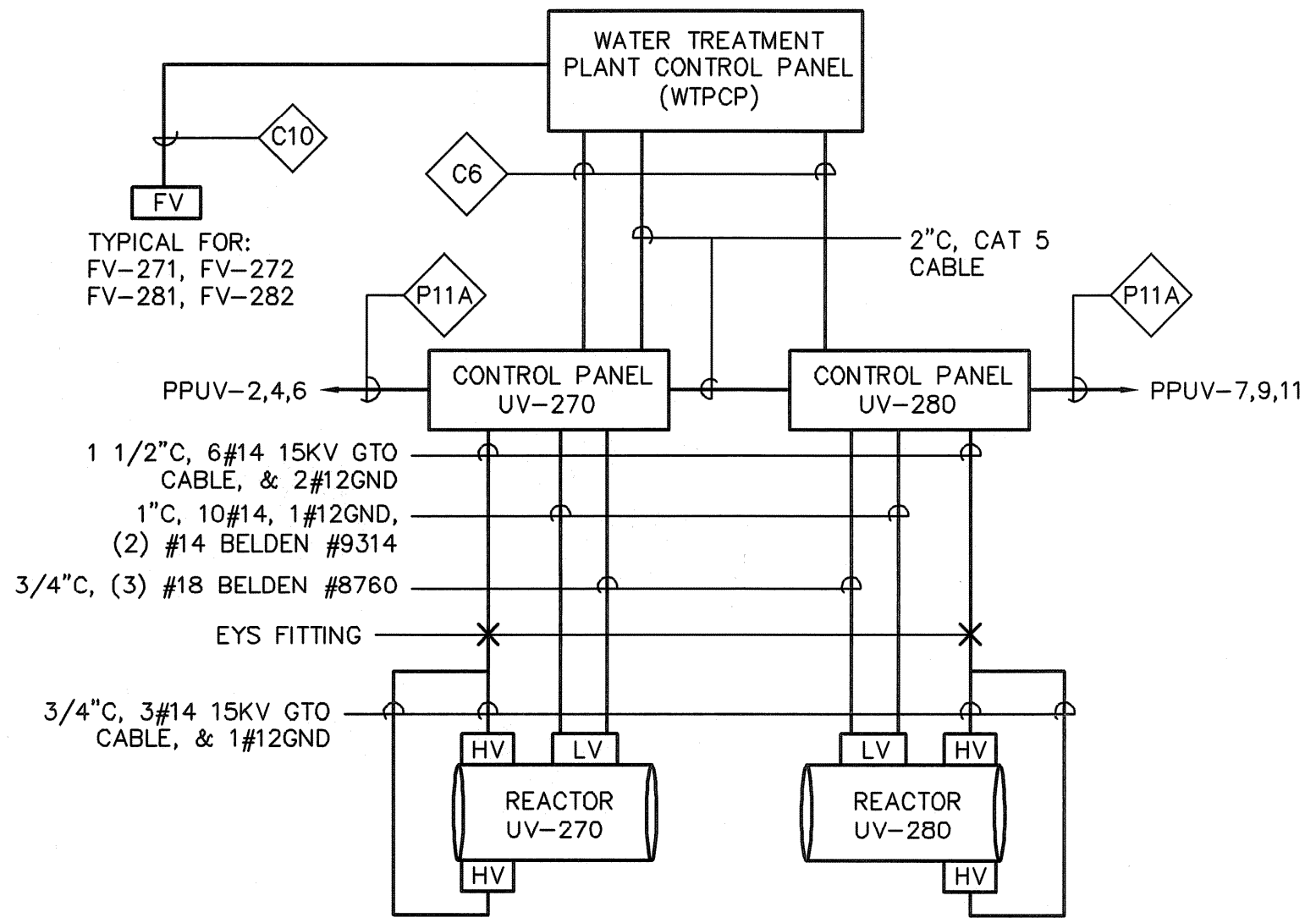


**BLOCK INTERCONNECTION DIAGRAM
BLOWERS**
NOT TO SCALE

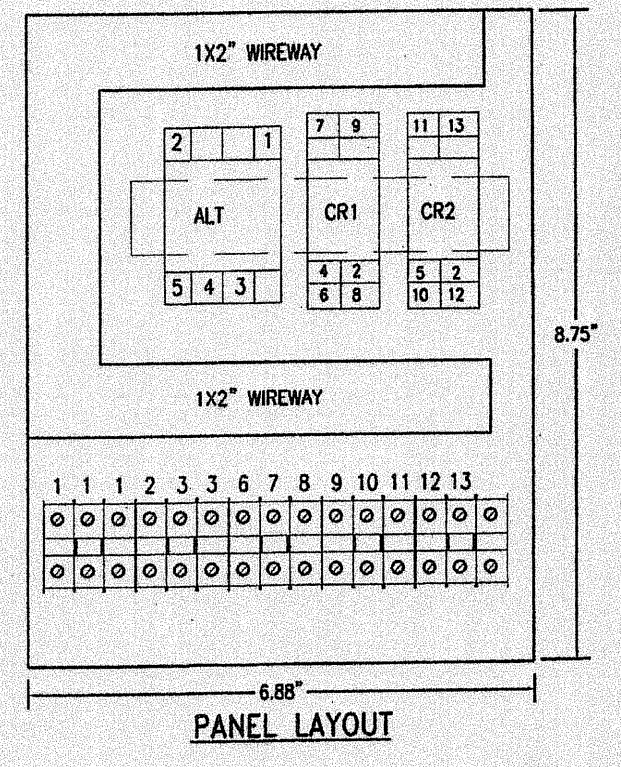


ENCLOSURE FRONT VIEW

WIRING DIAGRAM



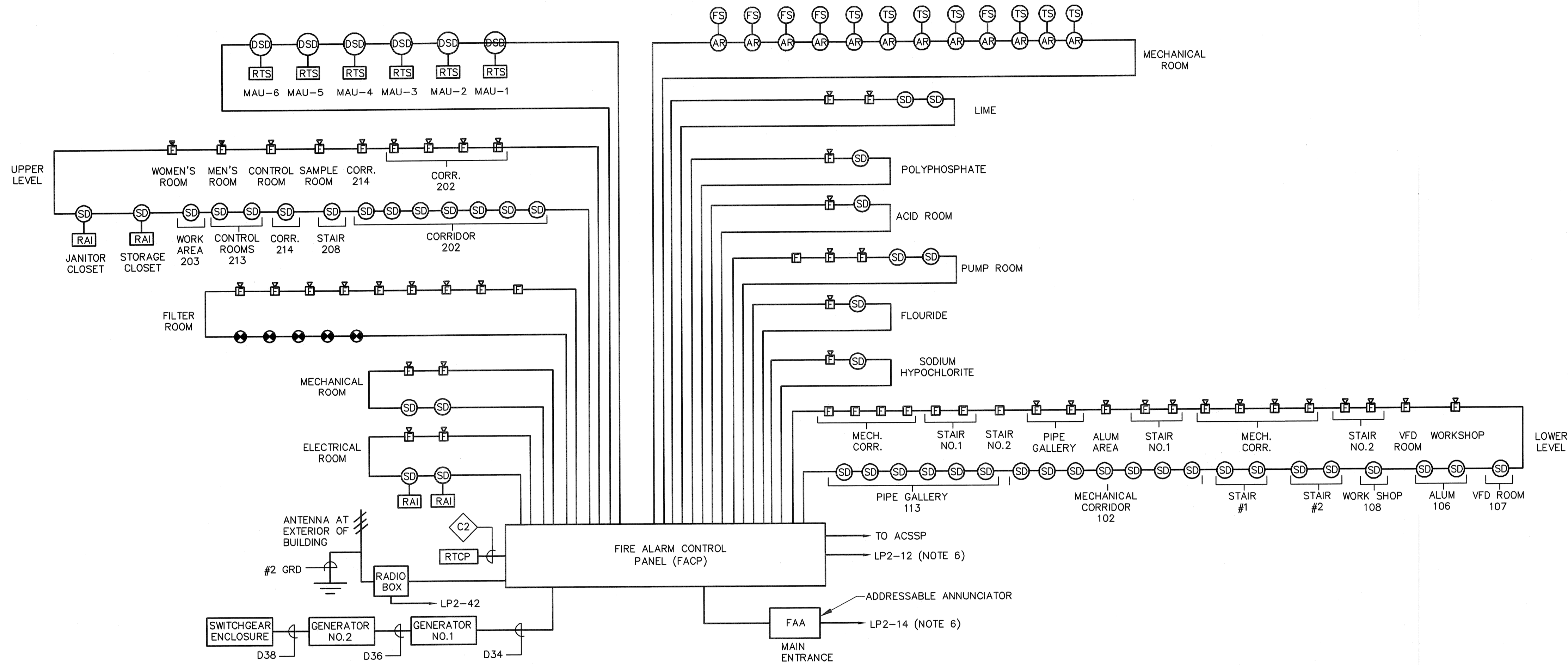
UV SYSTEM BLOCK DIAGRAM
NOT TO SCALE



PANEL LAYOUT

**CONTROL WIRING DIAGRAM
LIME REGEN PUMPS**

- NOTES:
1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. SEE SHEET E-8 FOR CABLE AND CONDUIT SCHEDULES.



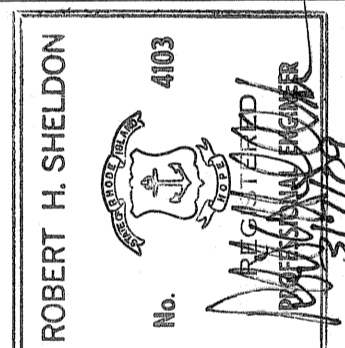
FIRE ALARM RISER DIAGRAM
NOT TO SCALE

FIRE ALARM SYSTEM NOTES

1. SEE SHEET E-1 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
2. MINIMUM SIZE CONDUIT SHALL BE 3/4" UNLESS NOTED OTHERWISE.
3. SYSTEM WIRING SHALL BE INSTALLED IN ACCORDANCE WITH EQUIPMENT SUPPLIERS APPROVED SHOP DRAWINGS AND WIRING DIAGRAMS.
4. RISER DIAGRAM MAY NOT SHOW ENTIRE SYSTEM. REFER TO FLOOR PLANS FOR FINAL QUANTITIES AND LOCATIONS OF SYSTEM DEVICES AND EQUIPMENT.
5. TWO CIRCUITS ARE REQUIRED FOR AUDIO/VISUAL SIGNALS. SIGNALS SHALL BE ALTERNATELY WIRED.
6. PROVIDE CIRCUIT BREAKER HANDLE LOCK ON POWER CIRCUIT. HANDLE LOCK SHALL ALLOW THE CIRCUIT BREAKER TO TRIP, BUT PREVENT SWITCHING OF THE CIRCUIT BREAKER TO THE "OFF" POSITION.
7. REFER TO THE HVAC AND FIRE PROTECTION DRAWINGS FOR EXACT LOCATION OF ALL EQUIPMENT REQUIRING FIRE ALARM SYSTEM INTERFACE.
8. CONTRACTOR TO PROVIDE ALL DEVICES AS SHOWN AND AS REQUIRED BY LOCAL FIRE MARSHAL.

AS-BUILT DRAWING FILE

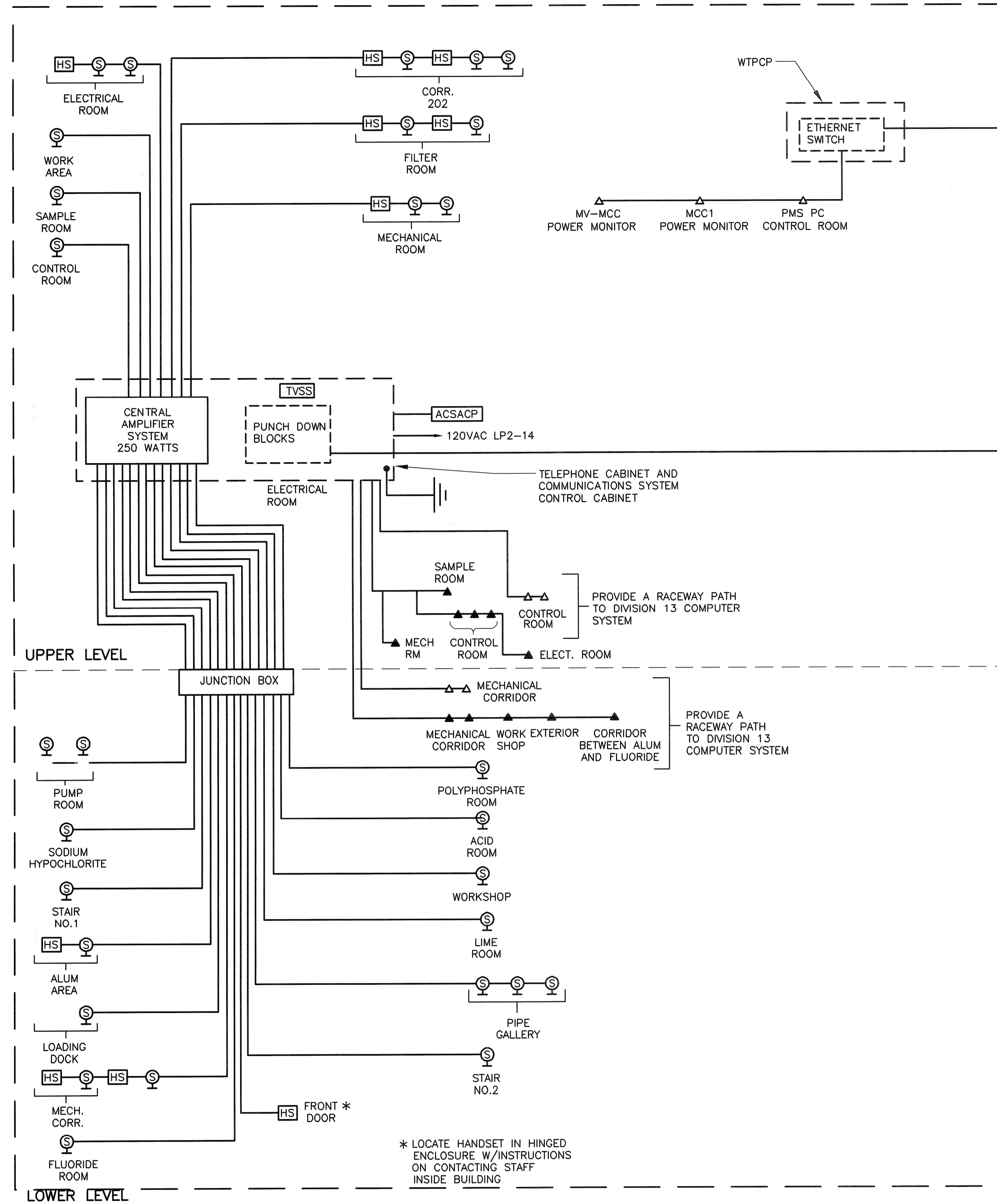
NO.	DATE	BY	REVISIONS
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3	10/31/08	DM	ISSUED FOR RFI POSTED SET
2	04/14/08	DM	REVISED AS NOTED
1	08/21/05	DM	FIRE ALARM CHANGES
0	04/14/05	DM	ISSUED FOR CONSTRUCTION
	02/22/05	DM	G. AULBORG



PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 8 - ELECTRICAL
 RISER DIAGRAMS SHEET 1

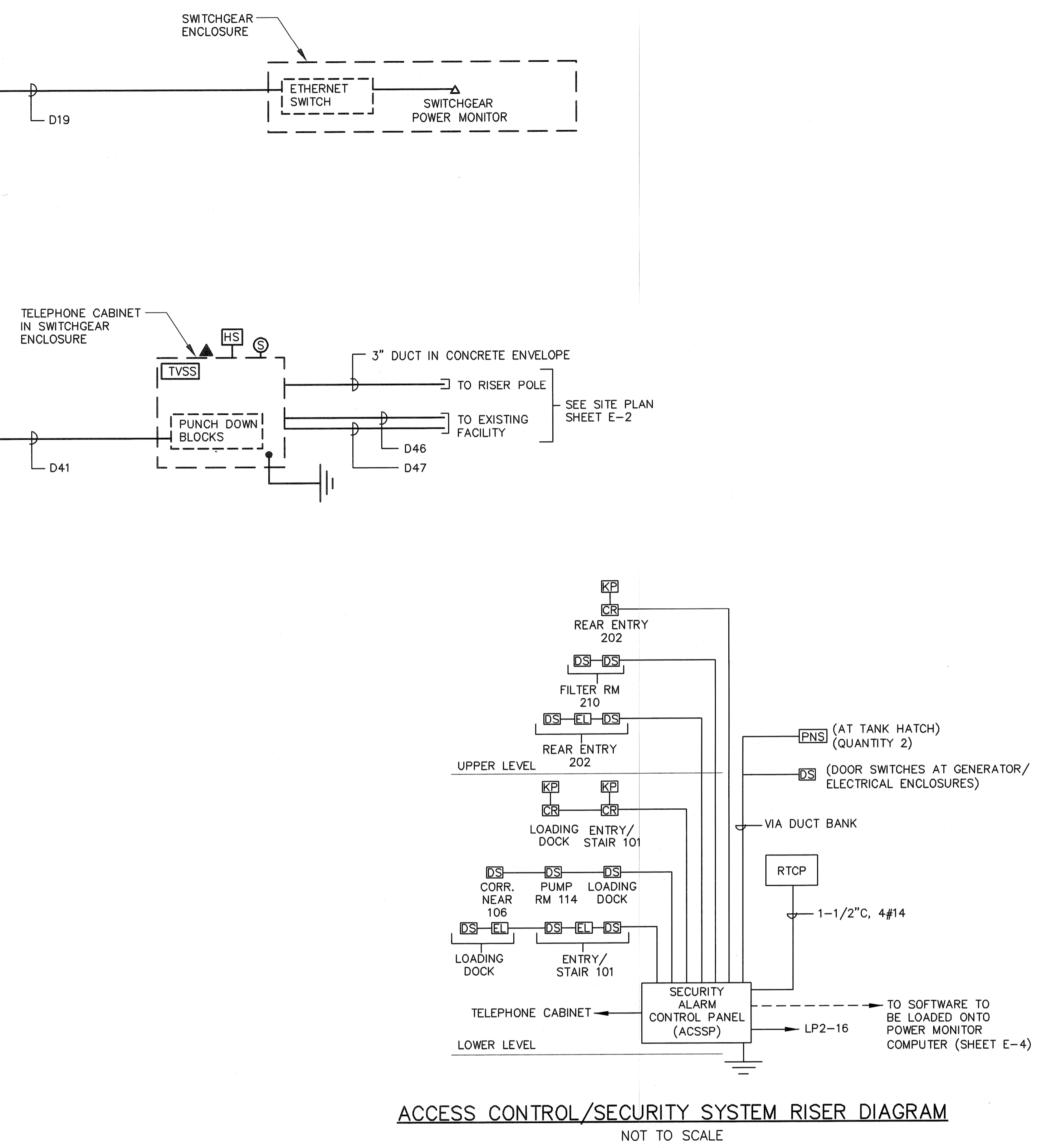
DESIGNED BY	DWG SCALE
DM	AS NOTED
DRAWN BY	CONTRACT NO.
DM	
CHECKED BY	DATE
WS	OCTOBER 31, 2008

EARTH TECH
AS-BUILT FILE
JULY 2008



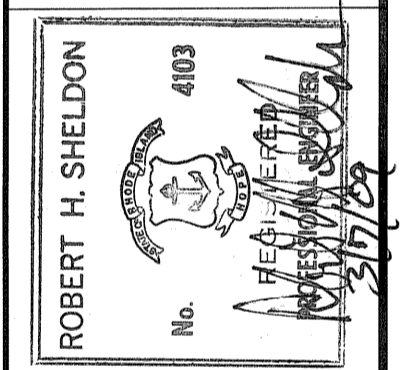
COMMUNICATION SYSTEM RISER DIAGRAM
NOT TO SCALE

- NOTES:**
- SEE DRAWING E-1 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
 - CONTACT LOCAL TELEPHONE COMPANY TO COORDINATE WORK REQUIRED TO SPLICE EXISTING TELEPHONE SERVICE AT POLE AND EXTEND NEW CABLE INTO TELEPHONE CABINET WITH 3" C.
 - AT COMMUNICATIONS SYSTEM CONTROL CABINET, PROVIDE STRIP SURGE PROTECTOR FOR PLUG-IN TYPE POWER SUPPLY TO CORD MOUNTED EQUIPMENT.
 - PROVIDE QUANTITY AND SIZE OF RACEWAYS TO MEET SYSTEM REQUIREMENTS. MINIMUM CONDUIT SIZE WITHIN BUILDINGS IS 3/4" C. PROVIDE LARGER SIZE CONDUITS WHERE REQUIRED BY SYSTEM CABLES.
 - SEE DIVISION 16 SPECIFICATIONS FOR REQUIREMENTS OF TELEPHONE, DATA AND COMMUNICATIONS SYSTEM EQUIPMENT AND INTERFACE.
 - PROVIDE 120VAC POWER TO EQUIPMENT AND DEVICES, AS REQUIRED BY SYSTEM DESIGN FROM PANELBOARD IN AREA OF EQUIPMENT, (TYPICAL).



ACCESS CONTROL/SECURITY SYSTEM RISER DIAGRAM
NOT TO SCALE

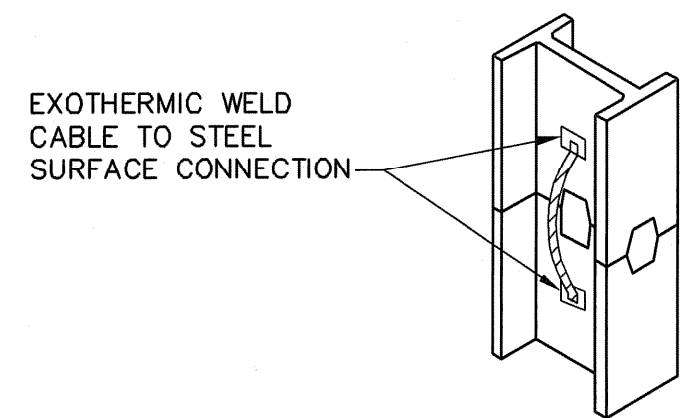
NO.	REVISIONS	DATE	BY
3	AS-BUILT DRAWING FILE	JULY 2008	DM
2	ISSUED FOR RFI POSTED SET	10/31/06	DM
1	REVISED AS NOTED	04/14/05	DM
0	ISSUED FOR CONSTRUCTION	04/14/05	DM
		02/22/05	G. AHLBORG



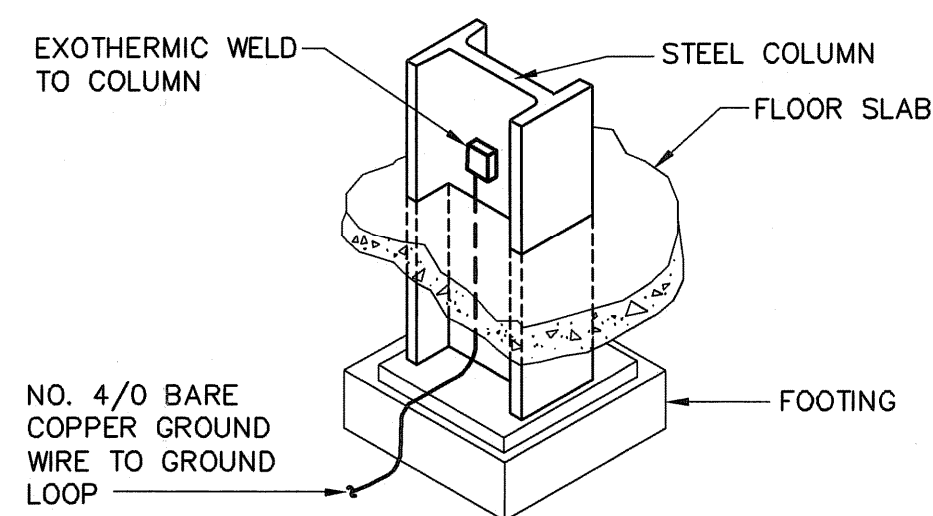
PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
RISER DIAGRAMS SHEET II

DESIGNED BY	DM	DWG SCALE	AS NOTED
DRAWN BY	DM	CONTRACT NO.	
CHECKED BY	WS	DATE	OCTOBER 31, 2006

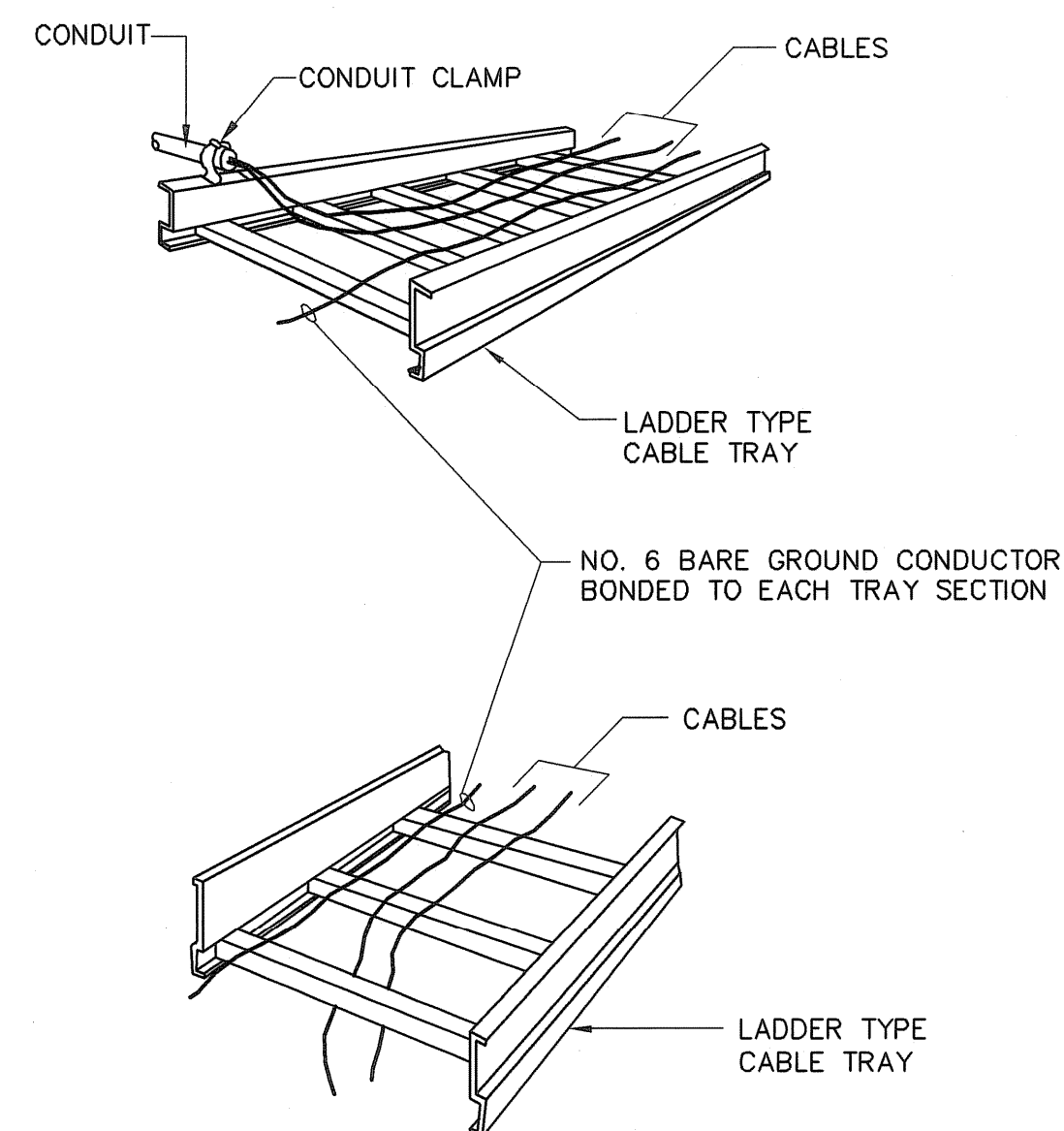
EARTH TECH
AS-BUILT FILE
JULY 2008



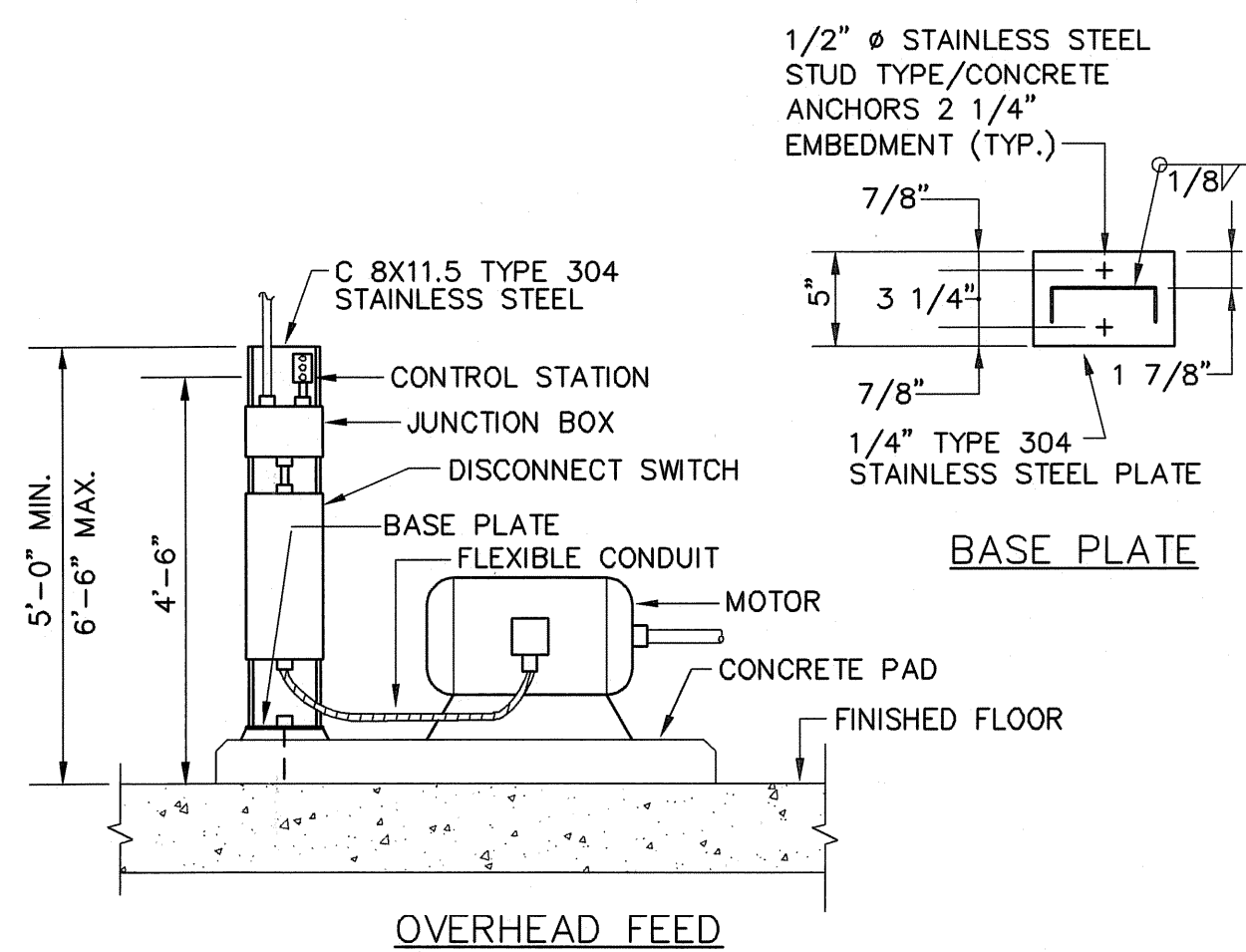
TYPICAL BONDING AT COLUMN SPLICE PLATES



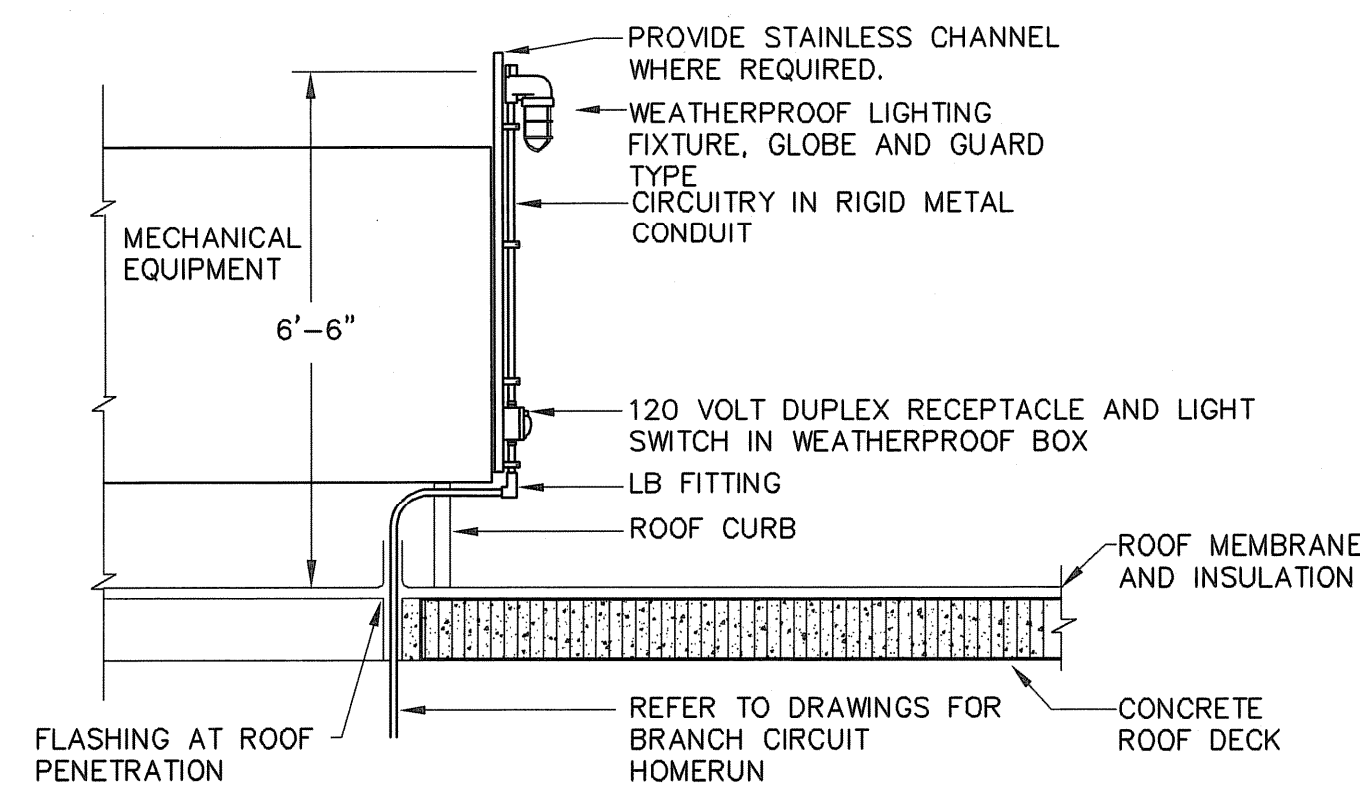
GROUNDING FOR STEEL COLUMN
NOT TO SCALE



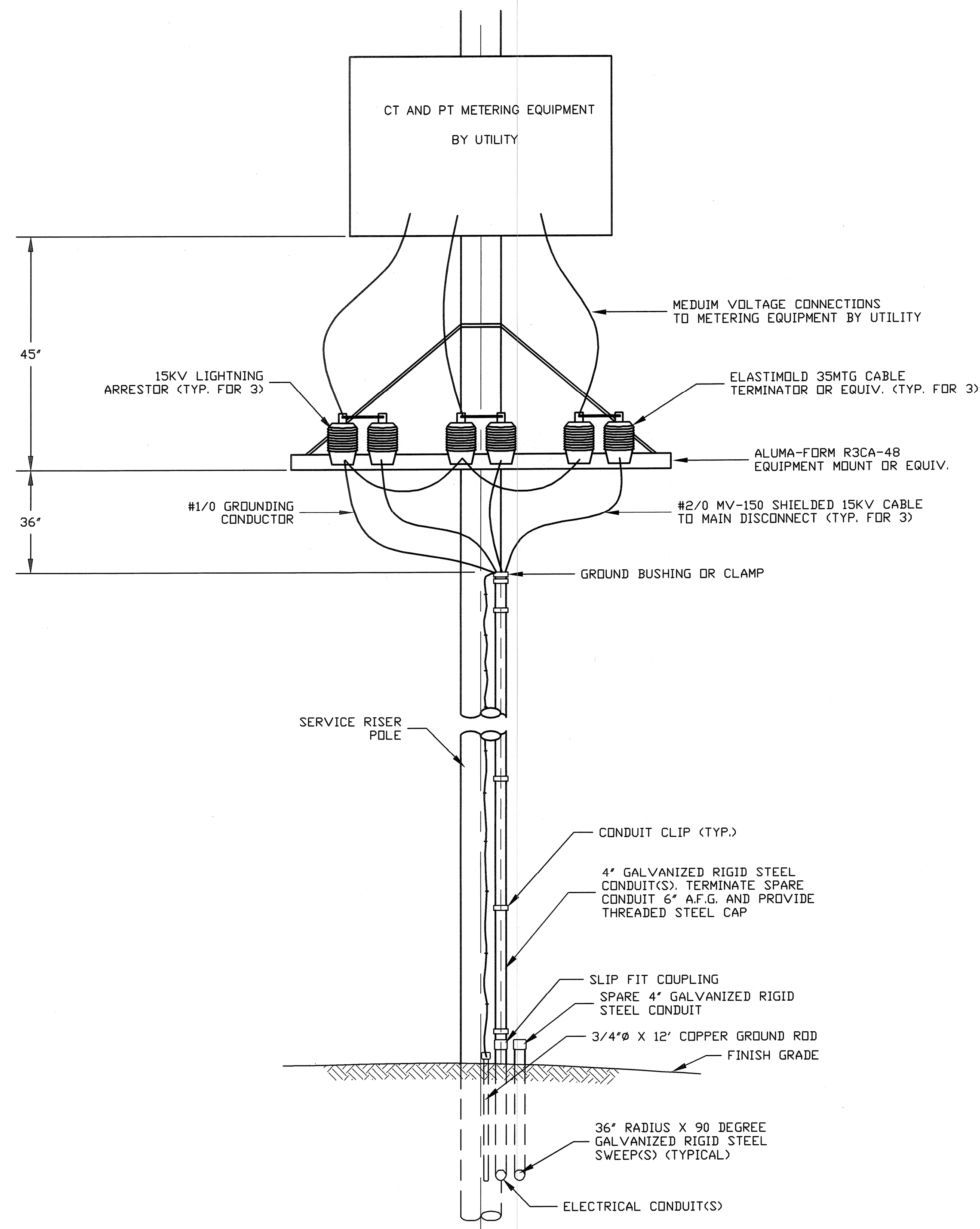
CABLE TRAY TO CONDUIT TRANSITION
NOT TO SCALE



MOTOR CONNECTIONS WITH DISCONNECT SWITCH
NOT TO SCALE



ROOF TOP MECHANICAL EQUIPMENT LIGHTING AND RECEPTACLE DETAIL
NOT TO SCALE



SERVICE RISER POLE
NOT TO SCALE

FULL SIZE DRAWING = 4"

NO.	DATE	BY	REVISIONS
3	JULY 2008	DM	AS-BUILT DRAWING FILE
2	10/31/06	DM	ISSUED FOR RFI POSTED SET
1	04/14/06	DM	REVISED AS NOTED
0	04/14/05	DM	ISSUED FOR CONSTRUCTION
	02/22/05	DM	G. HILBORN

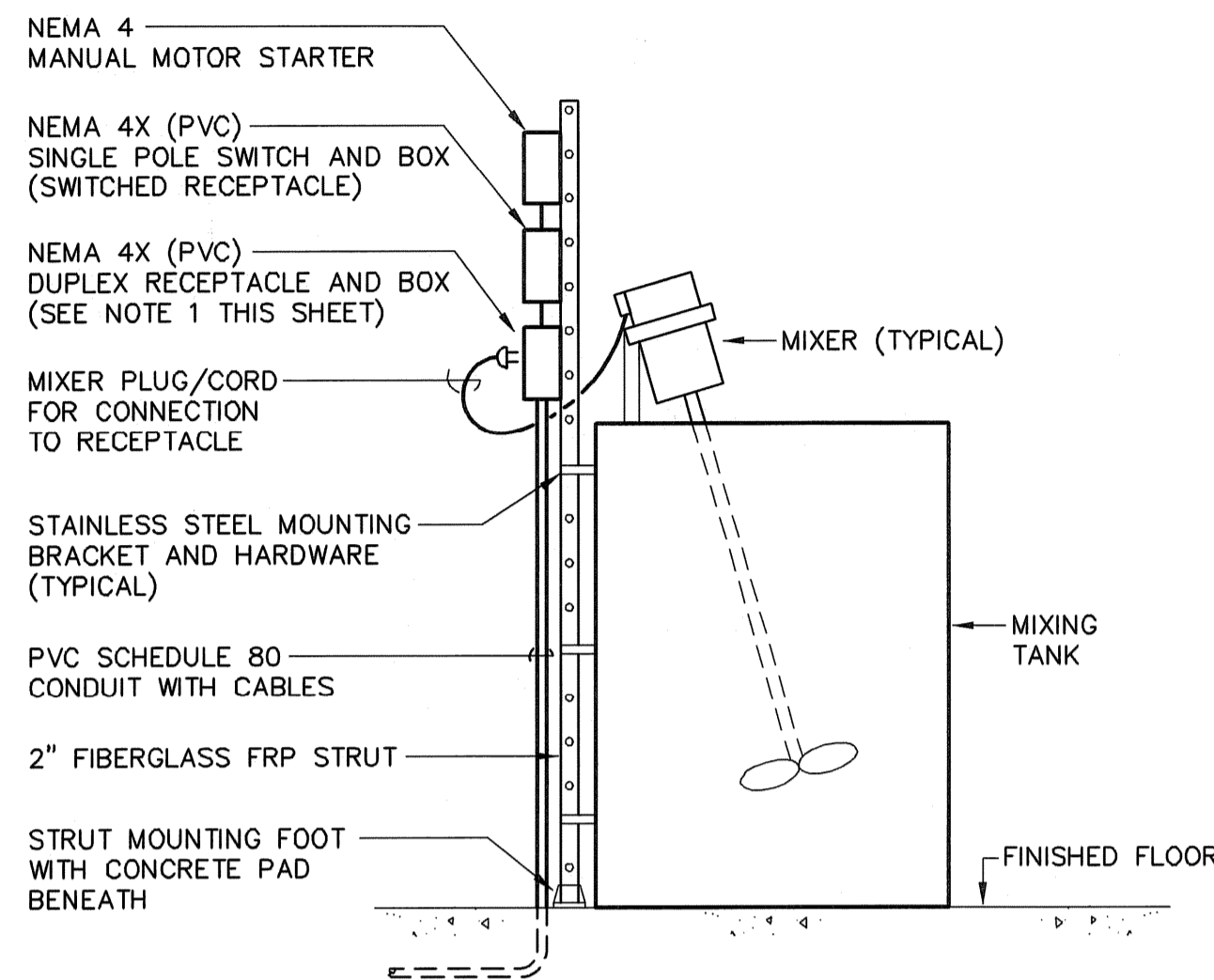
ROBERT H. SHELDON
No. 4103
Professional Engineer
3/1/08

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
STANDARD DETAILS SHEET 1

DESIGNED BY DM	DWG SCALE AS NOTED
DRAWN BY DM	CONTRACT NO.
CHECKED BY WS	DATE OCTOBER 31, 2008

EARTH TECH
AS-BUILT FILE
JULY 2008

E-20
SHEET OF

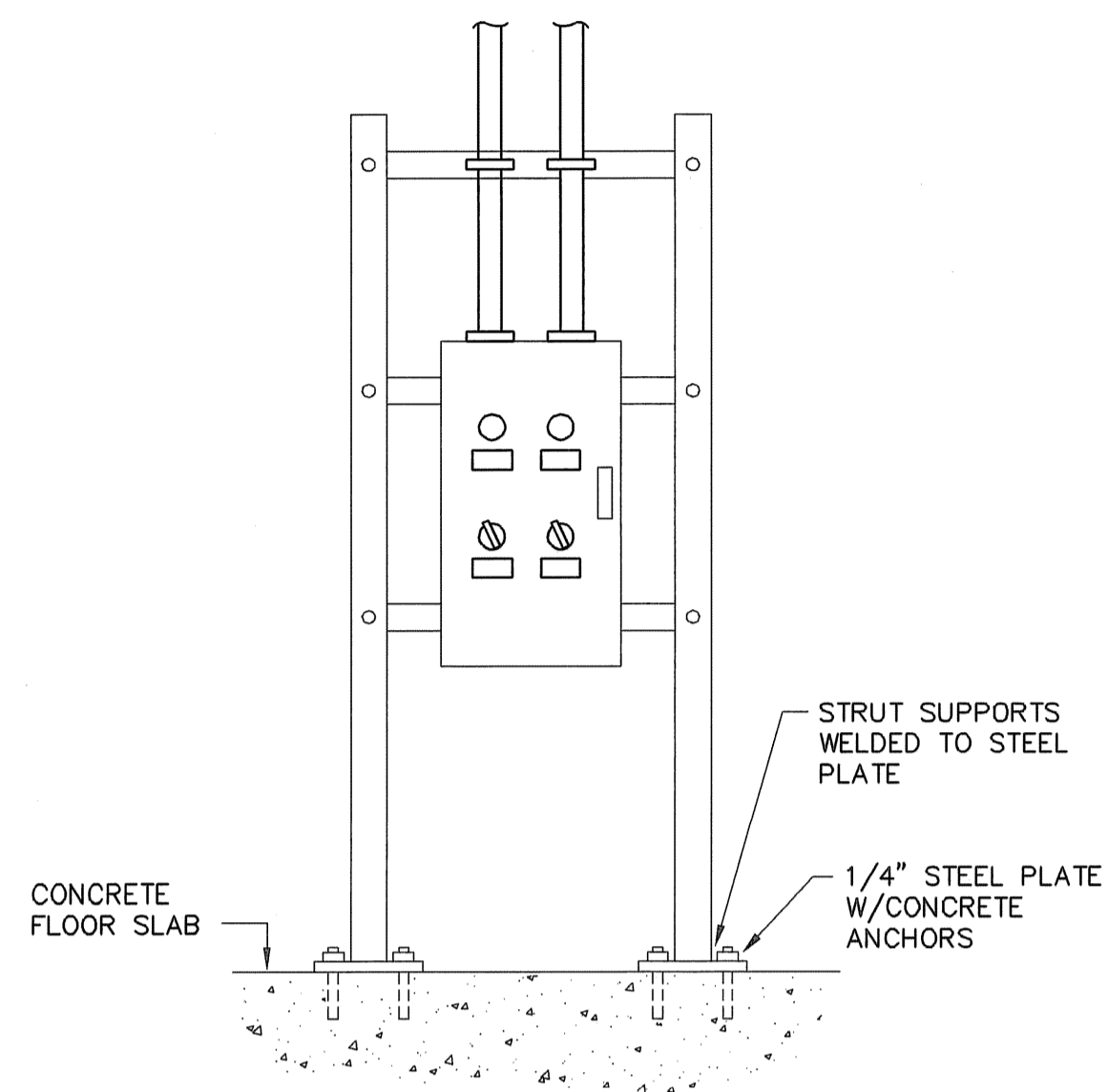


NOTES:

1. THIS CONTRACTOR (DIVISION 16) SHALL FURNISH AND INSTALL A NEMA 4X DUPLEX RECEPTACLE FOR MIXER. RECEPTACLE SHALL BE MOUNTED ON FRP FIBERGLASS STRUT NEXT TO SIDE OF HOLDING TANK. REFER TO MOUNTING DETAIL THIS SHEET.
2. MIXER CORD (TYPE SO) SHALL BE FURNISHED AND INSTALLED BY THE MIXER MOTOR SUPPLIER. THIS CONTRACTOR SHALL FURNISH AND INSTALL PLUG AT END OF CORD TO MATCH DUPLEX RECEPTACLE.

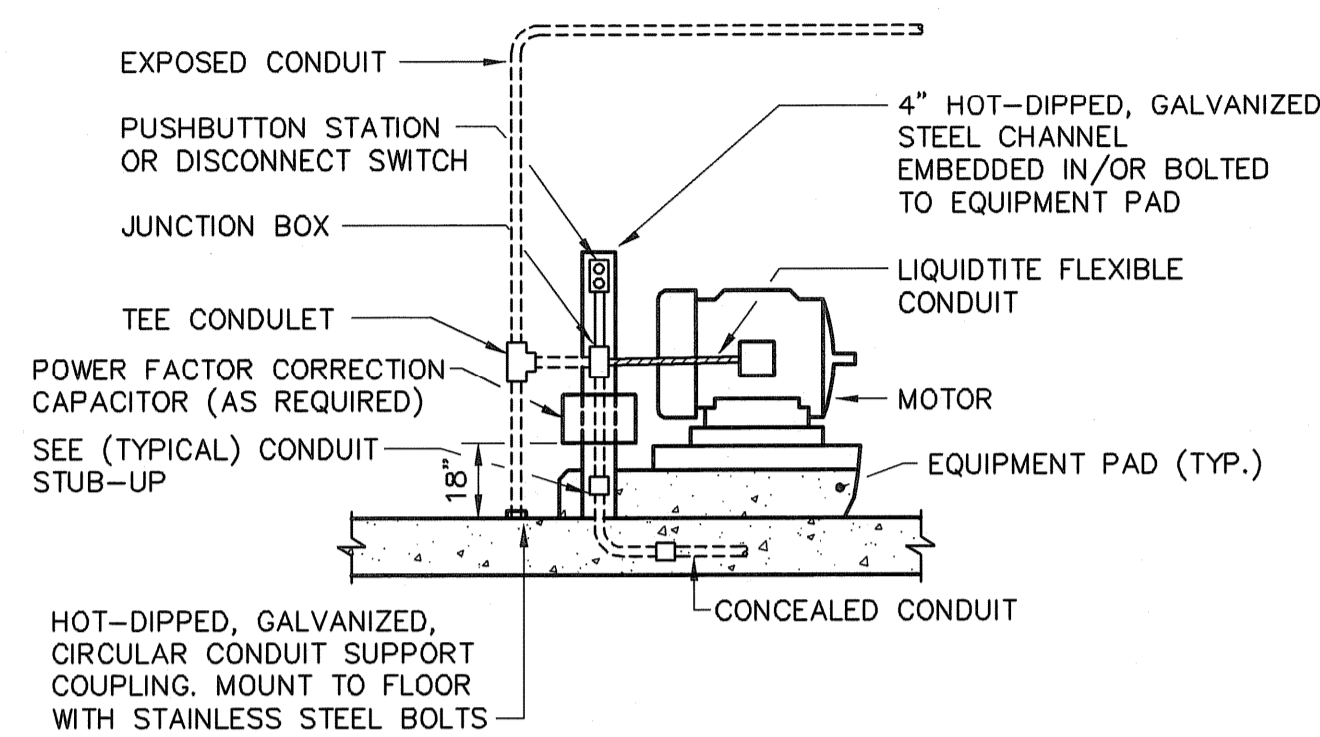
TYPICAL MIXER INSTALLATION DETAIL

NOT TO SCALE



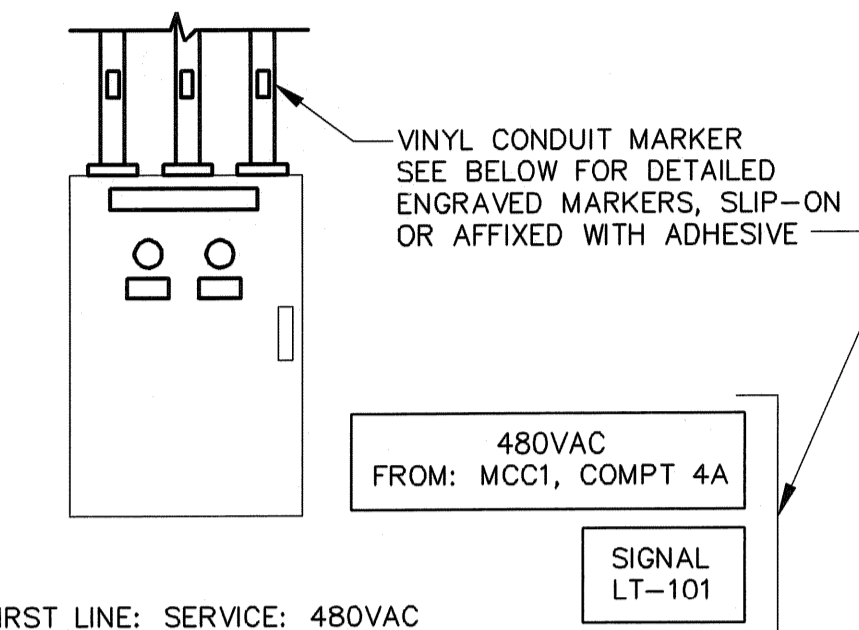
CONTROL PANEL MOUNTING DETAIL

NOT TO SCALE



CONDUIT ARRANGEMENT FOR MOTOR

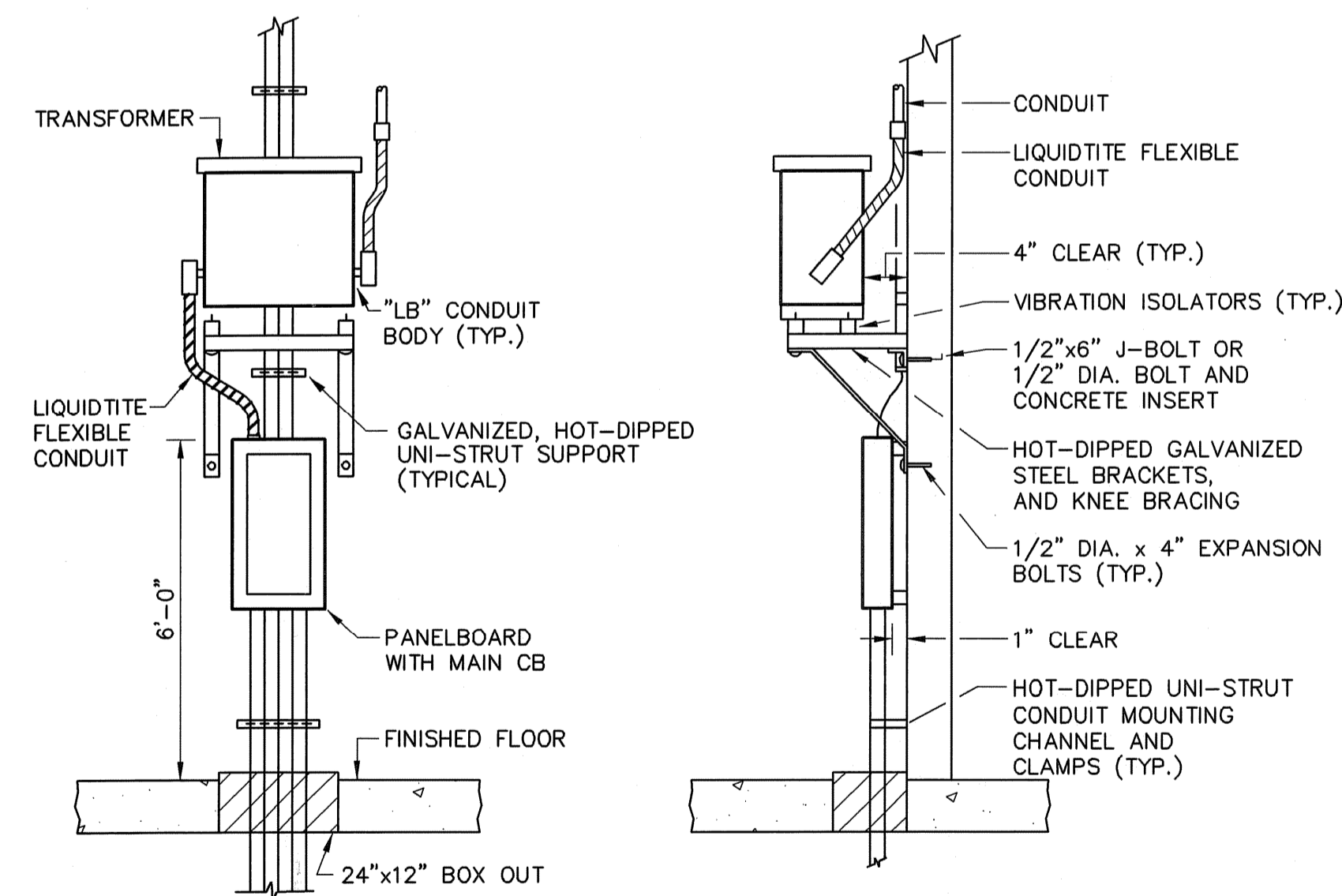
NOT TO SCALE



FIRST LINE: SERVICE: 480VAC
208VAC
120VAC
SIGNAL
CONTROL

CONDUIT MARKER DETAIL

NOT TO SCALE

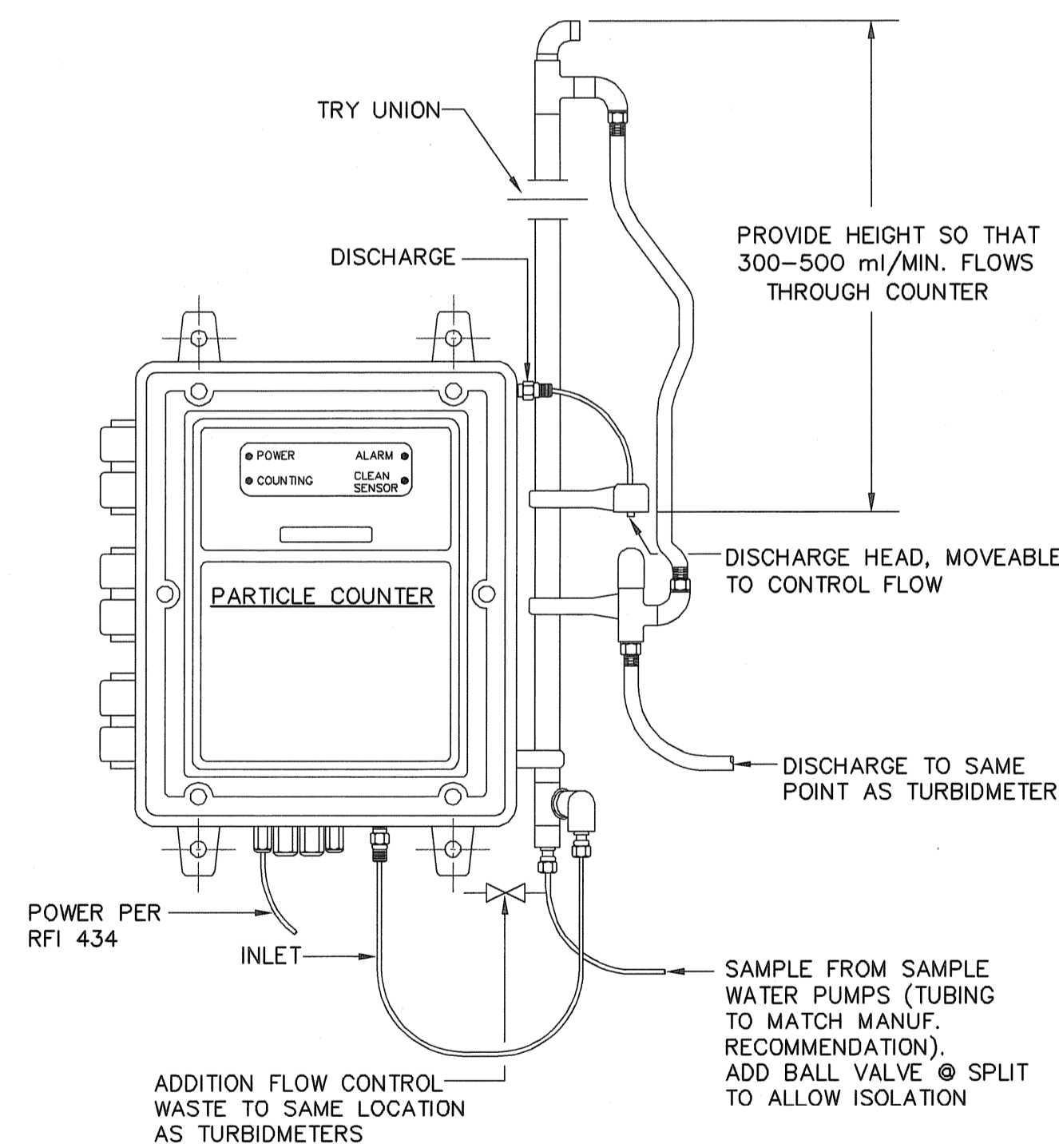


FRONT ELEVATION

SIDE ELEVATION

TRANSFORMER MOUNTING DETAIL

NOT TO SCALE

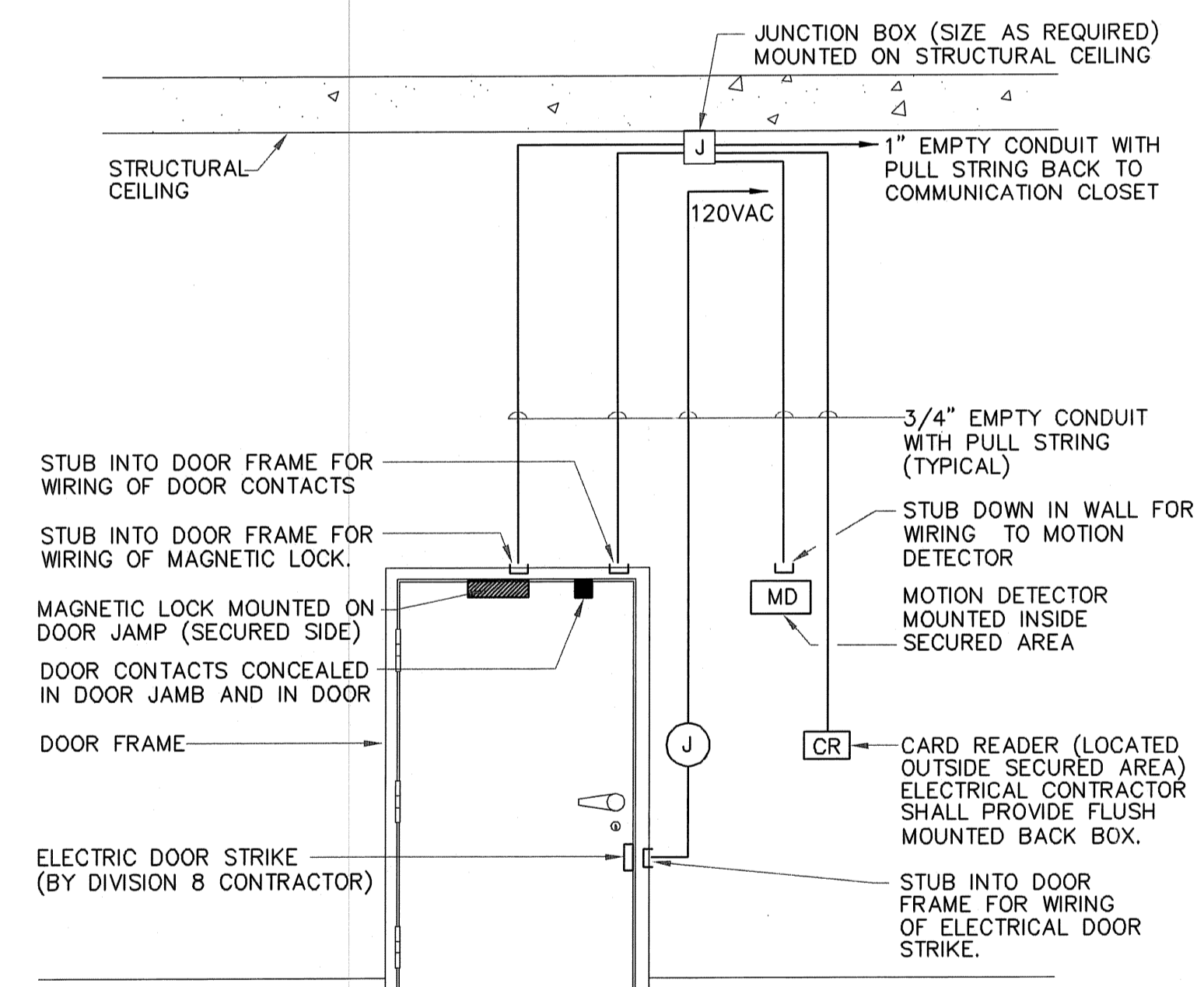


NOTES:

1. THE SAMPLE WATER SHALL GO UNDER THE STAINLESS STEEL FLOOR PLATE TO THE COUNTER AND NOT BE PIPED HIGH OVER THE CEILING.
2. MOUNT PARTICLE COUNTER NEXT TO TURBID IN PIPE GALLERY

PARTICLE COUNTER DETAIL

NOT TO SCALE



NOTES:

1. ALL LOW VOLTAGE WIRING AND SECURITY EQUIPMENT SHALL BE FURNISHED BY SECURITY SYSTEM SUPPLIER.
2. COORDINATE EXACT LOCATIONS AND MOUNTING REQUIREMENTS OF ALL DEVICES WITH ARCHITECTURAL DRAWINGS.
3. PROVIDE INSULATED BUSHINGS ON ALL CONDUITS.
4. ELECTRIC DOOR STRIKES AND HINGES SHALL BE FURNISHED AND INSTALLED BY THE ARCHITECTURAL CONTRACTOR.
5. VERIFY DOOR HARDWARE CONNECTIONS WITH MANUFACTURERS INSTALLATION MANUAL.
6. COORDINATE INSTALLATION OF RACEWAY W/OTHER BUILDING TRADES TO CONCEAL WITHIN STRUCTURE.

TYPICAL DOOR SECURITY DETAIL

NOT TO SCALE

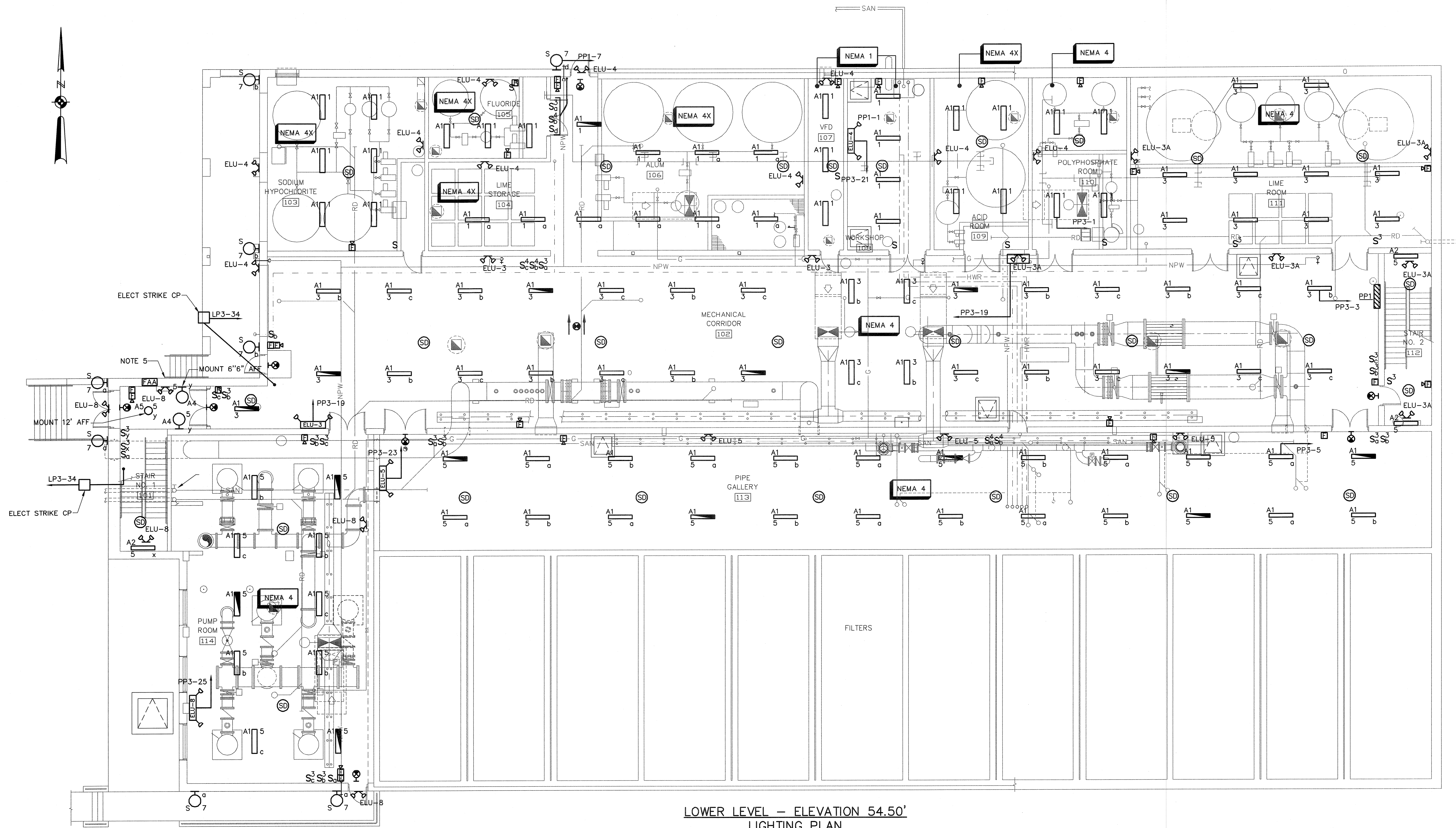
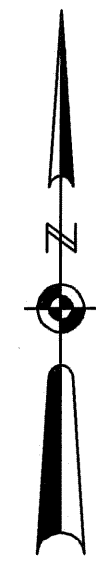
AS-BUILT DRAWING FILE	DATE	BY	REVISIONS
3	JULY 2008	DM	
2	10/31/06	DM	
1	04/14/05	DM	
0	02/22/05	DM	

ROBERT H. SHELDON
No. 4103
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND
No. 10000

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
STANDARD DETAILS SHEET II

DESIGNED BY	DWG SCALE
DM	AS NOTED
DRAWN BY	CONTRACT NO.
DM	
CHECKED BY	DATE
WS	OCTOBER 31, 2006

EARTH TECH
AS-BUILT FILE
JULY 2008



LOWER LEVEL - ELEVATION 54.50'
 LIGHTING PLAN
 SCALE: 1/8" = 1'-0"

- NOTES:**
- SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
 - CONNECT REMOTE EMERGENCY HEADS IDENTIFIED WITH UNIQUE NUMBERS TO THE EMERGENCY LIGHTING UNITS (ELU) OF THE SAME NUMBER. MINIMUM WIRE SIZE SHALL BE #10 IN 1/2" CONDUIT, WITH RECEWAY TYPE AS REQUIRED BY THE NEMA CLASSIFICATION OF THE AREA SERVED. PROVIDE #8 WIRE TO REMOTE HEADS GREATER THAN 50 FEET CABLE DISTANCE FROM ELU. PROVIDE JUNCTION BOX ABOVE ELU TO SPLICE WIRING TO SIZE REQUIRED FOR ELU.
 - EXIT LIGHTS SHALL BE POWERED FROM UNSWITCHED LINE OF NEAREST LIGHTING CIRCUIT.
 - VERIFY CORRECT LIGHT SWITCH LOCATION, PRIOR TO INSTALLATION TO INSURE THAT THE SWITCHES ARE NOT INSTALLED BEHIND OPENED DOOR.
 - ROUTE CONDUITS IN BLOCK WALL WITH NO EXPOSED RACEWAYS IN ENTRANCE AREA OF BUILDING.
 - TYPE A1 FIXTURES SHALL BE MOUNTED 14' AFF.
 - SEE SHEET E-8 FOR LIGHTING FIXTURE SCHEDULE.

EARTH TECH
 AS-BUILT FILE
 JULY 2008

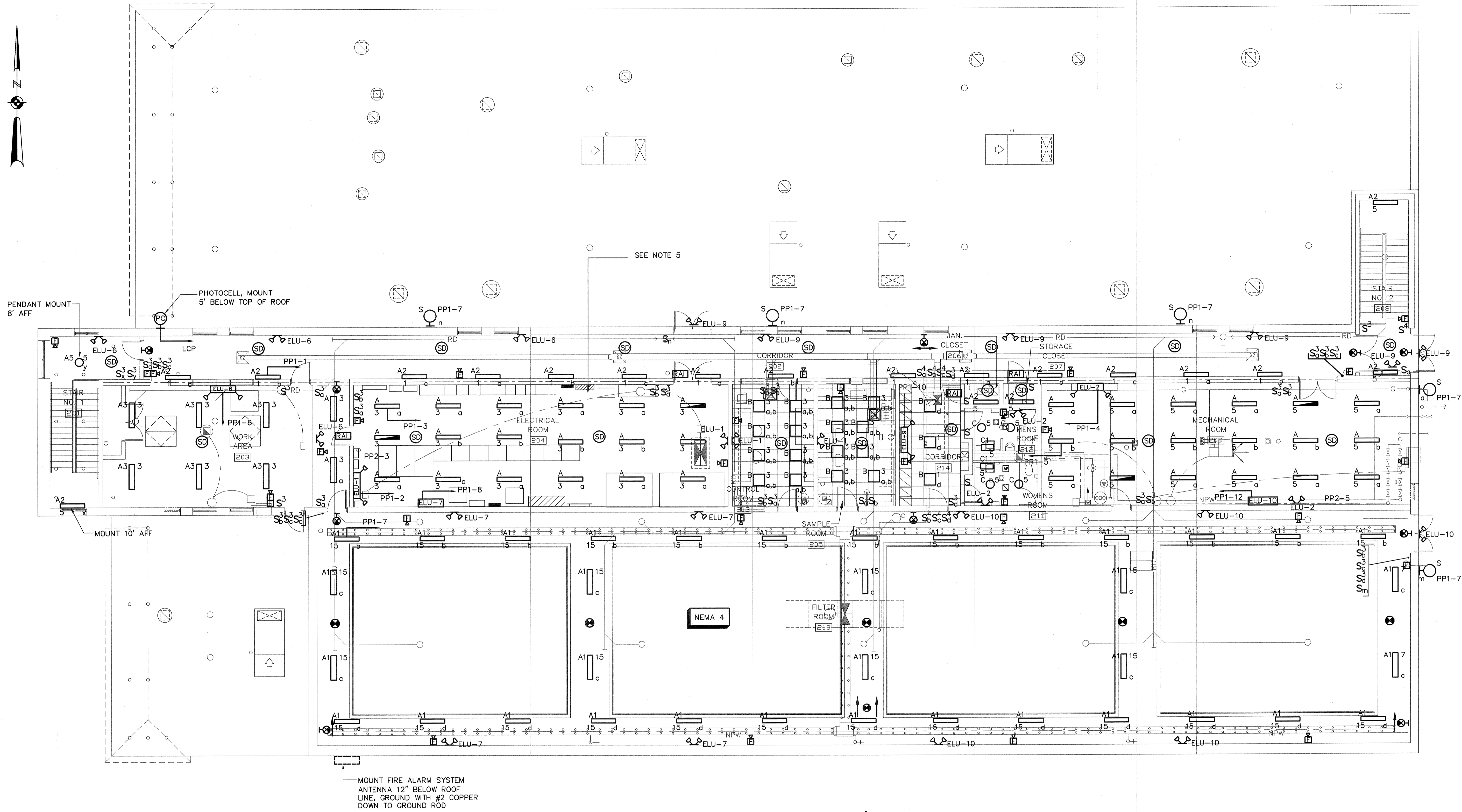
FULL SIZE DRAWING = 4"

NO.	DATE	BY	REVISIONS
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3	09/21/06	DM	ISSUED FOR REVISION SET
2	09/14/06	DM	REVISED AS NOTED
1	08/31/05	DM	FIRE ALARM CHANGES
0	04/14/05	DM	ISSUED FOR CONSTRUCTION
	02/22/05	DM	D. AHLBORG

ROBERT H. SHELDON
 No. 4103

PAWTUCKET, RHODE ISLAND
 PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
 LOWER LEVEL
 LIGHTING AND FIRE ALARM PLAN

DESIGNED BY	DWG SCALE
DM	AS NOTED
DRAWN BY	CONTRACT NO.
DM	
CHECKED BY	DATE
WS	OCTOBER 31, 2004



UPPER LEVEL - ELEVATION 70.50'
LIGHTING AND FIRE ALARM PLAN
 SCALE: 1/8" = 1'-0"

NOTES:

1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. CONNECT REMOTE EMERGENCY HEADS IDENTIFIED WITH UNIQUE NUMBERS TO THE EMERGENCY LIGHTING UNITS (ELU) OF THE SAME NUMBER. MINIMUM WIRE SIZE SHALL BE #10 IN 1/2" CONDUIT, WITH REWEAVE TYPE AS REQUIRED BY THE NEMA CLASSIFICATION OF THE AREA SERVED. PROVIDE #8 WIRE TO REMOTE HEADS GREATER THAN 50 FEET CABLE DISTANCE FROM ELU. PROVIDE JUNCTION BOX ABOVE ELU TO SPLICE WIRING TO SIZE REQUIRED FOR ELU.
3. EXIT LIGHTS SHALL BE POWERED FROM UNSWITCHED LINE OF NEAREST LIGHTING CIRCUIT.
4. VERIFY CORRECT LIGHT SWITCH LOCATION, PRIOR TO INSTALLATION TO INSURE THAT THE SWITCHES ARE NOT INSTALLED BEHIND OPENED DOOR.
5. ALL AREAS ARE CLASSIFIED AS NEMA 1 UNLESS OTHERWISE NOTED.
6. TYPE A FIXTURES SHALL BE MOUNTED 10' AFF, TYPE A1 FIXTURES SHALL BE MOUNTED 14' AFF.

EARTH TECH
 AS-BUILT FILE
 JULY 2008

NO.	REVISIONS	DATE	BY
4	AS-BUILT DRAWING FILE	08/27/08	DM
3	ISSUED FOR RFI POSTED SET	04/11/06	DM
2	REVISED AS NOTED	04/11/06	DM
1	FIRE ALARM CHANGES	02/27/05	DM
0	ISSUED FOR CONSTRUCTION	04/11/05	DM
	D. HARBOR	02/22/05	DM

ROBERT H. SHELDON
 No. 403

PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 8 - ELECTRICAL
 UPPER LEVEL
 LIGHTING AND FIRE ALARM PLAN

DESIGNED BY DM	DWG SCALE AS NOTED
DRAWN BY DM	CONTRACT NO.
CHECKED BY WS	DATE OCTOBER 31, 2008

E-23
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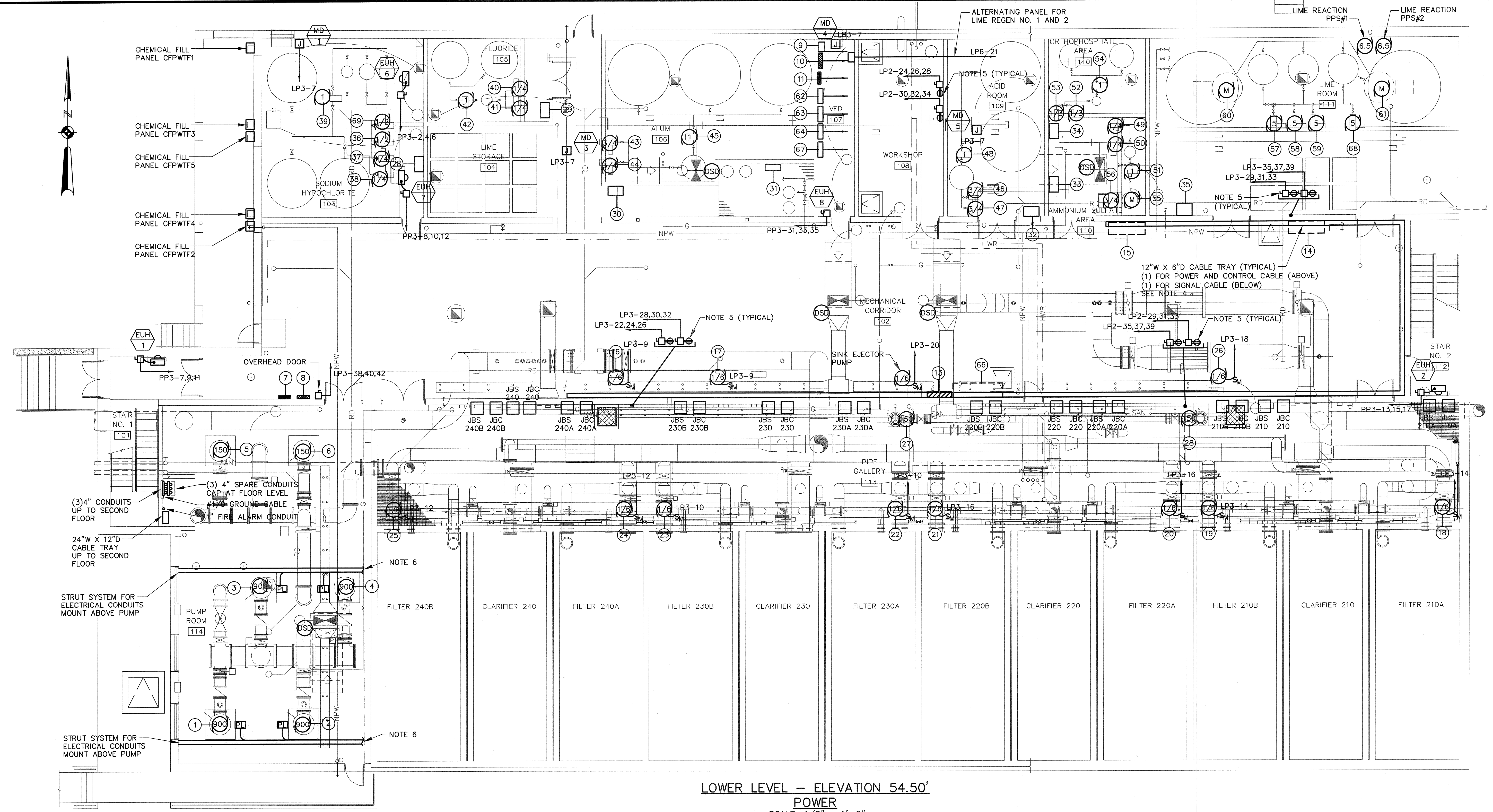
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JULY 2008	DM	1
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ISSUED FOR RFI NOTED SET	DM	3
REVISED AS NOTED	DM	4
ISSUED FOR CONSTRUCTION	DM	5
0. A-HANDJOB	DM	6

ROBERT H. SHELDON
No. 4103
Professional Engineer
State of Rhode Island
3/17/08

PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
WATER TREATMENT FACILITY**
PKG 8 - ELECTRICAL
LOWER LEVEL - POWER PLAN

DESIGNED BY	DWG SCALE
DM	AS NOTED
DRAWN BY	CONTRACT NO.
DM	
CHECKED BY	DATE
WS	OCTOBER 31, 2008

EARTH TECH
AS-BUILT FILE
JULY 2008



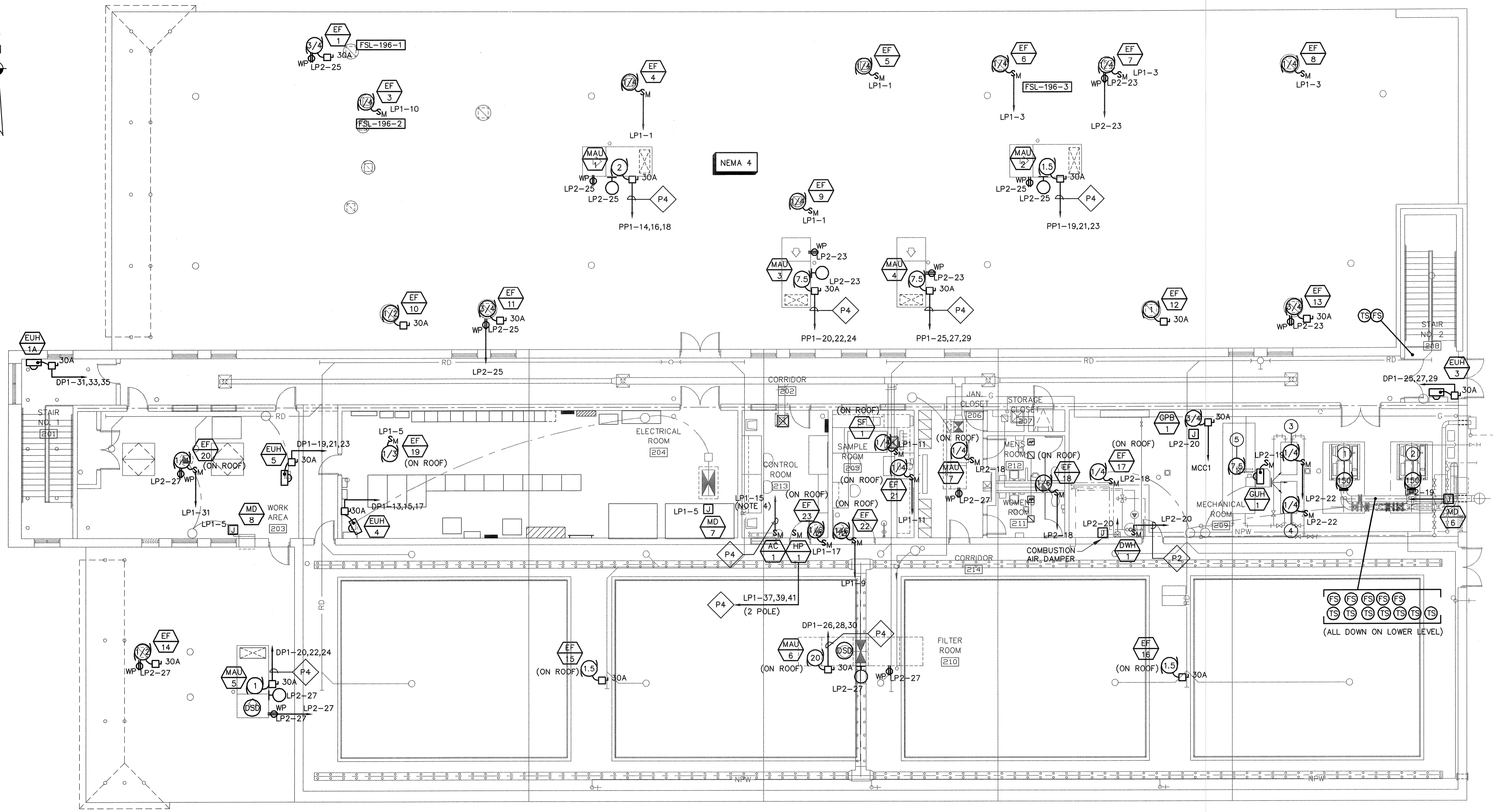
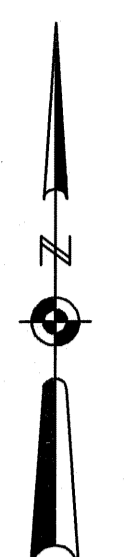
LOWER LEVEL - ELEVATION 54.50'
POWER
SCALE: 1/8" = 1'-0"

EQUIPMENT LEGEND

- | | | | | | |
|----------------------------------|---|--|---|---|---|
| 1 HIGH SERVICE PUMP "HSP-310" | 12 NOT USED | 23 SAMPLE WATER PUMP "SWP-230B" | 33 AMMONIUM SULFATE CHEMICAL FEED CONTROL PANEL "ASFCP" | 45 ALUM CHEMICAL TRANSFER PUMP "CTP-210" | 57 LIME CHEMICAL FEED PUMP "ALK-221" |
| 2 HIGH SERVICE PUMP "HSP-320" | 13 277/480V PANELBOARD "PPUV" | 24 SAMPLE WATER PUMP "SWP-240A" | 34 ORTHOPHOSPHATE CHEMICAL FEED CONTROL PANEL "OFPCP" | 46 ACID CHEMICAL FEED PUMP "AFP-231" | 58 LIME CHEMICAL FEED PUMP "ALK-413" |
| 3 HIGH SERVICE PUMP "HSP-330" | 14 FILTER CONTROL PANEL "FCP" | 25 SAMPLE WATER PUMP "SWP-240B" | 35 LIME FEED SYSTEM CHEMICAL CONTROL PANEL "HLFS-221" | 47 ACID CHEMICAL FEED PUMP "AFP-232" | 59 LIME CHEMICAL FEED PUMP "ALK-411" |
| 4 HIGH SERVICE PUMP "HSP-340" | 15 WATER TREATMENT PLANT CONTROL PANEL "WTCP" | 26 SAMPLE WATER PUMP "SWP-290" | 36 SODIUM HYPOCHLORITE CHEMICAL FEED PUMP "HFP-456" | 48 ACID CHEMICAL TRANSFER PUMP "ATP-230" | 60 LIME MIXING TANK MIXER |
| 5 FILTER BACKWASH PUMP "BWP-291" | 16 SAMPLE WATER PUMP "SWP-201" | 27 EQUALIZATION BASIN PUMP "EBP-510" | 37 SODIUM HYPOCHLORITE CHEMICAL FEED PUMP "HFP-356" | 49 AMMONIUM SULFATE CHEMICAL FEED PUMP "NHFP-441" | 61 LIME MIXING TANK MIXER |
| 6 FILTER BACKWASH PUMP "BWP-292" | 17 SAMPLE WATER PUMP "SWP-202" | 27 EQUALIZATION BASIN PUMP "EBP-520" | 38 SODIUM HYPOCHLORITE CHEMICAL FEED PUMP "HFP-256" | 50 AMMONIUM SULFATE CHEMICAL FEED PUMP "NHFP-442" | 62 LIME CHEMICAL FEED PUMP VFD "VFD-221" |
| 7 120/208V PANELBOARD "LP3" | 18 SAMPLE WATER PUMP "SWP-210A" | 28 SODIUM HYPOCHLORITE CHEMICAL FEED CONTROL PANEL "HFCP" | 39 SODIUM HYPOCHLORITE CHEMICAL TRANSFER PUMP "HTP-452" | 51 AMMONIUM SULFATE CHEMICAL TRANSFER PUMP "NHFP-440" | 63 LIME CHEMICAL FEED PUMP VFD "VFD-413" |
| 8 277/480V PANELBOARD PP3 | 19 SAMPLE WATER PUMP "SWP-210B" | 29 HYDROFLUOSILICIC ACID CHEMICAL FEED CONTROL PANEL "HAFCP" | 40 FLUORIDE CHEMICAL FEED PUMP "FFP-431" | 52 ORTHOPHOSPHATE CHEMICAL FEED PUMP "OPFP-422" | 64 LIME CHEMICAL FEED PUMP VFD "VFD-411" |
| 9 XFMR LP6 | 20 SAMPLE WATER PUMP "SWP-220A" | 30 COAGULANT (ALUM) CHEMICAL FEED CONTROL PANEL "CFCP" | 41 FLUORIDE CHEMICAL FEED PUMP "FFP-432" | 53 ORTHOPHOSPHATE CHEMICAL FEED PUMP "OPFP-421" | 65 NOT USED |
| 10 480V PANELBOARD "PP4" | 21 SAMPLE WATER PUMP "SWP-220B" | 31 POLYMER SYSTEM CHEMICAL FEED CONTROL PANEL "HFCP" | 42 FLUORIDE CHEMICAL TRANSFER PUMP "FTP-430" | 54 ORTHOPHOSPHATE CHEMICAL TRANSFER PUMP "OTP-420" | 66 UV SYSTEM CONTROL PANEL "UV-270/UV-280" |
| 11 120/208V PANELBOARD "LP6" | 22 SAMPLE WATER PUMP "SWP-230A" | 32 ACID CHEMICAL FEED CONTROL PANEL "LPFS-333" | 43 ALUM CHEMICAL FEED PUMP "CFP-212" | 55 AMMONIUM SULFATE MIXER | 67 LIME CHEMICAL FEED PUMP VFD "VFD-412" |
| | | | 44 ALUM CHEMICAL FEED PUMP "CFP-211" | 56 AMMONIUM SULFATE DUST COLLECTOR | 68 LIME CHEMICAL FEED PUMP "ALK-412" |
| | | | | | 69 SODIUM HYPOCHLORITE CHEMICAL FEED PUMP "HFP-458" |

NOTES:

- SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
- SEE SHEET E-22 FOR NEMA CLASSIFICATION RATINGS.
- FOR 480V POWER REQUIREMENTS SEE SHEET E-7.
- CABLE TRAY SHALL BE HEAVY DUTY GALVANIZED STEEL WITH 6" RUNG SPACING, ON ONE SET OF VERTICAL SUPPORTS.
- NEMA 4 STAINLESS STEEL DISCONNECT/RECEPTACLE FOR PORTABLE SUMP PUMPS MANUFACTURED BY APPLETON CATALOG NO. WSRD33542N4SQ OR APPROVED EQUAL.
- ROUTE RACEWAYS ALONG WALL PER BLOCK DIAGRAM ON DRAWING E-12. MAINTAIN 12" SEPARATION FROM 5KV POWER CONDUITS AND ALL OTHER RACEWAYS.



UPPER LEVEL - ELEVATION 70.50'
 POWER PLAN
 SCALE: 1/8" = 1'-0"

- EQUIPMENT LEGEND**
- ① FILTRATION SYSTEM AIR BLOWER PDBL-281
 - ② FILTRATION SYSTEM AIR BLOWER PDBL-282
 - ③ FILTRATION SYSTEM DRYER NO.1
 - ④ FILTRATION SYSTEM DRYER NO.2
 - ⑤ FILTRATION SYSTEM AIR COMPRESSOR

- NOTES:**
1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
 2. SEE SHEET E-23 FOR NEMA RATINGS OF INTERIOR SPACES. ROOF MOUNTED EQUIPMENT TO BE NEMA 4.
 3. ALL ROOF MOUNTED METALLIC EQUIPMENT TO BE INTER CONNECTED WITH LIGHTNING PROTECTION SYSTEM SHOWN ON DRAWING E-28 WITH #2/0 BARE GROUND CABLE.
 4. CONNECT 120VAC TO AC-1 MANUAL MOTOR STARTER AND 208VAC TO HP-1 MANUAL MOTOR STARTER.

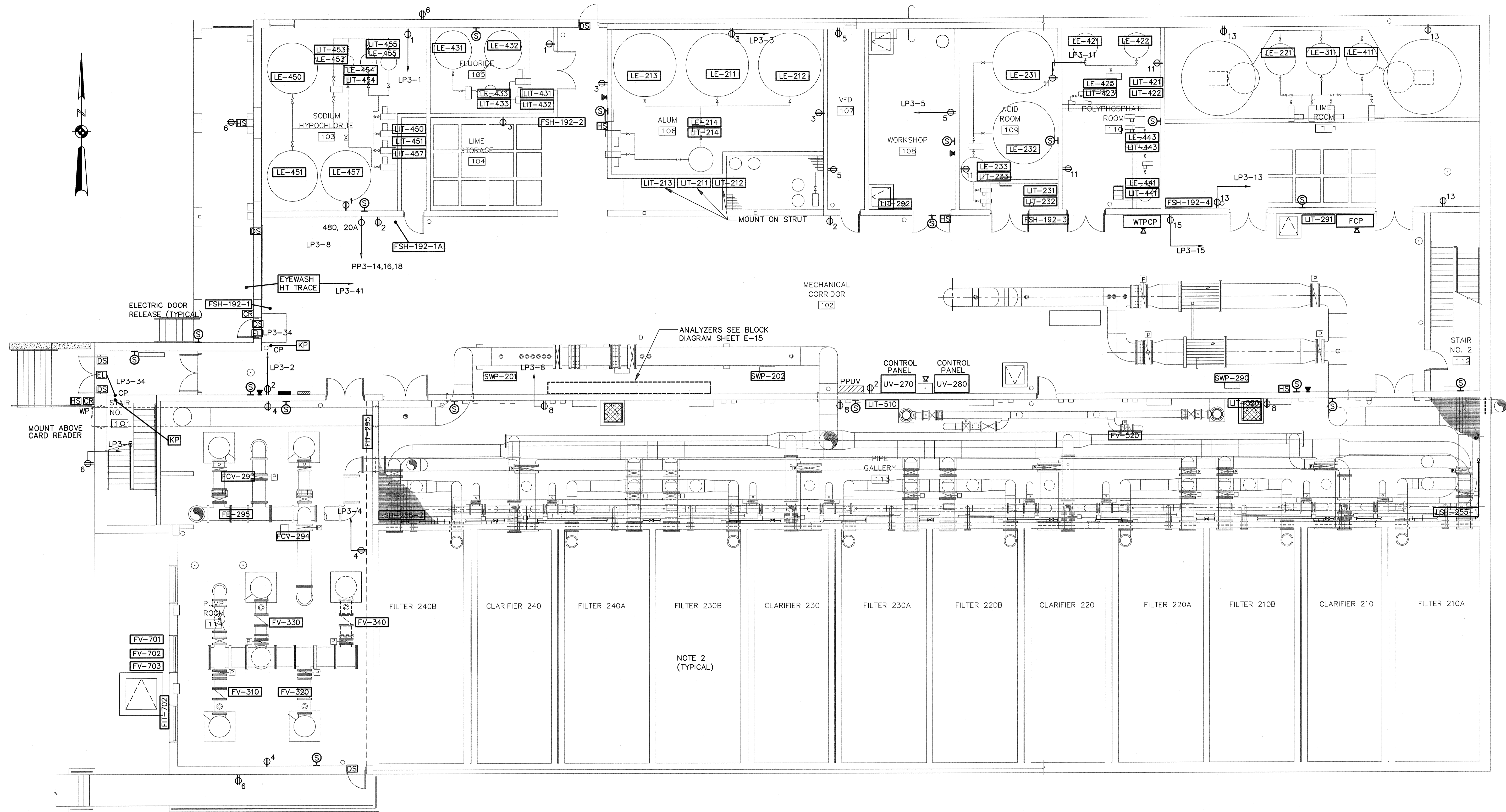
NO.	REVISIONS	DATE	BY
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3	ISSUED FOR RFI POSTED SET	10/21/06	DM
2	REVISED AS NOTED	04/14/06	DM
1	FIRE ALARM CHANGES	09/21/05	DM
0	ISSUED FOR CONSTRUCTION	04/14/05	DM
	D. ANDREWS	02/27/05	

ROBERT H. SHELDON
 No. 4103
 5/17/08

PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 8 - ELECTRICAL
 UPPER LEVEL - POWER PLAN

DESIGNED BY DM	DWG SCALE AS NOTED
DRAWN BY DM	CONTRACT NO.
CHECKED BY WS	DATE OCTOBER 31, 2006

EARTH TECH
 AS-BUILT FILE
 JULY 2008



LOWER LEVEL - ELEVATION 54.50'
 MISC. SYSTEMS PLAN
 SCALE: 1/8" = 1'-0"

- NOTES:
1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
 2. SEE SHEET E-15 FOR FILTER/CLARIFIER AND INSTRUMENTATION BLOCK WIRING DIAGRAMS.
 3. SEE SHEET E-22 FOR NEMA CLASSIFICATION RATINGS.

FULL SIZE DRAWING = 4"

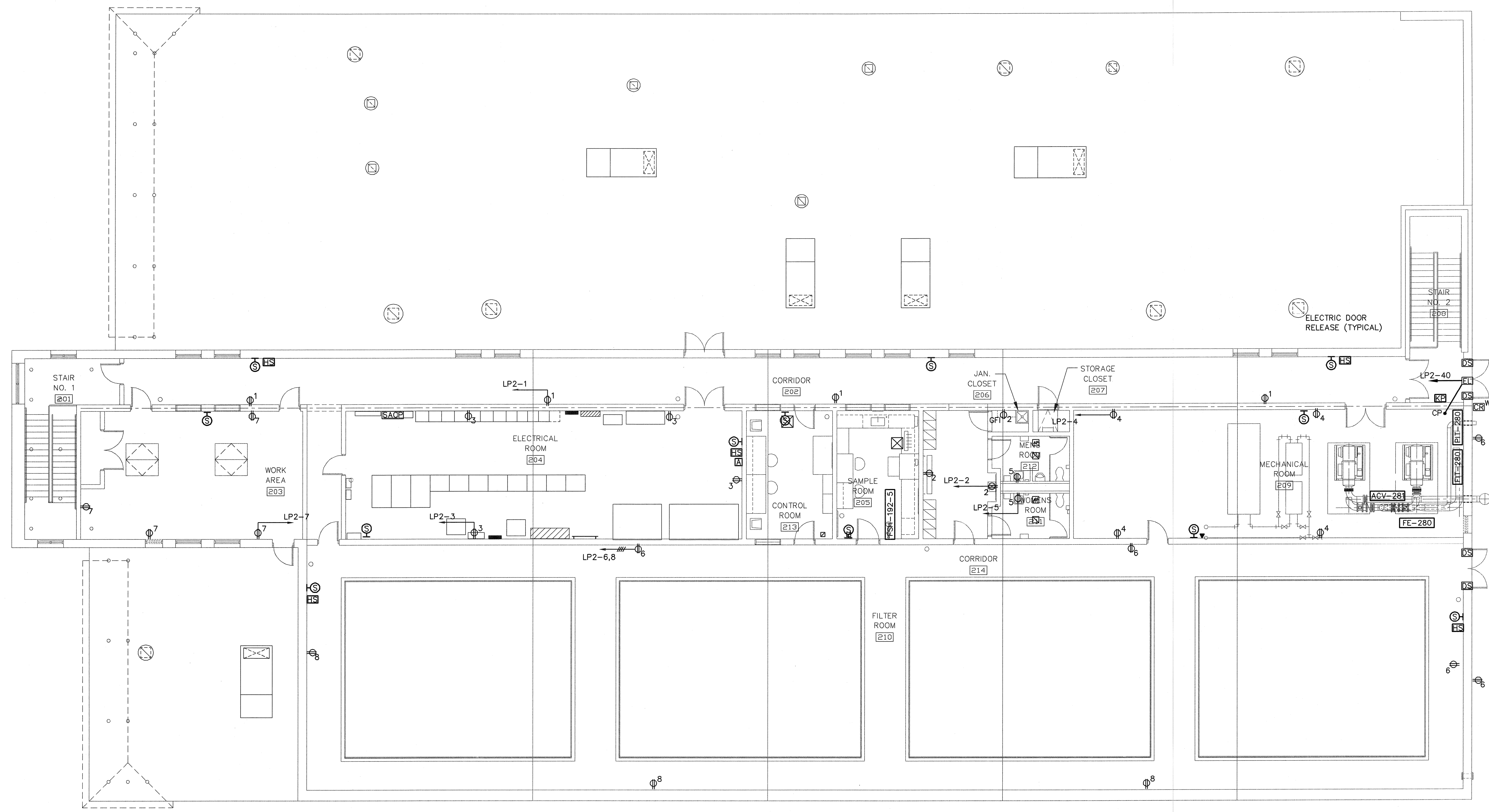
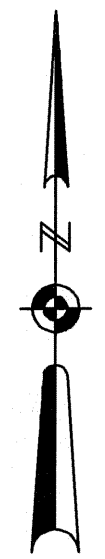
NO.	DATE	BY	REVISIONS
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1	04/14/05	DM	REVISED AS NOTED
0	04/14/05	DM	ISSUED FOR CONSTRUCTION
	02/22/05	DM	G. AHLBORG

ROBERT H. SHELDON
 No. A103
 3/17/08

PAWTUCKET, RHODE ISLAND
 PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
 LOWER LEVEL - MISC. SYSTEMS PLAN

DESIGNED BY DM	DWG SCALE AS NOTED
DRAWN BY DM	CONTRACT NO.
CHECKED BY WS	DATE OCTOBER 31, 2008

EARTH TECH
 AS-BUILT FILE
 JULY 2008



UPPER LEVEL - ELEVATION 70.50'
 MISC. SYSTEMS PLAN
 SCALE: 1/8" = 1'-0"

- NOTES:
1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
 2. SEE SHEET E-23 FOR NEMA RATINGS.
 3. SEE SHEET E-15 FOR INSTRUMENTATION BLOCK WIRING DIAGRAMS.

FULL SIZE DRAWING = 4"

NO.	DATE	BY	REVISIONS
3	JULY 2008	DM	AS-BUILT DRAWING FILE
2	10/31/06	DM	ISSUED FOR PER POSTED SET
1	04/14/06	DM	REVISED AS NOTED
0	04/14/05	DM	ISSUED FOR CONSTRUCTION
	02/22/05	DM	G. ANDROS

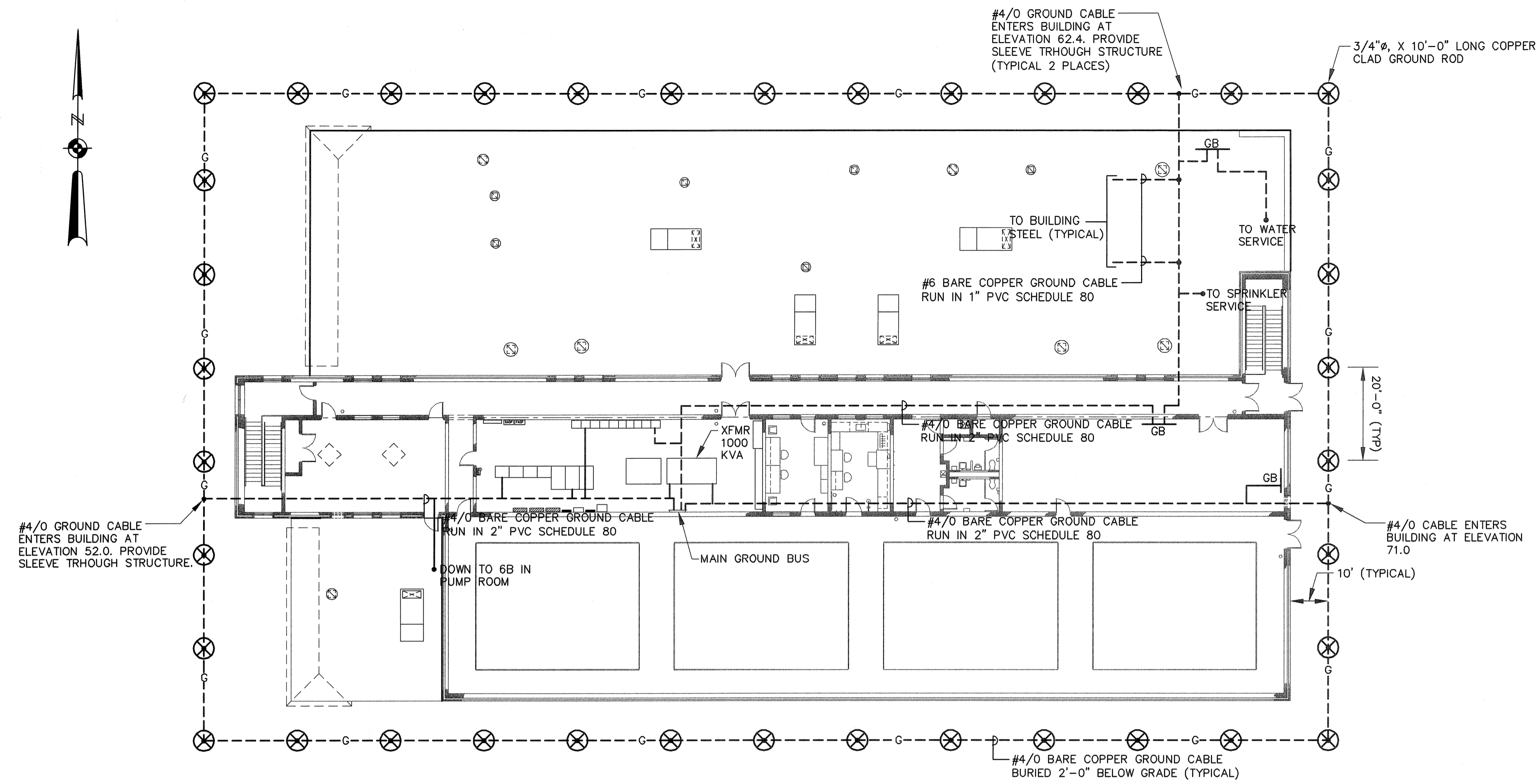
ROBERT H. SHELDON
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 PROFESSIONAL ENGINEER
 STATE OF RHODE ISLAND
 5/17/08

PAWTUCKET, RHODE ISLAND
 PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
 UPPER LEVEL - MISC. SYSTEMS PLAN

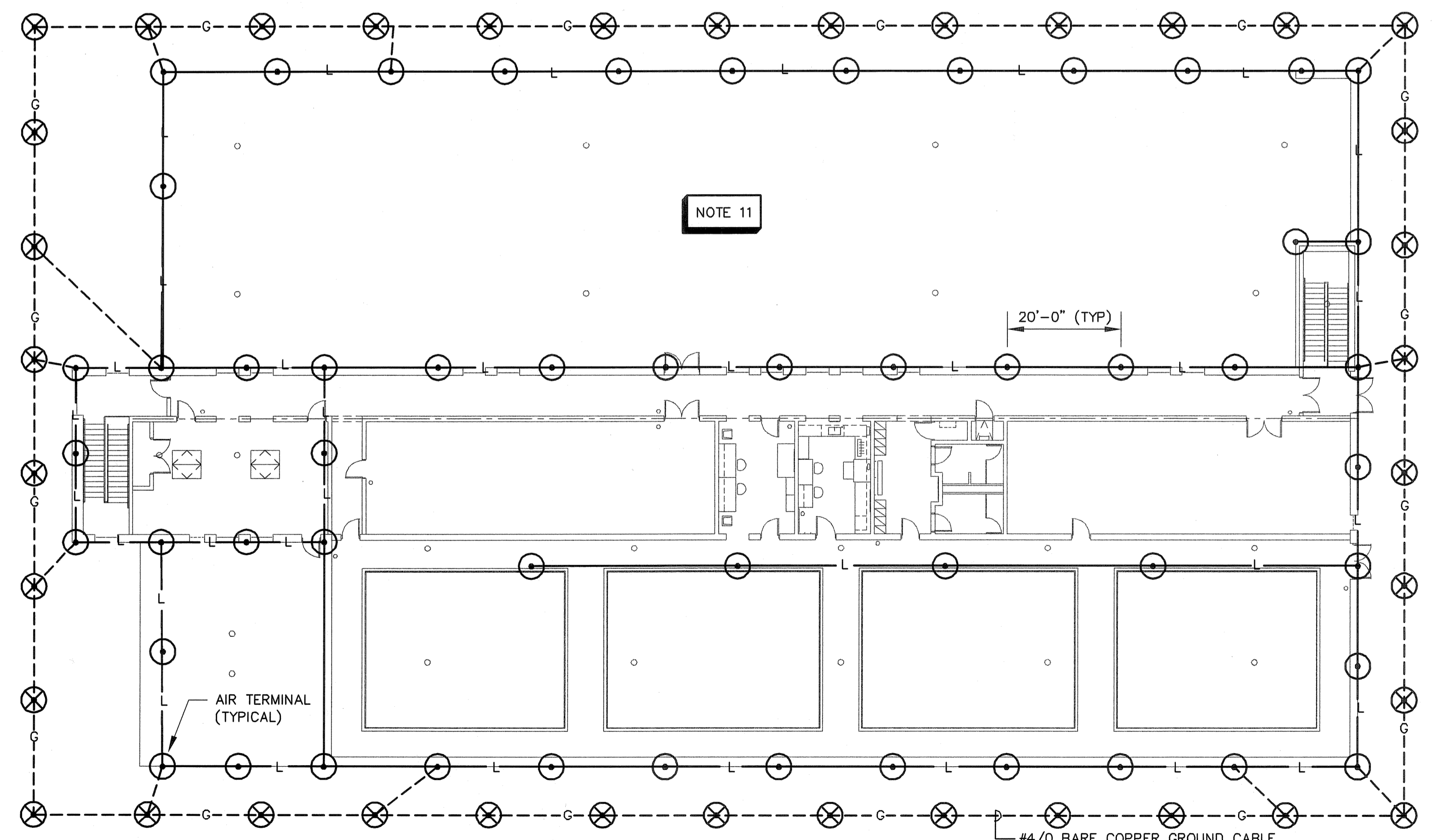
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DRAWN BY DM	CONTRACT NO.
CHECKED BY WS	DATE OCTOBER 31, 2008

EARTH TECH
 AS-BUILT FILE
 JULY 2008

E-27
 SHEET OF



GROUNDING PLAN
SCALE: 1/16" = 1'-0"



LIGHTNING PROTECTION PLAN
SCALE: 1/16" = 1'-0"

- NOTES:**
1. FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS SEE DRAWING E-1.
 2. LIGHTNING PROTECTION SYSTEM TO CONFORM TO REQUIREMENTS OF UNDERWRITER'S LABORATORIES UL96 AND UL96A.
 3. CONTRACTOR TO CONFIRM COMPATIBILITY OF LIGHTNING PROTECTION SYSTEM COMPONENTS WITH BUILDING MATERIALS FOR PREVENTION OF GALVANIC REACTION AND/OR CHEMICAL REACTION BETWEEN THEM.
 4. ALL TERMINALS SHALL BE 1/2" DIA. BY 24" LONG COPPER.
 5. ALL ADHESIVE AIR TERMINALS SHALL BE SECURED WITH AN ADHESIVE COMPOUND OR PITCH.
 6. ACTUAL JOB SIGHT CONDITIONS MAY REQUIRE MINOR ALTERATIONS IN AIR TERMINAL AND GROUND ROD LOCATION.
 7. NO BEND OF A CONDUCTOR SHALL FORM AN ANGLE OF MORE THAN 90° NOR SHALL HAVE A RADIUS OF BEND LESS THAN 8 INCHES.
 8. LIGHTNING CONDUCTORS EXPOSED TO MECHANICAL DAMAGE SHALL BE COVERED WITH SCHEDULE 80 PVC.
 9. AIR TERMINALS SHALL BE PLACED 20'-0" MAXIMUM SPACING AROUND THE ROOF PERIMETER OR ALONG THE ROOF RIDGE AND WITHIN 2'-0" OF OUTSIDE CORNER EDGE.
 10. MIDROOF AIR TERMINALS SHALL BE PLACED 50'-0" MAXIMUM SPACING.
 11. BOND TO METAL BODIES OF CONDUCTANCE WITHIN SUCH AS EXHAUST FANS, ROOF VENTS, HVAC UNITS, LADDERS, RAILINGS, METAL STACKS AND LARGE METAL BODIES WHOSE HEIGHT EXCEEDS THAT OF AIR TERMINAL IN USE. UNLESS PROTECTED BY HIGHER ROOF ELEVATIONS PER UL96A CODE. ANY METALLIC OBJECT EXCEEDING THE HEIGHT OF THE AIR TERMINAL SHALL ALSO BE EQUIPPED WITH ITS OWN AIR TERMINAL GIVEN THAT METAL THICKNESS OF THE OBJECT IS LESS THAN 3/16".
 12. SIZE DOWN CONDUCTORS PER REQUIREMENTS OF UL, ANSI AND NFPA LATEST REGULATIONS.
 13. ALL LIGHTNING PROTECTION SYSTEM CONDUCTORS SHALL BE COPPER EXCEPT WHERE IN CONTACT WITH ALUMINUM BUILDING MATERIALS, ALUMINUM CONDUCTORS SIZED ACCORDINGLY, MAY BE USED. ENSURE NO DISSIMILAR METAL CONTACT OCCURS.

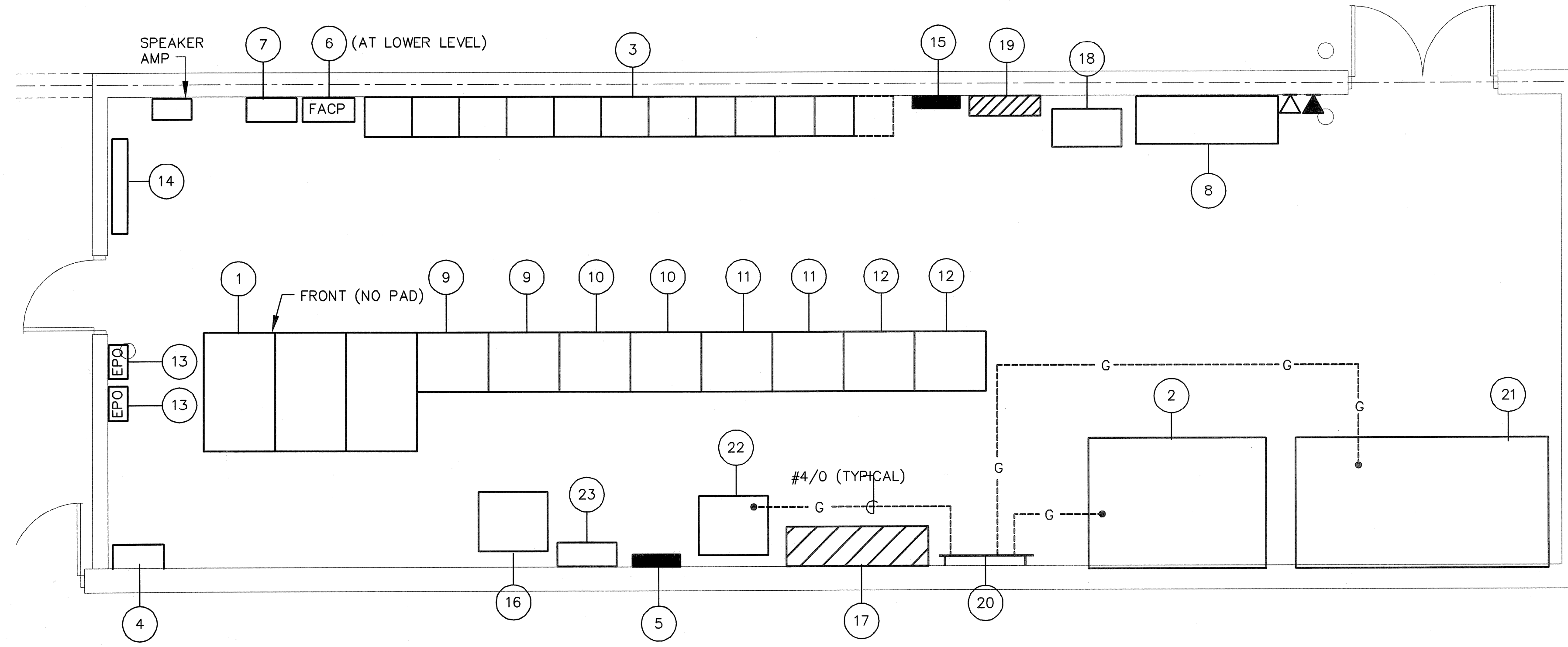
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2	10/31/06	DM	ISSUED FOR REF POSTED SET
1	04/14/05	DM	REVISED AS NOTED
0	04/14/05	DM	ISSUED FOR CONSTRUCTION
	02/27/05	DM	D. ANTHONY

ROBERT H. SHELDON
No. 4103
[Signature]

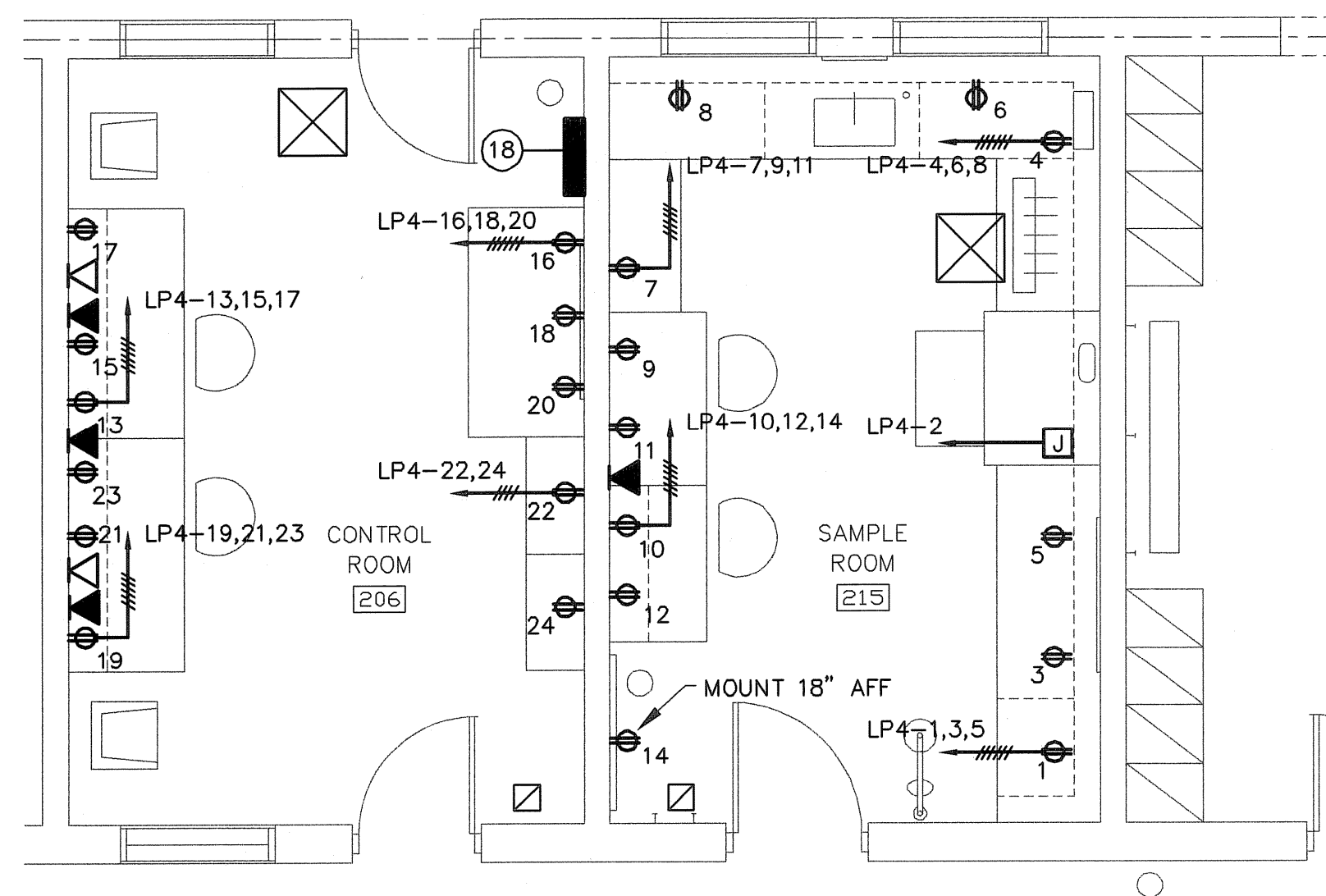
PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
BUILDING GROUNDING AND LIGHTNING PROTECTION PLAN

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CHECKED BY	WS	DATE	OCTOBER 31, 2006

EARTH TECH
AS-BUILT FILE
JULY 2008



UPPER LEVEL - ELEVATION 70.50'
ELECTRICAL ROOM PART PLAN
SCALE: 1/4" = 1'-0"



UPPER LEVEL - ELEVATION 70.50'
SAMPLE/CONTROL ROOM PART PLAN
SCALE: 1/4" = 1'-0"

EQUIPMENT LEGEND

- 1 4160V SWITCHGEAR, MV-MCC1
- 2 1000KVA, 4160/480V, 3-PHASE TRANSFORMER WITH CONCRETE PAD
- 3 MOTOR CONTROL CENTER MCC1 WITH CONCRETE PAD
- 4 LIGHTING CONTROL PANEL "LCP"
- 5 LIGHTING PANEL LP1
- 6 FIRE ALARM CONTROL PANEL (FACP)
- 7 SECURITY SYSTEM CONTROL PANEL (ACSSP)
- 8 INSTRUMENTATION CONTROL PANEL "RTCP"
- 9 5KV MOTOR STARTER NO.1
- 10 5KV MOTOR STARTER NO.2
- 11 5KV MOTOR STARTER NO.3
- 12 5KV MOTOR STARTER NO.4
- 13 EMERGENCY PUSH BUTTONS-EACH GENERATOR SYSTEM
- 14 4' X 8" X 5/8" PLYWOOD WITH TELEPHONE CABINET
- 15 LIGHTING PANEL LP2
- 16 150KVA 480V-120/208V LP1 TRANSFORMER WITH CONCRETE PAD
- 17 600A 480 VOLT DISTRIBUTION PANEL DP1
- 18 45KVA, 480-480/277V TRANSFORMER TO PP1 WITH CONCRETE PAD
- 19 480 VOLT PANELBOARD PP1
- 20 GROUND BUS
- 21 5KV POWER FACTOR CORRECTION CAPACITORS WITH CONCRETE PAD
- 22 150KVA, 480-480/277V TRANSFORMER TO PP3 WITH CONCRETE PAD
- 23 400A FUSED DISCONNECT SWITCH FOR 150 KVA TRANSFORMER PP3

NOTES:

1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. MOUNT RECEPTACLES WITHIN SAMPLE ROOM ABOVE COUNTER UNLESS NOTED OTHERWISE.

NO.	DATE	BY	REVISIONS
3	AS-BUILT DRAWING FILE	DM	JULY 2008
2	ISSUED FOR BRT POSTED SET	DM	10/31/06
1	REVISED AS NOTED	DM	04/14/06
0	ISSUED FOR CONSTRUCTION	DM	04/14/05
		G. AHLBORG	02/22/05

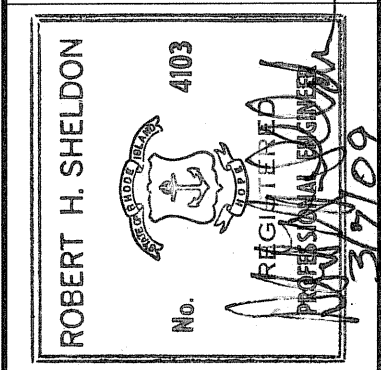
ROBERT H. SHELDON
No. 4103
Professional Engineer
State of Rhode Island
5/17/07

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
ELECTRICAL ROOM AND MISC. PART PLANS

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CHECKED BY	WS	DATE	OCTOBER 31, 2006

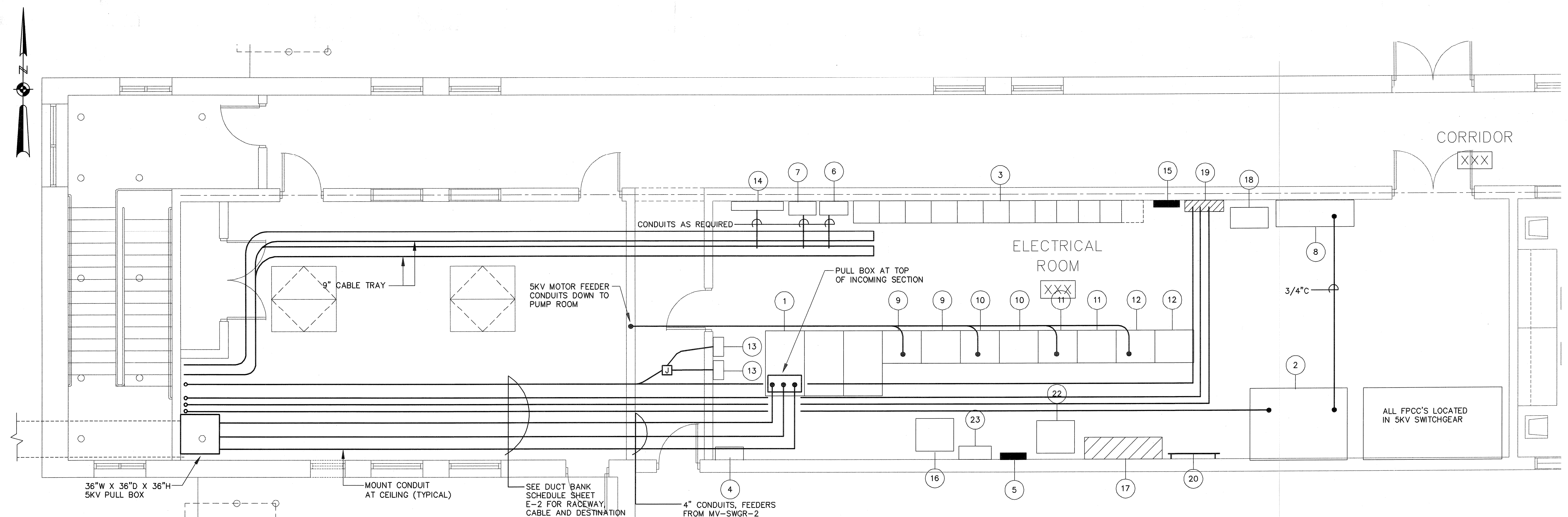
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AS-BUILT FILE
JULY 2008

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	02/22/05	DM	O. AMBERG



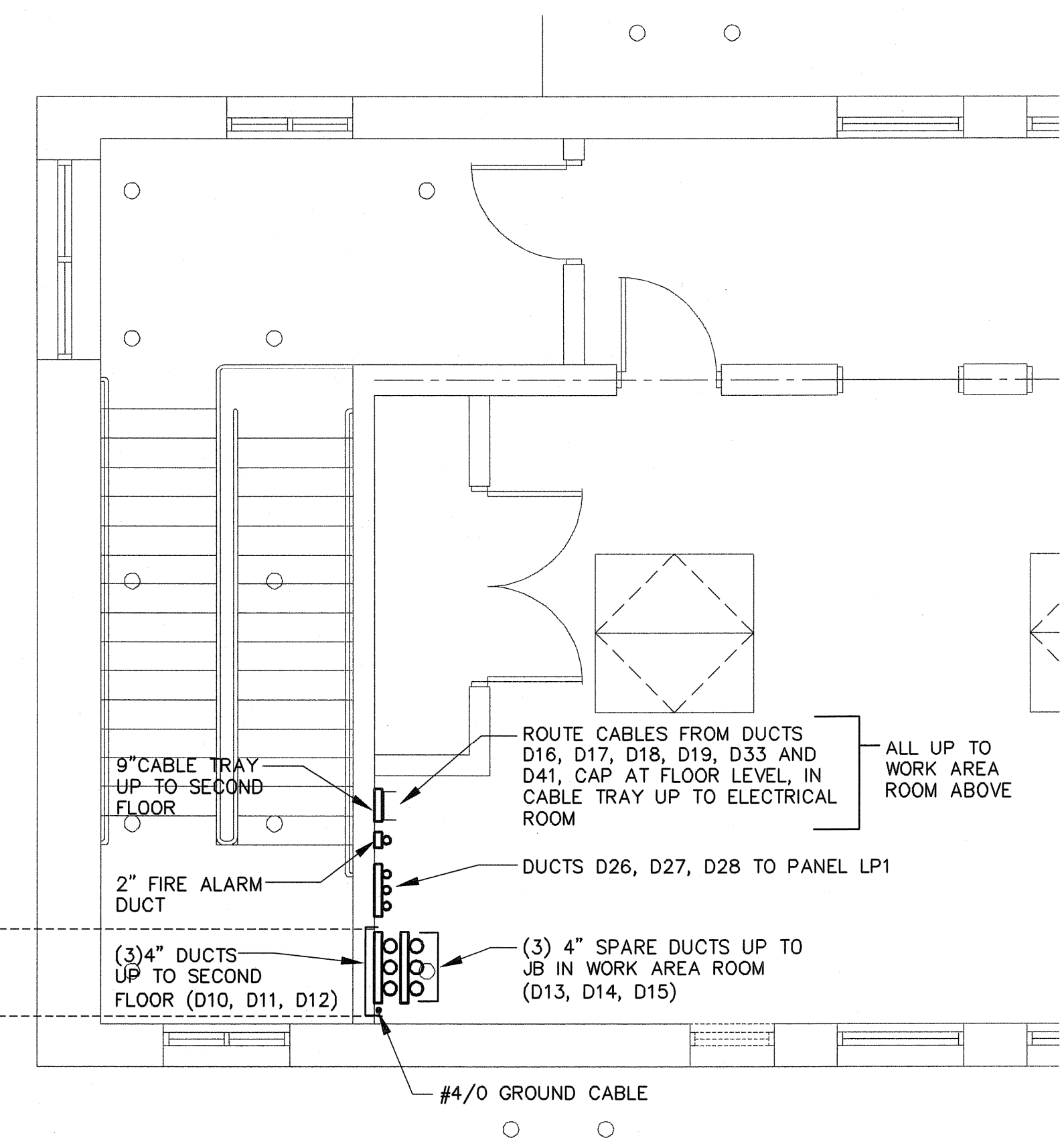
PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 8 - ELECTRICAL
MISC. PART PLANS AND SECTIONS

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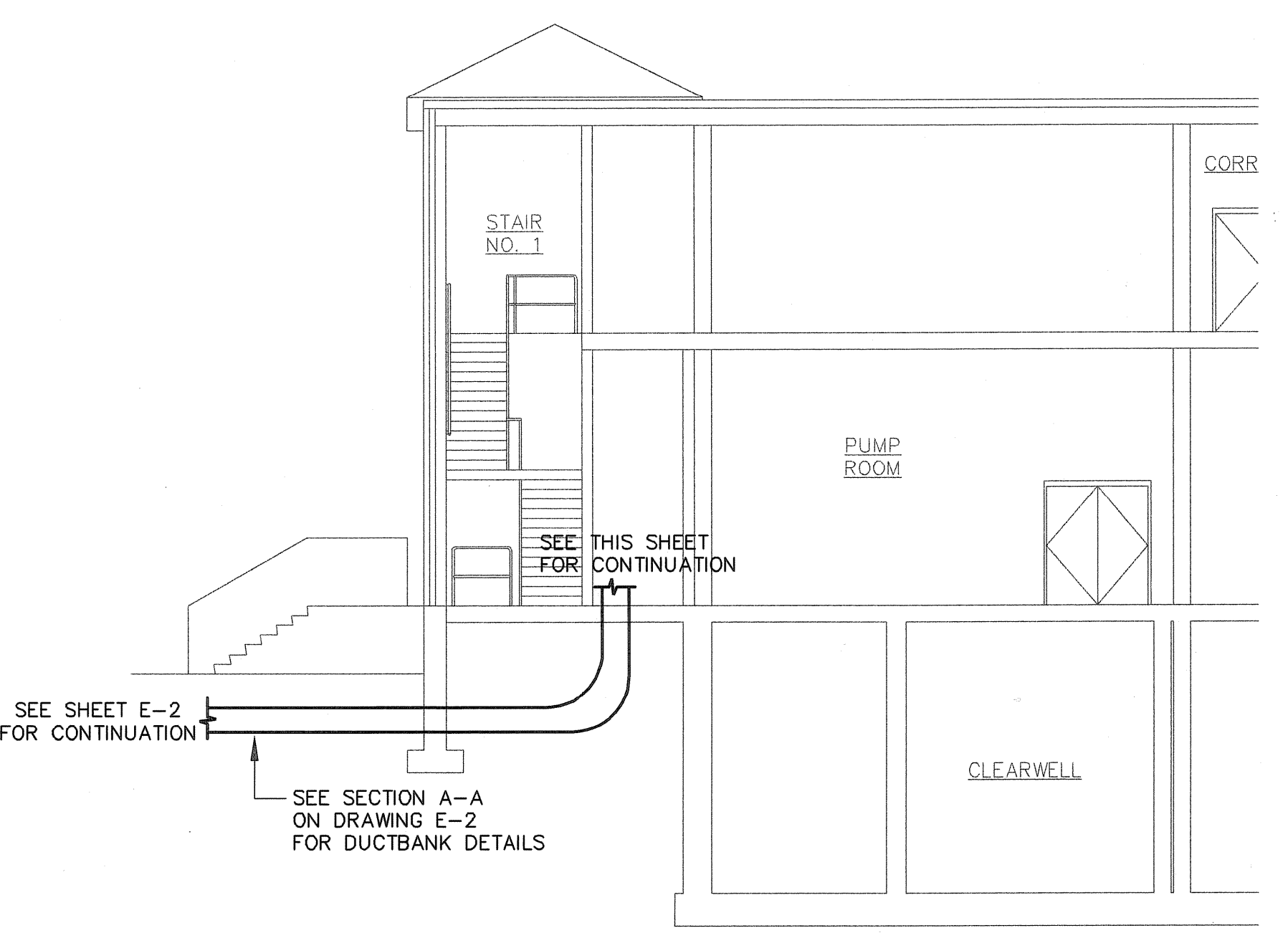


UPPER LEVEL - ELEVATION 70.50'
PART PLAN
SCALE: 1/4" = 1'-0"

- EQUIPMENT LEGEND**
- 1 4160V SWITCHGEAR, MV-MCC1
 - 2 1000KVA, 4160/480V, 3-PHASE TRANSFORMER WITH CONCRETE PAD
 - 3 MOTOR CONTROL CENTER MCC1 WITH CONCRETE PAD
 - 4 LIGHTING CONTROL PANEL "LCP"
 - 5 LIGHTING PANEL LP1
 - 6 FIRE ALARM CONTROL PANEL (FACP)
 - 7 SECURITY SYSTEM CONTROL PANEL (ACSSP)
 - 8 INSTRUMENTATION CONTROL PANEL "RTCP"
 - 9 5KV MOTOR STARTER NO. 310
 - 10 5KV MOTOR STARTER NO. 320
 - 11 5KV MOTOR STARTER NO. 330
 - 12 5KV MOTOR STARTER NO. 340
 - 13 EMERGENCY PUSH BUTTONS-EACH GENERATOR SYSTEM
 - 14 4' X 8" X 5/8" PLYWOOD WITH TELEPHONE CABINET
 - 15 LIGHTING PANEL LP2
 - 16 150KVA 480V-120/208V LP1 TRANSFORMER WITH CONCRETE PAD
 - 17 600A 480 VOLT DISTRIBUTION PANEL DP1
 - 18 45KVA, 480-480/277V TRANSFORMER TO PP1 WITH CONCRETE PAD
 - 19 480 VOLT PANELBOARD PP1
 - 20 GROUND BUS
 - 21
 - 22 150KVA, 480-480/277V TRANSFORMER TO LP1 WITH CONCRETE PAD



LOWER LEVEL - ELEVATION 54.50'
PART PLAN
SCALE: 1/4" = 1'-0"



DUCTBANK ENTRANCE
DETAIL
SCALE: 1/8" = 1'-0"

NOTES:
1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

EARTH TECH
AS-BUILT FILE
JULY 2008