

CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS

3497 COOLIDGE RD.
EAST LANSING, MI, 48823
PHONE: (517) 316-3930 FAX (517) 484-8140



www.tetrattech.com

PROJECT LOCATION: CLIENT INFORMATION:
CITY OF FLINT WATER POLLUTION CONTROL FACILITY CITY OF FLINT
4652 BEECHER RD, FLINT MI 48532

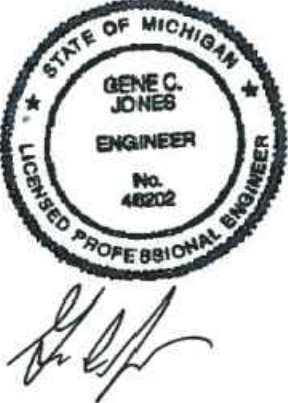
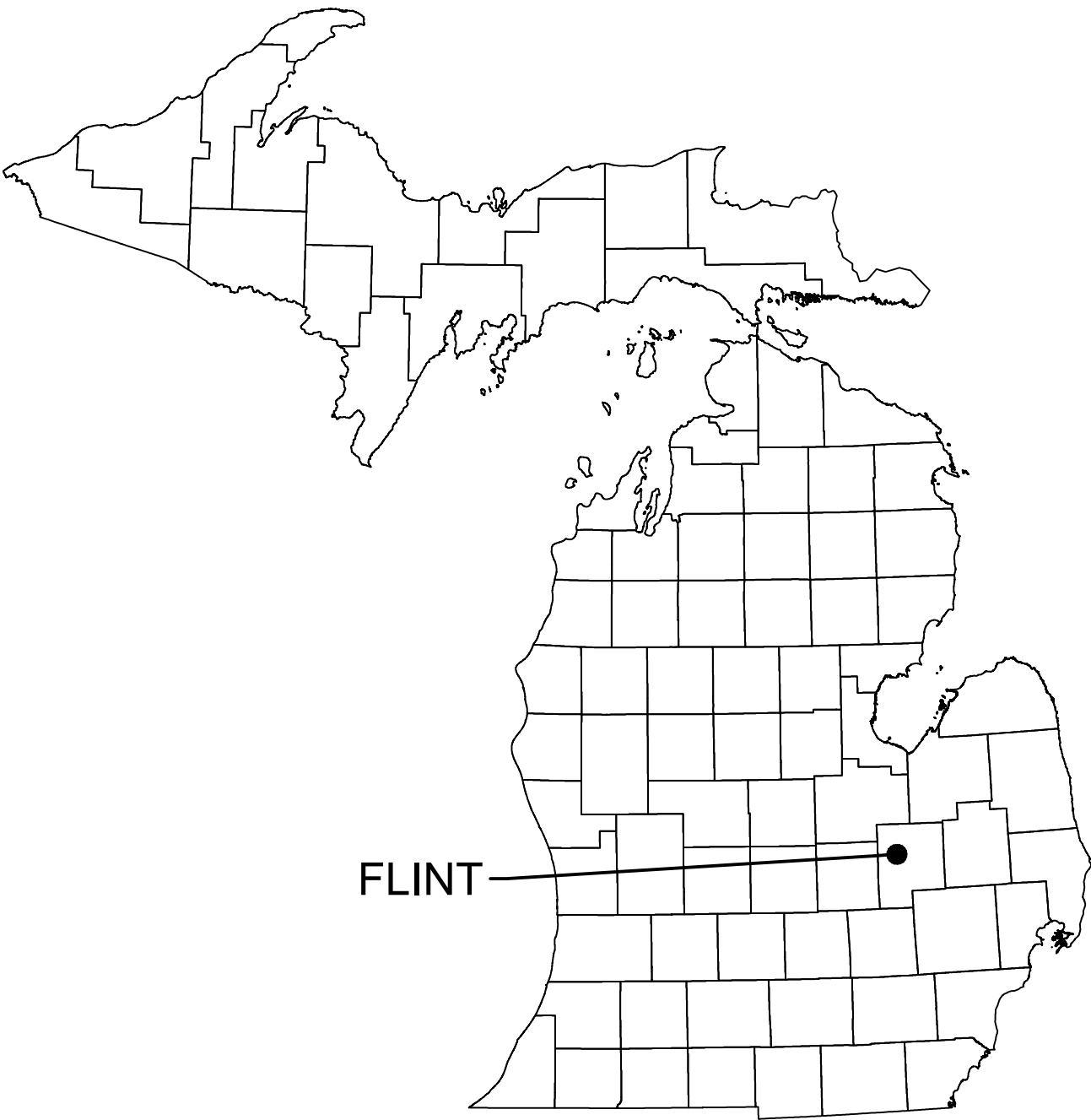
Tt PROJECT No.: CLIENT PROJECT No.:
200-156238-23001

PROJECT DESCRIPTION / NOTES:

ISSUED:

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90% REVIEW 6-23-23
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FOR BIDDING AND CONSTRUCTION 7-10-23

VICINITY MAP:



ELECTRICAL SHEETS

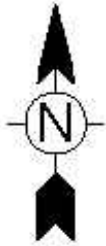
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LOCATION MAP
SCALE: NONE



PROJECT LOCATION - WPC

PROJECT LOCATION - 3RD
AVENUE PUMP STATION

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B

A

BACKGROUND PLAN AND ONE LINE SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CONTROL SWITCH (SEL. OR P.B.) SEE CIRCUITS FOR SPECIFIC TYPE		TAG NO. (BALLOON) FOR DEVICE INDICATED
	SEE CIRCUITS FOR SPECIFIC TYPE		FOR POWER (SEE NOTE 2 ON STANDARD NOTE SHEET)
	TEMPERATURE - HUMIDISTAT SWITCH (SUBSCRIPT=NO. OF STAGES)		CONDUIT AND WIRE RUN FROM DEVICE INDICATED TO LOCATION INDICATED
	LIMIT (PROXIMITY TYPE)		CAPACITOR, 3 PHASE, SIZE AS INDICATED
	PRESSURE - VACUUM SWITCH		DISCONNECT SWITCH (F) = FUSED, (C) = CIRCUIT BREAKER
	ELECTRICAL OR MECHANICAL ALTERNATOR (SEE WIRING)		MAGNETIC STARTER (BACKGROUND DRAWINGS ONLY)
	OVERLOAD SWITCH OR DEVICE		COMBINATION MAGNETIC STARTER FUSED UNLESS NOTED (CIRCUIT BREAKER)
	TERMINAL BOX		COMBINATION LIGHTING CONTACTOR WITH HAND-OFF-AUTO SWITCH
	SOLENOID VALVE		MANUAL STARTER (R) = REVERSING
	PHOTOCELL LINE VOLTAGE		CONTROL PANEL
	AS NOTED (LIGHTING PANEL, CONTROL PANEL, DISTRIBUTION PANEL, ETC.) WALL MOUNTED		UNIT HEATER, 1/8 HORSEPOWER
	JUNCTION BOX		LIGHTING ARRESTOR
	TRANSFORMER		LOW VOLTAGE HOME RUNS 120/208V, 120/240V (SEE NOTE 2 ON STANDARD NOTE SHEET)
	CONDUIT WITH CONDUIT SEAL FITTING		WATERTIGHT
	CONDUIT EXPOSED		WATERTIGHT AND CORROSION PROOF
	CONDUIT CONCEALED		EXPLOSION PROOF - CLASS I, DIVISION 1, GROUP D
	DIRECT BURIED CONDUIT		EXPLOSION PROOF - CLASS II, DIVISION 1
	DIRECT BURIED CABLE		KEYLOCK
	OVERHEAD LINE		SMOKE DETECTOR
	UNDERGROUND DUCT BANK		EXIT LIGHT
	EXISTING UNDERGROUND DUCT BANK		FLUORESCENT LUMINAIRE
	CONCRETE ENCASED DUCT BANK WITH CABLE LOCATIONS, AND SPARE DUCTS AS INDICATED ON DRAWINGS		INCANDESCENT LUMINAIRE
	CABLE REEL		HIGH INTENSITY DISCHARGE LIGHT
	MULTI-STACK ALARM LIGHTS		EMERGENCY BATTERY PACK
	SELECTOR SWITCH / PUSHBUTTON. FUNCTIONS AS SHOWN IN WIRING DIAGRAMS		DESK INTERCOM SET
	LOW VOLTAGE DISCONNECT SWITCH		CAMERA
	LOW VOLTAGE FUSE (BELOW 600V)		PTZ DOME CAMERA (PAN, TILT, ZOOM)
	HIGH VOLTAGE FUSE (ABOVE 600V)		DRAW OUT CIRCUIT BREAKER (ABOVE 600 VOLT)
	ALL STARTERS SHALL BE FULL VOLTAGE, NON-REVERSING UNLESS OTHERWISE INDICATED		CIRCUIT BREAKER WITH STAB CONNECTION
	(FVR) FULL VOLTAGE REVERSING (RV) REDUCED VOLTAGE (2S, 2W) TWO SPEED, TWO WINDING		CURRENT TRANSFORMER, AND RATIO (WITH NUMBER REQUIRED SHOWN)
	600V, 3 POLE MOLDED CASE CIRCUIT BREAKER, FRAME & RATING AS SHOWN		THREE PHASE LOAD WITH IDENTIFICATION
	SINGLE PHASE, FRACTIONAL HP MOTOR TO LOCATION INDICATED (SEE NOTE 2 ON STANDARD NOTE SHEET)		
	DEVICE SYMBOL WITH TYPE DEVICE		
	THREE PHASE LOAD WITH IDENTIFICATION		

WIRING DEVICE SCHEDULE

SYMBOL	DESCRIPTION	NEMA TYPE
	125V, 2P, DUPLEX, 3W	5-20 R
	SIMPLEX RECEPTACLE	
	QUAD RECEPTACLE	
	20A, 120/277V SWITCH	SPST

CONTROL CIRCUIT & PILOT DEVICE LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PRESSURE ACTUATED SWITCH		SELECTOR SWITCH - NORMALLY OPEN
	FLOW ACTUATED SWITCH		FLOAT ACTUATED SWITCH
	LIMIT SWITCH - NORMALLY OPEN		TEMP. ACTUATED SWITCH
	LIMIT SWITCH - NORMALLY CLOSED - HELD OPEN		LIMIT SWITCH - NORMALLY CLOSED
	LATCHING CABLE SWITCH		LIMIT SWITCH - NORMALLY OPEN - HELD CLOSED
	MOMENTARY PUSHBUTTON OPERATOR-NORMALLY CLOSED		TIME DELAY FUSE
	MOMENTARY PUSHBUTTON OPERATOR-NORMALLY OPEN		PUSHBUTTON OPERATOR WITH MUSHROOM HEAD
	CONTROL RELAY CONTACT - NORMALLY OPEN		FIELD LOCATED STOP BUTTON
	TIMING RELAY INSTANTANEOUS CONTACT		CONTROL RELAY CONTACT - NORMALLY CLOSED
	CONTROL RELAY COIL		TIMING RELAY INSTANTANEOUS CONTACT
	TWO COIL LATCHING RELAY		SELECTOR SWITCH OPERATOR WITH FUNCTION SHOWN
	TIMED CLOSED CONTACT ON ENERGIZATION		TIMED OPEN CONTACT ON ENERGIZATION
	TIMED OPEN CONTACT ON DE-ENERGIZATION		TIMED CLOSED CONTACT ON DE-ENERGIZATION
	ZERO SPEED OR ANTI-PLUGGING SWITCH		PUSH-TO-TEST INDICATING LIGHT
	MAINTAINED STOP-START PUSHBUTTON OPERATOR		MAINTAINED STOP - MOMENTARY START PUSHBUTTON (JOG)
	MAINTAINED PUSH - PULL OPERATOR		SOLENOID OR CLUTCH
	LOCAL TERMINALS WITH EXTERNAL WIRING		ELAPSED TIME INDICATOR
	TIMING RELAY COIL		120VAC TRANSFORMER
	TIMING RELAY COIL (OFF DELAY)		PUSHBUTTON OPERATOR WITH MUSHROOM HEAD
	INDICATING LIGHT		THERMAL OVERLOAD
	PUSH-TO-TEST INDICATING LIGHT		FIELD LOCATED
	SECONDARY TRANSFORMER		TERMINAL POINT
	MOLDED CASE CIRCUIT BREAKER		TERMINAL
	GENERAL DISCONNECT SWITCH		LOW VOLTAGE FUSE
			FUSIBLE TERMINAL BLOCK
			CONTROL POWER TRANSFORMER
			RECEPTACLE

NOTE: THE PLC I/O ADDRESS SHALL BE USED AS THE WIRING TAG SCHEME FOR ALL PANEL AND FIELD CONTROL WIRING. COORDINATE WITH ELECTRICAL CONTRACTOR.

I.S.A. STANDARD LETTER FUNCTIONS

SYMBOL	FIRST LETTER	SUCCEEDING LETTERS
A	ANALYSIS, ANALOG	ALARM
B	BURNER, FLAME	BATCH
C	CONDUCTIVITY, COMMAND	CONTROL (FEEDBACK TYPE)
D	DENSITY, SPECIFIC GRAVITY	
E	VOLTAGE	PRIMARY ELEMENT
F	FLOW RATE	RATIO
G	GAGING	GLASS
H	HAND, MANUAL	HIGH
I	CURRENT	INDICATE
J	POWER	SCAN
K	TIME, TIME SCHEDULE	CONTROL (NO FEEDBACK)
L	LEVEL, LIGHT	LOW
M	MOISTURE, HUMIDITY	MIDDLE, MODULATE
N		
O	OVERLOAD	ORIFICE
P	PRESSURE, VACUUM	POINT
Q	QUANTITY	TOTALIZE, INTEGRATE
R	RADIOACTIVITY	RECORD, PRINT, RECEIVE
S	SPEED, FREQUENCY, SOLENOID	SWITCH
T	TEMPERATURE, TURBIDITY	TRANSMIT, TRANSFORM
U	MULTIVARIABLE	MULTIFUNCTION
V	VIBRATION, VISCOSITY	VALVE, DAMPER, LOUVER
W	WEIGHT, FORCE	
X		
Y		RELAY, COMPUTE
Z	POSITION	DRIVE, ACTUATE

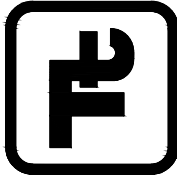
PROTECTIVE RELAY LEGEND

DEVICE NO.	DESCRIPTION
2	SYNC. TIMER 0-5 MIN.
25	SYNCHRONIZING
27	SHORT TIME UNDERVOLTAGE
32	REVERSE POWER RELAY
38	TEMPERATURE
40	LOSS OF EXCITATION
43	SELECTOR SWITCH
47	PHASE SEQUENCE & UNDERVOLTAGE
49	THERMAL
50/51	INSTANTANEOUS AND VERY INVERSE
51	VERY INVERSE
51G	INVERSE GROUND FAULT
51N	NEUTRAL OVERCURRENT
51V	OVERCURRENT RELAY WITH VOLTAGE RESTRAINT
52/CS	CONTROL SWITCH
59	INSTANTANEOUS OVERVOLTAGE
60	VOLTAGE BALANCE
62	TIME DELAY
64	SHORT TIME LOW PICK UP OVERVOLTAGE
67	DIRECTIONAL OVERCURRENT
69	LOCKOUT CONTROL SWITCH
78	OUT OF STEP
81	OVER/UNDER FREQUENCY RELAY
83	MULTI-CONTACT AUXILIARY
86/HR	MULTI-CONTACT AUX. HAND RESET
87	DIFFERENTIAL OVERCURRENT

SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
PT	POTENTIAL TRANSFORMER	W	WATTMETER
CT	CURRENT TRANSFORMER	AP	ALARM POINT
A	AMMETER	CPT	CONTROL POWER TRANSFORMER
V	VOLTMETER	(2) (3)	NUMBER OF DEVICES REQUIRED
PF	POWER FACTOR METER	ETI	ELAPSED TIME METER

TETRA TECH



www.tetratech.com

3497 COOLIDGE RD.

EAST LANSING, MI 48823

PHONE: 517.316.3930, FAX: 517.484.8140

BY

DESCRIPTION FOR BIDDING AND CONSTRUCTION

DATE

MARK

CITY OF FLINT, MICHIGAN

FLINT WPC ELECTRICAL

DISTRIBUTION SYSTEM IMPROVMENTS

ELECTRICAL

LEGEND

PROJ: 200-156238-23001

DESN: GCJ

DRWN: JLS

CHKD: GCJ

E-001

OF 45

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NOTES:

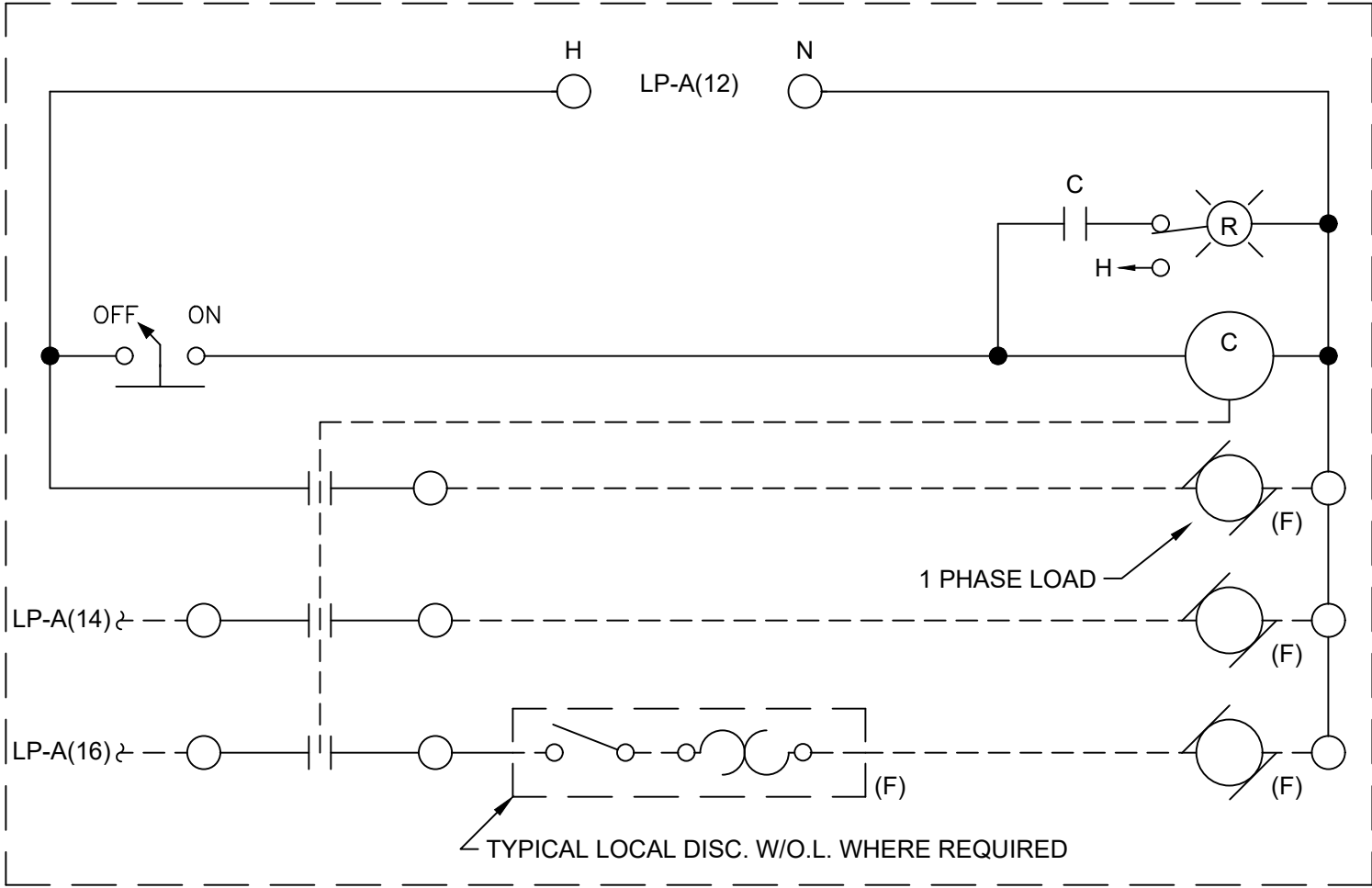
1. FIELD VERIFY CONDUIT ROUTING AT THE PLANT PRIOR TO BIDS. CORE HOLES AS REQUIRED TO SUIT INSTALLATION OF THE CONDUITS SHOWN. PATCH WITH NON-SHRINK GROUT.
2. TURN OVER TO OWNER AT PROJECT COMPLETION OPERATION AND MAINTENANCE MANUALS (QUANTITY AS SPECIFIED) TO OWNER.
3. MULTIMODE FIBER OPTIC PATCH CABLES, AND ETHERNET PATCH CABLES SUPPLIED IN THE PROJECT SHALL BE COLORED PURPLE.
4. FIBER OPTIC PATCH PANELS SHALL BE THE PRODUCT OF CORNING CABLE SYSTEMS. (RACK OR SURFACE MOUNTED AS SHOWN", ST STYLE CONNECTORS, WITH QUANTITY OF BULKHEADS AS SHOWN.

GENERAL CONSTRUCTION NOTES:

1. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN LIGHT LINE WEIGHTS ON THE DRAWINGS ARE EXISTING ITEMS TO REMAIN. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN HEAVY LINE WEIGHTS ARE NEW THIS CONTRACT.
2. ITEMS SHOWN OR NOTED TO BE DEMOLISHED ON THE DRAWINGS ARE EXISTING ITEMS TO BE REMOVED FROM SITE BY CONTRACTOR UNLESS NOTED TO BE TURNED OVER TO OWNER.
3. FOR ITEMS INDICATED AS "FIELD LOCATE", THE CONTRACTOR SHALL FIELD VERIFY FOR INTERFERENCE AND FOR LOCATIONS OF MOUNTING FLANGES, CONNECTION POINTS, ETC.
4. CONDUIT ROUTINGS SHOWN ON BACKGROUND PLANS ARE INTENDED ROUTINGS ONLY. EXACT CONDUIT ROUTINGS FOR CONDUITS, AND LENGTH SHALL BE FIELD LOCATED AND VERIFIED BY THE CONTRACTOR. COORDINATE CONDUIT ROUTING IN FINISHED AREAS WITH OWNER. CONDUIT TO BE CONCEALED IN THESE AREAS.
5. REFER TO THE CABLE MANUFACTURER'S RECOMMENDATIONS FOR MINIMUM BEND RADIUS FOR FIBER OPTIC CABLES. INSTALL NEW PULL BOXES (PB) AS REQUIRED FOR CONDUITS. SIZE PULL BOXES AS REQUIRED PER FIBER OPTIC CABLE MANUFACTURERS RECOMMENDATIONS.
6. CONDUITS/RACEWAYS, PULL BOXES AND JUNCTION BOXES TO BE INSTALLED WITH 316 STAINLESS STEEL CHANNEL STRUT. MINIMUM STRUT LENGTH TO BE 12 INCHES, WHERE POSSIBLE.
7. PANELS SHALL BE MOUNTED OFF WALLS WITH STRUT, CONDUITS SHALL BE MOUNTED ON STRUT INCLUDING SINGLE RUNS.
8. REPAIR SIDEWALKS AND ROADWAYS DUE TO SITE WORK ADDITIONS, THE EXTENT OF THE REPAIR REQUIRED SHALL BE FIELD VERIFIED PRIOR TO BIDS IN CONJUNCTION WITH THE WORK SHOWN IN THE CONTRACT DOCUMENTS. PRIOR TO TRENCHING, FIELD LOCATE EXISTING GAS LINES, TELEPHONE LINES, SPRINKLER LINES, ETC. COORDINATE WITH OWNER
9. PULL CORDS SHALL BE INSTALLED IN ALL CONDUITS CONTAINING NETWORK CABLES, AND FIBER OPTIC CABLES, AND CONTROL WIRES, AND SPARE CONDUITS.
10. CORE HOLES AS REQUIRED TO SUIT INSTALLATION OF CONDUIT AND WIRING/CABLING AS SHOWN. FIELD VERIFY EXACT EXTENT OF WORK REQUIRED.
11. FURNISH PULL BOXES FOR FIBER OPTIC CABLE. COORDINATE EXACT BENDING RADIUS WITH MANUFACTURER.
12. NEW CONDUITS INSTALLED THIS CONTRACT WITH FIBER OPTIC CABLES ARE TO BE LABELED WITH PHENOLIC TAGS (AT BEGINNING TO END) TO INDICATE THE NUMBER OF STRANDS, ORIGATION AND DESTINATION. TAGS TO BE COLOR CODED ORANGE FOR MULTIMODE.
13. WHERE NEW CONDUITS SHOWN TO BE INSTALLED PASS UNDER ROADWAYS, CONDUITS SHALL BE CONCRETE ENCASED.
14. PRIOR TO EXCAVATION, FIELD LOCATE EXISTING UTILITIES. COORDINATE WITH OWNER.
15. AREAS WHERE CAMERAS ARE SHOWN TO BE INSTALLED SHALL BE CLASSIFIED AS NEMA 4, UNLESS CALLED OUT OTHERWISE.
16. THE ASSOCIATED INSTRUMENTATION DRAWINGS SHOW EXISTING WIRES AND TERMINAL NUMBERS REQUIRED TO PROPERLY INTERFACE WITH NEW EQUIPMENT. THIS INFORMATION WAS COLLECTED FROM AS-BUILT DRAWINGS AND EXTENSIVE FIELD VERIFICATION. THE INFORMATION SHALL BE USED AS A GUIDE IN RE-TERMINATION. IT SHALL REMAIN THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE WIRING AND TO REVISE TO SUIT AS REQUIRED. CHANGES IN THE CONTRACT OR COST WILL NOT BE GRANTED FOR THIS COORDINATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE PROPOSED WORK SHOWN.
17. CONDUIT ROUTINGS SHOWN ON BACKGROUND PLANS ARE PROPOSED ROUTINGS ONLY. EXACT CONDUIT ROUTINGS AND LENGTH SHALL BE FIELD LOCATED AND VERIFIED BY THE CONTRACTOR. COORDINATE CONDUIT ROUTING IN FINISHED AREAS WITH OWNER. CONDUIT TO BE CONCEALED IN THESE AREAS.
18. RACEWAYS, PULL BOXES AND JUNCTION BOXES TO BE INSTALLED WITH 316 STAINLESS STEEL FASTENERS SUPPORTS, AND THREADED ROD, ETC. (CHANNEL STRUT TO ALSO BE STAINLESS STEEL). MINIMUM STRUT LENGTH TO BE 12 INCHES, WHERE POSSIBLE. TYPICAL FOR NEMA 12, 4, AND 7 AREAS.
19. WIRING FOR STARTERS SHALL BE IN ACCORDANCE WITH NEMA CLASS II B STANDARDS. SUBMIT ENGINEERED SHOP DRAWINGS FOR ALL STARTERS SHOWN TO BE WIRED.
20. WIRE NUMBERS (1, 3, 5, ETC.) SHALL BE PREFIXED WITH STARTER TAG NUMBERS. THE WIRE NUMBER AFTER THE PREFIX SHALL BE THE MANUFACTURER'S WIRE NUMBERING SYSTEM. WIRE MARKERS SHALL BE USED AT EACH WIRE TERMINATION POINT. EACH WIRE NUMBER SHALL BE UNIQUE. WIRE COLORS SHALL BE AS FOLLOWS:
RED - 120VAC CONTROL
WHITE - 120VAC NEUTRAL
BLUE - 24VDC POSITIVE
GRAY - 24VDC NEGATIVE
ORANGE - POWER PRESENT WHEN DISCONNECT IS OFF
YELLOW - PLC DISCRETE I/O
GREEN - EQUIPMENT GROUND
21. IN AREAS WHERE EQUIPMENT AND CONDUIT IS REMOVED, REPAIR WALL AND FLOOR SURFACES AS REQUIRED TO MATCH SURROUNDING AREA. WHERE DEVICES ARE REMOVED FROM CONCEALED BOXES, FURNISH AND INSTALL A BLANK COVER ON THE BOX.
22. FIBER OPTIC CABLE SHALL BE AS CALLED OUT ON SYSTEM CONFIGURATION DRAWINGS, MULTI MODE, ALL DIELECTRIC, SUITABLE FOR INSTALLATION UNDERGROUND IN WET CONDUIT.

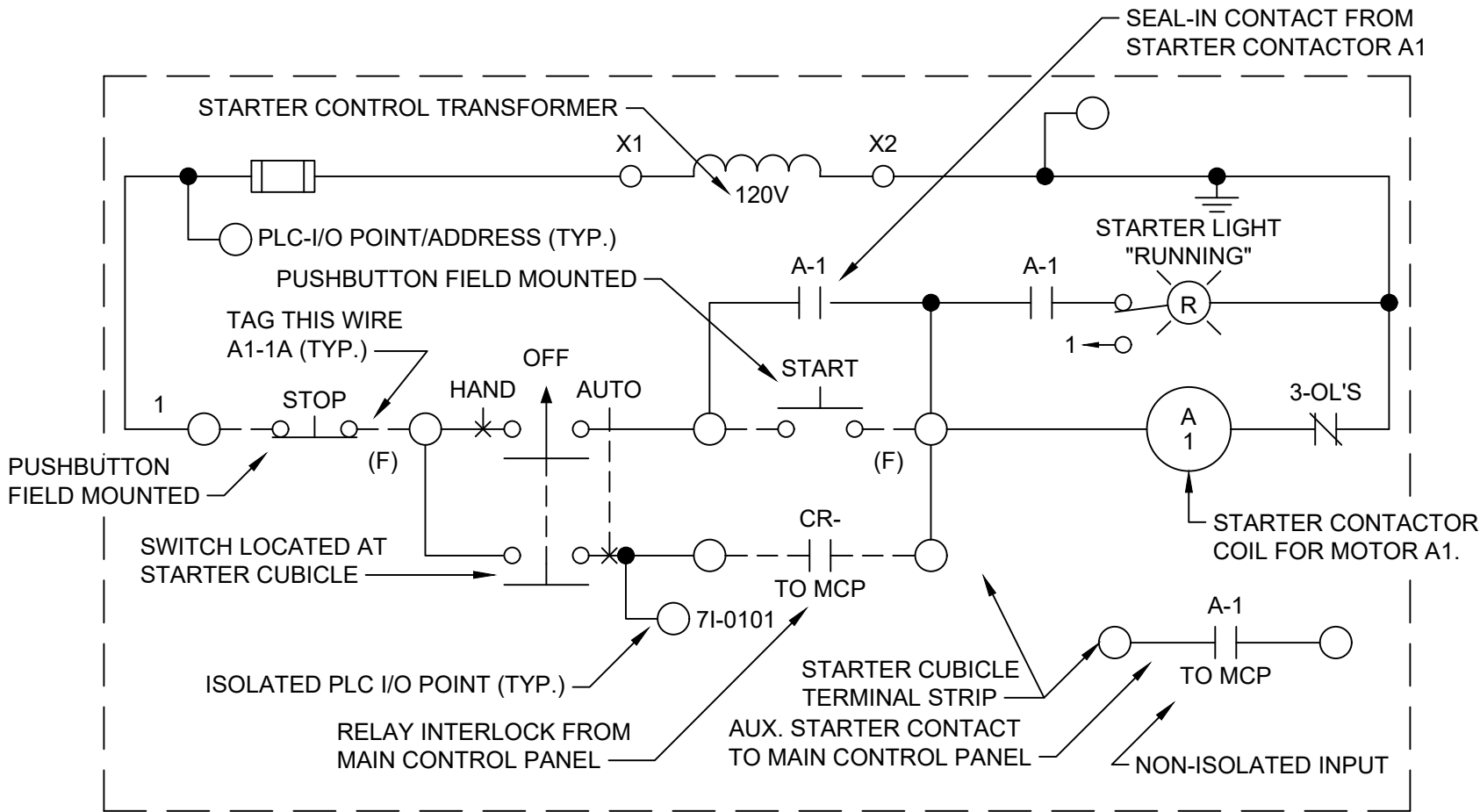
GENERAL NOTES:

1. PRIOR TO SUBMITTING A BID FOR THE WORK DETAILED UNDER THIS CONTRACT, BIDDER SHALL VISIT THE FLINT WCP (WASTEWATER TREATMENT PLANT), AND THIRD AVENUE PUMP STATION. THE BIDDER SHALL FULLY ACQUAINT ONESELF WITH EXISTING FIELD CONDITIONS AT EACH SITE. NO BULLETINS WILL BE WRITTEN FOR WORK DUE TO LACK OF VERIFICATION OF EXISTING SITE CONDITIONS AND WIRING.
2. NO WIRES SHALL BE TERMINATED TO TERMINAL STRIPS, OR OTHER EQUIPMENT WITHOUT FIRST VERIFYING SIGNAL TYPE. DAMAGES RESULTING FROM LACK OF VERIFICATION SHALL BE BORNE BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE SIGNAL TYPE AND VOLTAGE WITH I/O CARDS SHOWN.
3. WITHIN CONTROL PANELS, NAMEPLATES SHALL BE PROVIDED TO INDICATE DIFFERENT VOLTAGE LEVELS WITHIN PANELS. ALSO, A NAME TAG (YELLOW BACKGROUND, RED LETTERING) SHALL BE LOCATED ON THE FRONT OF EVERY PANEL INDICATING THAT WHEN MAIN PANEL IS DISCONNECTED 120V IS STILL PRESENT FROM FIELD DEVICES (YELLOW WIRING/ISOLATED INPUT CARDS.)
4. PHENOLIC TAGS ON FACE OF CONTROL PANELS TO HAVE WHITE BACKGROUND AND BLACK LETTERING (EXCEPT WARNING TAGS; YELLOW BACKGROUND RED LETTERING).
5. PROVIDE SAFETY COVERS ON ALL 480V MOLDED CASE MAIN CIRCUIT BREAKERS TO INSULATE THE INCOMING CABLES AND SIDE CONDUCTORS FROM CONTACT. (TYP. FOR CONTROL PANELS.) PROVIDE BREAKER LOCKS FOR PUMP CIRCUIT BREAKERS (MCP)AND MAIN PANEL BREAKERS.
6. REFER TO WIRING DIAGRAMS FOR ADDITIONAL INFORMATION ON ISOLATED I/O. A COMMON NEUTRAL MAY BE USED FOR SEVERAL ISOLATED INPUTS FROM THE SAME STARTER. PROVIDE NEUTRAL JUMPERS WIRES WITHIN THE PANEL AS REQUIRED.
7. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN LIGHT LINE WEIGHTS ON THE DRAWINGS ARE EXISTING ITEMS TO REMAIN. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN HEAVY LINE WEIGHTS ARE NEW THIS CONTRACT.
8. ITEMS SHOWN CROSSHATCHED (OR NOTED TO BE DEMOLISHED) ON THE DRAWINGS ARE EXISTING ITEMS TO BE REMOVED, FROM SITE BY CONTRACTOR.
9. INSTALL A SINGLE CONDUCTOR INSULATED (RHW, THWN, OR XHHW) COPPER GROUND WIRE IN EACH CONDUIT, SIZE AS SHOWN ON DRAWINGS, OR AS A MINIMUM PER THE NATIONAL ELECTRICAL CODE. THIS GROUND WIRE SHALL BE CONNECTED AT EACH END TO THE EQUIPMENT GROUND. THIS ALSO INCLUDES INSTRUMENTATION DEVICES SUCH AS LEVEL, PRESSURE, FLOW TRANSMITTERS, LIMIT SWITCHES, CONDUITS, NETWORK AND I/O CABLES.
10. THE FOLLOWING EXAMPLE COMPONENT IDENTIFICATION SHALL BE USED AS APPROPRIATE:
(F) FIELD MOUNTED, NOT AT STARTER OR OTHER CONTROL PANELS
(S) STARTER PANEL MOUNTED
(MCP)AT MAIN CONTROL PANEL
(1) AT CONTROL PANEL NO.1
(2) AT CONTROL PANEL NO.2
(TCP)AT TEMPERATURE CONTROL PANEL
11. REFER TO DETAIL SHEETS. CONTRACTOR SHALL FURNISH AND INSTALL HARDWARE AND APPURTENANCES (I.E. PIPE TAPS, WETWELL BUBBLER TUBES, VALVES, COPPER TUBING, BALL VALVES, PNEUMATIC PIPING, SPOOL PIECES, ETC.) FOR FIELD DEVICES SHOWN (FLOWMETERS, PRESSURE TRANSMITTERS, LEVEL TRANSMITTERS, ETC.). WORK SHALL BE COORDINATED WITH OTHER TRADES (MECHANICAL INSTRUMENTATION, ETC.) CONTRACTOR SHALL BE RESPONSIBLE FOR SYSTEM COORDINATION AND INSTALLATION.
12. ETHERNET AND FIBER OPTIC TERMINATIONS SHALL BE PERFORMED BY A QUALIFIED REPRESENTATIVE OF CABLE MANUFACTURER, THE CABLES SHALL BE TESTED. NO SPLICING SHALL BE PERMITTED OF FIBER OPTIC CABLES, BETWEEN PANELS. FIBERS SHALL BE TERMINATED AT PATCH PANELS, INCLUDING SPARES.
13. REFER TO THE CABLE MANUFACTURER'S RECOMMENDATIONS FOR MINIMUM BEND RADIUS FOR FIBER OPTIC CABLES. INSTALL NEW PULL BOXES (PB) AS REQUIRED FOR CONDUITS. SIZE PULLBOXES AS REQUIRED PER FIBER OPTIC CABLE MANUFACTURERS RECOMMENDATIONS..
14. CABLES (INCLUDING FIBER, ETHERNET, CONTROL WIRE, ETC.) WHERE PASSING THROUGH A PULLBOX SHALL BE LABELED AND COMPLETELY IDENTIFIED WITH IDENTIFICATION NUMBERS AND ORIGATION/DESTINATION. THIS ALSO INCLUDES ALL CABLE BUNDLES ENTERING CONTROL PANELS, PULLBOXES, ETC.
15. CONTROL WIRES SHALL BE TAGGED WITH THE PLC I/O ADDRESS, AND A DESCRIPTIVE ADDRESS IN THE FIELD AND AT THE PANEL. REFER TO INSTRUMENTATION DRAWINGS, CONTROL PANEL WIRING DIAGRAMS. (TYP.)
16. THE FIELD DEVICES SHOWN ON THE P&ID'S, ELECTRICAL BACKGROUNDS, AND DETAILS SHEETS MAKEUP THE FIELD DEVICE EQUIPMENT REQUIREMENTS. NOT ALL FIELD DEVICES REQUIRED ARE SHOWN ON THE P&ID'S.
17. UPS SELECTED SHALL BE COMPATIBLE WITH ISOLATION TRANSFORMERS. (TYP.)
18. REFER TO I/O DRAWING LAYOUT FOR ADDITIONAL SIGNALS NOT SHOWN ON P&ID FLOW DIAGRAMS.
19. FURNISH, AND INSTALL PHENOLIC NAMETAGS ON THE EXTERIOR OF CONDUITS CONTAINING E-FO, F.O., E-NET CABLES. NAMETAGS TO BE INSTALLED ON EACH CONDUIT AT EACH END, BETWEEN ENCLOSURES ORANGE BACKGROUND, WHITE LETTERING. FOR MULTIMODE FIBER, YELLOW BACKGROUND, WHITE LETTERING, SINGLE MODE FIBER. EXAMPLE: "24 - E-FO - BPP TO BIOP-4".
20. CONTROL WIRING TO BE YELLOW COLOR. (TYP.)
21. CONDUITS IN NEMA 4 AREAS INDOORS TO BE ALUMINUM, OR PVC COATED RGS.
22. WIRES FOR SEPARATELY DERIVED POWER SOURCES TO BE ORANGE. COORDINATE WITH OWNER.
23. ENCLOSURES, PULL BOXES, JUNCTION BOXES, SHALL BE 316 STAINLESS STEEL, OR RATED EXPLOSION PROOF (NEMA 7) AS SHOWN ON DRAWINGS.
24. FURNISH AND INSTALL PHENOLIC NAMETAGS ON THE EXTERIOR OF ALL NEW CONDUITS (THIS PROJECT) CONTAINING E-FO, F.O., E-NET, POWER, SIGNAL, CONTROL WIRES/CABLES. NAMETAGS TO BE INSTALLED ON EACH CONDUIT AT EACH END, BETWEEN ENCLOSURES ORANGE BACKGROUND, WHITE LETTERING. FOR MULTIMODE FIBER, YELLOW BACKGROUND, WHITE LETTERING, SINGLEMODE FIBER, EXAMPLE: "24 - E-FO TFPF TO FPP-1". FOR POWER: "480V POWER FROM MCC-S TO MCC-B1". FOR CONTROL: "CONTROL WIRES - TO BPP".



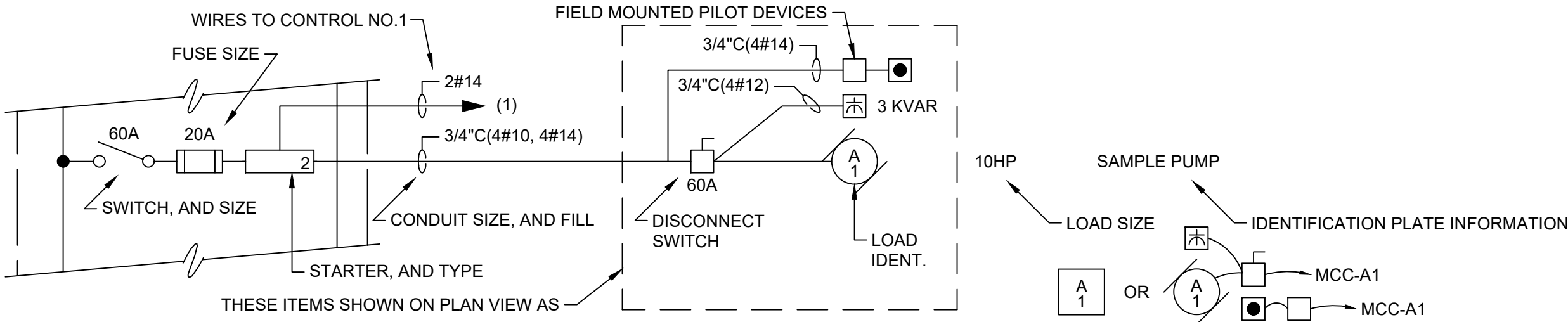
TYPICAL 120V 3 POLE CONTACTOR

(EXAMPLE CIRCUIT)



EXAMPLE PUMP

(TAG A1)
(EXAMPLE CIRCUIT)



MCC LEGEND EXAMPLE

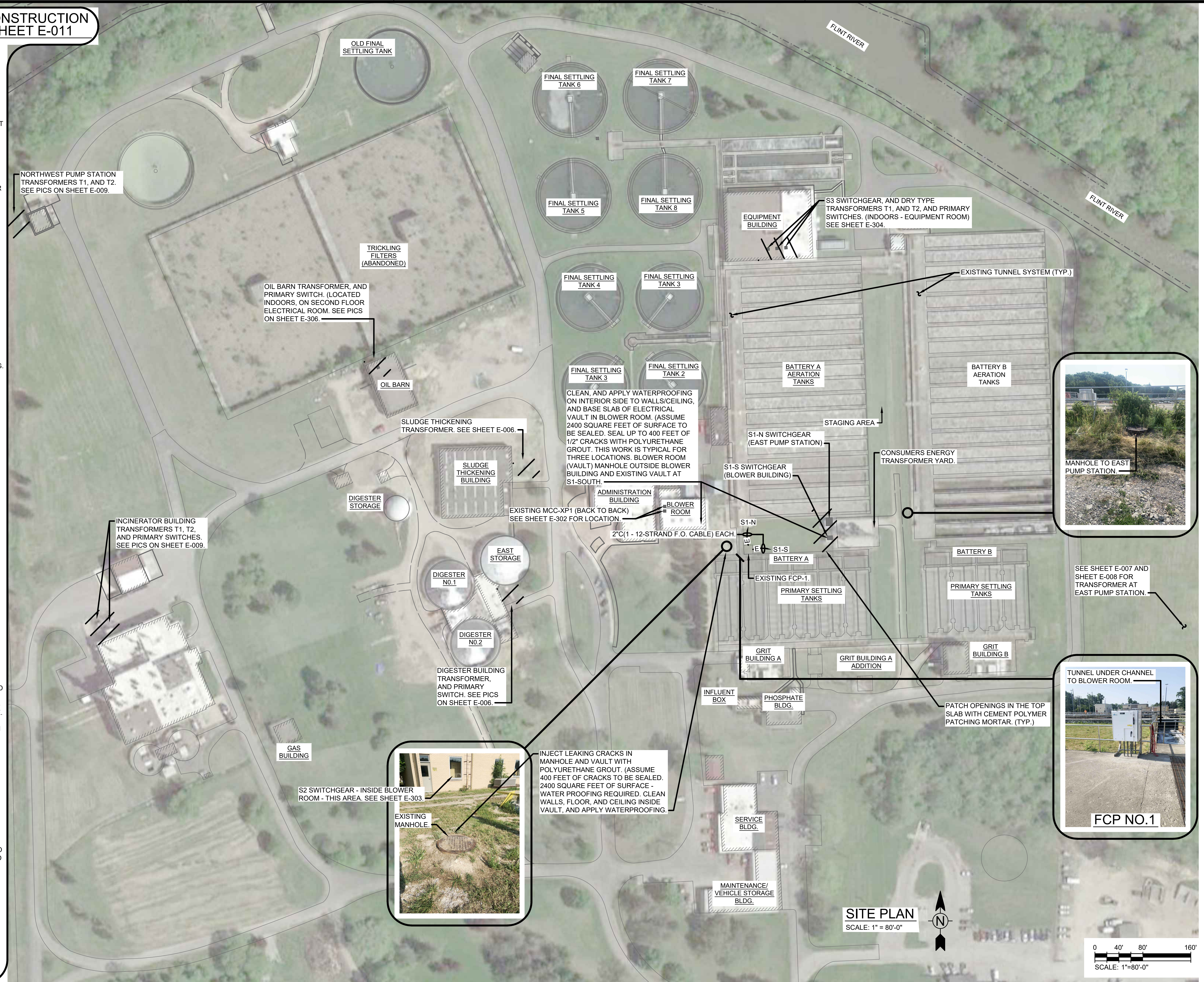
MARK	DATE	DESCRIPTION FOR BIDDING AND CONSTRUCTION	BY
	7/10/23		

CITY OF FLINT, MICHIGAN	FLINT WCP ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS	ELECTRICAL NOTES

PROJ:	200-156238-23001
DESIN:	G CJ
DRWN:	JLS
CHKD:	G CJ

SUGGESTED SEQUENCE OF CONSTRUCTION/THIS SUGGESTED SEQUENCE IS FOR THE NEW MAIN PLANT SWITCHGEAR LOCATED INSIDE THE EXISTING BLOWER BUILDING, THE NEW SWITCHGEAR LOCATED INSIDE THE EXISTING EQUIPMENT BUILDING, THE NEW OUTDOOR SWITCHGEAR LINE-UPS LOCATED AT THE EXISTING CONSUMERS ENERGY TRANSFORMER YARD AND THE PADMOUNT TRANSFORMERS LOCATED AROUND THE WWTP):

1. INSTALL NEW MAIN PLANT SWITCHGEAR (S1 NORTH, S1 SOUTH, AND S2 SWITCHGEAR) AND NEW SWITCHGEAR AT EXISTING EQUIPMENT BUILDING AND ASSOCIATED WIRING INCLUDING FIBER OPTIC CABLEING TO ACCOMPLISH THE SEQUENCE DESCRIBED HEREIN. ONE CONSUMERS ENERGY SOURCE IS TO BE POWERED DOWN ONE AT A TIME AS COORDINATED WITH THE OWNER AS WELL AS ONE HALF OF THE LINE-UP, ONE LINE-UP AT A TIME. SIMILAR FOR THE PADMOUNT TRANSFORMERS. ONE TRANSFORMER AT A TIME, AFTER THE TWO SWITCHGEAR LINE-UPS ARE COMPLETED.
2. DEMOLISH ONE DUCTBANK AT A TIME FROM THE CONSUMERS ENERGY TRANSFORMER YARD TO THE EXISTING OUTDOOR SWITCHGEAR.
3. INSTALL NEW DUCTBANKS FROM NEW OUTDOOR MAIN SWITCHGEAR FOR THE WWTP (S1 NORTH, AND S1 SOUTH) ONE SIDE AT A TIME. INSTALL NEW 8KV WIRING FROM EACH NEW OUTDOOR SWITCHGEAR FOR THE WWTP AND FOR THE EAST LIFT STATION ONE THRU EXISTING DUCTBANK TO THE WWTP AND TO THE EAST LIFT STATION LOCATION ONE AT A TIME, ONE SIDE AT A TIME. SEE SHEET E-011.
4. DEMOLISH THE FEEDERS ONE AT A TIME AT DESCRIBED IN NOTE NO.3 ABOVE.
5. INSTALL NEW CONDUITS AND FIBER CABLEING AS SHOWN FOR THE NEW MAIN PLANT SWITCHGEAR S1 NORTH, S1 SOUTH, S2 AND FOR THE NEW S3 SWITCHGEAR SHOWN TO BE INSTALLED IN THE EXISTING EQUIPMENT BUILDING.
6. NEW CONCRETE DUCTBANKS FROM THE CONSUMERS ENERGY YARD TO THE TWO OUTDOOR SWITCHGEAR LINE-UPS S1 NORTH AND S1 SOUTH TO BE STAINED RED, AND A YELLOW NO.10AWG POLYPROPYLENE TRACER WIRE INSTALLED OVER EVERY DUCTBANK INCLUDING INSTALLATION OF YELLOW WARNING RIBBON.
7. WHERE DUCTBANKS CROSS EACH OTHER, DUCTBANKS TO BE PHYSICALLY SEPARATED BY 12 INCHES AND ENTIRE SPACE/AREA TO BE CONCRETE ENCASED, EXCAVATE TO DEPTH AS REQUIRED TO ACHIEVE THIS SEPARATION AND CONCRETE ENCASEMENT.
8. WITHIN MANHOLES EXISTING AND NEW CABLES TO BE FIRE WRAPPED, AND LABELED.
9. CABLES ENTERING EACH SWITCHGEAR COMPARTMENT TO BE FIRE WRAPPED.
10. DESCRIPTIVE NAME/TAGS TO BE INSTALLED ON PREFABRICATED BUILDING EXTERIOR SWITCHGEAR DOORS INDICATING INCOMING AND OUTGOING SERVICES/LOADS.
11. INSTALL NEW GROUND MAT AROUND NEW OUTDOOR SWITCHGEAR PADS S1 NORTH, AND S1 SOUTH. CONNECT BARE 4/0 TO EXISTING CONSUMERS ENERGY FENCE(4 TIMES MIN.) AND TO EACH NEW OUTDOOR LINE-UP.
12. BARE 4/0 INSTALLED IN EACH DUCTBANK TO BE BONDED AT EACH END.
13. TO ACCOMPLISH THE WORK SEQUENCE AND MAINTAIN UNINTERRUPTED PLANT OPERATIONS, CONTRACTOR SHALL SUPPLY TWO GENERATORS AND STEP UP TRANSFORMER TO POWER THE PLANT ONE SIDE AT A TIME. AS AN EXAMPLE, IF TRANSFORMERS ARE REPLACED FIRST, THEN THE GENERATOR CAN BE MOVED TO EACH LOCATION OUTDOORS AND WIRED INTO THE EXISTING 480V SWITCHGEAR TO POWER THE LOAD(S) AS THE TRANSFORMERS ARE CHANGED OUT ONE AT A TIME FOR THE 4160V SWITCHGEAR, TWO (2) GENERATORS, A STEP-UP TRANSFORMER AS DESCRIBED HEREIN AND ON SHEET E-011, SHALL BE PROVIDED AND WIRED INTO THE EXISTING DISTRIBUTION SYSTEM TO MAINTAIN PLANT OPERATIONS. GENERATOR SIZE TO BE 2.5MW WITH ASSOCIATED STEP UP TRANSFORMER, AND PRIMARY AND SECONDARY CABLEING TO ACCOMPLISH THE WORK SEQUENCE. PROVIDE A 1.5kW 480V GENERATOR FOR THE EAST PUMP STATION TRANSFORMER CHANGEOUT. TWO GENERATORS TO BE PROVIDED AT THE SAME TIME AS PART OF THE CONSTRUCTION SEQUENCE. SEE ALSO SHEET E-011 FOR THIRD GENERATOR FOR DIGESTER BUILDING TRANSFORMER CHANGEOUT.
14. INCLUDE IN BID COSTS AND FEES FROM CONSUMERS ENERGY FOR SHUTTING DOWN THE POWER TO EACH OF THE TRANSFORMERS AS MANY TIMES AS NECESSARY TO ACCOMPLISH THE WORK SEQUENCE NOTED HEREIN AND SPECIFIED ON THE CONTRACT DRAWINGS.
15. ONE OF THE YARD TRANSFORMERS ALSO POWERS THE GENESEE COUNTY OFFICES. COORDINATE THE WORK AS REQUIRED TO MAINTAIN POWER TO GENESEE COUNTY FIELD OFFICES. COORDINATE THE OUTAGES FOR THE WORK SEQUENCE WITH BOTH FLINT WPC AND GENESEE COUNTY WHEN POWER WILL BE INTERRUPTED.
16. CHANGE OUT S3 SWITCHGEAR ONE HALF AT A TIME.



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EAST LANSING, MI, 48823
PHONE: 517.316.3930, FAX: 517.484.8140
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CITY OF FLINT, MICHIGAN

FLINT WPC ELECTRICAL

ELECTRICAL

PROPOSED WORK

PROJ: 200-156238-23001

DESN: GCJ

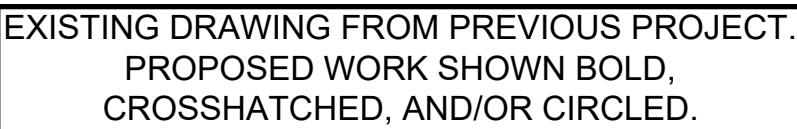
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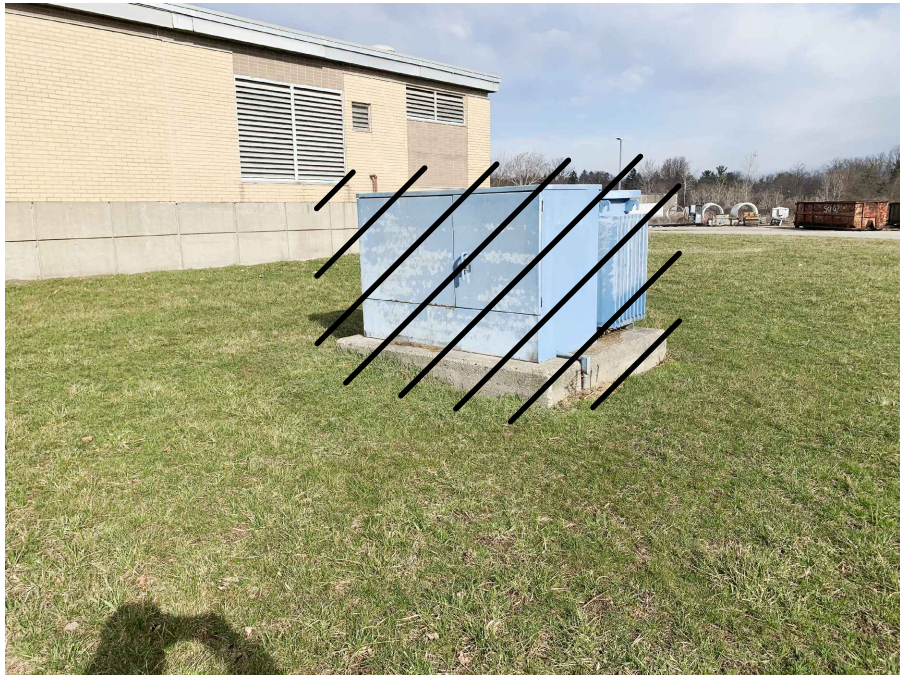
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OF 45

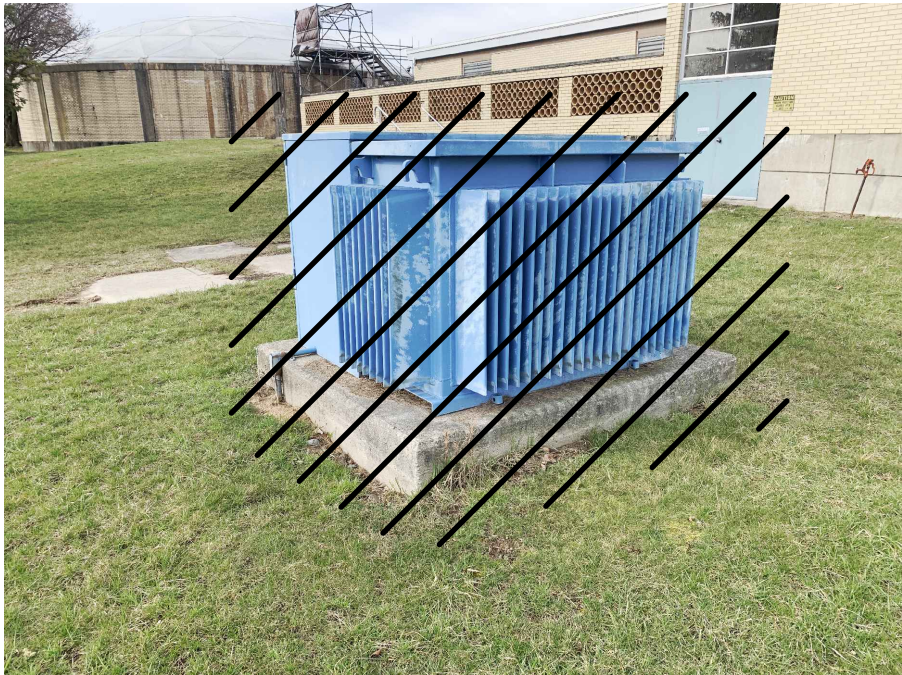
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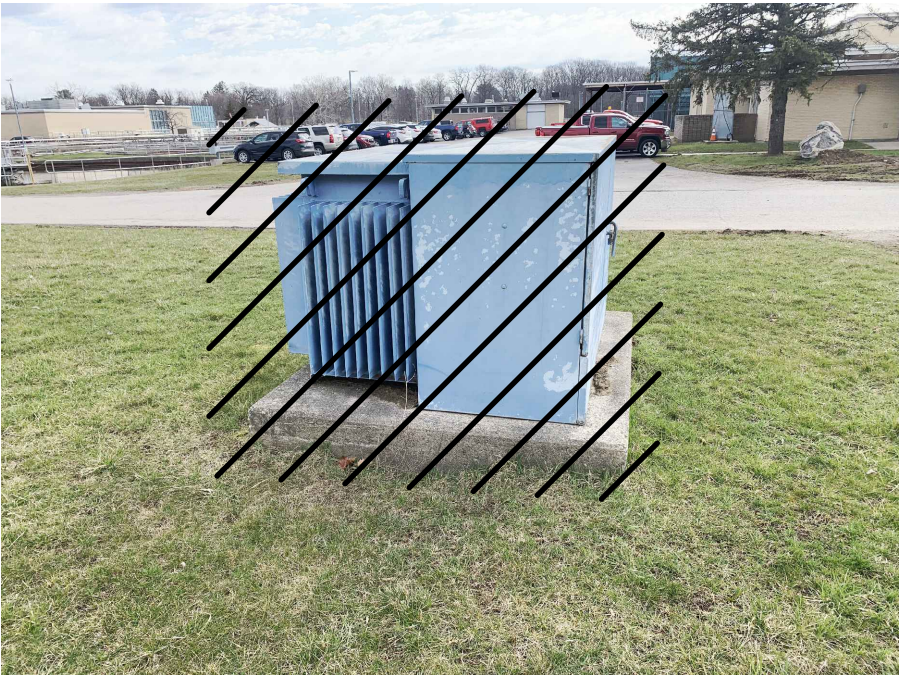
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SLUDGE THICKENER TRANSFORMER
SEE NOTES



SLUDGE THICKENER TRANSFORMER



SLUDGE THICKENER TRANSFORMER



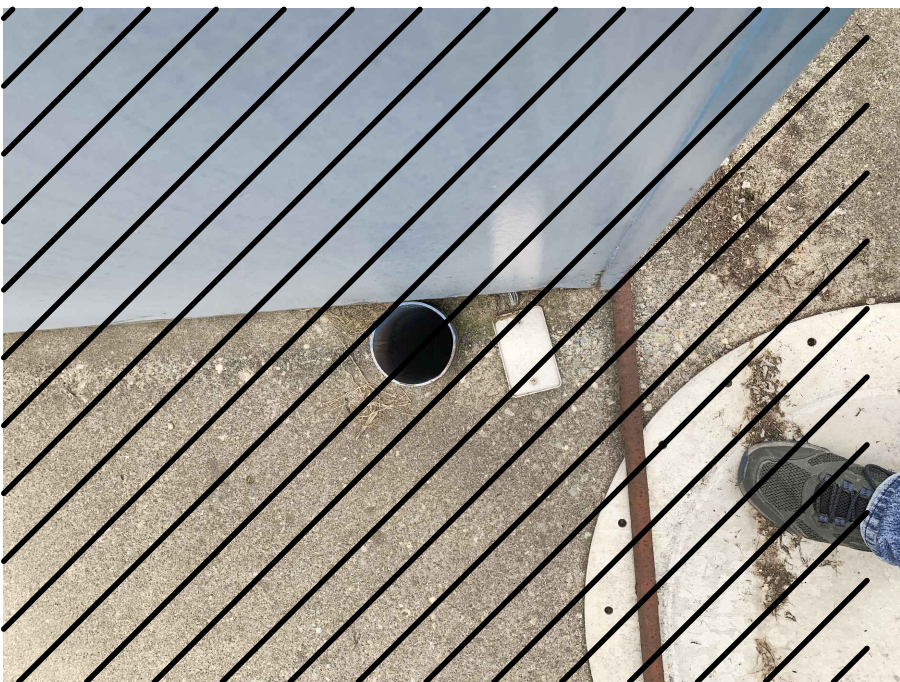
DIGESTER TRANSFORMER
SEE NOTES



DIGESTER TRANSFORMER



DIGESTER TRANSFORMER



DIGESTER TRANSFORMER

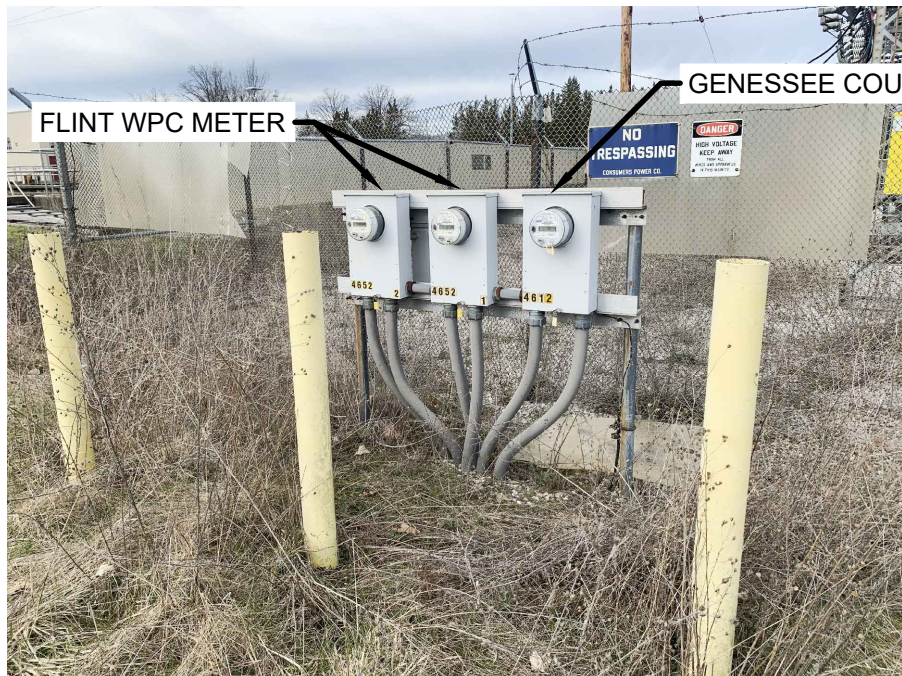


DIGESTER TRANSFORMER

NOTES: (TYPICAL ALL TRANSFORMERS, PADMOUNT AND SUBSTATION STYLE)

TRANSFORMER PAD DEMOLITION AND PROPOSED WORK (WORK TYPICAL FOR EVERY TRANSFORMER AND PRIMARY SWITCH SHOWN TO BE REPLACED AND ASSOCIATED CONCRETE PAD)

- DEMOLISH EXISTING CONCRETE PAD, GROUND CONNECTIONS, AND TRANSFORMER. PROTECT EXISTING PRIMARY CONDUITS AND WIRES, AND ASSOCIATED SECONDARY CONDUITS AND WIRES. BOTH ARE TO BE RECONNECTED TO THE NEW PRIMARY AND SECONDARY CONNECTIONS OF THE NEW PADMOUNT TRANSFORMER.
- EXISTING PRIMARY AND SECONDARY CABLES ARE TO REMAIN AND BE RECONNECTED.
- POUR NEW CONCRETE PADS AS SHOWN. CONCRETE STRENGTH TO BE 4000 PSI.
- INSTALL NEW GROUND MAT AROUND EACH TRANSFORMER PAD. BOND BARE 4/0 TO EACH TRANSFORMER 2 TIMES FROM NEW GROUND MAT. SOLIDLY GROUND THE SECONDARY OF EACH TRANSFORMER. RECONNECT EXISTING GROUND TO BUILDING THRU EXISTING RACEWAY AND EXISTING DUCTBANK.
- PROVIDE NAMETAGS ON EXTERIOR OF EACH TRANSFORMER INDICATING POWER SOURCE ON PRIMARY AND LOADS FED FROM SECONDARY.
- REWORK EXISTING PRIMARY 4160V AND SECONDARY 480V WIRES TO NEW TRANSFORMER. PROVIDE EXTENSION LUGS AS REQUIRED TO SUIT CONNECTION OF EXISTING WIRES. COORDINATE WITH TRANSFORMER MANUFACTURER TO LENGTHEN THE PRIMARY AND SECONDARY BUS EXTENSIONS TO SUIT RECONNECTION OF EXISTING PRIMARY AND SECONDARY WIRES. FIELD MEASURE THIS PRIOR TO BIDS AND INCLUDE IN BID FOR THESE BUS EXTENSIONS TO BE SUPPLIED WITH EACH TRANSFORMER AND/OR PRIMARY SWITCH.
- PROVIDE LUGS AS REQUIRED AT EACH NEW TRANSFORMERS TO SUIT THE PRIMARY AND SECONDARY CONNECTIONS SHOWN ON THE POWER ONE-LINE DRAWINGS.
- THE EXISTING ARC FLASH ANALYSIS IS TO BE UPDATED TO INCLUDE THE NEW WORK SHOWN. OBTAIN SKM FILES FROM OWNER, UPDATE FILES AND RETURN UPDATED SKM FILES TO OWNER. INSTALL NEW LABELS AND PROVIDE FOR 2-8 HOUR DAYS OF ON-SITE TRAINING FOR PLANT STAFF. SEE PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS. STUDY TO BE UPDATED BY SWITCHGEAR MANUFACTURER EATON FACTORY ENGINEERING SERVICES.
- CONTRACTOR TO INCLUDE IN BID TO FURNISH AND INSTALL A PORTABLE GENERATOR INCLUDING WIRING AND STEP UP TRANSFORMER(WHERE POWERING 4160V LOCATIONS) AND DIESEL FUEL FOR THE DURATION OF THE ENTIRE PROJECT IN ORDER TO MAINTAIN UNINTERRUPTED PLANT OPERATIONS. LOCATE GENERATOR AT EACH LOCATION SHOWN AS EACH TRANSFORMER AND ASSOCIATED WORK IS PERFORMED. WORK HOURS TO BE AS REQUIRED TO SUIT UNINTERRUPTED PLANT OPERATIONS. SEE NOTES ELSEWHERE FOR ADDITIONAL INFORMATION.
- COORDINATE SEQUENCE OF CONSTRUCTION AND WORK WITH OWNER. PLANT OPERATIONS TO REMAIN IN SERVICE WITH NO INTERRUPTION ON PLANT OPERATIONS.
- INSTALL NEW LANDSCAPING STONES AROUND EACH TRANSFORMER WHERE SHOWN IN EXISTING PICS AND IN CPCO YARD IN ORDER TO MATCH EXISTING CONSTRUCTION.
- RESTORE YARD AREAS BACK TO ORIGINAL CONDITION.
- NEW TRANSFORMERS TO HAVE READILY ACCESSIBLE SAMPLING PORT.



CONSUMERS ENERGY METERS



SWITCHGEAR S1-NORTH



SWITCHGEAR S1-NORTH



SWITCHGEAR S1-NORTH

MARK	DATE	DESCRIPTION	BY
	7/10/23	FOR BIDDING AND CONSTRUCTION	

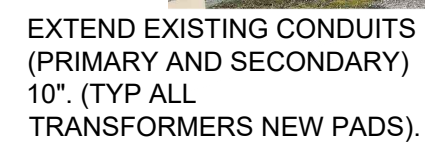
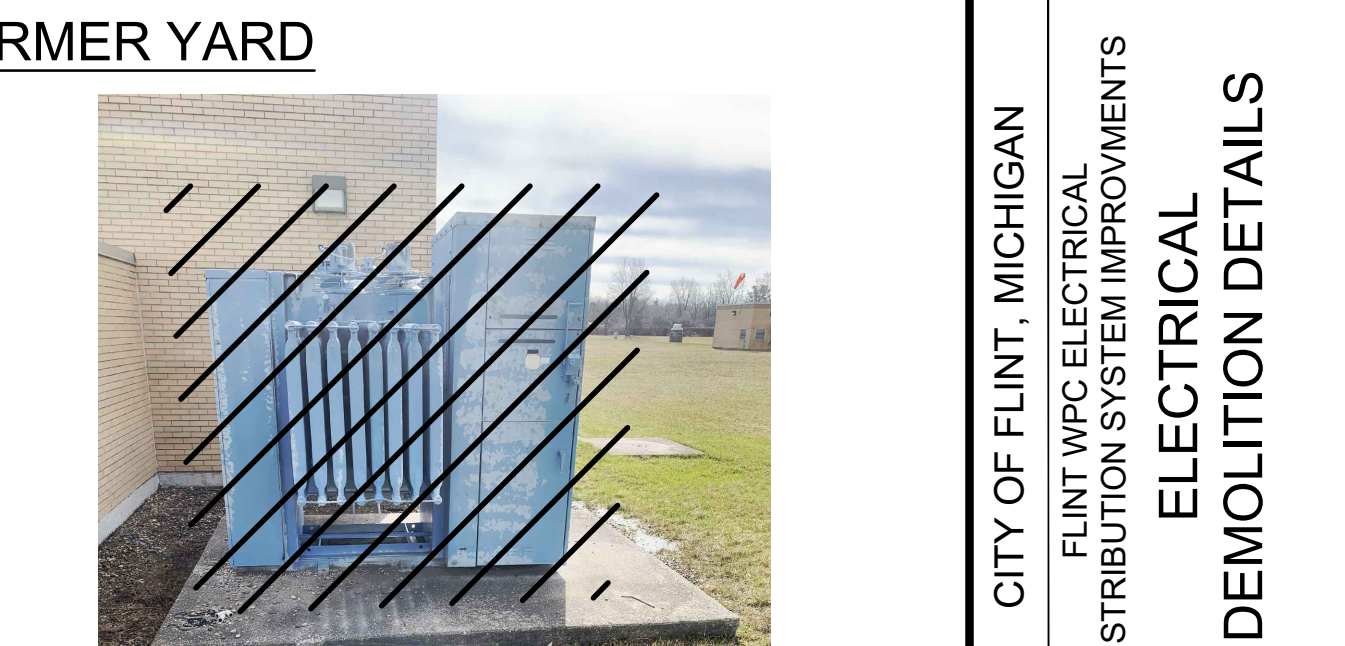
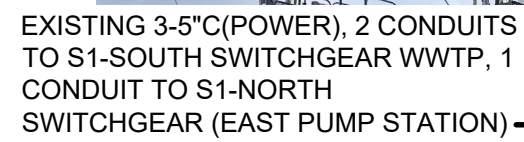
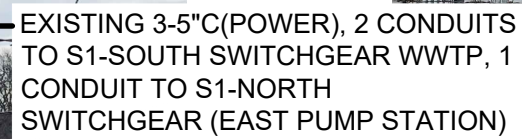
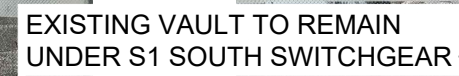
CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVMENTS
ELECTRICAL
DEMOLITION DETAILS

PROJ:	200-156238-23001
DESN:	G CJ
DRWN:	JLS
CHKD:	G CJ



1. CONTRACTOR SHALL INCLUDE IN BID TO FURNISH AND INSTALL NEW LUGS AND TERMINATION KITS ON ALL NEW AND ALL EXISTING MEDIUM VOLTAGE CABLES EACH END. FIELD VERIFY EXISTING MEDIUM VOLTAGE CABLE SIZE AND FURNISH NEW LUGS AND TERMINATION KITS.
2. NEW CABLES TO BE FIREWRAPPED WITHIN EXISTING VAULTS AND MANHOLES AND NEW MANHOLES.
3. INSTALL NEW GROUND MATS AS SHOWN FOR EACH NEW TRANSFORMER PAD AND FOR EACH NEW MAIN OUTDOOR SWITCHGEAR. SEE SITE PLAN(S) FOR PROPOSED GROUNDING REQUIREMENTS.

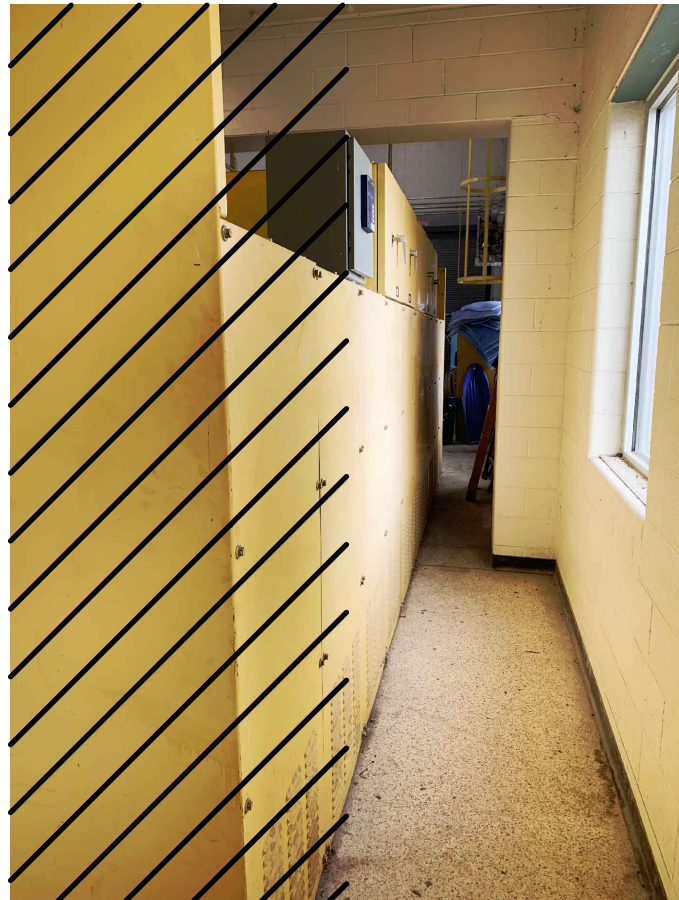
EXISTING VAULT TO REMAIN



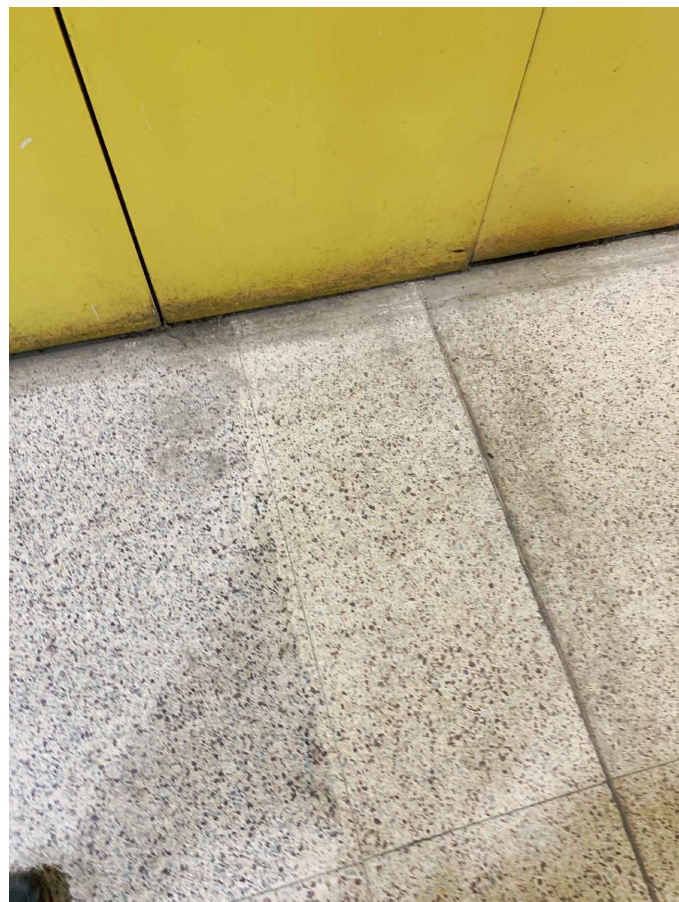
EAST PUMP STATION T1

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CITY OF FLINT, MICHIGAN	FLINT WPC ELECTRICAL DISTRIBUTION SYSTEM IMPROVEMENTS ELECTRICAL DEMOLITION DETAILS
PROJ:	200-156238-23001
DES:	GCJ
DRWN:	JLS
CHKD:	



S2 SWITCHGEAR WWTP



S2 SWITCHGEAR WWTP



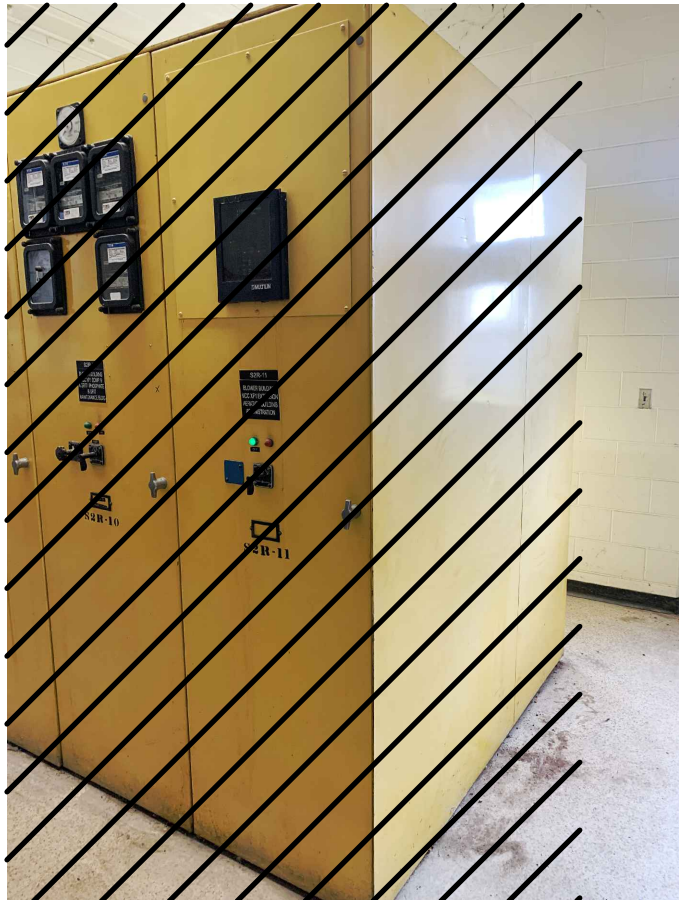
S2 SWITCHGEAR WWTP



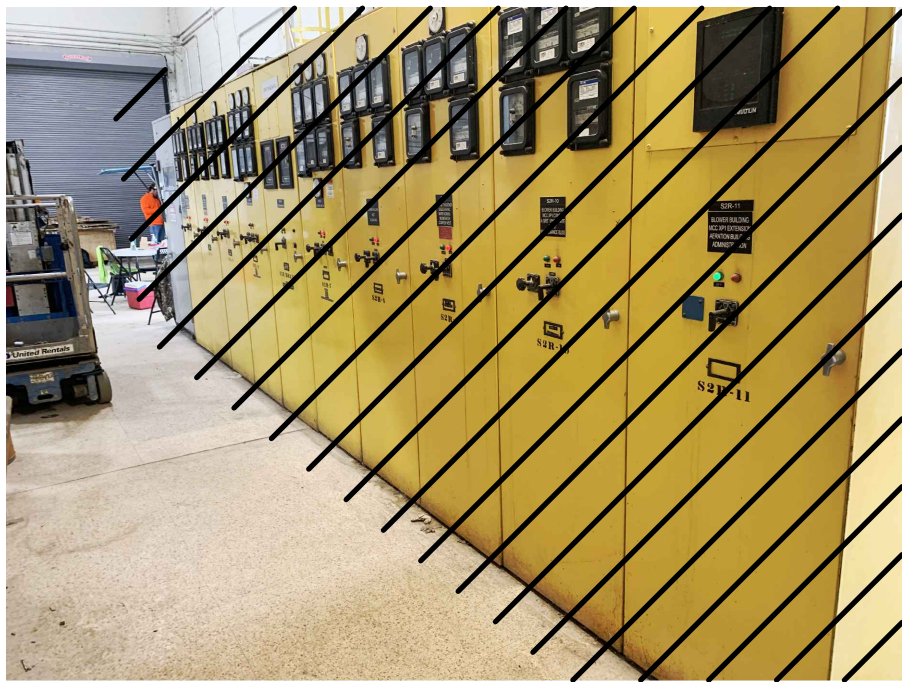
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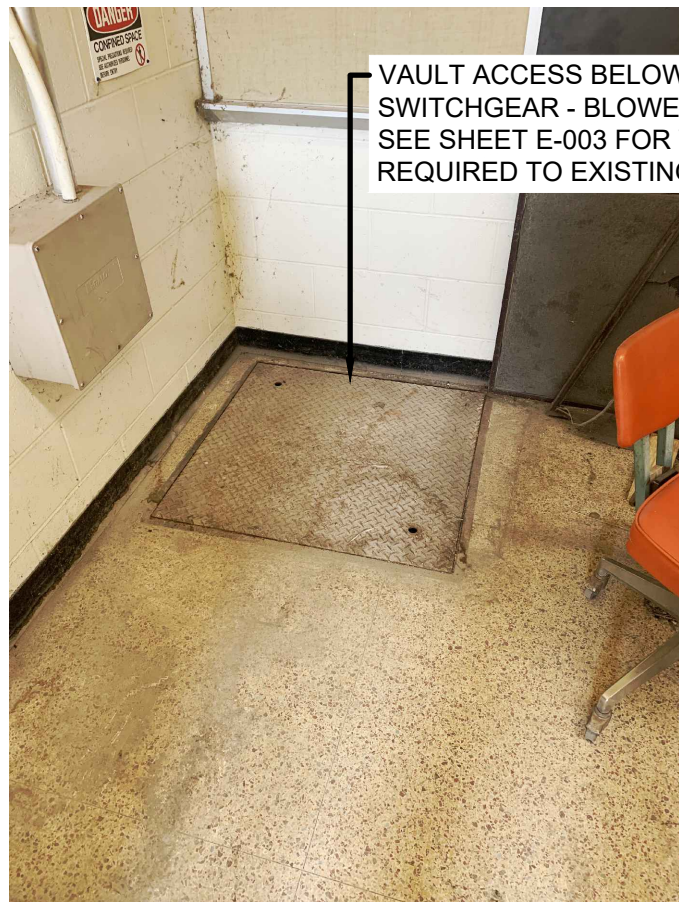
CONSUMERS ENERGY TRANSFORMER YARD CONSUMERS ENERGY TRANSFORMER YARD



S2 SWITCHGEAR WWTP



S2 SWITCHGEAR WWTP



S2 SWITCHGEAR WWTP

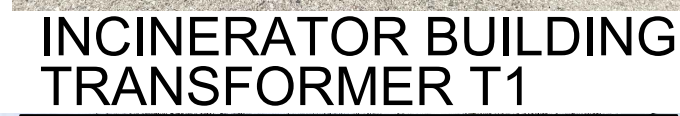


INCINERATOR BUILDING TRANSFORMER T2

INCINERATOR BUILDING TRANSFORMER T2



INCINERATOR BUILDING TRANSFORMER T2

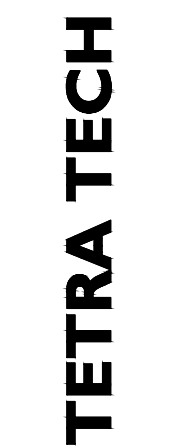


NORTHWEST PUMP STATION TRANSFORMER T2



NORTHWEST PUMP STATION TRANSFORMER T1





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CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
ELECTRICAL
SITE PLAN CONSUMERS ENERGY
YARD DEMOLITION

PROJ:	200-156238-23001
DESN:	GCJ
DRWN:	JLS
CHKD:	GCJ

E-010
OF 45

1. PLANT MUST REMAIN IN CONTINUOUS OPERATION THROUGHOUT THE ENTIRE CONSTRUCTION PROJECT.
2. CONTRACTOR TO FURNISH AND INSTALL A 480V 3 PHASE 1.5MW PORTABLE DIESEL GENERATOR TO POWER THE EAST LIFT STATION. FURNISH DIESEL FUEL AND CABLES AS REQUIRED TO POWER THIS STATION.
3. CONTRACTOR TO FURNISH AND INSTALL A 4160V 3 PHASE 2.5MW PORTABLE DIESEL GENERATOR TO POWER THE EXISTING S2 SWITCHGEAR INSIDE THE BLOWER BUILDING. FURNISH STEP UP TRANSFORMER, CABLES AND CONNECTORS AS REQUIRED.
4. REGARDING THE EXISTING OUTDOOR MAIN SWITCHGEAR LINE-UPS FOR THE EAST LIFT STATION AND THE BLOWER BUILDING, EACH LINE-UP HAS TWO SOURCES OF POWER THAT FEED EACH OUTDOOR LINE-UP. THE NEW OUTDOOR SWITCHGEAR WILL EACH HAVE BOTH SOURCES OF POWER SEPARATELY BETWEEN EACH NEW LINE-UP. WHEN ONE SOURCE OF UTILITY POWER IS SHUT OFF TO DO HALF THE WORK, BOTH SOURCES WILL HAVE TO BE INTERRUPTED TO ALLOW FOR THE WORK TO SEQUENCE TO EACH LINE-UP. PROVIDE GENERATOR AS REQUIRED. SEE SHEET E-003.
5. NEW CONDUITS, WIRES, AND RISER RACKS ARE TO BE INSTALLED FROM THE EXISTING CONSUMERS ENERGY YARD TO EACH NEW OUTDOOR LINE-UP (S1 NORTH SWITCHGEAR AND S1 SOUTH SWITCHGEAR). NEW PRIMARY CABLES ARE TO BE INSTALLED TO THE BLOWER BUILDING AND TO THE EAST LIFT STATION. NEW CONDUIT AND WIRES TO BE FURNISHED AND INSTALLED AS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND ON THE SITE PLAN.
6. FOR THE TRANSFORMER AT THE DIGESTER BUILDING, A 480V 3 PHASE 500KW PORTABLE DIESEL GENERATOR SHALL BE FURNISHED AND INSTALLED TO POWER THIS BUILDING DURING THE WORK ASSOCIATED WITH THIS TRANSFORMER REPLACEMENT. THIS BUILDING ONLY HAS ONE SOURCE OF POWER. PORTABLE GENERATOR SHALL REMAIN IN SERVICE UNTIL TRANSFORMER AND CONCRETE PAD IS REPLACED.
7. FOR THE OTHER PADMOUNT TRANSFORMERS, SUBSTATION STYLE TRANSFORMERS, AND DRY TYPE TRANSFORMERS ARE TO BE CHANGED OUT ONE AT A TIME. COORDINATE WITH OWNER ON SINGLE ENDING THE VARIOUS LOCATIONS AROUND THE PLANT. EVERY PLANT PROCESS WITH THE EXCEPTION OF THE DIGESTER PROCESS HAS TWO PADMOUNT TRANSFORMERS FOR POWERING THE PROCESS(ES). CHANGE OUT THE EXISTING TRANSFORMERS INCLUDING NEW CONCRETE PADS AS SHOWN ONE TRANSFORMER ONE TRANSFORMER AT A TIME.

1. ROUTE CONDUITS FROM OUTDOOR S1-NORTH AND S1 SOUTH HOUSE POWER TO MCC-XP1 IN BLOWER ROOM. CORE HOLES THRU TUNNEL WALL AND ROUTE CONDUITS FROM WITHIN TUNNEL TO EXISTING MOTOR CONTROL CENTER XP1 IN BLOWER ROOM. SEAL HOLES IN WALL WITH LIQUID SEAL AND MORTAR.
2. FIELD LOCATE AND SET/ARRANGE NEW SWITCHGEAR LINE-UPS S1-NORTH AND S1-SOUTH TO SUIT EXISTING AVAILABLE YARD SPACE. MAINTAIN PROPER CLEARANCES PER NEC.
3. INSTALL CONDUITS WITH MULTIMODE FIBER OPTIC CABLES FROM EACH OUTDOOR SWITCHGEAR LINE-UP S1-NORTH AND S1-SOUTH TO EXISTING OUTDOOR FIBER CONTROL PANEL FCP NO.1. WITHIN EXISTING FCP NO.1 FURNISH AND INSTALL A NEW SURFACE MOUNTED FIBER OPTIC PATCH PANEL AND TERMINATE THE TWO NEW 12 STRANDS FROM EACH NEW OUTDOOR LINE-UP TO NEW FIBER PATCH PANEL IN EXISTING FCP NO.1. INSTALL PATCH CABLES TO PATCH BETWEEN NEW FIBER PATCH PANEL AND EXISTING PATCH PANEL. WITHIN EXISTING BLOWER PROCESSOR PANEL(BPP) PATCH TO EXISTING NETWORK SWITCH TO SCADA SYSTEM.
4. FIELD LOCATE EXISTING DUCTBANK AND POUR NEW PAD(S) FOR S1-NORTH SWITCHGEAR, AND S1-SOUTH SWITCHGEAR ON TOP OF EXISTING DUCTBANK.
5. PROVIDE 480V 3 PHASE 100A CIRCUIT TO EACH PREFABRICATED SWITCHGEAR BUILDING S1-NORTH AND S1-SOUTH. EACH PREFABRICATED BUILDING TO BE FURNISHED WITH STEPDOWN TRANSFORMERS, PANELBOARDS AND WIRING AS REQUIRED.
6. WITHIN EXISTING MANHOLE FOR SWITCHGEAR LINE-UP S1-SOUTH DEMOLISH EXISTING CABLES, STRUT SUPPORT RACKS, HANGERS, ETC. WITHIN EXISTING VAULT INSTALL NEW 316 STAINLESS STEEL STRUT FROM FLOOR TO CEILING AND BRACKETS TO SUPPORT NEW CABLES SHOWN. FIBER WRAP ALL NEW CIRCUITS WITHIN EXISTING CABLE VAULT. CORE NEW HOLES WITHIN EXISTING VAULT WALL. SEAL EXISTING OPENINGS IN VAULT WALL(S) NO LONGER IN USE.
7. DEMOLISH EXISTING CABLES FROM EXISTING VAULT THRU EXISTING DUCTBANK TO SWITCHGEAR S2 LINE-UP IN BLOWER BUILDING. INSTALL NEW 8KV WIRES FOR EACH NEW SERVICE AS SHOWN THRU EXISTING DUCTBANK TO NEW BLOWER BUILDING SWITCHGEAR S2. WITHIN EXISTING MANHOLES BETWEEN LINE-UP S1-SOUTH AND S2 IN BLOWER BUILDING FIBER WRAP CABLES THAT PASS THRU EXISTING MANHOLES.
8. INSTALL NEW CABLES FOR EACH NEW SERVICE FROM NEW SWITCHGEAR S1-NORTH, AND S1-SOUTH TO TRANSFORMERS NO.1 AND NO.2 AT EAST PUMP STATION THRU EXISTING DUCTBANK TO EAST PUMP STATION.



CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
ELECTRICAL
SITE PLAN CONSUMERS ENERGY
YARD PROPOSED WORK

PROJ:	200-156238-23001
DESN:	GCJ
DRWN:	JLS
CHKD:	GCJ

E-011

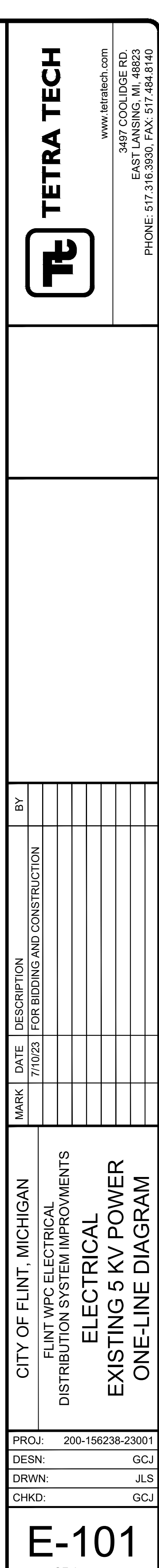
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CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL DISTRIBUTION SYSTEM IMPROVEMENTS
ELECTRICAL
SITE PLAN CONSUMERS ENERGY WARD GROUND MAT PROPOSED WORK

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DRWN:	JLS
CHKD:	GCJ







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CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
ELECTRICAL
EXISTING OVERALL POWER
ONE-LINE DIAGRAM

E-102

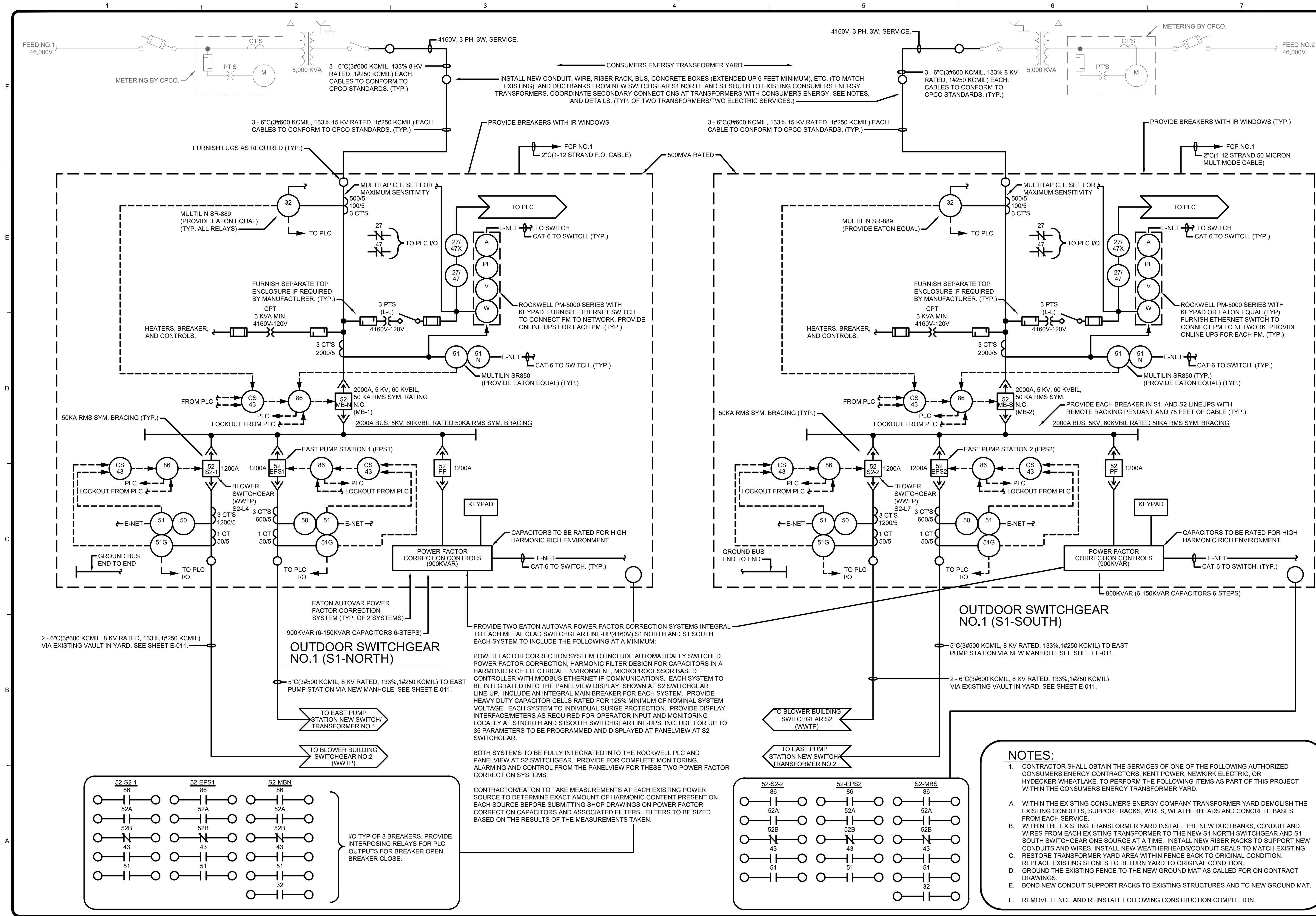


MEDIUM VOLTAGE SWGR (MVS)

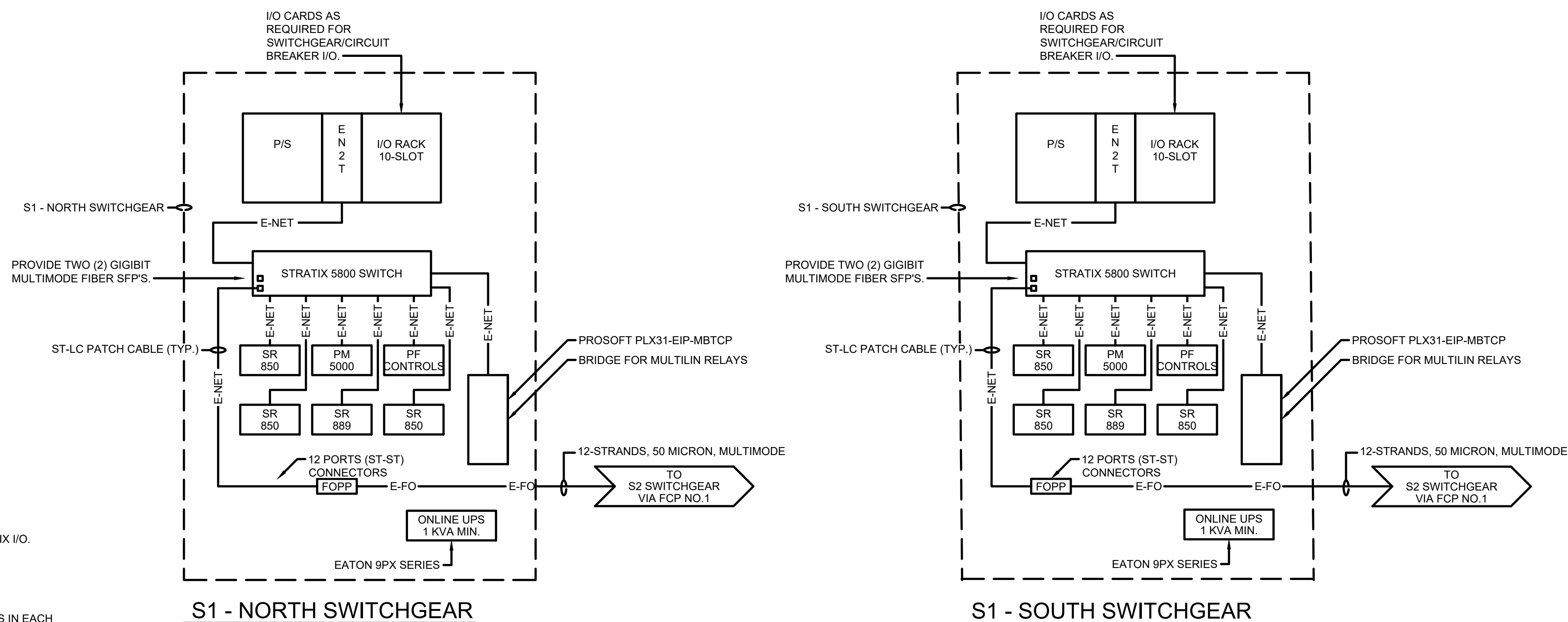
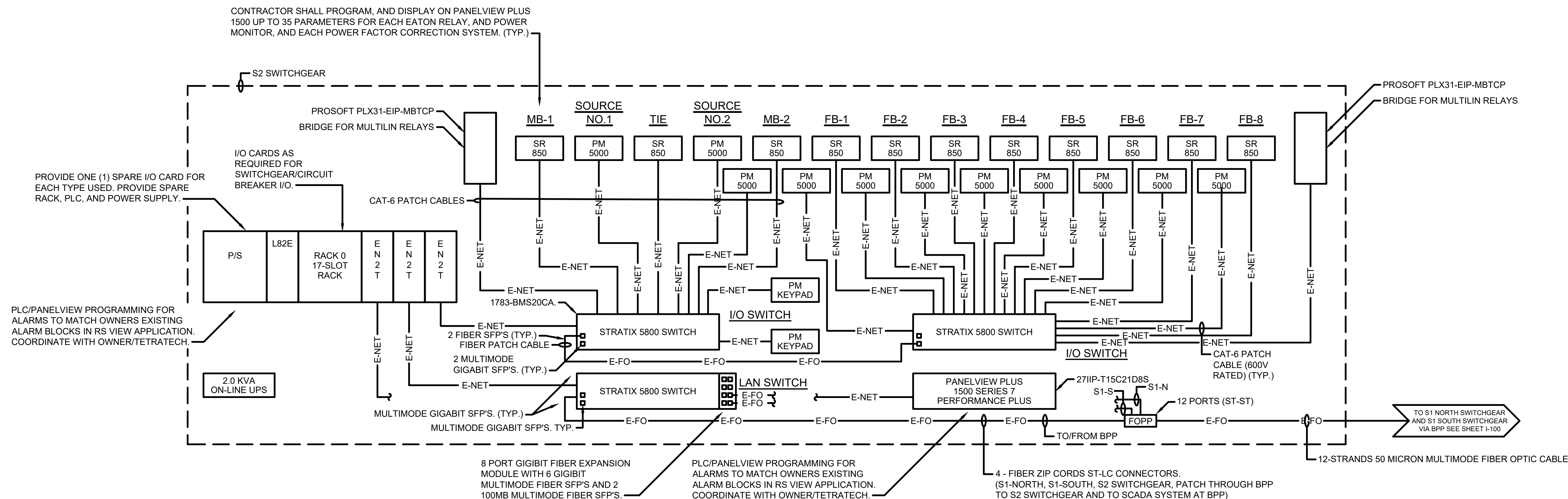


Bar Measures 1 inch, otherwise drawing not to scale

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MARK	DATE	DESCRIPTION	BY
	7/10/23	FOR BIDDING AND CONSTRUCTION	

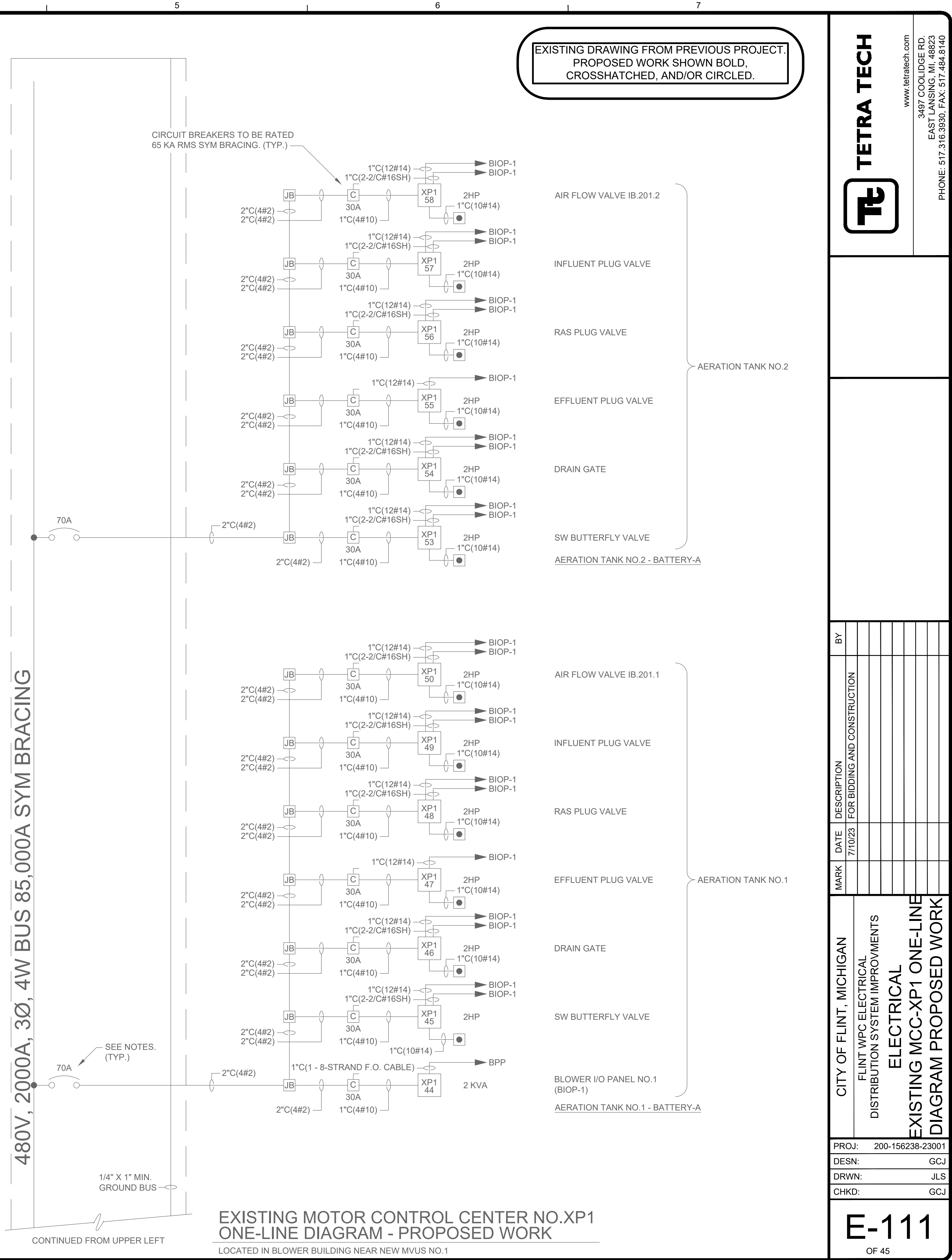


1. PLC HARDWARE SHALL BE ALLEN-BRADLEY CONTROL LOGIX, AS SHOWN.
2. PROVIDE 1756-TBE EXTENDED TERMINAL BLOCK HOUSINGS FOR CONTROL LOGIX I/O.
3. PROVIDE 1756-PA-75 POWER SUPPLIES FOR CONTROL LOGIX RACKS.
4. MOUNT PLC HARDWARE WITHIN SWITCHGEAR.
5. CONTRACTOR/SWITCHGEAR MANUFACTURER SHALL CONFIGURE THE SETTINGS IN EACH PROTECTIVE RELAY, AND PLC SHOWN FOR PROTECTION. CONFIGURE THE SETTINGS IN THE MAIN-TIE-MAIN BREAKER PROTECTION RELAYS AT S2 SWITCHGEAR (PER THE COORDINATION STUDY), AND THE POWER MONITORS DOWNLOAD CONFIGURATION FILES, AND DOCUMENT SETTINGS ON PDF, AND TURN OVER TO OWNER ELECTRONIC COPIES OF FILES. ALSO ASSUME FOR 35 PARAMETERS TO BE CONFIGURED PER MULTILIN RELAY, POWER MONITOR, AND DISPLAYED AT PV-1500 BY CONTRACTOR/SWITCHGEAR MANUFACTURER.
6. COORDINATE IP ADDRESSES WITH OWNER/ENGINEER.
7. INTEGRATION OF SWITCHGEAR TO EXISTING PLANT SCADA SYSTEM BY TETRATECH.
8. CONTRACTOR TO CONFIGURE SWITCHGEAR SYSTEM CONFIGURATION SHOWN ON A SEPARATE VLAN. COORDINATE IP ADDRESSES, AND NETWORK REQUIREMENTS WITH OWNER/ENGINEER.

S1 AND S2 SWITCHGEAR SYSTEM CONFIGURATION DRAWING

[illegible]

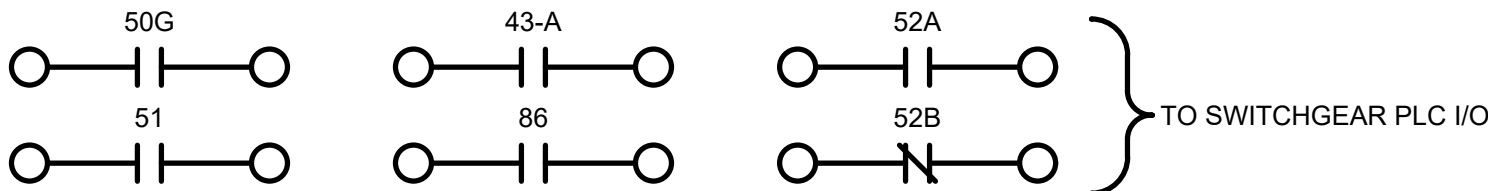
CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
ELECTRICAL
EQUIPMENT BUILDING
S3 SWITCHGEAR ONE-LINE DIAGRAM



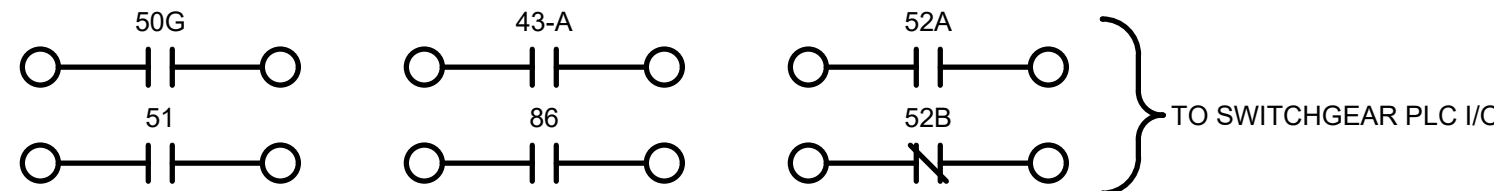




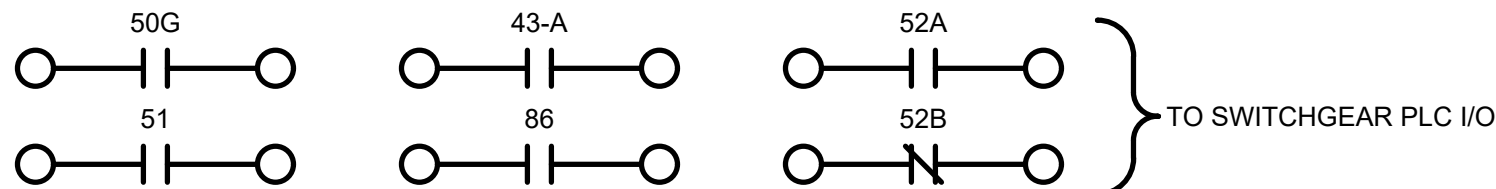




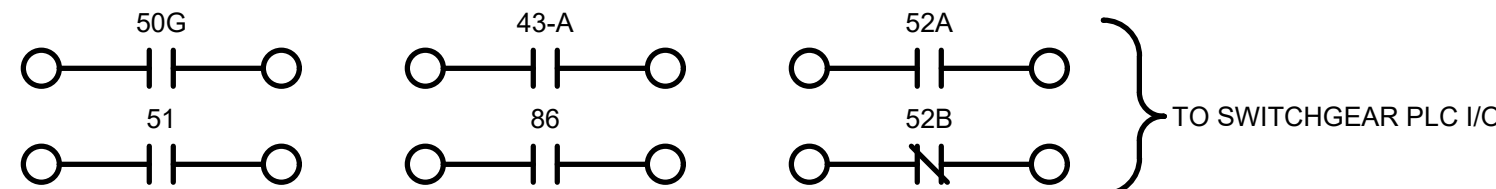
(NOT ALL 52 BREAKER DEVICES ARE SHOWN.)



(NOT ALL 52 BREAKER DEVICES ARE SHOWN.)



(NOT ALL 52 BREAKER DEVICES ARE SHOWN.)



(NOT ALL 52 BREAKER DEVICES ARE SHOWN.)



S2 SWITCHGEAR FEEDER BREAKER FB-6 PARTIAL WIRING DIAGRAM

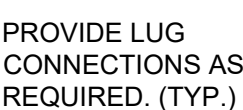
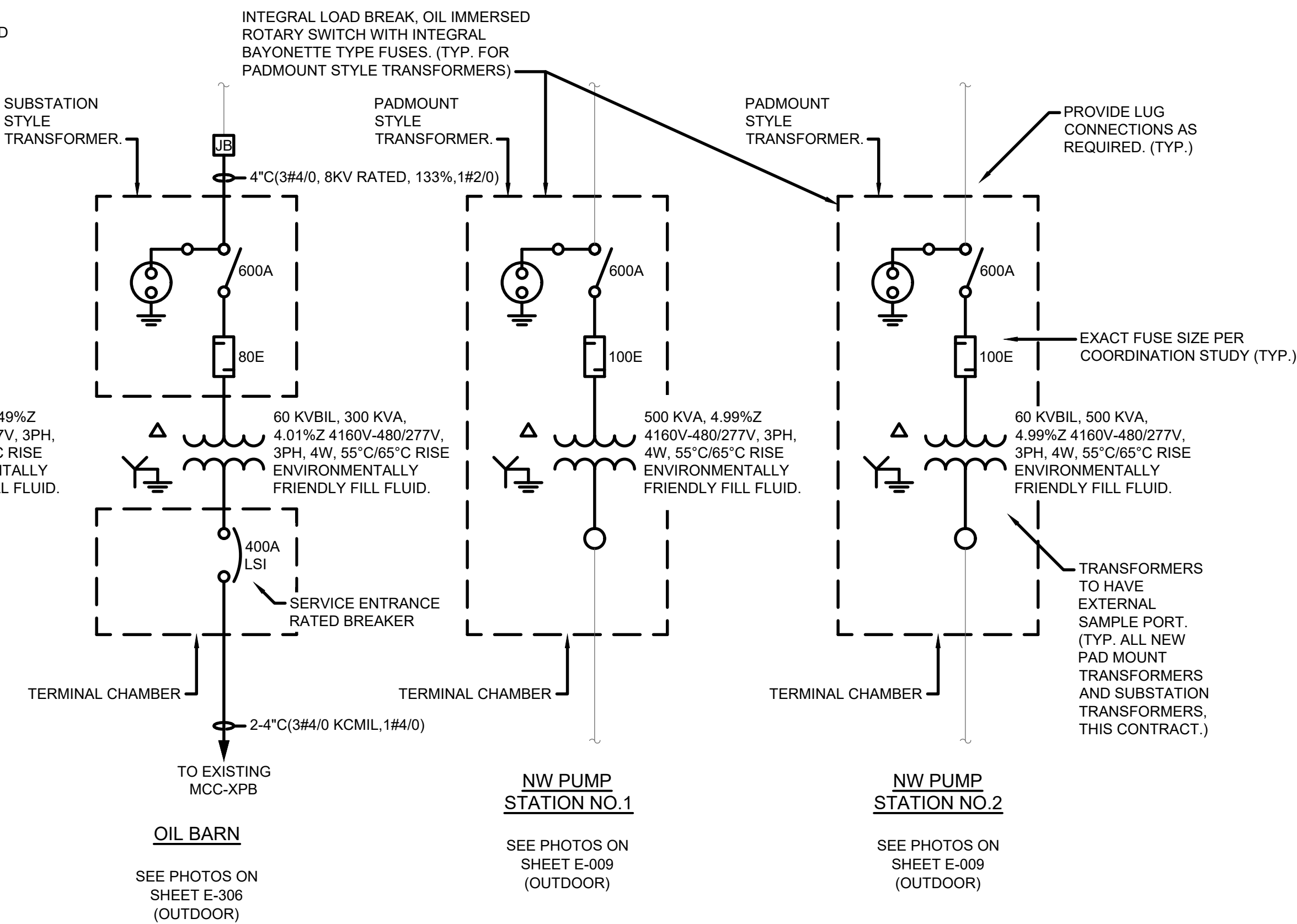
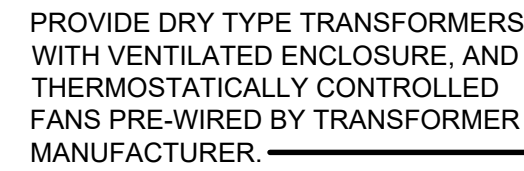
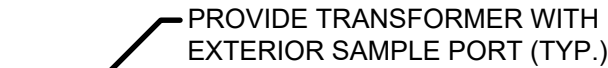
S2 SWITCHGEAR FEEDER BREAKER FB-7 PARTIAL WIRING DIAGRAM

S2 SWITCHGEAR FEEDER BREAKER FB-8 PARTIAL WIRING DIAGRAM

Bar Measures 1 inch, otherwise drawing not to scale

1. FOR THE NEW TRANSFORMER PADS SHOW TO BE INSTALLED, NEW PAD TO BE 10 INCHES ABOVE GRADE. INSTALL NEW PVC SLEEVES ON EXISTING CONDUITS TO EXTEND THROUGH NEW PADS. ASSUME EXISTING CONDUIT SIZE TO BE 5 INCH. TYPICAL.
2. ARRANGE PRIMARY SWITCH/TRANSFORMER LINE-UPS LEFT TO RIGHT AND RIGHT TO LEFT TO MATCH EXISTING SWITCH AND TRANSFORMER ARRANGEMENTS. COORDINATE PHYSICAL ARRANGEMENT TO MATCH EXISTING FIELD ARRANGEMENTS. SEE PICTURES ON SHEETS E-006 THROUGH E-009 FOR ADDITIONAL INFORMATION.

DIGESTER- 12 FEET BY 12 FEET
SLUDGE THICKENING- 12 FEET BY 12 FEET
EAST PUMP STATION- 12 FEET BY 12 FEET. TYPICAL OF 2 PADS.
FLINT 3" AVERAGE PUMP STATION- 17 FEET WIDE BY 33 FEET LONG. TYPICAL OF 2 PADS.
INSTALL 1" AVERAGE SUMP EACH PAD WITH SWING GATE. TYPICAL FOR EACH PAD.
NORTHWEST PUMP STATION- 12 FEET BY 12 FEET. TYPICAL OF 2 PADS.
OIL BARN- 12 FEET BY 12 FEET
INCINERATOR/DEWATERING- 12 FEET WIDE BY 45 FEET LONG(ONE PAD FOR BOTH TRANSFORMERS). NOTE: REMOVE EXISTING FENCE AND REINSTALL EXISTING FENCE FOLLOWING REMOVAL AND INSTALLATION OF NEW SUBSTATION STYLE TRANSFORMERS/SWITCHES.

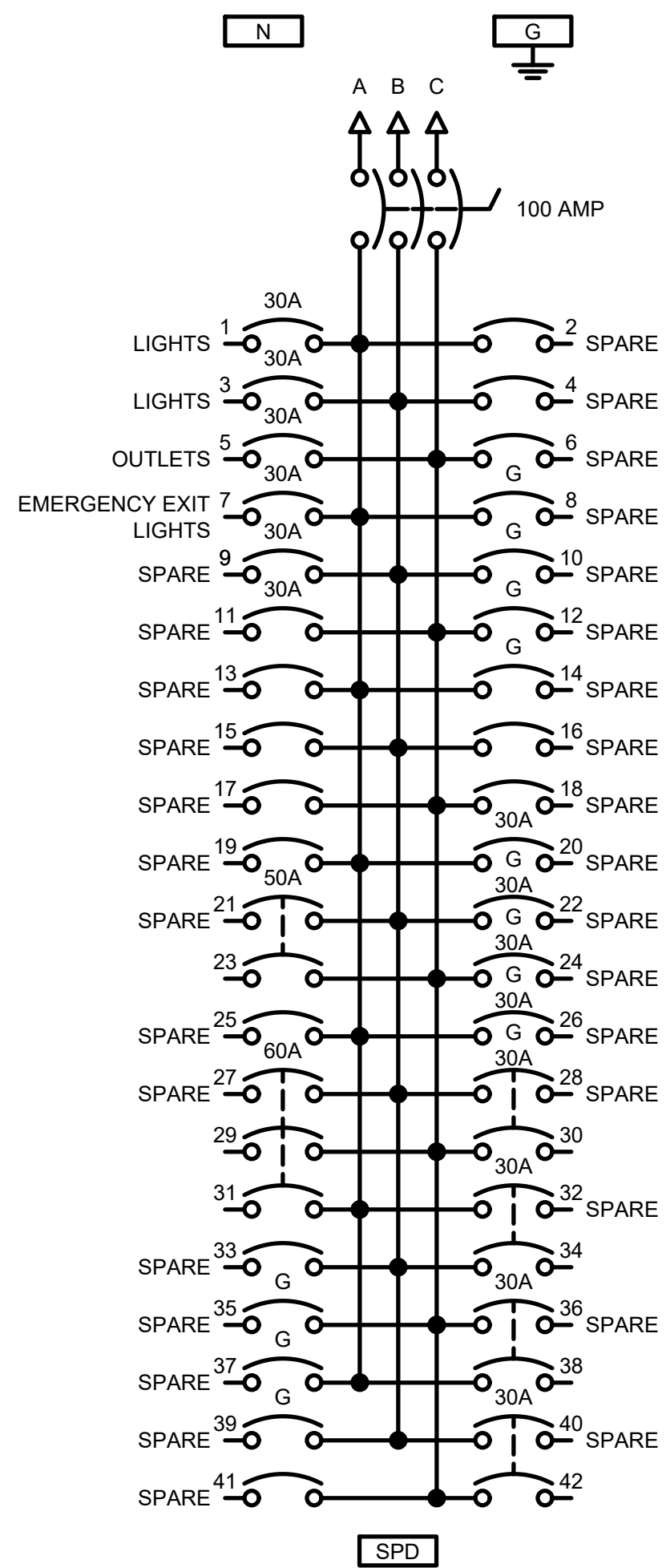


CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
ELECTRICAL
TRANSFORMERS
PROPOSED WORK

E-205
OF 45



LOCATION:
VOLTAGE: 120/208V, 3 PH, 60 HZ
BUS RATING: 225A

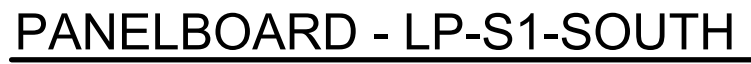


120/208V 3PH 42CKTS

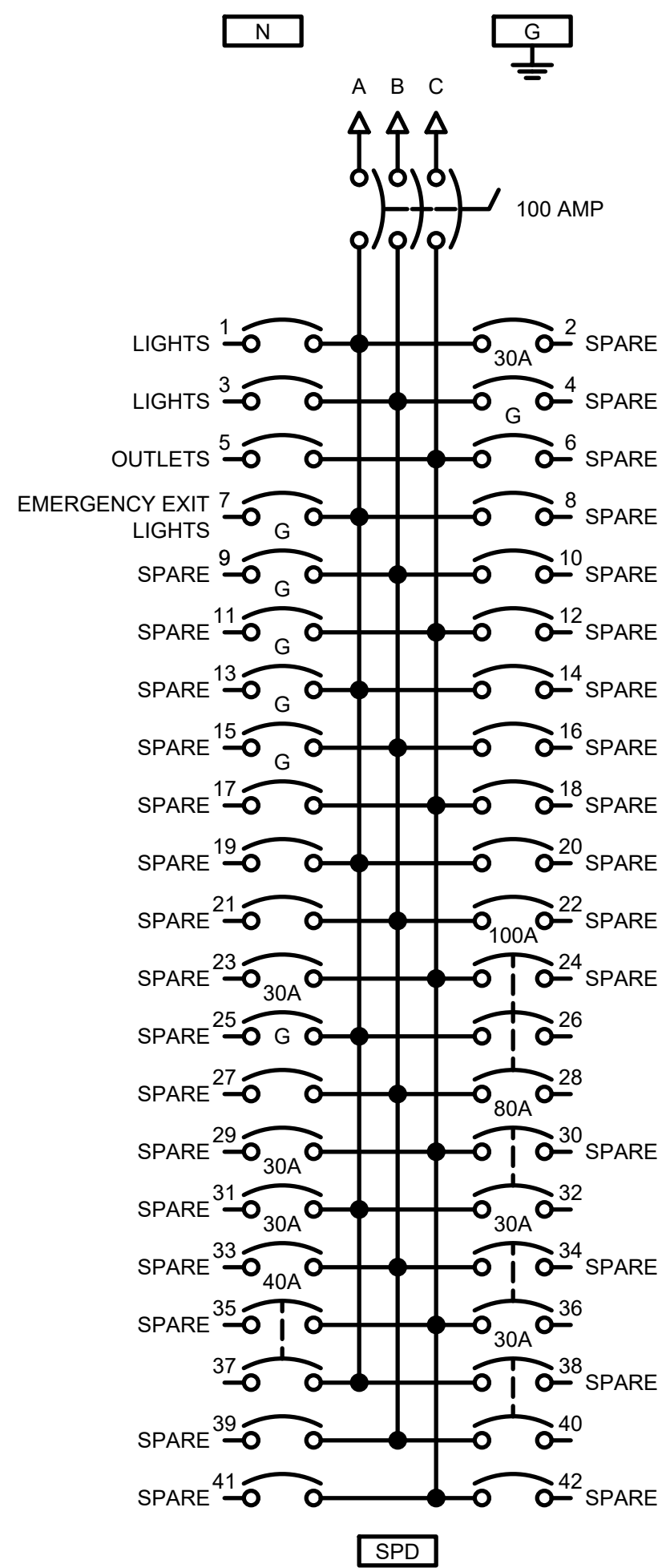
LP-S1-NORTH - BY SWITCHGEAR
MANUFACTURER

NEMA 12 ENCLOSURE
LOCATED IN SWITCHGEAR,
ELECTRICAL BUILDING

PROVIDE PANELBOARDS WITH TRANSIENT VOLTAGE SURGE PROTECTIONS. (TYP.)



LOCATION:
VOLTAGE: 120/208V, 3 PH, 60 HZ
BUS RATING: 225A



120/208V 3PH 42CKTS

LP-S1-SOUTH - BY SWITCHGEAR
MANUFACTURER

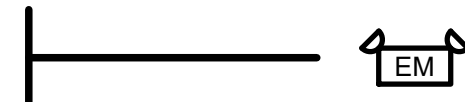
NEMA 12 ENCLOSURE
LOCATED IN SWITCHGEAR
ELECTRICAL BUILDING

PROVIDE PANELBOARDS WITH TRANSIENT VOLTAGE SURGE PROTECTIONS. (TYP.)

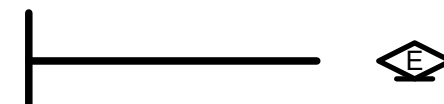
CIRCUITS BY SWITCHGEAR MANUFACTURER/PREFABRICATED BUILDING MANUFACTURER. CONNECT NEW CIRCUITS FOR EXISTING GENERATOR NO.3 BATTERY CHARGER, ENGINE GENERATOR CONTROL PANEL, AND BLOCK HEATER.

ALL BREAKERS 20 AMP, 1P
UNLESS NOTED OTHERWISE

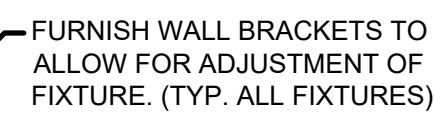
G - GFI
L - LOCKABLE



LITHONIA ELM2-LED, 120V AC POWERED,
WHITE HOUSING. NEMA 12, NEMA 4 AREAS.
PROVIDE WITH BATTERIES.



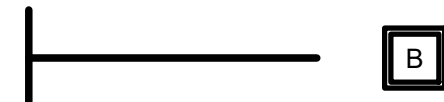
HUBBELL DUAL LITE SEWL SERIES SRWE4X, 120V AC, NEMA 4/4X RATED, AND SUITABLE FOR INSTALLATION IN WET LOCATIONS. NEMA 12, NEMA 4 AREAS. PROVIDE WITH BATTERIES.



— FURNISH WALL BRACKETS TO ALLOW FOR ADJUSTMENT OF FIXTURE. (TYP. ALL FIXTURES)



LITHONIA LED STRIP LIGHT - 120V AC, NEMA 4 RATED
IN-LINE FUSING, ASYMETRIC LITHONIA - VAP LED, 114
WATTS, WET LOCATION FITTING AS REQUIRED, WITH
SURFACE MOUNT BRACKETS, COVER, AND GUARD AS
REQUIRED, OR CREE EQUIVALENT.



PROVIDE THE APPROPRIATE FIXTURE
MODEL NUMBER AS REQUIRED TO SUIT THE
DESCRIPTION, AND APPLICATION SHOWN.
THIS REQUIREMENT IS TYPICAL FOR ALL
FIXTURE MODEL NUMBERS SHOWN. _____



LED PERIMETER WALL PAK - 120V AC, NEMA 4 RATED, HUBBEL LNC2-48L-35-5K7-4W-120-DBT-EH. PROVIDE WITH INTEGRAL PHOTOCCELL, LIGHT POLLUTION SHIELD, AND BATTERY BACKUP. BATTERY BACK-UP ONLY REQUIRED AT EXTERIOR DOOR LOCATIONS.

SMOKE DETECTOR SD-X

JOHNSON CONTROLS 24V DC SMOKE DETECTOR WITH
FORM C CONTACT 4098-9601-SMOKE DETECTOR
4098-9682-DETECTOR BASE.

X = IDENTIFICATION NUMBER

FIXTURE SCHEDULE - PREFABRICATED SWITCHGEAR BUILDING (S1-NORTH AND S1-SOUTH)

MARK	DATE	DESCRIPTION FOR BIDDING AND CONSTRUCTION	BY
	7/10/23		

CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
ELECTRICAL
PANELBOARD, AND
FIXTURE SCHEDULES

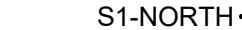
PROJ: 200-156238-23001

DESN:	GCJ
-------	-----

DRWN: JLS

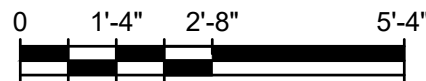
E-206

OF 45

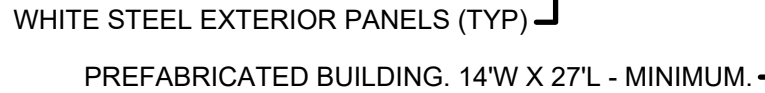


SCALE: 3/8"=1'-0"
NEMA 12 AREA

COORDINATE EXACT DIMENSIONS WITH MANUFACTURER.

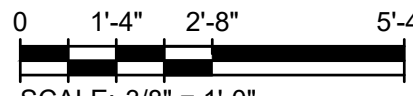
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CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
ELECTRICAL
S1 SWITCHGEAR BUILDING
BACKGROUND PLAN PROPOSED WORK



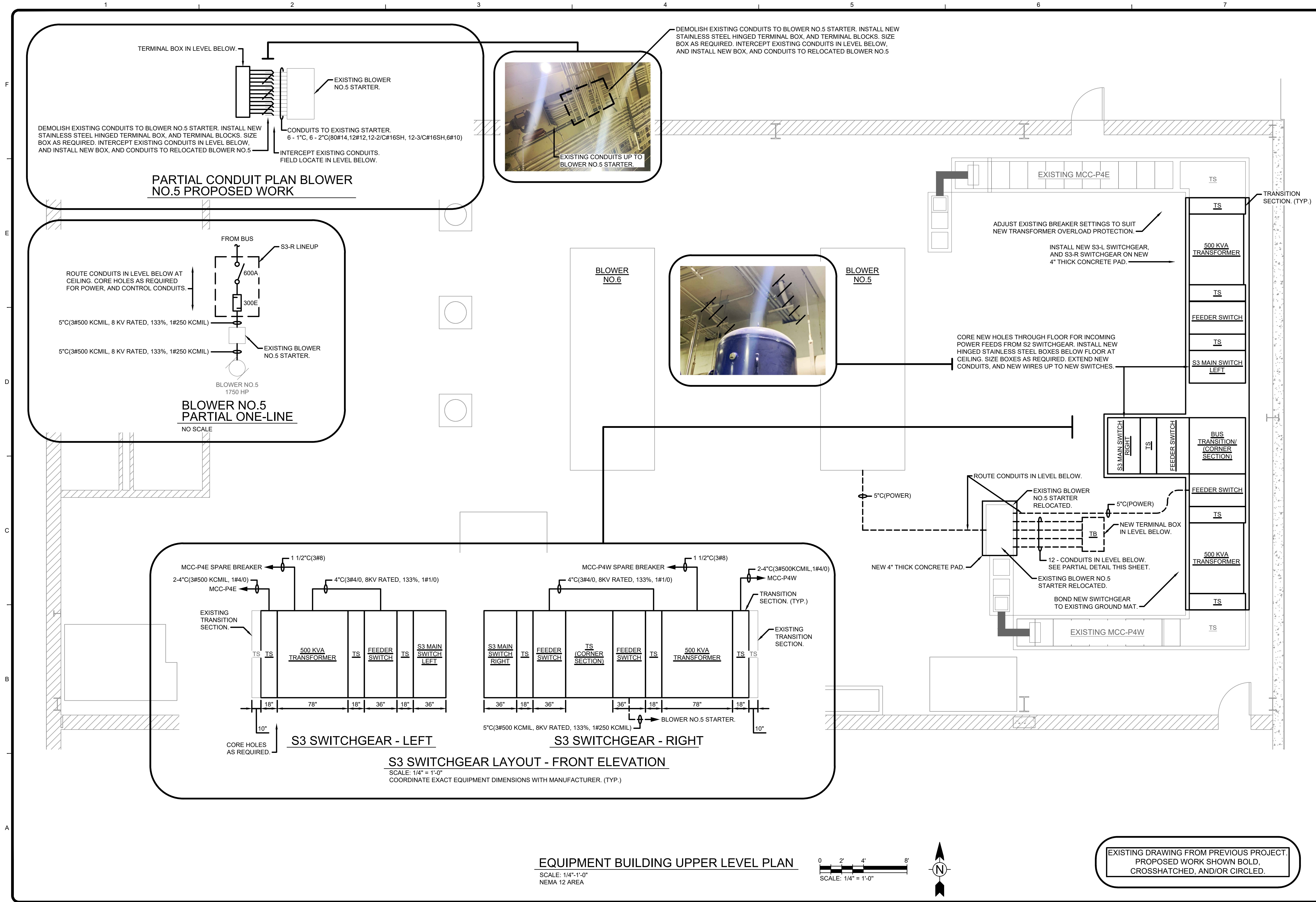
SCALE: 3/8"=1'-0"
NEMA 12 AREA

COORDINATE EXACT DIMENSIONS WITH MANUFACTURER.



PROJ:	200-156238-23001
DESN:	GCJ
DRWN:	JLS
CHKD:	GCJ

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www.tetratech.com
3497 COOLIDGE RD.
EAST LANSING, MI 48823
PHONE: 517.316.3930, FAX: 517.484.8140

MARK	DATE	DESCRIPTION FOR BIDDING AND CONSTRUCTION	BY
	7/10/23		

CITY OF FLINT, MICHIGAN	PROJ: 200-156238-23001
FLINT WPC ELECTRICAL	DESN: GCJ
DISTRIBUTION SYSTEM IMPROVEMENTS	DRWN: JLS
ELECTRICAL	CHKD: GCJ
EXISTING EQUIPMENT BUILDING	
UPPER LEVEL PLAN PROPOSED WORK	



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[illegible]

CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
ELECTRICAL
OIL BARN PLANS
PROPOSED WORK

PROJ:	200-156238-23001
DESN:	GCJ
DRWN:	JLS
CHKD:	GCJ

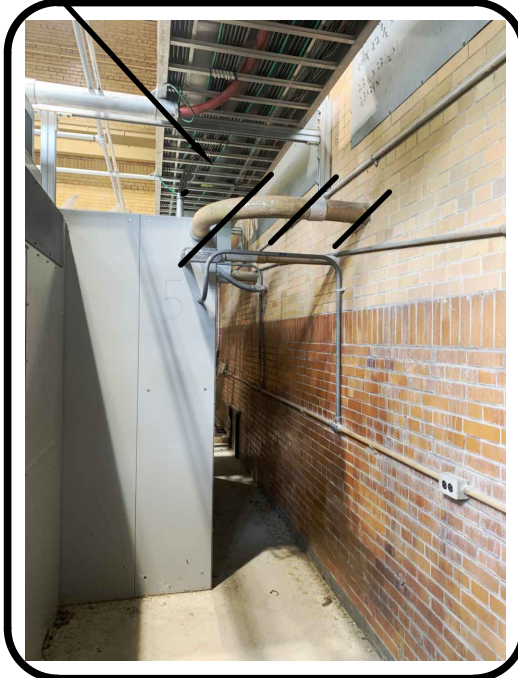
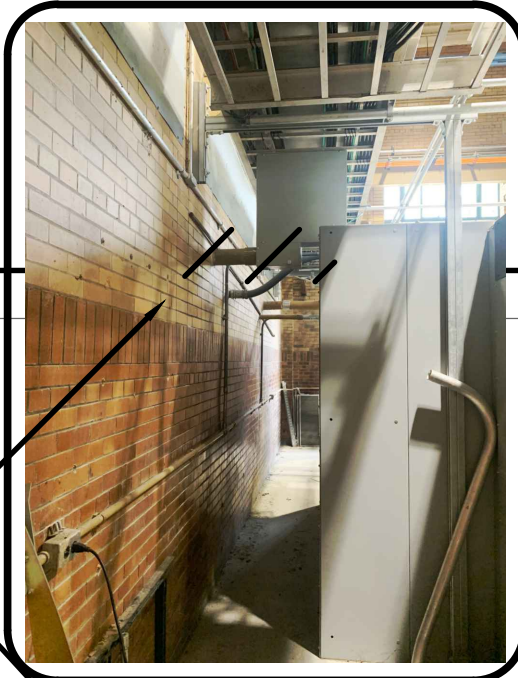
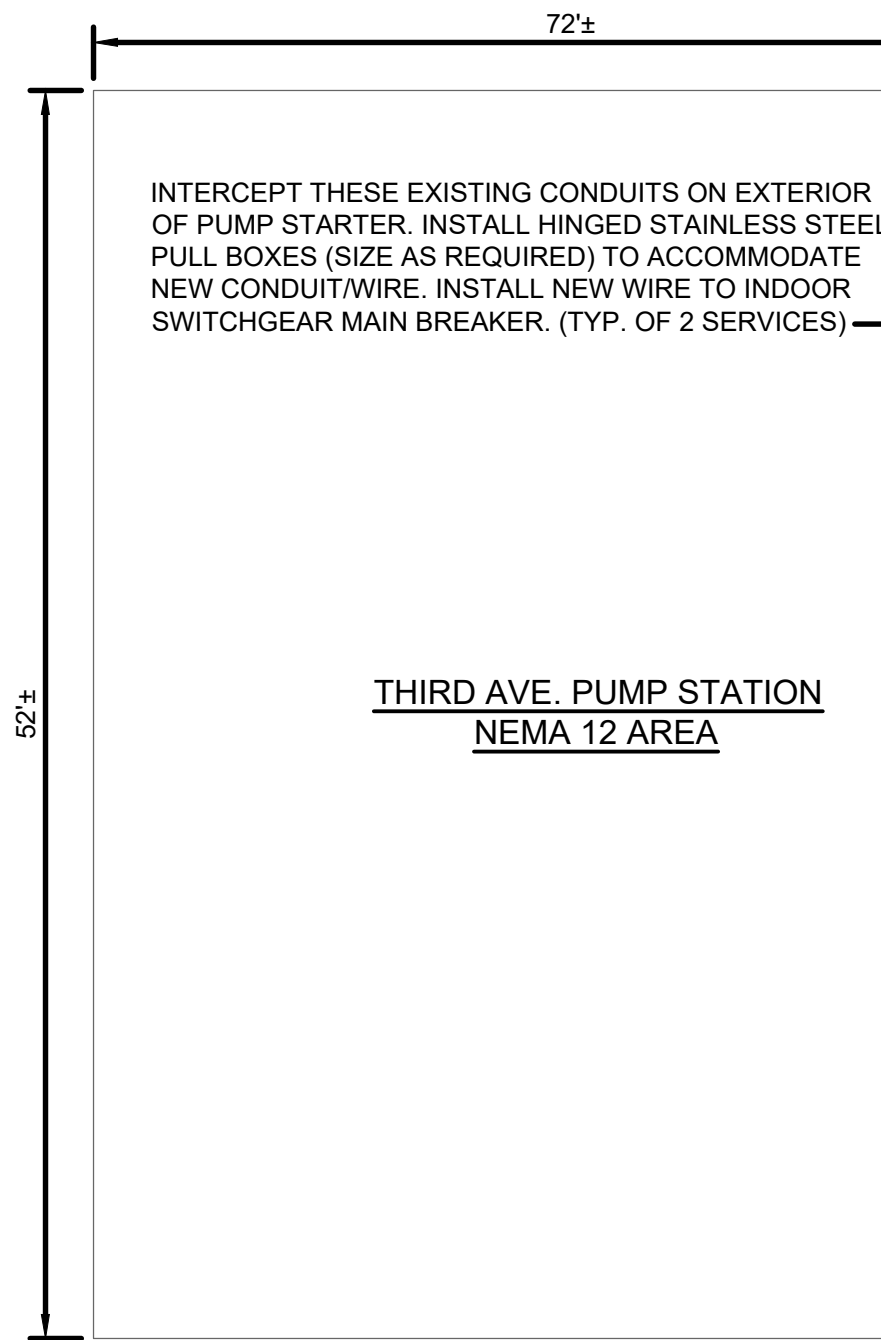
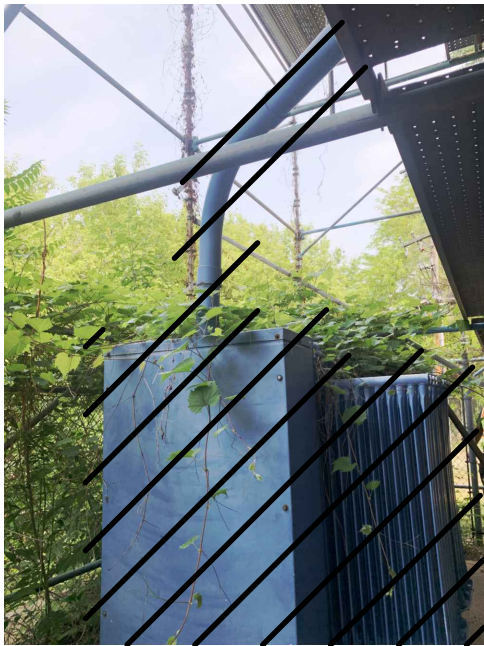
E-306
OF 45

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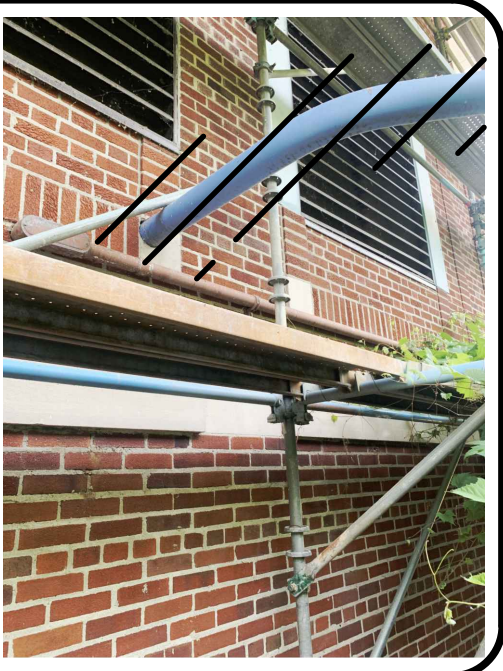
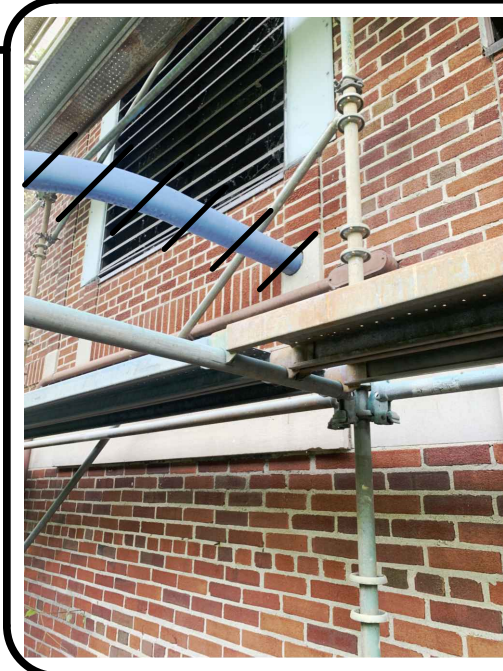
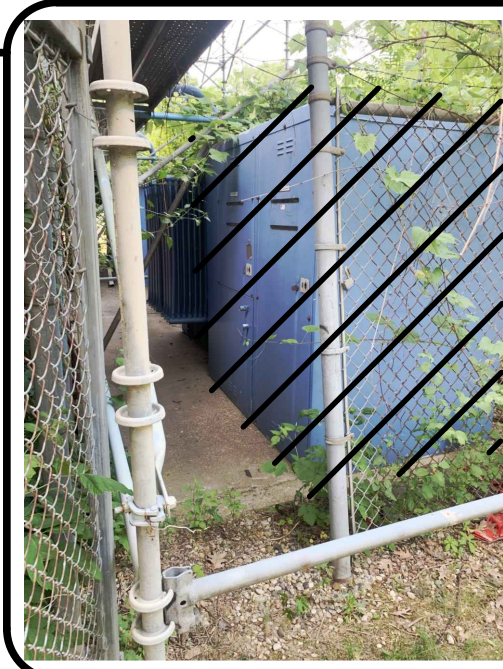
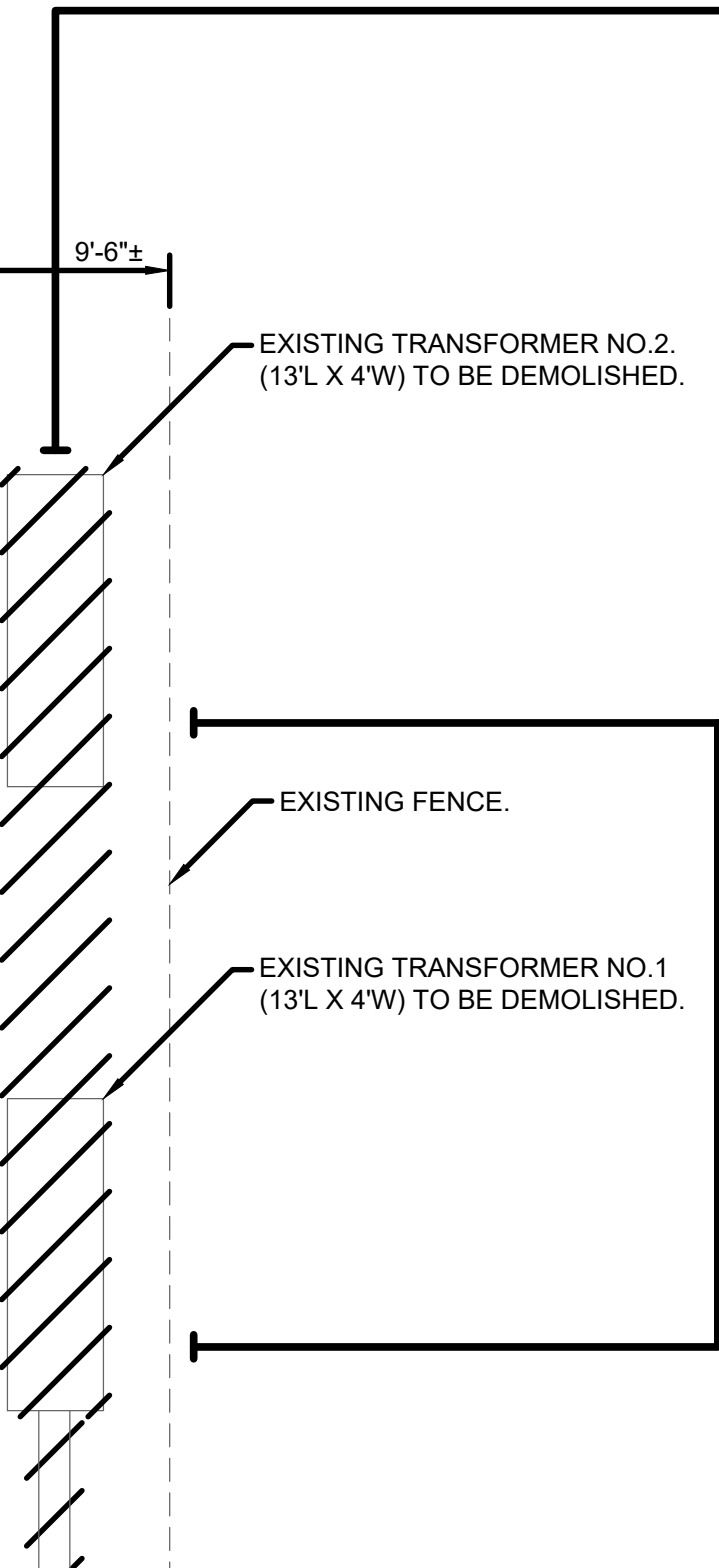
Bar Measures 1 inch, otherwise drawing not to scale

7/7/2023 9:55:29 AM - C:\PROJECTS\LANSGIER\156238\200-156238-23001\CAD\SHEETFILES\E-307_3RD AVE PS_DEMO.DWG - MELLING, VICKIE

F
E
D
C
B
A



EXISTING SWITCHGEAR - THIS AREA. SEE SHEET E-103 FOR ADDITIONAL INFORMATION.



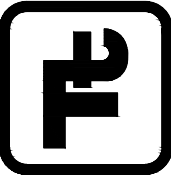
DEMOLISH EXISTING TREES AND STUMPS TO SUIT NEW CONCRETE EQUIPMENT PADS.

EXISTING PAVED DRIVEWAY.

EXISTING SIDEWALK

EXISTING TREES TO BE DEMOLISHED.

EXISTING CPCO POLES.



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PHONE: 517.316.3930, FAX: 517.484.8140

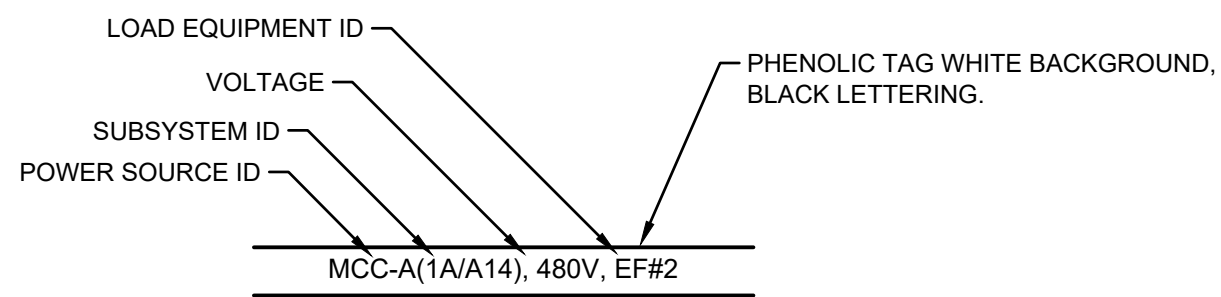
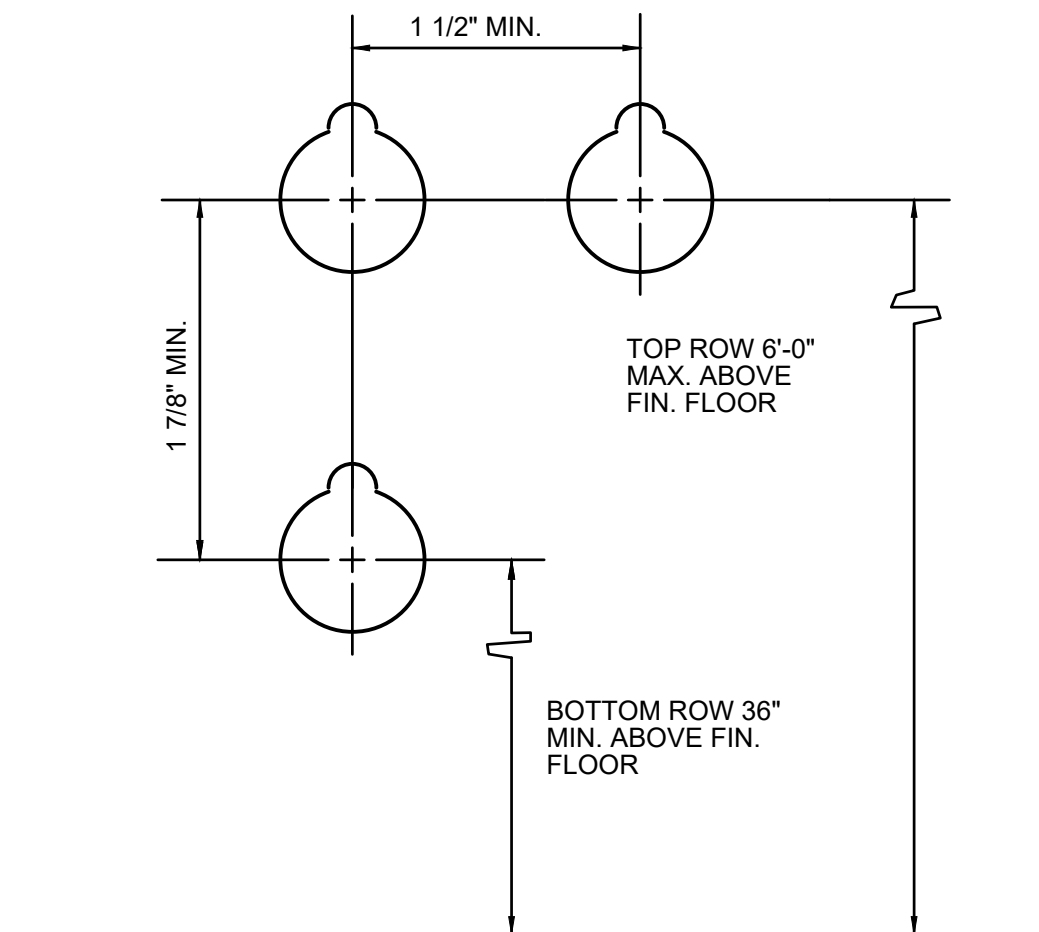
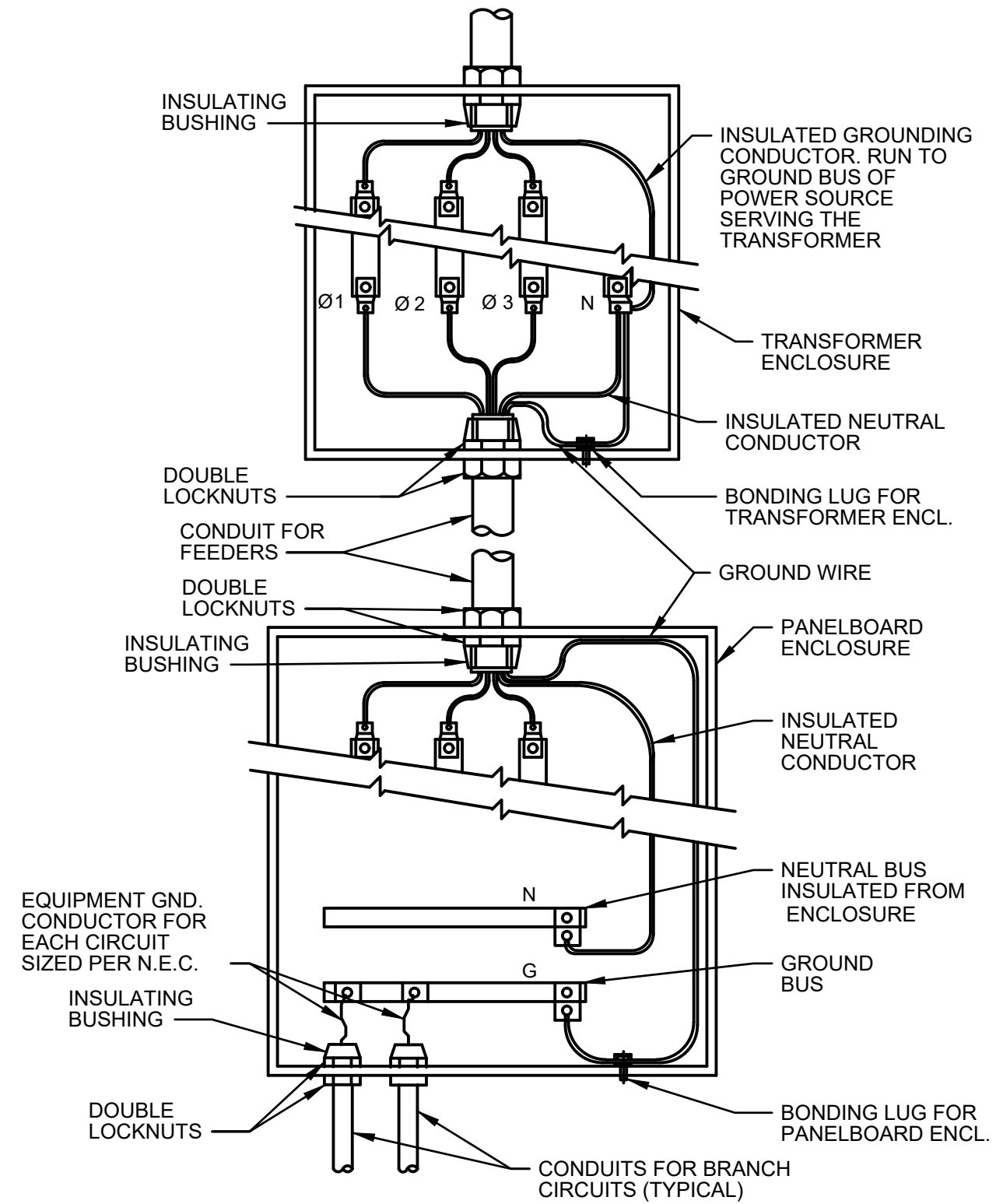
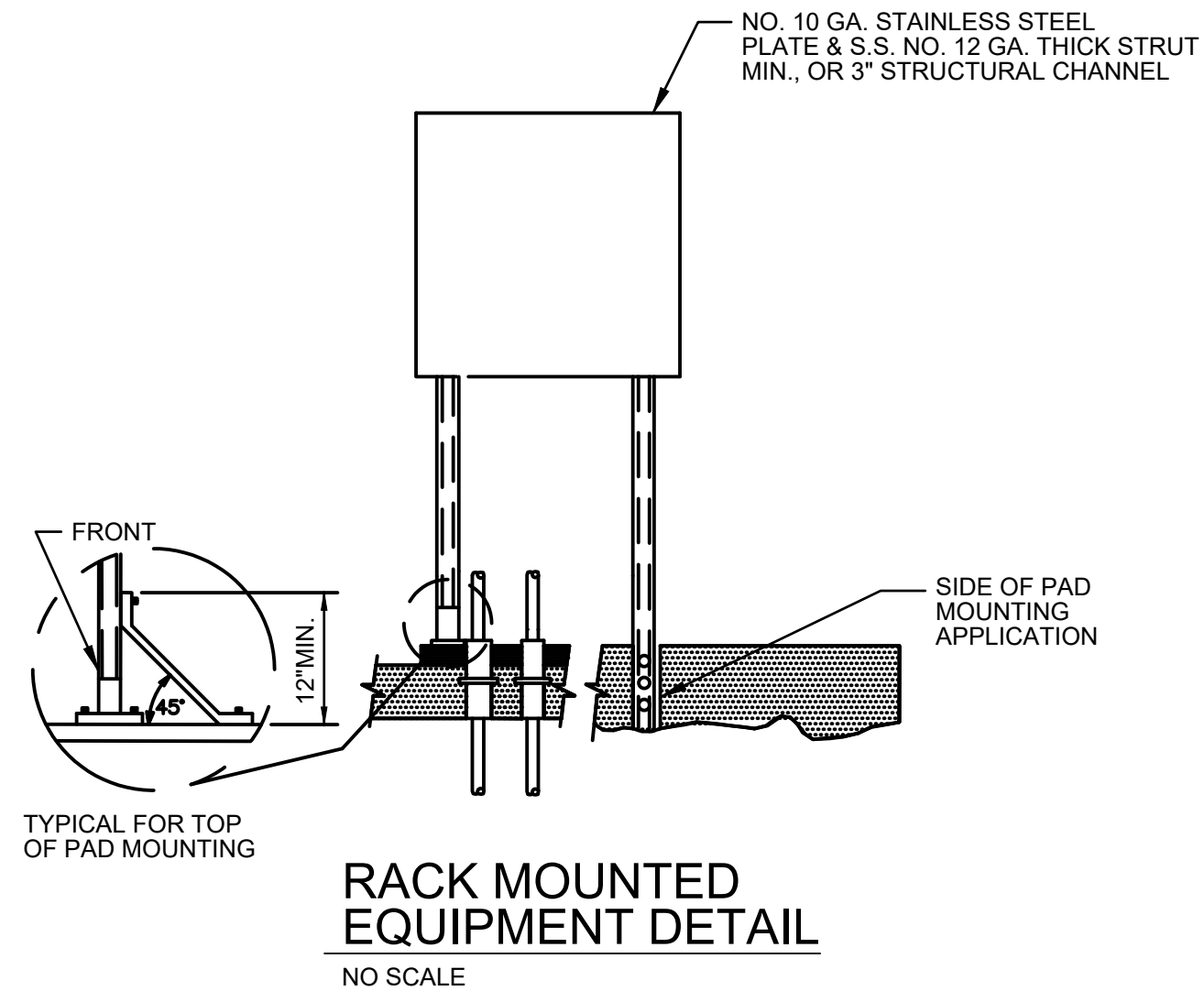
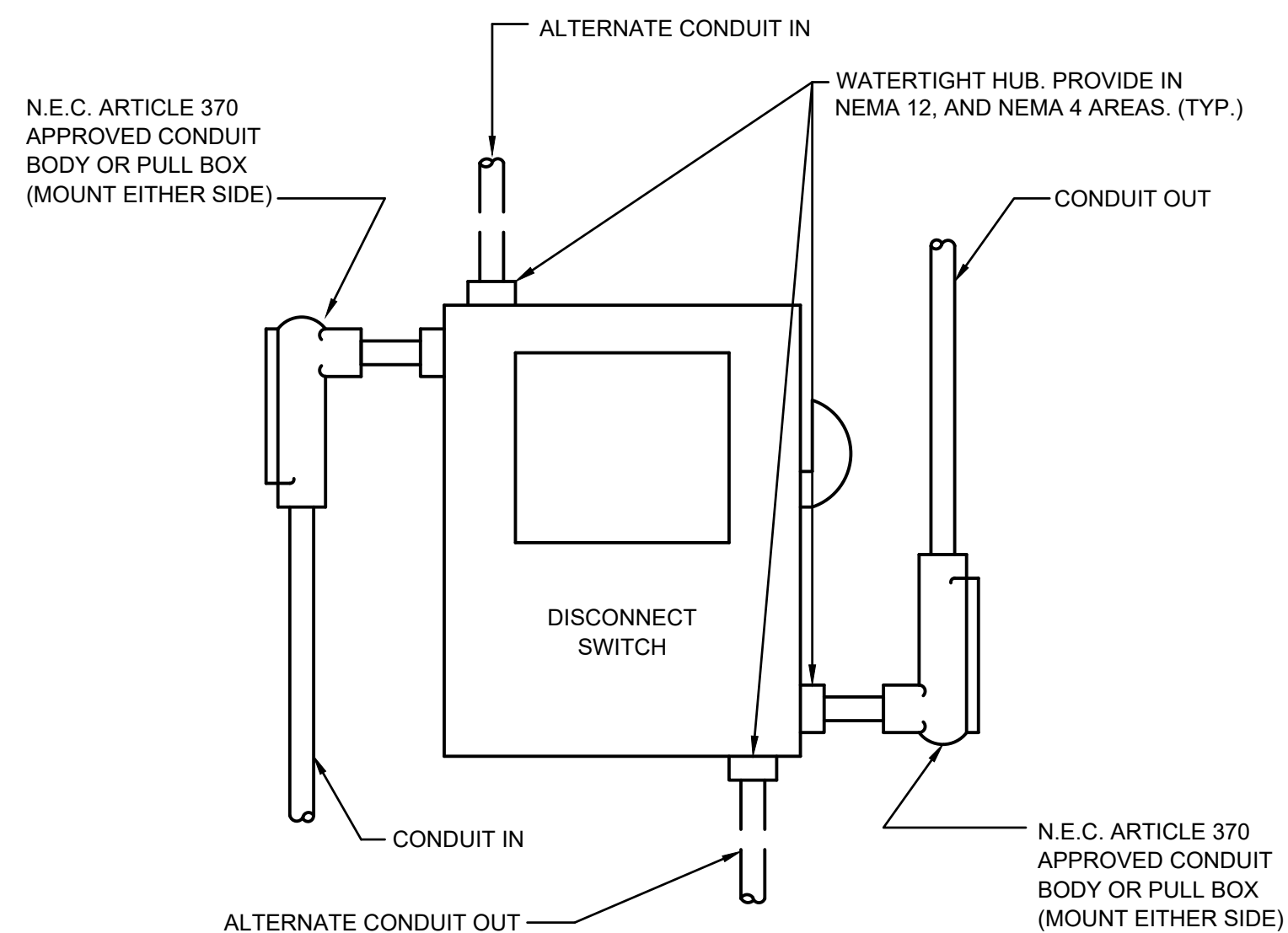
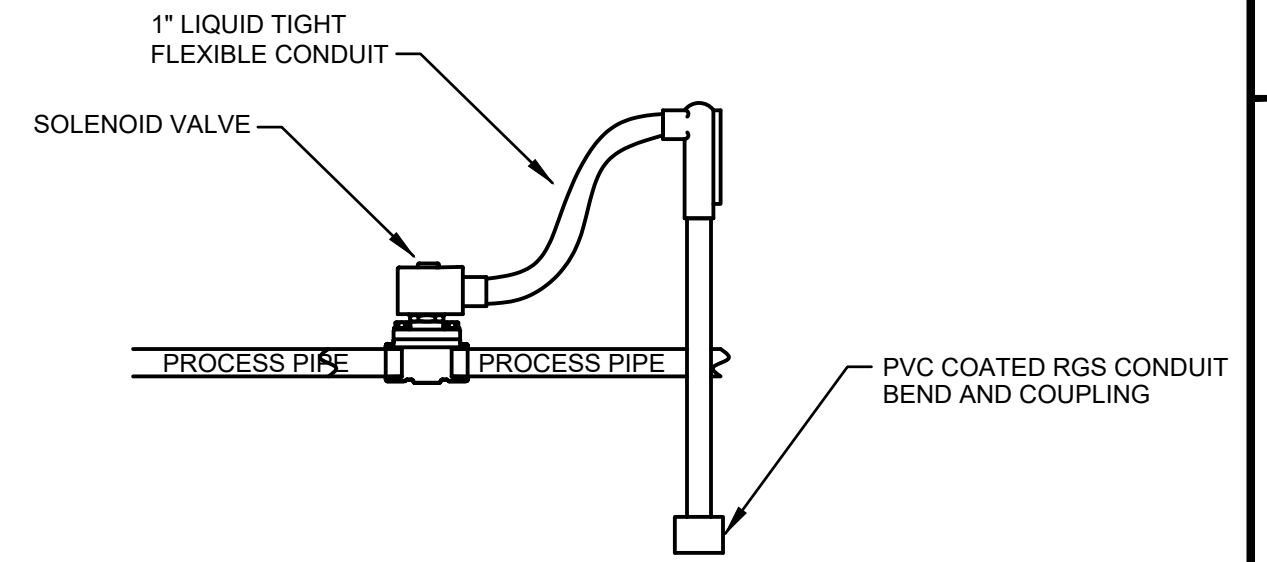
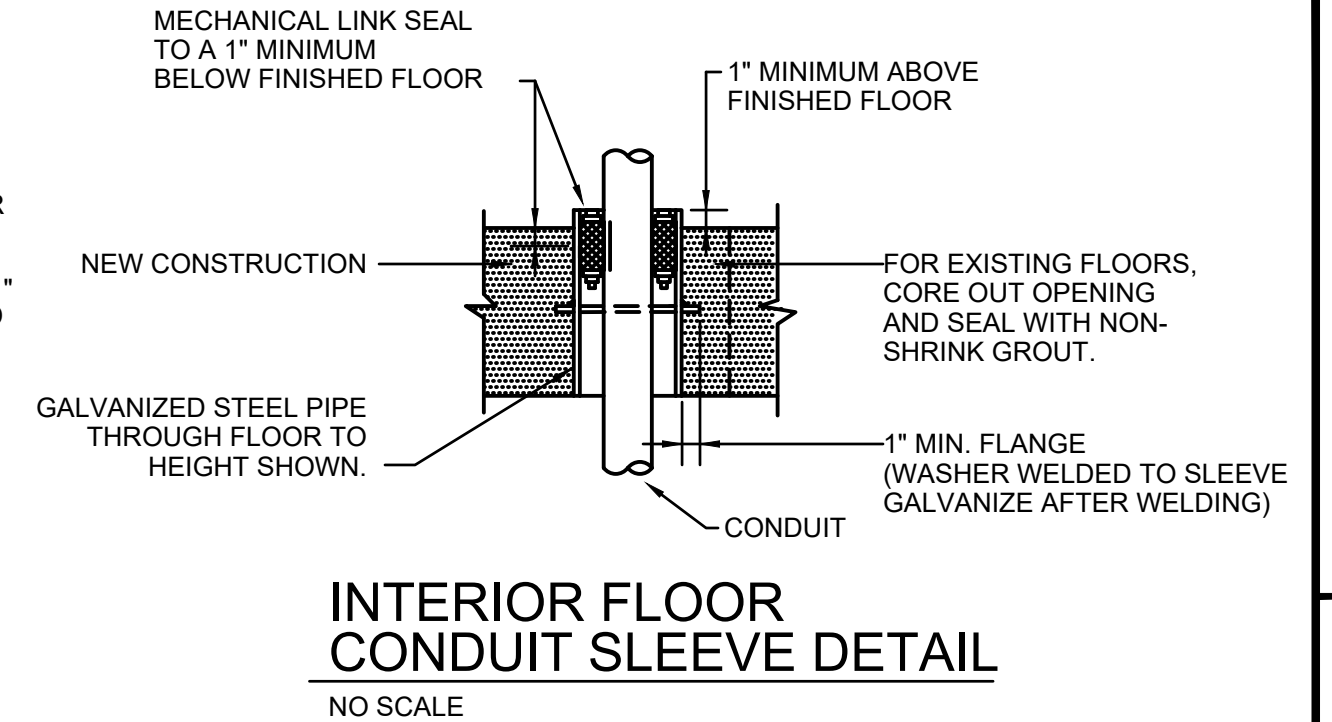
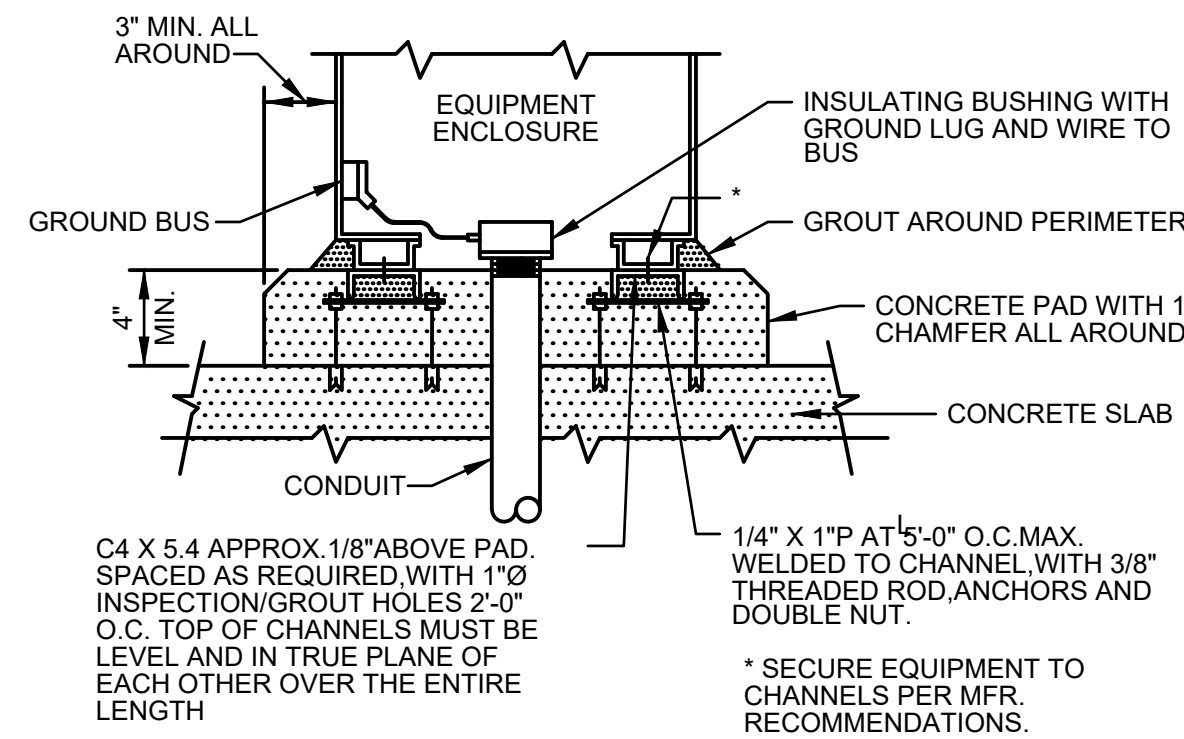
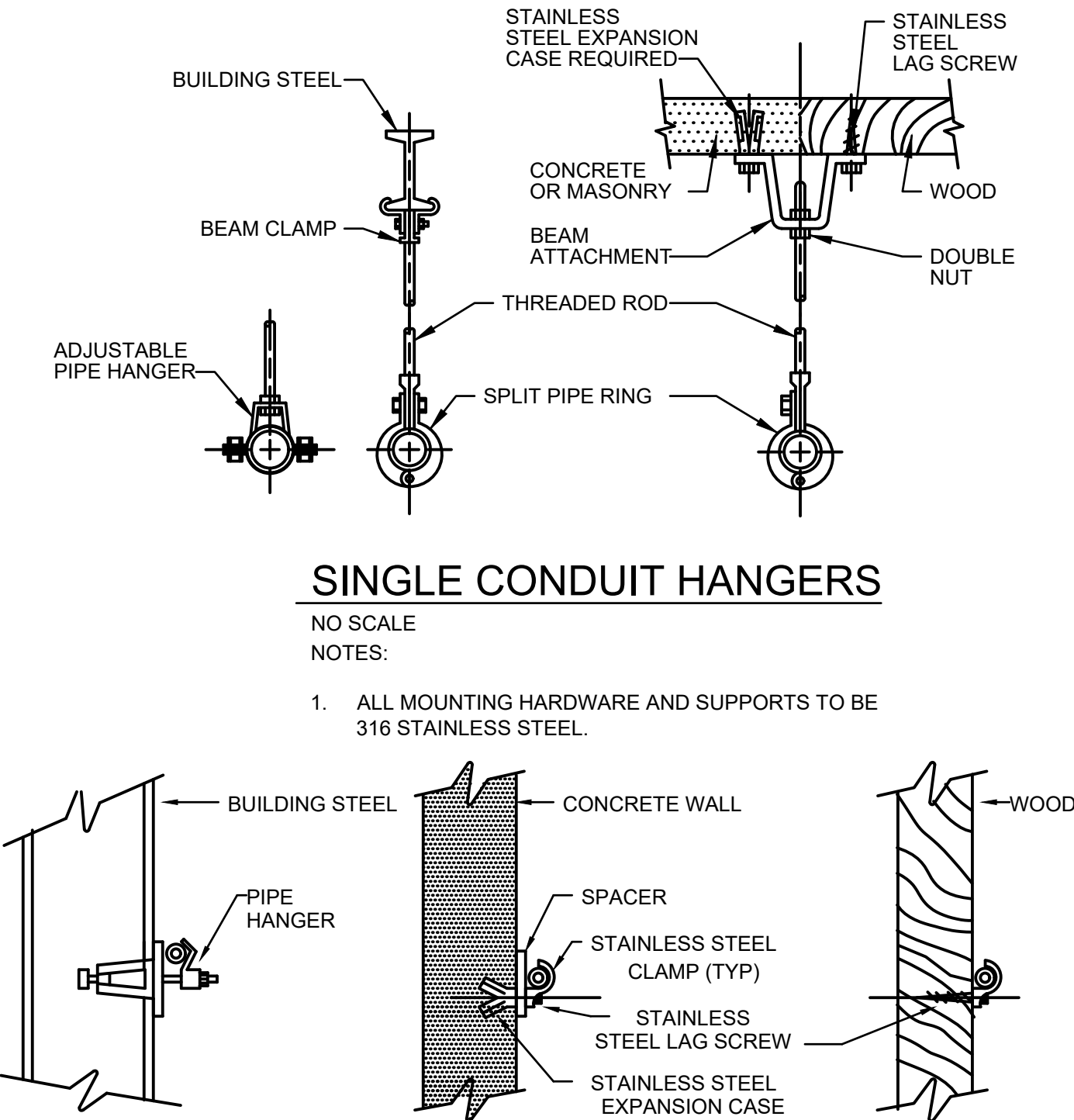
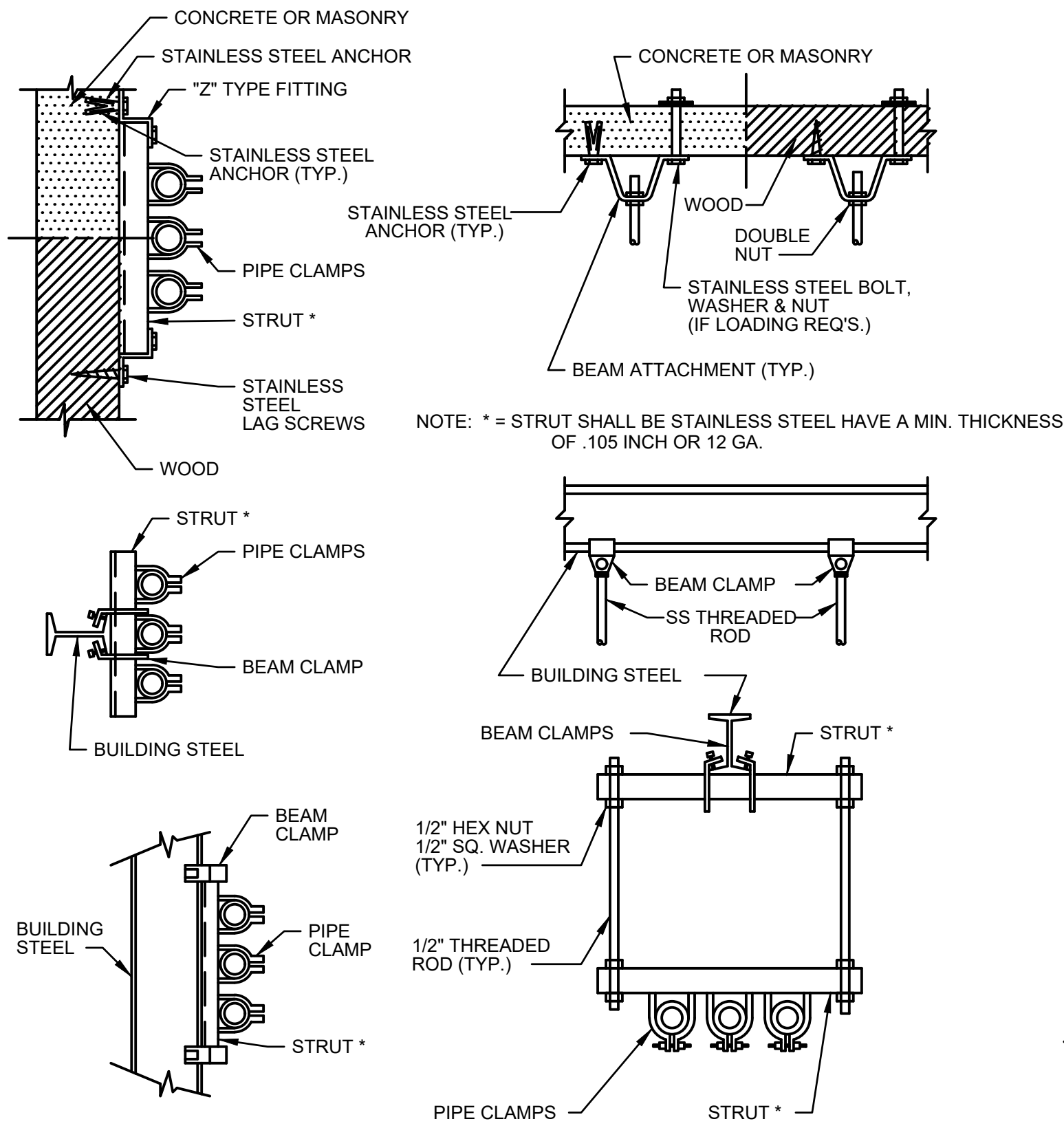
CITY OF FLINT, MICHIGAN FLINT WPC ELECTRICAL DISTRIBUTION SYSTEM IMPROVMENTS ELECTRICAL 3RD AVENUE PUMP STATION DEMOLITION	MARK	DATE	DESCRIPTION FOR BIDDING AND CONSTRUCTION	BY
		7/10/23		
PROJ:	200-156238-23001			
DESN:	GCJ			
DRWN:	JLS			
CHKD:	GCJ			
E-307				
OF 45				

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1. INSTALL NEW CONCRETE PADS FOR NEW SUBSTATION STYLE TRANSFORMERS, PRIMARY SWITCHES AND SECONDARY SWITCHES.
2. INSTALL NEW CONDUIT/WIRE FROM EACH EXISTING SERVICE POLE TO EACH NEW TRANSFORMER PRIMARY SWITCHES.
3. COORDINATE DISCONNECTION AND CONNECTION OF NEW CABLES WITH CONSUMERS ENERGY AND PAY ANY CONSUMERS ENERGY FEES ASSOCIATED WITH THIS WORK.
4. INSTALL NEW SECONDARY CONDUIT/WIRE FROM NEW TRANSFORMER SECONDARIES TO EXISTING STATION. INTERCEPT EXISTING EXTERIOR CONDUITS AT STATION WALL AND INSTALL NEW CABLES INTO STATION TO EXISTING SWITCHGEAR AND RECONNECT TO EXISTING INDOOR SWITCHGEAR.
5. DUCTBANKS TO BE STAINED RED, AND A YELLOW NO.10 PROLINE TRACER WIRE SHALL BE INSTALLED OVER EACH NEW DUCTBANK TO EACH EXISTING SERVICE POLE.
6. INCLUDE IN BID TO PERFORM AN ARC FLASH/SHORT CIRCUIT/COORDINATION STUDY FOR THE FLINT 3RD AVENUE PUMP STATION. TURN OVER RESULTS INCLUDING SKI FILE TO OWNER. IN ADDITION TO FIELD COLLECT EXISTING DATA TO PERFORM THE ANALYSES'. REFER TO ONE-LINE DIAGRAM AND PHOTOS OF EXISTING SWITCHGEAR. FIELD VERIFY EXISTING ELECTRICAL ONE-LINE PROVIDE THE ANALYSIS'S.
7. FIELD LOCATE NEW CONCRETE PADS TO SUIT EXISTING YARD AREA. PROVIDE CLEARANCES AROUND PAD TO SUIT NEC REQUIREMENTS.



6/29/2023 10:18:22 AM - \\T:\LOCAL\PROJECTS\LANSGIER\156238-23001\CAD\SHEETFILES\E-400_E-DET.DWG - SHANK, JASON



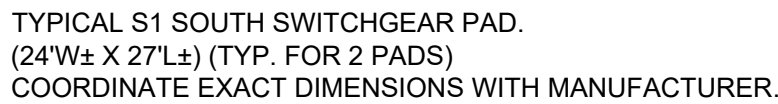
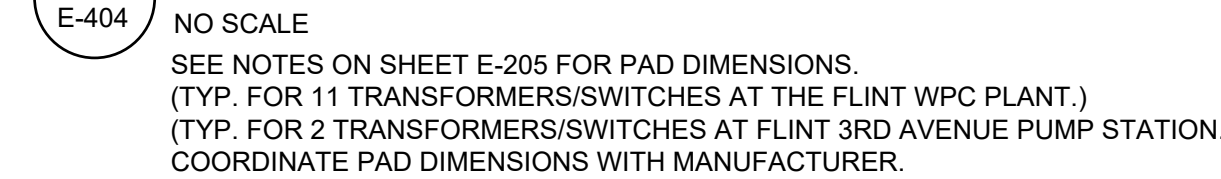
NOTE:
1. IN ACCESSIBLE CEILING SPACES AND EXPOSED IN UNFINISHED AREAS, LABEL CONDUIT WITH PANEL AND CIRCUIT NUMBERS OF CONDUCTORS ROUTED THROUGH THE CONDUIT. LABEL CONDUIT AT WALL PENETRATIONS AND CONNECTIONS TO ALL PANELS, JUNCTION BOXES, AND EQUIPMENT SERVED.

ALL HARDWARE SHALL BE 316 STAINLESS STEEL INCLUDING NUTS, BOLTS, WASHERS, ANCHORS, STRUTS, ETC. THIS REQUIREMENT HAS PRECEDENCE OVER STANDARD DETAILS, AND PROJECT MANUAL/SPECIFICATIONS.

MARK	DATE	DESCRIPTION	BY
	7/10/23	FOR BIDDING AND CONSTRUCTION	

CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
ELECTRICAL DETAILS

PROJ:	200-156238-23001
DESN:	GCJ
DRWN:	JLS
CHKD:	GCJ



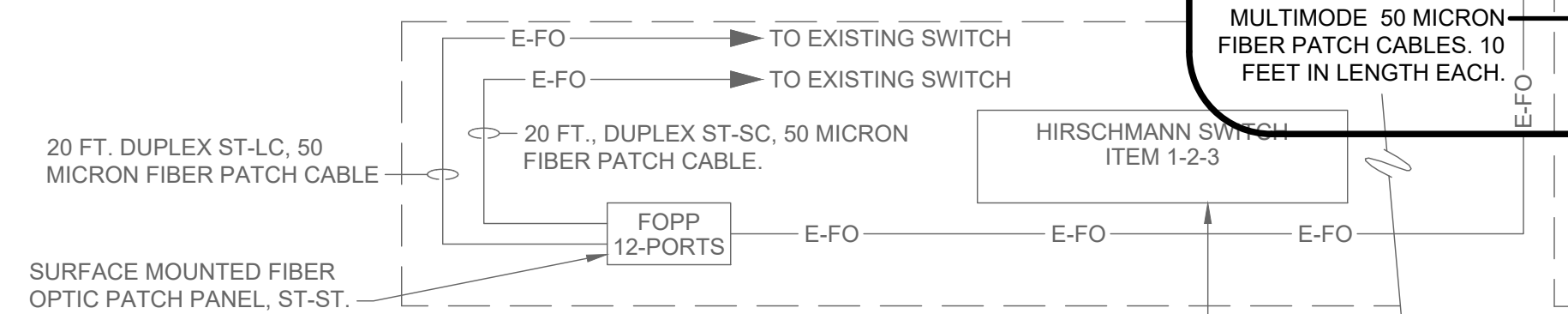
ALL HARDWARE SHALL BE 316 STAINLESS STEEL INCLUDING NUTS, BOLTS, WASHERS, ANCHORS, STRUTS, ETC. THIS REQUIREMENT HAS PRECEDENCE OVER STANDARD DETAILS, AND PROJECT MANUAL/SPECIFICATIONS.

ITEM #	ITEM	MANUFACTURE	PART NUMBER	DESCRIPTION	PORTS
1	SWITCH 1	HIRSCHMANN	MS30-1602SAAE	4-SLOT BACKPLANE, 24V DC	
	MODULE 1	HIRSCHMANN	MM2-4TX1	4X10/100 MBIT/S RJ45	4-COPPER, RJ-45
	MODULE 2	HIRSCHMANN	MM3-4FXM2	4X100 MBIT/S MM SC	4-FIBER, SC CONNECTOR
	MODULE 3	HIRSCHMANN	EMPTY		
	MODULE 4	HIRSCHMANN	EMPTY		

ITEM #	ITEM	MANUFACTURE	PART NUMBER	DESCRIPTION	PORTS
2	SWITCH 2	HIRSCHMANN	MS30-1602SAAE	4-SLOT BACKPLANE, 24V DC	
	MODULE 1	HIRSCHMANN	MM2-4TX1	4X10/100 MBIT/S RJ45	4-COPPER, RJ-45
	MODULE 2	HIRSCHMANN	MM4-4FXM2	4X100 MBIT/S MM SC	4-FIBER, SC CONNECTOR
	MODULE 3	HIRSCHMANN	MM3-4FXM2	4X100 MBIT/S MM SC	4-FIBER, SC CONNECTOR
	MODULE 4	HIRSCHMANN	EMPTY		

ITEM #	ITEM	MANUFACTURE	PART NUMBER	DESCRIPTION	PORTS
3	SWITCH 3	HIRSCHMANN	MS30-1602SAAE	4-SLOT BACKPLANE, 24V DC	
	MODULE 1	HIRSCHMANN	MM2-4TX1	4X100 MBIT/S RJ45	4-COPPER, RJ-45
	MODULE 2	HIRSCHMANN	MM3-4FXM2	4X100 MBIT/S MM SC	4-FIBER, SC CONNECTOR
	MODULE 3	HIRSCHMANN	MM3-4FXM2	4X100 MBIT/S MM SC	4-FIBER, SC CONNECTOR
	MODULE 4	HIRSCHMANN	EMPTY		

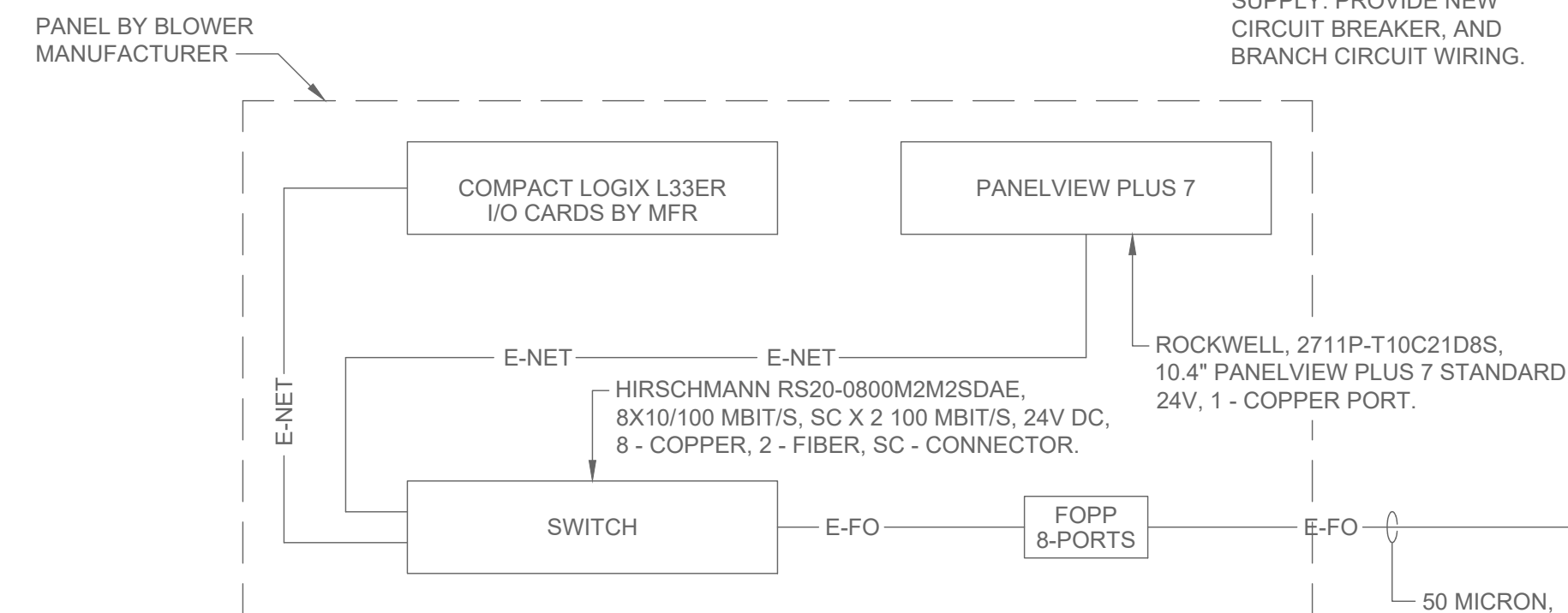
ETHERNET SWITCH BILL OF MATERIAL (BPP, AND EXISTING BCP)



EXISTING BLOWER CONTROL PANEL

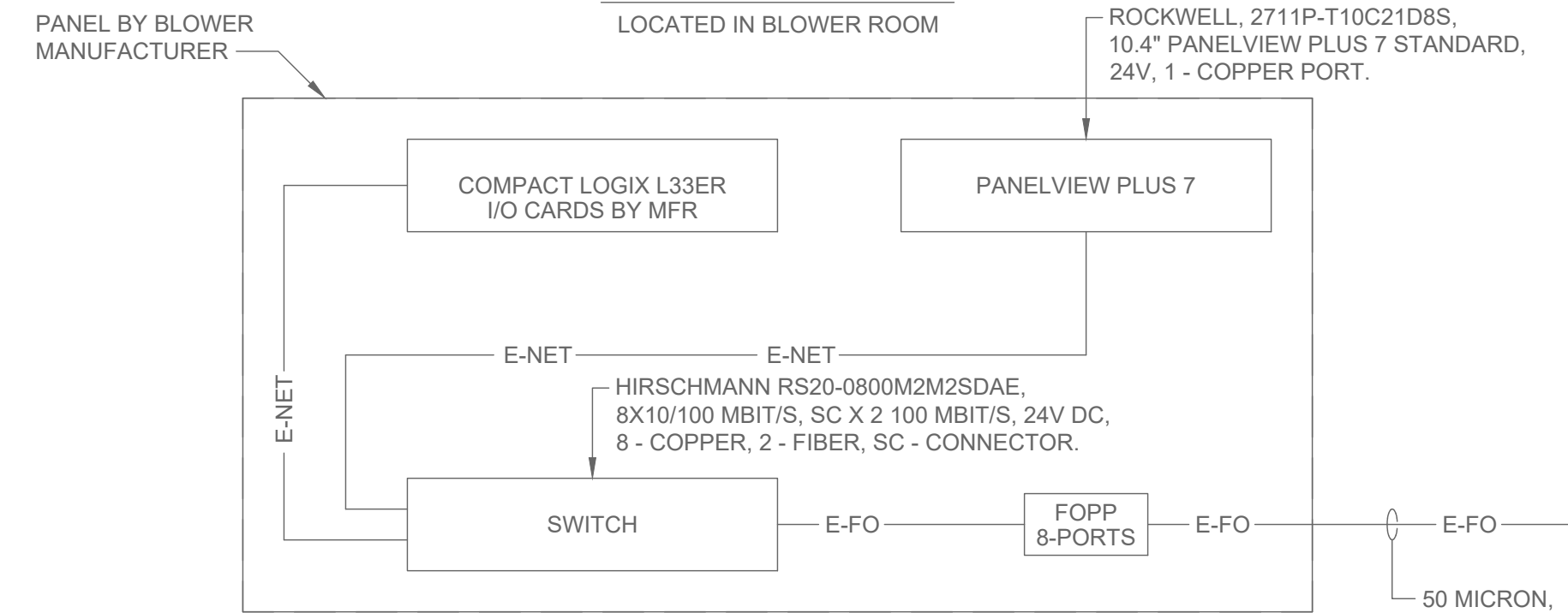
LOCATED IN BLOWER ROOM.
PROVIDE 2 - SPARE 20 FT. DUPLEX FIBER PATCH CABLES. (ST-ST)

— INSTALL NEW SWITCH IN EXISTING BLOWER CONTROL PANEL. POWER FROM EXISTING UPS POWER SUPPLY. PROVIDE NEW CIRCUIT BREAKER, AND BRANCH CIRCUIT WIRING.



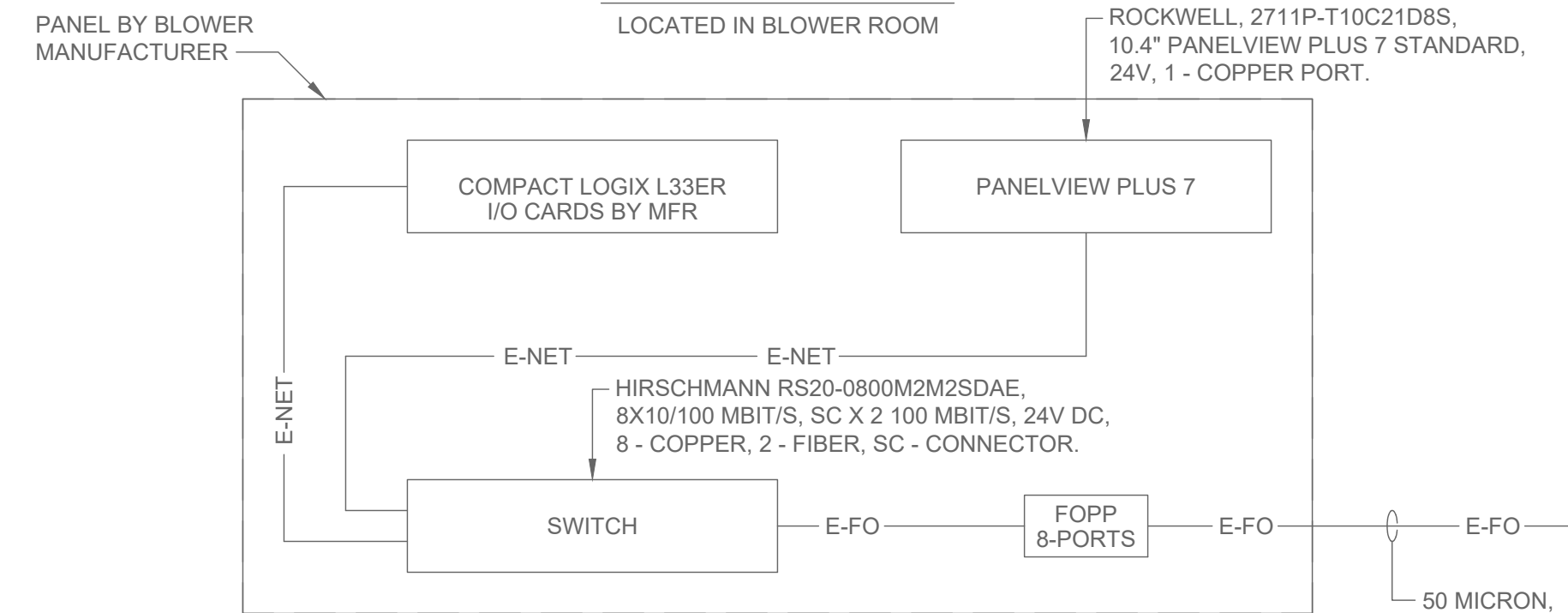
BLOWER NO.1

LOCATED IN BLOWER ROOM



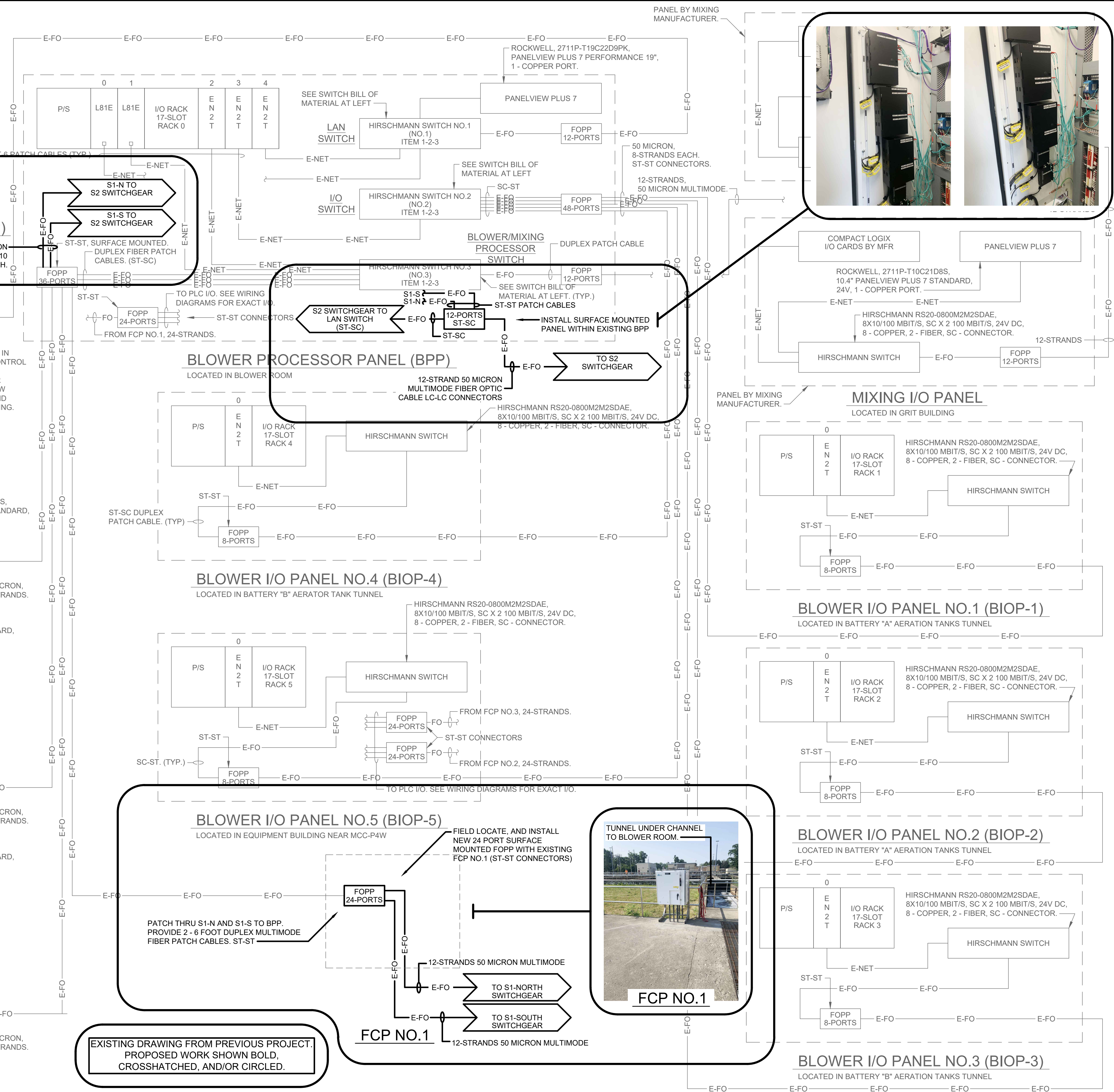
BLOWER NO.2

LOCATED IN BLOWER ROOM



BLOWER NO.3

LOCATED IN BLOWER ROOM



EXISTING DRAWING FROM PREVIOUS PROJECT
PROPOSED WORK SHOWN BOLD,
CROSSHATCHED, AND/OR CIRCLED.

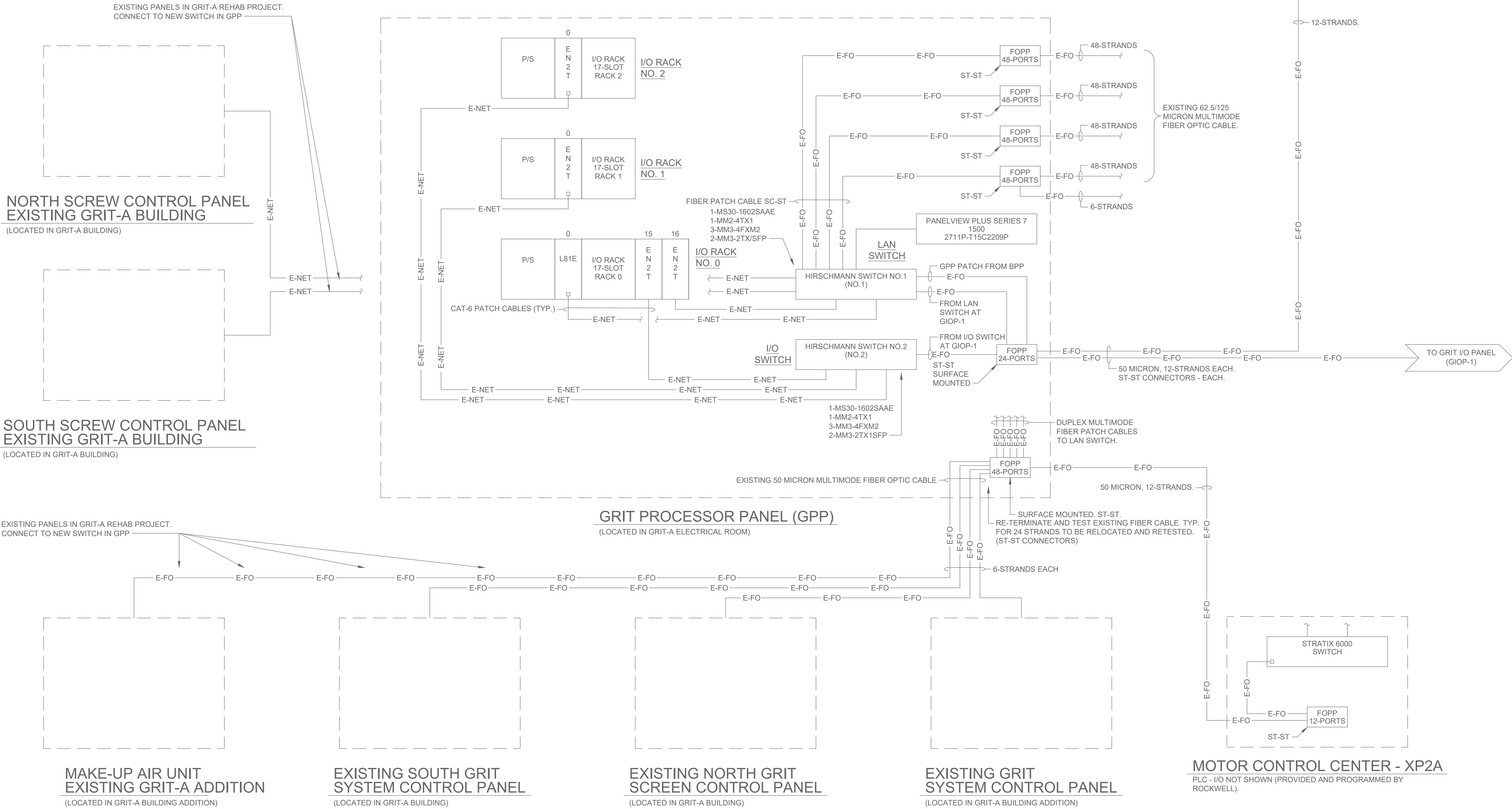
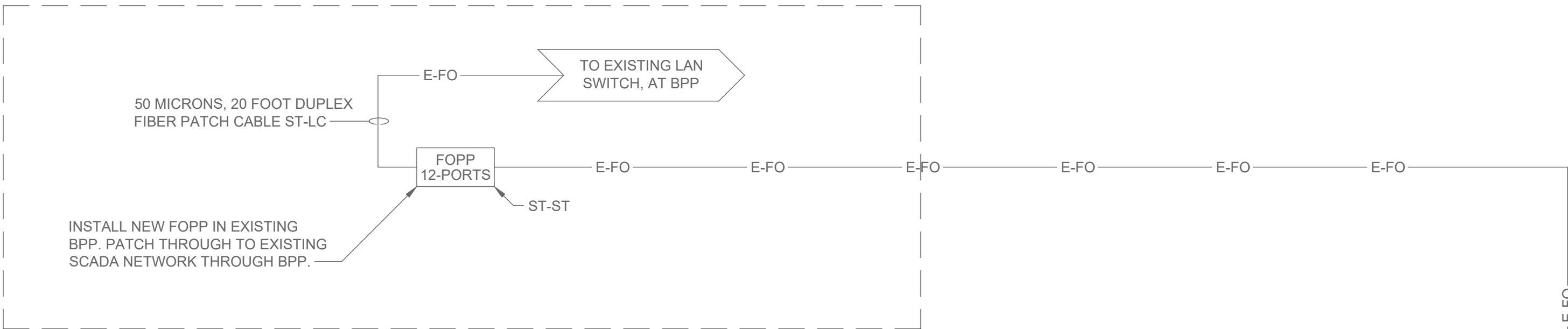
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CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
**INSTRUMENTATION
SYSTEM CONFIGURATION**

PROJ:	200-156238-23001
DESN:	GCJ
DRWN:	JLS
CHKD:	GCJ

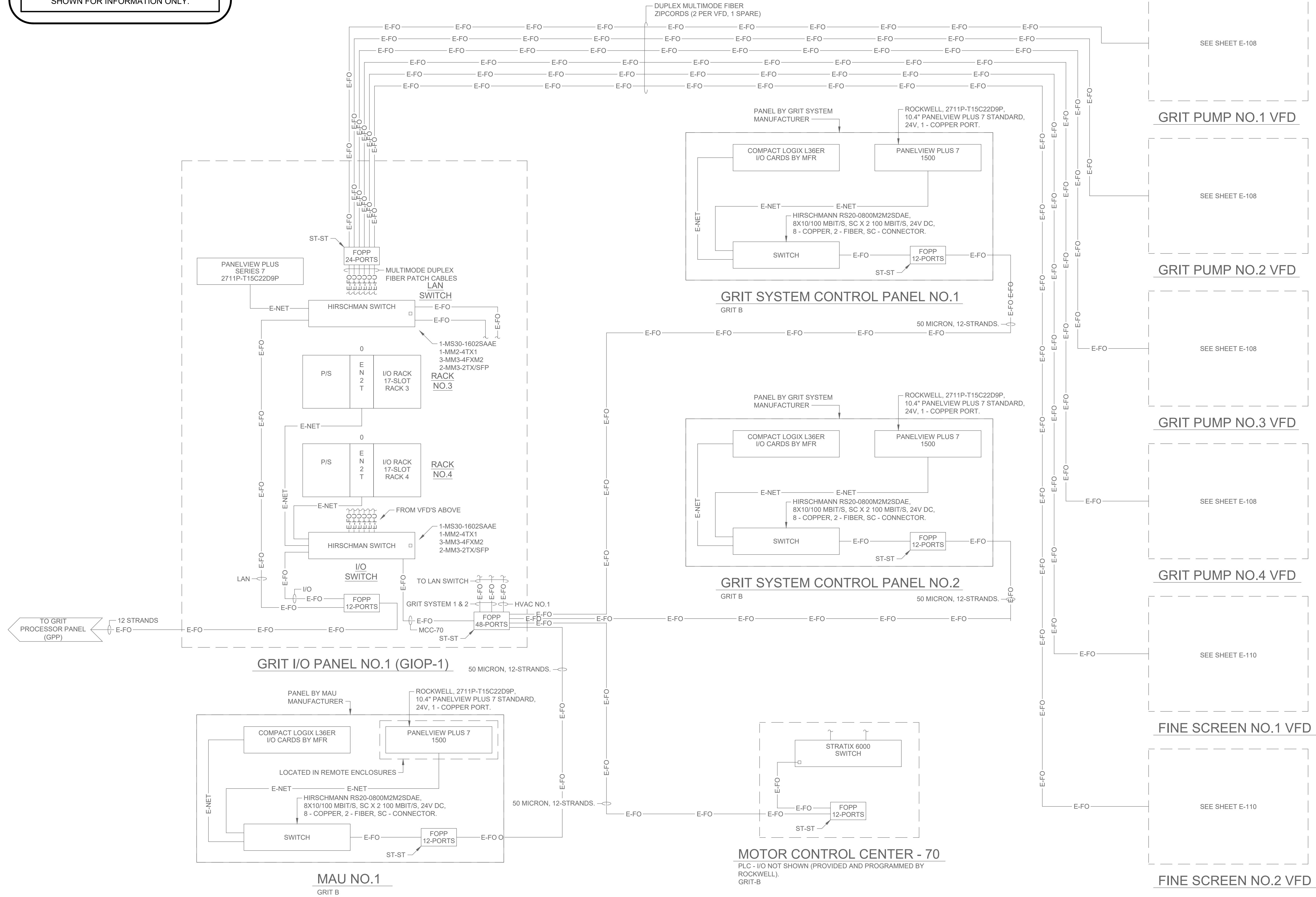
I-100

EXISTING DRAWING FROM PREVIOUS PROJECT.
SHOWN FOR INFORMATION ONLY.

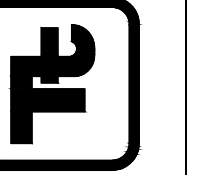
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CITY OF FLINT, MICHIGAN	
FLINT WPC ELECTRICAL DISTRIBUTION SYSTEM IMPROVEMENTS INSTRUMENTATION SYSTEM CONFIGURATION	
PROJ:	200-156238-23001
DESN:	GCJ
DRWN:	JLS
CHKD:	GCJ

EXISTING DRAWING FROM PREVIOUS PROJECT.
SHOWN FOR INFORMATION ONLY.



TETRA TECH



3497 COOLIDGE RD.
EAST LANSING, MI, 48823
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[illegible]

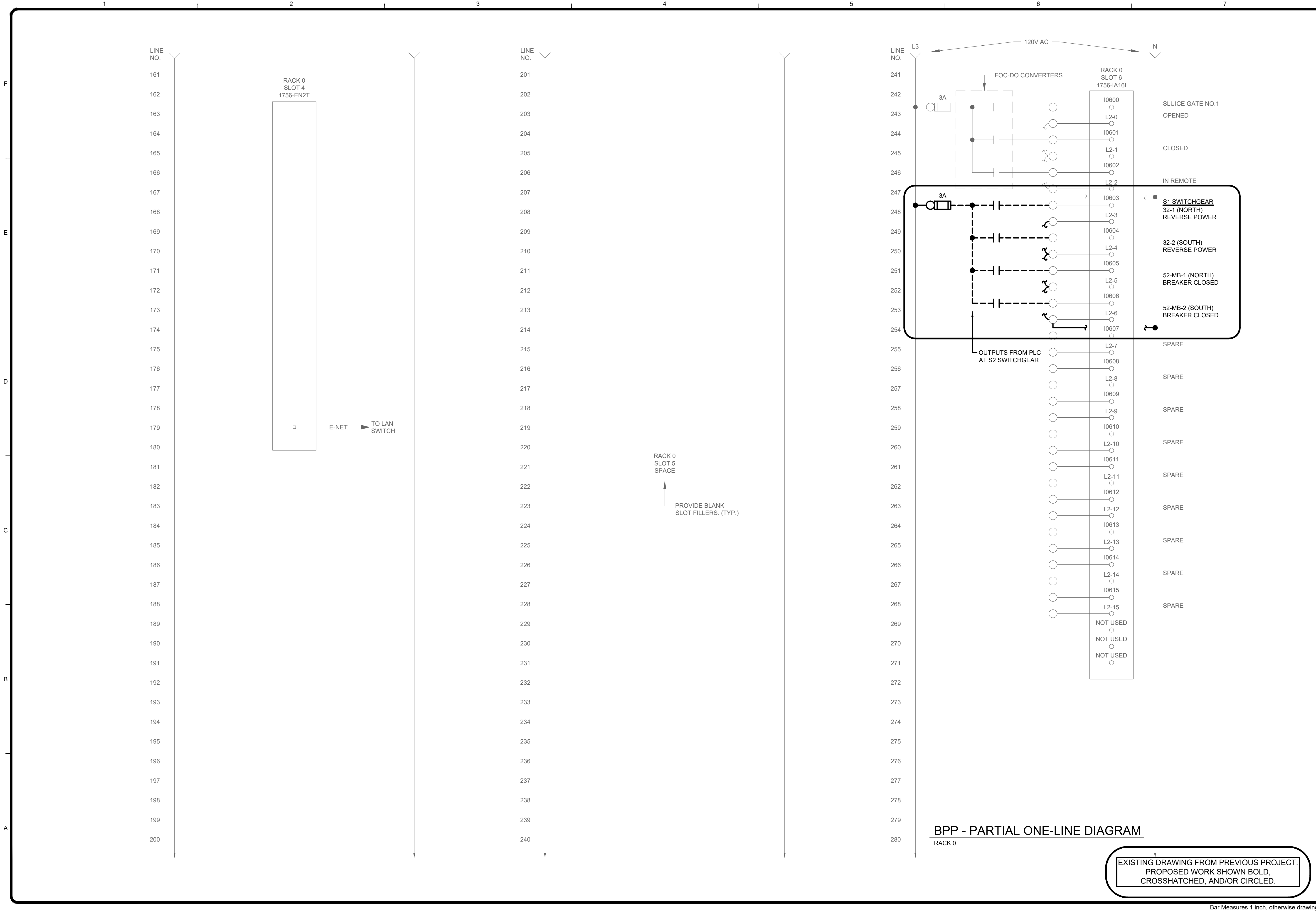
CITY OF FLINT, MICHIGAN
FLINT WPC ELECTRICAL
DISTRIBUTION SYSTEM IMPROVEMENTS
INSTRUMENTATION
SYSTEM CONFIGURATION

PROJ:	200-156238-23001
DESN:	GCJ
DRWN:	JLS
CHKD:	GCJ

1-102
OF 4

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6/29/2023 10:18:48 AM - I:\T:\LOCAL\PROJECTS\LANSGIER\156238\200-156238-23001\CAD\SHEETFILES\EL-200 WIRING DIAGRAM.DWG - SHANK, JASON



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CITY OF FLINT, MICHIGAN FLINT WPC ELECTRICAL DISTRIBUTION SYSTEM IMPROVMENTS INSTRUMENTATION WIRING DIAGRAM BLOWER PROCESSOR PANEL	MARK	DATE	DESCRIPTION FOR BIDDING AND CONSTRUCTION	BY
		7/10/23		
PROJ:		200-156238-23001		
DESN:		GCJ		
DRWN:		JLS		
CHKD:		GCJ		
I-200		OF 4		