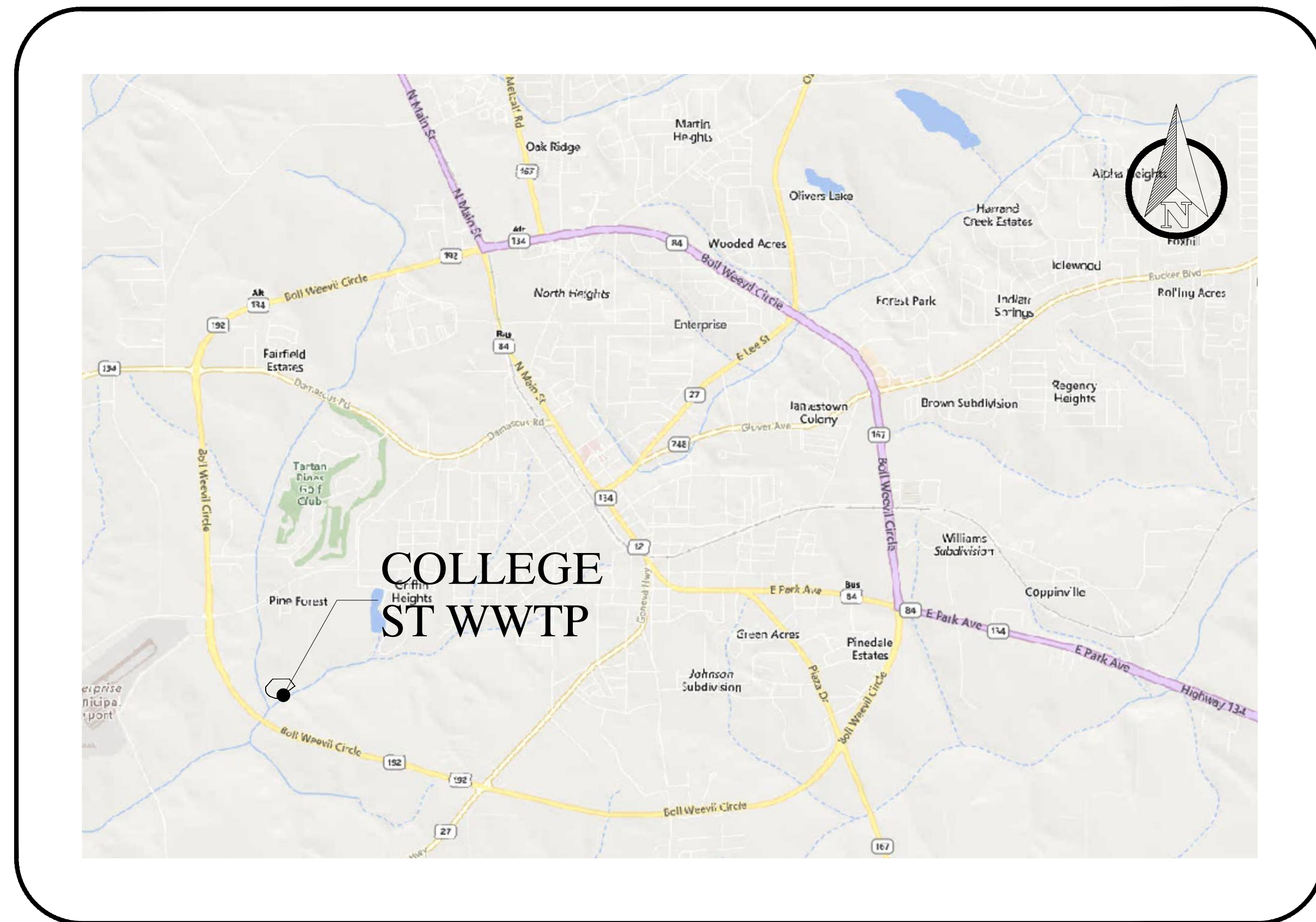


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# WASTEWATER TREATMENT FACILITIES UPGRADES

## PROJECT 2 - ELECTRICAL

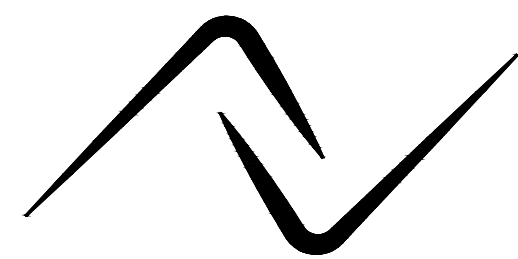


LOCATION MAP

FOR:

**CITY OF ENTERPRISE**

501 S. MAIN ST.  
ENTERPRISE, AL 36330

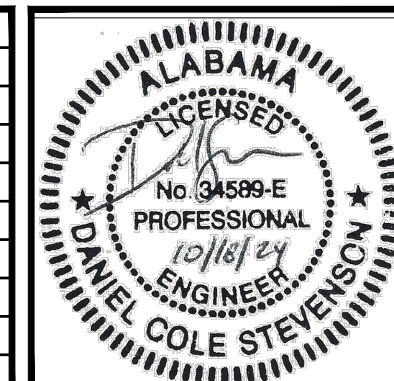


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SHEET INDEX	
SHEET NUMBER	SHEET TITLE
GENERAL	
G-0.00	COVER SHEET
CIVIL	
CO.10	COLLEGE STREET WWTP EXISTING SITE PLAN
ELECTRICAL	
E-0.01	ABBREVIATIONS AND NOTES
E-0.02	SYMBOLS
E-0.03	SYMBOLS CONTINUED
E-1.00	EXISTING ELECTRICAL SINGLELINE
E-1.01	TEMPORARY ELECTRICAL SINGLELINE
E-1.02	PROPOSED ELECTRICAL SINGLELINE
E-2.00	EXISTING ELECTRICAL BUILDING SITE PLAN
E-9.00	TYPICAL PUMP SCHEMATIC
E-9.01	TYPICAL BLOWER SCHEMATIC
E-9.02	TYPICAL CLARIFIER SCHEMATIC
E-9.03	GRIT CLASS. AND AER. SCHEMATICS
E-9.04	TYPICAL GRIT CLASS PUMP SCHEMATIC
E-9.05	CONTROL CUBICLE SCHEMATIC

NO.	DATE	REVISION	BY

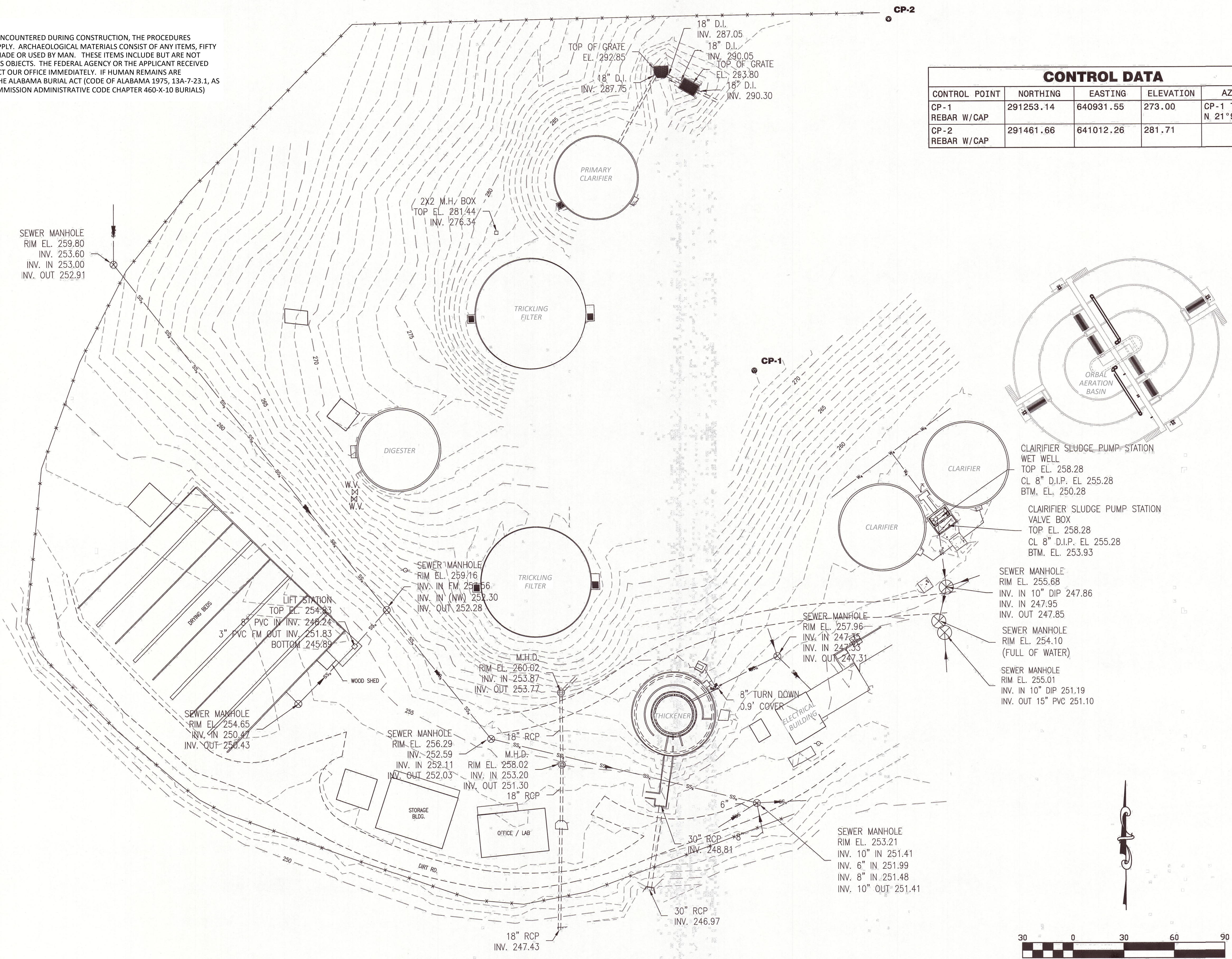


JOB NO.: 2024-0222-00  
DATE: OCTOBER 2024  
**G-0.00**  
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OCTOBER 2024

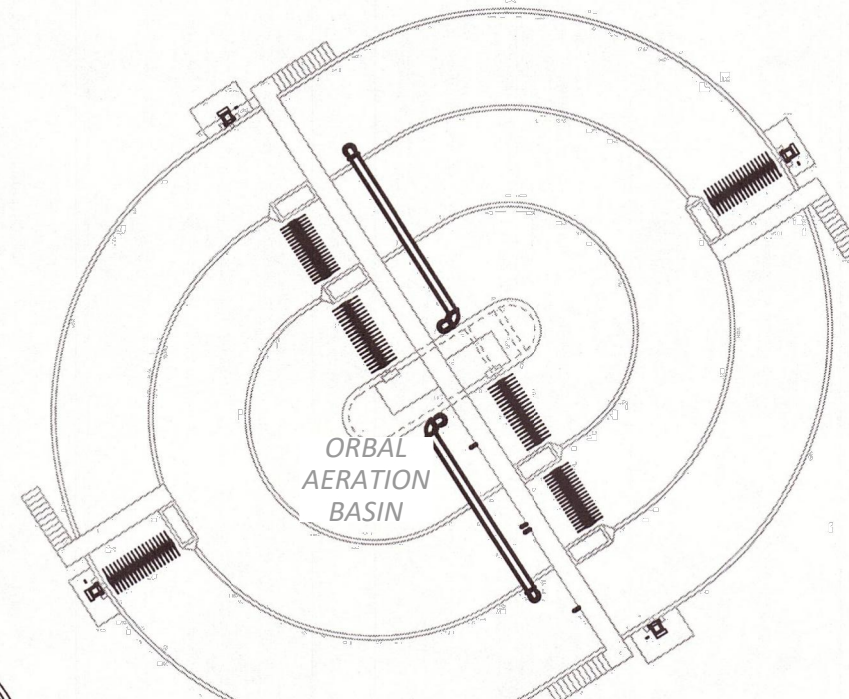
April 23, 2019 H:\Project Files\MSA - City of Enterprise AL\2024-0224-00-2024 WMTU Upgrades\300 Design\300 Preliminary Drawings\01 Civil & Demol\College St WMTU\000\_10.dwg

**NOTES:**

- IF ARCHAEOLOGICAL MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, THE PROCEDURES CODIFIED AT 36 CFE 800.13 (b) WILL APPLY. ARCHAEOLOGICAL MATERIALS CONSIST OF ANY ITEMS, FIFTY YEARS OLD OR OLDER, WHICH WERE MADE OR USED BY MAN. THESE ITEMS INCLUDE BUT ARE NOT LIMITED TO, STONE, METAL, AND GLASS OBJECTS. THE FEDERAL AGENCY OR THE APPLICANT RECEIVED FEDERAL ASSISTANCE SHOULD CONTACT OUR OFFICE IMMEDIATELY. IF HUMAN REMAINS ARE ENCOUNTERED, THE PROVISIONS OF THE ALABAMA BURIAL ACT (CODE OF ALABAMA 1975, 13A-7-23.1, AS AMENDED; ALABAMA HISTORICAL COMMISSION ADMINISTRATIVE CODE CHAPTER 460-X-10 BURIALS) SHOULD BE FOLLOWED.



CONTROL DATA				
CONTROL POINT	NORTHING	EASTING	ELEVATION	AZIMUTH
CP-1 REBAR W/CAP	291253.14	640931.55	273.00	CP-1 TO CP-2 N 21°9'34"E
CP-2 REBAR W/CAP	291461.66	641012.26	281.71	



CLARIFIER SLUDGE PUMP STATION  
WET WELL  
TOP EL. 258.28  
CL 8" D.I.P. EL 255.28  
BTM. EL. 250.28

CLARIFIER SLUDGE PUMP STATION  
VALVE BOX  
TOP EL. 258.28  
CL 8" D.I.P. EL 255.28  
BTM. EL. 253.93

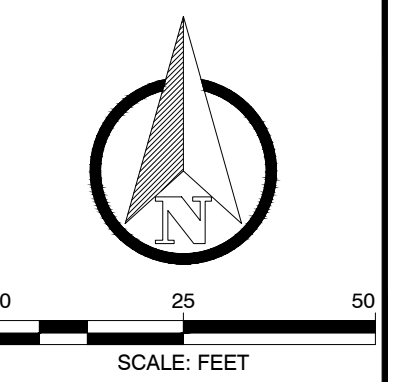
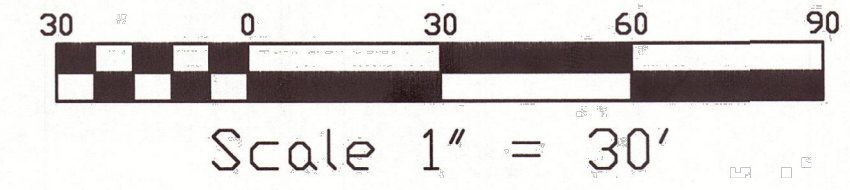
SEWER MANHOLE  
RIM EL. 255.68  
INV. IN 10" DIP 247.86  
INV. IN 247.95  
INV. OUT 247.85

SEWER MANHOLE  
RIM EL. 257.96  
INV. IN 247.33  
INV. IN 247.33  
INV. OUT 247.31

SEWER MANHOLE  
RIM EL. 254.10  
(FULL OF WATER)

SEWER MANHOLE  
RIM EL. 255.01  
INV. IN 10" DIP 251.19  
INV. OUT 15" PVC 251.10

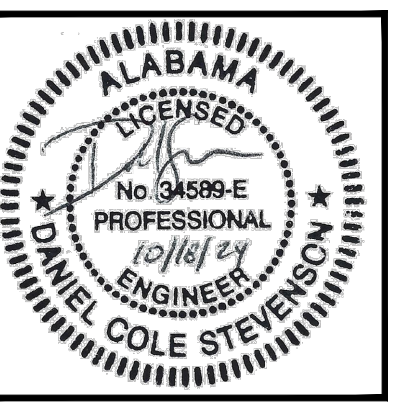
SEWER MANHOLE  
RIM EL. 253.21  
INV. 10" IN 251.41  
INV. 6" IN 251.99  
INV. 8" IN 251.48  
INV. 10" OUT 251.41



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**WASTEWATER TREATMENT  
FACILITIES UPGRADES  
PROJECT 2 - ELECTRICAL**  
COLLEGE STREET WMTU  
EXISTING SITE PLAN



JOB NO: 2024-0222-00  
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BID DOCUMENTS  
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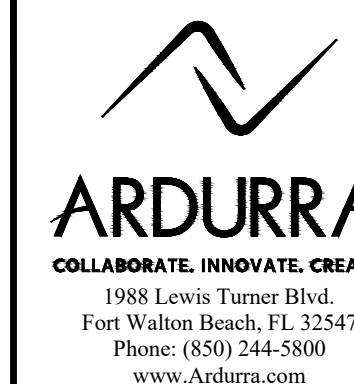
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## ABBREVIATIONS

A	A OR AMP	AMPERES	UG	UNDERGROUND
	AFF	ABOVE FINISH FLOOR	UL	UNDERWRITER'S LABORATORIES
	AHU	AIR HANDLING UNIT	UNO	UNLESS NOTED OTHERWISE
	AIC	AMPERE INTERRUPTING CAPACITY	V	VOLTS
	AM	AMMETER	VFD	VARIABLE FREQUENCY DRIVE
	AS	AMMETER SELECTION SWITCH	VM	VOLTMETER
	ASYM	ASYMMETRICAL	VMS	VOLTMETER SELECTOR SWITCH
	ATS	AUTOMATIC TRANSFER SWITCH	W	WIDTH
	AT	AUTOMATIC TRANSFORMER	W/	WITH
	BCP	BACKUP CONTROL PANEL	WHDM	WATT HOUR DEMAND METER
	C	CONDUIT	WM	WATTMETER
	CB	CIRCUIT BREAKER	WP	WEATHER PROOF
B	CKT	CIRCUIT	XFMR	TRANSFORMER
	CLF	CURRENT LIMITING FUSE	Y	WYE CONNECTION
	CNTL	CONTROL		
	CT	CURRENT TRANSFORMER		
	Δ	DELTA CONNECTION		
	D	DEPTH		
	DP	DISTRIBUTION PANELBOARD		
	DS OR DISC	DISCONNECT SWITCH		
	DTC	DATA TERMINAL CABINET		
	EF	EXHAUST FAN		
	EG	EQUIPMENT GROUND		
	EMCP	ENERGY MANAGEMENT CONTROL PANEL		
	EGC	EQUIPMENT GROUNDING CONDUCTOR		
C	EMT	ELECTRICAL METALLIC TUBING		
	ESTOP	EMERGENCY STOP		
	ETR	EXISTING TO REMAIN		
	EX OR EXIST.	EXISTING		
	EXP	EXPLOSION PROOF		
	F	FUSE		
	FA	FIRE ALARM		
	FCR	FLOAT CONTROL RELAY		
	FLR	FLOOR		
	FACP	FIRE ALARM CONTROL PANEL		
	FMPX	FIRE ALARM MULTIPLEX PANEL		
	G OR GND	GROUND		
	GEC	GROUNDING ELECTRODE CONDUCTOR		
D	GF	GROUND FAULT		
	GFI	GROUND FAULT INTERRUPTING		
	H	HEIGHT		
	HP	HORSEPOWER		
	HV	HIGH VOLTAGE, 600VAC		
	HVAC	HEATING, VENTILATION AND AIR		
	IMC	INTERMEDIATE METAL CONDUIT		
	JB OR J	JUNCTION BOX		
	KVA	KILOVOLT - AMPS		
	KW	KILOWATTS		
	KWH	KILOWATT-HOUR		
	L	LENGTH		
E	LA	LIGHTING ARRESTOR		
	LCP	LIGHTING CONTROL PANEL		
	LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT		
	LP	LIGHTING PANELBOARD		
	LV	LOW VOLTAGE, 240VAC		
	MCB OR MB	MAIN CIRCUIT BREAKER		
	MCC	MOTOR CONTROL CENTER		
	MFR	MANUFACTURER		
	MH OR MTG	MOUNTING HEIGHT		
	MLO	MAIN LUG ONLY		
	MMS	MICROPROCESSOR-BASED METERING SYSTEM		
	MT OR MTD	MOUNT OR MOUNTED		
F	N	NEUTRAL		
	NC	NORMALLY CLOSED		
	NEC	NATIONAL ELECTRICAL CODE		
	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION		
	NF	NON-FUSIBLE		
	NFPA	NATIONAL FIRE PROTECTION ASSOCIATES		
	NO	NORMALLY OPEN		
	NTS	NOT TO SCALE		
	P	POLE		
	PFC	POWER FACTOR CAPACITOR		
	PLC	PROGRAMMABLE LOGIC CONTROLLER		
	PMT	PAD MOUNT TRANSFORMER		
	PNL	PANEL		
	PVC	POLYVINYLCHLORIDE CONDUIT		
G	RC	REMOTE CONTROL SWITCH		
	REC OR RECPT	RECEPTACLE		
	RGC	RIGID GALVANIZED CONDUIT		
	RMS	ROOT MEAN SQUARE		
	RTU	REMOTE TERMINAL UNIT		
	SS	STAINLESS STEEL, SOFT START		
	SW	SWITCH		
	SWBD	SWITCHBOARD		
	SYM	SYMMETRICAL		
	TBB	TELEPHONE BACKBOARD		
	TCP	TEMPERATURE CONTROL PANEL		
	TTC	TELEPHONE TERMINAL CABINET		
H	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR		
	TYP	TYPICAL		

## GENERAL NOTES

1. ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS:
  - 1.1. NFPA 70, NATIONAL ELECTRICAL CODE.
  - 1.2. NFPA 101 LIFE SAFETY CODE.
  - 1.3. NFPA 820 STANDARD FOR FIRE PROTECTION IN WASTEWATER TREATMENT AND COLLECTION FACILITIES.
2. WET WELLS ARE CLASS 1, DIV. 1, SPACES.
3. ALL ELECTRICAL CIRCUITS SHALL INCLUDE A GREEN GROUNDING CONDUCTOR SIZED PER NEC.
4. CONDUIT AND DEVICE LOCATIONS ARE SHOWN DIAGRAMMATICALLY ONLY, CONTRACTOR SHALL FIELD LOCATE OR ROUTE AS REQUIRED.
5. ALL CONDUIT SHALL BE INSTALLED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE.
6. ALL PANEL LEGENDS SHALL BE RETYPED TO REFLECT UP TO DATE CONDITIONS. ALL PANEL LEGENDS SHALL INDICATE THE PANEL'S FEEDER CKT. SOURCE PANEL (OR SUBSTATION) AND ITS LOCATION.
7. ELECTRICAL EQUIPMENT AND DEVICES SHALL BE PROVIDED WITH PHENOLIC NAMEPLATES. ALL NAMEPLATES SHALL BE MECHANICALLY FASTENED WITH S.S. SCREWS OR RIVETS. THE USE OF ADHESIVE NAMEPLATES SHALL NOT BE ALLOWED.
8. CONTRACTOR SHALL MAINTAIN A SET OF PRINTS AND MARK-UP DURING CONSTRUCTION TO REFLECT "AS-BUILT" CONDITIONS. PRINTS SHALL BE DELIVERED TO THE ENGINEER UPON COMPLETION OF THE PROJECT AS A COMPLETE SET OF RECORD DRAWINGS. IN ADDITION, THE CONTRACTOR SHALL PROVIDE ELECTRONIC COPIES OF ALL UPDATES "AS-BUILT" DRAWINGS IN AUTOCAD 2007 FORMAT.
9. THE CONTRACTOR SHALL PROVIDE PULL BOXES IN POWER CIRCUIT CONDUIT AS REQUIRED, SO AS TO LIMIT THE NUMBER OF BENDS TO A MAXIMUM OF 360 DEGREES OR FOUR 90 DEGREE TURNS.
10. PROVIDE CONDUIT EXPANSION FITTINGS AS CONDUIT CROSSES BUILDING EXPANSION JOINTS.
11. ALL EXTERIOR ELECTRICAL ENCLOSURES SHALL BE NEMA 4X STAINLESS STEEL UNLESS OTHERWISE NOTED.
12. ALL SUPPORTING AND FASTENING DEVICES SHALL BE STAINLESS STEEL.
13. CONTRACTOR MAY COMBINE HOMERUNS TO ALL PANEL BOARDS PER NEC.
14. ALL RECEPTACLE BRANCH CIRCUITS OVER 75' IN LENGTH SHALL USE #10 AWG CONDUCTOR (FOR VOLTAGE DROP).
15. CONTRACTOR TO PROVIDE ALL REQUIRED POWER AND STARTERS FOR PROCESS EQUIPMENT (COORDINATE WITH PROCESS EQUIPMENT SUPPLIER).
16. ALL SERVICE ENTRANCE CONDUITS SHALL BE SCH. 80 PVC BURIED 4' BELOW GRADE WITH MARKER TAPE 6" ABOVE TOP OF CONDUIT.
17. CONTRACTOR SHALL PAY ALL FEES ASSESSED BY ELECTRICAL UTILITY CO.
18. CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL SERVICE WITH UTILITY COMPANY.
19. CONTRACTOR SHALL PROVIDE 2 SPARE FUSES FOR EACH FUSE INSTALLED INCLUDING ALL EQUIPMENT AND CONTROLS.
20. CONTROL AND POWER CONDUITS SHALL BE SEPARATED BY 12" MIN. AND SHALL BE IN SEPARATE JUNCTION BOXES AND DUCT BANKS. MAINTAIN 12" SEPARATION BETWEEN DUCT BANKS.
21. CONTRACTOR SHALL MAINTAIN OPERATION OF THE ELECTRICAL SERVICE DURING THE UPGRADE.
22. CONTRACTOR SHALL PROVIDE A GROUNDING SYSTEM AS DETAILED IN PLANS. THE INSTALLED GROUNDING SYSTEM SHALL HAVE A RESISTANCE OF LESS THAN 5 OHMS TO GROUND.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING ALL PROJECT SPECIFICATIONS AND WILL BE RESPONSIBLE FOR MEETING ALL REQUIREMENTS OUTLINED IN THE SPECIFICATIONS.
24. ALL CONDUITS ABOVE GRADE, IN NON-HAZARDOUS LOCATIONS, SHALL BE RIGID ALUMINUM.
25. ALL CONDUITS BELOW GRADE SHALL BE PVC.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COORDINATED ELECTRICAL SYSTEM IN ACCORDANCE WITH NEC ARTICLE 240.12 AND ARTICLE 700.27.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DETAILED ELECTRICAL EQUIPMENT LAYOUT DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

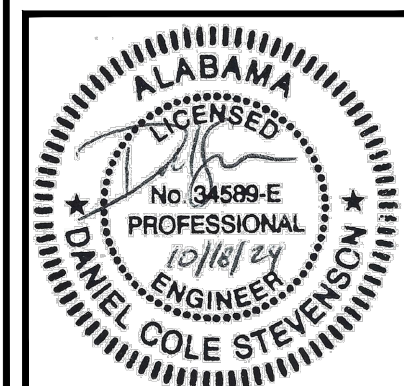


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**WASTEWATER TREATMENT  
 FACILITIES UPGRADES**

**ABBREVIATIONS AND NOTES**



JOB NO: 2024-0222-00  
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SYMBOL	DESCRIPTION
	CONTACT, NORMALLY OPEN
	CONTACT, NORMALLY CLOSED
	OPERATING COIL * DESIGNATION: C - CONTACTOR R - CONTROL RELAY M - MAGNETIC MOTOR STARTER - NON REVERSING MF - MAGNETIC MOTOR STARTER - FORWARD MR - MAGNETIC MOTOR STARTER - REVERSE MO - MAGNETIC MOTOR STARTER - OPEN MC - MAGNETIC MOTOR STARTER - CLOSE MH - MAGNETIC MOTOR STARTER - HIGH SPEED ML - MAGNETIC MOTOR STARTER - LOW SPEED SOV - SOLENOID OPERATED VALVE TD - TIME DELAY RELAY T - PROGRAMMABLE TIMER
	METER, ELAPSED TIME
	INDICATING LIGHT - FULL VOLTAGE TRANSFORMER OR LED * DESIGNATION: A - AMBER R - RED B - BLUE W - WHITE G - GREEN Y - YELLOW
	INDICATING LIGHT, PUSH -TO-TEST * DESIGNATION: A - AMBER R - RED B - BLUE W - WHITE G - GREEN Y - YELLOW
	SWITCH, PUSHBUTTON, NORMALLY OPEN CIRCUIT
	SWITCH, PUSHBUTTON, NORMALLY CLOSED CIRCUIT
	SWITCH, PUSHBUTTON, TAG LINE, NORMALLY CLOSED CIRCUIT WITH MAINTAINED CONTACT
	SWITCH, PUSHBUTTON, TWO CIRCUIT, NORMALLY OPEN AND NORMALLY CLOSED
	SWITCH, EMERGENCY SHUTDOWN, MUSHROOM-HEAD PUSHBUTTON, NORMALLY CLOSED CIRCUIT WITH MAINTAINED CONTACT
	SWITCH, MASTER OR CONTROL X - INDICATES CONTACT CLOSED
	MOMENTARY-CONTACT SWITCH
	SWITCH PRESSURE/VACUUM OPERATED. NORMALLY OPEN. CLOSING ON RISING PRESSURE
	SWITCH PRESSURE/VACUUM OPERATED. NORMALLY CLOSED OPENING ON RISING PRESSURE
	SWITCH, FLOW ACTUATED, NORMALLY OPEN, CLOSING ON INCREASE IN FLOW
	SWITCH, FLOW ACTUATED, NORMALLY CLOSED OPENING ON INCREASE IN FLOW
	SWITCH, TEMPERATURE ACTUATED, NORMALLY CLOSED OPENING ON RISING TEMPERATURE
	SWITCH, TEMPERATURE ACTUATED, NORMALLY OPEN CLOSING ON RISING TEMPERATURE
	CONTACT, TIME DELAY, NORMALLY OPEN WITH TIME DELAY CLOSING
	CONTACT, TIME DELAY, NORMALLY OPEN WITH TIME DELAY OPENING
	CONTACT, TIME DELAY, NORMALLY CLOSED WITH TIME DELAY OPENING
	CONTACT, TIME DELAY, NORMALLY CLOSED WITH TIME DELAY CLOSING
	SWITCH, LIMIT
	SWITCH, TORQUE
	SWITCH, LIQUID LEVEL ACTUATED, CLOSING ON RISING LEVEL
	SWITCH, LIQUID LEVEL ACTUATED, OPENING ON RISING LEVEL

SYMBOL	DESCRIPTION
	25A FUSE (AMPERE RATING SHOWN)
	FUSED DISCONNECT SWITCH, 3 POLE * DESIGNATION: LS - LOAD BREAK SWITCH DS - DISCONNECT SWITCH
	1200A POWER CIRCUIT BREAKER, MEDIUM-VOLTAGE, DRAWOUT TYPE (AMPERE RATING SHOWN)
	500AT/600AF CIRCUIT BREAKER, DRAWOUT TYPE, 600VAC OR LESS, 3P (TRIP AND FRAME AMPERE RATING SHOWN)
	60AT CIRCUIT BREAKER, THERMOMAGNETIC, 600 VAC OR LESS, 3P (AMPERE RATING SHOWN)
	600AT/1000AF CIRCUIT BREAKER, THERMOMAGNETIC, 600 VAC OR LESS, 3P ADJUSTABLE TRIP (TRIP & FRAME AMPERE RATING SHOWN)
	7A MOTOR CIRCUIT PROTECTOR, 600V AC OR LESS, 3P UON (CONTINUOUS AMPERE RATING SHOWN)
	3P/20A CONTACTOR (NUMBER OF POLES AND AMPERE RATING SHOWN)
	MAGNETIC MOTOR STARTER * NEMA SIZE ** DESIGNATION: NONE - FULL VOLTAGE, NON-REVERSING FVR - FULL VOLTAGE, REVERSING RVNR - REDUCED VOLTAGE, NON-REVERSING RVR - REDUCED VOLTAGE, REVERSING
	MANUAL MOTOR STARTER
	VARIABLE FREQUENCY DRIVE / INVERTER
	750KVA/4.16/0.48KV POWER TRANSFORMER (KVA RATING, VOLTAGES AND WINDINGS CONNECTIONS SHOWN)
	Z=X% SERIES REACTOR (LINE OR LOAD RATING SHOWN)
	(2) 4200/120V VOLTAGE TRANSFORMER (QUANTITY AND VOLTAGE RATIO SHOWN)
	(3) 800/5A CURRENT TRANSFORMER (QUANTITY AND CURRENT RATIO SHOWN)
	(3) 2200/5A SET AT 1200/5A MULTI-RATIO CURRENT TRANSFORMER (QUANTITY, MAXIMUM CURRENT RATIO AND SETTING SHOWN)
	800/5A ZERO SEQUENCE CURRENT TRANSFORMER (CURRENT RATIO SHOWN)
	CAPACITOR
	GROUND CONNECTION
	(3) SURGE ARRESTER (QUANTITY SHOWN)
	3P/400A TRANSFER SWITCH (NUMBER OF POLES AND AMPERE RATING SHOWN)
	125VDC BATTERY (RATING SHOWN)
	10 MOTOR, INDUCTION (HORSEPOWER SHOWN)

SYMBOL	DESCRIPTION
	XXXXKW/XXXV 3-PHASE GENERATOR (KW RATINGS, VOLTAGE AND PHASE SHOWN)
	THERMISTOR
	DIODE, SEMICONDUCTOR
	RTD RESISTANCE TEMPERATURE DETECTOR
	RESISTOR
	SPACE HEATER
	500VA/480/120V CONTROL POWER TRANSFORMER, (VA RATING VOLTAGES)
	AS AMMETER SWITCH
	VS VOLTMETER SWITCH
	CS CONTROL SWITCH
	METER * DESIGNATION: AM - AMMETER VM - VOLTMETER PFM - POWER FACTOR WM - WATTMETER FMM - FREQUENCY METER WHM - WATTHOUR METER PM - POWER MONITORING DEVICE
	PROTECTIVE RELAY OR DEVICE * DESIGNATION: 11 - MULTIFUNCTION PROTECTIVE RELAY 25 - SYNCHRONIZING OR SYNCHRONISM-CHECK RELAY 26 - APPARATUS THERMAL DEVICE 27 - UNDERVOLTAGE RELAY 32 - DIRECTIONAL POWER RELAY 37 - UNDERCURRENT OR UNDERPOWER RELAY 40 - FIELD RELAY 46 - REVERSE-PHASE OR PHASE-BALANCE CURRENT RELAY 49 - MACHINE OR TRANSFORMER THERMAL RELAY 50 - INSTANTANEOUS OVERCURRENT RELAY 50GS - INSTANTANEOUS GROUND FAULT RELAY 51 - AC TIME OVERCURRENT RELAY 51GS - AC TIME GROUND FAULT RELAY 51V - AC TIME OVERCURRENT RELAY (VOLTAGE RESTRAINT) 55 - POWER FACTOR RELAY 59 - OVERVOLTAGE RELAY 60 - VOLTAGE OR CURRENT BALANCE RELAY 63 - PRESSURE SWITCH 64 - GROUND DETECTOR RELAY 67 - AC DIRECTIONAL OVERCURRENT RELAY 81 - FREQUENCY RELAY 86 - LOCKOUT RELAY 87 - DIFFERENTIAL PROTECTIVE RELAY 87G - GENERATOR DIFFERENTIAL GROUND FAULT RELAY

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	BY
	DATE
	NO
<b>WASTEWATER TREATMENT FACILITIES UPGRADES</b> SYMBOLS	
JOB NO: 2024-0222-00 DATE: OCTOBER 2024	
E-0.02	
BID DOCUMENTS OCTOBER 2024	

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WIRING	
J	JUNCTION BOX
PB	PULL BOX
H	HANDHOLE
PXX	CONDUIT CONDUCTOR WIRE TAG. P-DENOTES POWER, AND C-DENOTES CONTROL
	<u>COMMUNICATION</u>
D	DATA COMMUNICATION OUTLET
C	CABLE TELEVISION OUTLET
	DATA COMMUNICATION FLOOR OUTLET
	TELEPHONE FLOOR RECEPTACLE
	WALL MOUNTED TELEPHONE
	WALL MOUNTED DATA
S	CEILING MOUNTED SPEAKER
LIGHTING	
	EXIT SIGN WALL MOUNTED LIGHT
	ELECTRIC RESISTANCE HEATER
	FLUORESCENT EMERGENCY LIGHT FIXTURE
\$	SINGLE POLE SWITCH
\$3	THREE-WAY SWITCH
\$T	TIMER OPERATED SWITCH
\$F	FUSED SWITCH
\$P	SWITCH WITH PILOT LIGHT
	CEILING MOUNTED PULL SWITCH
\$2	DOUBLE POLE SWITCH
\$4	FOUR-WAY SWITCH
\$k	KEY OPERATED SWITCH
L <sub>PS</sub>	LAMP HOLDER POLE SWITCH

LIGHTING (CONT)	
\$LM	LOW VOLTAGE MASTER SWITCH
\$WP	WEATHER PROOF SWITCH
	INCANDESCENT CEILING MOUNTED LIGHT
	RECESSED FLUORESCENT 2X4 LIGHT FIXTURE
	RECESSED FLUORESCENT 1X4 LIGHT FIXTURE
	RECESSED FLUORESCENT 1X8 LIGHT FIXTURE
	SURFACE MOUNTED FLUORESCENT 2X4 LIGHT FIXTURE
	SURFACE MOUNTED FLUORESCENT 1X4 LIGHT FIXTURE
	SURFACE MOUNTED FLUORESCENT 1X8 LIGHT FIXTURE
	STREET LIGHT WITH BRACKET
	EXTERIOR BUILDING LIGHT
	EMERGENCY BATTERY POWERED LIGHTS
	2' X 2' LIGHT FIXTURE
	INDUSTRIAL OR STRIP FIXTURE
	HIGHMAST LIGHTING ASSEMBLY
	AREA LIGHTING ASSEMBLY

POWER	
	CLOCK HANGER RECEPTACLE
	DUPLEX RECEPTACLE
	DUPLEX ON EMERGENCY POWER RECEPTACLE
	DUPLEX WITH GFI RECEPTACLE
	QUADRAPLEX RECEPTACLE
	SINGLE RECEPTACLE
	SINGLE RECEPTACLE WITH SWITCH
	SPECIAL PURPOSE RECEPTACLE
	DUPLEX RECEPTACLE WITH SWITCH
	FLUSH MOUNTED PANELBOARD CABINET
	SURFACE MOUNTED PANELBOARD CABINET
T	TRANSFORMER

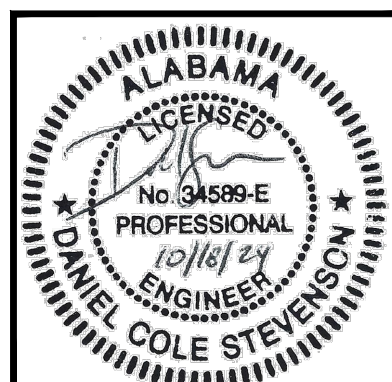
SINGLE LINE (CONT)	
	EARTH GROUND
	FUSED DISCONNECT SWITCH
	UNFUSED DISCONNECT SWITCH
M	METER
DP#	DISTRIBUTION PANEL
LP#	LIGHTING PANEL
PP#	POWER PANEL



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**WASTEWATER TREATMENT FACILITIES UPGRADES**  
SYMBOLS CONTINUED

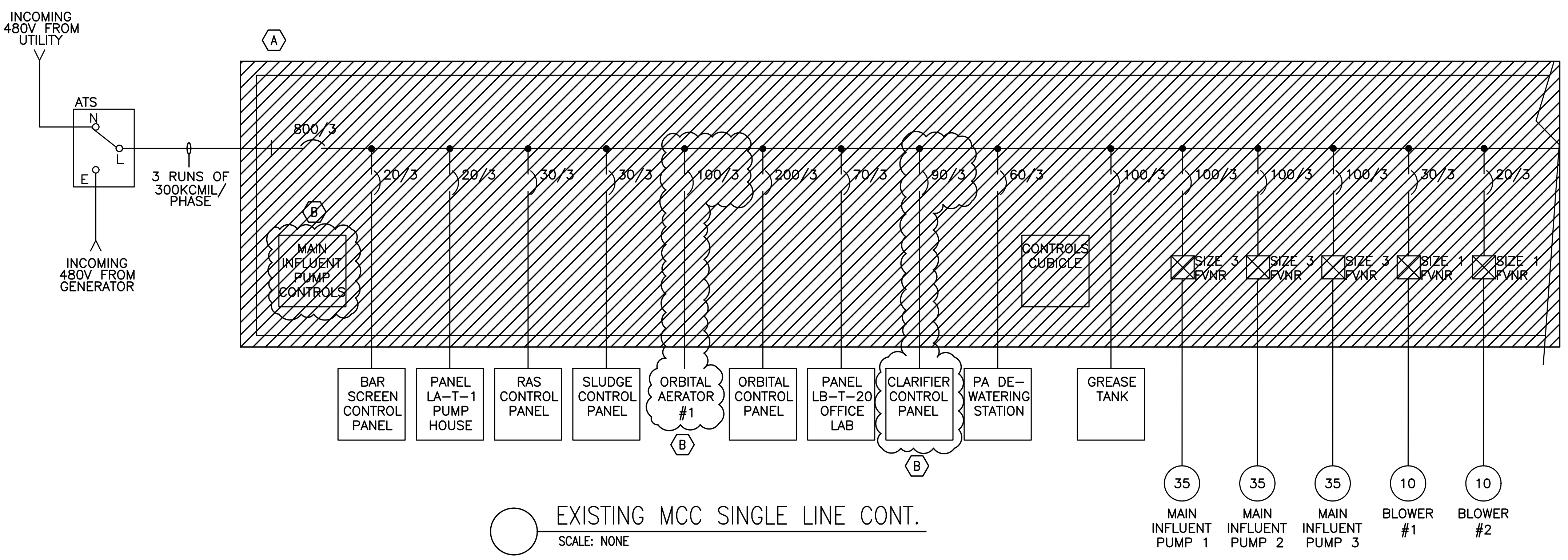


JOB NO: 2024-0222-00  
DATE: OCTOBER 2024

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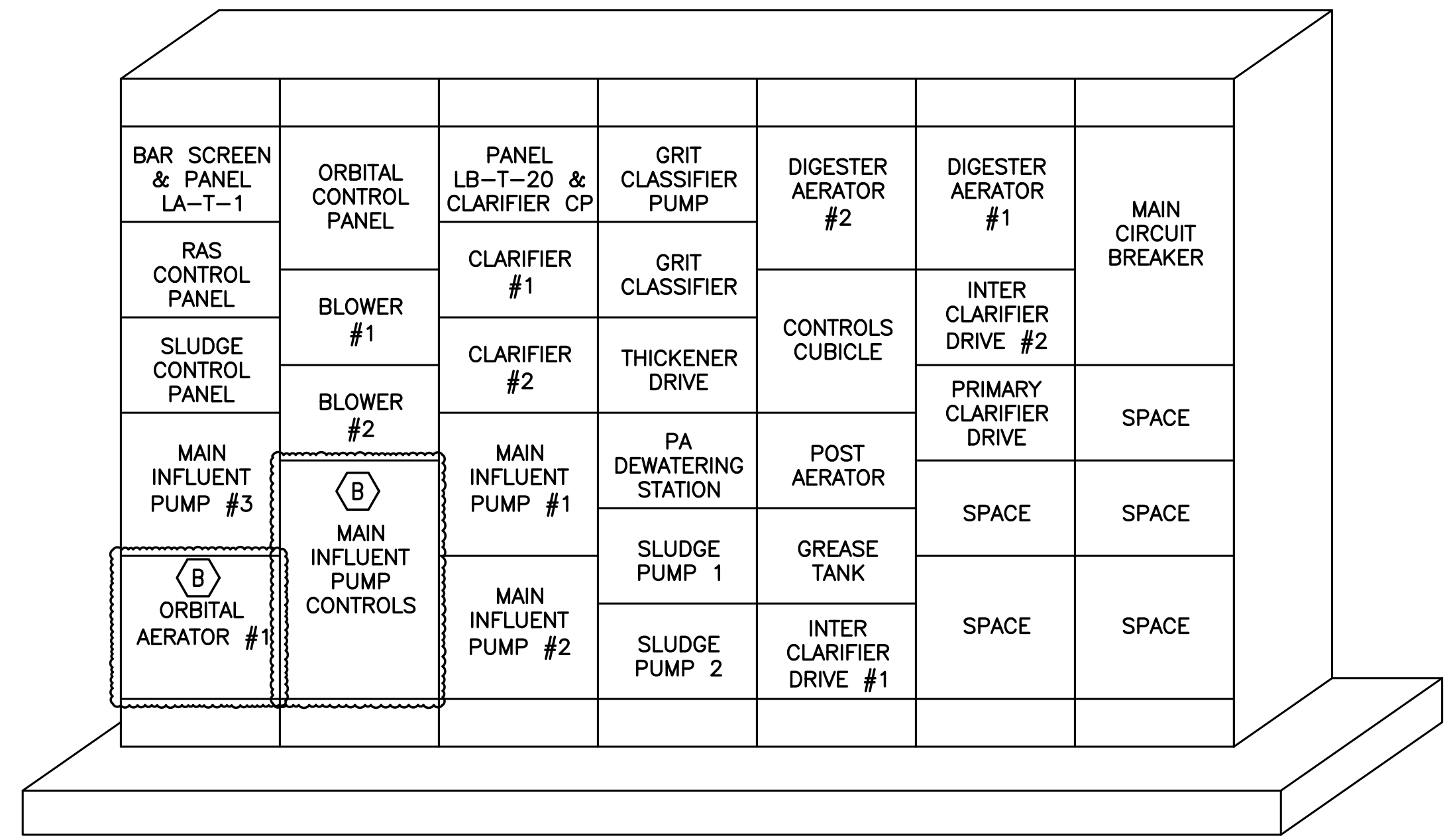
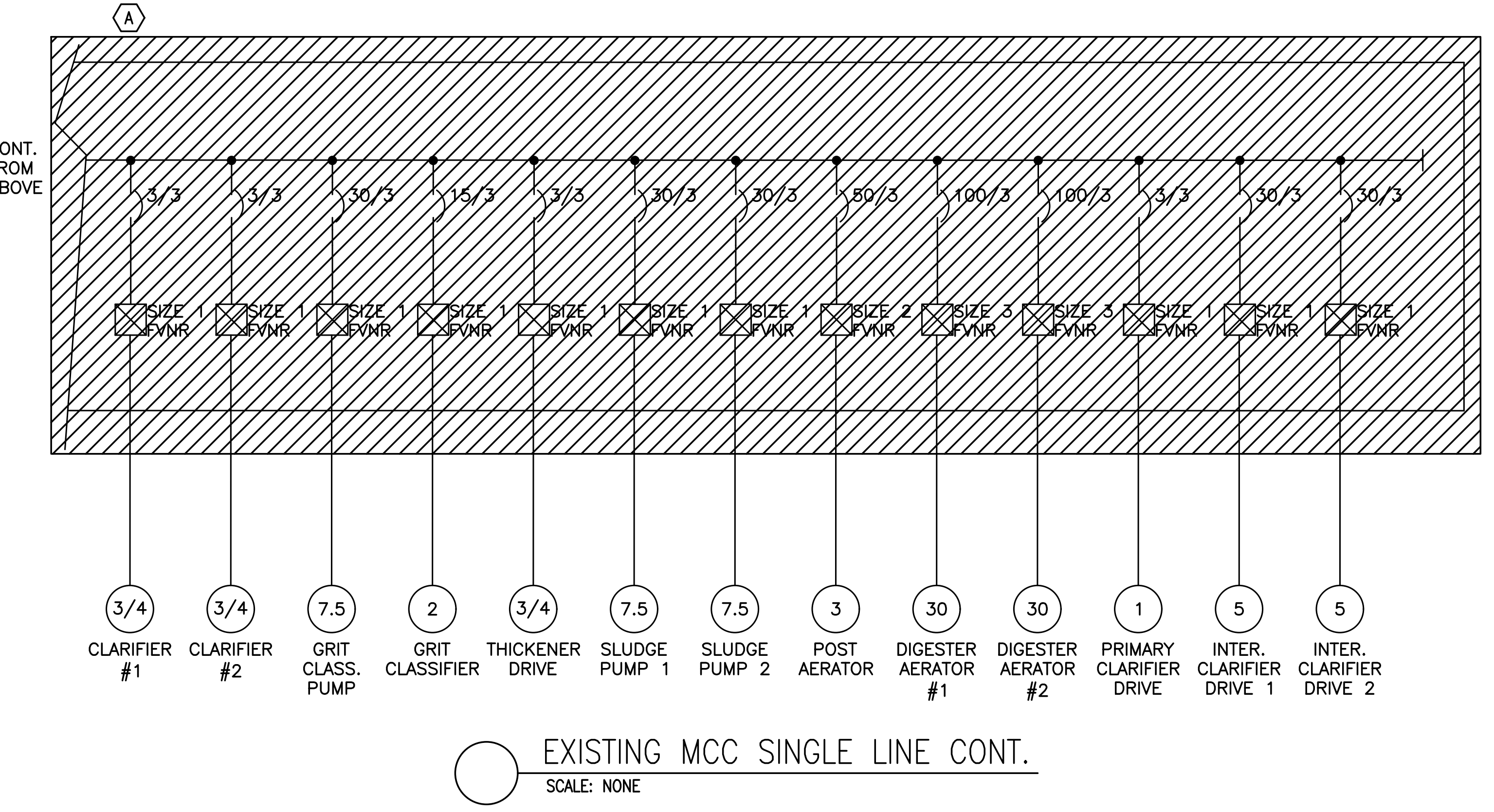
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- GENERAL NOTES:**
1. THE CONTRACTOR SHALL REMOVE AND REPLACE THE EXISTING MOTOR CONTROL CENTER (MCC) WITH A NEW UNIT. DISPOSAL OF THE MCC AND ITS INDIVIDUAL SECTIONS SHALL BE COORDINATED WITH THE OWNER IN THE EVENT THAT THE OWNER PREFERS TO REUTILIZE ANY OF THE EXISTING COMPONENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ANY PORTIONS OF THE MCC THAT THE OWNER ELECTS NOT TO KEEP.
  2. THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER AND CONTROL FOR THE PLANT'S CRITICAL LOADS DURING THE REMOVAL AND REPLACEMENT OF THE MCC.
  3. LAYOUT AND PLACEMENT OF THE NEW MCC'S SECTIONS AND CUBICLES SHALL FACILITATE RECONNECTION OF ALL EXISTING LOADS TO PREVENT THE NEED TO SPLICE AND EXTEND THE EXISTING CONDUCTORS.

- KEY NOTES:**
- (A) EXISTING WESTINGHOUSE SERIES 2100, 480V 3 PHASE, 4 WIRE, 800A MOTOR CONTROL CENTER. TO BE REMOVED AND REPLACED WITH A NEW MCC.
- (B) SECTION AND/OR DEVICE NO LONGER IN SERVICE. THE NOTED SECTION/LOAD WILL NOT BE REQUIRED FOR THE NEW MCC BUT A SPARE/SPACE SECTION SHALL BE PROVIDED TO MAINTAIN EQUIPMENT SPACING.



EXISTING MCC ELEVATION

SCALE: 3/4" = 1'

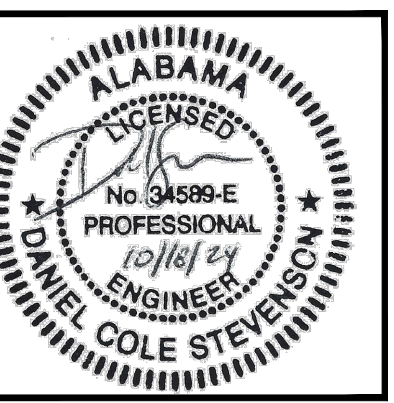


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**WASTEWATER TREATMENT FACILITIES UPGRADES PROJECT 2 - ELECTRICAL**

EXISTING ELECTRICAL SINGLELINE

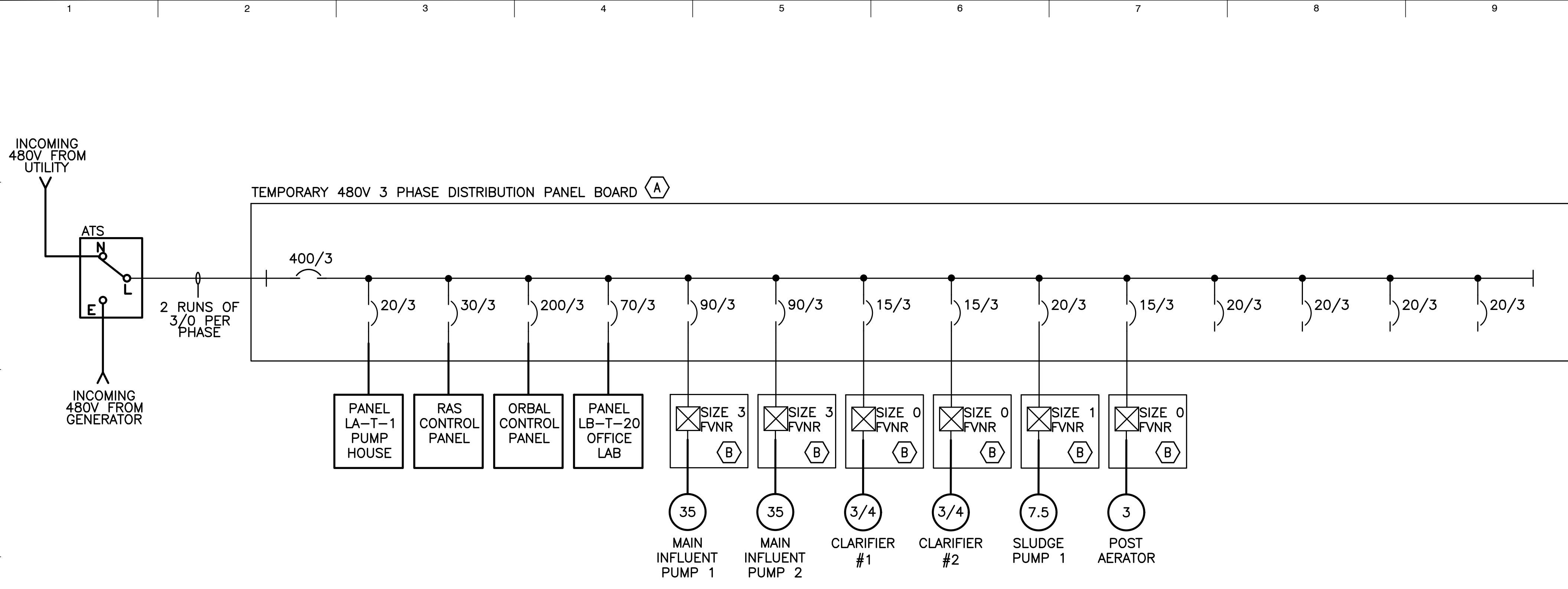


JOB NO: 2024-0222-00  
DATE: OCTOBER 2024

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April 23, 2019 H:\Project Files\MSA - City of Enterprise AL\2024-0222-00-2024 WWTU Upgrades\300 Design\1055 Preliminary Drawings\07 Electrical\Singleline Diagram.dwg



TEMPORARY POWER AND CONTROL SINGLE LINE  
SCALE: NONE

PANEL: TEMP												
3	PH	4 WIRE	VOLTAGE	L-L: 480			L-N: 277	MAIN:	400A MCB			
LOCATION: ELECTRICAL ROOM MCC												
CKT#	BKR.	POLE	DESCRIPTION	VOLT-AMP	PHASE	PHASE	PHASE	VOLT-AMP	DESCRIPTION	POLE	BKR.	CKT#
1	20	3	PANEL LA-T-1 PUMP HOUSE	2493	2770			277	CLARIFIER #2 TEMP STARTER	3	15	2
3	-	-		2493		2770		277		-	-	4
5	-	-		2493			2770	277		-	-	6
7	30	3	RAS CONTROL PANEL	9156	12208			3052	SLUDGE PUMP #1 TEMP STARTER	3	20	8
9	-	-		9156		12208		3052		-	-	10
11	-	-		9156			12208	3052		-	-	12
13	200	3	ORBAL CONTROL PANEL	9156	10488			1332	POST AERATOR TEMP STARTER	3	15	14
15	-	-		9156		10488		1332		-	-	16
17	-	-		9156			10488	1332		-	-	18
19	70	3	PANEL LB-T-20 OFFICE LAB	2493	2493			0	SPARE	3	20	20
21	-	-		2493		2493		0		-	-	22
23	-	-		2493			2493	0		-	-	24
25	90	3	MAIN INFLUENT PUMP 1 TEMP STARTER	9156	9156			0	SPARE	3	20	26
27	-	-		9156		9156		0		-	-	28
29	-	-		9156			9156	0		-	-	30
31	90	3	MAIN INFLUENT PUMP 2 TEMP STARTER	9156	9156			0	SPARE	3	20	32
33	-	-		9156		9156		0		-	-	34
35	-	-		9156			9156	0		-	-	36
37	15	3	CLARIFIER #1 TEMP STARTER	277	277			0	SPARE	3	20	38
39	-	-		277		277		0		-	-	40
41	-	-		277			277	0		-	-	42
TOTAL LOAD(VA)/PHASE THIS PANEL:					46548	46548	46548					
TOTAL CONNECTED LOAD(VA) THIS PANEL:					139644				TOTAL CONNECTED LOAD (AMPS):		168	
TOTAL DEMAND LOAD (VA) THIS PANEL:					111715.2				TOTAL DEMAND LOADS (AMPS):		134	
NOTES:												
1.												

TEMPORARY POWER PANEL LOAD SCHEDULE  
SCALE: NONE

**GENERAL NOTES:**

1. THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER DISTRIBUTION AND CONTROL FOR THE PLANT'S CRITICAL LOADS DURING THE REMOVAL AND REPLACEMENT OF THE MCC. POWER SHALL BE PROVIDED FROM THE PLANT'S EXISTING PRIMARY FEED. POWER DISTRIBUTION SHALL BE PROVIDED VIA A TEMPORARY DISTRIBUTION PANELBOARD WITH BREAKERS PROVIDED SIZED FOR ALL CRITICAL LOADS SHOWN ON THIS DRAWING AND IDENTIFIED BY PLANT PERSONNEL. CONTROL SHALL BE PROVIDED BY TEMPORARY COMBINATION MOTOR STARTER PANELS PROVIDED AND SIZED FOR ALL CRITICAL LOADS SHOWN ON THIS DRAWING AND IDENTIFIED BY PLANT PERSONNEL.
2. THE CONTRACTOR SHALL PROVIDE TEMPORARY CONDUCTORS TO PROVIDE POWER TO ALL CRITICAL LOADS SHOWN ON THIS DRAWING AND IDENTIFIED BY PLANT PERSONNEL.

**KEY NOTES:**

- (A) TEMPORARY POWER DISTRIBUTION PANEL. SHALL BE A 480V, 3 PHASE, 4 WIRE, 400A PANEL PROVIDED WITH A MAIN CIRCUIT BREAKER AND DISTRIBUTION BREAKERS FOR ALL CRITICAL LOADS. SEE LOAD SCHEDULE (THIS SHEET) FOR ADDITIONAL DETAILS.
- (B) TEMPORARY MOTOR CONTROL COMBINATION STARTER. SHALL BE HOUSED IN A NEMA 3R ENCLOSURE (MINIMUM) AND SITUATED TO ALLOW PLANT PERSONNEL TO POWER AND CONTROL THE ASSOCIATED LOADS DURING THE MCC SWAP OUT. EACH COMBINATION STARTER SHALL HAVE A THREE POSITION H-O-A SWITCH AND PILOT LIGHT TO PROVIDE INDICATION OF THE MOTOR RUNNING STATUS.

**PROJECT EXECUTION SEQUENCE:**

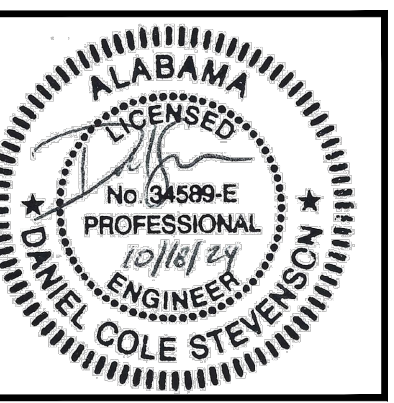
1. TEMPORARY POWER AND COMBINATION MOTOR STARTERS SHALL BE PHYSICALLY AND ELECTRICALLY SETUP BY THE ELECTRICAL CONTRACTOR. THE LOCATION OF THE TEMPORARY EQUIPMENT SHALL BE COORDINATED WITH PLANT PERSONNEL SO THAT THEY CAN START, STOP, AND CONTROL THE EQUIPMENT AS NEEDED.
2. ALL STANDBY LOADS (I.E. THE 3RD INFLUENT PUMP, 2ND BLOWER, 2ND SLUDGE PUMP, ETC...) SHALL BE DISCONNECTED FROM THE EXISTING MCC AND WIRED TO ITS TEMPORARY STARTER.
3. A TEMPORARY POWER OUTAGE SHALL BE COORDINATED WITH PLANT PERSONNEL TO ALLOW POWER TO BE PROVIDED TO THE TEMPORARY POWER DISTRIBUTION PANEL FROM THE ATS. POWER CAN THEN BE RESTORED TO THE TEMPORARY POWER PANEL.
4. WITH POWER PROVIDED TO THE TEMPORARY PANEL, ALL STANDBY LOADS CAN BE UTILIZED IMMEDIATELY WHILE ALL OTHER CRITICAL MOTOR LOADS OR FEEDERS SHALL BE WIRED TO THE TEMPORARY STARTERS AND TEMPORARY POWER PANEL.
5. INSTALLATION OF THE NEW MCC SHALL BE PERFORMED ONE 20" SECTION AT A TIME. TO ALLOW THE TEMPORARY STARTERS AND FEEDERS TO CONTINUE TO PROVIDE POWER FOR THE CRITICAL LOADS, OUTAGES OF THE ASSOCIATED LOADS SHALL BE COORDINATED WITH PLANT PERSONNEL TO ALLOW THE LOAD CONDUCTORS TO BE ROUTED AROUND/THROUGH THE NEW MCC.
6. WITH THE NEW MCC FULLY INSTALLED, ALL STANDBY LOADS (I.E. THE 3RD INFLUENT PUMP, 2ND BLOWER, 2ND SLUDGE PUMP, ETC...) SHALL BE DISCONNECTED FROM THE TEMPORARY STARTERS AND RECONNECTED TO THE NEW MCC.
7. A TEMPORARY POWER OUTAGE SHALL BE COORDINATED WITH PLANT PERSONNEL TO ALLOW POWER TO BE PROVIDED TO THE NEW MCC FROM THE ATS. POWER CAN THEN BE RESTORED TO THE NEW MCC.
8. A TEMPORARY POWER OUTAGE SHALL BE COORDINATED WITH PLANT PERSONNEL TO ALLOW POWER TO BE PROVIDED TO THE NEW MCC FROM THE ATS. POWER CAN THEN BE RESTORED TO THE NEW MCC.
9. WITH POWER PROVIDED TO THE NEW MCC, ALL STANDBY LOADS SHALL BE AVAILABLE FOR IMMEDIATE USAGE WHILE ALL OTHER LOADS PREVIOUSLY CONNECTED TO TEMPORARY STARTERS OR POWER DISTRIBUTION PANEL CAN BE TRANSITIONED BACK TO THE NEW MCC.



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WASTEWATER TREATMENT FACILITIES UPGRADES PROJECT 2 - ELECTRICAL  
TEMPORARY ELECTRICAL SINGLELINE

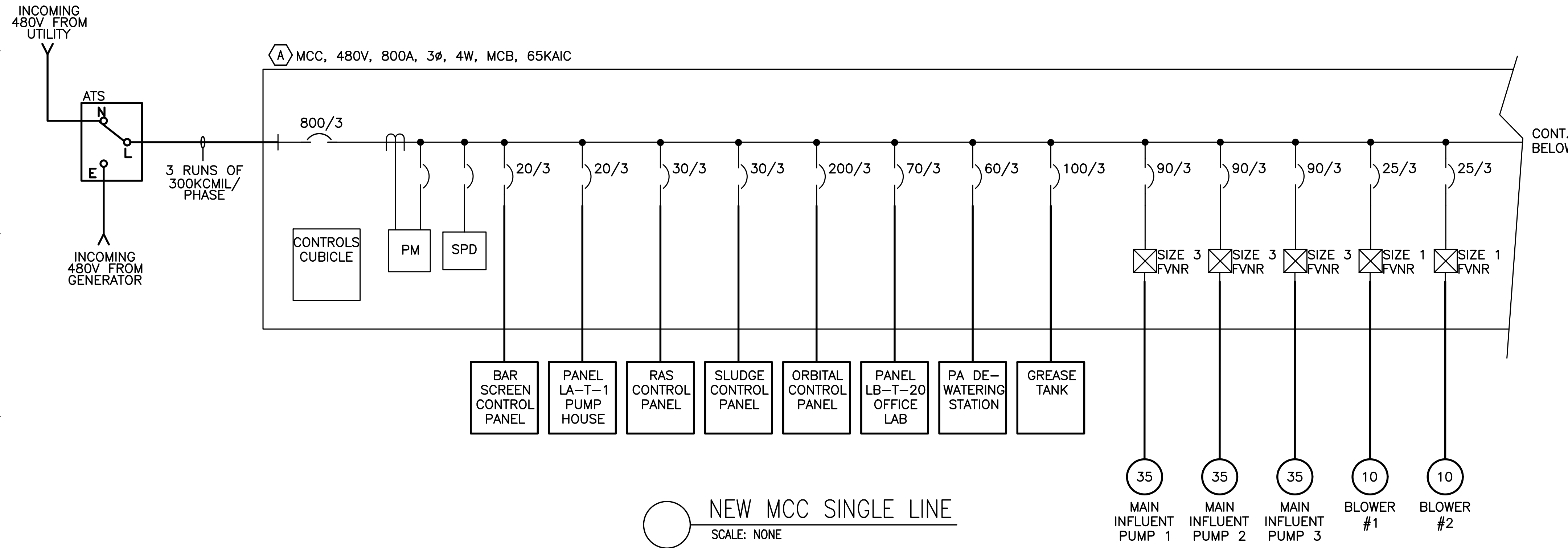


JOB NO: 2024-0222-00  
DATE: OCTOBER 2024

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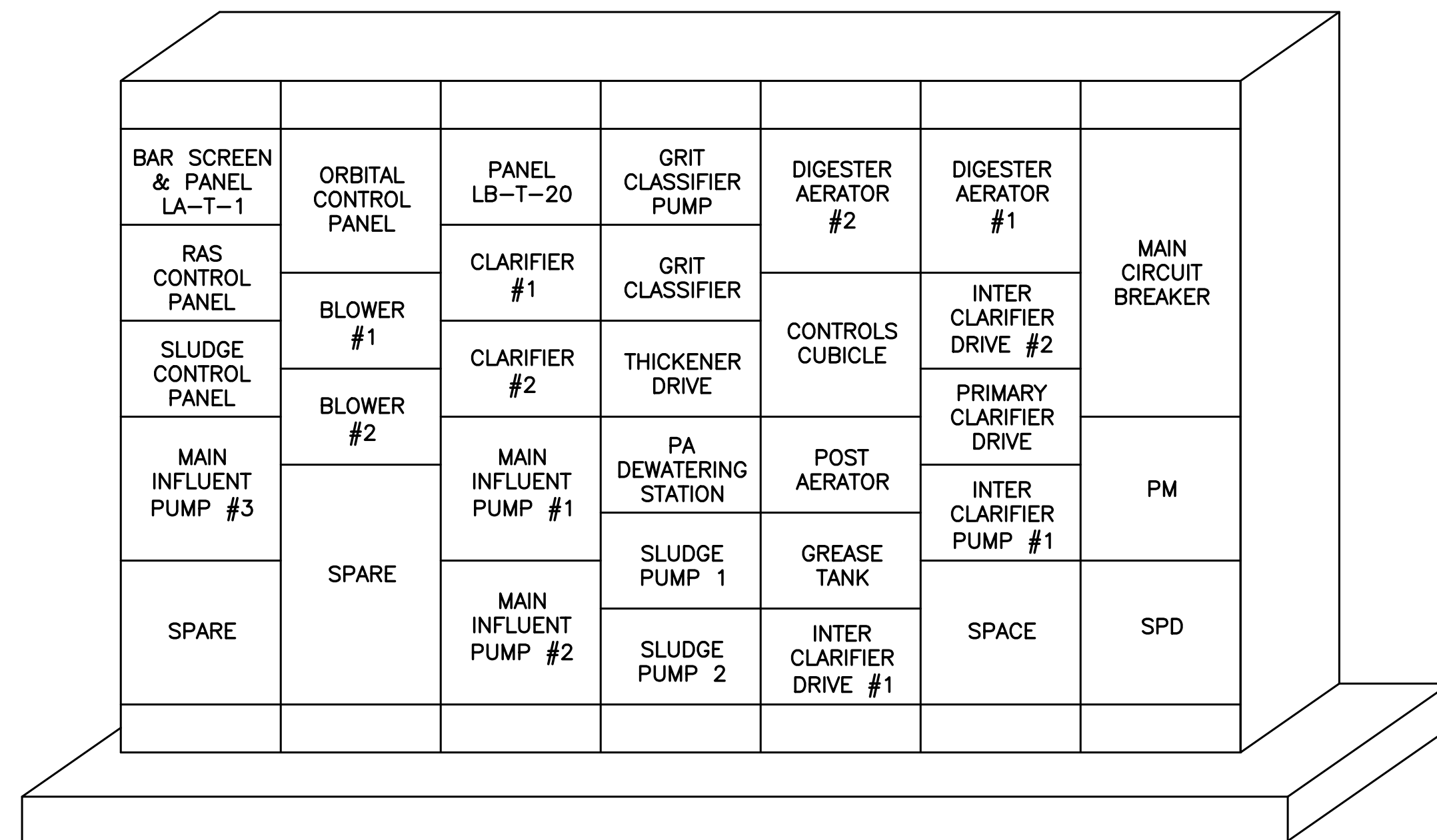
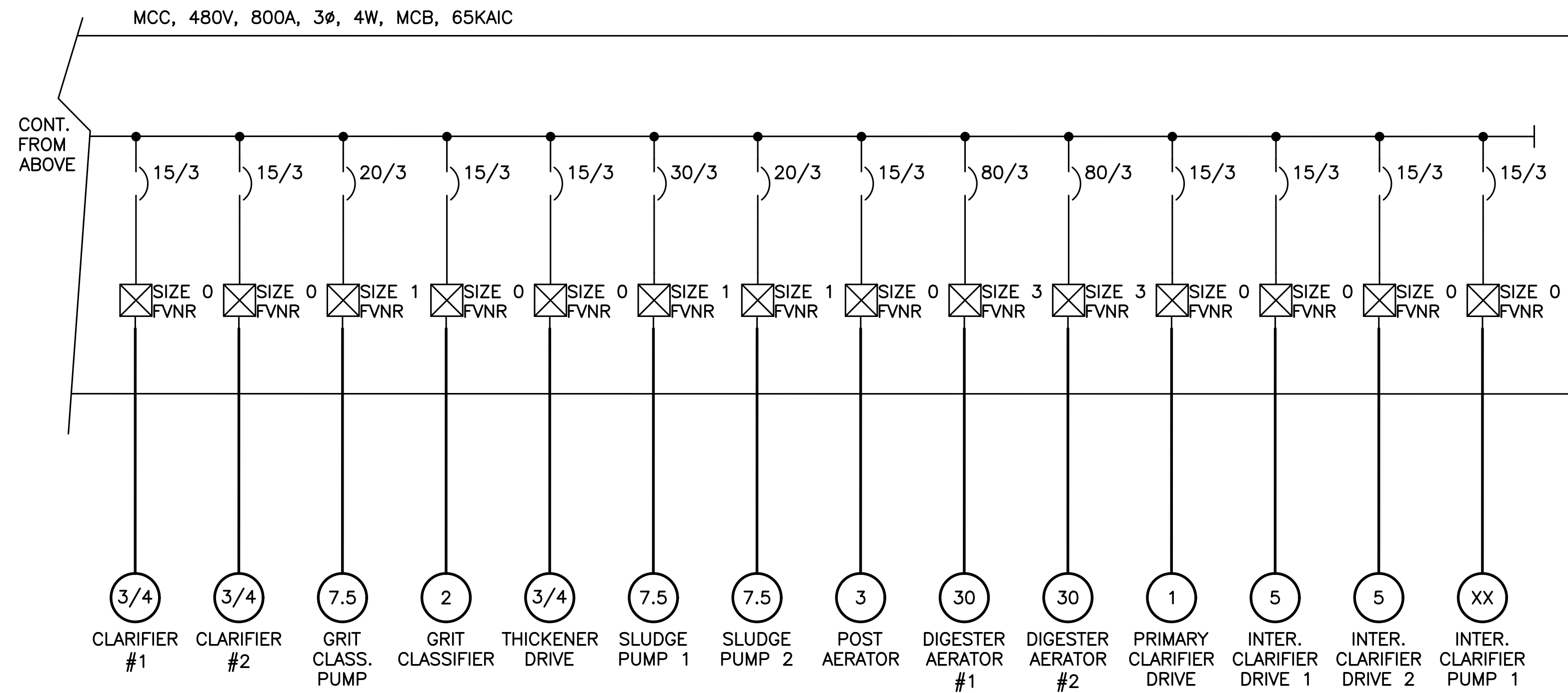


**GENERAL NOTES:**

- LAYOUT AND PLACEMENT OF THE NEW MCC'S SECTIONS AND CUBICLES SHALL FACILITATE RECONNECTION OF ALL EXISTING LOADS TO PREVENT THE NEED TO SPLICE AND EXTEND THE EXISTING CONDUCTORS.

**KEY NOTES:**

- NEW 480V 3 PHASE, 4 WIRE, 800A MOTOR CONTROL CENTER. SEE DRAWINGS E-9.00 THROUGH E-9.05 FOR SAMPLE MCC CUBICLE SCHEMATICS.



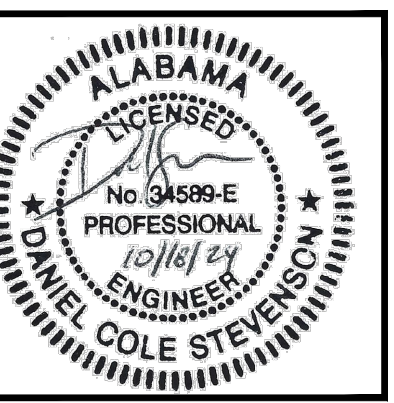
PROPOSED MCC ELEVATION  
SCALE: 3/4" = 1'



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**WASTEWATER TREATMENT FACILITIES UPGRADES PROJECT 2 - ELECTRICAL**  
PROPOSED ELECTRICAL SINGLELINE



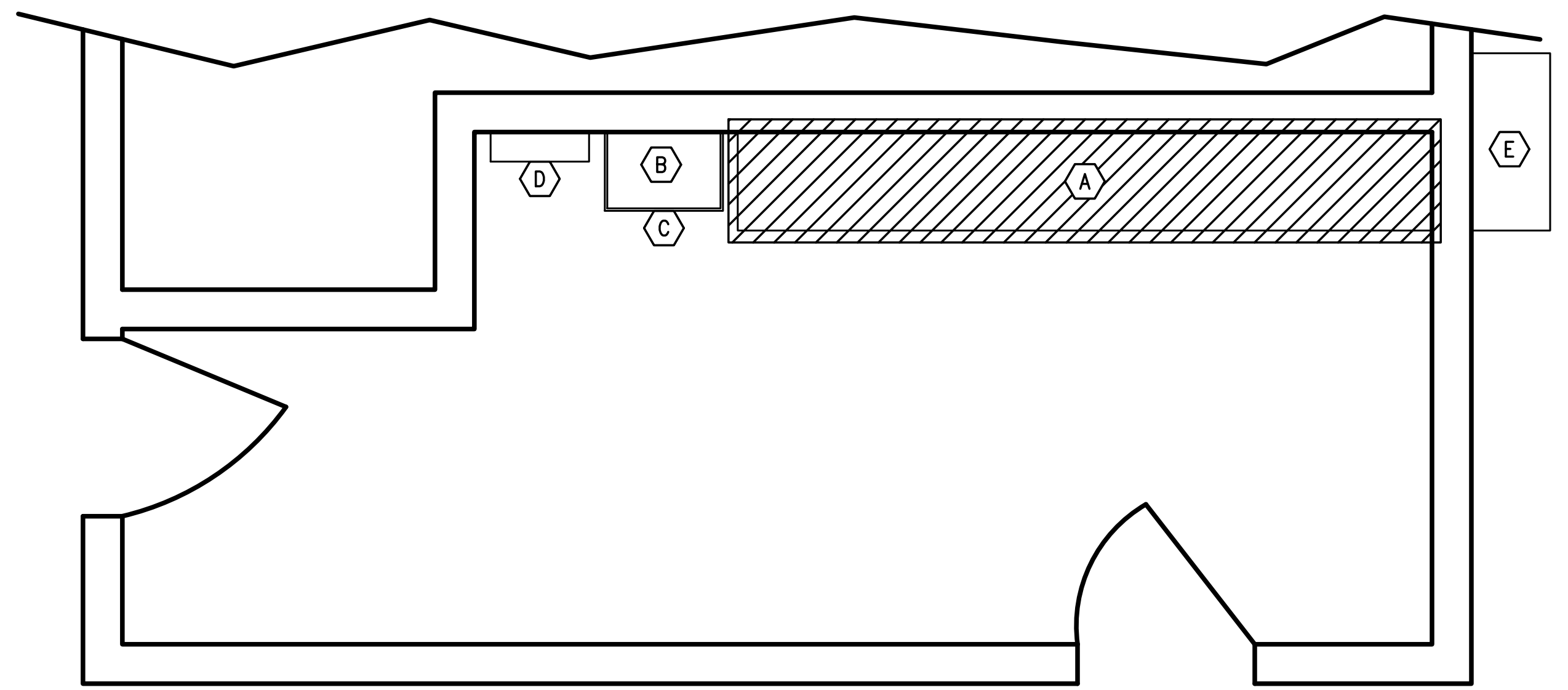
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DATE: OCTOBER 2024

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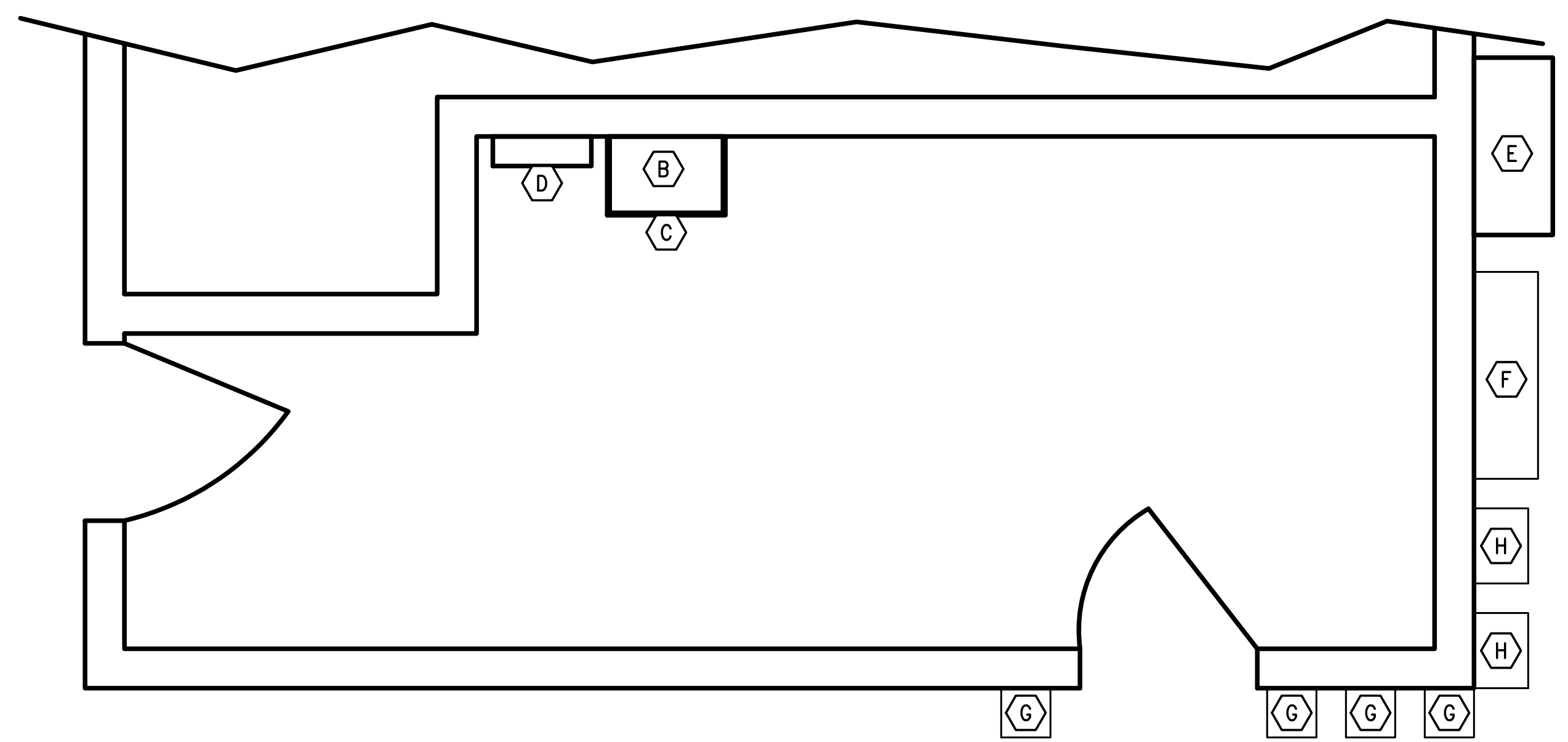
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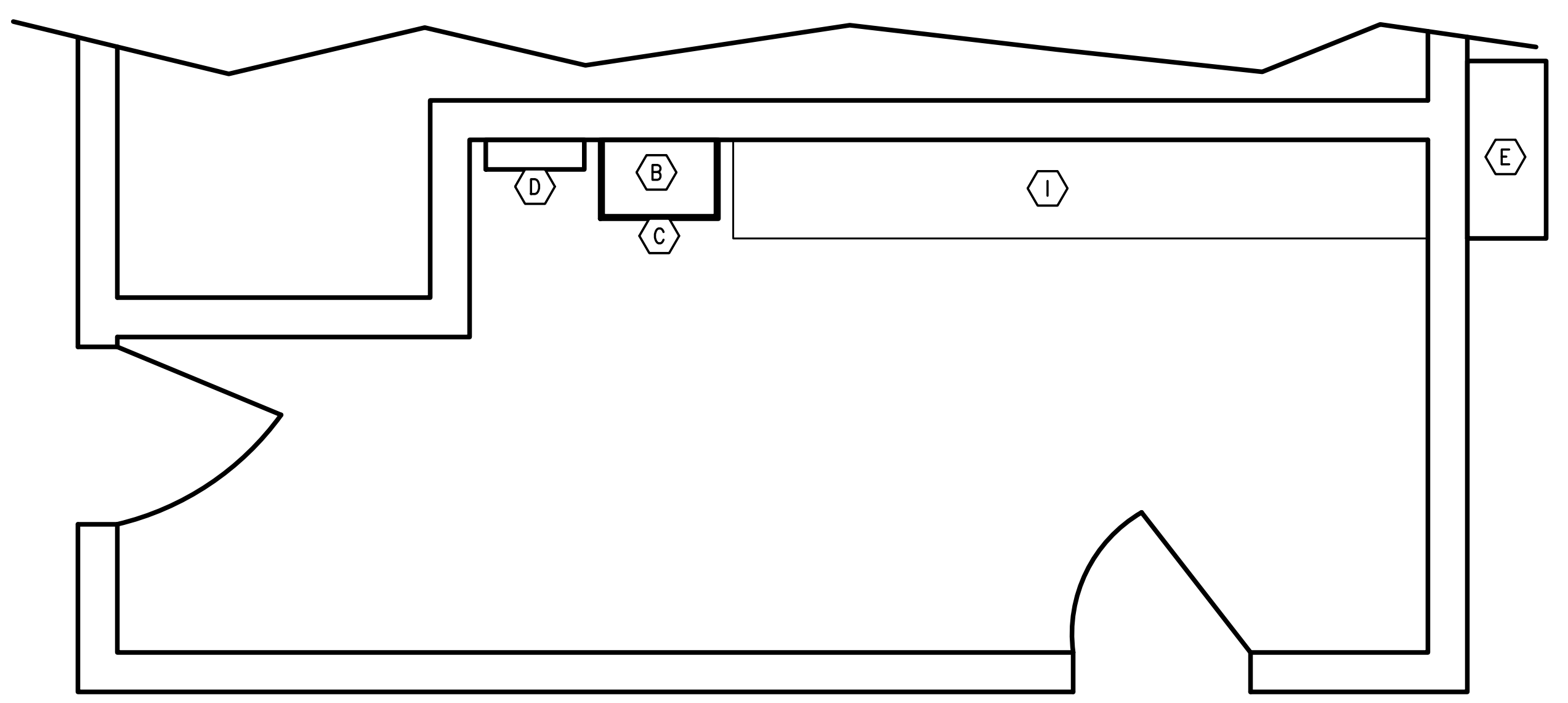
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EXISTING ELECTRICAL ROOM LAYOUT  
SCALE: 1/2" = 1'



TEMPORARY ELECTRICAL ROOM LAYOUT  
SCALE: 1/2" = 1'



PROPOSED ELECTRICAL ROOM LAYOUT  
SCALE: 1/2" = 1'

**GENERAL NOTES:**

1. THE CONTRACTOR SHALL REMOVE AND REPLACE THE EXISTING MOTOR CONTROL CENTER (MCC) WITH A NEW UNIT. DISPOSAL OF THE MCC AND ITS INDIVIDUAL SECTIONS SHALL BE COORDINATED WITH THE OWNER IN THE EVENT THAT THE OWNER PREFERS TO REUTILIZE ANY OF THE EXISTING COMPONENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ANY PORTIONS OF THE MCC THAT THE OWNER ELECTS NOT TO KEEP.
2. THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER AND CONTROL FOR THE PLANT'S CRITICAL LOADS DURING THE REMOVAL AND REPLACEMENT OF THE MCC.
3. LAYOUT AND PLACEMENT OF THE NEW MCC'S SECTIONS AND CUBICLES SHALL FACILITATE RECONNECTION OF ALL EXISTING LOADS TO PREVENT THE NEED TO SPLICE AND EXTEND THE EXISTING CONDUCTORS.

**KEY NOTES:**

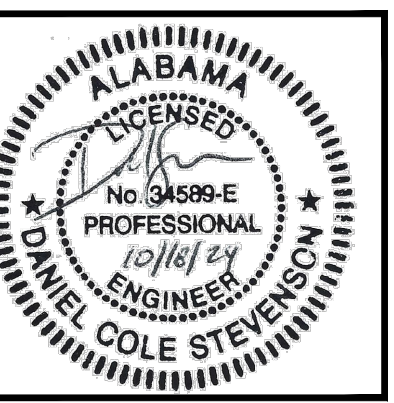
- (A) EXISTING WESTINGHOUSE SERIES 2100, 480V 3 PHASE, 4 WIRE, 800A MOTOR CONTROL CENTER. TO BE REMOVED AND REPLACED WITH A NEW MCC.
- (B) EXISTING MASTER LIFT STATION CONTROL PANEL, TO REMAIN. CONDUCTORS BETWEEN THE CONTROL PANEL AND MCC UTILIZED TO MONITOR AND CONTROL THE INFLUENT PUMPS SHALL BE REUTILIZED.
- (C) EXISTING TRANSFORMER, TO REMAIN.
- (D) EXISTING DISTRIBUTION PANEL, TO REMAIN.
- (E) EXISTING AUTOMATIC TRANSFER SWITCH (ATS), TO REMAIN.
- (F) TEMPORARY POWER DISTRIBUTION PANEL
- (G) TEMPORARY SIZE 0 OR 1 COMBINATION STARTER (TYPICAL OF 4)
- (H) TEMPORARY SIZE 3 COMBINATION STARTER (TYPICAL OF 2)
- (I) NEW MOTOR CONTROL CENTER (MCC)



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**WASTEWATER TREATMENT FACILITIES UPGRADES PROJECT 2 - ELECTRICAL**  
EXISTING ELECTRICAL BUILDING SITE PLAN

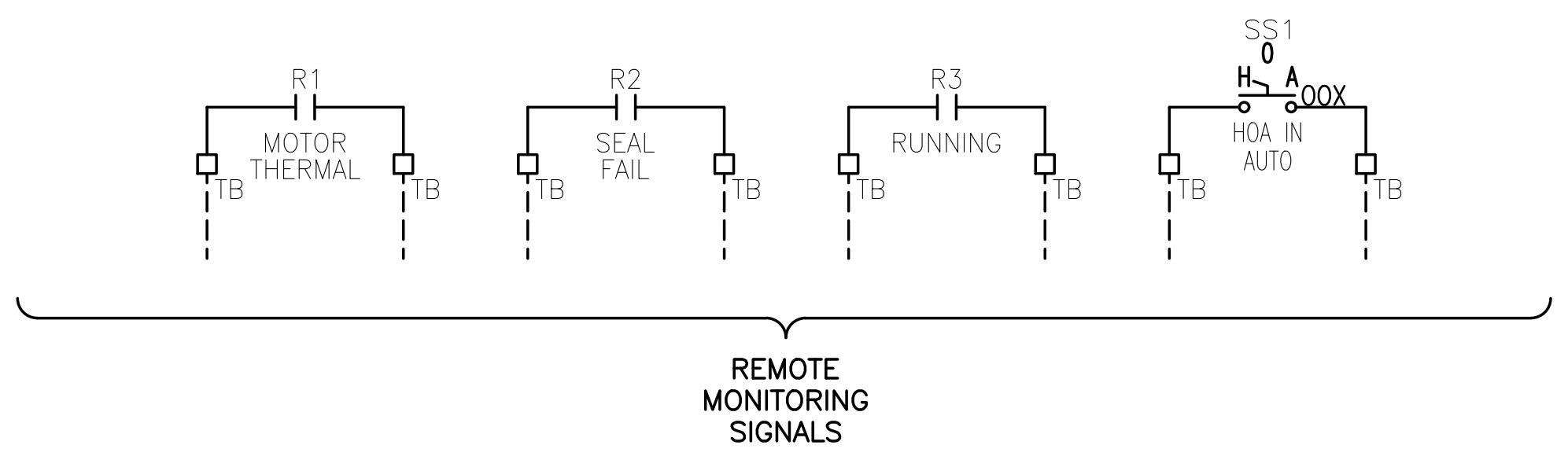
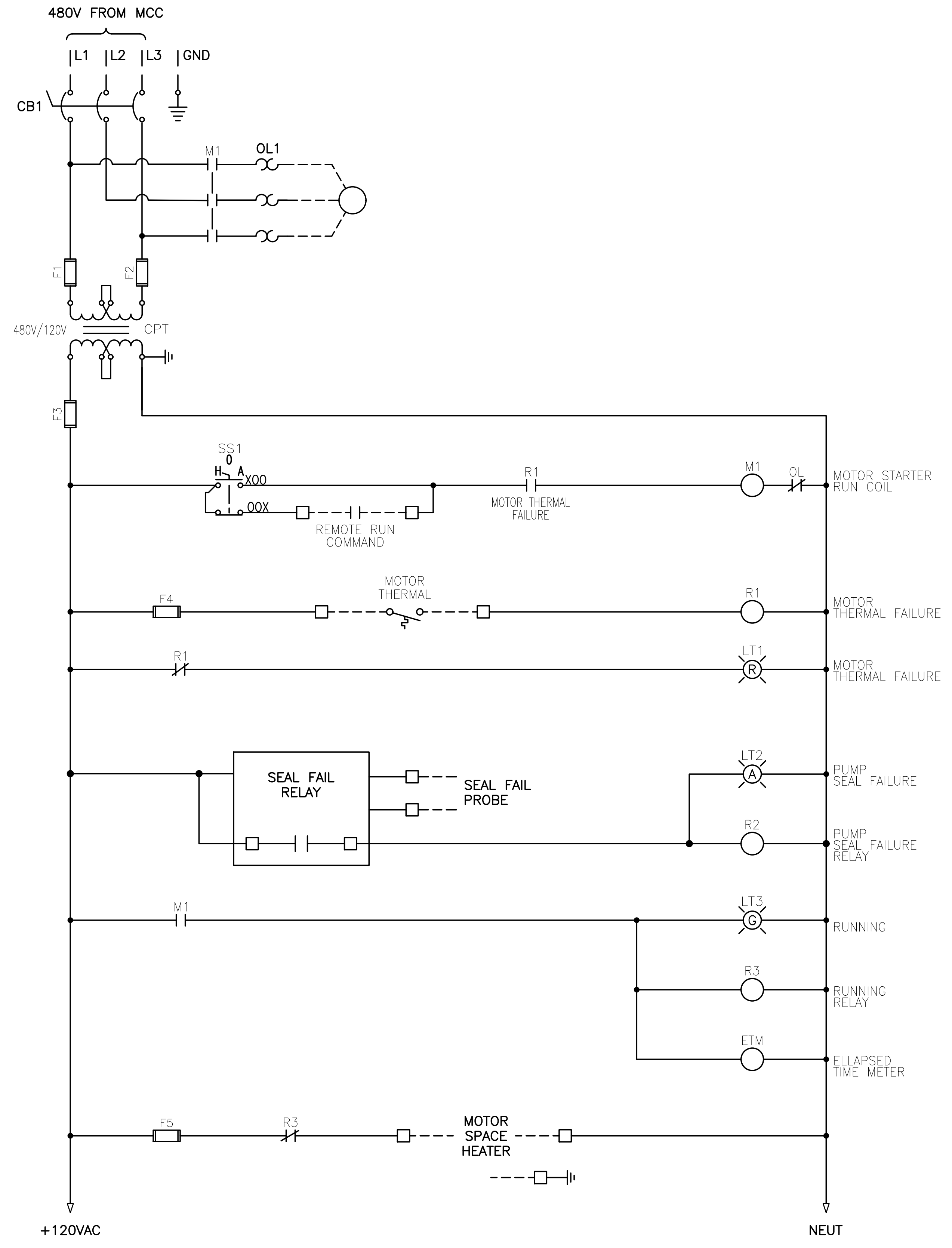


JOB NO: 2024-0222-00  
DATE: OCTOBER 2024

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**TYPICAL PUMP FVNR MCC CUBICLE SCHEMATIC**

- TYPICAL OF:
- INFLUENT PUMPS (3)
  - SLUDGE PUMPS (2)
  - INTERMEDIATE CLARIFIER PUMP

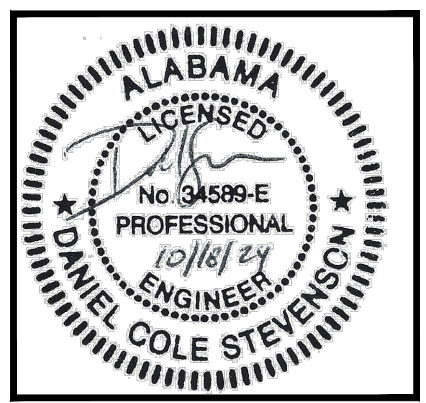
- NOTES:
1. BIMETALLIC OVERLOADS SHALL BE SIZED FOR THE ASSOCIATED MOTOR LOAD
  2. ADJUSTABLE TRIP UNITS SHALL HAVE A RANGE APPLICABLE FOR THE ASSOCIATED MOTOR LOAD.



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**WASTEWATER TREATMENT FACILITIES UPGRADES PROJECT 2 - ELECTRICAL**  
 TYPICAL PUMP SCHEMATIC

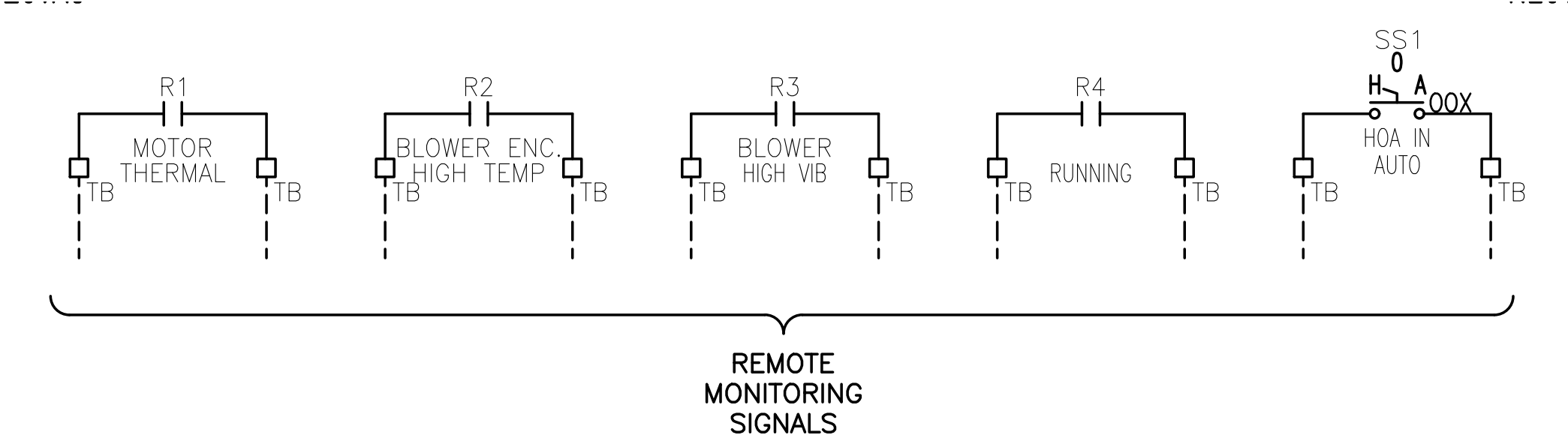
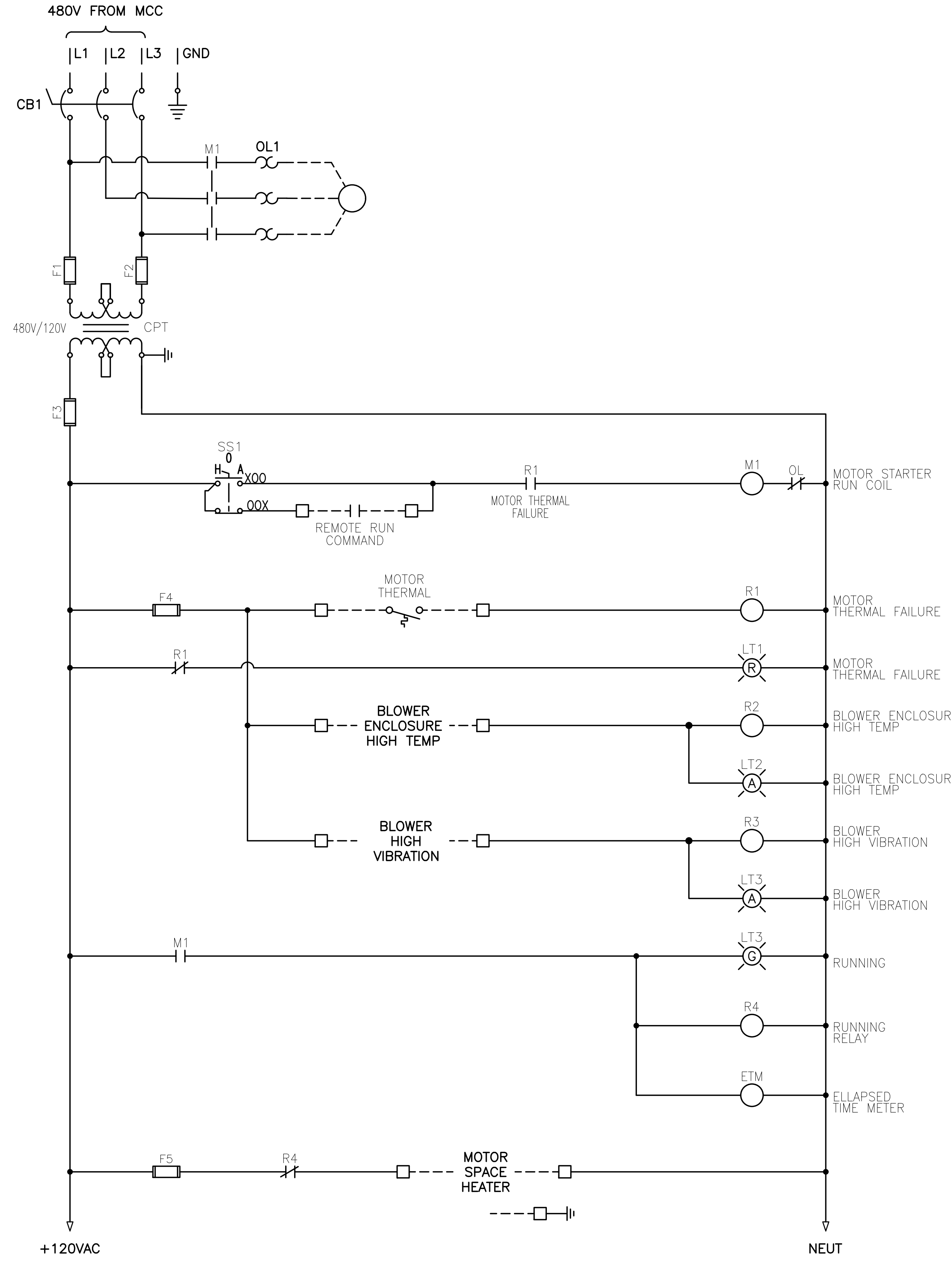


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 DATE: OCTOBER 2024

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TYPICAL BLOWER FVNR MCC CUBICLE SCHEMATIC

TYPICAL OF:  
- BLOWERS (2)

- NOTES:
1. BIMETALLIC OVERLOADS SHALL BE SIZED FOR THE ASSOCIATED MOTOR LOAD
  2. ADJUSTABLE TRIP UNITS SHALL HAVE A RANGE APPLICABLE FOR THE ASSOCIATED MOTOR LOAD.

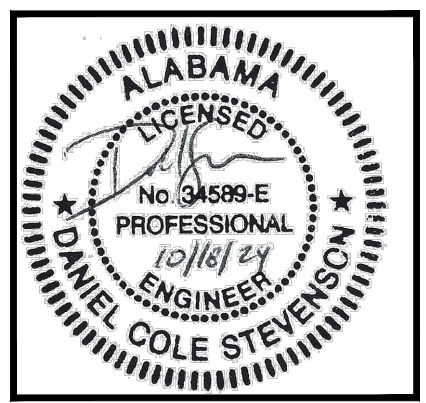


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WASTEWATER TREATMENT FACILITIES UPGRADES PROJECT 2 - ELECTRICAL

TYPICAL BLOWER SCHEMATIC

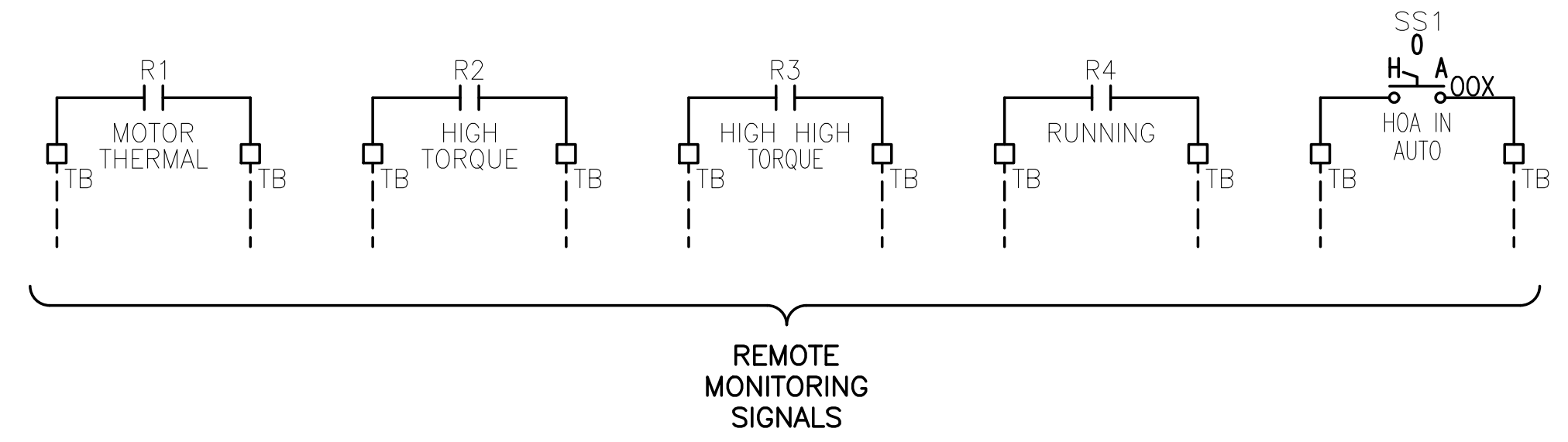
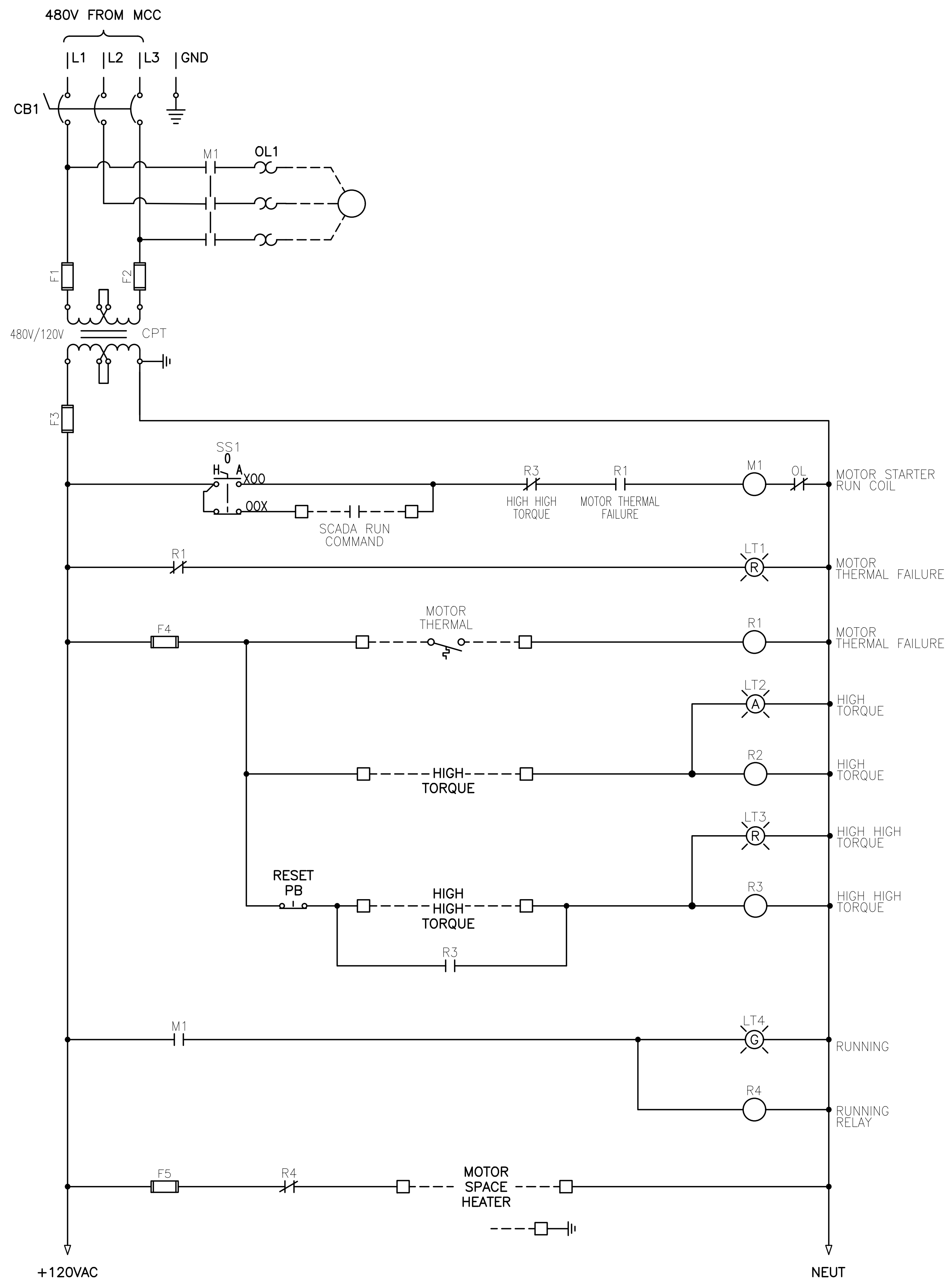


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DATE: OCTOBER 2024

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**TYPICAL CLARIFIER FVNR MCC CUBICLE SCHEMATIC**

- TYPICAL OF:**
- CLARIFIERS (2)
  - INTERMEDIATE CLARIFIER DRIVES (2)
  - PRIMARY CLARIFIER DRIVE
  - SLUDGE THICKENER

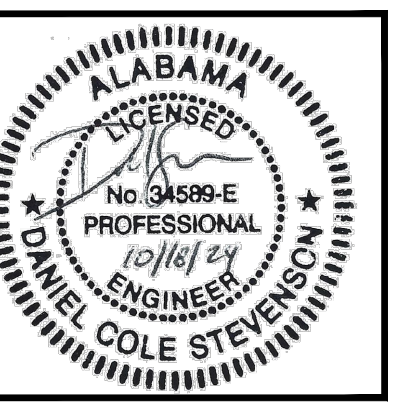
- NOTES:**
1. BIMETALLIC OVERLOADS SHALL BE SIZED FOR THE ASSOCIATED MOTOR LOAD
  2. ADJUSTABLE TRIP UNITS SHALL HAVE A RANGE APPLICABLE FOR THE ASSOCIATED MOTOR LOAD.



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 TYPICAL CLARIFIER SCHEMATIC

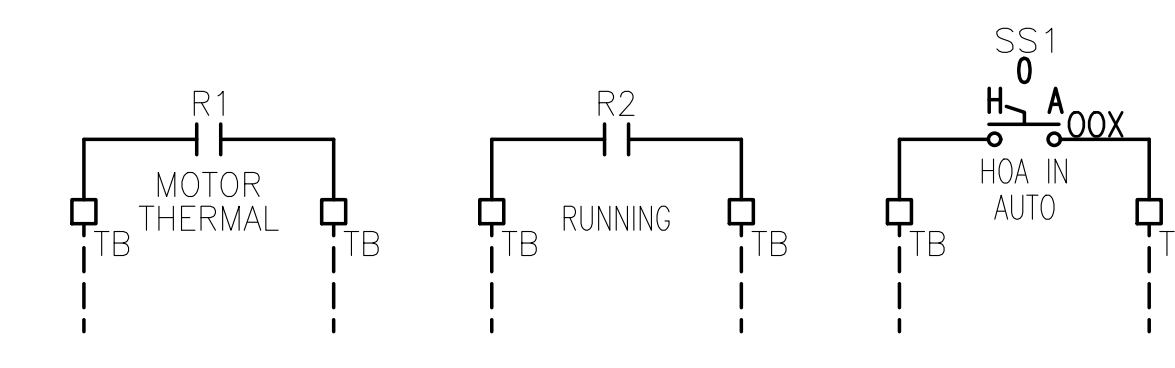
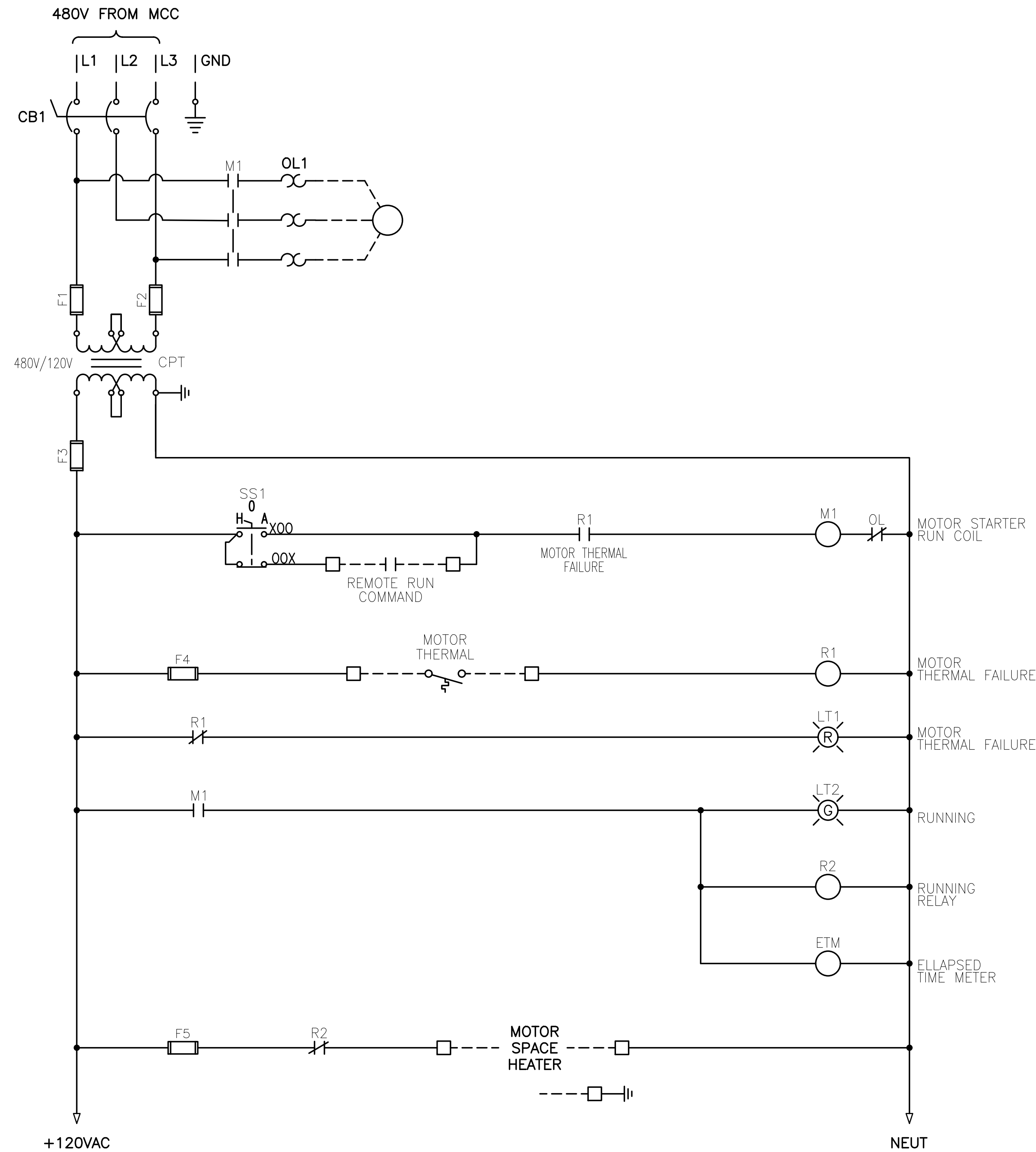


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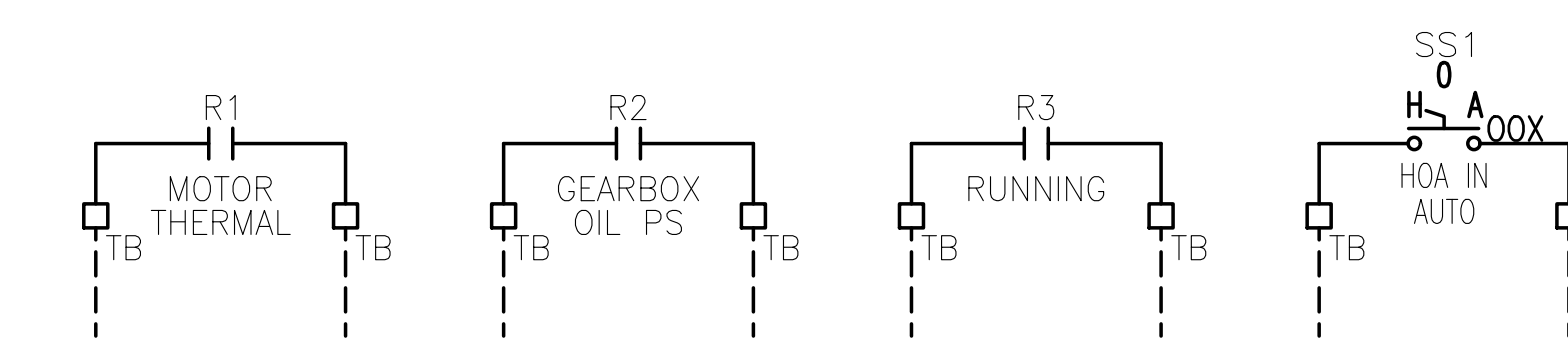
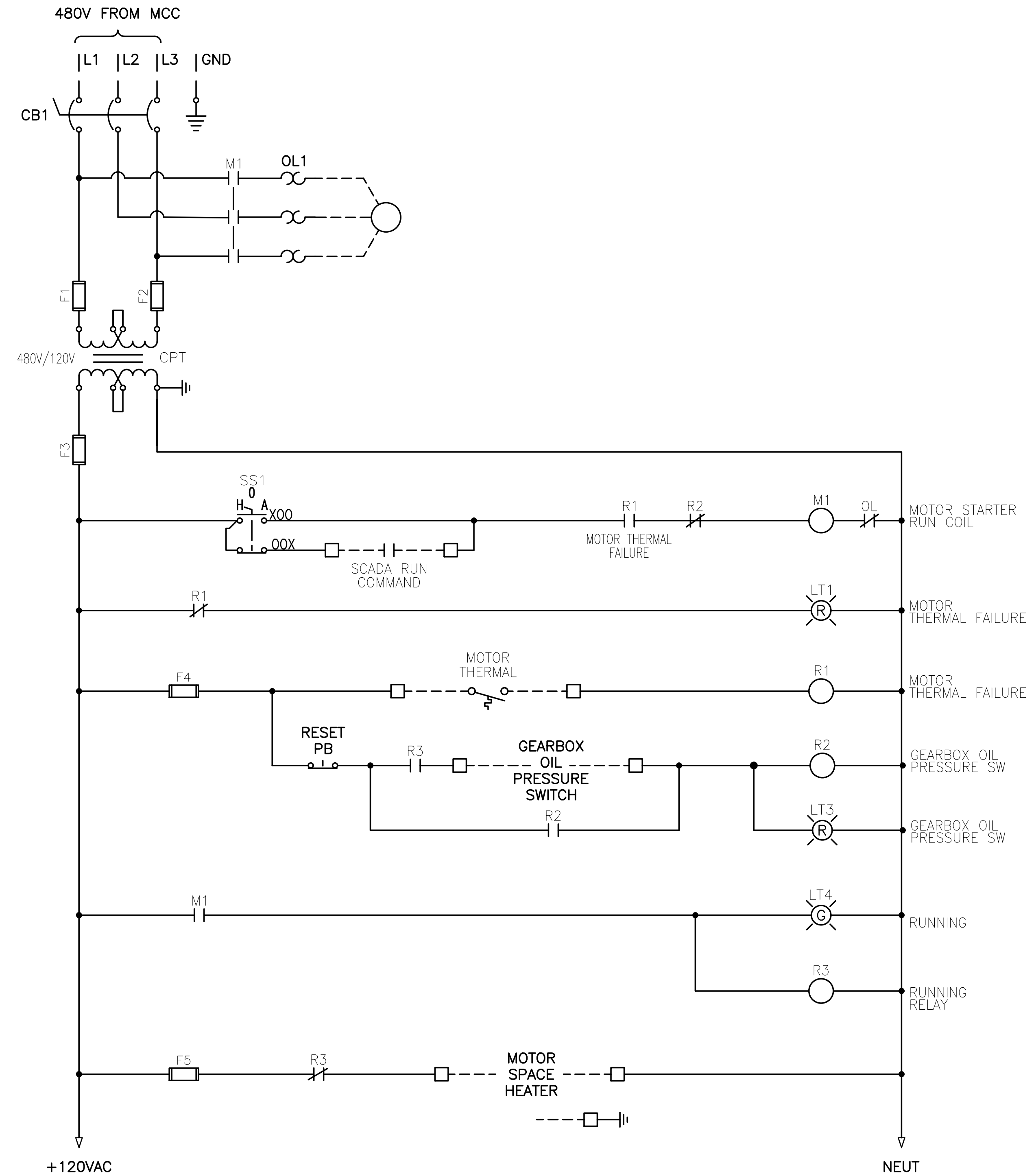
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REMOTE MONITORING SIGNALS

TYPICAL GRIT CLASSIFIER FVNR MCC CUBICLE SCHEMATIC

- NOTES:
1. BIMETALLIC OVERLOADS SHALL BE SIZED FOR THE ASSOCIATED MOTOR LOAD
  2. ADJUSTABLE TRIP UNITS SHALL HAVE A RANGE APPLICABLE FOR THE ASSOCIATED MOTOR LOAD.



REMOTE MONITORING SIGNALS

TYPICAL AERATOR FVNR MCC CUBICLE SCHEMATIC

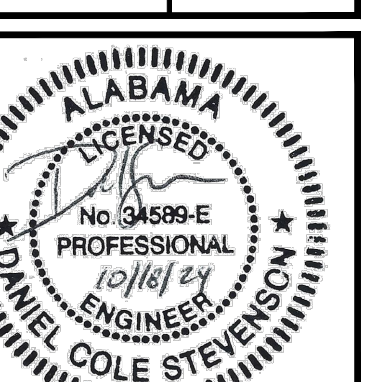
- NOTES:
1. BIMETALLIC OVERLOADS SHALL BE SIZED FOR THE ASSOCIATED MOTOR LOAD
  2. ADJUSTABLE TRIP UNITS SHALL HAVE A RANGE APPLICABLE FOR THE ASSOCIATED MOTOR LOAD.



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**WASTEWATER TREATMENT FACILITIES UPGRADES PROJECT 2 - ELECTRICAL**  
GRIT CLASS. AND AER. SCHEMATICS

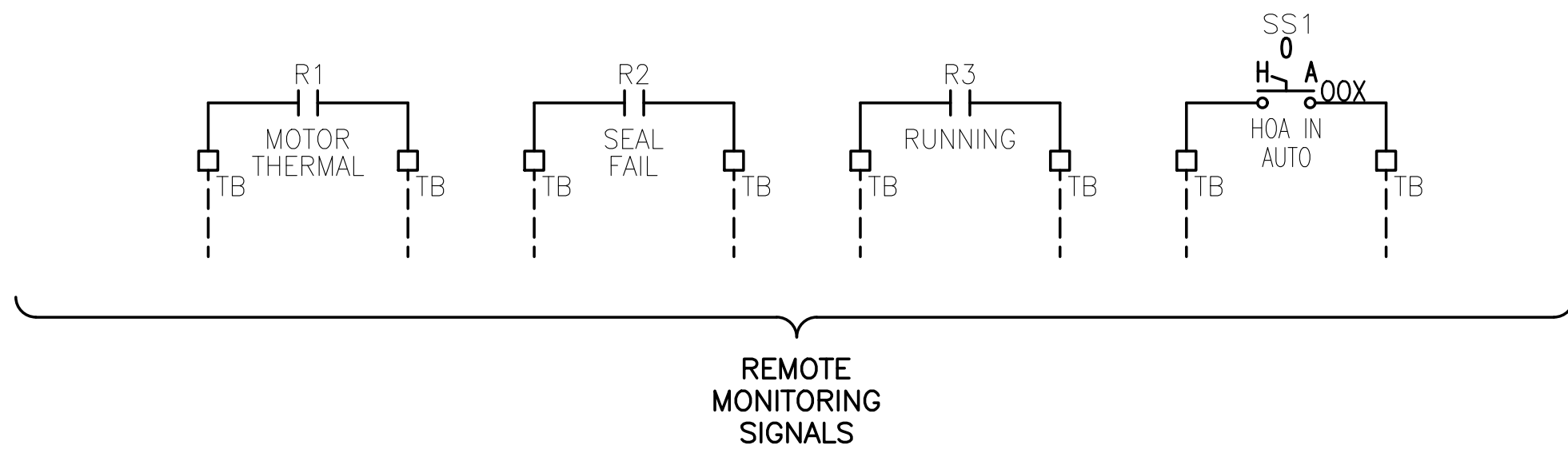
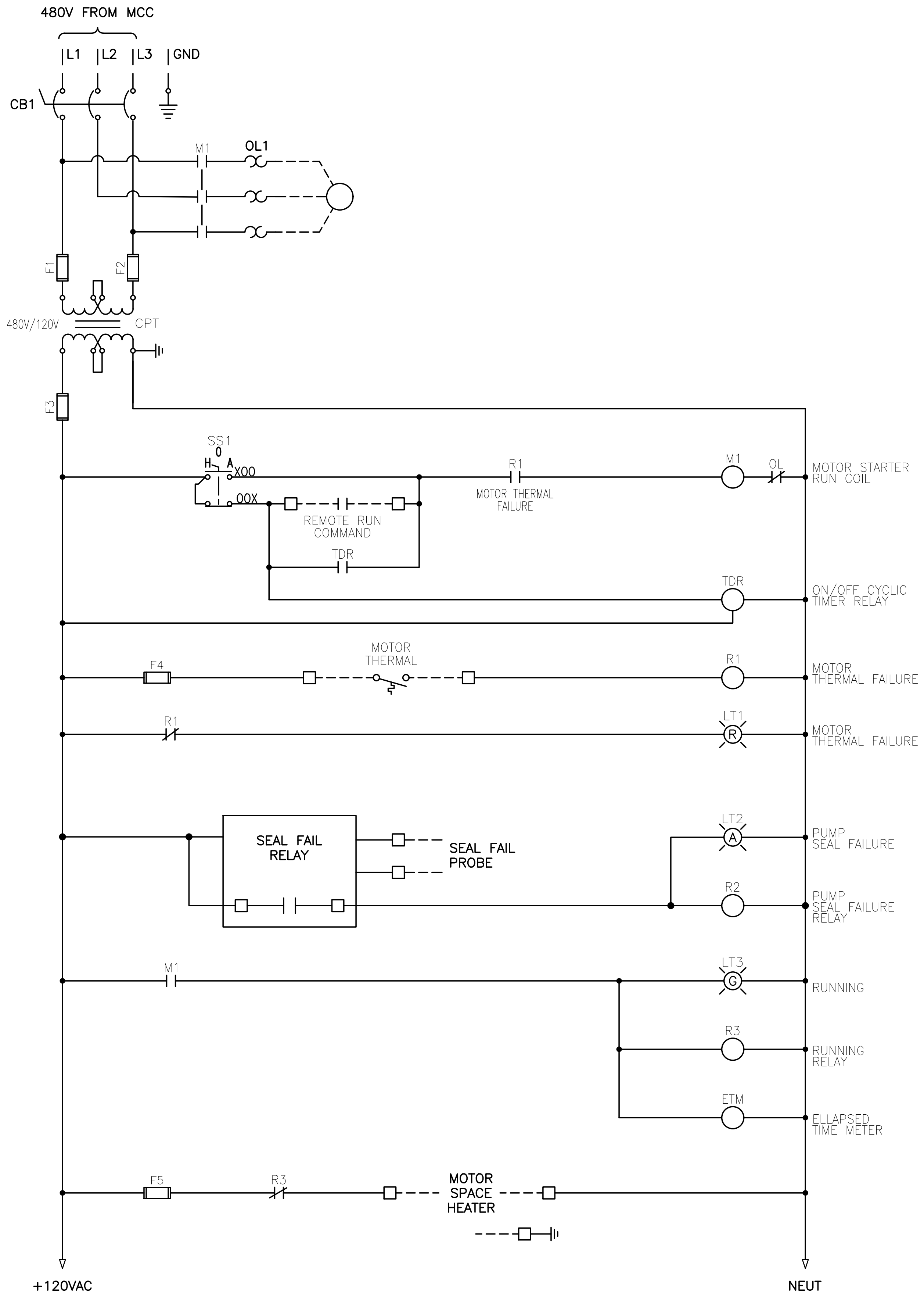


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TYPICAL GRIT CLASSIFIER PUMP FVNR MCC CUBICLE SCHEMATIC

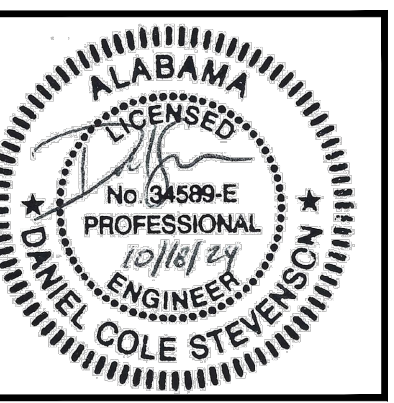
- NOTES:
1. BIMETALLIC OVERLOADS SHALL BE SIZED FOR THE ASSOCIATED MOTOR LOAD
  2. ADJUSTABLE TRIP UNITS SHALL HAVE A RANGE APPLICABLE FOR THE ASSOCIATED MOTOR LOAD.



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NO	DATE	REVISION	BY

**WASTEWATER TREATMENT FACILITIES UPGRADES PROJECT 2 - ELECTRICAL**  
 TYPICAL GRIT CLASS PUMP SCHEMATIC



JOB NO: 2024-0222-00  
 DATE: OCTOBER 2024

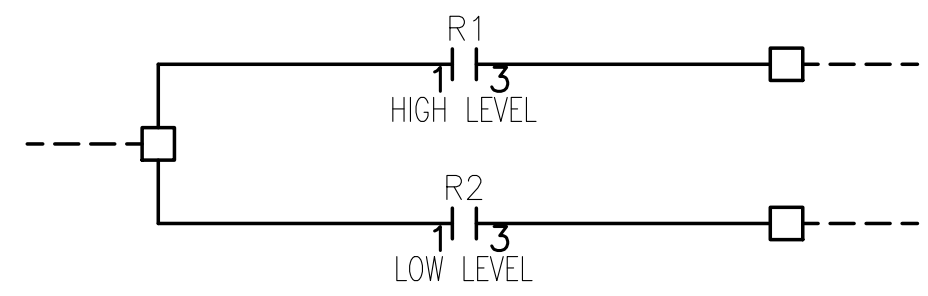
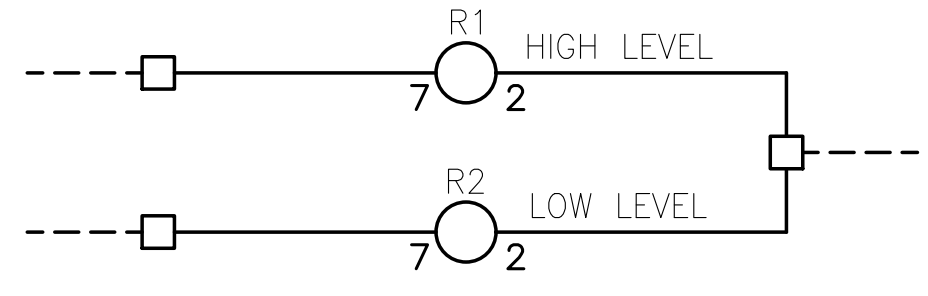
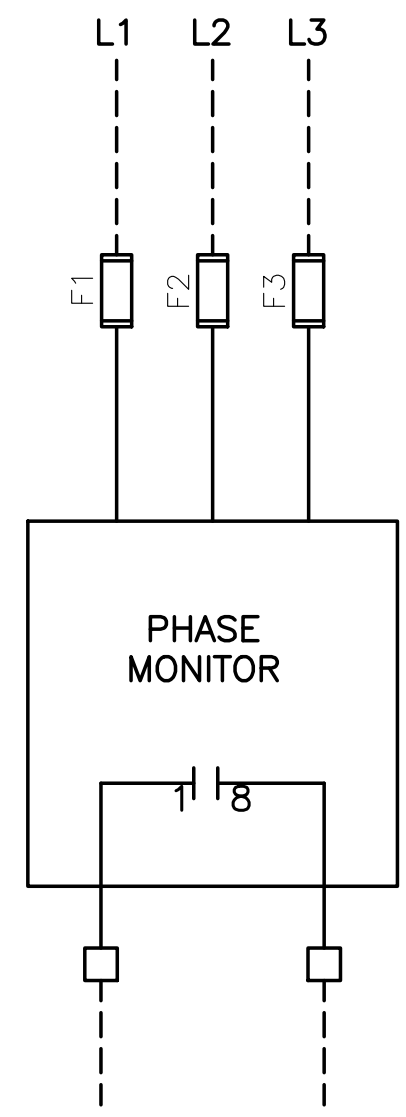
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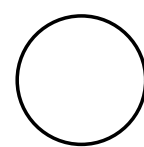
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 CONTROL CUBICLE SCHEMATIC

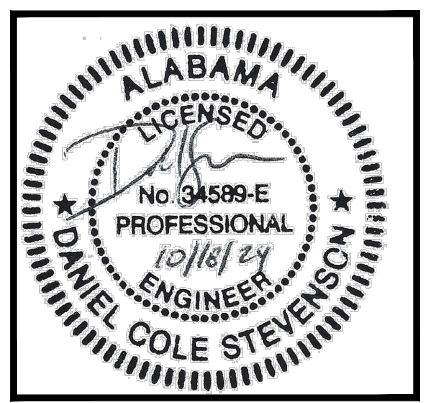


**CITY OF ENTERPRISE**  
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334-348-2671

NO	DATE	BY	REVISION

**WASTEWATER TREATMENT  
FACILITIES UPGRADES  
PROJECT 2 - ELECTRICAL**

CONTROL CUBICLE SCHEMATIC



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**E-9.05**

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OCTOBER 2024

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