MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WASTEWATER TREATMENT 2022

MOUNTAIN GREEN
SEWER IMPROVEMENT DISTRICT

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PROVIDING PROACTIVE, EFFICIENT & QUALITY SOLUTIONS FOR A SUSTAINABLE FUTURE
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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

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GENERAL ELECTRICAL REQUIREMENTS

1. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE ORDINANCES AND REGULATIONS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES. ALL WORK SHALL BE DONE IN A NEAT, PROFESSIONAL, FINISHED AND SAFE MANNER, UNDER COMPETENT SUPERVISION. INSTALL GROUNDING AND ALL ELECTRICAL WORK AS REQUIRED BY THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AS WELL AS ANY OTHER APPLICABLE CODES.

2. MATERIAL, EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS WHICH ARE PART OF THE CONTRACT DOCUMENTS FOR THIS PROJECT.

3. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND ALL OTHER FACTORS WHICH MAY AFFECT THE EXECUTION OF THIS WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.

4. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH NEMA, ANSI, U.L. OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURER'S NAMES, MODELS AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS AND BID PRICE. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED IN WRITING AND APPROVED BY THE ENGINEER BEFORE ORDERING.

5. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED UNDER THIS PROJECT AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS OR ANY OTHER CAUSES. EQUIPMENT FOUND DAMAGED OR IN OTHER THAN NEW CONDITIONS WILL BE REJECTED AS DEFECTIVE.

6. LEAVE THE SITE CLEAN, REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK.

RACEWAY AND ENCLOSURES

1. ALL CONDUCTORS SHALL BE THHN/THWN COPPER, STRANDED RATED AT 600 VOLTS UNLESS OTHERWISE NOTED. ALUMINUM WIRE WILL NOT BE ALLOWED.

2. ALL UNDERGROUND CONDUIT TO BE SCHEDULE 40 PVC. MINIMUM DEPTH 30". ALL UNDERGROUND ELBOWS SHALL BE RIGID LONG SWEEP WRAPPED WITH 3M-50 10 MIL PIPE WRAP OR FIBERGLASS, APPROVED EQUAL EXCEPT FOR COMMUNICATIONS CABLE AND CONDUIT WHEN SPECIFIED DIFFERENTLY ON THE DETAILED ELECTRICAL DRAWINGS.

3. THE MINIMUM SIZE OF CONDUIT INSTALLED BELOW GRADE SHALL BE 1" UNLESS NOTED OTHERWISE.

4. THE MINIMUM SIZE OF CONDUIT INSTALLED ABOVE GRADE SHALL BE 3/4" UNLESS NOTED OTHERWISE.

5. ALL CONDUIT FOR ALL EQUIPMENT , INCLUDING EQUIPMENT FURNISHED BY OTHERS, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

6. ALL CONDUIT, WHERE LEAVING ELECTRICAL EQUIPMENT TO GO UNDERGROUND, MUST BE ANCHORED TO THE FOUNDATION WITH STAND-OFF BRACKETS TO ALLOW FOR SUFFICIENT CLEARANCE FOR FOOTINGS AND WALL STUDS ON THE WALLS IN THE BUILDING. ALL RGS CONDUIT AND ELBOWS USED UNDERGROUND WILL BE WRAPPED WITH AN APPROVED PIPE WRAP. (TYP. FOR ALL BUILDINGS).

7. ONLY COMPRESSION TYPE CONNECTORS ALLOWED FOR WIRE SPLICES, NO TWIST-ON TYPE CONNECTORS ALLOWED, I.E. WIRENUTS, SCOTCHLOCKS, ETC.

8. ALL CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY AND THEY SHALL BE ROUTED TO SUIT FIELD CONDITIONS.

9. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST SHOP DRAWINGS BEFORE STUBBING UP CONDUITS.

10. CONNECTION BETWEEN RIGID CONDUIT AND MOTOR TERMINAL BOX SHALL BE LIQUID TIGHT FLEXIBLE CONDUIT UNLESS NOTED OTHERWISE.

11. CONDUIT TERMINATING AT SWITCHBOARD, MOTOR CONTROL CENTER, POWER AND LIGHTING PANEL, CONTROL CABINET, ETC. SHALL BE EQUIPPED WITH GROUNDING BUSHINGS.

12. INSTALL EXPANSION FITTINGS EVERY 200 FEET OF STRAIGHT RUN OF CONDUITS.

13. CONDUIT FITTINGS AND SUPPORT ARE NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL FURNISH ALL SUPPORT CHANNELS, CLAMPS, HARDWARE, ETC. MATERIAL TO BE SUITABLE FOR THE AREA IN WHICH THEY ARE INSTALLED. ENGINEER SHALL GUIDE THE CONTRACTOR IN SUPPORTING EQUIPMENT NOT DETAILED IN THE PLANS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL SLEEVES AND OPENINGS REQUIRED FOR THE PASSAGE OF ELECTRICAL RACEWAYS OR CABLES EVEN WHEN THESE OPENINGS OR SLEEVES ARE NOT SPECIFICALLY SHOWN ON THE DRAWINGS

15. PROVIDE FLEXIBLE CONDUIT WHERE RIGID CONDUIT TERMINATES AT EQUIPMENT OR DEVICES SUBJECT TO MOVEMENT FROM VIBRATION, EXPANSION, AND CONTRACTION.

16. LABEL EACH CONDUIT ON BOTH ENDS WITH CONDUIT NUMBERS AS PER SCHEDULE.

17. ALL CONDUIT PENETRATING EXTERIOR OF BUILDING WALLS MUST HAVE CONDUIT SEALS INSTALLED.

18. PVC COATED MC CABLE SHALL BE ALLOWED FOR BRANCH LIGHTING CIRCUITS IN HEADWORKS BUILDING AND PLANT OPERATIONS BUILDING.

GROUNDING

1. CONDUIT SYSTEM IS NOT ALLOWED FOR EQUIPMENT GROUNDING. INSTALL A SEPARATE GREEN EQUIPMENT GROUND WIRE IN EACH CONDUIT AND BOND TO EQUIPMENT AT BOTH ENDS. SIZE AS PER LATEST EDITION OF NEC.

2. ALL METALLIC STRUCTURES, METALLIC ENCLOSURES, AND ELECTRICAL EQUIPMENT SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED AND GROUND CONNECTIONS SHALL BE MADE TO THE PLANT GROUNDING ELECTRODE SYSTEM. THE GROUND CONDUCTOR SHALL BE SIZED PER NEC UNLESS OTHERWISE NOTED.

3. GROUNDING CONDUCTORS STUB-UPS AND INSERT LOCATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS IN FIELD. ALL GROUND GRID CONDUCTORS SHALL BE #4/0 UNLESS OTHERWISE NOTED.

FIRE PROTECTION

1. PROVIDE A COMPLETE ADDRESSABLE FIRE ALARM SYSTEM THAT HAS BEEN TESTED AND APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION.

2. FIRE ALARM SYSTEM SHALL INCLUDE A CENTRAL FIRE ALARM CONTROL PANEL, FIRE ALARM POWER SUPPLY PANELS, INITIATING DEVICES, NOTIFICATION DEVICES, WIRING, AND TESTING.

3. SUBMIT ALL ITEMS TO THE AHJ AND OBTAIN APPROVAL PRIOR TO ORDERING EQUIPMENT AND ROUGH-IN WORK.

4. FIRE ALARM SYSTEM SHALL COMPLY WITH NFPA 72 AND THE INTERNATIONAL FIRE CODE; CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE A SYSTEM APPROVED BY THE AHJ REGARDLESS OF WHAT IS SHOWN ON THE DRAWINGS.

5. WIRING SHALL BE CLASS A. DEVICES SHALL BE MOUNTED IN ACCORDANCE WITH NFPA 72. PROVIDE UNIQUE SELF ADHESIVE TYPED LABELS FOR EACH DEVICE AND PROVIDE AS-BUILT COMPUTER BASED FLOORPLAN DRAWINGS WITH EACH DEVICE PROPERLY LABELED.

6. REFER TO SPECIFICATION 13853 FOR ADDITIONAL DETAILS.

7. SYSTEM SHALL BE SUBJECT TO FINAL APPROVAL OF AHJ DURING THE FINAL ACCEPTANCE TEST.

LIGHTNING PROTECTION

1. PROVIDE A COMPLETE LIGHTNING PROTECTION SYSTEM BY VFC OR APPROVED COMPLYING WITH NFPA 780. SYSTEM TO INCLUDE: CABLING NETWORK, AIR TERMINALS, CONNECTIONS, SPLICES, BONDING, GROUND RING, GROUND RODS, AND ANY OTHER REQUIRED EQUIPMENT. ALL ROOF MOUNTED EQUIPMENT SHALL BE BONDED AND PROTECTED BY THE LIGHTNING PROTECTION SYSTEM. INSTALLER SHALL PROVIDE A UL MASTER LABEL FOR THE LIGHTNING PROTECTION SYSTEM UPON COMPLETION OF THE PROJECT.

2. REFER TO SPECIFICATION 16065SP FOR ADDITIONAL DETAILS.

3. LIGHTNING PROTECTION SHALL BE PROVIDED FOR HEADWORKS BUILDING, PLANT OPERATIONS BUILDING, AND CLARIFIERS.

MISCELLANEOUS

1. ALL SAFETY SWITCHES AND OTHER DISTRIBUTION AND CONTROL ELECTRICAL EQUIPMENT SHALL BE RATED FOR HEAVY DUTY SERVICE.

2. ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE GROUNDED BODY TYPE DEVICES.

3. THE CONTRACTOR SHALL INSTALL ALL INSTRUMENTS AND CONTROLS, INCLUDING HVAC AND CONTROL PANELS. THE CONTRACTOR SHALL OBTAIN AND REVIEW ALL INSTRUMENT, CONTROL AND HVAC DRAWINGS FOR TOTAL SCOPE OF WORK.

4. ALL PANELS, DISCONNECTS AND SWITCHGEAR ON THE OUTSIDE OF THE BUILDING SHALL BE NEMA 3R TYPE ENCLOSURES UNLESS OTHERWISE SPECIFIED. CT CABINET AND METER BASE SHALL BE OUTSIDE THE BUILDING.

5. SURGE PROTECTIVE DEVICES (SPD) SHALL BE SIZED FOR 160KA AMPS UNLESS OTHERWISE NOTED.

6. ALL CONDUIT FOR ALL EQUIPMENT, INCLUDING EQUIPMENT FURNISHED BY OTHERS, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

7. ALL CONDUIT, WHERE LEAVING ELECTRICAL EQUIPMENT TO GO UNDERGROUND, MUST BE ANCHORED TO THE FOUNDATION WITH STAND-OFF BRACKETS TO ALLOW FOR SUFFICIENT CLEARANCE FOR FOOTINGS AND WALL STUDS ON THE WALLS IN THE BUILDING. ALL RGS CONDUIT AND ELBOWS USED UNDERGROUND WILL BE WRAPPED WITH AN APPROVED PIPE WRAP. (TYP. FOR ALL BUILDINGS)

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No. 362066
J. RANDALL KNAPP
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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

ELECTRICAL NOTES

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	160 of 249	E-101

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ELECTRICAL STANDARD LEGEND

(SYMBOLS MAY OR MAY NOT BE USED IN DRAWINGS)

- DIRECT BURIED OR CONCRETE EMBEDDED CONDUIT
- CONDUIT RUN EXPOSED
- PROCESS FLOW
- PNEUMATIC SIGNAL
- ELECTRICAL SIGNAL
- PANEL OR ENCLOSURE
- ???KW G XXXA — STAND–BY GENERATOR ??? DENOTES SIZE
- GENERATOR MAIN BREAKER XXX DENOTES BREAKER SIZE
- WP — WALL PACK FIXTURE. MOUNTING HEIGHT AS INDICATED IN DRAWINGS
- FL — FLOOD LIGHT 7'–2" ABOVE FLOOR
- EXIT — EMERGENCY EXIT SIGN 7'–2" ABOVE FLOOR
- EM — EMERGENCY LIGHTING PACK 7'–2" ABOVE FLOOR
- HIGH/LOW BAY LED FIXTURE AS INDICATED IN DRAWINGS AND EQUIPMENT SCHEDULE
- 1' X 4' LED FIXTURE AS INDICATED IN DRAWINGS AND EQUIPMENT SCHEDULE
- G — INDICATOR LAMP – LETTER INDICATES COLOR
- R — FLASHING BEACON – LETTER INDICATES COLOR
- MS — MOTION SENSOR
- EXHAUST FAN
- OTHER LIGHT FIXTURE AS INDICATED IN DRAWINGS.
- AUDIBLE ALARM OR HORN
- JB — UNDERGROUND JUNCTION/PULLBOX – SIZE 5 UNLESS OTHERWISE INDICATED
- J — STEEL JUNCTION/PULLBOX
- E — ELECTRIC MANHOLE
- XX — FUSE; XX – DENOTES AMPERAGE
- GFCI — 120 V GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE
- WP — 120 V DUPLEX RECEPTACLE, WP (WEATHERPROOF)

- 240 V RECEPTACLE
- DISCONNECT SWITCH
- 20A / 3P — CIRCUIT BREAKER – UPPER NUMBER INDICATES AMP TRIP RATING – LOWER NUMBER INDICATES POLES
- MOTOR OVERLOAD
- EQUIPMENT GROUND
- $ — LIGHT SWITCH, SINGLE POLE, MOUNT 4'–6" ABOVE FLOOR ON BUILDING WALL
- $WP — LIGHT SWITCH, SINGLE POINT MOUNT 4'–6" ABOVE FLOOR ON BUILDING WALL, WEATHER PROOF
- R — RELAY
- TR1 — TIMING RELAY
- TDR — TIMING DELAY RELAY
- CR — CONTROL RELAY COIL
- M — MAGNETIC RELAY
- MOMENTARY PUSH–BUTTON SWITCH
- OFF / HAND / AUTO — HAND–OFF–AUTO SELECTOR SWITCH
- NORMALLY CLOSED PUSHBUTTON
- NORMALLY OPEN PUSHBUTTON
- RTM — RUNNING TIME METER
- OR — MOTOR STARTER – NUMBER INDICATES SIZE
- NORMALLY CLOSED CONTACTS
- NORMALLY OPEN CONTACTS
- CONTACTOR OR STARTER, NUMBER DENOTES NEMA SIZE
- 10 — MOTOR – NUMBER INDICATES HORSEPOWER RATING

- FM — FLOW METER
- ETM — ELAPSED TIME METER
- LIMIT SWITCH
- INSTRUMENT TRANSFORMER
- CT — CURRENT TRANSFORMER
- POWER TRANSFORMER
- T — THERMOSTAT
- G.F.I. — GROUND FAULT INTERRUPTER
- AUXILIARY CONTACT
- INTERLOCK
- PUMP
- S OR S — SOLENOID VALVE
- VALVE WITH MANUAL OPERATOR
- M — ELECTRIC MOTOR OPERATED VALVE (MODULATING OR NON–MODULATING)
- M — MOTOR OPERATED VALVE WITH LIMIT SWITCH ASSEMBLY
- I — COMPUTER/CONTROL INPUT
- O — COMPUTER/CONTROL OUTPUT
- LP1–XX — CIRCUIT LABEL: LP1 – PANEL NAME, XX – CIRCUIT NUMBER
- EXPLOSION PROOF SEAL OFF
- XYYYY — CONDUIT IDENTIFICATION, REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR QUANTITY AND FILL: X = CONDUIT TYPE (P–POWER, C–CONTROL, F–FIBER OPTIC CABLE, X–OTHER); YYYY = ID
- --- — OTHER SYMBOLS AS SHOWN ON DRAWINGS

GENERAL ELECTRICAL ABBREVIATIONS

A	AMPS	CU	COPPER MATERIAL	IMC	INTER. METAL. CONDUIT	NO	NORMALLY OPEN	SBJ	SYSTEM BONDING JUMPER
AFC	AVAILABLE FAULT CURRENT	DED	DEDICATED	IG	ISOLATED GROUND	OL	MOTOR OVERLOAD	SCA	SHORT CIRCUIT AMPERES
AFF	ABOVE FINISHED FLOOR	DFA	DROP FROM ABOVE	INST	INSTRUMENT	XP	LOCAL SWITCHING	SPC	SPARE CONDUIT
AFG	ABOVE FINISHED GRADE	EC	ELECTRICAL CONTRACTOR	KCMIL	1000 CIRCULAR MILLS (MCM)	PC	PLUMBING CONTRACTOR	SPD	SURGE PROTECTIVE DEVICE
AIC	AMPS INTERR. CAPACITY	EF	FXHAUST FAN	LCP	LIGHTING CONTROL PANEL	PCP	PUMP CONTROL PANEL	SW	SWITCH
ATS	AUTOMATIC TRANSFER SW.	EM	EMER./EGRESS BATTERY	LFMC	LIQUID–TIGHT FLEX. METAL. C	POC	POINT OF CONNECTION	T	TRANSMITTER
AWG	AMERICAN WIRE GUAGE	EMT	ELEC. METALLIC TUBING	LFNC	LIQUID–TIGHT FLEX.	POS	POINT OF SALE	TC	TEMP. CONTROL
BC	BARE COPPER	ENT	ELEC. NON–METAL. TUBING	MC	NON–METAL. CONDUIT	PLC	PROGRAMMABLE LOGIC CONTROLLER	TSP	TWISTED SHIELDED PAIR
BFC	BELOW FINISHED CEILING	ER	EXISTING TO BE RELOCATED	MC	MECHANICAL CONTRACTOR			UG	UNDERGROUND
BFG	BELOW FINISHED GRADE	EX	EXISTING TO REMAIN	MCA	MINIMUM CIRCUIT AMPS	R	RECEIVER	UNO	UNLESS NOTED OTHERWISE
C	CONDUIT	FMC	FLEXIBLE METAL. CONDUIT	MCP	MOTOR CIRCUIT PROTECTOR	RM	ROOF MOUNTED	VFD	VARIABLE FREQUENCY DRIVE
CB	CIRCUIT BREAKER	GC	GENERAL CONTRACTOR	MTU	MASTER TERMINAL UNIT	RMC	RIGID METALLIC CONDUIT	WP	WEATHERPROOF / NEMA 3R
CND	CONDUIT	GEC	GRND. ELEC. COND. AT SES	N1	NEMA 1	RNC	RIGID NON–METAL. CONDUIT	XP	EXPLOSION PROOF
CO	CONDUIT ONLY	GFCI	GRND. FLT. CURR. INTERR.	NC	NORMALLY CLOSED	RTU	REMOTE TERMINAL UNIT	XR	EXISTING TO BE REMOVED
CT	CURRENT TRANSDUCER	GND	GROUND	NL	NIGHT LIGHT. BYPASS	RVSS	REDUCED VOLTAGE	–	–
CTRL	CONTROL	HMI	HUMAN MACHINE INTERFACE	NO	NORMALLY OPEN	SBJ	SOFT START	–	–

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

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ELECTRICAL LEGEND AND SYMBOLS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	161 of 249	E-102

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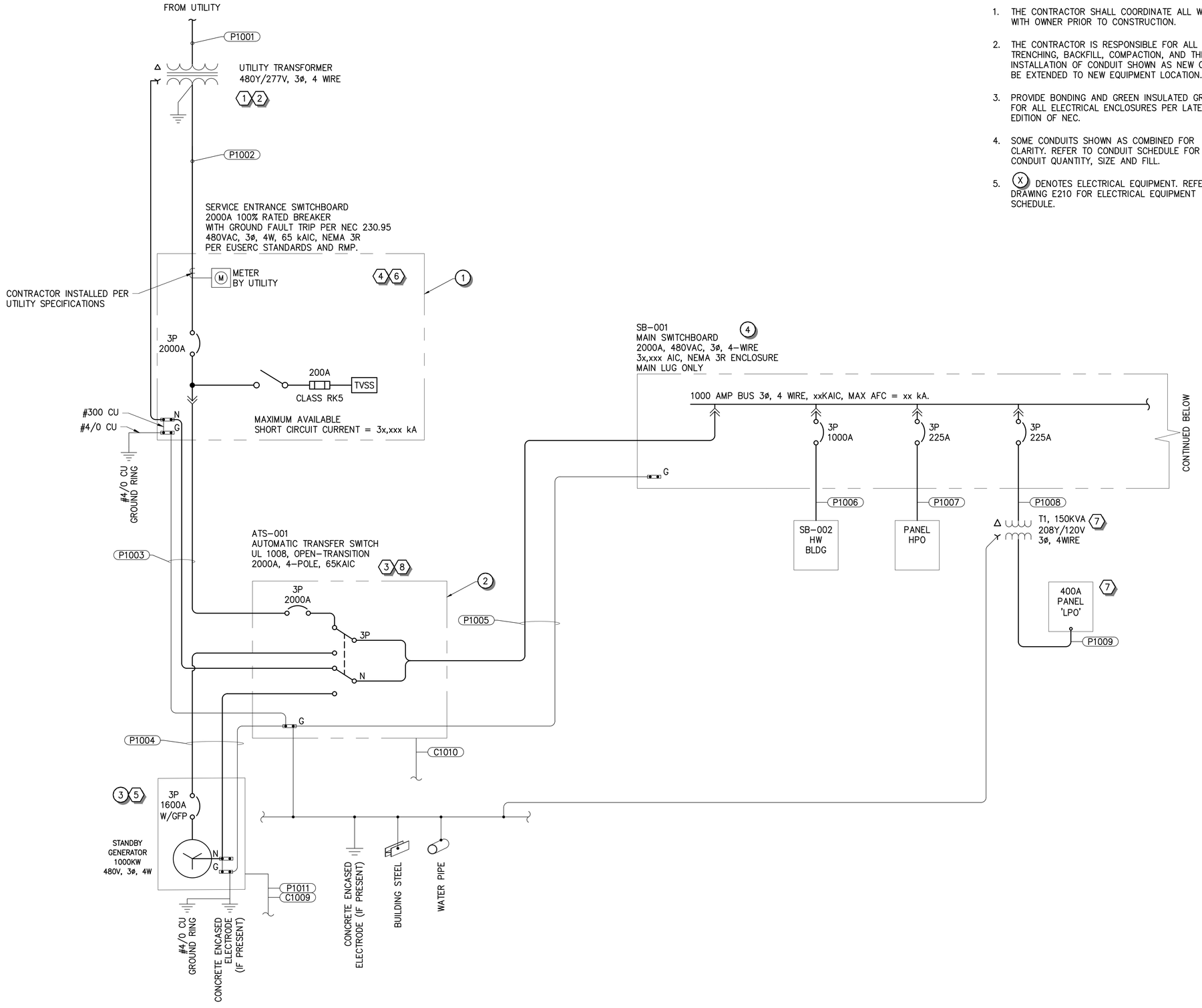

SHEET NOTES:

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATION.
3. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.

KEY NOTES

1. ALL SERVICE ENTRANCE WORK SHALL BE COORDIANTED WITH OWNER AND ROCKY MOUNTAIN POWER (RMP), PRIOR TO CONSTRUCTION. SERVICE ENTRANCE WORK SHALL BE PER UTILITY REQUIREMENTS.
2. TRANSFORMER BY UTILITY, PAD BY CONTRACTOR PER UTILITY STANDARDS. COORDINATE WITH UTILITY FOR DIMENSIONS AND CONDUIT STUB UP LOCATIONS.
3. PROVIDE AND INSTALL AUTOMATIC TRANSFER SWITCH (ATS). ATS SHALL BE UL 1008 LISTED, OPEN-TRANSITION, AND CONFIGURED AS SHOWN IN DRAWING.
4. PROVIDE SIGN AT METERING SWITCHBOARD INDICATING TYPE AND LOCATION OF STANDBY GENERATOR.
5. GENERATOR PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR. CONTRACTOR TO PROVIDE AND INSTALL CONCRETE PAD PER MANUFACTURER'S RECOMMENDATIONS.
6. PROVIDE LABELS INDICATING ARC FLASH HAZARD PER NEC 110.16, AND AVAILABLE FAULT CURRENT PER NEC 110.24
7. DO NOT BOND NEUTRAL TO GROUND IN THE PANELS. BONDING TO OCCUR AT TRANSFORMER T1.
8. COORDINATE WITH MANUFACTURER TO REMOVE N-G LINK AND SERVICE ENTRANCE LABELLING. PROVIDE PLACARD INDICATING LOCATION OF N-G BOND IS AT THE METERING SWITCHBOARD.

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ELECTRICAL ONE-LINE DIAGRAM

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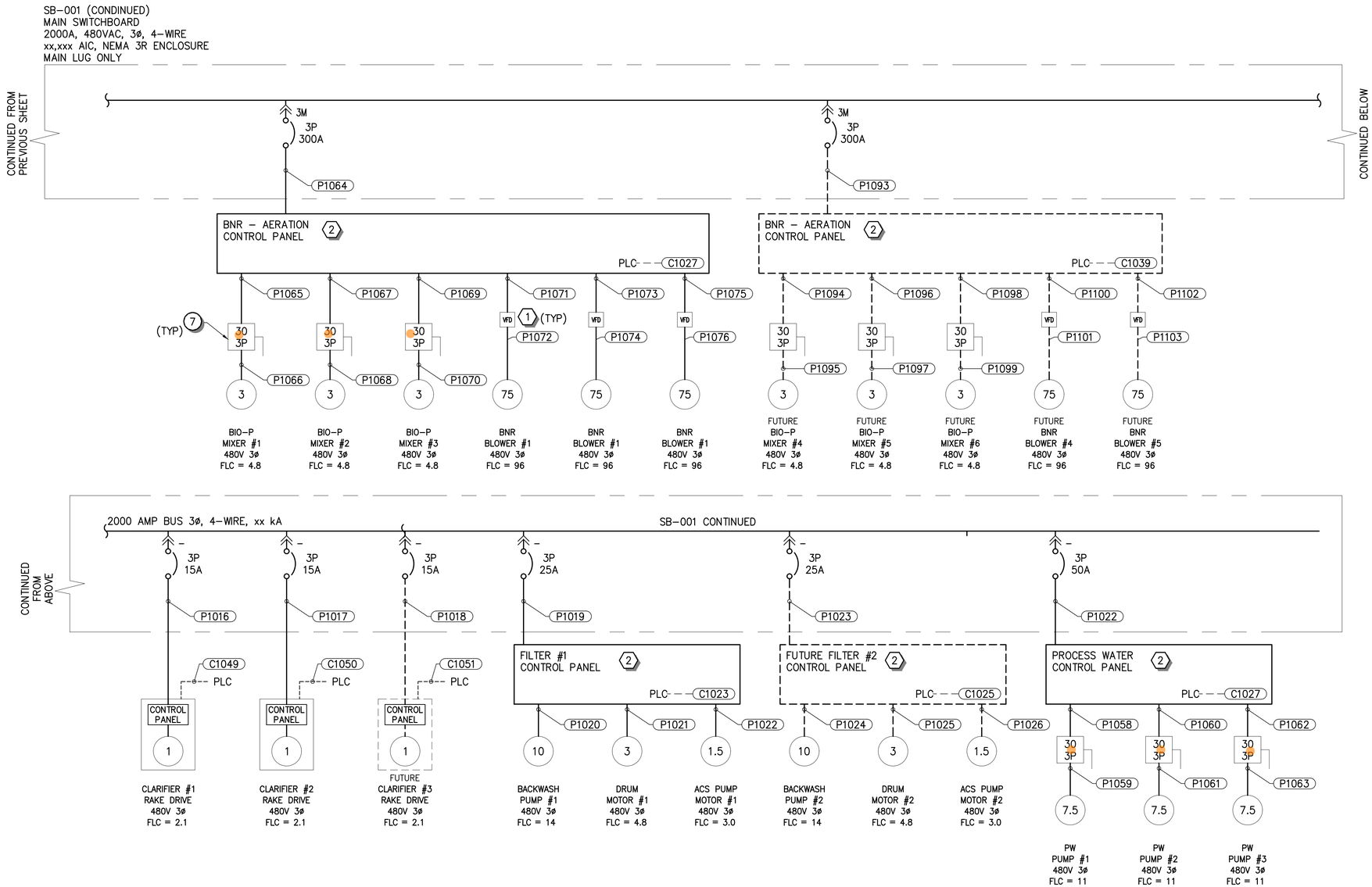

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2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, COMPACTION, AND THE INSTALLATION OF CONDUIT SHOWN AS NEW OR TO BE EXTENDED TO NEW EQUIPMENT LOCATION.
3. PROVIDE BONDING AND GREEN INSULATED GROUND FOR ALL ELECTRICAL ENCLOSURES PER LATEST EDITION OF NEC.
4. SOME CONDUITS SHOWN AS COMBINED FOR CLARITY. REFER TO CONDUIT SCHEDULE FOR CONDUIT QUANTITY, SIZE AND FILL.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.

KEY NOTES

1. VFDs BY SUPPLIER, WIRING BY CONTRACTOR. TYPICAL OF BNR BLOWERS. COORDINATE WITH CONDUIT SCHEDULE AND VENDOR DRAWINGS FOR CONNECTION DETAILS.
2. CONTROL PANEL BY EQUIPMENT VENDOR, INSTALLED BY CONTRACTOR.

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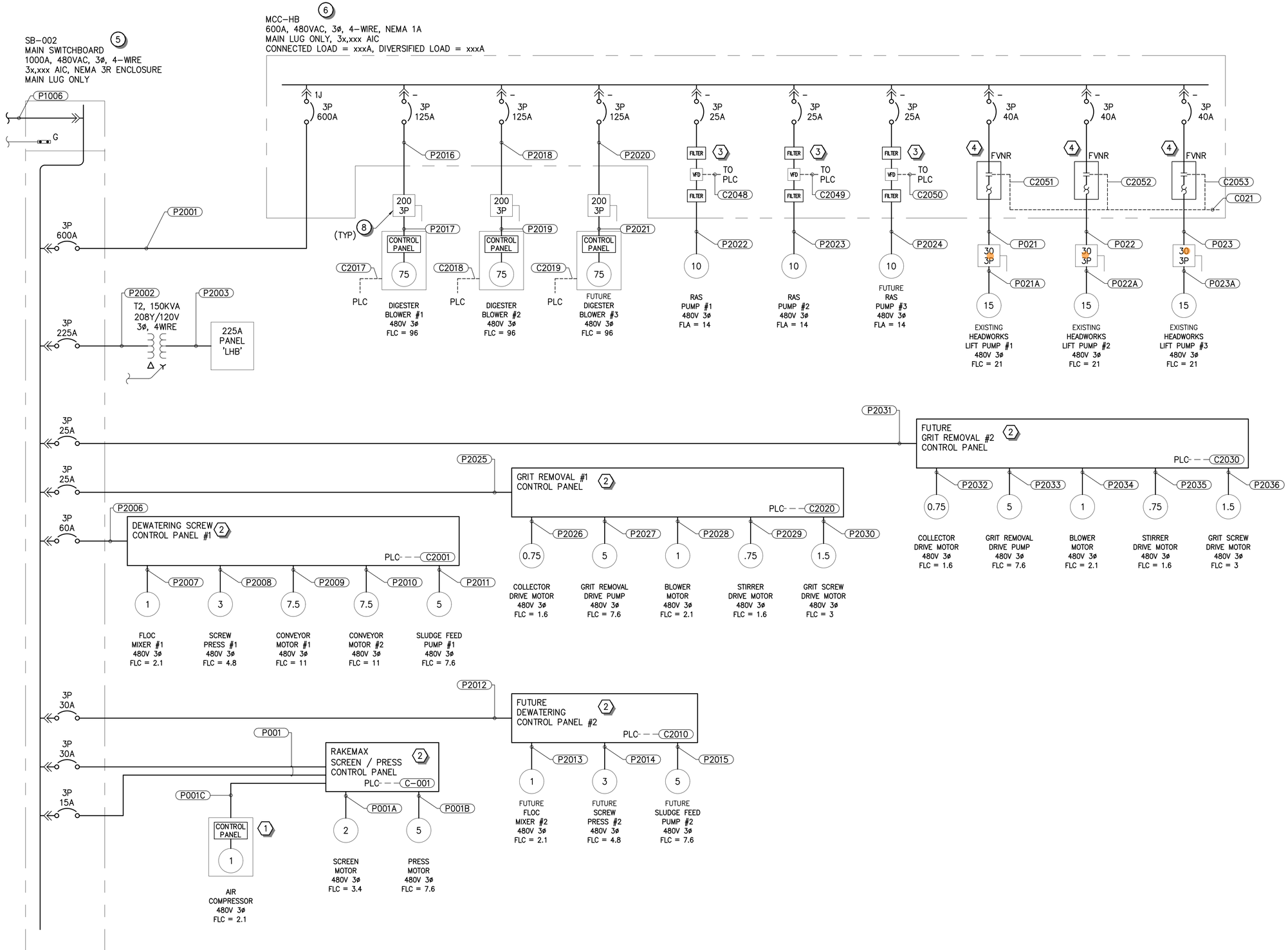

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KEY NOTES

1. AIR COMPRESSOR REQUIREMENTS TO BE DETERMINED. COORDINATE WITH ENGINEER PRIOR TO CONSTRUCTION FOR ADDITIONAL REQUIREMENTS.
2. CONTROL PANEL BY EQUIPMENT VENDOR, INSTALLED BY CONTRACTOR.
3. VFD TO BE INSTALLED IN MCC. MOTOR CONTROLS SHALL INCLUDE: HOA SWITCH, SPEED POT, DISCRETE INPUTS FOR START/STOP, DISCRETE OUTPUTS FOR RUN STATUS, FAILURE ALARM, RUN STATUS, VFD ALARM, VFD FAULT, 4-20mA INPUT FOR SPEED SETTING, 4-20mA OUTPUT FOR SPEED REFERENCE, ETHERNET PORT FOR CONNECTION TO SCADA SYSTEM
4. FVNR STARTER TO BE INSTALLED IN MCC. MOTOR CONTROLS SHALL INCLUDE: HOA SWITCH, DISCRETE INPUTS FOR START/STOP, DISCRETE OUTPUT FOR HAND, RUNNING, OVERLOAD ALARM, HI TEMP, MOISTURE, ETHERNET PORT FOR FUTURE CONNECTION TO SCADA SYSTEM.

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CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		MIN. CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	REMARKS OR REFERENCE DRAWING
		FROM	TO	QTY	SIZE	(QTY) & SIZE	GND		
PLANT OPERATIONS BUILDING									
P1001	UTILITY FEED	EXISTING POWER POLE	UTILITY TRANSFORMER	1	6"			12470	CONDUIT ONLY. CONDUCTOR BY UTILITY. COORDINATE REQUIREMENTS.
P1002	SERVICE ENTRANCE	UTILITY TRANSFORMER	SERVICE ENTRANCE SWITCHBOARD	5	4"	(4) #600 kcmil	#3/0	480	
P1003	UTILITY TO ATS	SERVICE ENTRANCE SWITCHBOARD	ATS-001	5	4"	(4) #600 kcmil	#3/0	480	
P1004	GENERATOR POWER	STANDBY GENERATOR	ATS-001	4	3"	(4) #400 kcmil	#3/0	480	
P1005	SERVICE TO MAIN SWITCHBOARD	ATS-001	SB-001	5	4"	(4) #600 kcmil	#3/0	480	
P1006	FEEDER TO SWITCHBOARD SB-002	SB-001	SB-002	4	2-1/2"	(4) #250 AWG	#2/0	480	SB-002 IN HW BUILDING
P1007	FEEDER TO PANEL HPO	SB-001	PANEL HPO	2	2"	(4) #3/0 AWG	#3	480	
P1008	FEEDER TO TRANSFORMER T1	SB-001	XFMR T1	1	2"	(3) #4/0 AWG	#4	480	
P1009	FEEDER TO PANEL LPO	XFMR T1	PANEL LPO	2	2"	(4) #3/0 AWG	#2	480	
P1010									
P1011	GENERATOR ACCESSORY POWER	LPO-28,30,32	GENERATOR	1	1"	(4) #10 AWG	#10	120	
P1012	POWER TO PLANT RTU-PB	LPO-60,62	PLANT SCADA RTU	1	1"	(4) #10 AWG	#10	120	
P1013	CLARIFIER #1 LIGHTING	LPO-57	CLARIFIER #1 AREA LIGHTING	1	1"	(2) #12 AWG	#12	120	
P1014	CLARIFIER #2 LIGHTING	LPO-59	CLARIFIER #2 AREA LIGHTING	1	1"	(2) #12 AWG	#12	120	
P1015	CLARIFIER #3 LIGHTING (FUTURE)	LPO-61	CLARIFIER #3 AREA LIGHTING	1	1"			120	
P1016	POWER TO CLARIFIER #1 CONTROL PANEL	SB-001	CLARIFIER #1 CONTROL PANEL	1	1"	(3) #12 AWG	#12	480	
P1016A	POWER TO CLARIFIER #1 RAKE DRIVE	CLARIFIER #1 CONTROL PANEL	CLARIFIER #1 RAKE DRIVE	1	1"	(6) #12 AWG	#12	480	POWER, TORQUE SENSORS
P1017	POWER TO CLARIFIER #2 CONTROL PANEL	SB-001	CLARIFIER #2 CONTROL PANEL	1	1"	(3) #12 AWG	#12	480	
P1017A	POWER TO CLARIFIER #1 RAKE DRIVE	CLARIFIER #2 CONTROL PANEL	CLARIFIER #2 RAKE DRIVE	1	1"	(6) #12 AWG	#12	480	POWER, TORQUE SENSORS
P1018	POWER TO CLARIFIER #3 (FUTURE)	SB-001	CLARIFER #3	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1018A	POWER TO CLARIFIER #3 RAKE DRIVE	CLARIFIER #3 CONTROL PANEL	CLARIFIER #3 RAKE DRIVE	1	1"	(6) #12 AWG	#12	480	POWER, TORQUE SENSORS
P1019	FEEDER TO FILTER CONTROL PANEL #1	SB-001	FILTER CONTROL PANEL #1	1	1-1/4"	(3) #1 AWG	#6	480	
P1020	POWER TO BACKWASH PUMP 1	FILTER CONTROL PANEL #1	BACKWASH PUMP 1	1	3/4"	(3) #10 AWG	#10	480	
P1021	DRUM MOTOR 1	FILTER CONTROL PANEL #1	DRUM MOTOR 1	1	3/4"	(3) #12 AWG	#12	480	
P1022	ACS PUMP MOTOR 1	FILTER CONTROL PANEL #1	ACS PUMP MOTOR 1	1	3/4"	(3) #12 AWG	#12	480	
P1023	FEEDER TO FILTER CONTROL PANEL #2 (FUTURE)	SB-001	FILTER CONTROL PANEL #2	1	1-1/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1024	POWER TO BACKWASH PUMP 2	FILTER CONTROL PANEL #2	BACKWASH PUMP 2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1025	DRUM MOTOR 2	FILTER CONTROL PANEL #2	DRUM MOTOR 2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1026	ACS PUMP MOTOR 2	FILTER CONTROL PANEL #2	ACS PUMP MOTOR 2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1027	POWER TO UV REACTOR 1 BANK 1	HPO-1,3,5	UV 1 BANK 1 DISCONNECT	1	3/4"	(4) #12 AWG	#12	480	
P1028	POWER TO UV REACTOR 1 BANK 1	UV 1 BANK 1 DISCONNECT	UV 1 BANK 1	1	3/4"	(4) #12 AWG	#12	480	
P1029	POWER TO UV REACTOR 1 BANK 2	HPO-2,4,6	UV 1 BANK 2 DISCONNECT	1	3/4"	(4) #12 AWG	#12	480	
P1030	POWER TO UV REACTOR 1 BANK 2	UV 1 BANK 2 DISCONNECT	UV 1 BANK 2	1	3/4"	(4) #12 AWG	#12	480	
P1031	POWER TO UV REACTOR 1 PUMP	HPO-13,15,17	UV 1 PUMP CONTROL PANEL	1	3/4"	(4) #12 AWG	#12	480	
P1032	POWER TO UV REACTOR 1 PUMP	UV 1 PUMP CONTROL PANEL	UV 1 REACTOR	1	3/4"	(4) #12 AWG	#12	480	
P1033	UV REACTOR 1 BANK 1 CONTROL POWER	LPO-16	UV 1 BANK 1 DISCONNECT	1	3/4"	(2) #12 AWG	#12	120	
P1034	UV REACTOR 1 BANK 1 CONTROL POWER	UV 1 BANK 1 DISCONNECT	UV 1 BANK 1	1	3/4"	(2) #12 AWG	#12	120	
P1035	UV REACTOR 1 BANK 2 CONTROL POWER	LPO-56	UV 1 BANK 2 DISCONNECT	1	3/4"	(2) #12 AWG	#12	120	
P1036	UV REACTOR 1 BANK 2 CONTROL POWER	UV 1 BANK 2 DISCONNECT	UV 1 BANK 2	1	3/4"	(2) #12 AWG	#12	120	
P1037	UV REACTOR 1 HEAT EXCHANGER COOLING POWER	LPO-18	UV 1 PUMP CONTROL PANEL	1	3/4"	(2) #12 AWG	#12	120	
P1038	UV REACTOR 1 HEAT EXCHANGER COOLING POWER	UV 1 PUMP CONTROL PANEL	UV 1 BANK 2 HEAT EXCHANGER	1	3/4"	(2) #12 AWG	#12	120	
P1039	UV REACTOR 1 PUMP CONTROL	UV 1 CONTROL PANEL	UV 1 PUMP CONTROL PANEL	1	3/4"	(4) #12 AWG	#12	120	
P1040	UV REACTOR 1 CONTROL PANEL POWER	LPO-14	UV 1 CONTROL PANEL	1	3/4"	(4) #12 AWG	#12	120	
P1041	UV REACTOR 1 UPS POWER	UV 1 CONTROL PANEL	UV 1 BANK 1	1	3/4"	(2) #12 AWG	#12	120	
P1042	POWER TO UV REACTOR 2 BANK 1 (FUTURE)	HPO-7,9,11	UV 2 BANK 1 DISCONNECT	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1043	POWER TO UV REACTOR 2 BANK 1 (FUTURE)	UV 2 BANK 1 DISCONNECT	UV 2 BANK 1	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1044	POWER TO UV REACTOR 2 BANK 2 (FUTURE)	HPO-8,10,12	UV 2 BANK 2 DISCONNECT	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1045	POWER TO UV REACTOR 2 BANK 2 (FUTURE)	UV 2 BANK 2 DISCONNECT	UV 2 BANK 2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1046	POWER TO UV REACTOR 2 PUMP (FUTURE)	HPO-14,16,18	UV 2 PUMP CONTROL PANEL	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1047	POWER TO UV REACTOR 2 PUMP (FUTURE)	UV 2 PUMP CONTROL PANEL	UV 2 REACTOR	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1048	UV REACTOR 2 BANK 1 CONTROL POWER	LPO-22	UV 2 BANK 1 DISCONNECT	1	3/4"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1049	UV REACTOR 2 BANK 2 CONTROL POWER	UV 2 BANK 1 DISCONNECT	UV 2 BANK 1	1	3/4"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1050	UV REACTOR 2 BANK 2 CONTROL POWER	LPO-58	UV 2 BANK 2 DISCONNECT	1	3/4"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1051	UV REACTOR 2 BANK 2 CONTROL POWER	UV 2 BANK 2 DISCONNECT	UV 2 BANK 2	1	3/4"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1052	UV REACTOR 2 HEAT EXCHANGER COOLING POWER	LPO-24	UV 2 PUMP CONTROL PANEL	1	3/4"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1053	UV REACTOR 2 HEAT EXCHANGER COOLING POWER	UV 2 PUMP CONTROL PANEL	UV 2 BANK 2 HEAT EXCHANGER	1	3/4"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1054	UV REACTOR 2 PUMP CONTROL	UV 2 CONTROL PANEL	UV 2 PUMP CONTROL PANEL	1	3/4"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1055	UV REACTOR 2 CONTROL PANEL POWER	LPO-20	UV 2 CONTROL PANEL	1	3/4"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1056	UV REACTOR 2 UPS POWER	UV 2 CONTROL PANEL	UV 2 BANK 1	1	3/4"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1057	FEEDER TO PROCESS WATER PUMP CONTROL PANEL	SB-001	PW PUMP CONTROL PANEL	1	3/4"	(3) #8 AWG	#10	480	
P1058	POWER TO PW PUMP #1	PW PUMP CONTROL PANEL	PW PUMP #1 DISCONNECT	1	3/4"	(3) #12 AWG	#12	480	
P1059	POWER TO PW PUMP #1	PW PUMP #1 DISCONNECT	PW PUMP #1	1	3/4"	MANUF. CABLE	#12	480	INSTALL MANUFACTURER SUPPLIED CABLE
P1060	POWER TO PW PUMP #2	PW PUMP CONTROL PANEL	PW PUMP #2 DISCONNECT	1	3/4"	(3) #12 AWG	#12	480	
P1061	POWER TO PW PUMP #2	PW PUMP #2 DISCONNECT	PW PUMP #2	1	3/4"	MANUF. CABLE	#12	480	INSTALL MANUFACTURER SUPPLIED CABLE
P1062	POWER TO PW PUMP #3	PW PUMP CONTROL PANEL	PW PUMP #3 DISCONNECT	1	3/4"	(3) #12 AWG	#12	480	
P1063	POWER TO PW PUMP #3	PW PUMP #3 DISCONNECT	PW PUMP #3	1	3/4"	MANUF. CABLE	#12	480	INSTALL MANUFACTURER SUPPLIED CABLE
P1064	FEEDER TO BNR AERATION PANEL #1	SB-001	BNR AERATION PANEL #1	1	3"	(4) #350 AWG	#4	480	
P1065	POWER TO BIO-P MIXER #1	BNR AERATION PANEL #1	BIO-P MIXER #1 DISCONNECT	1	1"	(3) #12 AWG	#12	480	
P1066	POWER TO BIO-P MIXER #1	BIO-P MIXER #1 DISCONNECT	BIO-P MIXER #1	1	1"	(3) #12 AWG	#12	480	
P1067	POWER TO BIO-P MIXER #2	BNR AERATION PANEL #1	BIO-P MIXER #2 DISCONNECT	1	1"	(3) #12 AWG	#12	480	
P1068	POWER TO BIO-P MIXER #2	BIO-P MIXER #2 DISCONNECT	BIO-P MIXER #2	1	1"	(3) #12 AWG	#12	480	
P1069	POWER TO BIO-P MIXER #3	BNR AERATION PANEL #1	BIO-P MIXER #3 DISCONNECT	1	1"	(3) #12 AWG	#12	480	
P1070	POWER TO BIO-P MIXER #3	BIO-P MIXER #3 DISCONNECT	BIO-P MIXER #3	1	1"	(3) #12 AWG	#12	480	

SHEET NOTES:

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2. ROUTE CONDUIT AS NECESSARY BASED ON FIELD CONDITIONS AND TO AVOID OBSTACLES.
3. LENGTHS SHOWN IN CONDUIT SCHEDULE ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ACTUAL LENGTHS PRIOR TO CONSTRUCTION.

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER
23-Dec-2022
No. 362066
J. RANDALL KNAPP
STATE OF UTAH

SUNRISE ENGINEERING
6875 SOUTH 900 EAST
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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

CONDUIT AND CONDUCTOR SCHEDULE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	165 of 249	E-204

P:\Mountain Green\WWTP - Final Design\Electrical\dwg\Electrical One-line Diagram & Schedules.dwg Dec 23, 2022 10:42am troberts

CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	REMARKS OR REFERENCE DRAWING
		FROM	TO	QTY	SIZE	(QTY) & SIZE	GND		
P1071	POWER TO BNR BLOWER #1	BNR AERATION PANEL #1	BNR 1 BLOWER #1 VFD	1	1-1/4"	(3) #1 AWG	#6	480	
P1072	POWER TO BNR BLOWER #1	BNR 1 BLOWER #1 VFD	BNR 1 BLOWER #1	1	1-1/4"	(3) #1 AWG	#6	480	
P1073	POWER TO BNR BLOWER #2	BNR AERATION PANEL #1	BNR 1 BLOWER #2 VFD	1	1-1/4"	(3) #1 AWG	#6	480	
P1074	POWER TO BNR BLOWER #2	BNR 1 BLOWER #2 VFD	BNR 1 BLOWER #2	1	1-1/4"	(3) #1 AWG	#6	480	
P1075	POWER TO BNR BLOWER #3	BNR AERATION PANEL #3	BNR 1 BLOWER #3 VFD	1	1-1/4"	(3) #1 AWG	#6	480	
P1076	POWER TO BNR BLOWER #3	BNR 1 BLOWER #3 VFD	BNR 1 BLOWER #3	1	1-1/4"	(3) #1 AWG	#6	480	
P1077	BNR BASIN 1 DO SENSOR POWER	BNR AERATION PANEL #1	BNR 1 DO CONTROLLER	1	1"	(2) #12 AWG	#12	120	
P1078	BNR BASIN 1 AIR VALVE #1	BNR AERATION PANEL #1	BNR 1 AIR VALVE #1	1	1"	(6) #12 AWG	#12	120	
P1079	BNR BASIN 1 AIR VALVE #2	BNR AERATION PANEL #1	BNR 1 AIR VALVE #2	1	1"	(6) #12 AWG	#12	120	
P1080	BNR BASIN 1 AIR VALVE #3	BNR AERATION PANEL #1	BNR 1 AIR VALVE #3	1	1"	(6) #12 AWG	#12	120	
P1081	BNR BASIN 1 AIR VALVE #4	BNR AERATION PANEL #1	BNR 1 AIR VALVE #4	1	1"	(6) #12 AWG	#12	120	
P1082	BNR BASIN 1 AIR VALVE #5	BNR AERATION PANEL #1	BNR 1 AIR VALVE #5	1	1"	(6) #12 AWG	#12	120	
P1083	BNR BASIN 1 AIR VALVE #6	BNR AERATION PANEL #1	BNR 1 AIR VALVE #6	1	1"	(6) #12 AWG	#12	120	
P1084	BNR BASIN 1 AIR VALVE #7	BNR AERATION PANEL #1	BNR 1 AIR VALVE #7	1	1"	(6) #12 AWG	#12	120	
P1085	BNR BASIN 1 AIR VALVE #8	BNR AERATION PANEL #1	BNR 1 AIR VALVE #8	1	1"	(6) #12 AWG	#12	120	
P1086	BNR BASIN 1 AIR VALVE #9	BNR AERATION PANEL #1	BNR 1 AIR VALVE #9	1	1"	(6) #12 AWG	#12	120	
P1087	BNR BASIN 1 AIR VALVE #10	BNR AERATION PANEL #1	BNR 1 AIR VALVE #10	1	1"	(6) #12 AWG	#12	120	
P1088	BNR BASIN 1 AIR VALVE #11	BNR AERATION PANEL #1	BNR 1 AIR VALVE #11	1	1"	(6) #12 AWG	#12	120	
P1089	BNR BASIN 1 AIR VALVE #12	BNR AERATION PANEL #1	BNR 1 AIR VALVE #12	1	1"	(6) #12 AWG	#12	120	
P1090	BNR BASIN 1 AIR VALVE #13	BNR AERATION PANEL #1	BNR 1 AIR VALVE #13	1	1"	(6) #12 AWG	#12	120	
P1091	BNR BASIN 1 AIR VALVE #14	BNR AERATION PANEL #1	BNR 1 AIR VALVE #14	1	1"	(6) #12 AWG	#12	120	
P1092	BNR BASIN 1 AIR VALVE #15	BNR AERATION PANEL #1	BNR 1 AIR VALVE #15	1	1"	(6) #12 AWG	#12	120	
P1093	POWER TO BNR AERATION PANEL #2	SB-001	BNR AERATION PANEL #2	1	3"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1094	POWER TO BIO-P MIXER #4 (FUTURE)	BNR AERATION PANEL #2	BIO-P MIXER #4 DISCONNECT	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1095	POWER TO BIO-P MIXER #4 (FUTURE)	BIO-P MIXER #4 DISCONNECT	BIO-P MIXER #4	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1096	POWER TO BIO-P MIXER #5 (FUTURE)	BNR AERATION PANEL #2	BIO-P MIXER #5 DISCONNECT	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1097	POWER TO BIO-P MIXER #5 (FUTURE)	BIO-P MIXER #5 DISCONNECT	BIO-P MIXER #5	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1098	POWER TO BIO-P MIXER #6 (FUTURE)	BNR AERATION PANEL #2	BIO-P MIXER #6 DISCONNECT	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1099	POWER TO BIO-P MIXER #6 (FUTURE)	BIO-P MIXER #6 DISCONNECT	BIO-P MIXER #6	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1100	POWER TO BNR BLOWER #4 (FUTURE)	BNR AERATION PANEL #2	BNR 2 BLOWER #4 VFD	1	1-1/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1101	POWER TO BNR BLOWER #4 (FUTURE)	BNR 2 BLOWER #4 VFD	BNR 2 BLOWER #4	1	1-1/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1102	POWER TO BNR BLOWER #5 (FUTURE)	BNR AERATION PANEL #2	BNR 2 BLOWER #5 VFD	1	1-1/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1103	POWER TO BNR BLOWER #5 (FUTURE)	BNR 2 BLOWER #5 VFD	BNR 2 BLOWER #5	1	1-1/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1104	BNR BASIN 2 DO SENSOR POWER (FUTURE)	BNR AERATION PANEL #2	BNR 2 DO CONTROLLER	1	1"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1105	BNR BASIN 2 AIR VALVE #1 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #1	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1106	BNR BASIN 2 AIR VALVE #2 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #2	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1107	BNR BASIN 2 AIR VALVE #3 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #3	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1108	BNR BASIN 2 AIR VALVE #4 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #4	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1109	BNR BASIN 2 AIR VALVE #5 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #5	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1110	BNR BASIN 2 AIR VALVE #6 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #6	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1111	BNR BASIN 2 AIR VALVE #7 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #7	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1112	BNR BASIN 2 AIR VALVE #8 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #8	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1113	BNR BASIN 2 AIR VALVE #9 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #9	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1114	BNR BASIN 2 AIR VALVE #10 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #10	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1115	BNR BASIN 2 AIR VALVE #11 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #11	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1116	BNR BASIN 2 AIR VALVE #12 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #12	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1117	BNR BASIN 2 AIR VALVE #13 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #13	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1118	BNR BASIN 2 AIR VALVE #14 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #14	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1119	BNR BASIN 2 AIR VALVE #15 (FUTURE)	BNR AERATION PANEL #2	BNR 2 AIR VALVE #15	1	1"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P1120	MANHOLE MH-EFF #3 FLOW	LPO	MH-EFF #3 FLOWMETER	1	1"	(2) #12 AWG	#12	120	
P1121	BNR BASIN #1 LEVEL SENSOR POWER	LPO	BNR #1 LEVEL CONTROLLER	1	1"	(2) #12 AWG	#12	120	
P1122	BNR BASIN #2 LEVEL SENSOR POWER (FUTURE)	LPO	BNR #2 LEVEL CONTROLLER	1	1"	(2) #12 AWG	#12	120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE

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REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER
23-Dec-2022
No. 362066
J. RANDALL KNAPP
STATE OF UTAH

SUNRISE ENGINEERING
6875 SOUTH 900 EAST
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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

CONDUIT AND CONDUCTOR SCHEDULE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	166 of 249	E-205

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CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	REMARKS OR REFERENCE DRAWING
		FROM	TO	QTY	SIZE	(QTY) & SIZE	GND		
HEADWORKS BUILDING									
P2001	FEEDER TO MCC-HB	SB-002	MCC-HB	2	3"	(4) #350 kcmil	1	480	
P2002	FEEDER TO TRANSFORMER T2	SB-002	XFMR T2	1	2"	(3) #4/0 AWG	#4	480	
P2003	FEEDER TO PANEL LP2A	XFMR T2	PANEL LHB	1	2-1/2"	(4) #4/0 AWG	#4	480	
P2004	POWER TO PLANT SCADA PLC-HB	LHB	PLC-HW	1	3/4"	(4) #12 AWG	#12	120	
P2005	POLYMER SKID POWER	LHB	POLYMER SKID	1	3/4"	(2) #12 AWG	#12	120	
P2006	FEEDER TO DEWATERING CONTROL PANEL #1	MCC-HB	DEWATERING PANEL #1	1	3/4"	(3) #6 AWG	#10	480	
P2007	POWER TO FLOC MIXER #1	DEWATERING PANEL #1	FLOC MIXER #1	1	3/4"	(3) #12 AWG	#12	480	
P2008	POWER TO SCREW PRESS #1	DEWATERING PANEL #1	SCREW PRESS #1	1	3/4"	(3) #12 AWG	#12	480	
P2009	POWER TO SLUDGE FEED PUMP #1	DEWATERING PANEL #1	SLUDGE FEED PUMP #1	1	3/4"	(3) #12 AWG	#12	480	
P2010	POWER TO CONVEYOR #1	DEWATERING PANEL #1	CONVEYOR #1	1	3/4"	(3) #12 AWG	#12	480	
P2011	POWER TO CONVEYOR #2	DEWATERING PANEL #1	CONVEYOR #2	1	3/4"	(3) #12 AWG	#12	480	
P2012	FEEDER TO DEWATERING CONTROL PANEL #2 (FUTURE)	MCC-HB	DEWATERING PANEL #2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2013	POWER TO FLOC MIXER #2	DEWATERING PANEL #2	FLOC MIXER #2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2014	POWER TO SCREW PRESS #2	DEWATERING PANEL #2	SCREW PRESS #2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2015	POWER TO SLUDGE FEED PUMP #2	DEWATERING PANEL #2	SLUDGE FEED PUMP #2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2016	FEEDER TO DIGESTER BLOWER #1	MCC-HB	DIGESTER BLOWER #1 DISCONNECT	1	1-1/4"	(3) #1 AWG	#6	480	
P2017	FEEDER TO DIGESTER BLOWER #1	DIGESTER BLOWER #1 DISCONNECT	DIGESTER BLOWER #1	1	1-1/4"	(3) #1 AWG	#6	480	
P2018	FEEDER TO DIGESTER BLOWER #2	MCC-HB	DIGESTER BLOWER #2 DISCONNECT	1	1-1/4"	(3) #1 AWG	#6	480	
P2019	FEEDER TO DIGESTER BLOWER #2	DIGESTER BLOWER #2 DISCONNECT	DIGESTER BLOWER #2	1	1-1/4"	(3) #1 AWG	#6	480	
P2020	FEEDER TO DIGESTER BLOWER #3 (FUTURE)	MCC-HB	DIGESTER BLOWER #3 DISCONNECT	1	1-1/4"		#6	480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2021	FEEDER TO DIGESTER BLOWER #3 (FUTURE)	DIGESTER BLOWER #3 DISCONNECT	DIGESTER BLOWER #3 (FUTURE)	1	1-1/4"		#6	480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2022	POWER TO RAS PUMP #1	MCC-HB	RAS PUMP #1	1	3/4"	(3) #12 AWG	#12	480	
P2023	POWER TO RAS PUMP #2	MCC-HB	RAS PUMP #2	1	3/4"	(3) #12 AWG	#12	480	
P2024	POWER TO RAS PUMP #3 (FUTURE)	MCC-HB	RAS PUMP #3 (FUTURE)	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2025	FEEDER TO GRIT REMOVAL CONTROL PANEL #1	MCC-HB	GRIT REMOVAL #1 CONTROL PANEL	1	3/4"	(3) #10 AWG	#10	480	
P2026	POWER TO GRIT COLLECTOR DRIVE MOTOR #1	GRIT REMOVAL #1 CONTROL PANEL	GRIT COLLECTOR DRIVE MOTOR #1	1	3/4"	(3) #10 AWG	#10	480	
P2027	POWER TO GRIT REMOVAL DRIVE PUMP #1	GRIT REMOVAL #1 CONTROL PANEL	GRIT REMOVAL DRIVE PUMP #1	1	3/4"	(3) #10 AWG	#10	480	
P2028	POWER TO BLOWER #1	GRIT REMOVAL #1 CONTROL PANEL	BLOWER #1	1	3/4"	(3) #10 AWG	#10	480	
P2029	POWER TO STIRRER DRIVE #1	GRIT REMOVAL #1 CONTROL PANEL	STIRRER DRIVE #1	1	3/4"	(3) #10 AWG	#10	480	
P2030	POWER TO GRIT SCREW DRIVE #1	GRIT REMOVAL #1 CONTROL PANEL	GRIT SCREW DRIVE #1	1	3/4"	(3) #10 AWG	#10	480	
P2031	FEEDER TO GRIT REMOVAL CONTROL PANEL #2	MCC-HB	GRIT REMOVAL #2 CONTROL PANEL	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2032	POWER TO GRIT COLLECTOR DRIVE MOTOR #2	GRIT REMOVAL #2 CONTROL PANEL	GRIT COLLECTOR DRIVE MOTOR #2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2033	POWER TO GRIT REMOVAL DRIVE PUMP #2	GRIT REMOVAL #2 CONTROL PANEL	GRIT REMOVAL DRIVE PUMP #2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2034	POWER TO BLOWER #2	GRIT REMOVAL #2 CONTROL PANEL	BLOWER #2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2035	POWER TO STIRRER DRIVE #2	GRIT REMOVAL #2 CONTROL PANEL	STIRRER DRIVE #2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2036	POWER TO GRIT SCREW DRIVE #2	GRIT REMOVAL #2 CONTROL PANEL	GRIT SCREW DRIVE #2	1	3/4"			480	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2037	DEWATERING FLOW METER #1	DEWATERING PANEL #1	HB-M-DM-001	1	3/4"	(2) #12 AWG	#12	120	
P2038	DEWATERING FLOW METER #2	DEWATERING PANEL #2	DEWATERING FLOW METER #2	1	3/4"				CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2039	14" VALVE POWER	LHB-11	HB-V-APV-101	1	3/4"	(2) #12 AWG	#12	120	
P2040	14" FLOW METER POWER	LHB-10	AB-M-AM-001	1	3/4"	(2) #12 AWG	#12	120	
P2041	18" VALVE POWER	LHB-24	HB-V-BPV-001	1	3/4"	(2) #12 AWG	#12	120	
P2042	18" FLOW METER POWER	LHB-26	HB-M-BM-001	1	3/4"	(2) #12 AWG	#12	120	
P2043	POWER TO POLYMER SKID	LHB-14	POLYMER SKID	1	3/4"	(2) #12 AWG	#12	120	
P2044	CHEMICAL PUMP POWER	LHB	CHEMICAL ROOM JB-1	1	3/4"	(4) #12 AWG	#12	120	COORDINATE LOCATION OF REQUIREMENTS OF CHEMICAL PUMPS
P2045	DIGESTER VALVE #1 POWER	LHB	DIGESTER VALVE 1	1	1"	(2) #12 AWG	#12	240	
P2046	DIGESTER VALVE #2 POWER	LHB	DIGESTER VALVE 2	1	1"	(2) #12 AWG	#12	240	
P2047	EAST ZONE MANHOLE FLOW METER POWER	LHB	EAST ZONE MANHOLE FLOW METER	1	1"	(2) #12 AWG	#12	120	
P2048	MANHOLE #1 FLOW METER POWER	LHB	MANHOLE #1 FLOW METER	1	1"	(2) #12 AWG	#12	120	
P2049	DIGESTER D.O. #1 POWER	LHB	DIGESTER #1 POWER	1	1"	(2) #12 AWG	#12	120	
P2050	DIGESTER D.O. #2 POWER	LHB	DIGESTER #2 POWER	1	1"	(2) #12 AWG	#12	120	
P2051	DIGESTER D.O. #3 POWER (FUTURE)	LHB	DIGESTER #3 POWER	1	1"	(2) #12 AWG	#12	120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2052	DIGESTER D.O. #4 POWER (FUTURE)	LHB	DIGESTER #4 POWER	1	1"	(2) #12 AWG	#12	120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2053	DIGESTER VALVE #3 POWER (FUTURE)	LHB	DIGESTER VALVE 3	1	1"				CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
P2054	DIGESTER VALVE #4 POWER (FUTURE)	LHB	DIGESTER VALVE 4	1	1"				CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
EXISTING CONDUITS									
P001	POWER TO SCREEN, PRESS, COMPRESSOR	MCC-HB	SCREEN/PRESS CONTROL PANEL	1	1"	(6) #10 AWG	#10	480	POWER TO HW SCREEN / WASH COMPACTOR / COMPRESSOR
P001A	POWER TO SCREEN DRIVE MOTOR	SCREEN/COMPACTOR CTRL PANEL	SCREEN DRIVE MOTOR	1	3/4"	(3) #10 AWG	#10	480	
P001B	POWER TO PRESS DRIVE MOTOR	SCREEN/COMPACTOR CTRL PANEL	PRESS DRIVE MOTOR	1	3/4"	(3) #10 AWG	#10	480	
P001C	POWER TO COMPRESSOR	SCREEN/COMPACTOR CTRL PANEL	COMPRESSOR	1	3/4"	(3) #10 AWG	#10	480	
P001D	SCREEN/PRESS HEAT TRACING	SCREEN/COMPACTOR CTRL PANEL	SCREEN/PRESS HEAT TRACING	1	3/4"	(2) #12 AWG	#12	120	INSTALL PER VENDOR DRAWINGS.
P021	FEEDER TO HW LIFT PUMP #1	MCC-HB	LIFT PUMP #1 DISCONNECT SWITCH DS 021	1	1"	(3) #10 AWG (4) #12 AWG	#10	480	LIFT PUMP POWER MOISTURE/TEMP SENSOR
P021A	POWER TO HW LIFT PUMP #1	DISCONNECT 021	LIFT PUMP #1	1	2"				EXISTING MANUFACTURER SUPPLIED CABLE
P022	FEEDER TO HW LIFT PUMP #2	MCC-HB	LIFT PUMP #2 DISCONNECT SWITCH DS 022	1	1"	(3) #10 AWG (4) #12 AWG	#10	480	LIFT PUMP POWER MOISTURE/TEMP SENSOR
P022A	POWER TO HW LIFT PUMP #2	DISCONNECT 022	LIFT PUMP #2 DISCONNECT SWITCH	1	2"				EXISTING MANUFACTURER SUPPLIED CABLE
P023	FEEDER TO HW LIFT PUMP #3	MCC-HB	LIFT PUMP #3 DISCONNECT SWITCH DS 023	1	1"	(3) #10 AWG (4) #12 AWG	#10	480	LIFT PUMP POWER MOISTURE/TEMP SENSOR
P023A	POWER TO HW LIFT PUMP #3	DISCONNECT 032	LIFT PUMP #3	1	2"				EXISTING MANUFACTURER SUPPLIED CABLE
P024	POWER TO EX. FLOW METER	LP2x	FIT-024	1	1"	(2) #12 AWG	#12	120	INSPECT EXISTING CONDUCTORS. REPLACE AS NEEDED.

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REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER
23-Dec-2022
No. 362066
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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

CONDUIT AND CONDUCTOR SCHEDULE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	167 of 249	E-206

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CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		MIN. CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	REMARKS OR REFERENCE DRAWING
C1001	ISP FEED	PROVIDER POC	POB NETWORK CABINET	1	2"	12-STRAND FO CABLE			
C1002	SPARE TO HIGHWAY	PROVIDER POC	POB NETWORK CABINET	1	2"				CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
C1003	SCADA TIE TO HEADWORKS BUILDING	POB NETWORK CABINET	HB NETWORK CABINET	1	2"	12-STRAND FO CABLE			
C1004	SPARE TIE TO HEADWORKS BUILDING			1	2"				CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE
C1005	NETWORK TO PLC-PB	POB NETWORK CABINET	PLC-PB	1	3/4"	(1) CAT 6 SHIELDED			
C1006	NETWORK TO WAP-PB	POB NETWORK CABINET	PB-WAP	1	3/4"	(1) CAT 6 SHIELDED			
C1007	NETWORK TO PLC-HB	HB NETWORK CABINET	PLC-HB	1	3/4"	(1) CAT 6 SHIELDED			
C1008	NETWORK TO WAP-HB	HB NETWORK CABINET	HB-WAP	1	3/4"	(1) CAT 6 SHIELDED			
C1009	GENERATOR STATUS	GENERATOR	PLC-PB	1	1"	(1) CAT 6 SHIELDED		CTRL	
C1010	ATS STATUS	ATS	PLC-PB	1	1"	(1) CAT 6 SHIELDED		CTRL	
C1011	UV REACTOR 1 FLOW CONTROL	UV 1 CONTROL PANEL	UV 1 PRESSURE SWITCH	1	3/4"	(1) #18 TSP		CTRL	
C1012	UV REACTOR 1 CONTROL OUTPUT	UV 1 CONTROL PANEL	UV 1 BANK 1	1	3/4"	(1) CAT 6 SHIELDED		CTRL	
C1013	UV REACTOR 1 STATUS	UV 1 CONTROL PANEL	PLC-PB	1	1-1/4"	(16) #14 AWG (1) CAT 6 SHIELDED	#14	CTRL	
C1014	UV REACTOR 1 FLOW STATUS	UV 1 CONTROL PANEL	PLC-PB	1	3/4"	(1) #18 TSP		CTRL	
C1015	UV REACTOR 1 LEVEL CONTROL	UV 1 CONTROL PANEL	UV 1 BANK 1	1	3/4"	(1) #18 TSP		CTRL	
C1016	UV REACTOR 2 FLOW CONTROL	UV 2 CONTROL PANEL	UV 2 PRESSURE SWITCH	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1017	UV REACTOR 2 CONTROL OUTPUT	UV 2 CONTROL PANEL	UV 2 BANK 1	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1018	UV REACTOR 2 STATUS	UV 2 CONTROL PANEL	PLC-PB	1	1-1/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1019	UV REACTOR 2 FLOW STATUS	UV 2 CONTROL PANEL	PLC-PB	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1020	UV REACTOR 2 LEVEL CONTROL	UV 2 CONTROL PANEL	UV 2 BANK 1	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1021	PROCESS WATER PUMP STATUS	PROCESS WATER CONTROL PANEL	PLC-PB	1	1"	(2) #14 AWG (1) CAT6 SHIELDED	#14	CTRL	COORDINATE WITH SCADA PROVIDER
C1022	PROCESS WATER PUMP VAULT STATUS	PROCESS WATER CONTROL PANEL	PW PUMP VAULT	1	1"			CTRL	COORDINATE WITH PUMP VENDOR
C1023	DISC FILTER 1 CONTROL	DISC FILTER 1 CONTROL PANEL	PLC-PB	1	3/4"	(1) CAT 6 SHIELDED		CTRL	
C1024	DISC FILTER 1 STATUS	DISC FILTER 1 CONTROL PANEL	DISC FILTER 1	1	3/4"	(6) #14 AWG	#14	CTRL	BW LOW PRESS, HI LEVEL PROBE, HI HI LEVEL PROBE
C1025	DISC FILTER 2 CONTROL (FUTURE)	DISC FILTER 2 CONTROL PANEL	PLC-PB	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1026	DISC FILTER 2 STATUS (FUTURE)	DISC FILTER 2 CONTROL PANEL	DISC FILTER 1	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1027	BNR AERATION PACKAGE 1 STATUS	AERATION CONTROL PANEL 1	PLC-PB	1	1"	(4) #12 AWG (1) CAT 6 SHIELDED		CTRL	
C1028	BNR BLOWER #1 CONTROL	AERATION CONTROL PANEL 1	BLOWER #1	1	1-1/4"	(10) #12 AWG (2) #16 TSP (1) CAT 6 SHIELDED		CTRL	
C1029	BNR BLOWER #1 E-STOP	AERATION CONTROL PANEL 1	BLOWER #2	1	3/4"	(2) #12 AWG	#14	CTRL	
C1030	BNR BLOWER #2 CONTROL	AERATION CONTROL PANEL 1	BLOWER #2	1	1-1/4"	(10) #12 AWG (2) #16 TSP (1) CAT 6 SHIELDED		CTRL	
C1031	BNR BLOWER #2 E-STOP	AERATION CONTROL PANEL 1	BLOWER #3	1	3/4"	(2) #12 AWG	#14	CTRL	
C1032	BNR BLOWER #3 CONTROL	AERATION CONTROL PANEL 1	BLOWER #3	1	1-1/4"	(10) #12 AWG (2) #16 TSP (1) CAT 6 SHIELDED		CTRL	
C1033	BNR BLOWER #3 E-STOP	AERATION CONTROL PANEL 1	BLOWER #3	1	3/4"	(2) #12 AWG	#14	CTRL	
C1034	MIXER #1 E-STOP	AERATION CONTROL PANEL 1	MIXER #1 SITE	1	1"	(2) #12 AWG	#12	CTRL	
C1035	MIXER #2 E-STOP	AERATION CONTROL PANEL 1	MIXER #2 SITE	1	1"	(2) #12 AWG	#12	CTRL	
C1036	MIXER #3 E-STOP	AERATION CONTROL PANEL 1	MIXER #3 SITE	1	1"	(2) #12 AWG	#12	CTRL	
C1037	BNR BASIN #1 DO SENSOR POWER	AERATION CONTROL PANEL 1	BNR BASIN #1 DO CONTROLLER	1	1"	(2) #12 AWG	#12	120	
C1038	BNR BASIN #1 DO SENSOR STATUS	AERATION CONTROL PANEL 1	BNR BASIN #1 DO CONTROLLER	1	1"	(4) #12 AWG (1) #16 TSP	#12	CTRL	
C1039	BNR AERATION PACKAGE 2 STATUS (FUTURE)	AERATION CONTROL PANEL 2	PLC-PB	1	1"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1040	BNR BLOWER #4 CONTROL (FUTURE)	AERATION CONTROL PANEL 2	BLOWER #4	1	1-1/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1041	BNR BLOWER #4 E-STOP (FUTURE)	AERATION CONTROL PANEL 2	BLOWER #4	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1042	BNR BLOWER #5 CONTROL (FUTURE)	AERATION CONTROL PANEL 2	BLOWER #5	1	1-1/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1043	BNR BLOWER #5 E-STOP (FUTURE)	AERATION CONTROL PANEL 2	BLOWER #5	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1044	MIXER #4 E-STOP (FUTURE)	AERATION CONTROL PANEL 2	MIXER #4 SITE	1	1"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1045	MIXER #5 E-STOP (FUTURE)	AERATION CONTROL PANEL 2	MIXER #5 SITE	1	1"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1046	MIXER #6 E-STOP (FUTURE)	AERATION CONTROL PANEL 2	MIXER #6 SITE	1	1"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1047	BNR BASIN #2 DO SENSOR POWER (FUTURE)	AERATION CONTROL PANEL 2	BNR BASIN #2 DO CONTROLLER	1	1"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1048	BNR BASIN #2 DO SENSOR STATUS (FUTURE)	AERATION CONTROL PANEL 2	BNR BASIN #2 DO CONTROLLER	1	1"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1049	CLARIFIER #1 STATUS	CLARIFIER #1 CONTROL PANEL	PLC-PB	1	1"	(12) #14 AWG	#14	CTRL	AUTO, OL, RUNNING, HI TORQUE ALM NO/NC, HI TORQUE CUTOUT NO/NC
C1050	CLARIFIER #2 STATUS	CLARIFIER #2 CONTROL PANEL	PLC-PB	1	1"	(12) #14 AWG	#14	CTRL	AUTO, OL, RUNNING, HI TORQUE ALM NO/NC, HI TORQUE CUTOUT NO/NC
C1051	CLARIFIER #3 STATUS (FUTURE)	CLARIFIER #3 CONTROL PANEL	PLC-PB	1	1"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C1052	MANHOLE MH-EFF #3 FLOW	PLC-PB	MH-EFF #3 FLOW METER	1	1"	(1) #16 TSP		CTRL	
C1053	BNR BASIN #1 LEVEL	PLC-PB	BNR #1 LEVEL CONTROLLER	1	1"	(1) CAT 6 SHIELDED		CTRL	
C1054	BNR BASIN #2 LEVEL (FUTURE)	PLC-PB	BNR #2 LEVEL CONTROLLER	1	1"				CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.

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REGISTERED PROFESSIONAL ENGINEER
23-Dec-2022
No. 362066
J. RANDALL KNAPP
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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

CONDUIT AND CONDUCTOR SCHEDULE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	168 of 249	E-207

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CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT TAG	DESCRIPTION	ROUTING		MIN. CONDUIT		CONDUCTORS (CU) PER C.		VOLTAGE	REMARKS OR REFERENCE DRAWING
C2001	DEWATERING CONTROL PANEL #1 STATUS	DEWATERING PANEL 1	PLC–HW	1	3/4"	(2) #14 AWG (1) CAT 6 SHIELDED	#14	CTRL	
C2002	DW1 FLOC TANK LEVEL	DEWATERING PANEL 1	DW1 FLOC TANK LEVEL PROBE	1	3/4"	(2) #14 AWG	#14	CTRL	
C2003	DW1 WASHWATER SOLENOID	DEWATERING PANEL 1	DW1 PRESS	1	3/4"	(6) #14 AWG	#14	CTRL	
C2004	DW1 HEADBOX LEVEL	DEWATERING PANEL 1	DW1 HEADBOX	1	3/4"	(1) #16 TSP		CTRL	
C2005	DW1 SLUDGE FEED FLOW METER POWER	DEWATERING PANEL 1	SLUDGE FEED PUMP #1	1	3/4"	(2) #12 AWG	#12	120	
C2006	DW1 SLUDGE FEED FLOW RATE	DEWATERING PANEL 1	SLUDGE FEED PUMP #1	1	3/4"	(1) #16 TSP		CTRL	
C2007	DW1 SLUDGE FEED DRY RUN PROTECTION	DEWATERING PANEL 1	SLUDGE PUMP #1 TEMP SENSOR	1	3/4"	(1) #16 TSP		CTRL	COORDINATE REQUIREMENTS WITH VENDOR
C2008	DEWATERING CONVEYOR #1 CONTROL	DEWATERING PANEL 1	DEWATERING CONVEYOR #1	1	3/4"	(6) #14 AWG	#14	CTRL	E–STOP x2, ZERO SPEED
C2009	DEWATERING CONVEYOR #2 CONTROL	DEWATERING PANEL 1	DEWATERING CONVEYOR #2	1	3/4"	(6) #14 AWG	#14	CTRL	E–STOP x2, ZERO SPEED
C2010	DEWATERING CONTROL PANEL #2 STATUS	DEWATERING PANEL 2	PLC–HW	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2011	DW2 FLOC TANK LEVEL	DEWATERING PANEL 2	DW2 FLOC TANK LEVEL PROBE	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2012	DW2 WASHWATER SOLENOID	DEWATERING PANEL 2	DW2 PRESS	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2013	DW2 HEADBOX LEVEL	DEWATERING PANEL 2	DW2 HEADBOX	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2014	DW2 SLUDGE FEED FLOW METER POWER	DEWATERING PANEL 2	SLUDGE FEED PUMP #2	1	3/4"			120	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2015	DW2 SLUDGE FEED FLOW RATE	DEWATERING PANEL 2	SLUDGE FEED PUMP #2	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2016	DW2 SLUDGE FEED DRY RUN PROTECTION	DEWATERING PANEL 2	SLUDGE PUMP #2 TEMP SENSOR	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2017	DIGESTER BLOWER #1 STATUS	DIGESTER BLOWER #1 VFD IN MCC–HB	PLC–HW	1	1–1/4"	(10) #12 AWG (2) #16 TSP (1) CAT 6 SHIELDED		CTRL	COORDINATE WITH VENDOR DRAWINGS
C2018	DIGESTER BLOWER #2 STATUS	DIGESTER BLOWER #2 VFD IN MCC–HB	PLC–HW	1	1–1/4"	(10) #12 AWG (2) #16 TSP (1) CAT 6 SHIELDED		CTRL	COORDINATE WITH VENDOR DRAWINGS
C2019	DIGESTER BLOWER #3 STATUS (FUTURE)	DIGESTER BLOWER #3 VFD IN MCC–HB	PLC–HW	1	1–1/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2020	GRIT/SCREEN 1 STATUS	GRIT/SCREEN PANEL 1	PLC–HW	1	3/4"	(1) CAT 6		CTRL	
C2021	GRIT COLLECTOR #1 DRIVE MOTOR TEMP	GRIT/SCREEN PANEL 1	COLLECTOR DRIVE MOTOR #1 T–STAT	1	3/4"	(2) #12 AWG	#12	CTRL	COORDINATE STUB–UP LOCATION WITH VENDOR DRAWINGS
C2022	GRIT REMOVAL DRIVE PUMP #1 TEMP	GRIT/SCREEN PANEL 1	REMOVAL DRIVE PUMP #1 T–STAT	1	3/4"	(2) #12 AWG	#12	CTRL	COORDINATE STUB–UP LOCATION WITH VENDOR DRAWINGS
C2023	GRIT BLOWER #1 TEMP	GRIT/SCREEN PANEL 1	BLOWER #1 T–STAT	1	3/4"	(2) #12 AWG	#12	CTRL	COORDINATE STUB–UP LOCATION WITH VENDOR DRAWINGS
C2024	GRIT STIRRER #1 TEMP	GRIT/SCREEN PANEL 1	STIRRER #1 T–STAT	1	3/4"	(2) #12 AWG	#12	CTRL	COORDINATE STUB–UP LOCATION WITH VENDOR DRAWINGS
C2025	GRIT SCREW DRIVE #1 TEMP	GRIT/SCREEN PANEL 1	SCREW DRIVE #1 T–STAT	1	3/4"	(2) #12 AWG	#12	CTRL	COORDINATE STUB–UP LOCATION WITH VENDOR DRAWINGS
C2026	GRIT CLASSIFIER #1 ORGANICS VALVE CONTROL	GRIT/SCREEN PANEL 1	CLASSIFER #1 ORGANICS ACTUATOR	1	1"	(12) #12 AWG	#12	CTRL	COORDINATE STUB–UP LOCATION WITH VENDOR DRAWINGS
C2027	GRIT #1 E–STOP PB–2	GRIT/SCREEN PANEL 1	GRIT #1 E–STOP PB–2	1	3/4"	(2) #12 AWG	#12	CTRL	COORDINATE E–STOP LOCATION WITH VENDOR
C2028	GRIT #1 E–STOP PB–3	GRIT/SCREEN PANEL 1	GRIT #1 E–STOP PB–3	1	3/4"	(2) #12 AWG	#12	CTRL	COORDINATE E–STOP LOCATION WITH VENDOR
C2029	GRIT #1 E–STOP PB–4	GRIT/SCREEN PANEL 1	GRIT #1 E–STOP PB–4	1	3/4"	(2) #12 AWG	#12	CTRL	COORDINATE E–STOP LOCATION WITH VENDOR
C2030	GRIT/SCREEN 2 STATUS (FUTURE)	GRIT/SCREEN PANEL 2	PLC–HW	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2031	GRIT COLLECTOR #2 DRIVE MOTOR TEMP (FUTURE)	GRIT/SCREEN PANEL 2	COLLECTOR DRIVE MOTOR #2 T–STAT	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2032	GRIT REMOVAL DRIVE PUMP #2 TEMP (FUTURE)	GRIT/SCREEN PANEL 2	REMOVAL DRIVE PUMP #2 T–STAT	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2033	GRIT BLOWER #2 TEMP (FUTURE)	GRIT/SCREEN PANEL 2	BLOWER #2 T–STAT	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2034	GRIT STIRRER #2 TEMP (FUTURE)	GRIT/SCREEN PANEL 2	STIRRER #2 T–STAT	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2035	GRIT SCREW DRIVE #2 TEMP (FUTURE)	GRIT/SCREEN PANEL 2	SCREW DRIVE #2 T–STAT	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2036	GRIT CLASSIFIER #2 ORGANICS VALVE CONTROL (FUTURE)	GRIT/SCREEN PANEL 2	CLASSIFER #2 ORGANICS ACTUATOR	1	1"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2037	GRIT #2 E–STOP PB–2 (FUTURE)	GRIT/SCREEN PANEL 2	GRIT #2 E–STOP PB–2	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2038	GRIT #2 E–STOP PB–3 (FUTURE)	GRIT/SCREEN PANEL 2	GRIT #2 E–STOP PB–3	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2039	GRIT #2 E–STOP PB–4 (FUTURE)	GRIT/SCREEN PANEL 2	GRIT #2 E–STOP PB–4	1	3/4"			CTRL	CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2040	14" VALVE CONTROL	HB–V–APV–101	PLC–HW	1	3/4"	(2) #12 AWG (2) #16 TSP	#12	CTRL	COORDINATE WITH SCADA PROVIDER
C2041	14" FLOW METER CONTROL	HB–M–AM–001	PLC–HW	1	3/4"	(2) #16 TSP		CTRL	
C2042	18" VALVE CONTROL	HB–V–BPV–001	PLC–HW	1	3/4"	(2) #12 AWG (2) #16 TSP	#12	CTRL	
C2043	18" FLOW METER CONTROL	HB–M–BM–001	PLC–HW	1	3/4"	(2) #16 TSP		CTRL	
C2044	POLYMER SKID STATUS	POLYMER SKID	PLC–HW	1	3/4"			CTRL	COORDINATE WITH VENDOR
C2045	CHEMICAL ROOM CONTROL	CHEMICAL ROOM JB1	PLC–HW	1	2"			CTRL	COORDINATE WITH VENDOR
C2046	CHEMICAL ROOM CONTROL	CHEMICAL ROOM JB1	PLC–HW	1	2"			CTRL	COORDINATE WITH VENDOR
C2047	UNASSIGNED CONDUIT								
C2048	RAS PUMP #1 CONTROL	PLC–HB	RAS PUMP #1 VFD, MCC–HB	1	1"	(8) #14 AWG (2) CAT 6 SHIELDED	#14	CTRL	
C2049	RAS PUMP #2 CONTROL	PLC–HB	RAS PUMP #2 VFD, MCC–HB	1	1"	(8) #14 AWG (2) CAT 6 SHIELDED	#14	CTRL	
C2050	RAS PUMP #3 CONTROL	PLC–HB	RAS PUMP #3 VFD, MCC–HB	1	1"	(8) #14 AWG (2) CAT 6 SHIELDED	#14	CTRL	
C2051	LIFT PUMP #1 CONTROL	PLC–HB	LIFT PUMP 1 STARTER, MCC–HB	1	1"	(14) #14 AWG	#14	CTRL	
C2052	LIFT PUMP #2 CONTROL	PLC–HB	LIFT PUMP 2 STARTER, MCC–HB	1	1"	(14) #14 AWG	#14	CTRL	
C2053	LIFT PUMP #3 CONTROL	PLC–HB	LIFT PUMP 3 STARTER, MCC–HB	1	1"	(14) #14 AWG	#14	CTRL	
C2054	DIGESTER VALVE #1 CONTROL	PLC–HB	DIGESTER VALVE #1	1	1"	(10) #14 AWG (2) #16 TSP	#14	CTRL	
C2055	DIGESTER VALVE #2 CONTROL	PLC–HB	DIGESTER VALVE #2	1	1"	(10) #14 AWG (2) #16 TSP	#14	CTRL	
C2056	EAST ZONE MANHOLE FLOW	PLC–HB	EAST ZONE FLOW	1	1"	(1) #16 TSP		CTRL	
C2057	MANHOLE #1 FLOW	PLC–HB	MANHOLE #1 FLOW	1	1"	(1) #16 TSP		CTRL	
C2058	DIGESTER D.O. #1 LEVEL	PLC–HB	DIGESTER D.O. #1	1	1"	(1) CAT 6 SHIELDED		CTRL	
C2059	DIGESTER D.O. #2 LEVEL	PLC–HB	DIGESTER D.O. #2	1	1"	(1) CAT 6 SHIELDED		CTRL	
C2060	DIGESTER D.O. #3 LEVEL	PLC–HB	DIGESTER D.O. #3	1	1"				CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2061	DIGESTER D.O. #4 LEVEL	PLC–HB	DIGESTER D.O. #4	1	1"				CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
C2062	DIGESTER VALVE #3 CONTROL	PLC–HB	DIGESTER VALVE #3	1	1"	(10) #14 AWG (2) #16 TSP	#14	CTRL	
C2063	DIGESTER VALVE #4 CONTROL	PLC–HB	DIGESTER VALVE #4	1	1"				CONDUIT ONLY. STUB WITH PULL STRING AND CAP FOR FUTURE USE.
EXISTING CONDUITS									
C001	HW SCREEN / PRESS STATUS					(4) #14 AWG			
C011A–F	HW LIFT STATION LEVEL								INTERCEPT AND REROUTE EXISTING STATUS & CONTROL CONDUCTORS FROM EXISTING PLC TO NEW PLC–HB. FIELD LOCATE EXISTING CONDUCTORS AND COORDINATE WITH SCADA SYSTEM PROVIDER TO DETERMINE CONNECTION REQUIREMENTS.
C021	HW LIFT PUMP STATUS								
C024	HW FLOW METER STATUS					(1) TSP			

SHEET NOTES:

1. CONDUIT SHOWN TO EQUIPMENT LOCATION ONLY. CONTRACTOR SHALL PROVIDE FLEXIBLE CONDUIT STUBS TO EQUIPMENT, FITTINGS, MOUNTING HARDWARE AND ALL ACCESSORIES REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
2. ROUTE CONDUIT AS NECESSARY BASED ON FIELD CONDITIONS AND TO AVOID OBSTACLES.
3. LENGTHS SHOWN IN CONDUIT SCHEDULE ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ACTUAL LENGTHS PRIOR TO CONSTRUCTION.

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

CONDUIT AND CONDUCTOR SCHEDULE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	169 of 249	E-208

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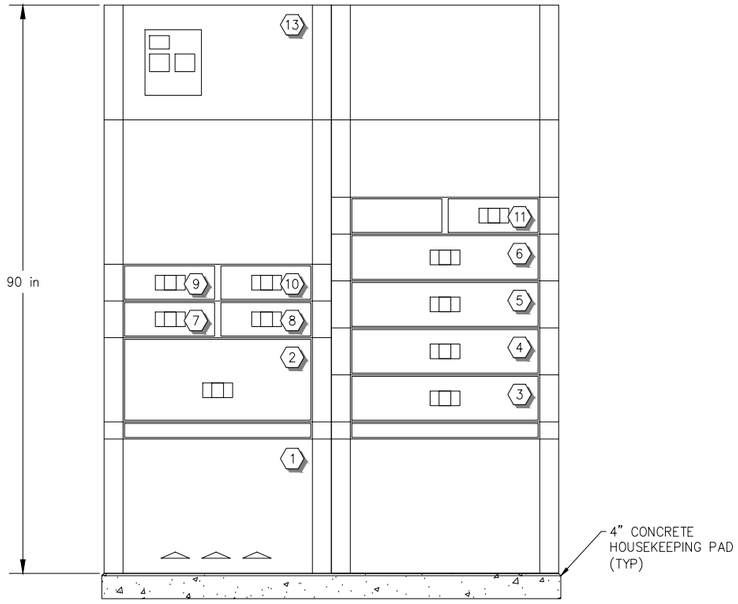
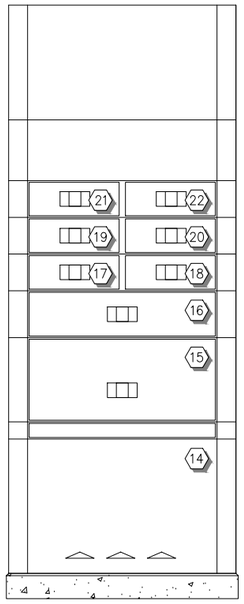
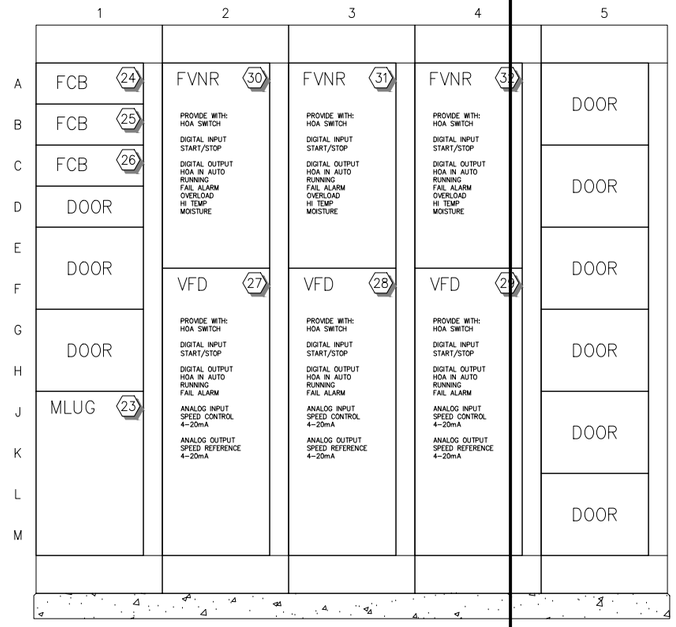


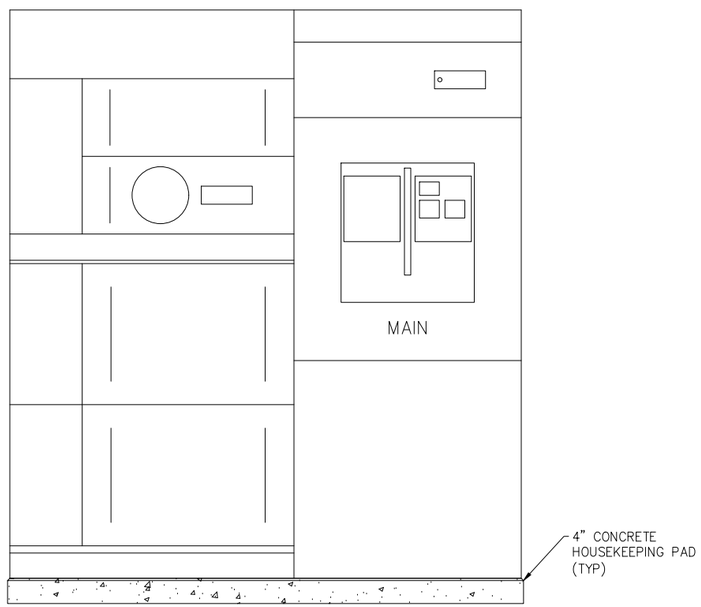
A ~ POB SWITCHBOARD
ELEVATION (NTS)



B ~ HB SWITCHBOARD
ELEVATION (NTS)



C ~ TYPICAL MOTOR CONTROL CENTER - MCC-HB
NTS



D ~ METERING SWITCHBOARD
NTS

MCC-001 – LOCATION KEY	
UNIT LOCATION	DESCRIPTION
1	INCOMMING LUG SECTION, MAIN LUG ONLY, 2000A
2	FEEDER TO SB-002, FCB 1000A, 3P
3	FEEDER TO PANEL PP1, FCB 400A, 3P
4	FEEDER TO TRANSFORMER T1, 150kVA, FCB 225A, 3P
5	BNR AERATION CONTROL PANEL #1, CB, 300A, ADJ. TRIP
6	BNR AERATION CONTROL PANEL #2 (FUTURE), CB, 300A, ADJ. TRIP
7	CLARIFIER #1 CONTROL PANEL, CB, 15A, ADJ. TRIP
8	CLARIFIER #2 CONTROL PANEL, CB, 15A, ADJ. TRIP
9	CLARIFIER #3 CONTROL PANEL (FUTURE), CB, 15A, ADJ. TRIP
10	FILTER #1 CONTROL PANEL, CB, 25A, ADJ. TRIP
11	FILTER #2 CONTROL PANEL (FUTURE), CB, 25A, ADJ. TRIP
12	PROCESS WATER CONTROL PANEL, CB, 50A, ADJ. TRIP
13	POWER QUALITY MONITOR
14	INCOMMING LUG SECTION, MAIN LUG ONLY, 1000A
15	FEEDER TO MCC-002, FCB 600A, 3P
16	FEEDER TO SB-002, FCB 1000A, 3P
17	DEWATERING CONTROL PANEL #1, CB, 60A, ADJ. TRIP
18	DEWATERING CONTROL PANEL #2 (FUTURE), CB, 25A, ADJ. TRIP
19	GRIT REMOVAL PANEL #1, CB, 25A, ADJ. TRIP
20	GRIT REMOVAL PANEL #2 (FUTURE), CB, 25A, ADJ. TRIP
21	HEADWORKS VAULT SCREEN/COMPACTOR, CB, 30A, ADJ. TRIP
22	AIR COMPRESSOR, CB, 15A, ADJ. TRIP
23	INCOMMING LUG SECTION, MAIN CIRCUIT BREAKER, 600A TRIP, 100% RATED
24	DIGESTER BLOWER #1, CB, 125A, ADJ. TRIP
25	DIGESTER BLOWER #2, CB, 125A, ADJ. TRIP
26	DIGESTER BLOWER #3 (FUTURE), CB, 125A, ADJ. TRIP
27	RAS PUMP #1, 10HP, 15HP VFD W/CB, 25A ADJ. TRIP

MCC-001 – LOCATION KEY (CONTINUED)	
UNIT LOCATION	DESCRIPTION
28	RAS PUMP #2, 10HP, 15HP VFD W/CB, 25A ADJ. TRIP
29	RAS PUMP #3 (FUTURE), 10HP, 15HP VFD W/CB, 25A ADJ. TRIP
30	HEADWORKS LIFT PUMP #1, 15HP, 15HP FVNR W/CB, 40A ADJ. TRIP
31	HEADWORKS LIFT PUMP #2, 15HP, 15HP FVNR W/CB, 40A ADJ. TRIP
32	HEADWORKS LIFT PUMP #3, 15HP, 15HP FVNR W/CB, 40A ADJ. TRIP

NOTES:

1. SWITCHBOARD AND MCC LAYOUT ARE TYPICAL AND VARY BETWEEN MANUFACTURERS. REFERENCE SHOP DRAWINGS FOR EXACT DIMENSIONS AND CABLE ENTRY LOCATIONS PRIOR TO CONSTRUCTION AND TO ENSURE THAT ELECTRICAL EQUIPMENT FITS IN THE SPACE PROVIDED.
2. OPERATOR INTERFACE INTEGRAL TO MCC'S IS NOT SHOWN. REFERENCE SHOP DRAWINGS FOR ALL WIRING REQUIREMENTS.
3. REFERENCE ONE-LINE DIAGRAMS FOR ADDITIONAL REQUIREMENTS FOR SWITCHBOARD AND MCC

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

ELECTRICAL EQUIPMENT ELEVATIONS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	170 of 249	E-209

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ELECTRICAL EQUIPMENT SCHEDULE

(X)	DESCRIPTION	MODEL / SPECIFICATION	MANUFACTURER	COMMENTS
1	METERING SWITCHBOARD, SERVICE ENTRANCE RATED, 2000A, WITH TVSS	PER UTILITY REQUIREMENTS	PER UTILITY REQUIREMENTS	COORDINATE SERVICE WORK WITH UTILITY
2	AUTOMATIC TRANSFER SWITCH (ATS), 2000A, 480Y/277V, 3-POLE, 4-WIRE, NEMA 3R	16250SP	THOMSON OR APPROVED	
3	DIESEL STANDBY GENERATOR, 1000kW, 480Y/277V, 4-POLE, 4-WIRE WITH 24HR SUB-BASE TANK	16817SP	CUMMINS OR APPROVED	PROVIDE WITH SOUND ATTENUATED ENCLOSURE PER SPECIFICATION.
4	SWITCHBOARD, 2000A, 480Y/277V, 3ø, 4-WIRE, MAIN LUG ONLY	16400	EATON OR EQUAL	
5	SWITCHBOARD, 1000A, 480Y/277V, 3ø, 4-WIRE, 1000A MAIN CIRCUIT BREAKER	16400	EATON OR EQUAL	
6	MOTOR CONTROL CENTER MCC-002, 600A, 480Y/277V, 3ø, 4-WIRE, MAIN LUG ONLY	16400	EATON OR EQUAL	REFER TO PROJECT ONELINE DIAGRAM AND DRAWINGS FOR ADDITIONAL REQUIREMENTS
7	DISCONNECT SWITCH, 30A, 3-POLE, HEAVY DUTY, NEMA 1	16400	EATON OR EQUAL	PROVIDE NEMA 4X ENCLOSURE IN CORROSIVE AREAS
8	DISCONNECT SWITCH, 200A, 3-POLE, HEAVY DUTY, NEMA 1	16400	EATON OR EQUAL	PROVIDE NEMA 4X ENCLOSURE IN CORROSIVE AREAS
9	4X4 CONCRETE PULL VAULT	504-LA	OLDCASTLE OR EQUAL	
10	12"X24" POLYMER PULL BOX	H1324	OLDCASTLE OR EQUAL	PROVIDE WITH LID MARKED 'ELECTRIC'
11	SWITCH, XP, TOGGLE, FOR OUTDOOR LIGHTING	EFSC175-F23	APPLETON OR EQUAL	
12	POLE MOUNTED AREA LIGHT FIXTURE, 12' HEIGHT, LED, 14,000 LUMENS, 98W, 4" SQUARE STEEL POLE BY MANUFACTURER	ESX1 LED P2 40K R3 MVOLT UPA BLS DDBXD	LITHONIA OR APPROVED	MOUNT POLE AND FIXTURE TO CLARIFIER RAILING. PROVIDE MOUNTING HARDWARE AND ALL REQUIRED ACCESSORIES FOR AN OPERABLE SYSTEM.
13	HB STEP-DOWN TRANSFORMER, DRY-TYPE, 480-208Y120V, 3ø, 45 kVA	VM48M28T45EE	EATON OR APPROVED	
14	PB STEP-DOWN TRANSFORMER, DRY TYPE, 480-208Y120V, 3ø, 150 kVA	VM48M28T49EE	EATON OR APPROVED	
15	JUNCTION CABINET, 16"X12"X6", STAINLESS STEEL, NEMA 4X	A16H1206SSLP	HOFFMAN	

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

PARTIAL ELECTRICAL EQUIPMENT SCH.

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	171 of 249	E-210

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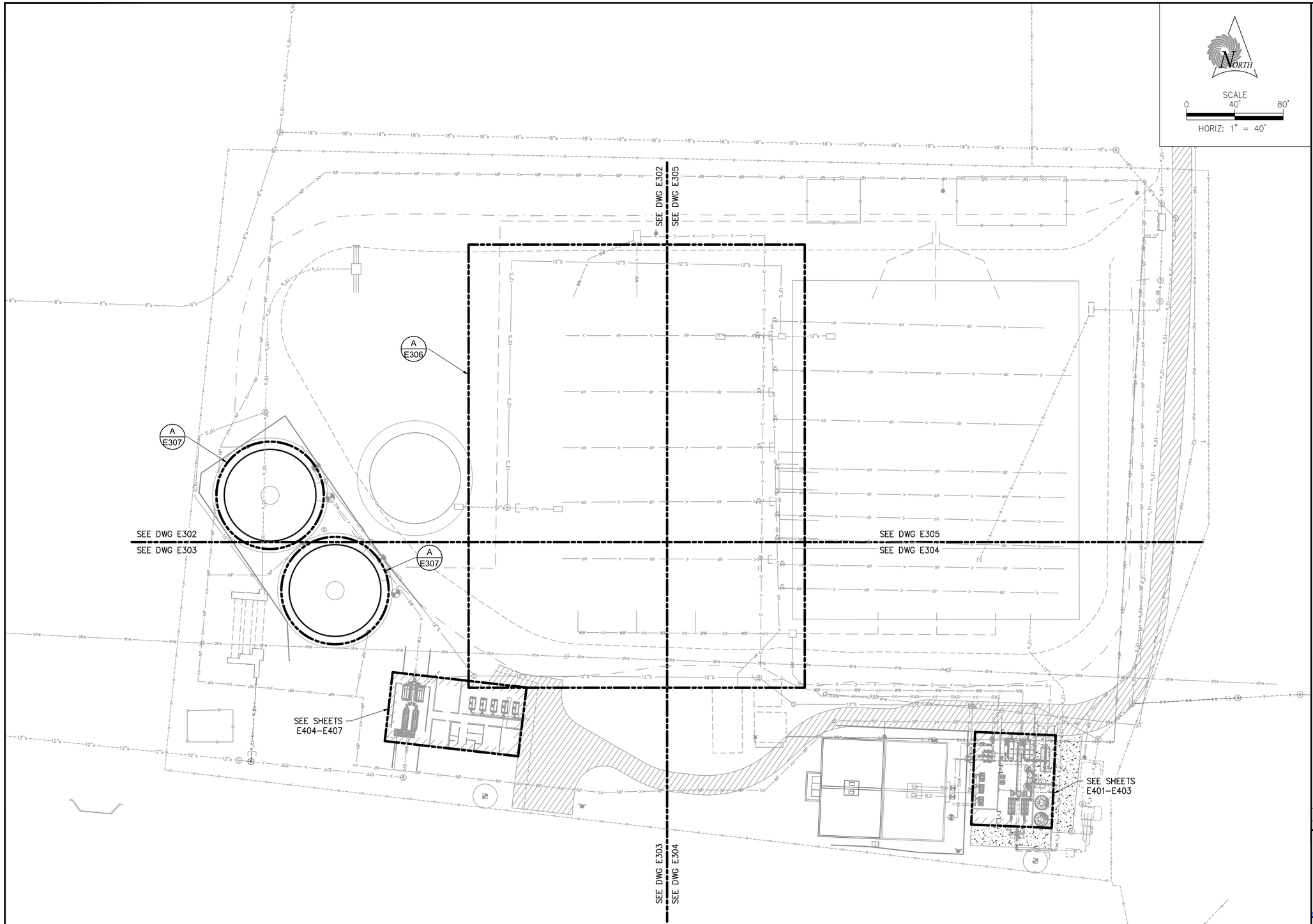

A ~ ELECTRICAL KEY SITE PLAN
1" = 40'

NORTH

SCALE
0 40' 80'
HORIZ: 1" = 40'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWING E204–E208 FOR CONDUIT IDENTIFICATION.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.

KEY NOTES

1. CONTRACTOR SHALL COORDINATE WITH UTILITY FOR ALL SERVICE ENTRANCE WORK. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, FITTINGS AND TRENCHING BETWEEN TRANSFORMER AND BUILDING SERVICE ENTRANCE. ALL 90 DEGREE ELBOWS SHALL BE LONG–SWEEP WITH MIN. 36" RADIUS. CONDUIT SHALL BE BURIED PER UTILITY REQUIREMENTS.
2. CONTRACTOR SHALL PROVIDE A RIGID LONG–SWEEP ELBOW STUBBED AT 8" FROM EXISTING UTILITY POLE. CONTRACTOR SHALL COORDINATE EXACT PLACEMENT WITH UTILITY PRIOR TO CONSTRUCTION.
3. TRANSFORMER BY UTILITY, PAD BY CONTRACTOR. CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS AND LOCATION WITH UTILITY PRIOR TO CONSTRUCTION.
4. ALL BURIED RIGID CONDUIT SHALL BE TAPE WRAPPED TO 4" ABOVE GRADE WITH 3M–50 10 MIL PIPE WRAP OR APPROVED EQUAL.
5. EXISTING STORAGE BUILDING METERBASE. COORDINATE WITH UTILITY TO DISCONNECT UTILITY SERVICE AT EXISTING BUILDING. ABANDON CONDUIT IN PLACE.

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BNR WWTP 2022

ELECTRICAL SITE PLAN KEY

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S08242	JRK	JRK	JRK	172 of 249	E-301

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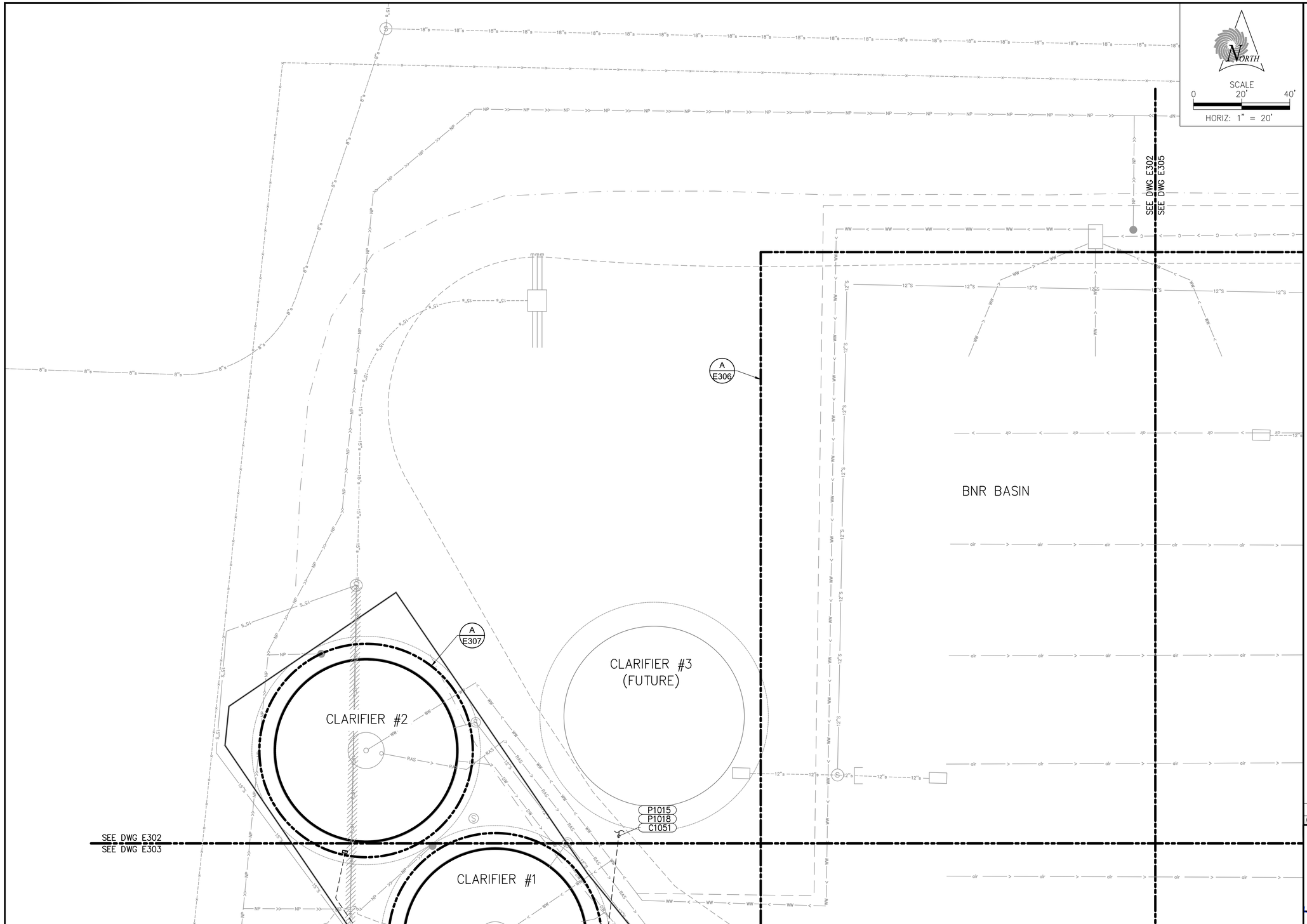

A ELECTRICAL SITE PLAN
~ 1" = 20'

SHEET NOTES:

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2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWING E204–E208 FOR CONDUIT IDENTIFICATION.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.

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ELECTRICAL SITE PLANS

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S08242	JRK	JRK	JRK	173 of 249	E-302

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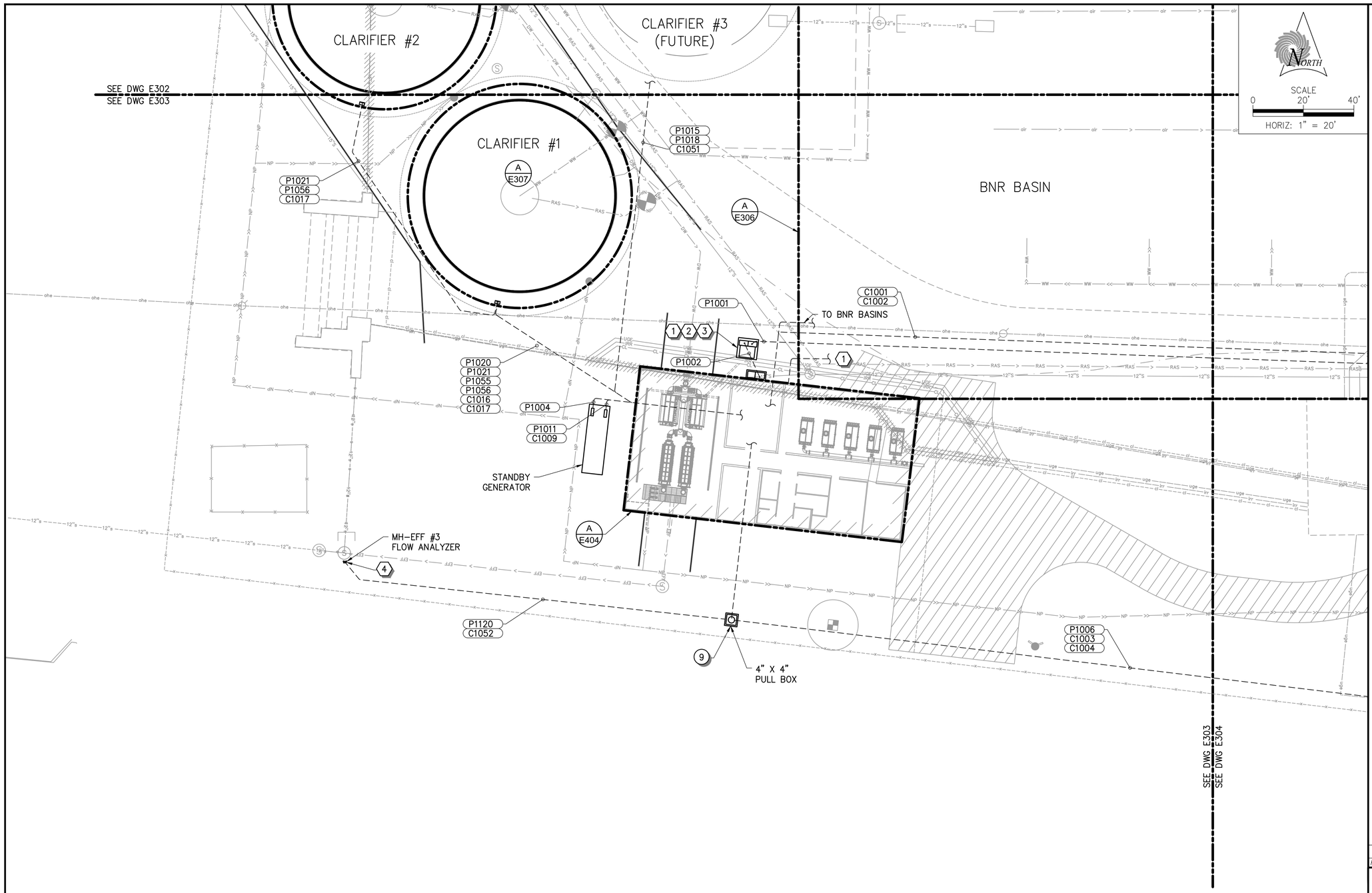

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3. REFER TO DRAWING E204–E208 FOR CONDUIT IDENTIFICATION.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.
6. ALL BURIED RIGID CONDUIT SHALL BE TAPE WRAPPED TO 4" ABOVE GRADE WITH 3M–50 10 MIL PIPE WRAP OR APPROVED EQUAL.

KEY NOTES

1. CONTRACTOR SHALL COORDINATE WITH UTILITY FOR ALL SERVICE ENTRANCE WORK. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, FITTINGS AND TRENCHING BETWEEN TRANSFORMER AND BUILDING SERVICE ENTRANCE. ALL 90 DEGREE ELBOWS SHALL BE LONG–SWEEP WITH MIN. 36" RADIUS. CONDUIT SHALL BE BURIED PER UTILITY REQUIREMENTS.
2. TRANSFORMER BY UTILITY, PAD BY CONTRACTOR. CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS AND LOCATION WITH UTILITY PRIOR TO CONSTRUCTION.
3. ALL BURIED RIGID CONDUIT SHALL BE TAPE WRAPPED TO 4" ABOVE GRADE WITH 3M–50 10 MIL PIPE WRAP OR APPROVED EQUAL.
4. FLODAR SENSOR CONTROLLER. PROVIDE EQUIPMENT RACK AND MOUNT AT 60".

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ELECTRICAL SITE PLANS

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S08242	JRK	JRK	JRK	174 of 249	E-303

A ~ ELECTRICAL SITE PLAN
1" = 20'

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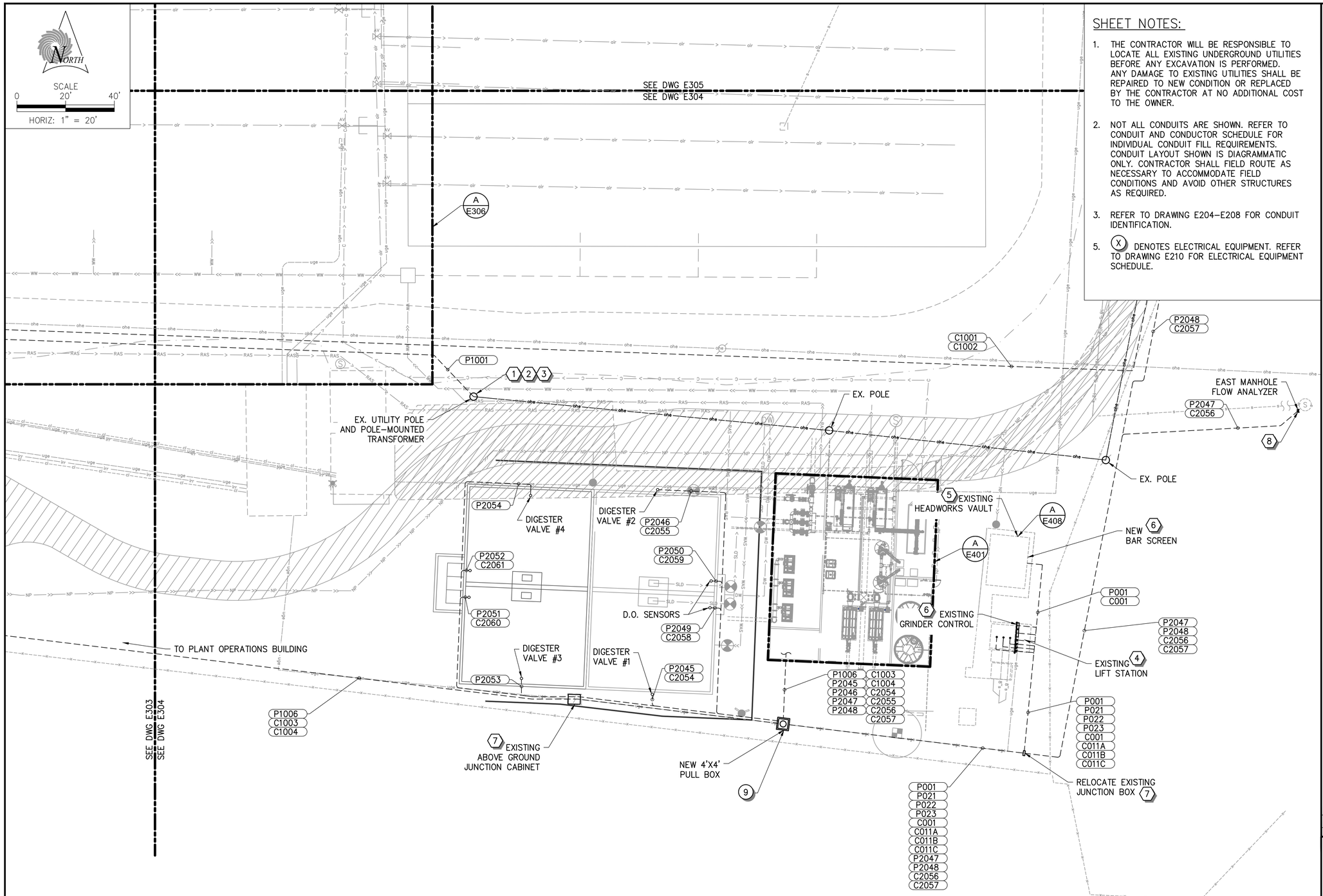

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2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWING E204–E208 FOR CONDUIT IDENTIFICATION.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.

KEY NOTES

1. CONTRACTOR SHALL COORDINATE WITH UTILITY FOR ALL SERVICE ENTRANCE WORK. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, FITTINGS AND TRENCHING BETWEEN TRANSFORMER AND BUILDING SERVICE ENTRANCE. ALL 90 DEGREE ELBOWS SHALL BE LONG–SWEEP WITH MIN. 36" RADIUS. CONDUIT SHALL BE BURIED PER UTILITY REQUIREMENTS.
2. CONTRACTOR SHALL PROVIDE A RIGID LONG–SWEEP ELBOW STUBBED AT 8" FROM EXISTING UTILITY POLE. CONTRACTOR SHALL COORDINATE EXACT PLACEMENT WITH UTILITY PRIOR TO CONSTRUCTION.
3. COORDINATE REMOVAL OF EXISTING 3ø OVERHEAD TRANSFORMER BANK AND EXTENSION OF PRIMARY 3ø CONDUCTORS TO NEW TRANSFORMER LOCATION WITH UTILITY.
4. EXISTING LIFT STATION PUMPS AND EQUIPMENT TO REMAIN. MAINTAIN EXISTING CONDUIT AND CONDUCTORS FROM LIFT STATION EQUIPMENT TO EXISTING JUNCTION BOX. RECONNECT LIFT STATION ELECTRICAL CONDUCTORS TO NEW SYSTEM AT JUNCTION BOX. REFER TO ONE–LINE DIAGRAM FOR CONNECTION INFORMATION.
5. EXISTING HEADWORKS VAULT. DISCONNECT EXISTING ELECTRICAL FEEDER TO GRINDER. ROUTE NEW CONDUCTORS IN EXISTING GRINDER CONDUITS TO NEW BAR SCREEN EQUIPMENT. REROUTE EXISTING CONDUIT AS NECESSARY AT SITE BASED ON EXISTING CONDITIONS. SALVAGE GRINDER CONTROLS LOCATED AT LIFT STATION AND RENDER TO OWNER. RECONNECT EXISTING RECEPTACLES AND 120V POWER TO NEW PANELS IN HEADWORKS BUILDING ROUTED THROUGH JUNCTION BOX ON SOUTH.
6. EXISTING GRINDER CONTROL PANEL. REMOVE AND RETURN TO OWNER. PROVIDE AND INSTALL A 12"X12"X6" JUNCTION BOX TO FACILITATE RECONNECTION TO GRINDER SYSTEM CONDUIT FOR CONNECTION TO NEW BAR SCREEN.
7. EXISTING JUNCTION BOX. RELOCATE JUNCTION BOX TO LOCATION SHOWN. RECONNECT EXISTING CONDUCTORS IN JUNCTION BOX AT NEW LOCATION FOR CONNECTION TO NEW SYSTEM AND EXISTING EQUIPMENT PER CONDUIT SCHEDULE. REFER TO CONDUIT AND CONDUCTOR SCHEDULE.
8. FLODAR SENSOR CONTROLLER. PROVIDE EQUIPMENT RACK AND MOUNT AT 60".

A ~ ELECTRICAL SITE PLAN
1" = 20'

REV NO.	COMMENT	DATE

REGISTERED PROFESSIONAL ENGINEER
23-Dec-2022
No. 362066
J. RANDALL KNAPP
STATE OF UTAH

SUNRISE ENGINEERING
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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

ELECTRICAL SITE PLANS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
S08242	JRK	JRK	JRK	175 of 249

E-304

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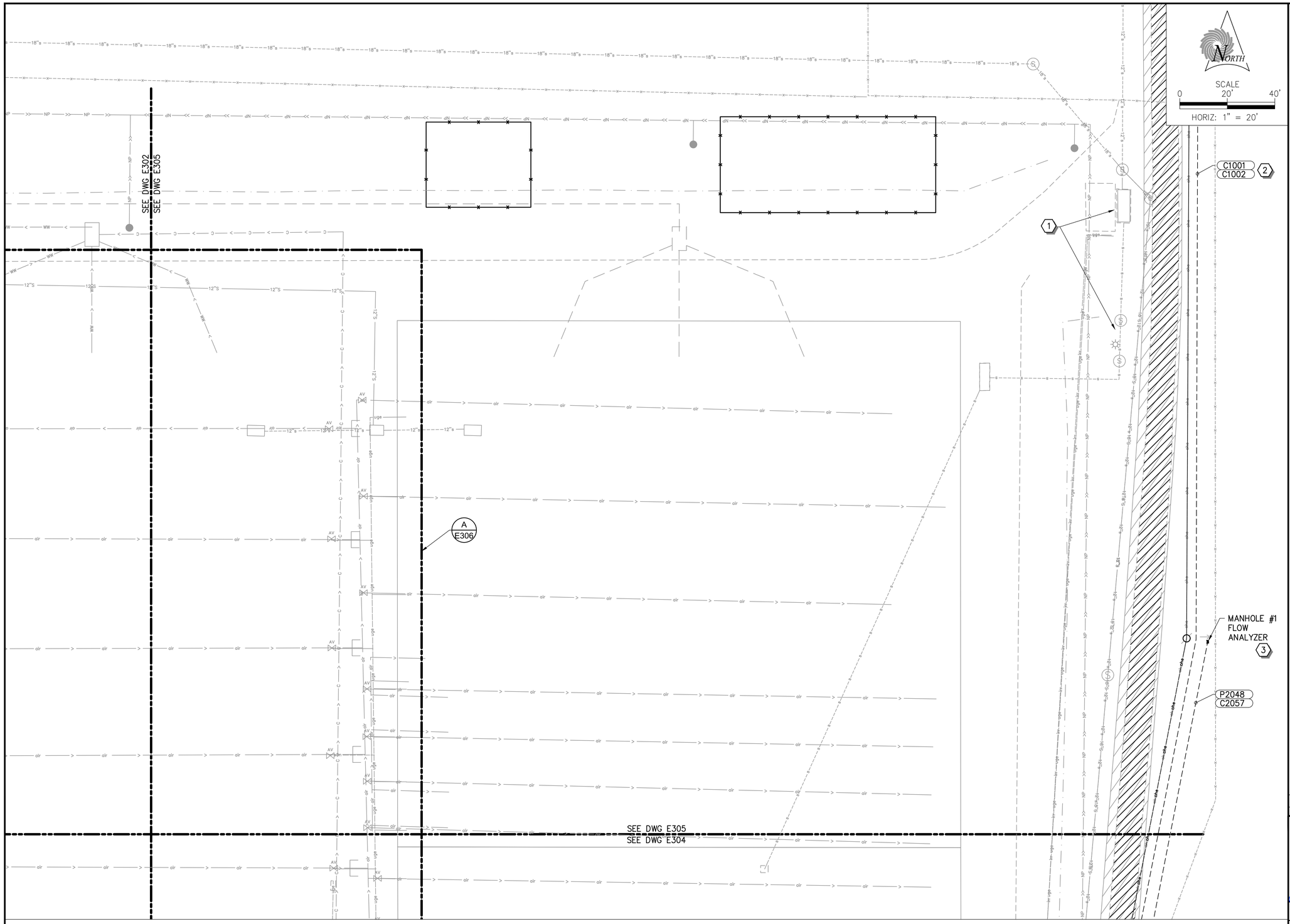

A ELECTRICAL SITE PLAN
~ 1"= 20'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWING E204–E208 FOR CONDUIT IDENTIFICATION.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.

KEY NOTES

1. EXISTING GRINDER AND PUMP EQUIPMENT. DISCONNECT ELECTRICAL FEEDERS TO REMOVE FROM SERVICE.
2. EXTEND CONDUIT TO HIGHWAY. COORDINATE WITH SERVICE PROVIDER TO DETERMINE STUB–UP LOCATION AND OTHER REQUIREMENTS.
3. FLODAR SENSOR CONTROLLER. PROVIDE EQUIPMENT RACK AND MOUNT AT 60".

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BNR WWTP 2022

ELECTRICAL SITE PLANS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	176 of 249	E-305

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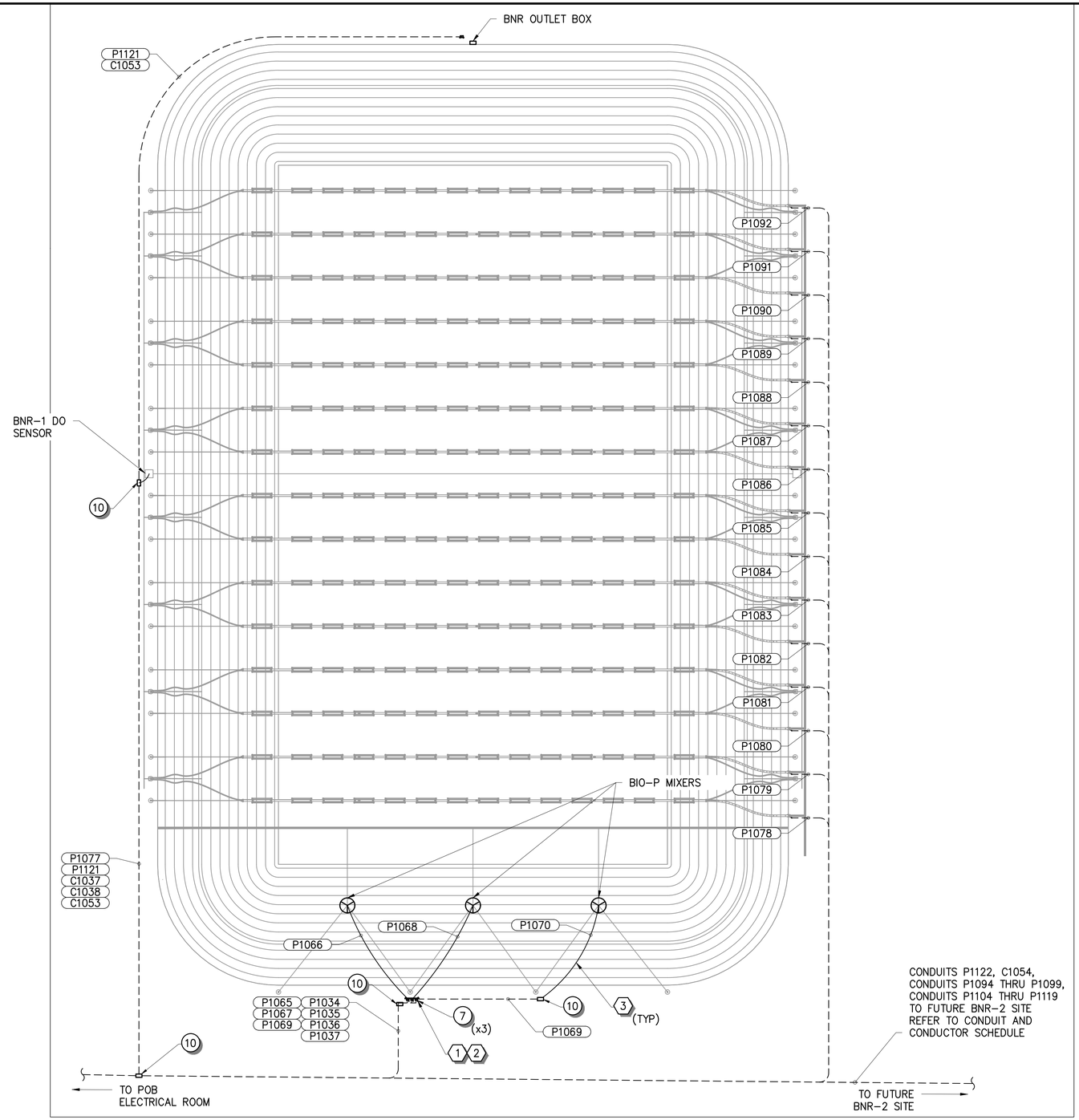

A ~ ENLARGED BNR ELECTRICAL PLAN
1" = 20'

NORTH

SCALE
0 20' 40'
HORIZ: 1" = 20'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWING E204–E208 FOR CONDUIT IDENTIFICATION.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.
6. ALL BURIED RIGID CONDUIT SHALL BE TAPE WRAPPED TO 4" ABOVE GRADE WITH 3M–50 10 MIL PIPE WRAP OR APPROVED EQUAL.

KEY NOTES

1. BIO–P MIXER DISCONNECT SWITCHES. MOUNT DISCONNECT SWITCHES NEAR THIS LOCATION. CONFIRM EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION. PROVIDE AND INSTALL EQUIPMENT RACK TO INCLUDE 2" RMC POSTS BURIED MIN. 36" DEEP WITH C–CHANNEL HORIZONTAL SUPPORTS. PROVIDE ALL CONDUIT, FITTINGS, MOUNTING HARDWARE AND ALL REQUIRED APPURTENANCES FOR AN OPERABLE SYSTEM. MOUNT VENDOR PROVIDED E–STOP SWITCHES ON RACK NEAR MIXER DISCONNECTS
2. ALL BURIED RIGID CONDUIT SHALL BE TAPE WRAPPED TO 4" ABOVE GRADE WITH 3M–50 10 MIL PIPE WRAP OR APPROVED EQUAL.
3. SECURE MANUFACTURER SUPPLIED CABLES TO MIXER SUPPORT CABLES. INSTALL PER MANUFACTURER REQUIREMENTS.

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

ENLARGED BNR ELECTRICAL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
S08242	JRK	JRK	JRK	177 of 249

E-306

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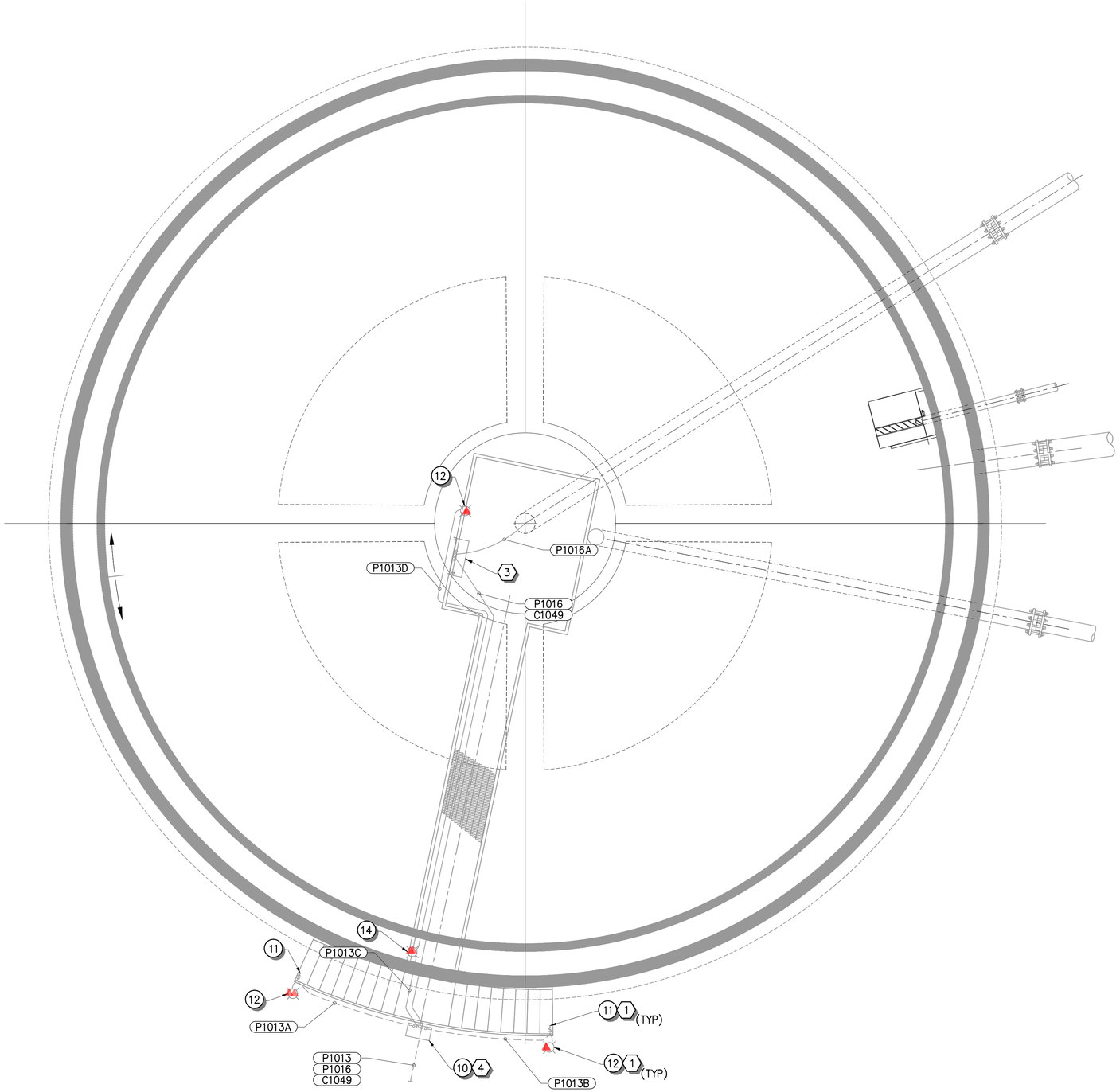

A ~ ENLARGED CLARIFIER ELECTRICAL PLAN (TYPICAL) 5

1" = 60'

NORTH

SCALE

0 60' 120'

HORIZ: 1" = 60'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWING E204–E208 FOR CONDUIT IDENTIFICATION.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.

KEY NOTES

1. PROVIDE AND INSTALL 3–WAY, WEATHERPROOF SWITCHES FOR CLARIFIER AREA LIGHTING. MOUNT SWITCHES AT EACH END OF STAIRWAY ON HANDRAIL. EACH SWITCH CALL BE CONFIGURED TO SWITCH ALL FIXTURES AT CLARIFIER. FIELD ROUTE CONDUITS P1055A–P1055D BASED ON SITE CONDITIONS.
2. LIGHT FIXTURE LOCATION. MOUNT FIXTURE ON 12' ROUND STEEL POLE AND SECURE TO RAILING WITH STAINLESS STEEL PIPE STRAPS. PROVIDE ALL CONDUIT, FITTINGS, MOUNTING HARDWARE AND ALL REQUIRED ACCESSORIES FOR A COMPLETE AND OPERABLE SYSTEM.
3. CLARIFIER CONTROL PANEL. CONTROL PANEL PROVIDED BY CLARIFIER EQUIPMENT SUPPLIER AND INSTALLED BY CONTRACTOR. INSTALL PER SUPPLIER RECOMMENDATIONS. COORDINATE EXACT MOUNTING LOCATION AND DETAILS WITH SUPPLIER PRIOR TO INSTALLATION.
4. ALL BURIED RIGID CONDUIT SHALL BE TAPE WRAPPED TO 4" ABOVE GRADE WITH 3M–50 10 MIL PIPE WRAP OR APPROVED EQUAL.
5. CONDUIT CALLOUTS SHOWN FOR CLARIFIER #1. REFER TO CONDUIT SCHEDULE FOR CONDUITS TO CLARIFIER #2 AND FUTURE CLARIFIER #3.

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

ENLARGED CLARIFIER ELECTRICAL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	178 of 249	E-307

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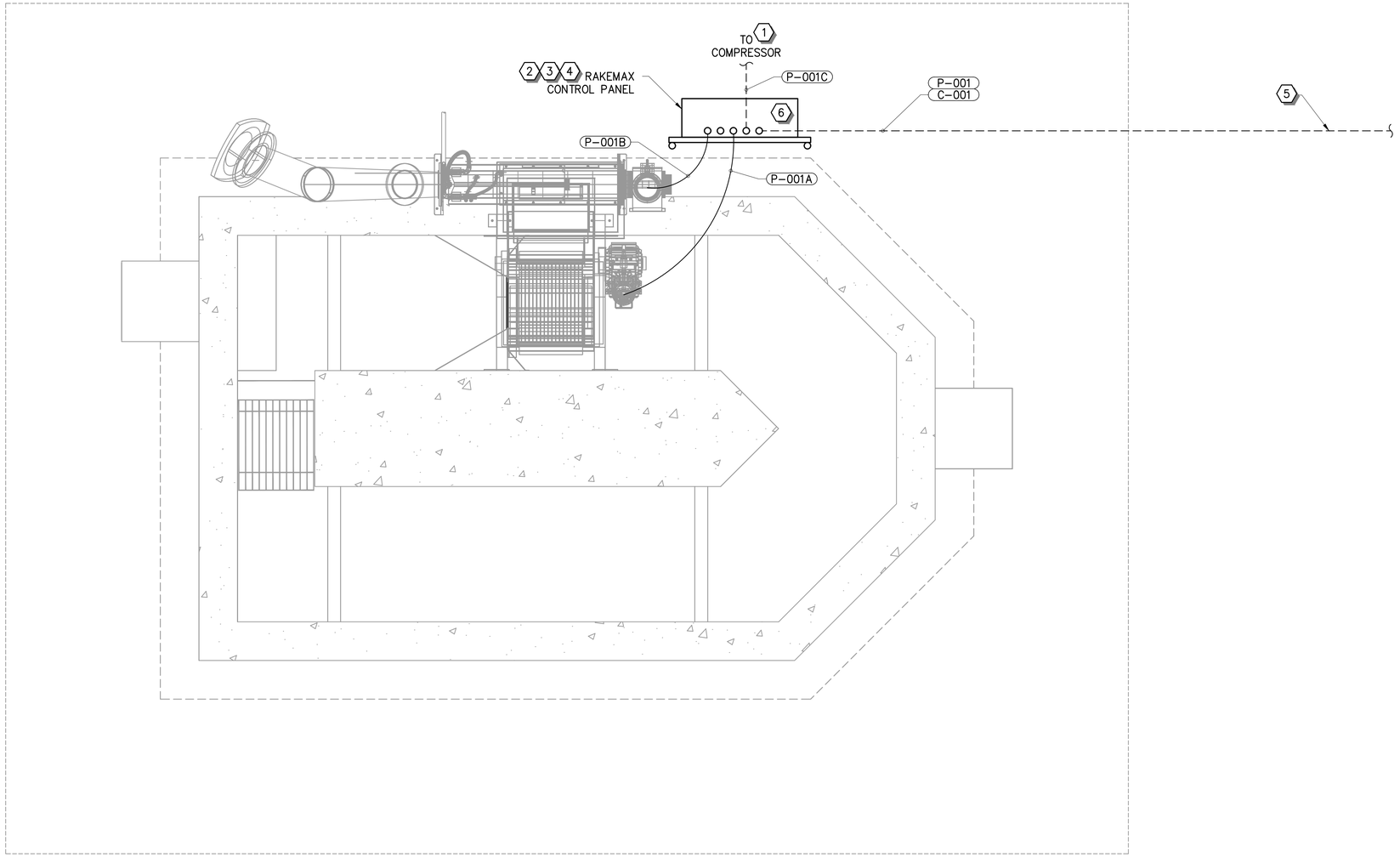

A ~ ENLARGED HEADWORKS VAULT ELECTRICAL PLAN (TYPICAL)
1" = 20'

NORTH

SCALE
0 20' 40'
HORIZ: 1" = 20'

SHEET NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE ANY EXCAVATION IS PERFORMED. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO NEW CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. NOT ALL CONDUITS ARE SHOWN. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR INDIVIDUAL CONDUIT FILL REQUIREMENTS. CONDUIT LAYOUT SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND AVOID OTHER STRUCTURES AS REQUIRED.
3. REFER TO DRAWINGS E204–E208 FOR CONDUIT IDENTIFICATION.
5. (X) DENOTES ELECTRICAL EQUIPMENT. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.
6. AREA WITHIN A 10 FOOT ENVELOPE AROUND HEADWORKS EQUIPMENT AND OPEN CHANNEL IS A CLASS I DIVISION 2 HAZARDOUS LOCATION. ALL WIRING SHALL COMPLY WITH NEC 500.

KEY NOTES

(1) COORDINATE LOCATION OF COMPRESSOR WITH ENGINEER PRIOR TO CONSTRUCTION.

(2) RAKEMAX CONTROL PANEL. CONTROL PANEL PROVIDED BY CLARIFIER EQUIPMENT SUPPLIER AND INSTALLED BY CONTRACTOR. INSTALL PER SUPPLIER RECOMMENDATIONS. COORDINATE EXACT MOUNTING LOCATION AND DETAILS WITH SUPPLIER PRIOR TO INSTALLATION.

(3) CLARIFIER CONTROL PANEL. CONTROL PANEL PROVIDED BY CLARIFIER EQUIPMENT SUPPLIER AND INSTALLED BY CONTRACTOR. INSTALL PER SUPPLIER RECOMMENDATIONS. COORDINATE EXACT MOUNTING LOCATION AND DETAILS WITH SUPPLIER PRIOR TO INSTALLATION.

(4) ALL BURIED RIGID CONDUIT SHALL BE TAPE WRAPPED TO 4" ABOVE GRADE WITH 3M–50 10 MIL PIPE WRAP OR APPROVED EQUAL.

(5) LOCATE AND INTERCEPT EXISTING GRINDER CONDUIT P–001 AND EXTEND TO HEADWORKS AREA. INSTALL CONDUCTORS IN EXISTING CONDUIT FOR SCREENING EQUIPMENT AND COMPRESSOR.

(6) CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT AND CONDUCTOR TO FROM RAKEMAX CONTROL PANEL TO SCREEN/PRESS ACCESSORIES AT HEADWORKS LOCATION TO INCLUDE:
- HEAT TRACE AMBIENT TEMP CONTRACTOR
- (2) HEAT TRACING CIRCUITS
- (2) E–STOP SWITCHES
- (2) MOTOR HI–TEMP SWITCHES
- (2) WASH SOLENOID VALVES
- UPSTREAM LEVEL TRANSDUCER
- DOWNSTREAM LEVEL TRANSDUCER
- POSITION SWITCH
- OVERTORQUE SWITCH

COORDINATE WITH EQUIPMENT VENDOR TO DETERMINE LOCATION OF EQUIPMENT.

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

ENLARGED HW VAULT PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	179 of 249	E-308

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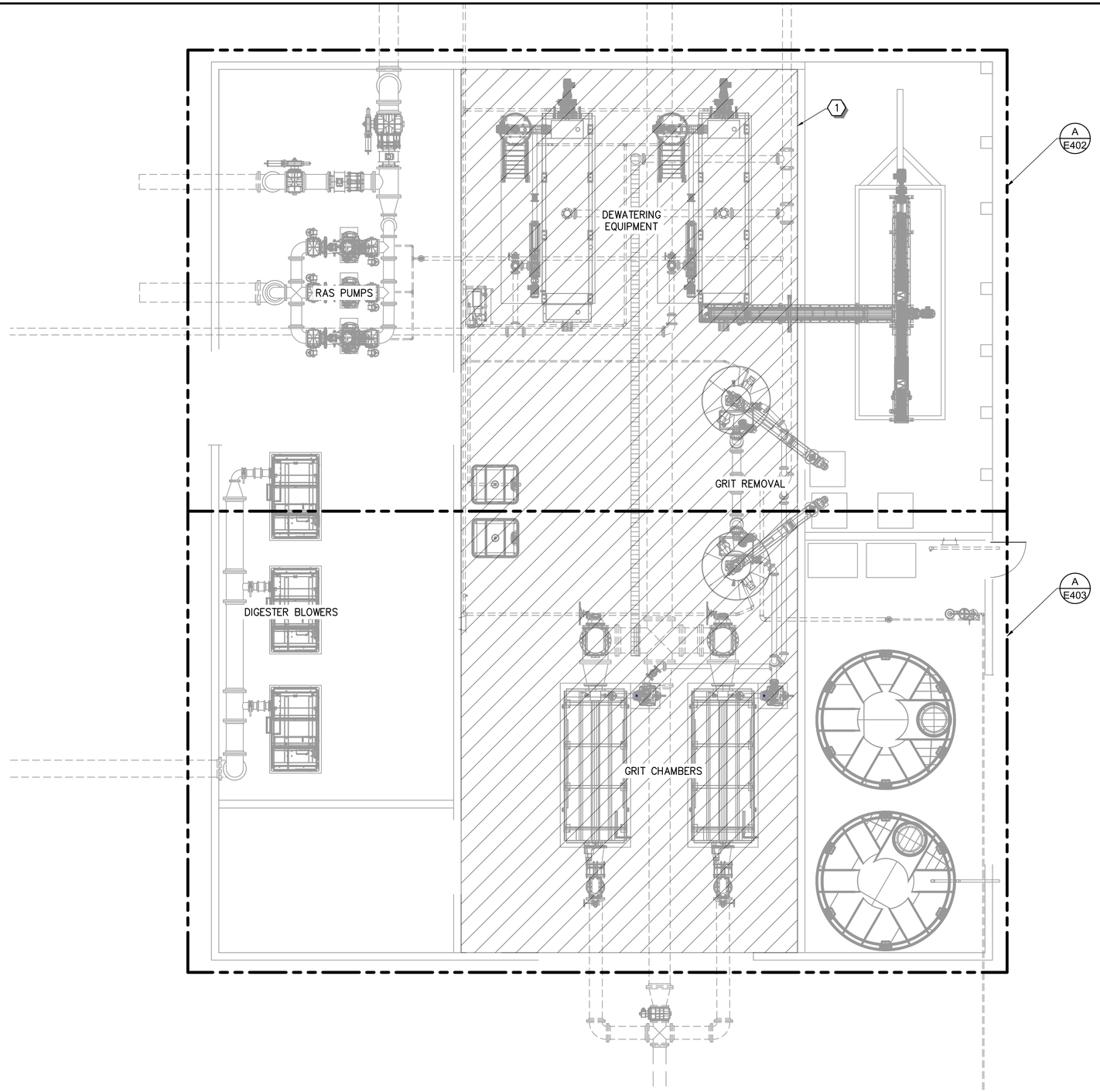

NORTH

KEY NOTES

1. SHADED AREA IS CLASSIFIED AS A CLASS I DIVISION 2 AREA. ALL WIRING SHALL COMPLY WITH NEC SECTION 501

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

HB ELECTRICAL KEY PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	180 of 249	E-401

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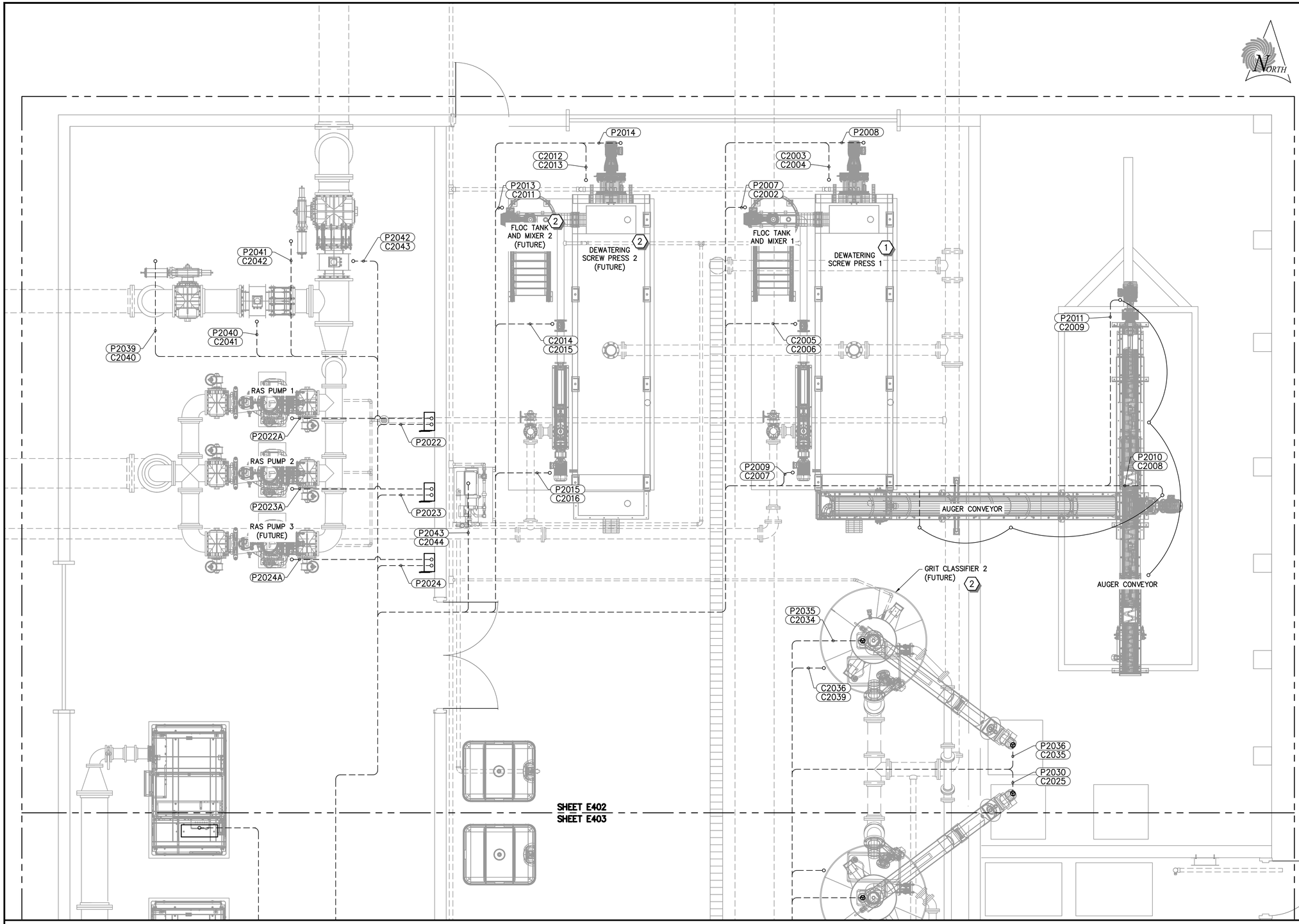
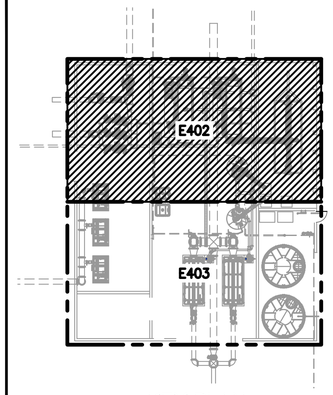


A ENLARGED POWER & CONTROL PLAN
~ 3/8" = 1'



KEY PLAN

SHEET NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. ALL CONDUITS ARE NOT SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL INFORMATION.
3. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
4. REFER TO DRAWING E2xx FOR ONELINE DIAGRAMS.
5. REFER TO DRAWING E2xx FOR CONDUIT AND CONDUCTOR SCHEDULE.
6. ALL CONDUCTORS SHALL BE ROUTED IN CABLE TRAY, CONDUIT SUSPENDED FROM CEILING, OR BE INSTALLED IN SURFACE MOUNTED CONDUIT. FLEX CONDUIT MAY BE USED TO STUB TO EQUIPMENT AS PERMITTED BY NEC.
7. VERIFY LOCATION OF EQUIPMENT SHOWN. COORDINATE WITH EQUIPMENT SUPPLIER FOR STUB UP LOCATIONS.

KEY NOTES

1. FOR ALL VENDOR SUPPLIED EQUIPMENT, COORDINATE CONDUIT STUB UP LOCATIONS WITH EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.
2. FUTURE EQUIPMENT. STUB AND CAP CONDUIT FLUSH WITH FINISHED FLOOR FOR FUTURE USE AS SHOWN.
3. CONTROL PANEL PROVIDED BY EQUIPMENT SUPPLIER AND INSTALLED BY CONTRACTOR. COORDINATE WITH MANUFACTURER FOR ADDITIONAL REQUIREMENTS.

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

HB POWER AND CONTROL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	181 of 249	E-402

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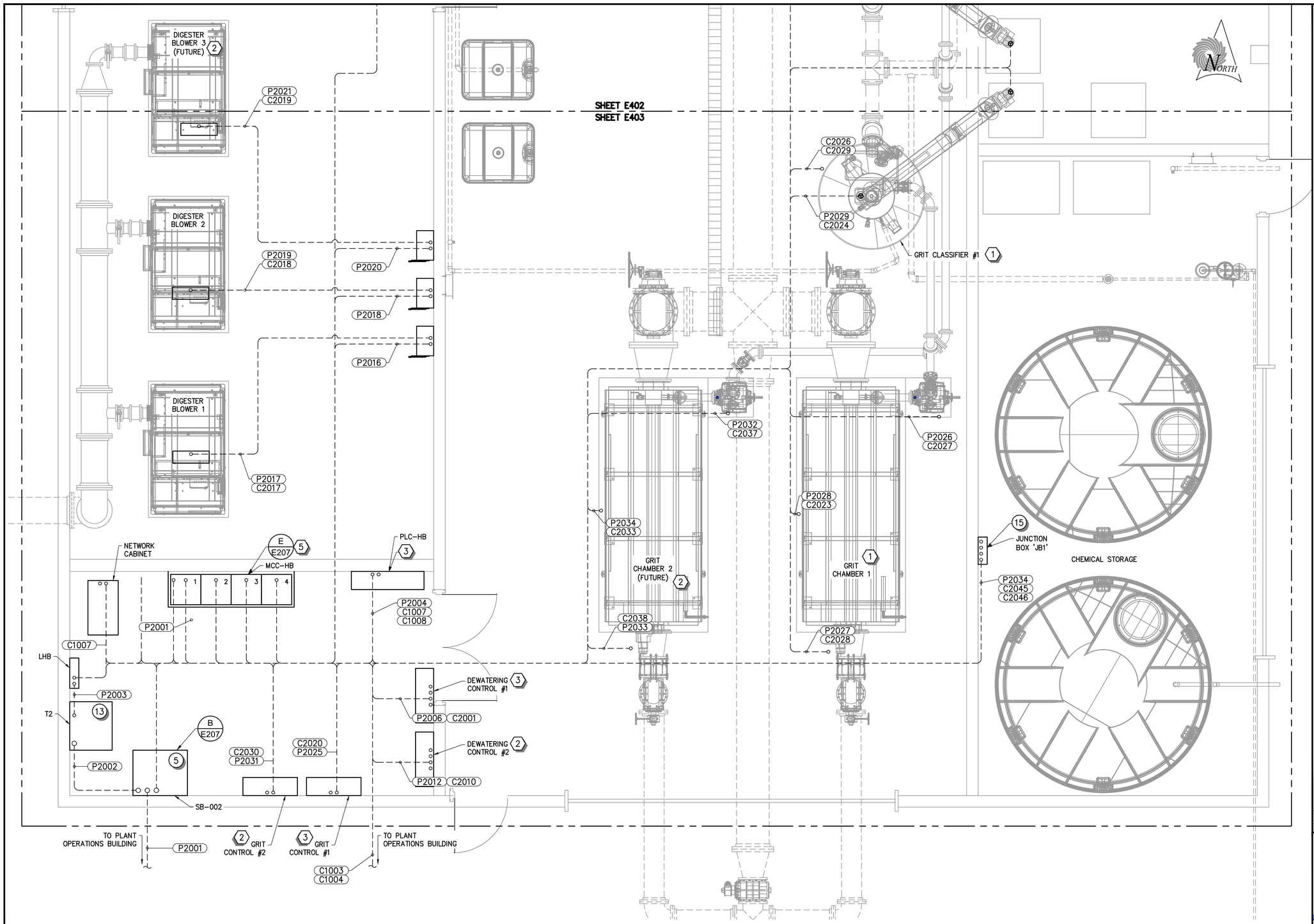
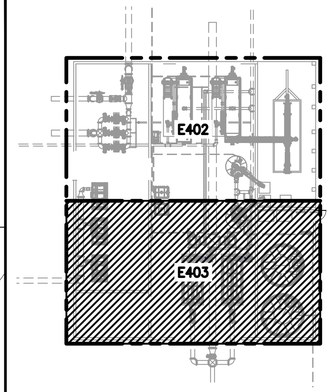


B ~ ENLARGED ELECTRICAL PLAN
1/2" = 1'



KEY PLAN

SHEET NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. ALL CONDUITS ARE NOT SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL INFORMATION.
3. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
4. REFER TO DRAWING E204–E208 FOR CONDUIT AND CONDUCTOR SCHEDULE.
5. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.
6. ALL CONDUCTORS SHALL BE ROUTED IN CABLE TRAY, CONDUIT SUSPENDED FROM CEILING, OR BE INSTALLED IN SURFACE MOUNTED CONDUIT. FLEX CONDUIT MAY BE USED TO STUB TO EQUIPMENT AS PERMITTED BY NEC.
7. VERIFY LOCATION OF EQUIPMENT SHOWN. COORDINATE WITH EQUIPMENT SUPPLIER FOR STUB UP LOCATIONS.

KEY NOTES

1. FOR ALL VENDOR SUPPLIED EQUIPMENT, COORDINATE CONDUIT STUB UP LOCATIONS WITH EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.
2. FUTURE EQUIPMENT. STUB AND CAP CONDUIT FLUSH WITH FINISHED FLOOR FOR FUTURE USE AS SHOWN.
3. CONTROL PANEL PROVIDED BY EQUIPMENT SUPPLIER AND INSTALLED BY CONTRACTOR. COORDINATE WITH MANUFACTURER FOR ADDITIONAL REQUIREMENTS.
4. REFER TO SCADA AND INSTRUMENTATION PLANS FOR RTU EQUIPMENT DETAILS.
5. REFER TO CONDUIT SCHEDULE FOR MCC-HB CONDUIT DETAILS.

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

HP POWER AND CONTROL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	182 of 249	E-403

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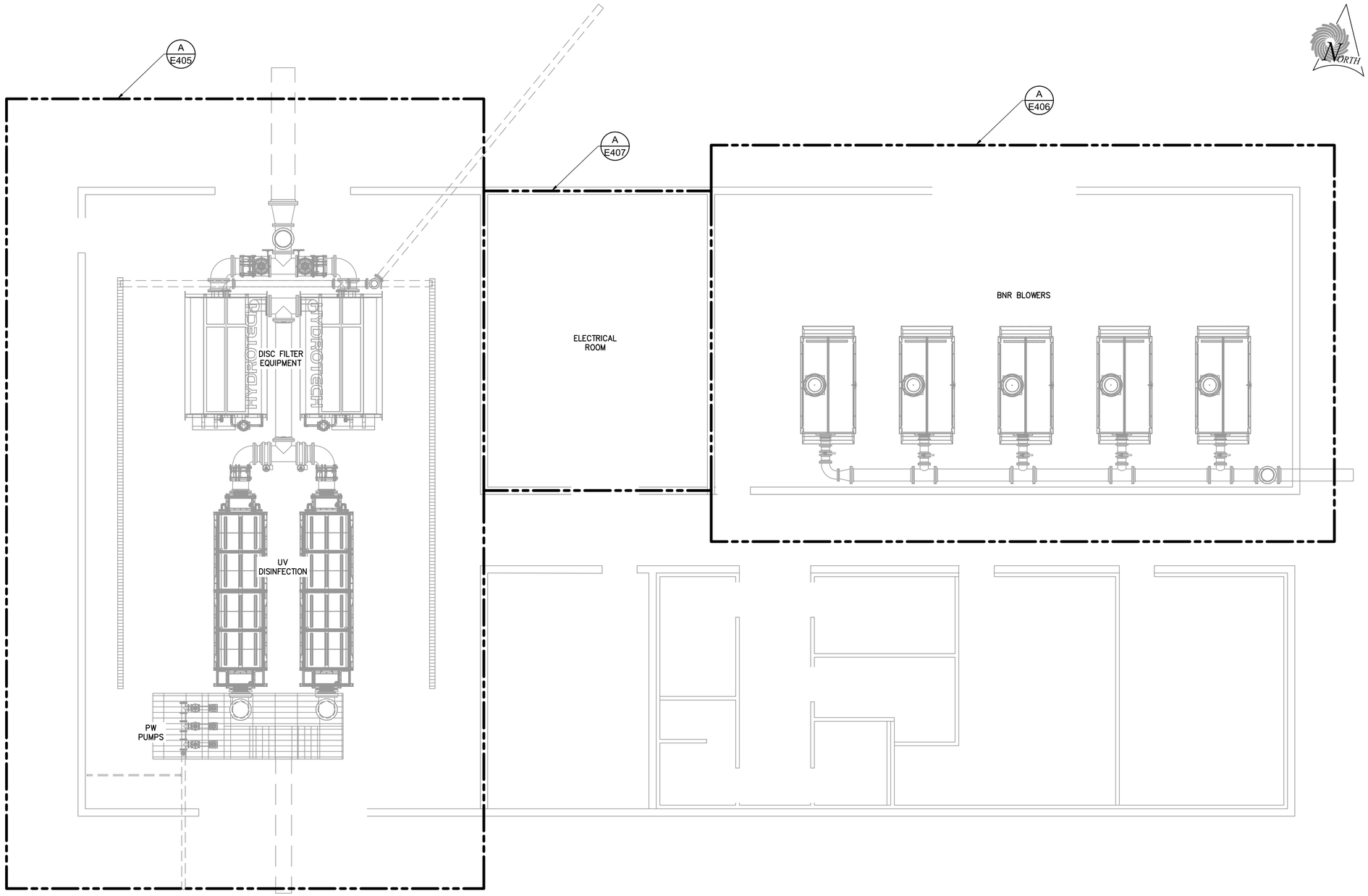

A POWER & CONTROL KEY PLAN
SCALE: 1"=5'-0"

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

POB ELECTRICAL KEY PLAN

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S08242	JRK	JRK	JRK	183 of 249	E-404

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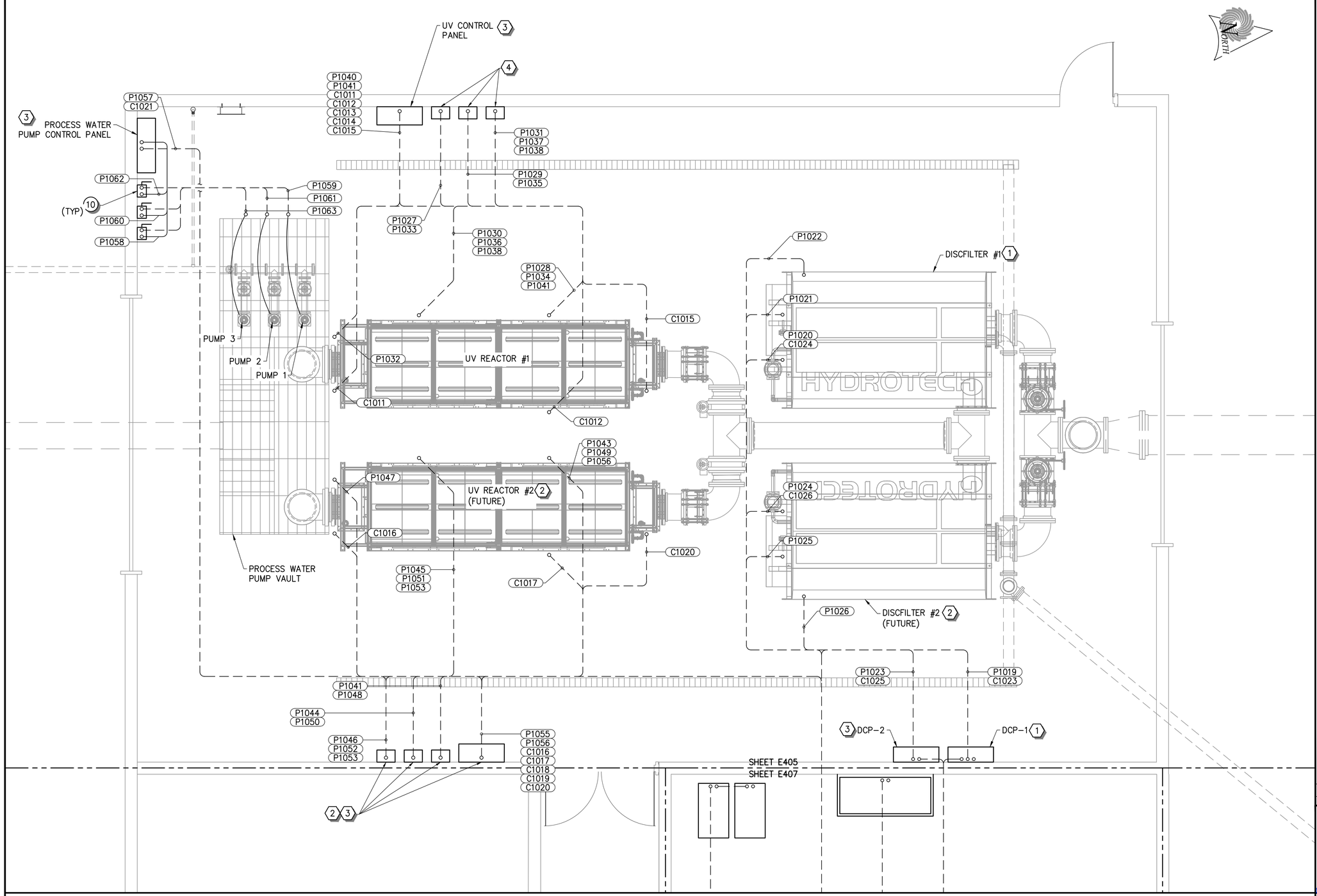
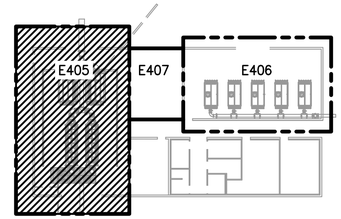


A ENLARGED POWER & CONTROL PLAN
~ 3/8" = 1'



KEY PLAN

SHEET NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. ALL CONDUITS ARE NOT SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL INFORMATION.
3. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
4. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.
5. REFER TO DRAWING E204–E2008 FOR CONDUIT AND CONDUCTOR SCHEDULE.
6. ALL CONDUCTORS SHALL BE ROUTED IN CABLE TRAY, CONDUIT SUSPENDED FROM CEILING, OR BE INSTALLED IN SURFACE MOUNTED CONDUIT. FLEX CONDUIT MAY BE USED TO STUB TO EQUIPMENT AS PERMITTED BY NEC.
7. VERIFY LOCATION OF EQUIPMENT SHOWN. COORDINATE WITH EQUIPMENT SUPPLIER FOR STUB UP LOCATIONS.

KEY NOTES

1. FOR ALL VENDOR SUPPLIED EQUIPMENT, COORDINATE CONDUIT STUB UP LOCATIONS WITH EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.
2. FUTURE EQUIPMENT. STUB AND CAP CONDUIT FLUSH WITH FINISHED FLOOR FOR FUTURE USE AS SHOWN.
3. ELECTRICAL PANEL PROVIDED BY EQUIPMENT SUPPLIER AND INSTALLED BY CONTRACTOR. CONTRACTOR TO PROVIDE ALL CONDUIT, FITTINGS, TERMINATIONS AND MOUNTING HARDWARE.
4. DISCONNECT SWITCH PROVIDED BY EQUIPMENT SUPPLIER AND INSTALLED BY CONTRACTOR. CONTRACTOR TO PROVIDE ALL CONDUIT, FITTINGS, TERMINATIONS AND MOUNTING HARDWARE. COMPLETE WIRING BETWEEN UV CONTROL PANELS AND EQUIPMENT PER MANUFACTURER SUPPLIED DRAWINGS.

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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

POB POWER AND CONTROL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	184 of 249	E-405

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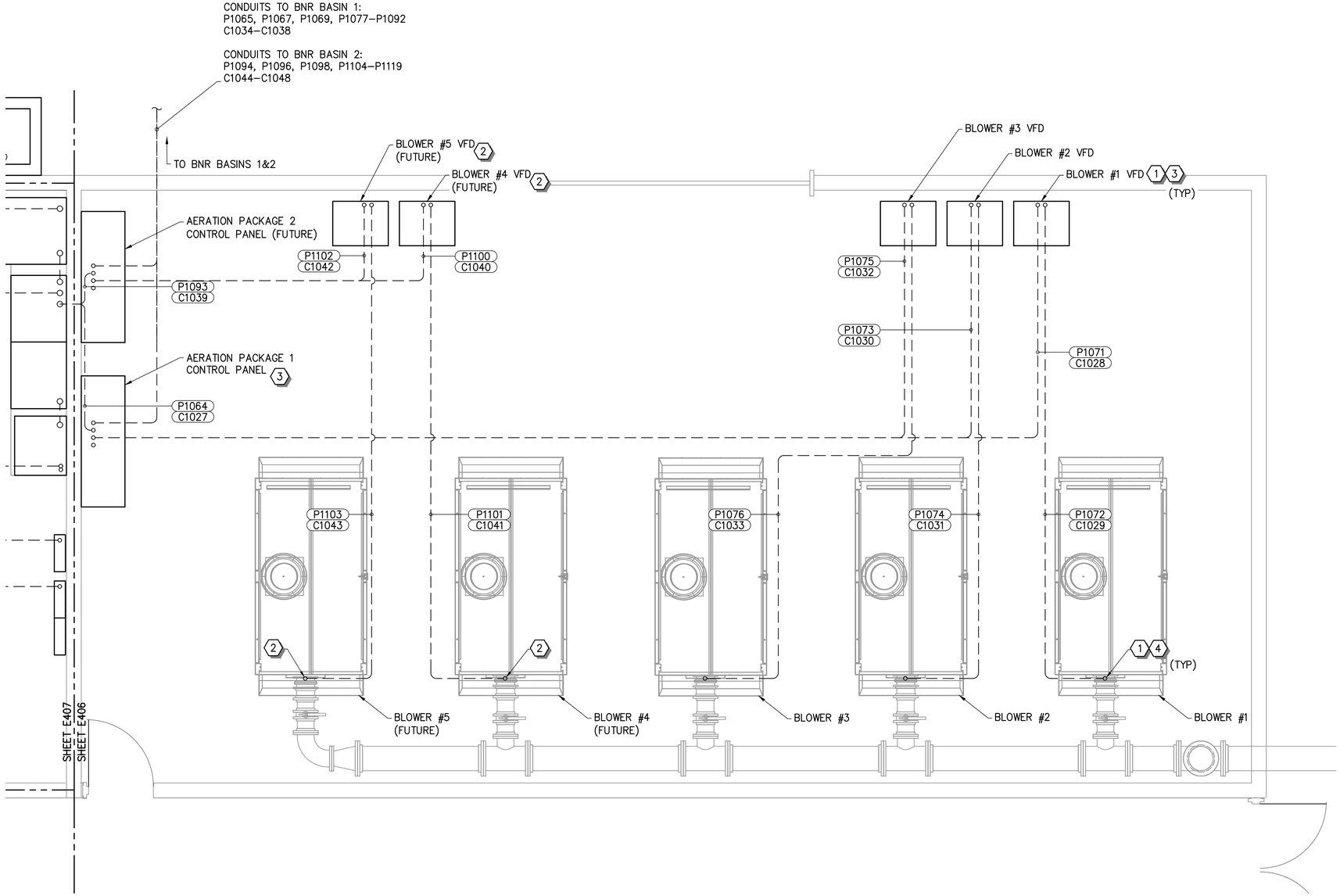
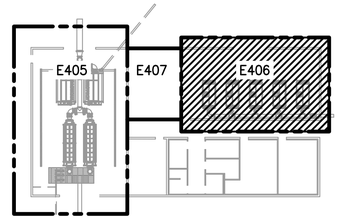


B ENLARGED ELECTRICAL PLAN
1/2" = 1'



KEY PLAN

SHEET NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. ALL CONDUITS ARE NOT SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL INFORMATION.
3. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
4. REFER TO DRAWING E210 FOR ELECTRICAL EQUIPMENT SCHEDULE.
5. REFER TO DRAWING E204–E208 FOR CONDUIT AND CONDUCTOR SCHEDULE.
6. ALL CONDUCTORS SHALL BE ROUTED IN CABLE TRAY, CONDUIT SUSPENDED FROM CEILING, OR BE INSTALLED IN SURFACE MOUNTED CONDUIT. FLEX CONDUIT MAY BE USED TO STUB TO EQUIPMENT AS PERMITTED BY NEC.
7. VERIFY LOCATION OF EQUIPMENT SHOWN. COORDINATE WITH EQUIPMENT SUPPLIER FOR STUB UP LOCATIONS.

KEY NOTES

1. COORDINATE CONDUIT STUB UP LOCATIONS WITH EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.
2. FUTURE EQUIPMENT. STUB AND CAP CONDUIT FLUSH WITH FINISHED FLOOR FOR FUTURE USE AS SHOWN.
3. ELECTRICAL PANEL PROVIDED BY EQUIPMENT SUPPLIER AND INSTALLED BY CONTRACTOR. CONTRACTOR TO PROVIDE ALL CONDUIT, FITTINGS, TERMINATIONS AND MOUNTING HARDWARE.
4. FIELD LOCATE BLOWER E–STOP SWITCHES PER MANUFACTURER RECOMMENDATIONS

REV NO.	COMMENT	DATE

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23-Dec-2022
No. 362066
J. RANDALL KNAPP
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MOUNTAIN GREEN SEWER IMPROVEMENT DISTRICT

BNR WWTP 2022

POB POWER AND CONTROL PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
S08242	JRK	JRK	JRK	185 of 249	E-406

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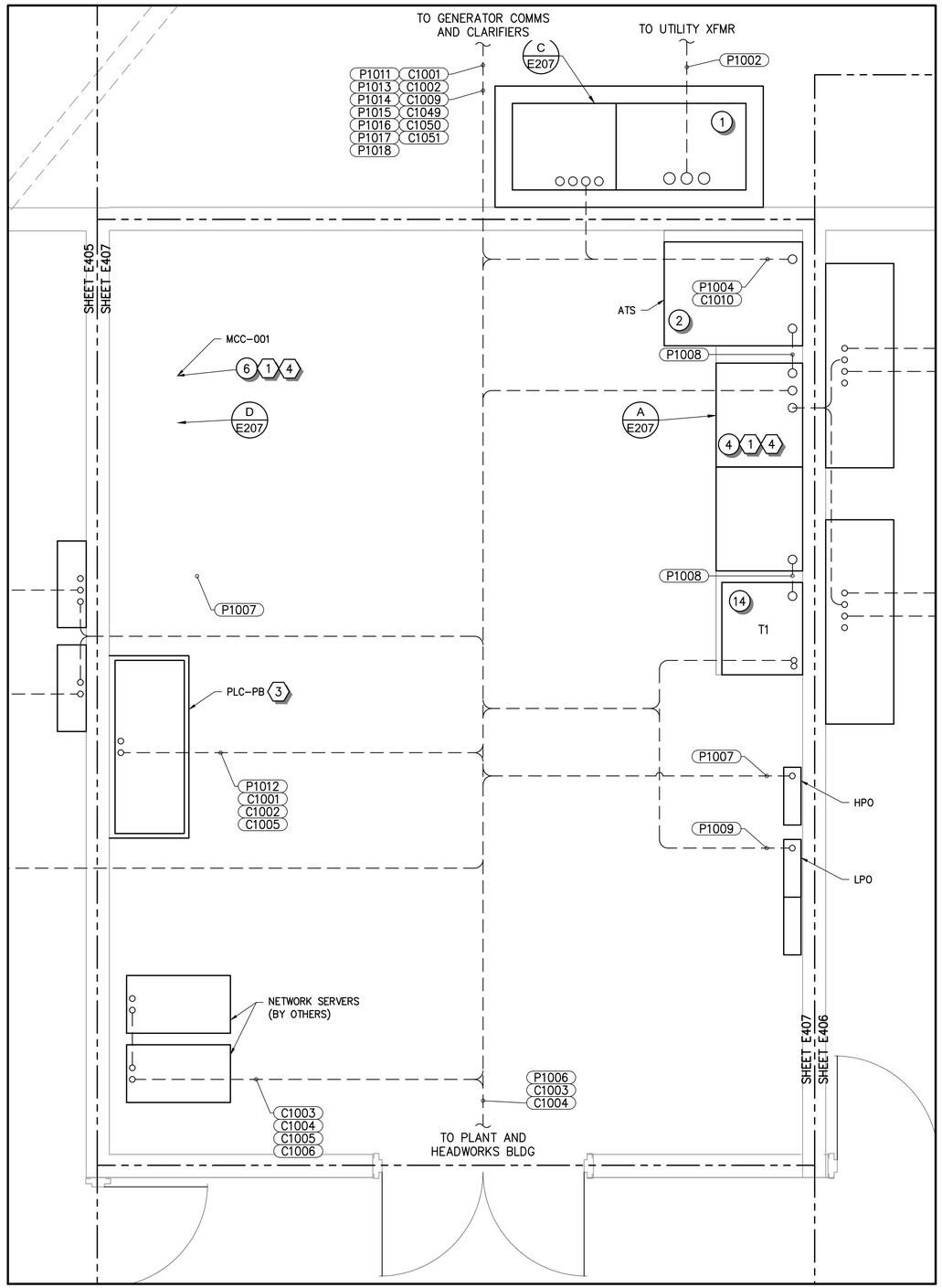
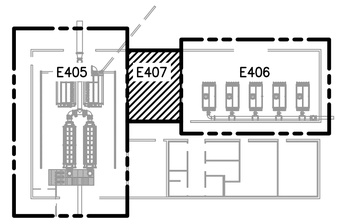


B
~
ENLARGED ELECTRICAL PLAN
1/2" = 1'

NORTH



KEY PLAN

SHEET NOTES:

1. CONTRACTOR TO COMPLY WITH GENERAL ELECTRICAL REQUIREMENTS ON DRAWING E100.
2. ALL CONDUITS ARE NOT SHOWN FOR CLARITY. REFER TO CONDUIT AND CONDUCTOR SCHEDULE FOR ADDITIONAL INFORMATION.
3. CONDUITS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AS NECESSARY TO AVOID OBSTACLES AND OTHER EQUIPMENT.
4. REFER TO DRAWING E2xx FOR ONELINE DIAGRAMS.
5. REFER TO DRAWING E2xx FOR CONDUIT AND CONDUCTOR SCHEDULE.
6. ALL CONDUCTORS SHALL BE ROUTED IN CABLE TRAY, CONDUIT SUSPENDED FROM CEILING, OR BE INSTALLED IN SURFACE MOUNTED CONDUIT. FLEX CONDUIT MAY BE USED TO STUB TO EQUIPMENT AS PERMITTED BY NEC.
7. VERIFY LOCATION OF EQUIPMENT SHOWN. COORDINATE WITH EQUIPMENT SUPPLIER FOR STUB UP LOCATIONS.

KEY NOTES

1. COORDINATE CONDUIT STUB UP LOCATIONS WITH EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.
2. FUTURE EQUIPMENT. STUB AND CAP CONDUIT FLUSH WITH FINISHED FLOOR FOR FUTURE USE AS SHOWN.
3. REFER TO SCADA AND INSTRUMENTATION PLANS FOR RTU EQUIPMENT DETAILS.
4. REFER TO DRAWING E202 FOR SB-001 CONDUIT DETAILS.

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S08242	JRK	JRK	JRK	186 of 249	E-407

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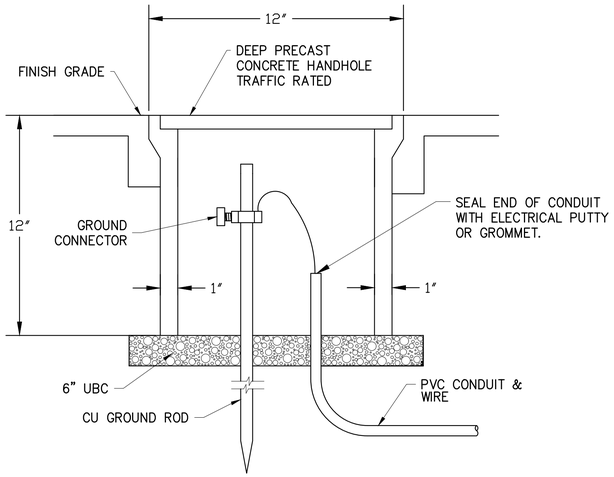
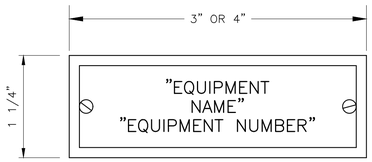
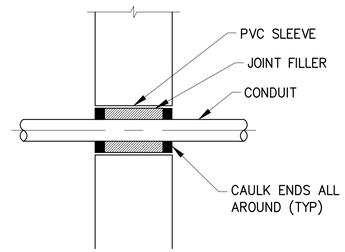


A DETAIL - GROUND WELL
N.T.S.



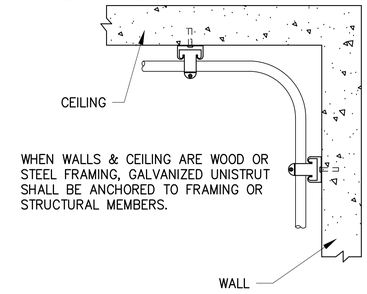
1. ALL LETTERS TO BE WHITE 1/4" HIGH, ON A BLACK BACKGROUND UNLESS NOTED OTHERWISE.
2. ALL NAMEPLATES TO BE MOUNTED ON THE VERTICAL CENTER LINE OF THE CUBICLE OR DEVICE.
3. ATTACH ALL NAMEPLATES WITH STAINLESS STEEL SCREWS.
4. PROVIDE BLANK NAMEPLATES FOR ALL SPARE AND AN ADDITIONAL TEN PERCENT FOR FUTURE DEVICES.

B DETAIL - NAMEPLATE
N.T.S.

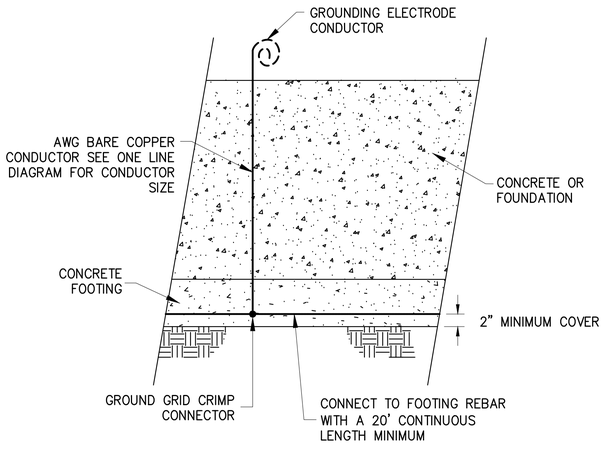


C CONDUIT PENETRATION
N.T.S.

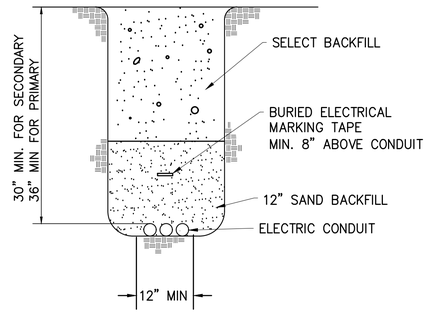
7/8" GALVENIZED UNISTRUT TO BE ANCHORED TO THE WALL & CEILING, THEN CONDUIT SHALL BE RUN AND ATTACHED WITH UNISTRUT STRAPS.



D DETAIL - CONDUIT MOUNT
N.T.S.



E DETAIL - UFER CONCRETE ENCASED
N.T.S.



1. WARNING TAPE MUST BE PLACED ON TOP OF CONDUIT (5 MILS THICKNESS)
2. ALL TRENCHES MUST BE INSPECTED PRIOR TO BACKFILLING
3. TRENCHES SHOULD BE SPOT BACKFILLED TO PREVENT MOVEMENT OF TAPE DURING BACKFILL.
4. SELECT BACKFILL MUST BE COMPACTED IN 1 FOOT LIFTS TO PREVENT SETTLING.

F DETAIL - UNDERGROUND CONDUIT POWER CABLE TRENCH
N.T.S.

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ELECTRICAL DETAILS

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S08242	JRK	JRK	JRK	187 of 249

E-501

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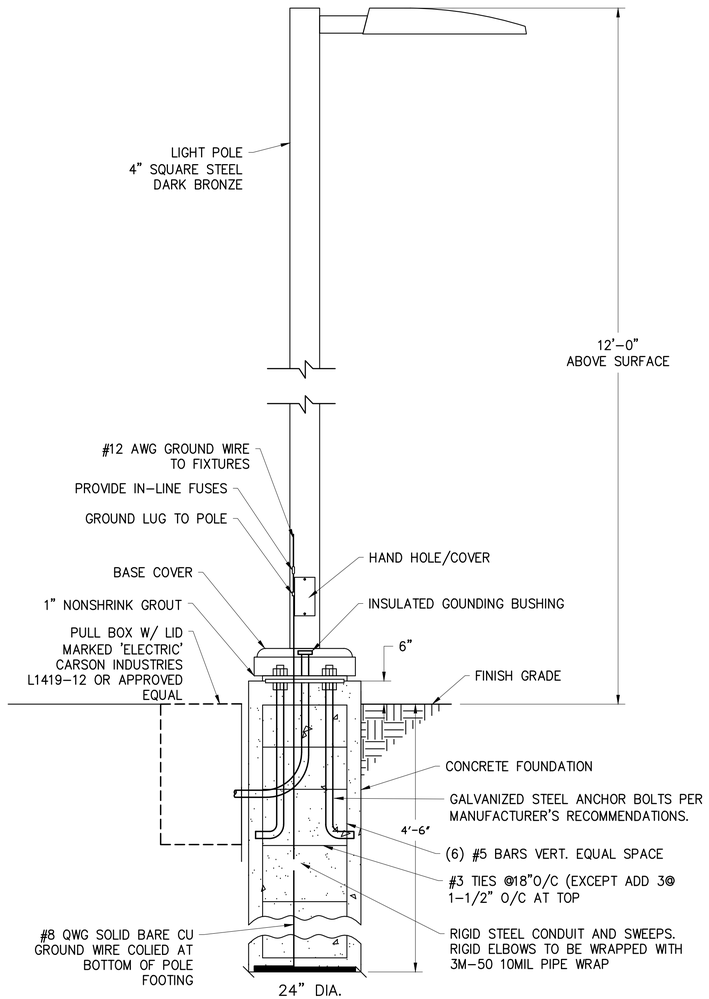
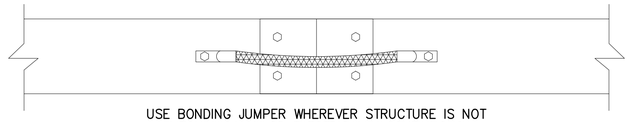


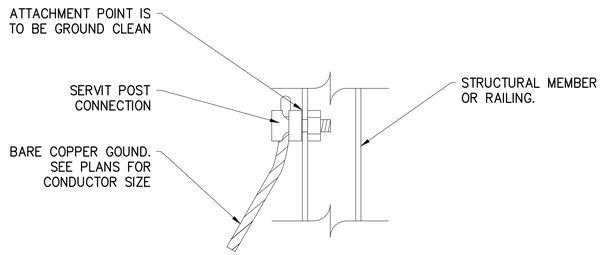
NOTES:

1. SEE MANUFACTURER'S REQUIREMENTS FOR POLE BASE PLATE DIMENSIONS AND OTHER SPECIFICATIONS.
2. INSTALL BASE PLATE ADJUSTMENT NUTS AND LOCK WASHERS. WASHERS AND MISC. APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

A ~ DETAIL-SITE LIGHTING POLE AND BASE
N.T.S.



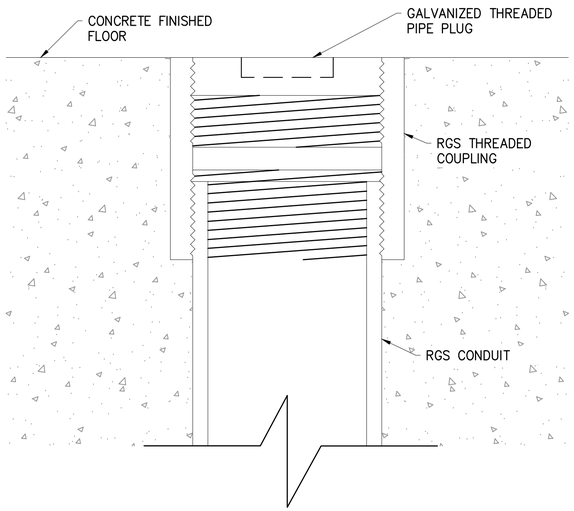
USE BONDING JUMPER WHEREVER STRUCTURE IS NOT
MECHANICALLY OR ELECTRICALLY CONTINUOUS



NOTES:

1. ALL GROUNDING CONNECTIONS MADE ON MAIN STRUCTURAL VERTICAL COLUMNS WILL BE CADWELD TYPE ONLY.
2. ANY DAMAGED GALVANIZED SURFACES WILL BE COVERED WITH ZINC OXIDE ENRICHED PAINT.

B ~ DETAIL-STRUCTURAL / RAILING GROUNDING
N.T.S.



NOTES:

1. CONTRACTOR TO ENSURE THAT CONDUIT AND COUPLING TO BE VERTICAL AND FLUSH WITH FINISHED FLOOR.

C DETAIL-EMBEDDED CONDUIT FOR FUTURE EQUIPMENT

GENERAL NOTES

1. THE CONTRACTOR SHALL COORDINATE ALL UNDERGROUND ELECTRICAL WORK WITH OWNER. ALL MATERIALS AND ELECTRICAL EQUIPMENT PROVIDED AND INSTALLED BY THE CONTRACTOR MUST BE IN ACCORDANCE WITH LATEST VERSION OF NEC AND ALL APPLICABLE STANDARDS.
2. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS BEFORE ANY TRENCHING IS PERFORMED.

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S08242	JRK	JRK	JRK	188 of 249	E-502

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ELECTRICAL GENERAL NOTES:

1. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER, PER INDUSTRY STANDARD, AND TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER.
2. WORK, MATERIALS, AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES, STANDARDS AND ORDINANCES.
3. ELECTRICAL CONTRACTOR TO REFER TO THE CIVIL ENGINEER'S DRAWING AND COORDINATE ELECTRICAL INSTALLATION WITH ALL UTILITIES.
4. ELECTRICAL CONTRACTOR TO VERIFY ALL THE UTILITY COMPANY SERVICE (POWER, TELEPHONE, ETC.) TERMINATION POINTS PRIOR TO ROUGH-IN. PROVIDE CONDUIT AS REQUIRED TO ACCOMMODATE ALL UTILITY COMPANY SERVICES. REPORT ANY CONFLICTING CONDITIONS TO THE ARCHITECT.
5. EVERY CIRCUIT AND CIRCUIT MODIFICATION SHALL BE LEGIBLY IDENTIFIED AS TO ITS CLEAR, EVIDENT, AND SPECIFIC PURPOSE OR USE PER NEC 408.4(A).
6. ALL MATERIALS USED IN THIS INSTALLATION SHALL BE U.L. APPROVED AND NEW.
7. DO NOT PENETRATE STRUCTURAL ELEMENTS OF FLOORS, WALLS, CEILINGS, ROOF, ETC.
8. DETAILS ARE SHOWN ON DIFFERENT SHEETS. THE CONTRACTOR SHALL REFER TO THOSE DETAILS WHETHER OR NOT CALLED IN REFERENCE NOTES.
9. ELECTRICAL CONTRACTOR SHALL NOTIFY AND COORDINATE WITH THE MECHANICAL CONTRACTOR SUCH THAT NO DUCTS, PIPING, OR EQUIPMENT FOREIGN TO THE OPERATION OF THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER, OR PASS THROUGH ELECTRICAL ROOMS OR SPACES, OR ABOVE OR BELOW ELECTRICAL EQUIPMENT IN OTHER AREAS.
10. NO WIRING SHALL RUN IN DUCT WORK.
11. THE MINIMUM SIZE OF THE CONDUCTORS ARE TO BE #12 AWG THHN COPPER, UNLESS INDICATED OTHERWISE ON THE DRAWINGS. STRANDED CONDUCTORS ARE NOT ALLOWED IN THE CONDUCTORS SMALLER THAN #10 AWG.
12. USE EPOXY ANCHORS TO SUPPORT THE ELECTRICAL EQUIPMENT. EXPANSION ANCHOR BOLTS ARE NOT ACCEPTED.
13. THE ELECTRICAL CONTRACTOR SHALL REVIEW AND COORDINATE WITH ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, PLUMBING, AND OTHER DRAWINGS PRIOR TO BID.
14. ELECTRICAL CONTRACTOR SHALL REVIEW ALL ARCHITECT'S ELEVATIONS, SECTIONS, AND FLOOR PLANS PRIOR TO ROUGH-IN OF ELECTRICAL JUNCTION BOXES.
15. ALL JUNCTION BOXES SHALL HAVE MINIMUM DEPTH OF 2-1/8" UNLESS OTHERWISE SPECIFIED. SECURE ALL JUNCTION BOXES AS SHOWN IN THE DETAILS. FURNISH AND INSTALL PROPER PLASTER RINGS.
16. REFER TO ARCHITECTURAL CABINET CASEWORK ELEVATION DRAWINGS FOR CLARIFICATION ON MOUNTING AND PLACEMENT OF ALL RACEWAY, RECEPTACLES, AND SWITCHES.
17. MANY DEVICE MOUNTING LOCATIONS ARE DEPENDENT ON MILLWORK LOCATIONS. COORDINATE ALL APPLICABLE LOCATIONS WITH MILLWORK INSTALLER PRIOR TO BEGINNING WORK.
18. LIGHT SWITCHES INSTALLED ADJACENT TO EACH OTHER, SHALL BE GANGED TOGETHER WITH ONE PIECE COVER PLATE.
19. ALL WALL MOUNTED MOTION SENSORS SHALL BE A DUAL TECHNOLOGY MOTION SENSOR WITH INTEGRAL OVERRIDE SWITCH. MOTION SENSOR TO MOUNT IN A STANDARD SWITCH BOX. MOTION SENSOR TO HAVE A FIFTEEN MINUTE TIME DELAY SET AT TEN MINUTES TO SENSOR SET TO MANUAL ON. USE HUBBELL, SENSOR SWITCH, LEVITON, OR APPROVED EQUAL.
20. CONSULT ARCHITECTS REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHTING FIXTURES, SPEAKERS, SMOKE DETECTORS, ETC.
21. ELECTRICAL CONTRACTOR SHALL MEET WITH THE CEILING AND MECHANICAL CONTRACTORS TO COORDINATE LOCATIONS, CLEARANCES, CEILING TYPES, AND ROUGH-IN REQUIREMENTS OF ALL LIGHTING FIXTURES PRIOR TO DUCT, PIPING, AND CEILING INSTALLATIONS.
22. ALL CEILING MOUNTED MOTION SENSORS SHALL BE A DUAL TECHNOLOGY MOTION SENSOR WITH POWER PACK AS REQUIRED TO CONTROL LIGHTING. MOTION SENSOR TO HAVE A FIFTEEN MINUTE DELAY SET AT TEN MINUTES TO SENSOR SET TO MANUAL ON. CONTRACTOR TO SUBMIT FLOOR PLAN TO MOTION SENSOR SUPPLIER FOR FACTORY TO LOCATED MOTION SENSOR FOR OPTIMAL PERFORMANCE TO AVOID NUISANCE SHUT OFF OF LIGHTING. MANUFACTURERS LAYOUT PLAN TO BE PART OF SUBMITTALS. PROVIDE SUFFICIENT BOX DEPTH AND CORRECT PLASTER RING TO ACCOMMODATE ACTUAL RELAY UNIT AND OCCUPANCY SENSOR INSTALLED. PROVIDE PROPER SEPARATION OF 120 VOLT AND CLASS 2 WIRING AS NECESSARY IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE. USE HUBBELL, SENSOR SWITCH, LEVITON OR APPROVED EQUAL.
23. CONNECT ALL EM FIXTURES, NIGHT LIGHTS, EGRESS LIGHTS, AND EXIT SIGNS TO UNSWITCHED CONDUCTOR.
24. THE ELECTRICAL CONTRACTOR SHALL TERMINATE THE ELECTRICAL CONNECTIONS TO ALL THE EQUIPMENT BY PROVIDING THE NECESSARY MALE/FEMALE CONNECTOR, RECEPTACLE, PLUG, ETC.
25. FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE AS PER MANUFACTURERS WRITTEN INSTRUCTIONS AND APPROVED WIRING DIAGRAMS AND DETAILS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE ALL MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF EQUIPMENT FURNISHED UNDER OTHER DIVISIONS WITH APPROVED SHOP DRAWINGS PRIOR TO BEGINNING ROUGH-IN.
26. VERIFY EXACT LOCATION(S) OF ALL EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
27. AT THE END OF THE JOB, PROVIDE BLANK COVER PLATES TO MATCH THE OTHER COVER PLATES FOR ALL JUNCTION BOXES WHERE DEVICES HAVE NOT YET BEEN INSTALLED.
28. SITE PLAN, ONE-LINE DIAGRAM, FAULT CURRENT CALCULATIONS AND OTHER ELECTRICAL SERVICE INFORMATION TO BE PROVIDED BY OTHERS.

ELECTRICAL SYMBOLS

SYMBOL	EXPLANATION	SYMBOL	EXPLANATION	SYMBOL	EXPLANATION
———	BRANCH CIRCUIT CONCEALED IN CEILING OR WALL	F1	FIXTURE TYPE SYMBOL		TAMPER AND FLOW
- - - -	BRANCH CIRCUIT CONCEALED IN GROUND OR FLOOR		LINIER FIXTURE (TYPICAL)	FACP	FIRE ALARM CONTROL PANEL
A-1,3	BRANCH CIRCUIT HOMERUNS TO PANEL		EMERGENCY LIGHTING UNIT	RFAA	REMOTE FIRE ALARM ANNUNCIATOR PANEL
135	ROOM NUMBER		SURFACE OR PENDANT MOUNTED FIXTURE	NAC	FIRE ALARM NAC PANEL
CH 1	MECHANICAL EQUIPMENT SYMBOL		RECESSED FIXTURE	VOICE	FIRE ALARM VOICE PANEL
1	KEYED NOTE REFERENCE		WALL MOUNTED FIXTURE	D/H	DOOR HOLDER
42X	FEEDER TAG (SEE FEEDER SCHEDULE)		WALL PACK	F/S	FIRE/SMOKE DAMPER
	LIGHTING AND POWER PANELBOARD		STRIP FIXTURE		FIRE ALARM PULL STATION
NON-FUSED / FUSED	DISCONNECT SWITCH		TRACK LIGHTING		FIRE ALARM STROBE
NON-FUSED / FUSED	DISCONNECT SWITCH WITH MOTOR STARTER	BUG/EYE / EGRESS	EMERGENCY LIGHTING UNIT		FIRE ALARM HORN/STROBE
	MOTOR STARTER		WALL MOUNTED EXIT LIGHT (SINGLE FACE)	LF	FIRE ALARM HORN/STROBE (LF = LOW FREQUENCY)
VFD	VARIABLE FREQUENCY DRIVE		WALL MOUNTED EXIT LIGHT (DOUBLE FACE)		FIRE ALARM HORN/STROBE WITH PROTECTIVE COVER
C	CONDUIT STUB		CEILING MOUNTED EXIT LIGHT		FIRE ALARM SPEAKER/STROBE
J	JUNCTION BOX		CEILING MOUNTED EXIT LIGHT (DOUBLE FACE)	LF	FIRE ALARM SPEAKER/STROBE (LF = LOW FREQUENCY)
	ELECTRIC VEHICLE CHARGING STATION		EXIT LIGHT WITH PROTECTIVE COVER		FIRE ALARM SPEAKER
WP / A-3 / REF	MODIFIER / PANEL SPACE ASSIGNMENT / EQUIPMENT DESIGNATION	$	SINGLE POLE SWITCH (SUBSCRIPT AS INDICATED BELOW)	LF	FIRE ALARM SPEAKER (LF = LOW FREQUENCY)
		2	TWO POLE SWITCH		FIRE ALARM HORN
		3	3-WAY SWITCH	LF	FIRE ALARM HORN (LF = LOW FREQUENCY)
		4	4-WAY SWITCH		
WP	WEATHERPROOF COVER & LISTED WEATHER RESISTANT DEVICE	D	DIMMER SWITCH		FIRE ALARM STROBE CEILING MOUNTED
GFCI	PROTECTED BY FAULT CIRCUIT INTERRUPTER	K	KEYED SWITCH		
+44	MOUNTING HEIGHT ABOVE FLOOR OR GRADE GIVEN IN INCHES.	T	TIMER SWITCH		FIRE ALARM HORN/STROBE CEILING MOUNTED
REF	REFRIGERATOR	M	MANUAL STARTER WITH THERMAL OVERLOAD	LF	FIRE ALARM HORN/STROBE CEILING MOUNTED (LF = LOW FREQUENCY)
DW	DISHWASHER	F	PADDLE FAN SPEED CONTROL. (CANARM "CN" SERIES)		
DISP	DISPOSAL	OC	OCCUPANCY SENSOR SWITCH		FIRE ALARM HORN CEILING MOUNTED
WASH	WASHING MACHINE	LV	LOW VOLTAGE CONTROL SWITCH	LF	FIRE ALARM HORN CEILING MOUNTED (LF = LOW FREQUENCY)
EWC	ELECTRIC WATER COOLER	LV/D	LOW VOLTAGE CONTROL SWITCH WITH DIMMER		
USB	HUBBELL USB15ACSW OR EQUAL DUPLEX PLUS USB CHARGER	OC/D	OCCUPANCY SENSOR CONTROL SWITCH WITH DIMMER		
TR	TAMPER RESISTANT	OC/2	DUAL RELAY OCCUPANCY SENSOR CONTROL SWITCH		
	DUPLEX RECEPTACLE OUTLET	$$	DOUBLE GANG SWITCH		SMOKE DETECTOR (SUBSCRIPT AS INDICATED BELOW)
	QUAD RECEPTACLE OUTLET			B	SMOKE ALARM BATTERY-BACKED
	SPLIT WIRED DUPLEX RECEPTACLE OUTLET	S a,b	LOW VOLTAGE MULTI BUTTON CONTROL SWITCH (LETTER INDICATES CONTROL OF CORRESPONDING FIXTURES)	C	SMOKE/CARBON MONOXIDE ALARM COMBO BATTERY-BACKED
	220V RECEPTACLE OUTLET	aa	CONTROLLING SWITCH (LETTER INDICATES CONTROL OF CORRESPONDING FIXTURES)	D	DUCT SMOKE DETECTOR
	ISOLATED GROUND RECEPTACLE	S	OCCUPANCY SENSOR (CEILING MOUNTED)	R	SMOKE DETECTOR WITH ADDRESSABLE RELAY
	RECEPTACLE FLOOR DEVICE	DT / PIR	DUAL TECHNOLOGY OCCUPANCY SENSOR (CEILING MOUNTED) / PASSIVE INFRARED OCCUPANCY SENSOR (CEILING MOUNTED)	S	SMOKE DETECTOR WITH SOUNDER BASE
	CEILING MOUNTED DEVICE	RC	ROOM CONTROLLER		HEAT DETECTOR
	SPECIAL RECEPTACLE	LS	DAYLIGHT SENSOR		GAS DETECTOR
	MOTOR OUTLET	P	PHOTOCELL	CO / CO/NO2	CARBON MONOXIDE DETECTOR / CARBON MONOXIDE/NITROGEN DIOXIDE SENSOR (GARAGE)
	EXHAUST FAN	V	VOLUME CONTROL		ADA TWO-WAY COMMUNICATIONS SYSTEM
	THERMOSTAT OUTLET		WALL SPEAKER	KP	ACCESS CONTROL KEY PAD
S	REMOTE SENSOR OUTLET		CEILING SPEAKER	CR	ACCESS CONTROL CARD READER
	TELEPHONE OUTLET		SURVEILLANCE CAMERA	Sds	ACCESS CONTROL DOOR STRIKE
▽(#)	COMPUTER DATA OUTLET (#) INDICATES JACK QUANTITIES	DVR	SURVEILLANCE DIGITAL VIDEO RECORDER	ML	ACCESS CONTROL MAG LOCK
	NETWORK AND VOICE OUTLET	NURSE	NURSE CALL ANNUNCIATOR PANEL	DS	ACCESS CONTROL DOOR SENSOR
	WIRELESS ACCESS POINT CEILING MOUNTED	N	NURSE CALL EMERGENCY CALL DEVICE		ACCESS CONTROL REQUEST TO EXIT
TV	TELEVISION OUTLET	N	NURSE CALL EMERGENCY CALL LIGHT		PUSHBUTTON
				B	BELL

NOTE: ALL SYMBOLS MAY NOT BE USED.

ABBREVIATIONS INDEX

#	NUMBER	DC	DIRECT CURRENT	KW	KILOWATT	PT	POTENTIAL TRANSFORMER
ϕ	PHASE	DISP	DISPOSAL	LRA	LOCKED ROTOR AMPS	PV	PHOTOVOLTAIC
1ϕ	SINGLE PHASE	DRY	DRYER	LTG	LIGHTING	PVC	POLYVINYL CHLORIDE
2P	TWO-POLE	DW	DISHWASHER	MATV	MASTER ANTENNA TELEVISION	(R)	RELOCATE
3ϕ	THREE PHASE	DWG	DRAWING	MAX	MAXIMUM	RECP	RECEPTACLE
4P	FOUR-POLE	EC	EMPTY CONDUIT	MB	MAIN BUS	REF	REFRIGERATOR
AC	ALTERNATING CURRENT	EM	EMERGENCY	MCB	MAIN CIRCUIT BREAKER	REQ	REQUIRED
AFF	ABOVE FINISHED FLOOR	EMG	EMERGENCY GENERATOR	MCC	MOTOR CONTROL CENTER	RLA	RATED LOAD AMPS
AFG	ABOVE FINISHED GRADE	EMT	ELECTRICAL METALLIC TUBING	MCM	1000 CIRCULAR MILLS	RMS	ROOT MEAN SQUARE
AFP	ARC FAULT PROTECTOR	EPO	EMERGENCY POWER OFF	MH	MANHOLE	SE	SERVICE ENTRANCE
AHJ	AUTHORITY HAVING JURISDICTION	EWC	ELECTRIC WATER COOLER	MIC	MICROPHONE	SPD	SURGE PROTECTION DEVICE
AIC	AMP INTERRUPTING CURRENT (SYMMETRICAL)	EWH	ELECTRIC WATER HEATER	MIN	MINIMUM	SPEC	SPECIFICATION
AL	ALUMINUM	(E)	EXISTING	MLO	MAIN LUGS ONLY	SPK	SPEAKER
AM	AMPS METER	(F)	FUTURE	MNF	MANUFACTURER	SS	SELECTOR SWITCH
AMP	AMPERE	FA	FIRE ALARM	MTG	MOUNTING	SW	SWITCH
ANN	ANNUNCIATOR	FACP	FIRE ALARM CONTROL PANEL	MTR	MOTOR	SWBD	SWITCHBOARD
ATS	AUTOMATIC TRANSFER SWITCH	FC	FOOT CANDLE	MW	MICROWAVE	SWGR	SWITCHGEAR
AUX	AUXILIARY	FLA	FULL LOAD AMPS	(N)	NEW	TTB	TELEPHONE TERMINAL BOARD
AWG	AMERICAN WIRE GAUGE	FT	FOOT	N/A	NOT APPLICABLE	TBC	TELEPHONE TERMINAL CABINET
BC	BARE COPPER	FRZ	FREEZER	NC	NORMALLY CLOSED	TV	TELEVISION
BFG	BELOW FINISH GRADE	FS	FUSED SWITCH	NEC	NATIONAL ELECTRICAL CODE	TYP	TYPICAL
C	CONDUIT	GFAF	DUAL FUNCTION GFCI/AFCI CIRCUIT BREAKER	NEMA	NATIONAL MANUFACTURING ASSOCIATION	UG	UNDERGROUND
CAB	CABINET	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	NFC	NATIONAL FIRE CODE	UNO	UNLESS NOTED OTHERWISE
CATB	COMMUNITY ANTENNA TELEVISION	GFEP	GROUND-FAULT EQUIPMENT PROTECTION	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	UPS	UNINTERRUPTIBLE POWER SUPPLY
CATV	CABLE TELEVISION	GFP	GROUND FAULT PROTECTOR	NFS	NON FUSED SWITCH	V	VOLT (KV-KILOVOLT)
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	GRC	GALVANIZED RIGID CONDUIT	NIC	NOT IN CONTRACT	VA/R	VOLT-AMPS/REACTIVE
CKT	CIRCUIT	GRD	GROUND	NL	NIGHT LIGHT	VM	VOLT METER
CLG	CEILING	HP	HORSE POWER	NO	NORMALLY OPEN	W	WATTS
CNTR	CONTRACTOR	HZ	HERTZ	NTS	NOT TO SCALE	W/	WITH
CO	CONVENIENCE OUTLET	IG	ISOLATED GROUND	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED	WASH	WASHER
CRT	COMPUTER TERMINAL	IMC	INTERMEDIATE METALLIC CONDUIT	OFOI	OWNER FURNISHED OWNER INSTALLED	WH	WATTHOUR
CT	CURRENT TRANSFORMER	IN	INCH	OS&Y	OUTSIDE SCREW AND YOKE	W/O	WITHOUT
CU	COPPER	J-BOX	JUNCTION BOX	PB	PUSH BUTTON	WP	WEATHER PROOF
C/W	CONDUIT WITH	KV	KILOVOLT	PF	POWER FACTOR	XFMR	TRANSFORMER
(D)	DEMOLISH/DELETE	KVA	KILOVOLT AMPERES	PFR	PHASE FAILURE RELAY	XFMR-SW	TRANSFORMER SWITCH
DB	DECIBEL	KVAR	KILOVARS	PNL	PANEL	XP	EXPLOSION PROOF

NOTE: THIS IS A TYPICAL ABBREVIATION LIST. NOT ALL ABBREVIATIONS MAY BE USED ON THIS PROJECT.

DESIGN CONTACTS

ELECTRICAL ENGINEER:	RYAN BEAGLES
ELECTRICAL TEAM LEAD:	DAVID SWEARINGEN
ELECTRICAL DESIGNER:	DEXTON GRAVES

COMMISSIONING NOTES:

C408.3 LIGHTING SYSTEM FUNCTIONAL TESTING.
CONTROLS FOR AUTOMATIC LIGHTING SYSTEMS SHALL COMPLY WITH SECTION C408.3.

C408.3.1 FUNCTIONAL TESTING.
TESTING SHALL ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS. THE CONSTRUCTION DOCUMENTS SHALL STATE THE PARTY WHO WILL CONDUCT THE REQUIRED FUNCTIONAL TESTING. WHERE REQUIRED BY THE CODE OFFICIAL, AN APPROVED PARTY INDEPENDENT FROM THE DESIGN OR CONSTRUCTION OF THE PROJECT SHALL BE RESPONSIBLE FOR THE FUNCTIONAL TESTING AND SHALL PROVIDE DOCUMENTATION TO THE CODE OFFICIAL CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET THE PROVISIONS OF SECTION C405. WHERE OCCUPANT SENSORS, TIME SWITCHES, PROGRAMMABLE SCHEDULE CONTROLS, PHOTOSENSORS OR DAYLIGHTING CONTROLS ARE INSTALLED, THE FOLLOWING PROCEDURES SHALL BE PERFORMED:

1. CONFIRM THAT THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENTS FOR OCCUPANT SENSORS YIELD ACCEPTABLE PERFORMANCE.
2. CONFIRM THAT THE TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS ARE PROGRAMMED TO TURN THE LIGHTS OFF.

SHEET INDEX

SHEET NUMBER	SHEET TITLE
AE001	ELECTRICAL COVER SHEET
OP-AE101	PLANT OPERATIONS BUILDING POWER PLAN
OP-AE102	PLANT OPERATIONS BUILDING LIGHTING PLAN
HW-AE101	HEADWORKS BUILDING POWER PLAN
HW-AE102	HEADWORKS BUILDING LIGHTING PLAN
AE501	ELECTRICAL DETAILS
AE601	ELECTRICAL SCHEDULES
AE602	ELECTRICAL SCHEDULES
AE701	ELECTRICAL SPECIFICATIONS

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Parcel #: 03-005-053-09-N.A

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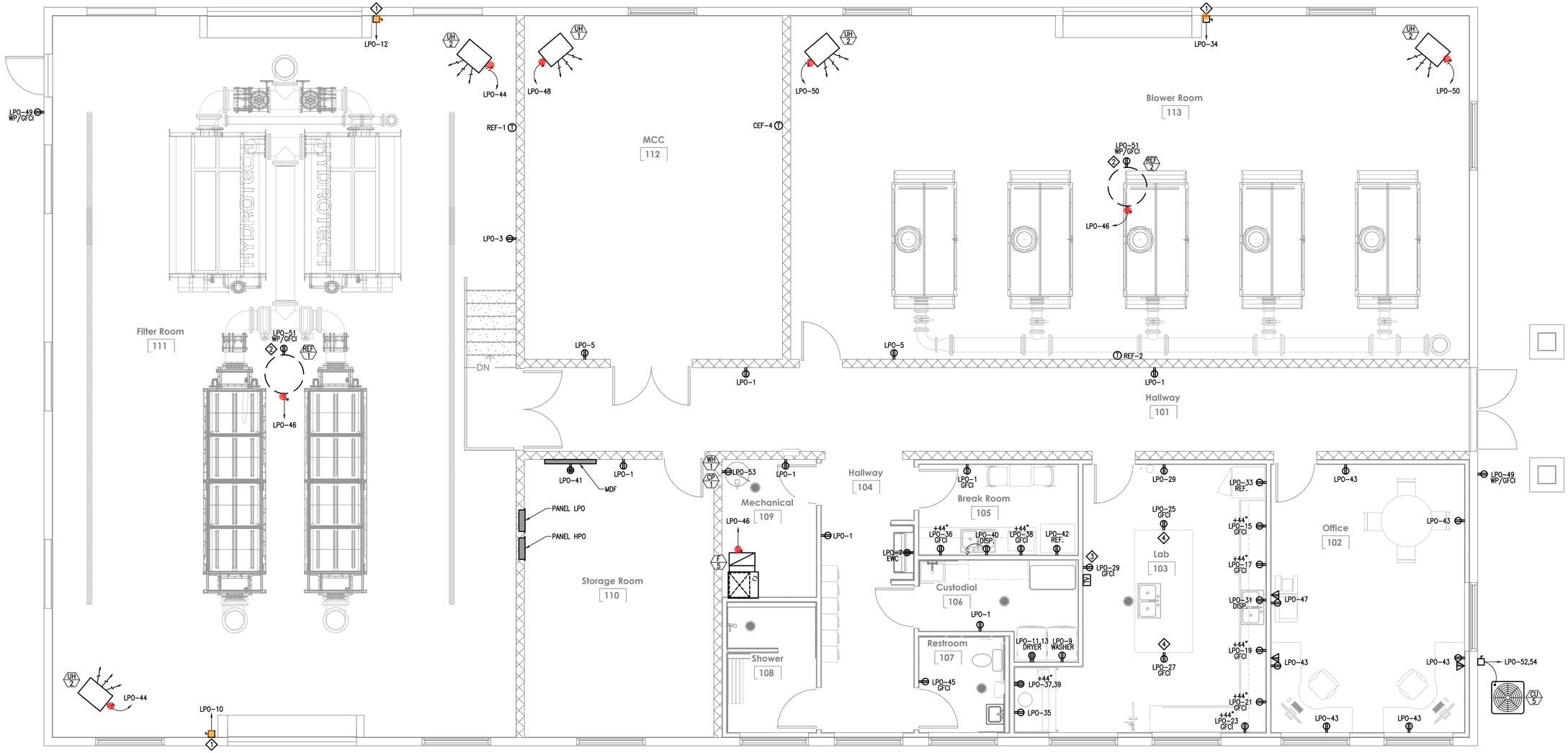
ELECTRICAL COVER SHEET

AE001

ELECTRICAL KEYED NOTES:

1. DISCONNECT FOR MOTORIZED COILING DOOR.
2. ROOFTOP RECEPTACLE. VERIFY EXACT LOCATION WITH MECHANICAL INSTALLER PRIOR TO ROUGH-IN.
3. TELEVISION RECEPTACLE. VERIFY EXACT HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
4. ISLAND RECEPTACLE. VERIFY EXACT HEIGHT AND LOCATION WITH CABINET INSTALLER PRIOR TO ROUGH-IN.



PLANT OPERATIONS BUILDING POWER PLAN
SCALE: 1/4" = 1'-0"

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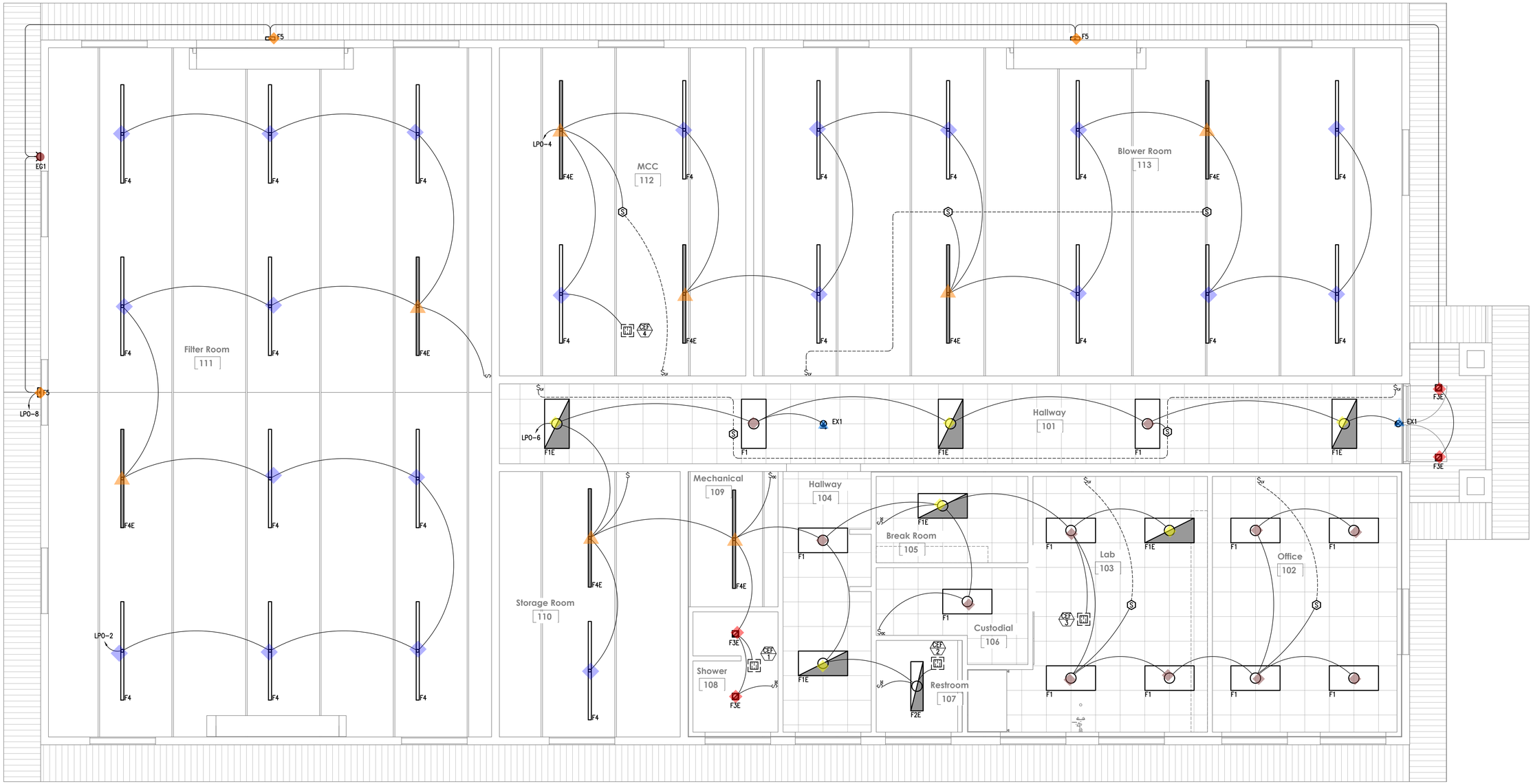
PLANT OPERATIONS BUILDING POWER PLAN

OP-AE101



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PLANT OPERATIONS BUILDING LIGHTING PLAN

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

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PLANT OPERATIONS BUILDING LIGHTING PLAN

OP-AE102

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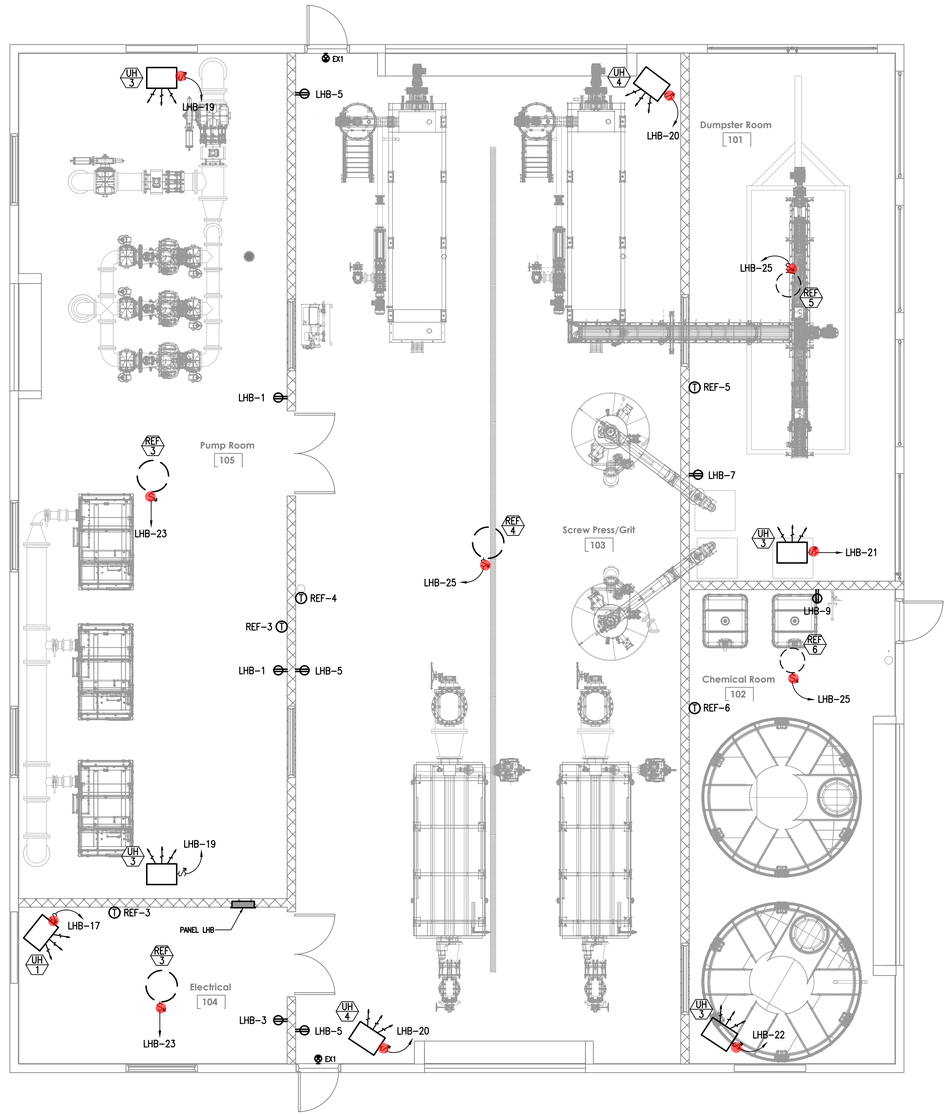

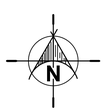

HEADWORKS BUILDING POWER PLAN

SCALE: 3/16" = 1'-0"

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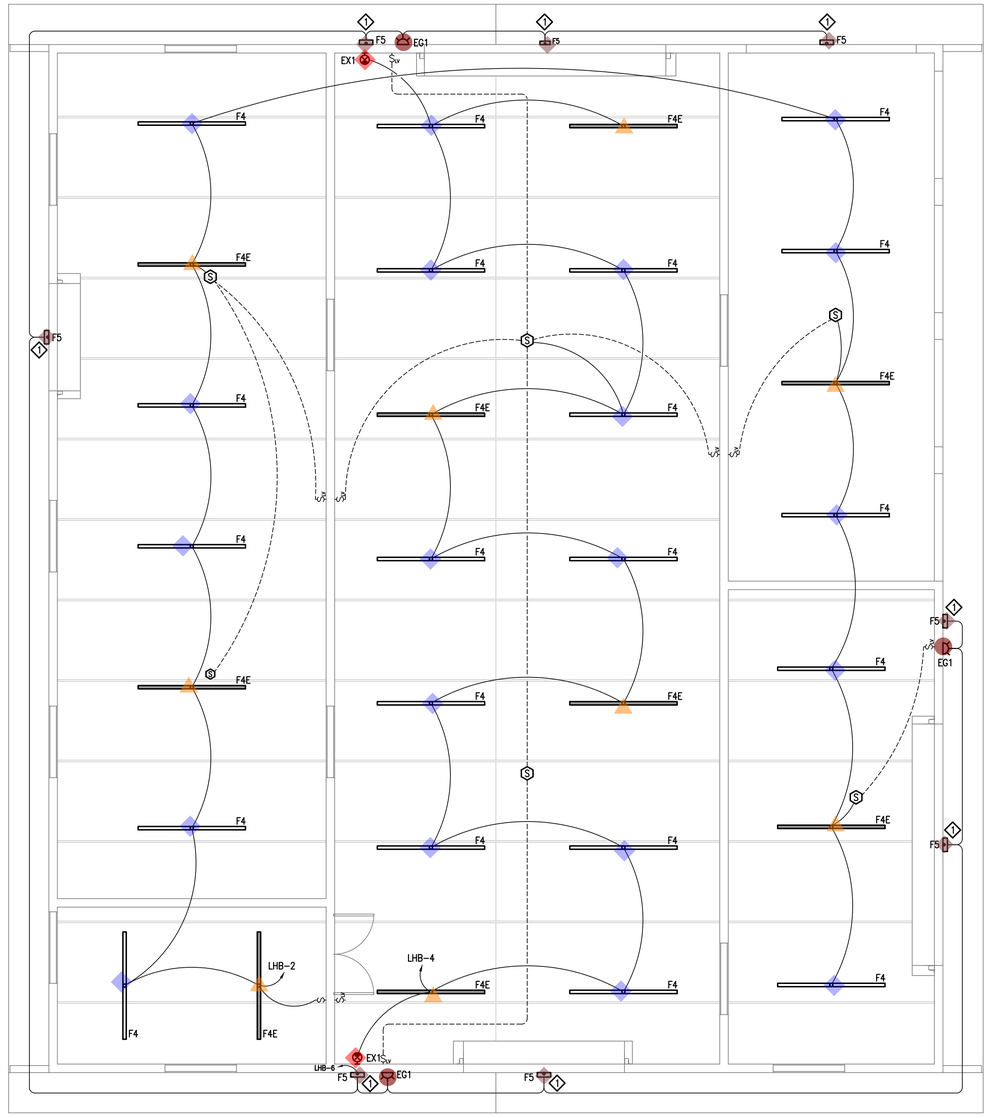
HEADWORKS BUILDING POWER PLAN

HW-AE101

ELECTRICAL KEYED NOTES:

1. EXTERIOR WALL PACK. VERIFY EXACT HEIGHT WITH OWNER PRIOR TO ROUGH-IN.



N

HEADWORKS BUILDING LIGHTING PLAN

SCALE: 3/16" = 1'-0"

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HEADWORKS BUILDING LIGHTING PLAN

HW-AE102

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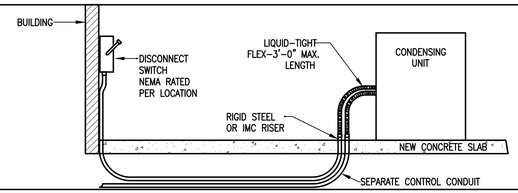
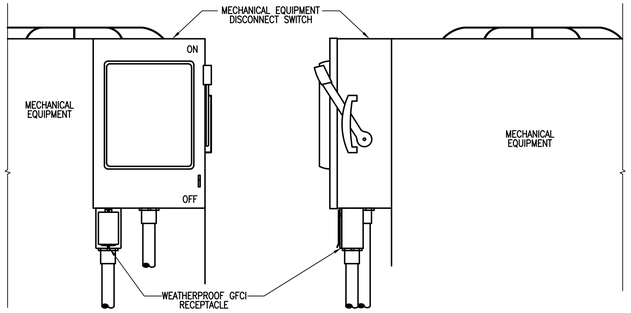


7 CONDENSING UNIT CONDUIT INSTALLATION DETAIL

SCALE: NTS



8 WEATHERPROOF RECEPTACLE INSTALLATION DETAIL

SCALE: NTS

KEYED NOTES:

1. 2-PORT SINGLE GANG FACEPLATE (HUBBELL #IFP12*)
2. CAT 6 8-POSITION JACK (HUBBELL #HXJ6*)
3. CAT 6 VOICE JACK (HUBBELL #HXJU*)
4. COAXIAL F-TYPE JACK (HUBBELL #NSF70*)

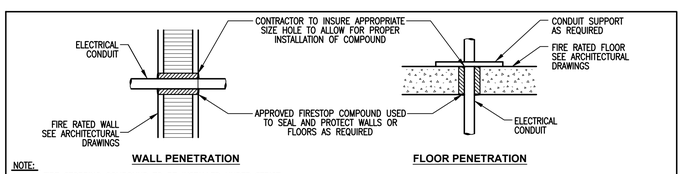
GENERAL NOTES:

1. COORDINATE STATION AND PORT LABELING WITH OWNER.
2. ALL PATCH CABLES AND STATION CABLES SHALL BE PROVIDED AND INSTALLED BY EC.
3. ALL PATCHING AND/OR CROSS CONNECTION SHALL BE PERFORMED BY THE EC.

* MATCH FACEPLATE COLOR TO RECEPTACLES.

9 DATA/VOICE JACK INSTALLATION DETAIL

SCALE: NTS



NOTE:
1. ALL FIRE STOPPING COMPOUND TO BE INSTALLED UNDER STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

10 FIRE RATED PENETRATION DETAIL

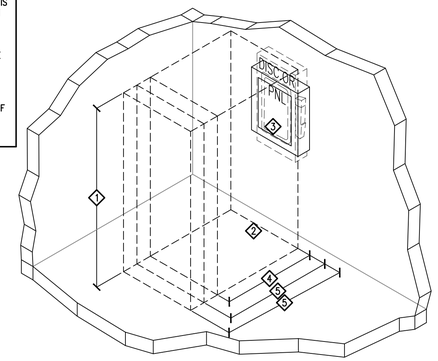
SCALE: NTS

KEYED NOTES:

1. THE MINIMUM HEADROOM OF WORKING SPACE SHALL BE 6½ FT.
2. THE WIDTH OF THE WORKING SPACE SHALL BE THE WIDTH OF THE EQUIPMENT OR 30 IN., WHICHEVER IS GREATER. THE PANEL DOOR SHALL OPEN AT LEAST 90 DEGREES.
3. ALL CIRCUIT BREAKERS OR DISCONNECT HANDLES SHALL BE NOT MORE THAN 6 FT 7 IN. ABOVE THE FLOOR WHEN IN THEIR HIGHEST POSITION.
4. 3 FT CLEARANCE IF 0-150V TO GROUND
5. 3.5FT CLEARANCE IF 151-600V TO GROUND. 4FT IF EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.

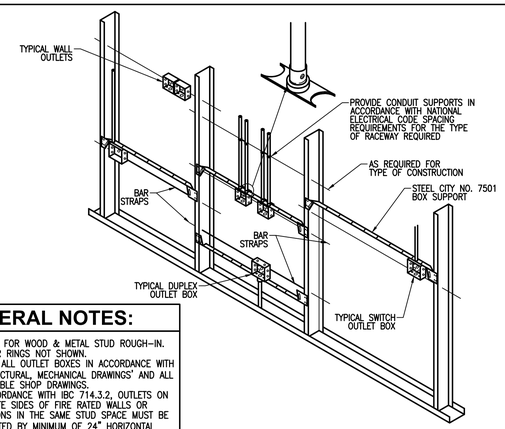
GENERAL NOTE:

1. ALL WORKING SPACE CLEARANCE FROM FACE OF PANEL.



4 ELECTRICAL EQUIPMENT WORK SPACE CLEARANCES

SCALE: NTS

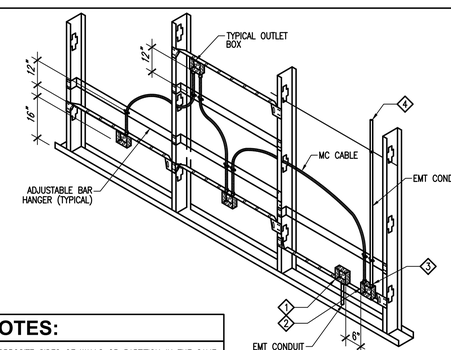


GENERAL NOTES:

1. TYPICAL FOR WOOD & METAL STUD ROUGH-IN.
2. PLASTER RINGS NOT SHOWN.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL, MECHANICAL DRAWINGS' AND ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH IBC 714.3.2, OUTLETS ON OPPOSITE SIDES OF FIRE RATED WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY MINIMUM OF 24" HORIZONTAL DISTANCE.

5 ROUGH-IN DETAIL FOR CONDUIT

SCALE: NTS



KEYED NOTES:

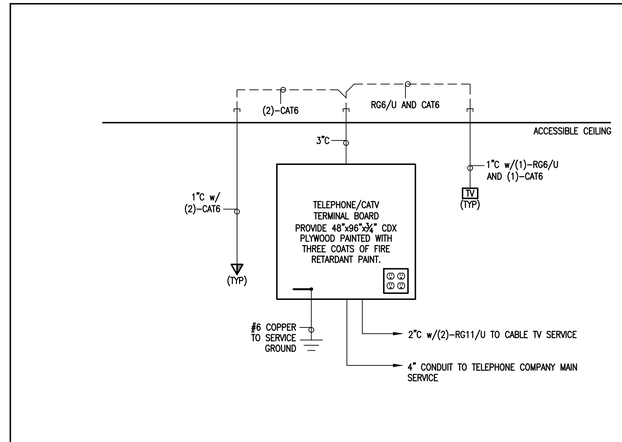
1. OUTLET BOXES ON OPPOSITE SIDES OF WALLS OR PARTITION IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 6" HORIZONTAL DISTANCE.
2. ELECTRICAL BOXES INSTALLED IN FIRE RESISTANT WALLS OR PARTITIONS SHALL COMPLY WITH IBC 714.3.2 (24" SEPARATION ON OPPOSITE SIDES.)
3. INSULATED THROAT EMT CONNECTOR.
4. HOME RUN TO PANEL MUST BE IN RACEWAY.

GENERAL NOTES:

1. TYPICAL FOR WOOD AND METAL STUD ROUGH IN.
2. PLASTER RINGS NOT SHOWN. COORDINATE RING DEPTH TO BE FLUSH WITH FINAL FINISH SURFACE.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.

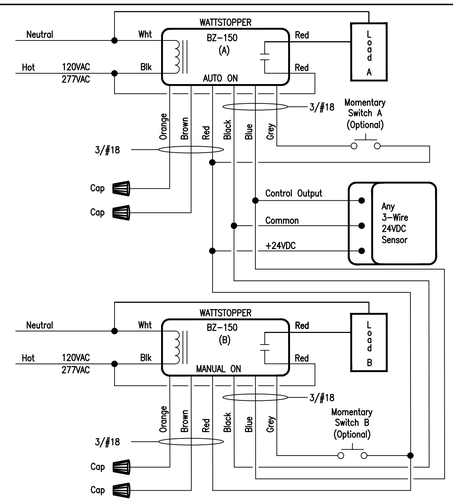
6 ROUGH-IN DETAIL FOR MC CABLE

SCALE: NTS



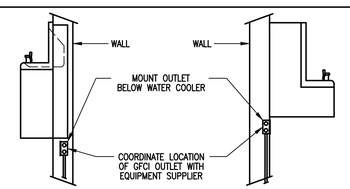
1 COMMUNICATIONS RISER DIAGRAM

SCALE: NTS



2 MOTION SENSOR WITH LV SWITCH

SCALE: NTS



3 ELECTRIC WATER COOLER INSTALLATION DETAIL

SCALE: NTS

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ELECTRICAL DETAILS

AE501

EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION	SERVICE		DISCONNECT		STARTER	LOAD			MOCP/ BRKR	REMARKS
		VOLTS	PHASE	SIZE	FUSE		HP/TON	VA	AMPS		
F 5	FURNACE FAN	120 V	1Ø	MANUAL STARTER	-	INTEGRAL	-	2,004	16.7A	20A	
CU 5	AIR COOLED CONDENSING UNIT	208 V	1Ø	30A NEMA 3R	-	INTEGRAL	-	5,824	28.0A	40A	
CEF 1	CEILING EXHAUST FAN	120 V	1Ø	INTEGRAL PLUG	-	-	-	150	1.3A	20A	EF CONTROLLED WITH LIGHTING
CEF 2	CEILING EXHAUST FAN	120 V	1Ø	INTEGRAL PLUG	-	-	-	100	0.8A	20A	EF CONTROLLED WITH LIGHTING
CEF 3	CEILING EXHAUST FAN	120 V	1Ø	INTEGRAL PLUG	-	-	-	240	2.0A	20A	
CEF 4	CEILING EXHAUST FAN	120 V	1Ø	INTEGRAL PLUG	-	-	-	45	0.4A	20A	
REF 1	CEILING EXHAUST FAN	120 V	1Ø	MANUAL STARTER	-	-	¼ HP	696	5.8A	20A	
REF 2	ROOF MOUNTED EXHAUST FAN	120 V	1Ø	MANUAL STARTER	-	-	¼ HP	696	5.8A	20A	
REF 3	ROOF MOUNTED EXHAUST FAN	120 V	1Ø	MANUAL STARTER	-	-	¼ HP	696	5.8A	20A	
REF 4	ROOF MOUNTED EXHAUST FAN	120 V	1Ø	MANUAL STARTER	-	-	¼ HP	696	5.8A	20A	
REF 5	ROOF MOUNTED EXHAUST FAN	120 V	1Ø	MANUAL STARTER	-	-	⅛ HP	528	4.4A	20A	
REF 6	ROOF MOUNTED EXHAUST FAN	120 V	1Ø	MANUAL STARTER	-	-	⅛ HP	528	4.4A	20A	
UH 1	UNIT HEATER	120 V	1Ø	MANUAL STARTER	-	-	-	504	4.2A	20A	
UH 2	UNIT HEATER	120 V	1Ø	MANUAL STARTER	-	-	-	504	4.2A	20A	
UH 3	UNIT HEATER	120 V	1Ø	MANUAL STARTER	-	-	-	450	3.8A	20A	
UH 4	UNIT HEATER	120 V	1Ø	MANUAL STARTER	-	-	-	450	3.8A	20A	
CP 1	RECIRCULATION PUMP	120 V	1Ø	PLUG/ CORD	-	-	FRAC	240	2.0A	20A	

NOTES:

1. VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS (i.e. VOLTAGE, PHASE, FLA, ETC.) WITH MECHANICAL DRAWINGS/SUBMITTALS BEFORE FOR ACTUAL EQUIPMENT INSTALLED.
2. ALL FUSES SHALL BE DUAL ELEMENT TIME DELAY. FINAL BREAKER/FUSE & DISCONNECT SIZE SHALL BE DETERMINED BY MANUFACTURER'S RECOMMENDATION FOR ACTUAL EQUIPMENT INSTALLED.
3. MAXIMUM VALUES INDICATED.
4. DISCONNECTING MEANS NOT REQUIRED FOR EQUIPMENT WITHIN SIGHT (AS DEFINED IN NEC) OF BRANCH PANEL SERVING EQUIPMENT. SEE NEC 422.31 (B).
5. DISCONNECTING MEANS NOT REQUIRED FOR APPLIANCES NOT OVER 300 VA. SEE NEC 422.31 (A).

LIGHT FIXTURE SCHEDULE

FIXTURE NUMBER	FIXTURE MANUFACTURER	FIXTURE CATALOG #	LAMPS		FIXTURE			DESCRIPTION	REMARKS
			TYPE	QTY.	VOLTS	WATTS	MOUNTING		
F1	METALUX LITHONIA DAY-BRITE LSI COLUMBIA ORACLE	24GR-LD5-38-F1-UNV-L835-CD1-U 2GTL-4-40L-EZ1-LP835 2-T-G-48L-835-4-FS-02F-UNV-DIM GA24-LED-SS-WW-UE-P12.125 LJT24-35LWG-FSA12125-EDU 24-OT-LED-4000L-DIM10-MVOLT-35K-85-A12	LED 3500 KELVIN 3800 LUMENS 80 CRI	-	120	45	LAY-IN GRID	2X4 LED LAY-IN PRISMATIC FIXTURE	
F1E	METALUX LITHONIA DAY-BRITE LSI COLUMBIA ORACLE	24GR-LD5-38-F1-UNV-L835-CD1-U 2GTL-4-40L-EZ1-LP835 2-T-G-48L-835-4-FS-02F-UNV-DIM GA24-LED-SS-WW-UE-P12.125 LJT24-35LWG-FSA12125-EDU 24-OT-LED-4000L-DIM10-MVOLT-35K-85-A12	LED 3500 KELVIN 3800 LUMENS 80 CRI	-	120	45	LAY-IN GRID	2X4 LED LAY-IN PRISMATIC FIXTURE	
F2E	METALUX LITHONIA DAY-BRITE LSI COLUMBIA ORACLE	4WSNLED-LD4-32SL-F-UNV-EL14W-L835-CD1-U LBL4-3000LM-80CRI-35K-MIN1-ZT-MVOLT-EL14L OWL-4-40L-835-UNIV-DIM-EMLED WNA10-LED-SS-WW-UE-EM LWC4-35LW-EDU-ELL14 4-OIW-LED-3400L-DIM10-MVOLT-35K-80-O-EMG-LED	LED 3500 KELVIN 3200 LUMENS 80 CRI	-	120	46	SURFACE CEILING	1X4 SURFACE LED WITH EMERGENCY BATTERY PACK	
F3E	LITHONIA	LDN6-35/10-L06-AR-LSS-MVOLT-EZ1-EL	LED 1000 LUMENS 3500 KELVIN 90 CRI	-	120	11	RECESSED CEILING	LED DOWNLIGHT WITH ALZAK TRIM	
F4	METALUX LITHONIA DAY-BRITE LSI COLUMBIA ORACLE	8TSNLED-LD4-61SL-LW-UNV-L835-CD1-U TZL1N-L96-6000LM-FST-MVOLT-35K-80CRI-WH FSS880L835-UNV-DIM SDL8-LED-SS-WW-UE LCL8-35LW-EDU 8-OC1-LED-4000L-DIM10-MVOLT-35K-80	LED 3500 KELVIN 6100 LUMENS 80 CRI	-	120	96.45	CHAIN HUNG	96" LED STRIP	
F4E	METALUX LITHONIA DAY-BRITE LSI COLUMBIA ORACLE	8TSNLED-LD4-61SL-LW-UNV-EL14W-L835-CD1-U TZL1N-L96-6000LM-FST-MVOLT-35K-80CRI-E7W-WH FSS880L835-UNV-DIM-EMLED SDL8-LED-SS-WW-UE-EM LCL8-35LW-EDU-ELL14 8-OC1-LED-4000L-DIM10-MVOLT-35K-80-O-EMG-LED	LED 3500 KELVIN 6100 LUMENS 80 CRI	-	120	96.45	CHAIN HUNG	96" LED STRIP WITH EMERGENCY BATTERY PACK	
F5	LUMARK	XTOR1B-W-PC1	LED 4000 KELVIN 1396 LUMENS 70 CRI	-	120	12	SURFACE WALL	LED WALL PACK W/ PHOTOSENSOR	FINISH TO BE SELECTED BY ARCHITECT
EG1	SURELITE LITHONIA PROLITE LSI DUAL-LITE MAXILUME	SELW25XX AFN-DB-EXT DBEL-ACEM-W-SDT-CW CSN-DB-CT PGZ-HTR ELM-807-BZ	6W XENON INCLUDED	2	120	12	SURFACE WALL	EMERGENCY EGRESS LIGHT	FINISH TO BE SELECTED BY ARCHITECT
EX1	SURELITE LITHONIA CHLORIDE LSI DUAL-LITE MAXILUME	APX7G LQM-S-W-3-G-EL-N ER55L3WG EX-G-U-WB-WH EVEUGWE ELX-603-G-W	INCLUDED	2	120	1.5	UNIVERSAL	UNIVERSAL MOUNT WITH EXTRA FACE PLATE FOR FIELD CONVERSION 1-2 FACE	NICKEL/CADMIUM BATTERY SINGLE FACE EXIT

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Parcel #: 03-005-053-09-NA

Drawing Issue and Revision Schedule

#	Date	Description

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ELECTRICAL SCHEDULES

AE601

PANEL SCHEDULE "LHB"

VOLTAGE: 208 Y/ 120 VOLTS | **BUS RATING (AMPS):** 225 | **REMARKS:**
MOUNTING: FLUSH | **PHASE:** 3 | **MAIN LUGS ONLY**
ENCLOSURE: NEMA 1 | **WIRE:** 4 | **MINIMUM EQUIPMENT RATING:** SEE FAULT CURRENT TABLE

CIRCUIT BREAKER No.	AMPS	POLE	MOD.	CIRCUIT NAME	FEEDER C	WIRE	GRD	CKT. LOAD DEMAND FACTOR	WATTS	LOAD/PHASE (VA) ØA	ØB	ØC	CKT. LOAD WATTS	DEMAND FACTOR	FEEDER GRD	WIRE	C	CIRCUIT NAME	CIRCUIT BREAKER MOD.	POLE	AMPS	No.
1	20	1	-	PUMP ROOM RECP	¾"	#12	#12	1.00	360	1,807			1,447	1.25	#12	#12	¾"	PUMP ROOM LTG	-	1	20	2
3	20	1	-	ELECTRICAL ROOM RECP	¾"	#12	#12	1.00	180		1,533		1,353	1.25	#12	#12	¾"	SCREW PRESS LTG	-	1	20	4
5	20	1	-	SCREW PRESS RECP	¾"	#12	#12	1.00	540			636	96	1.25	#12	#12	¾"	EXTERIOR LTG	-	1	20	6
7	20	1	-	DUMPSTER ROOM RECP	¾"	#12	#12	1.00	180	1,188			1,008	1.00	#12	#12	¾"	CHEMICAL FEED SKID #1	-	1	20	8
9	20	1	-	CHEMICAL ROOM RECP	¾"	#12	#12	1.00	180		804		624	1.00	#12	#12	¾"	FLOW METER 1, 2, 3, & 4	-	1	20	10
11	20	1	-	FLOW METER 14" & 18"	¾"	#12	#12	1.00	600			1,800	1,200	1.00	#12	#12	¾"	AUTOMATED SAMPLER	-	1	20	12
13	20	1	-	LIFT STATION LTG	¾"	#12	#12	1.25	360	864			504	1.00	#12	#12	¾"	POLYMER FEED SKID	-	1	20	14
15	20	1	-	CHEMICAL FEED SKID #2	¾"	#12	#12	1.00	504		1,704		1,200	1.00	#12	#12	¾"	LIFT STATION CTRL PANEL	-	1	20	16
17	20	1	-	ELECTRICAL ROOM UH-1	¾"	#12	#12	1.00	504			2,424	1,920	1.00	#12	#12	¾"	LIFT STATION RECP	-	1	20	18
19	20	1	-	PUMP ROOM UH-3 x 2	¾"	#12	#12	1.00	900	1,800			900	1.00	#12	#12	¾"	SCREW PRESS UH-4 x 2	-	1	20	20
21	20	1	-	DUMPSTER ROOM UH-3	¾"	#12	#12	1.00	450		900		450	1.00	#12	#12	¾"	CHEMICAL ROOM UH-3	-	1	20	22
23	20	1	-	REF-3 x 2	¾"	#12	#12	1.00	1,392			1,392		1.00				SPACE	-			24
25	20	1	-	REF-4, REF-5 & REF-6	¾"	#12	#12	1.00	1,752	1,752				1.00				SPACE	-			26
27			-	SPACE				1.00			0			1.00				SPACE	-			28
29			-	SPACE				1.00				0		1.00				SPACE	-			30

NOTES :

1. ALL INSULATION ON CONDUCTORS TO BE THHN UNLESS NOTED OTHERWISE. INSULATION ON ALL UNDERGROUND EXTERIOR CONDUCTORS SHALL BE THHW.
2. LOAD DEMANDS CALCULATED AS PER SECTIONS 210 & 220 OF THE NATIONAL ELECTRICAL CODE.
3. PANEL COVER SHALL BE FIELD MARKED FOR FLASH PROTECTION WITH A PERMANENT LABEL AS REQUIRED BY THE NATIONAL ELECTRICAL CODE SECTION 110. LABEL SHALL READ: "DANGER: POTENTIAL ARC FLASH HAZARD"
4. PANELBOARD SHALL BE FIELD MARKED WITH THE AVAILABLE FAULT CURRENT PER NEC 408.6.
5. FIRE ALARM SYSTEMS SHALL HAVE BRANCH CIRCUITS IDENTIFIED BY RED LABELS STATING "FIRE ALARM CIRCUIT" AS REQUIRED BY THE NATIONAL ELECTRICAL CODE ARTICLE 760.41B
6. ABBREVIATIONS: CO-CONVENIENCE OUTLET, RR-RESTROOM, (N)ORTH, (S)OUTH, (E)AST, (W)EST.

ØA	ØB	ØC	TOTALS	
7,411	4,941	6,252	18,604	CONNECTED LOAD (VA)
			52	CONNECTED LOAD (A)
452	338	24	814	DEMAND FACTOR ADJUSTMENTS (VA)
7,862	5,280	6,276	19,418	TOTAL LOAD (VA)
66	44	52		TOTAL LOAD (A)
			66	MAXIMUM LOAD (A)
40%	27%	32%		PHASE BALANCE

PANEL SCHEDULE "LPO"

VOLTAGE: 208 Y/ 120 VOLTS | **BUS RATING (AMPS):** 225 | **REMARKS:**
MOUNTING: FLUSH | **PHASE:** 3 | **MAIN CIRCUIT BREAKER:**
ENCLOSURE: NEMA 1 | **WIRE:** 4 | **MINIMUM EQUIPMENT RATING:** SEE FAULT CURRENT TABLE

CIRCUIT BREAKER No.	AMPS	POLE	MOD.	CIRCUIT NAME	FEEDER C	WIRE	GRD	CKT. LOAD DEMAND FACTOR	WATTS	LOAD/PHASE (VA) ØA	ØB	ØC	CKT. LOAD WATTS	DEMAND FACTOR	FEEDER GRD	WIRE	C	CIRCUIT NAME	CIRCUIT BREAKER MOD.	POLE	AMPS	No.
1	20	1	-	STOR/HALL/MECH RECP	¾"	#12	#12	1.00	1,260	2,417			1,157	1.25	#12	#12	¾"	FILTER ROOM LTG	-	1	20	2
3	20	1	-	FILTER ROOM RECP	¾"	#12	#12	1.00	180		1,575		1,395	1.25	#12	#12	¾"	MCC/BLOWER LTG	-	1	20	4
5	20	1	-	MCC / BLOWER RECP	¾"	#12	#12	1.00	360			1,975	1,615	1.25	#12	#12	¾"	HALLWAY LTG	-	1	20	6
7	20	1	GFCI	EWC	¾"	#12	#12	1.00	750	808			58	1.25	#12	#12	¾"	EXTERIOR LTG	-	1	20	8
9	20	1	GFCI	CUSTODIAL WASHER	¾"	#12	#12	1.00	1,200		2,700		1,500	1.00	#12	#12	¾"	FILTER OVERHEAD DOOR	-	1	20	10
11	30	2	GFCI	CUSTODIAL DRYER	¾"	#10	#10	1.00	2,500			4,000	1,500	1.00	#12	#12	¾"	FILTER OVERHEAD DOOR	-	1	20	12
13	-	-	-	-	-	#10	-	1.00	2,500	3,700			1,200	1.00	#12	#12	¾"	UV CONTROL PANEL #1	-	1	20	14
15	20	1	-	LAB CO-RECP	¾"	#12	#12	1.00	1,500		2,412		912	1.00	#12	#12	¾"	UV BANK COOLING 1-1 & 1-2	-	1	20	16
17	20	1	-	LAB CO-RECP	¾"	#12	#12	1.00	1,500			3,900	2,400	1.00	#10	#10	¾"	UV 1 HEAT EXCHANGER	-	1	30	18
19	20	1	-	LAB CO-RECP	¾"	#12	#12	1.00	1,500	2,700			1,200	1.00	#12	#12	¾"	UV CONTROL PANEL #2	-	1	20	20
21	20	1	-	LAB CO-RECP	¾"	#12	#12	1.00	1,500		2,412		912	1.00	#12	#12	¾"	UV BANK COOLING 2-1 & 2-2	-	1	20	22
23	20	1	-	LAB CO-RECP	¾"	#12	#12	1.00	1,500			3,900	2,400	1.00	#10	#10	¾"	UV 2 HEAT EXCHANGER	-	1	30	24
25	20	1	-	LAB ISLAND RECP	¾"	#12	#12	1.00	1,500	2,700			1,200	1.00	#12	#12	¾"	AUTOMATED SAMPLER	-	1	20	26
27	20	1	-	LAB ISLAND RECP	¾"	#12	#12	1.00	1,500		1,800		300	1.00	#12	#12	¾"	GENERATOR CHARGER	-	1	20	28
29	20	1	-	LAB RECP	¾"	#12	#12	1.00	180			1,428	1,248	1.25	#12	#12	¾"	GENERATOR HEATER	-	2	20	30
31	20	1	GFCI	LAB DISHWASHER	¾"	#12	#12	1.00	1,200	2,448			1,248	1.25	-	#12	-	-	-	-	-	32
33	20	1	-	LAB REFRIGERATOR	¾"	#12	#12	1.00	1,200		2,700		1,500	1.00	#12	#12	¾"	BLOWER OVERHEAD DOOR	-	1	20	34
35	20	1	-	LAB RANGE HOOD	¾"	#12	#12	1.00	1,500			3,000	1,500	1.00	#12	#12	¾"	CO - BREAKROOM RECP	-	1	20	36
37	50	2	-	LAB RANGE	¾"	#8	#10	1.00	4,000	5,500			1,500	1.00	#12	#12	¾"	BREAKROOM MICROWAVE	-	1	20	38
39	-	-	-	-	-	#8	-	1.00	4,000		5,200		1,200	1.00	#12	#12	¾"	BREAKROOM DISPOSAL	GFCI	1	20	40
41	20	1	-	MDF	¾"	#12	#12	1.00	360			1,560	1,200	1.00	#12	#12	¾"	BREAKROOM REFRIGERATOR	GFCI	1	20	42
43	20	1	-	OFFICE RECP	¾"	#12	#12	1.00	720	1,728			1,008	1.00	#12	#12	¾"	FILLER UH-2 x 2	-	1	20	44
45	20	1	-	BATHROOM RECP	¾"	#12	#12	1.00	180		1,572		1,392	1.00	#12	#12	¾"	REF-1 & REF-2	-	1	20	46
47	20	1	-	OFFICE COPIER	¾"	#12	#12	1.00	1,500			2,004	504	1.00	#12	#12	¾"	MCC UH-1	-	1	20	48
49	20	1	-	EXTERIOR RECP	¾"	#12	#12	1.00	360	1,368			1,008	1.00	#12	#12	¾"	BLOWER UH-2 x 2	-	1	20	50
51	20	1	-	ROOFTOP RECP	¾"	#12	#12	1.00	360		3,272		2,912	1.00	#10	#8	¾"	CU-5	-	2	40	52
53	20	1	-	WH-1 & CP-1	¾"	#12	#12	1.00	240			3,152	2,912	1.00	-	#8	-	-	-	-	-	54
55	30	1	-	F-5	¾"	#10	#10	1.00	2,004	2,004				1.00				SPACE	-			56
57			-	SPACE				1.00			0			1.00				SPACE	-			58
59			-	SPACE				1.00				0		1.00				SPACE	-			60
61			-	SPACE				1.00		0				1.00				SPACE	-			62
63			-	SPACE				1.00			0			1.00				SPACE	-			64
65			-	SPACE				1.00				0		1.00				SPACE	-			66
67			-	SPACE				1.00		0				1.00				SPACE	-			68
69			-	SPACE				1.00			0			1.00				SPACE	-			70
71			-	SPACE				1.00				0		1.00				SPACE	-			72

NOTES :

1. ALL INSULATION ON CONDUCTORS TO BE THHN UNLESS NOTED OTHERWISE. INSULATION ON ALL UNDERGROUND EXTERIOR CONDUCTORS SHALL BE THHW.
2. LOAD DEMANDS CALCULATED AS PER SECTIONS 210 & 220 OF THE NATIONAL ELECTRICAL CODE.
3. PANEL COVER SHALL BE FIELD MARKED FOR FLASH PROTECTION WITH A PERMANENT LABEL AS REQUIRED BY THE NATIONAL ELECTRICAL CODE SECTION 110. LABEL SHALL READ: "DANGER: POTENTIAL ARC FLASH HAZARD"
4. PANELBOARD SHALL BE FIELD MARKED WITH THE AVAILABLE FAULT CURRENT PER NEC 408.6.
5. FIRE ALARM SYSTEMS SHALL HAVE BRANCH CIRCUITS IDENTIFIED BY RED LABELS STATING "FIRE ALARM CIRCUIT" AS REQUIRED BY THE NATIONAL ELECTRICAL CODE ARTICLE 760.41B
6. ABBREVIATIONS: CO-CONVENIENCE OUTLET, RR-RESTROOM, (N)ORTH, (S)OUTH, (E)AST, (W)EST.

ØA	ØB	ØC	TOTALS	
25,373	23,643	24,919	73,936	CONNECTED LOAD (VA)
			205	CONNECTED LOAD (A)
616	349	716	1,681	DEMAND FACTOR ADJUSTMENTS (VA)
25,989	23,992	25,635	75,617	TOTAL LOAD (VA)
217	200	214		TOTAL LOAD (A)
			217	MAXIMUM LOAD (A)
34%	32%	34%		PHASE BALANCE

PANEL SCHEDULE "HPO"

VOLTAGE: 480 Y/ 277 VOLTS | **BUS RATING (AMPS):** 225 | **REMARKS:**
MOUNTING: FLUSH | **PHASE:** 3 | **MAIN LUGS ONLY**
ENCLOSURE: NEMA 1 | **WIRE:** 4 | **MINIMUM EQUIPMENT RATING:** SEE FAULT CURRENT TABLE

CIRCUIT BREAKER No.	AMPS	POLE	MOD.	CIRCUIT NAME	FEEDER C	WIRE	GRD	CKT. LOAD DEMAND FACTOR	WATTS	LOAD/PHASE (VA) ØA	ØB	ØC	CKT. LOAD WATTS	DEMAND FACTOR	FEEDER GRD	WIRE	C	CIRCUIT NAME	CIRCUIT BREAKER MOD.	POLE	AMPS	No.
1	20	3	-	UV BANK 1-1 REACTOR	¾"	#12	#12	1.00	3,547	7,094			3,547	1.00	#12	#12	¾"	UV BANK 1-2 REACTOR	-	3	20	2
3	-	-	-	-	-	#12	-	1.00	3,547		7,094		3,547	1.00	-	#12	-	-	-	-	-	4
5	-	-	-	-	-	#12	-	1.00	3,547			7,094	3,547	1.00	-	#12	-	-	-	-	-	6
7	20	3	-	UV BANK 2-1 REACTOR	¾"	#12	#12	1.00	3,547	7,094			3,547	1.00	#12	#12	¾"	UV BANK 2-2 REACTOR	-	3	20	8
9	-	-	-	-	-	#12	-	1.00	3,547		7,094		3,547	1.00	-	#12	-	-	-	-	-	10
11	-	-	-	-	-	#12	-	1.00	3,547			7,094	3,547	1.00	-	#12	-	-	-	-	-	12
13	20	3	-	UV PUMP 1 & 2	¾"	#12	#12	1.00	1,109	1,109				1.00				SPACE	-			14
15	-	-	-	-	-	#12	-	1.00	1,109		1,109			1.00				SPACE	-			16
17	-	-	-	-	-	#12	-	1.00	1,109			1,109		1.00				SPACE	-			18
19			-	SPACE				1.00		0				1.00				SPACE	-			20
21			-	SPACE				1.00			0			1.00				SPACE	-			22
23			-	SPACE				1.00				0		1.00				SPACE	-			24
25			-	SPACE				1.00		0				1.00				SPACE	-			26
27			-	SPACE				1.00			0			1.00				SPACE	-			28
29			-	SPACE				1.00				0		1.00				SPACE	-			30

NOTES :

1. ALL INSULATION ON CONDUCTORS TO BE THHN UNLESS NOTED OTHERWISE. INSULATION ON ALL UNDERGROUND EXTERIOR CONDUCTORS SHALL BE THHW.
2. LOAD DEMANDS CALCULATED AS PER SECTIONS 210 & 220 OF THE NATIONAL ELECTRICAL CODE.
3. PANEL COVER SHALL BE FIELD MARKED FOR FLASH PROTECTION WITH A PERMANENT LABEL AS REQUIRED BY THE NATIONAL ELECTRICAL CODE SECTION 110. LABEL SHALL READ: "DANGER: POTENTIAL ARC FLASH HAZARD"
4. PANELBOARD SHALL BE FIELD MARKED WITH THE AVAILABLE FAULT CURRENT PER NEC 408.6.
5. FIRE ALARM SYSTEMS SHALL HAVE BRANCH CIRCUITS IDENTIFIED BY RED LABELS STATING "FIRE ALARM CIRCUIT" AS REQUIRED BY THE NATIONAL ELECTRICAL CODE ARTICLE 760.41B
6. ABBREVIATIONS: CO-CONVENIENCE OUTLET, RR-RESTROOM, (N)ORTH, (S)OUTH, (E)AST, (W)EST.

ØA	ØB	ØC	TOTALS	
15,297	15,297	15,297	45,892	CONNECTED LOAD (VA)
			55	CONNECTED LOAD (A)
0	0	0	0	DEMAND FACTOR ADJUSTMENTS (VA)
15,297	15,297	15,297	45,892	TOTAL LOAD (VA)
55	55	55		TOTAL LOAD (A)
			55	MAXIMUM LOAD (A)
33%	33%	33%		PHASE BALANCE

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Parcel #: 03-005-053-09-NA

Drawing Issue and Revision Schedule

#	Date	Description

ELECTRICAL SCHEDULES

AE602

ELECTRICAL SPECIFICATIONS

GENERAL PROVISION

A. REFERENCE
1. THE GENERAL CONDITIONS AND OTHER CONTRACT DRAWINGS AS SET FORTH IN THE FOREGOING PAGES ARE HEREBY INCORPORATED INTO AND BECOME A PART OF THE SPECIFICATIONS FOR WORK UNDER THIS TITLE, INSOFAR AS THEY APPLY HERETO.
2. ALL SPECIFICATIONS UNDER THIS DIVISION TITLE ARE DIRECTED TO AND ARE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR, UNLESS OTHER TRADES OR PERSONS ARE SPECIFICALLY MENTIONED, "ELECTRICAL CONTRACTOR" IS INFERRED AND INTENDED.

B. CONTRACT DRAWINGS
1. THE DRAWINGS ACCOMPANYING THESE SPECIFICATIONS ARE COMPLEMENTARY EACH TO THE OTHER AND WHAT IS CALLED FOR BY ONE SHALL BE AS IF CALLED FOR BY BOTH.
2. CONSULT ALL CONTRACT DRAWINGS WHICH MAY AFFECT THE LOCATION OF EQUIPMENT, CONDUIT AND WIRING AND MAKE MINOR ADJUSTMENTS IN LOCATION TO SECURE COORDINATION.
3. WIRING LAYOUT IS SCHEMATIC AND EXACT LOCATIONS SHALL BE DETERMINED BY FIELD CONDITIONS.
4. OTHER THAN MINOR ADJUSTMENTS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL BEFORE PROCEEDING WITH THE WORK.

C. JOB-SITE COPY OF DOCUMENTS
1. MAINTAIN AT THE SITE, ONE COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA APPROVED SHOP DRAWINGS, CHANGE ORDERS AND OTHER MODIFICATIONS, IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION. THESE SHALL BE AVAILABLE TO THE OWNER'S REPRESENTATIVE. THE DRAWINGS MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION SHALL BE DELIVERED TO THE OWNER'S REPRESENTATIVE FOR THE OWNER UPON COMPLETION OF THE WORK. AN ADDITIONAL SET OF DRAWINGS WILL BE FURNISHED BY THE OWNER'S REPRESENTATIVE FOR THIS PURPOSE UPON REQUEST.

D. MANUFACTURER'S DRAWINGS
1. THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR REVIEW, (6) COPIES OF MANUFACTURER'S DRAWINGS AND WIRING DIAGRAMS. THE ENGINEER WILL REVIEW CONTRACTOR'S SHOP DRAWINGS AND RELATED SUBMITTALS (AS INDICATED BELOW) WITH RESPECT TO THE ABILITY OF THE DETAILED WORK, WHEN COMPLETE, TO BE A PROPERLY FUNCTIONING INTEGRAL ELEMENT OF THE OVERALL SYSTEM DESIGNED BY THE ENGINEER. BEFORE SUBMITTING A SHOP DRAWING OR ANY RELATED MATERIAL TO THE ENGINEER, CONTRACTOR SHALL: REVIEW EACH SUCH SUBMISSION FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES,AND OPERATIONS OF CONSTRUCTION, AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF CONTRACTOR: APPROVE EACH SUCH SUBMISSION BEFORE SUBMITTING IT; AND SO STAMP EACH SUCH SUBMISSION BEFORE SUBMITTING IT. THE ENGINEER SHALL ASSUME THAT NO SHOP DRAWING OR RELATED SUBMITTAL COMPRISES A VARIATION UNLESS CONTRACTOR ADVISES ENGINEER OTHERWISE VIA A WRITTEN INSTRUMENT WHICH IS ACKNOWLEDGED BY ENGINEER IN WRITING. THE ITEMS, TYPES OF SUBMITTALS AND RELATED MATERIAL (IF ANY) CALLED FOR ARE INDICATED BELOW:

ITEMS	TYPE SUBMITTALS REQUESTED
LIGHTING AND POWER PANELS	SHOP DRAWINGS
LIGHTING FIXTURES	CATALOG CUTS

E. GUARANTEES
1. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEFECTS, REPAIRS AND REPLACEMENTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF SUBSTANTIAL COMPLETION AS DETERMINED BY THE OWNER'S REPRESENTATIVE. PRODUCT GUARANTEES GREATER THAN ONE (1) YEAR SHALL BE PASSED ALONG TO THE OWNER FOR FULL BENEFIT OF THE MANUFACTURER'S WARRANTY.

WORK INCLUDED

A. INSTALLATION, MATERIALS, AND WORKMANSHIP
1. FURNISH AND INSTALL ALL NECESSARY ANCHORS, SUPPORTS, STRAPS, BOXES, FITTINGS AND OTHER SIMILAR APPURTENANCES NOT INDICATED ON THE DRAWINGS BUT WHICH ARE REQUIRED FOR A COMPLETE AND PROPERLY INSTALLED SYSTEM CONSISTENT WITH THE ARCHITECTURAL TREATMENT OF THE BUILDING.
2. THE ELECTRICAL CONTRACTOR, INSOFAR AS THE WORK IS CONCERNED, SHALL AT ALL TIMES KEEP THE PREMISES IN A NEAT AND ORDERLY CONDITION. AND AT THE COMPLETION OF THE WORK, SHALL PROPERLY CLEAN UP AND CART AWAY DEBRIS AND EXCESS MATERIALS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF DUMPSTER & REFUSED DISPOSAL AS REQUIRED FOR ELECTRICAL WORK.
3. ALL MATERIALS SHALL BE NEW AND UNDETERIORATED AND OF A QUALITY NOT LESS THAN THE MINIMUM SPECIFIED.

B. COORDINATION OF PLANS AND SPECIFICATIONS
1. CONTACT THE OWNER'S REPRESENTATIVE IMMEDIATELY IF THERE IS ANY QUESTIONS REGARDING THE MEANING OR INTENT OF EITHER PLANS OR SPECIFICATIONS, OR UPON NOTICING ANY DISCREPANCIES OR OMISSIONS IN EITHER PLANS OR SPECIFICATIONS.

C. CUTTING AND PATCHING
1. ALL ELECTRICAL EQUIPMENT SHALL BE KEPT DRY AND CLEAN DURING THE CONSTRUCTION PERIOD. INTERIOR OF ALL ENCLOSURES SHALL BE CLEANED OF DIRT AND DEBRIS BEFORE INSTALLING TRIM OR COVERS.
2. ALL FINISHED SURFACES OF EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE THOROUGHLY CLEANED OF DIRT AND ALL SCRATCHED OR DAMAGED SURFACES SHALL BE TOUCHED UP WITH MATCHING MATERIALS BEFORE FINAL ACCEPTANCE OF THE WORK.
3. WHEN ALL WORK IS COMPLETED AND ALL WORK HAS BEEN SATISFACTORILY TESTED AND ACCEPTED BY THE OWNER'S REPRESENTATIVE, ALL CONDUIT AND OTHER EXPOSED SURFACES SHALL BE THOROUGHLY CLEANED.

CODES AND FEES

A. CODES:
1. ALL WORK PERFORMED UNDER THIS SPECIFICATION SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AS PREPARED AND PUBLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION AND ANY APPLICABLE STATE OR LOCAL CODES.

B. FEES:
1. OBTAIN AND PAY FOR ANY AND ALL PERMITS REQUIRED BY ALL LAWS AND REGULATIONS AND PUBLIC AUTHORITY HAVING SUCH JURISDICTION.

TESTS AND INSPECTIONS

A. OBTAIN ALL INSPECTIONS REQUIRED BY ALL LAWS, ORDINANCES, RULES, REGULATIONS OR PUBLIC AUTHORITY HAVING JURISDICTION AND OBTAIN CERTIFICATES OF SUCH INSPECTIONS AND SUBMIT SAME TO THE OWNER'S REPRESENTATIVE. PAY ALL FEES, CHARGES AND OTHER EXPENSES IN CONNECTION THEREIN. OBTAIN OCCUPANCY PERMIT AS REQUIRED BY OWNER. FINAL PAYMENT SHALL NOT BE MADE UNTIL OCCUPANCY PERMIT IS OBTAINED.
B. WORK SHALL BE UNACCEPTABLE WHEN FOUND TO BE DEFECTIVE OR CONTRARY TO THE PLANS SPECIFICATIONS, CODES SPECIFIED OR ACCEPTED STANDARDS OF GOOD WORKMANSHIP.
C. THE CONTRACTOR SHALL PROMPTLY CORRECT ALL WORK FOUND UNACCEPTABLE BY THE OWNER'S REPRESENTATIVE WHETHER OBSERVED BEFORE OR AFTER SUBSTANTIAL COMPLETION AND WHETHER OR NOT FABRICATED, INSTALLED OR COMPLETED. THE CONTRACTOR SHALL BEAR ALL COSTS OF CORRECTING SUCH UNACCEPTABLE WORK, INCLUDING COMPENSATION FOR THE OWNERS REPRESENTATIVE ADDITIONAL SERVICES MADE NECESSARY THEREBY.

CONDUIT

A. FURNISH AND INSTALL ALL CONDUITS, BOXES, FITTINGS, ETC., FOR A COMPLETE RACEWAY SYSTEM.
B. ALL WIRING SHALL BE RUN IN EMT CONDUIT OR MC CABLE WITH GROUND CONDUCTOR UNLESS OTHERWISE NOTED.
C. ALL CONDUIT SIZES STATED HEREIN OR MARKED ON THE DRAWINGS ARE MINIMUM SIZE AND SHALL BE NO LESS THAN ½" UNLESS OTHERWISE NOTED.
D. ALL CONDUIT SHALL BE SUBSTANTIALLY SUPPORTED BY PIPE STRAPS OR SUITABLE CLAMPS OR HANGERS ATTACHED TO THE ELEMENTS OF THE BUILDING STRUCTURE TO PROVIDE RIGID INSTALLATION; IN NO CASE SHALL CONDUIT BE ATTACHED OR SUPPORTED FROM ADJOINING PIPE OR INSTALLED IN SUCH A MANNER AS TO PREVENT THE READY REMOVAL OF OTHER PIPE FOR REPAIRS.

WIRE AND CABLE

A. ALL CONDUCTORS SHALL BE COPPER AND OF THE AWG SIZE AND TYPE SHOWN ON THE DRAWINGS. WHERE NO SIZE OR TYPE IS SHOWN, CONDUCTORS SHALL NOT BE LESS THAN #12 TYPE XHHW, THHN, OR THWN. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED COPPER AND HAVE 600 VOLT INSULATION; BE UL LABELED AND OF AMERICAN MANUFACTURER.
B. ALL BRANCH CIRCUITS IN PATIENT CARE AREAS SHALL BE MEDICAL GRADE MC CABLE. ALL BRANCH CIRCUITS IN OFFICE AND COMMON AREAS SHALL BE TYPE NM OR MC CABLE.
C. ALL CONNECTIONS ARE TO BE MADE USING PRESSURE TYPE TERMINALS.
D. THE FOLLOWING COLOR CODE SHALL BE USED:

	120/240 VOLT	120/208 VOLT	277/480 VOLT
PHASE A	BLACK	BLACK	BROWN
PHASE B	RED	RED	ORANGE
PHASE C		BLUE	YELLOW
NEUTRAL	WHITE	WHITE	WHITE
GROUND	GREEN	GREEN	GREEN

E. CONDUCTORS NO. 10 AWG OR SMALLER SHALL HAVE INSULATION COLORED AS NOTED ABOVE.
F. CONDUCTORS NO. 8 AWG OR LARGER SHALL HAVE INSULATION COLORED AS NOTED ABOVE OR COLORED TAPE, MINIMUM SIZE ½", WRAPPED TWICE AROUND AT THE FOLLOWING POINTS:
1. AT EACH TERMINAL.
2. AT EACH CONDUIT ENTRANCE.
3. AT INTERVALS NOT MORE THAN 12 INCHES APART IN ALL BOXES, PANEL TUBS, SWITCHBOARDS, ETC.

G. ALL BRANCH CIRCUITS SHALL BE MARKED IN THE PANEL BOARD GUTTERS. MARKERS SHALL INDICATE CORRESPONDING BRANCH--CIRCUIT NUMBERS.
H. EACH BRANCH CIRCUIT REQUIRING A NEUTRAL SHALL BE FURNISHED WITH A SEPARATE INDIVIDUAL NEUTRAL CONDUCTOR.

BOXES AND PLATES

A. FURNISH AND INSTALL ALL OUTLET, JUNCTION, AND PULL BOXES AS INDICATED ON THE DRAWINGS AND AS NECESSARY TO INSTALL THE REQUIRED CONDUIT AND WIRING IN A NEAT AND WORKMANLIKE MANNER.
B. PULL BOXES AND JUNCTION BOXES SHALL BE GALVANIZED AND OF THE CORRECT SIZE AND GAUGE, SIZED IN ACCORDANCE WITH CODE REQUIREMENTS AND SHALL BE U.L. LABELED.
C. BOXES AT EXTERIOR AREAS TO BE WATERTIGHT AND DUST-TIGHT WITH CASKETED COVERS.
D. ALL BOXES FOR EXPOSED WORK IN FINISHED SPACES SHALL BE "FS" TYPE WITH THREADED HUBS WITH RIGID CONDUIT RISER (DEEP WIRE MOLD BOXES).
E. ALL BOXES SHALL BE RIGIDLY SUPPORTED INDEPENDENT OF THE CONDUIT SYSTEM. BOXES CAST INTO MASONRY OR CONCRETE ARE CONSIDERED TO BE RIGIDLY SUPPORTED.
F. FLOOR BOXES:
1. DESCRIPTION: FLOOR BOXES COMPATIBLE WITH FLOOR BOX SERVICE FITTINGS PROVIDED IN ACCORDANCE WITH THE WIRING DEVICES SECTION OF THIS SPECIFICATION; WITH PARTITIONS TO SEPARATE MULTIPLE SERVICES; FURNISHED WITH ALL COMPONENTS, ADAPTERS, AND TRIMS REQUIRED FOR COMPLETE INSTALLATION.
2. USE CAST IRON OR NONMETALLIC FLOOR BOXES WITHIN SLAB ON GRADE.
3. USE SHEET-STEEL, CAST IRON, OR NONMETALLIC FLOOR BOXES WITHIN SLAB ABOVE GRADE.
4. METALLIC FLOOR BOXES: FULLY ADJUSTABLE (WITH INTEGRAL MEANS FOR LEVELING ADJUSTMENT PRIOR TO AND AFTER CONCRETE POUR).
5. MANUFACTURER: SAME AS MANUFACTURER OF FLOOR BOX SERVICE FITTINGS.

G. UNDERGROUND BOXES/ENCLOSURES:
1. DESCRIPTION: IN-GROUND, OPEN BOTTOM BOXES FURNISHED WITH FLUSH, NON-SKID COVERS WITH LEGEND INDICATING TYPE OF SERVICE AND STAINLESS STEEL TAMPER RESISTANT COVER BOLTS.
2. SIZE: AS INDICATED ON DRAWINGS.
3. DEPTH: AS REQUIRED TO EXTEND BELOW FROST LINE TO PREVENT FROST UPHEAVAL, BUT NOT LESS THAN 12 INCHES.
4. APPLICATIONS:
a. SIDEWALKS AND LANDSCAPED AREAS SUBJECT ONLY TO OCCASIONAL NONDELIBERATE VEHICULAR TRAFFIC: USE POLYMER CONCRETE OR COMPOSITE ENCLOSURE WITH MINIMUM SCTE 77, TIER 8 LOAD RATING.
b. PARKING LOTS, IN AREAS SUBJECT ONLY TO OCCASIONAL NONDELIBERATE VEHICULAR TRAFFIC; USE POLYMER CONCRETE OR COMPOSITE ENCLOSURE WITH MINIMUM SCTE 77, TIER 15 LOAD RATING.
c. DO NOT USE POLYMER CONCRETE ENCLOSURES IN AREAS SUBJECT TO DELIBERATE VEHICULAR TRAFFIC.

H. COMPOSITE UNDERGROUND BOXES/ENCLOSURES: COMPLY WITH SCTE 77.

WIRING DEVICES

A. WIRING DEVICES SHALL BE SIMILAR TO THOSE LISTED BELOW AND OF SPECIFIED AMPERAGE. OTHER SPECIAL PURPOSE DEVICES SHALL BE AS SPECIFIED ON THE DRAWINGS.
B. DUPLEX GROUNDING TYPE RECEPTACLE - 20 AMP, 125 VOLT
1. HUBBELL 5352
2. ARROW HART 5352
C. SINGLE POLE SWITCHES - 20 AMP, 120 VOLT
D. WEATHERPROOF RECEPTACLES - 20 AMP, 125 VOLT - NEMA 5-20R
1. HUBBELL 5352 WITH 5205 COVER INTERMATIC GUARDIAN
2. I SERIES, NEMA 3R COVER
3. ARROW HART 5352 WITH 4500 COVER
E. G.F.C.I. RECEPTACLE - 20 AMP, 125 VOLT - NEMA 5-20 R
1. HUBBELL GF 5262 WITH MATCHING NYLON COVER PLATE OR WO-26 W.P. COVER
F. GROUND ALL RECEPTACLES IN ACCORDANCE WITH ARTICLE 250.146 OF NEC AND AS INDICATED IN THE GROUNDING SECTION OF THIS SPECIFICATION.

IDENTIFICATION

A. EACH PIECE OF SERVICE EQUIPMENT AND INDIVIDUAL SWITCHES, ALL DISCONNECTS, STARTERS, ALL EXHAUST FAN MANUAL STARTING SWITCHES.
B. IDENTIFICATION SHALL BE IN THE FORM OF LAMINATED PLASTIC NAMEPLATES, BLACK RACE, WITH THE LETTERS ENGRAVED INTO THE WHITE BACKGROUND, MINIMUM ¼" HIGH. PLATES SHALL BE DRILLED ON EACH END FOR SHEET METAL SCREW ATTACHMENT. NO "DYMO" OR SIMILAR TYPE LABELS WILL BE ALLOWED.
C. PANEL BOARD DIRECTORY: A TYPED CIRCUIT DIRECTORY SHALL BE PROVIDED INDICATING LOCAL AREA SERVED AND LOCATION FOR EACH BRANCH CIRCUIT.

GROUNDING

A. ALL FEEDERS AND BRANCH CIRCUITS OVER 100 VOLTS SHALL INCLUDE A GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NEC TABLE 250-122, EXCEPT NOT BE SMALLER THAN #12 FOR POWER AND LIGHTING CIRCUITS AND #14 FOR CONTROL CIRCUITS. ALL GROUND CONDUCTORS SHALL BE GREEN, OR AS SPECIFIED UNDER THE WIRE AND CABLE SECTION OF THIS SPECIFICATION.
B. ALL GROUND CLAMPS SHALL BE PENN-UNION "GPL" TYPE OR SIMILAR BY O.Z. OR BURNDY.
C. CONDUIT FOR SOLITARY GROUND CONDUCTORS SHALL BE RIGID SCHEDULE 40 PVC NON- METALLIC ELECTRICAL CONDUIT WITH U.L. LABEL SOLITARY GROUND CONDUCTORS SHALL NOT BE PLACED THROUGH METALLIC SLEEVES OR CONDUITS AND SHALL NOT BE COMPLETELY ENCIRCLED BY METALLIC HANGERS OR SUPPORTS.
D. THE GROUND CONDUCTOR SHALL BE CONNECTED TO THE NEUTRAL IN ONLY TWO LOCATIONS -ON THE SUPPLY SIDE OF THE SERVICE DISCONNECT MEANS PER NEC--250--24 AND ON SEPARATELY DERIVED SYSTEMS PER NEC 250-30.
E. AT EACH RECEPTACLE BOX, THE GROUND CONDUCTOR SHALL ENTER AND CONNECT, WITH NORMAL WIRING CONNECTOR, TO: 1) THE GROUND PIGTAIL TO RECEPTACLE; 2) THE GROUND PIGTAIL TO THE BOX GROUND SCREW; AND 3) THE OUTGOING GROUND CONDUCTOR TO NEXT DEVICE, IF NOT AT END OF RUN. METAL TO METAL CONTACT BETWEEN THE DEVICE YOKE AND THE OUTLET BOX IS NOT ACCEPTABLE AS A BOND FOR EITHER SURFACE. MOUNTED BOXES OR FLUSH TYPE BOXES.
F. CONDUIT SYSTEM SHALL BE ELECTRICALLY CONTINUOUS. ALL LOCK NUTS SHALL CUT THROUGH ENAMELED OR PAINTED SURFACES ON ENCLOSURES. WHERE ENCLOSURES AND NON-CURRENT CARRYING METALS ARE ISOLATED FROM THE CONDUIT SYSTEM, USE BONDING JUMPERS WITH APPROVED CLAMPS. WHERE REDUCING WASHERS ARE USED AND WHERE CONCENTRIC OR ECCENTRIC KNOCKOUTS ARE NOT COMPLETELY REMOVED BONDING BUSHINGS SHALL BE REQUIRED.

POWER AND LIGHTING PANELS

A. FURNISH AND INSTALL, AS SCHEDULED AND SHOWN ON THE DRAWINGS, POWER PANELS FOR OPERATION ON VOLTAGES INDICATED.
B. ALL TERMINATIONS SHALL BE MARKED "75°C ONLY", "60/75° C" OR LISTED FOR USE OF 75° C INSULATED CONDUCTORS AT FULL 75° C AMPACITY.
C. ALL BUS BARS SHALL BE SILVER OR TIN PLATED COPPER.
D. CABINETS SHALL BE OF COMMERCIAL GALVANIZED SHEET STEEL, CODE GAUGE AND SIZE, SURFACE OR RECESSED MOUNTED AS CALLED FOR IN THE DRAWINGS.
E. NEUTRAL ASSEMBLY SHALL HAVE INDIVIDUAL ANTI-TURN SOLDERLESS TERMINALS, SIMILAR TO SQUARE D TYPE PK, FOR CONNECTION OF ULTIMATE NUMBER OF NEUTRAL WIRES. SHEET METAL TERMINAL STRIPS AND CONNECTIONS WILL BE REJECTED.
F. PANEL SHALL HAVE A COPPER GROUND BAR SIMILAR TO NEUTRAL BAR IN NUMBER, SIZE, AND TYPE OF ANTI-TURN SOLDERLESS LUGS. THIS GROUND BAR SHALL BE FACTORY BONDED TO THE PANEL TUB IN THE GUTTER SPACE OPPOSITE THE MAINS AND THE NEUTRAL ASSEMBLY AND SHALL HAVE THE SCREWDRIVER SLOTS FACING THE FRONT OF THE PANEL.
G. QUALITY STANDARD: SQUARE D TYPE NQ (208V) AND NF (480V).

LIGHTING FIXTURES

A. CONTRACTOR SHALL FURNISH AND INSTALL LIGHTING FIXTURES AS INDICATED IN FIXTURE SCHEDULE SHOWN ON DRAWINGS, AND SPECIFIED HEREIN.
B. NEUTRAL ASSEMBLY SHALL HAVE INDIVIDUAL ANTI-TURN SOLDERLESS TERMINALS, SIMILAR TO SQUARE D TYPE PK, FOR CONNECTION OF ULTIMATE NUMBER OF NEUTRAL WIRES. SHEET METAL TERMINAL STRIPS AND CONNECTIONS WILL BE REJECTED.
C. ALL LIGHTING FIXTURES INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE FURNISHED COMPLETE WITH AS INDICATED ON THE FIXTURE SCHEDULE.
D. ANY LIGHTING FIXTURES SCRATCHED, BENT, CRACKED OR IN ANY WAY DAMAGED BEFORE ACCEPTANCE BY OWNER SHALL BE REPLACED AT THIS CONTRACTOR'S EXPENSE.
E. ALL LIGHTING FIXTURES SHALL BE IN WORKING ORDER AT THE TIME OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER.
F. ALL LIGHTING FIXTURES ARE TO BE GROUNDED ON THE INTERIOR OF THE FIXTURE HOUSING, ON CLEAN BARE METAL (FREE OF PAINT). BY USE OF PIGTAIL AND FASTENED BY A SCREW USED FOR NO OTHER PURPOSE.

TELEPHONE/DATA SYSTEMS

A. SUMMARY
1. INCLUDES BUT NOT LIMITED TO
a. FURNISH AND INSTALL BUILDING TELEPHONE AND COMPUTER NETWORK RACEWAY AND CABLE SYSTEM AS DESCRIBED IN CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, RACEWAY, OUTLETS, MODULAR JACKS, DEVICE PLATES, CABLES, PUNCH DOWN BLOCKS, BACKBOARDS, CABINETS, PATCH PANELS, GROUNDING AND OTHER MISCELLANEOUS ITEMS REQUIRED FOR A COMPLETE SYSTEM.
b. FURNISH AND INSTALL MAIN SERVICE RACEWAY AS DESCRIBED IN CONTRACT DOCUMENTS AND TO COMPLY WITH TELEPHONE COMPANY REQUIREMENTS.

B. COMPONENTS
1. TELEPHONE OUTLET BOX SHALL BE SINGLE DEVICE BOX.
2. BUILDING TELEPHONE AND COMPUTER NETWORK SYSTEM CABLE
a. 23 GAUGE, SOLID TINNED COPPER, FOUR TWISTED PAIRS. CATEGORY 6
b. USE PLENUM-RATED CABLE IN CEILINGS AND AREAS USED FOR PLENUM AIR RETURN
3. TELEPHONE TERMINATION BLOCKS
a. UL VERIFIED CATEGORY 6.
b. 110 TERMINATION WITH TIN LEAD PLATED IDC
4. NETWORK PATCH PANELS
a. UL VERIFIED CATEGORY 6
b. 110 TERMINATION WITH TIN LEAD PLATED IDC
c. 19" RACK MOUNT WITH BACKBOARD MOUNTING FRAME.
d. 48 PORTS
5. TELEPHONENETWORK JACKS
a. WALL JACKS
1) CAT6 - HUBBELL HXJ6 OR ALTERNATE MANUFACTURER WITH EQUIVALENT PERFORMANCE STANDARD.
b. PLATES
1) HUBBELL - IFP SERIES (PORT QUANTITY AS REQUIRED, COLOR BY ARCHITECT)
6. BACKBOARDS: INTERIOR GRADE PLYWOOD WITHOUT VOIDS, ¾ INCH THICK; UL-LABELED FIRE RETARDANT.
a. SIZE: 48 INCHES WIDE 96 INCHES HIGH.
b. DO NOT PAINT OVER UL LABEL.
c. PROVIDE ONE 48" MULTI-OUTLET POWER STRIP WITH INTEGRAL SURGE PROTECTION AND OUTLETS AT 6" O.C. (MINIMUM 7 OUTLETS) MOUNTED AT CENTER OF TERMINAL BOARD.

C. INSTALLATION
1. RUN 1" CONDUIT TO ACCESSIBLE CEILING SPACE FROM EACH OUTLET. INSTALL CABLE FROM TERMINAL BOARD TO EACH TELEPHONE/NETWORK OUTLET.
2. TERMINATE CABLES AT EACH OUTLET WITH SPECIFIED MODULAR JACK ASSEMBLY.
3. TERMINATE CABLES ON PUNCH DOWN BLOCKS OR PATCH PANELS AT TERMINAL BOARD.
4. PROVIDE TYPED LABELS AT ALL JACKS CORRESPONDING TO TYPED NUMBERING SYSTEM AT PATCH PANEL OR TERMINAL STRIP.

D. QUALITY ASSURANCE
1. COMPLY WITH APPLICABLE PORTIONS OF NEC ANSI/EIA/TIA 568 AS TO TYPE PRODUCTS USED AND INSTALLATION OF COMPONENTS. PROVIDE PRODUCTS AND MATERIALS WHICH HAVE BEEN UL-LISTED AND LABELED.

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Parcel #:
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Drawing Issue and Revision Schedule

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ELECTRICAL SPECS.

AE701