

MOTOR CONTROL CENTERS E & F REPLACEMENT

WATER RESOURCE RECOVERY FACILITY CITY OF ANN ARBOR

PREPARED BY:



555 HULET DR.
BLOOMFIELD HILLS, MI.
48302 - 0360

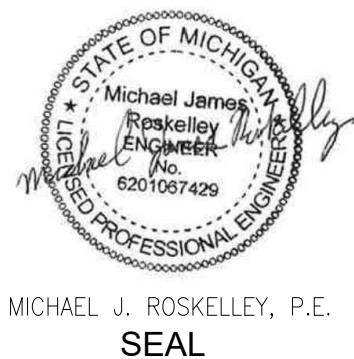
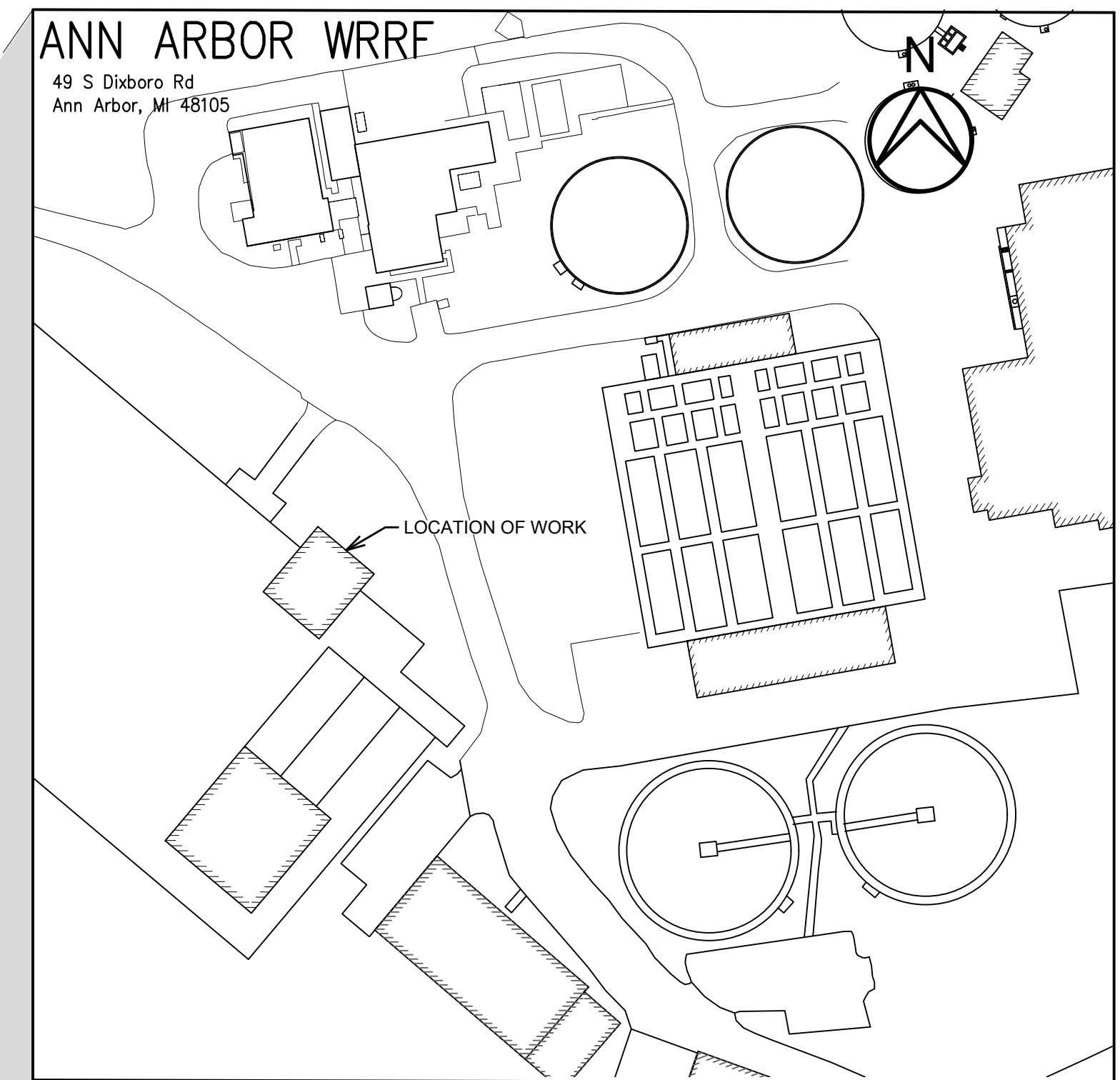
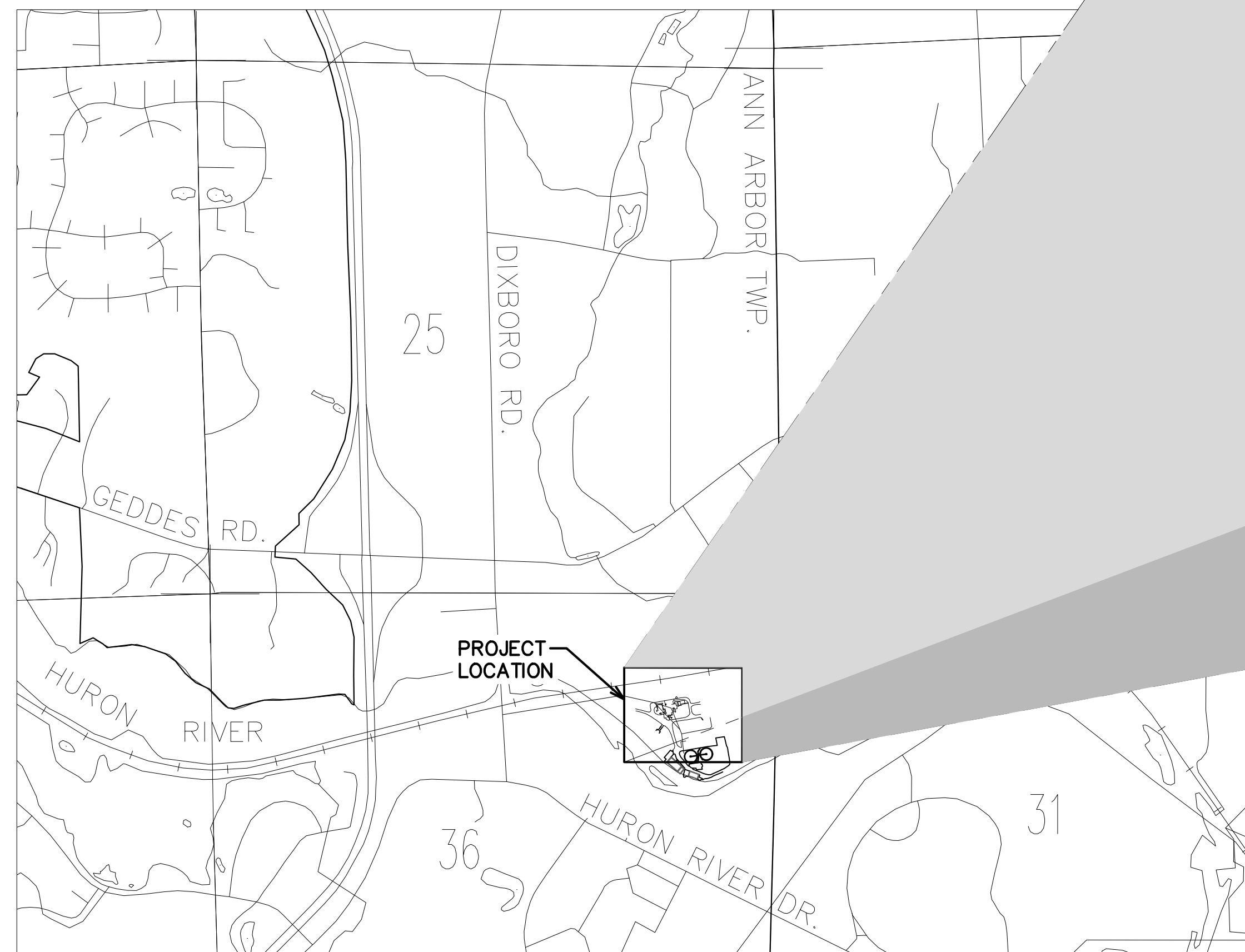


SHEET INDEX

1	COVER SHEET
DE-01	RETENTION BASIN BUILDING ELECTRICAL ROOM DEMOLITION PLAN
E-01	DISTRIBUTION PANELS E & F ONE-LINE DIAGRAMS
E-02	RETENTION BASIN BUILDING ELECTRICAL ROOM PLAN
E-03	DISTRIBUTION PANELS E & F SCHEDULES
E-04	PUMP WIRING DIAGRAMS
E-05	PUMP WIRING DIAGRAMS
REF-1 THRU REF-9	REFERENCE SHEET

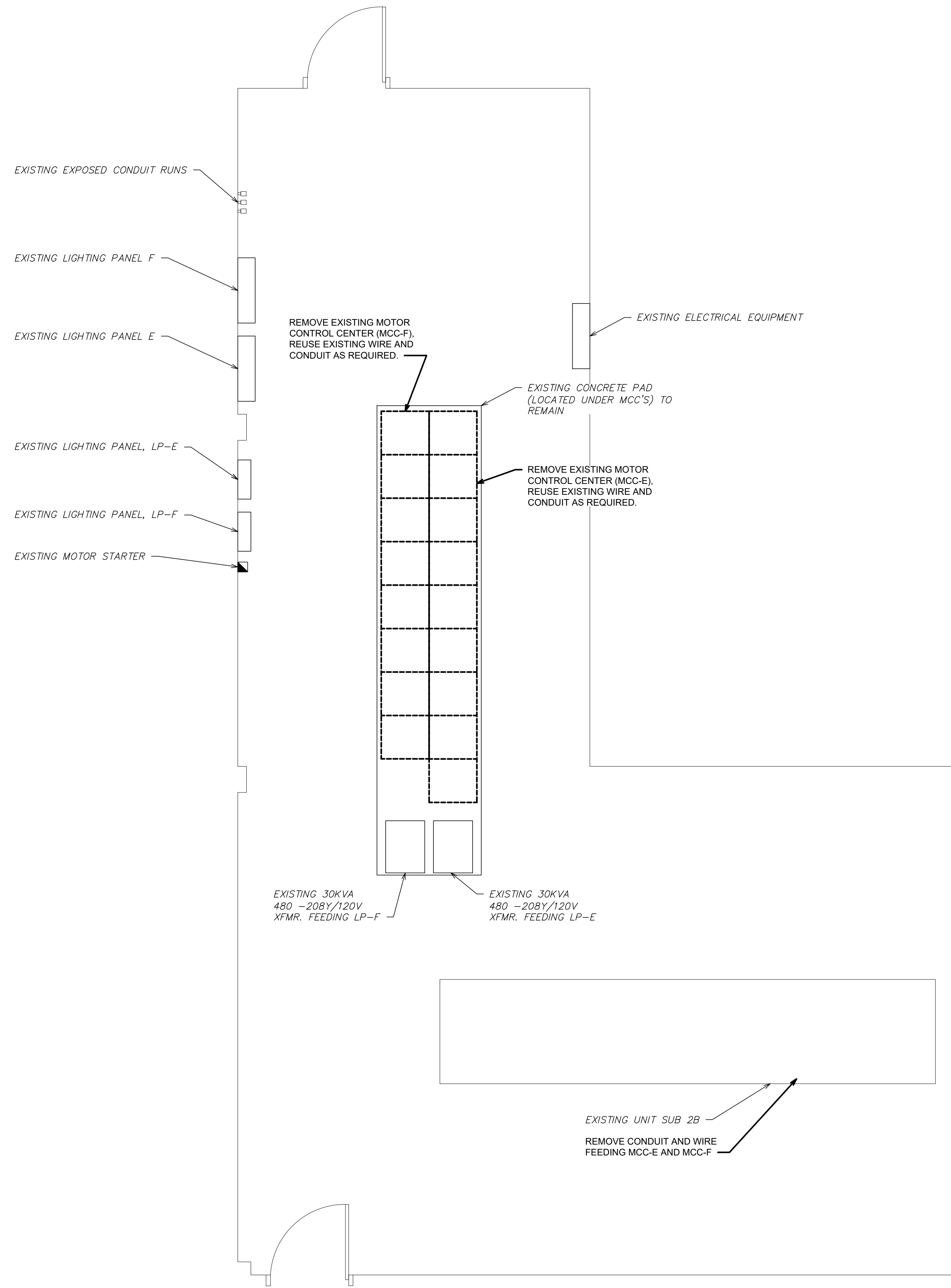
PERMIT LIST

PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR
ELECTRICAL PERMIT - ANN ARBOR TOWNSHIP



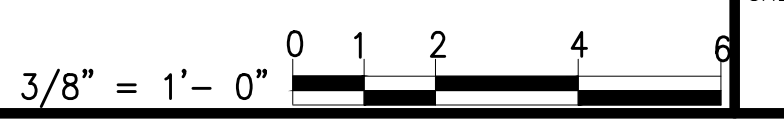
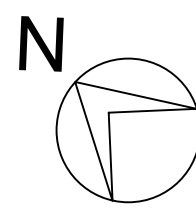
PREPARED UNDER THE SUPERVISION OF:
MICHAEL J. ROSKELLEY, P.E.
REGISTERED PROFESSIONAL ENGINEER
MICHIGAN REGISTRATION NO. 6201067429

100% SET
MAY 10, 2024
HRC JOB NO. 20240149
ANN ARBOR RFP NO. 24-34



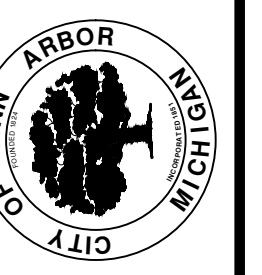
ELECTRICAL ROOM DEMOLITION PLAN - EL. 758

SCALE: 3/8" = 1'-0"



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
100% SET		5-10-2024	M.R.M.	M.J.R.
90% REVIEW		4-26-2024	M.R.M.	M.J.R.

CITY OF ANN ARBOR
 PUBLIC SERVICES
 301 EAST HURON STREET
 ANN ARBOR, MI 48106-8647
 www.a3gov.org



WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
 RETENTION BASIN BUILDING
 ELECTRICAL ROOM DEMOLITION PLAN

SCALE: 3/8" = 1'-0"
 DRAWING No.

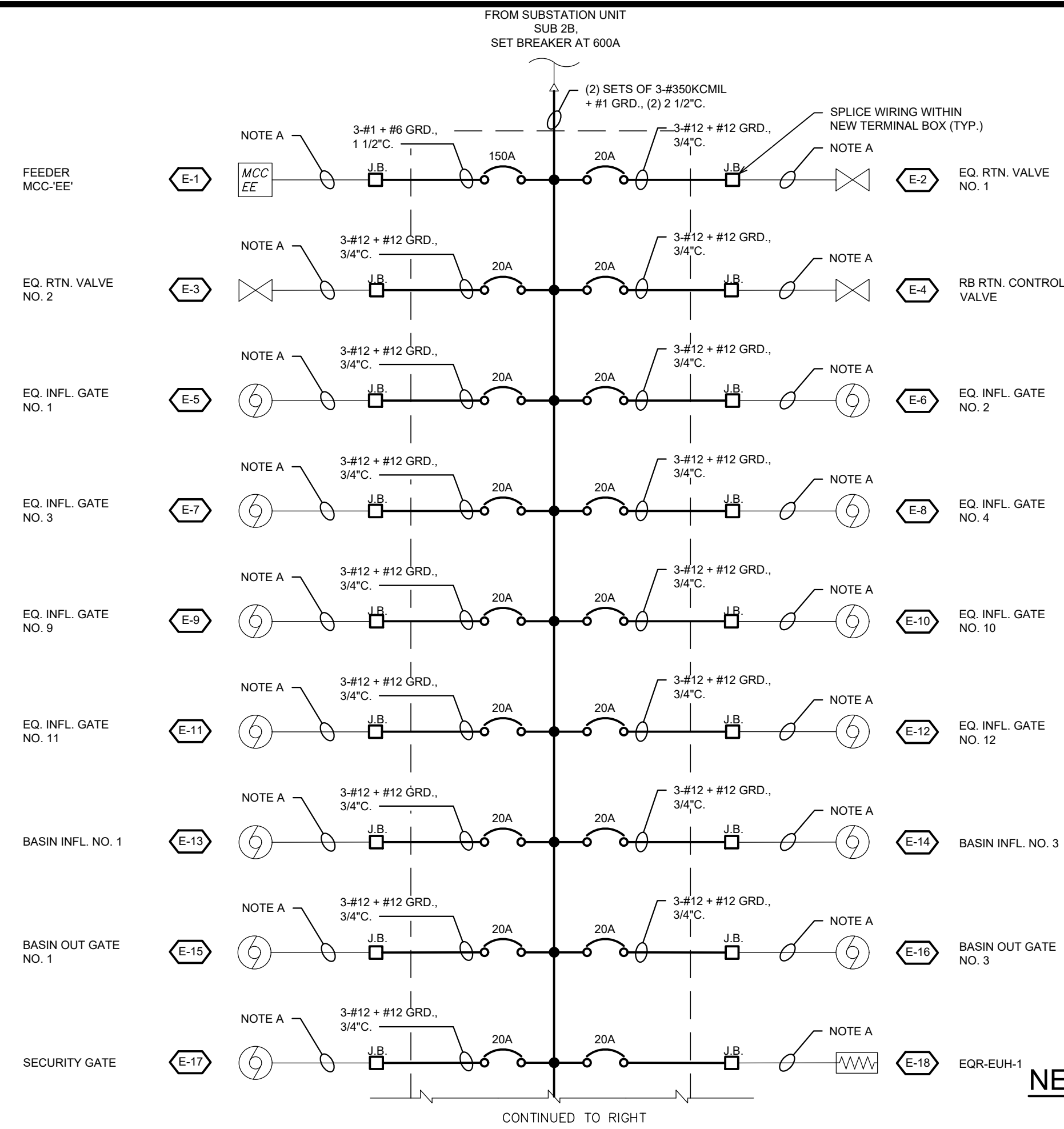
SHEET No.
DE-01

ELECTRICAL GENERAL NOTES:

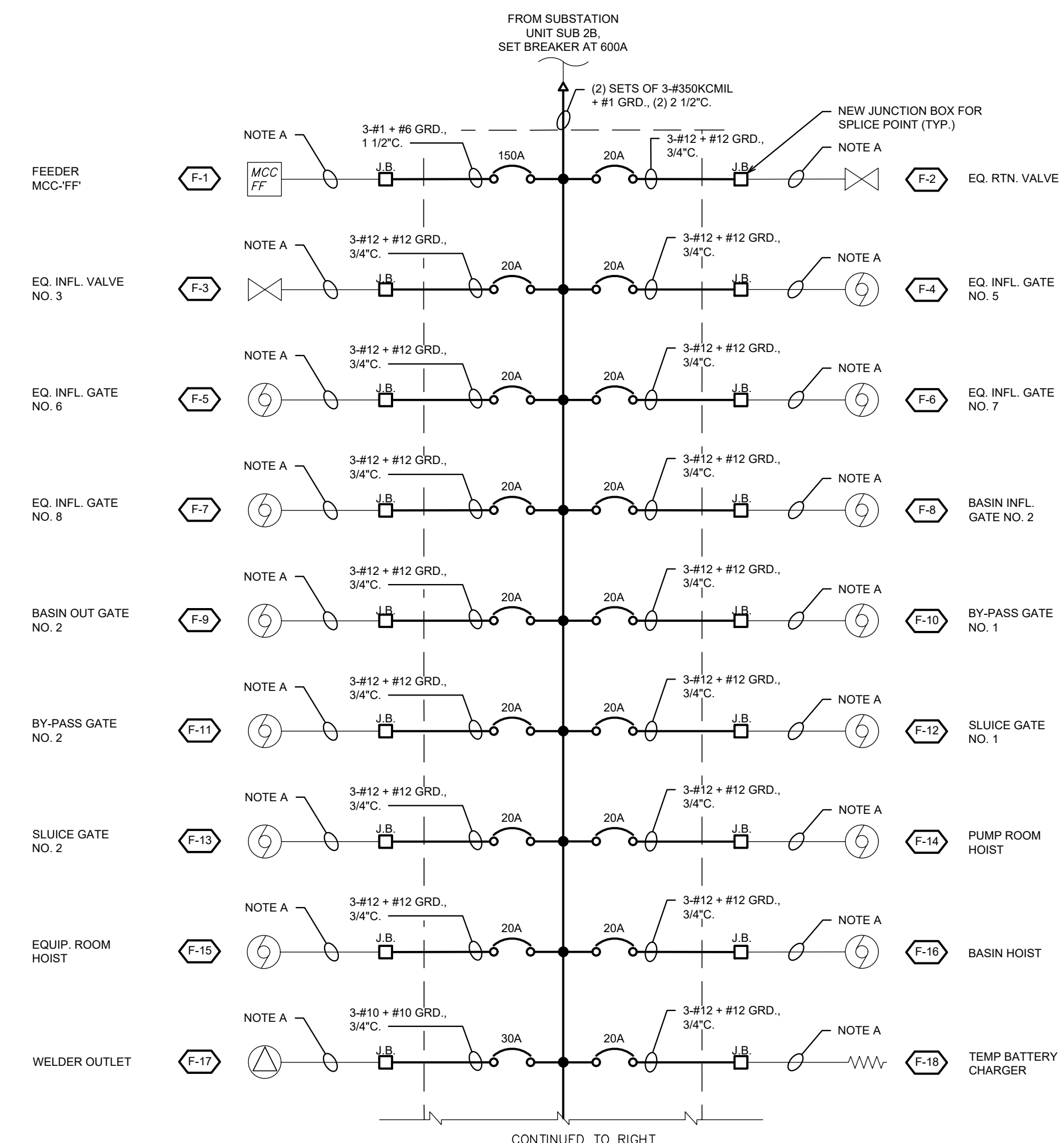
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, INSPECTIONS, APPROVALS AND FEES REQUIRED AND ENSURE THAT THE ELECTRICAL INSTALLATION CONFORMS TO CODES AND REGULATIONS REQUIRED BY AUTHORITY OR AGENCY HAVING JURISDICTION OVER THE INSTALLATION, ALTERATION OR CONSTRUCTION OF WORK INCLUDED. ALL FEES SHALL BE INCLUDED IN THE BASE PROPOSAL.
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (N.E.C.), N.F.P.A., O.S.H.A., LOCAL AND STATE CODES, ORDINANCES AND REGULATIONS.
- ALL EMPTY CONDUITS SHALL BE PROVIDED WITH A 1/4" DIA. POLYPROPYLENE FISHLINE.
- ALL CONDUITS SHALL BE ROUTED TO AVOID OPENINGS IN FLOORS, ROOFS, AND WALLS. LADDERS UP WALLS SHALL NOT BE CROSSED BY EXPOSED CONDUIT RUNS. PROVIDE THE MINIMUM CLEAR SPACE REQUIRED BY ALL GOVERNING CODES BETWEEN HANDRAILS AND ALL ELECTRICAL ENCLOSURES AND RACEWAYS, WHICH IN NO CASE SHALL BE LESS THAN 1 1/2" CLEAR.
- ALL ELECTRICAL FLOOR MOUNTED EQUIPMENT SUCH AS MOTORS, CONTROL PANELS AND METALLIC SUPPORT RACKS SHALL HAVE A MINIMUM #2 BARE COPPER GROUND CONDUCTOR BETWEEN THE MOTOR, FRAME, ENCLOSURE, OR SUPPORT LEG AND THE BUILDING GROUND SYSTEM.
- ALL MATERIALS USED SHALL BE NEW AND BEAR THE U.L. LABEL WHERE SUCH SERVICE AND LABEL ARE REGULARLY PROVIDED AND BE OF THE APPROPRIATE NEMA STANDARD.
- THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND LABOR AS INDICATED ON PLANS AND AS REQUIRED FOR A COMPLETE, REVISED ELECTRICAL SYSTEM.
- ALL THREADED ELECTRICAL EQUIPMENT (CONDUIT, FITTINGS, BOLTS, SCREWS, ETC.) INSTALLED OUTDOORS SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION. ALL HARDWARE SHALL BE STAINLESS STEEL.
- ALL FLOOR MOUNTED EQUIPMENT SHALL BE MOUNTED ON A MINIMUM 2" CONCRETE PAD, UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL VISIT THE JOB SITE, THOROUGHLY CHECK THE EXISTING FIELD CONDITIONS AND EXISTING ELECTRICAL INSTALLATIONS, AND CLARIFY ALL DISCREPANCIES WITH THE ENGINEER BEFORE SUBMITTING A BID. AS NO EXTRAS WILL BE ALLOWED FOR OMITTED WORK DUE TO FAILURE TO INSPECT THE PREMISES.
- ON COMPLETION OF WORK AND BEFORE FINAL PAYMENT IS MADE, THIS CONTRACTOR SHALL PREPARE "AS-BUILT DRAWINGS". CLEARLY INDICATE ON A SET OF CONTRACT DRAWINGS ALL THE CHANGES MADE DURING CONSTRUCTION, DUE TO FIELD CONDITIONS, ADDENDA, BULLETINS, ETC. DRAWINGS SHALL INDICATE THE INSTALLED LOCATION OF ALL EQUIPMENT, OUTLETS, ETC.
- WHEN THE JOB IS COMPLETE, CONTRACTOR SHALL PROVIDE THE OWNER WITH CERTIFICATE OF APPROVAL FROM THE ELECTRICAL INSPECTION AUTHORITY AND SHALL PROVIDE THE OWNER WITH A ONE YEAR WRITTEN GUARANTEE ON ALL NEW MATERIALS AND LABOR.
- RE-SUPPORT EXISTING CONDUIT, BOXES, ETC. WHERE CEILING OR SUPPORT REVISIONS NECESSITATES NEW SUPPORTS. ALL WORK SHALL BE COORDINATED WITH OTHER DISCIPLINES.
- ALL DEMOLISHED ITEMS SHALL BE DISPOSED OF AWAY FROM THE SITE.

PLAN NOTES:

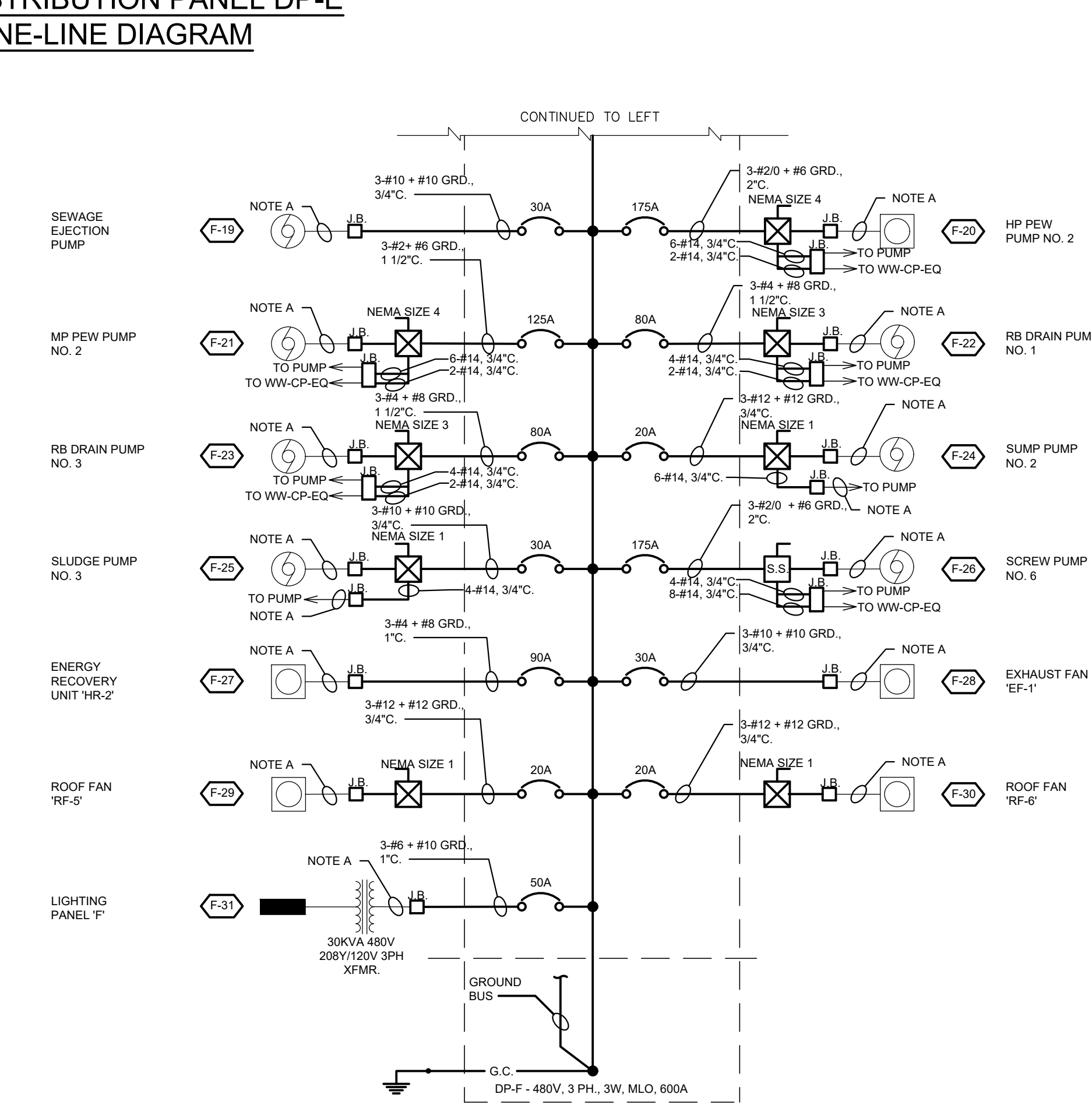
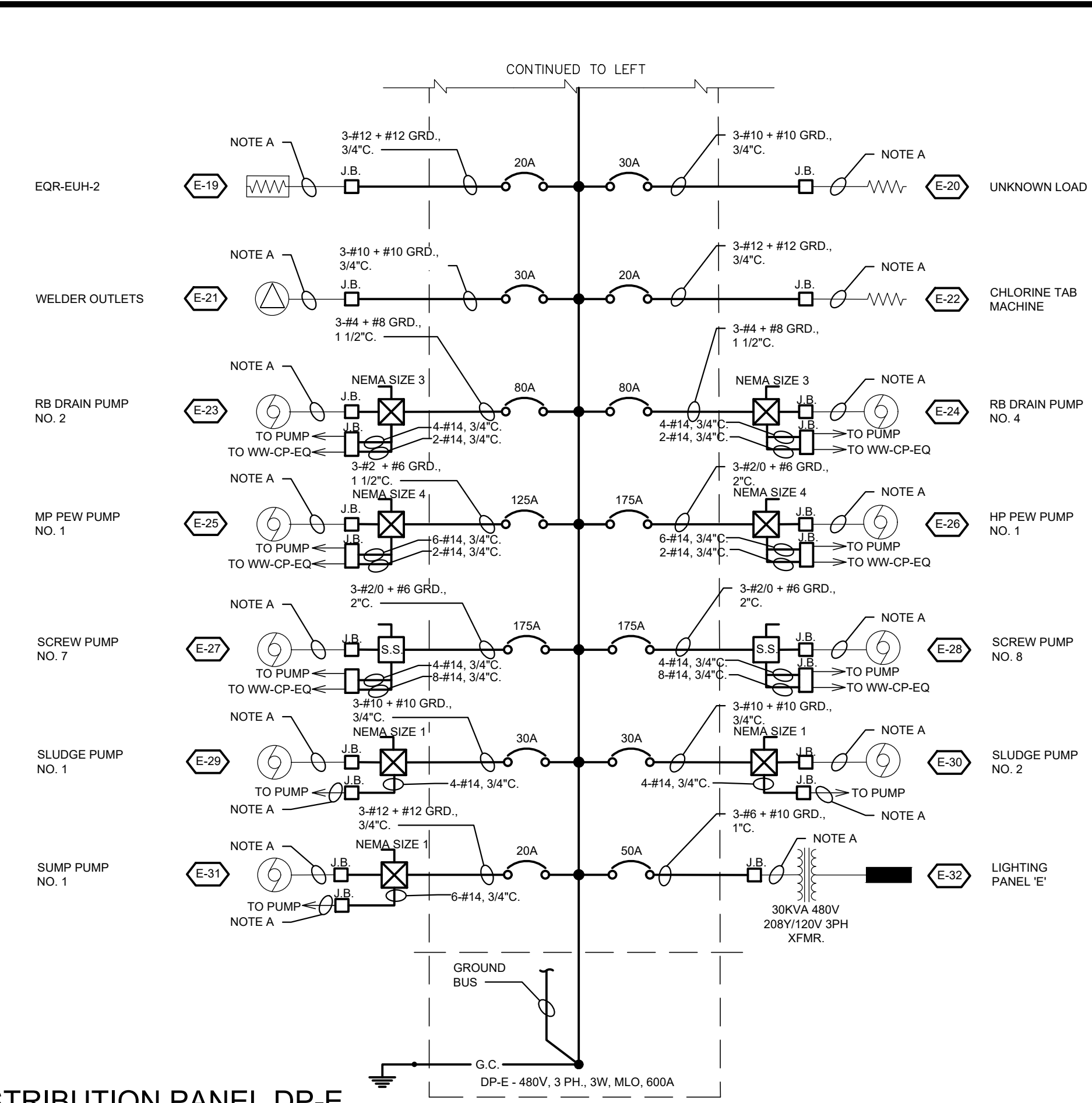
- EXISTING WIRE AND CONDUIT TO BE REUSED; PULLBACK, SPLICE, AND EXTEND AS REQUIRED




**NEW DISTRIBUTION PANEL DP-E
ONE-LINE DIAGRAM**



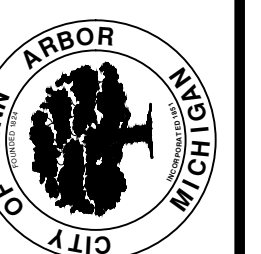
**NEW DISTRIBUTION PANEL DP-F
ONE-LINE DIAGRAM**





Know what's below.
Call before you dig.

	M.J.R.	M.J.R.	M.R.M.	M.R.M.	DATE	DRAWN	CHECKED
					5-10-2024		
					4-26-2024		
						100% SET	90% REVIEW
						REV.	DESCRIPTION

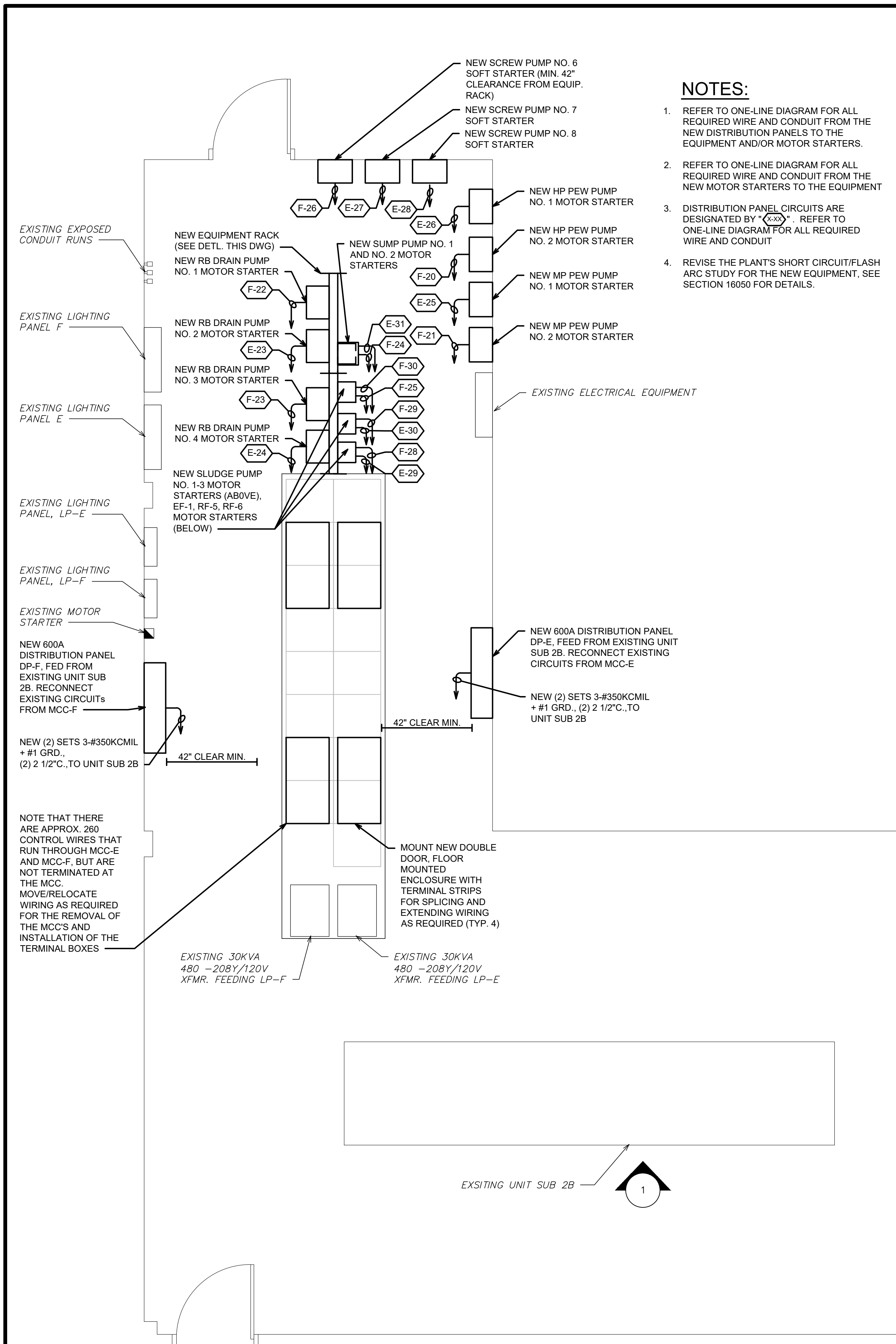


CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 366
ANN ARBOR, MI 48106-0366
www.a2gov.org

WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
DISTRIBUTION PANELS E & F
ONE-LINE DIAGRAMS

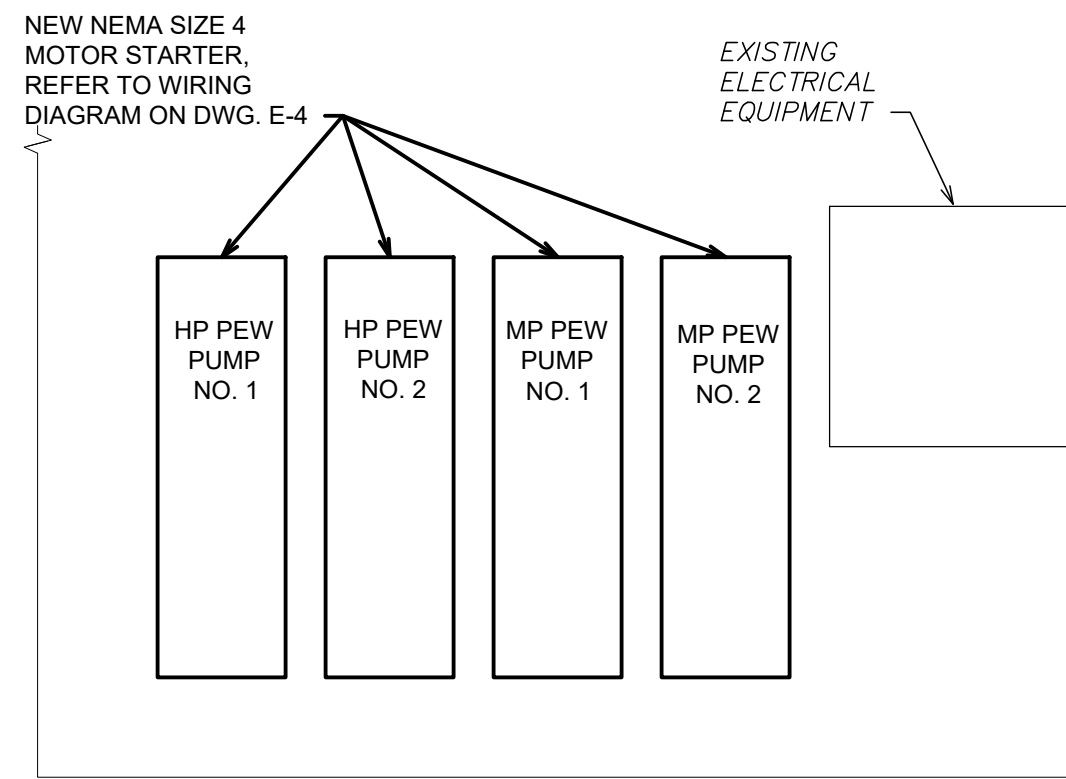
SCALE: **NO SCALE**
DRAWING No. **E-01**

SHEET No. **E-01**

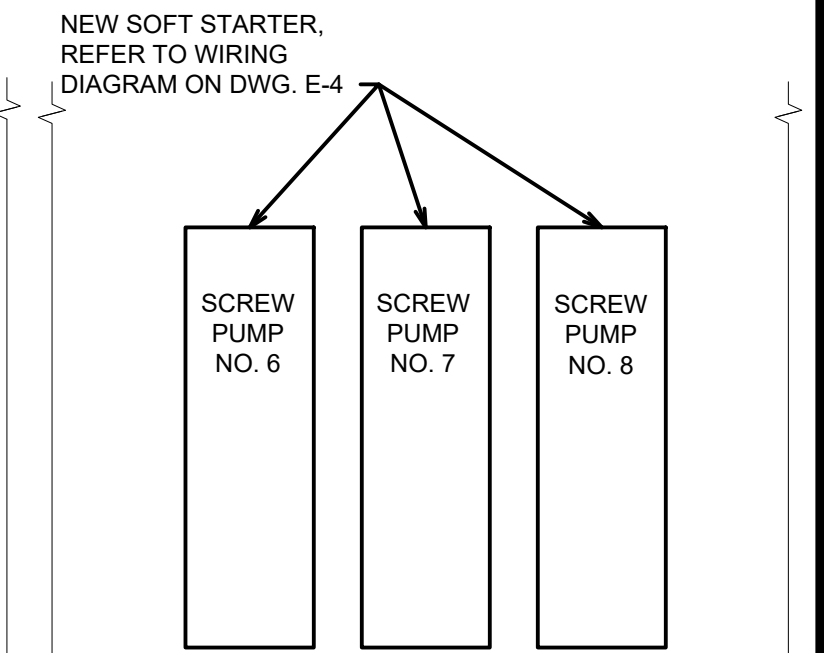
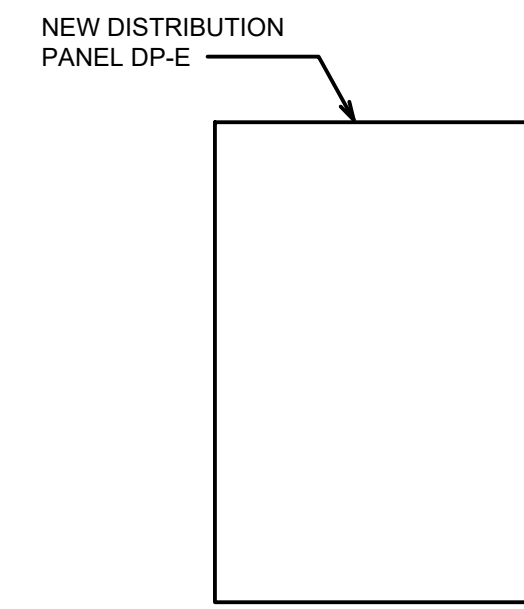


NOTES:

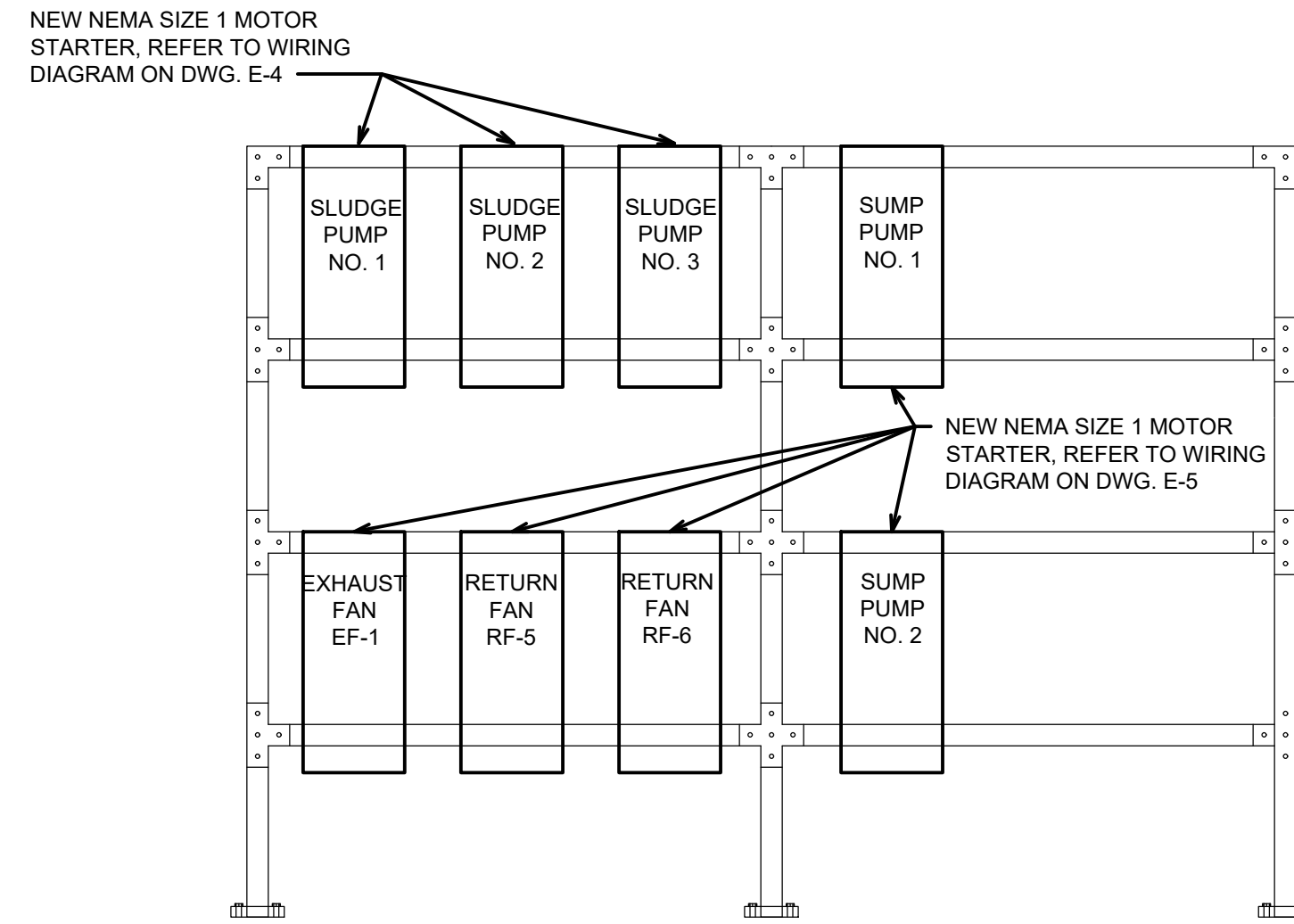
- REFER TO ONE-LINE DIAGRAM FOR ALL REQUIRED WIRE AND CONDUIT FROM THE NEW DISTRIBUTION PANELS TO THE EQUIPMENT AND/OR MOTOR STARTERS.
- REFER TO ONE-LINE DIAGRAM FOR ALL REQUIRED WIRE AND CONDUIT FROM THE NEW MOTOR STARTERS TO THE EQUIPMENT
- DISTRIBUTION PANEL CIRCUITS ARE DESIGNATED BY "XXX". REFER TO ONE-LINE DIAGRAM FOR ALL REQUIRED WIRE AND CONDUIT
- REVISE THE PLANT'S SHORT CIRCUIT/FLASH ARC STUDY FOR THE NEW EQUIPMENT, SEE SECTION 16050 FOR DETAILS.



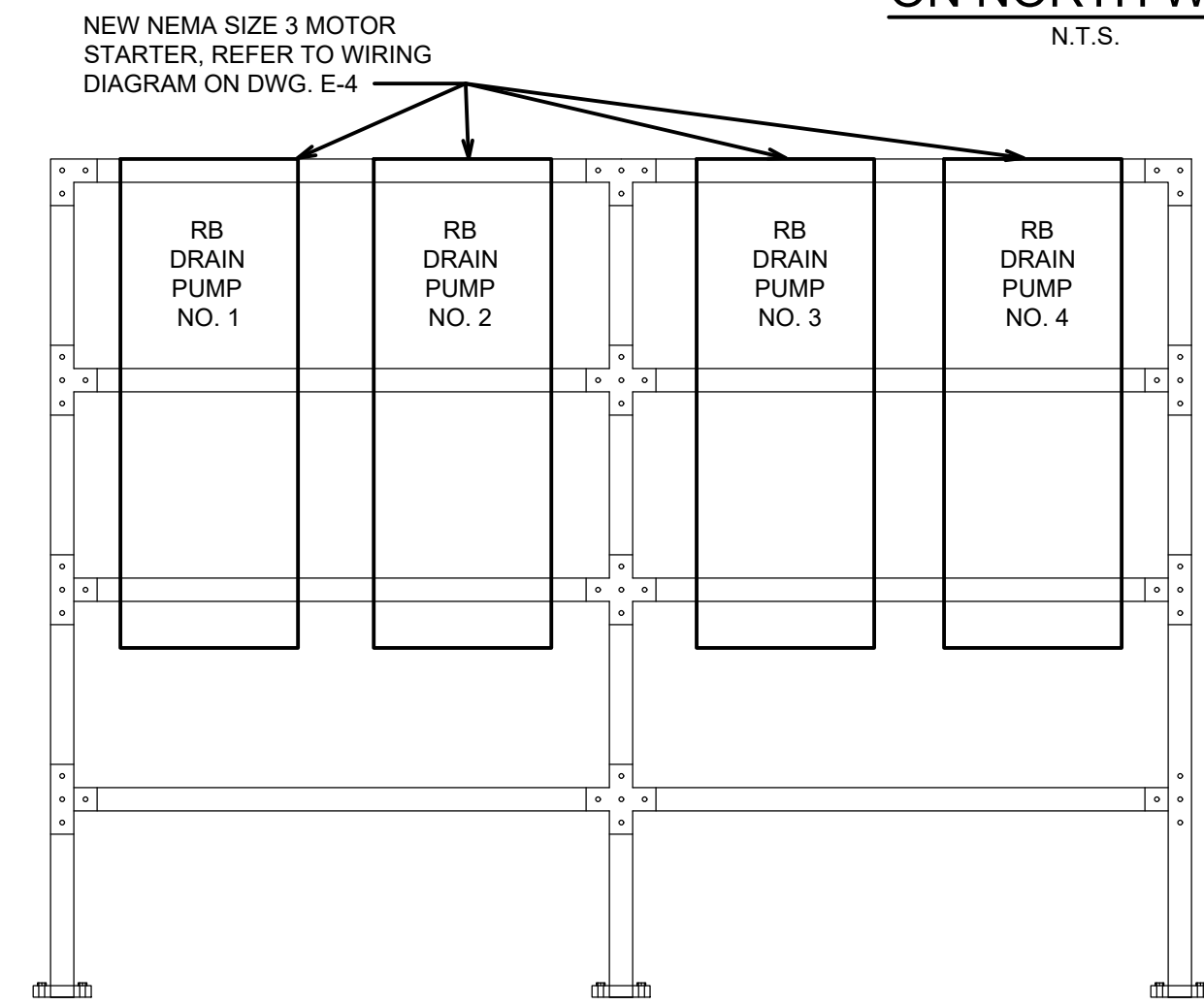
ELECTRICAL EQUIPMENT ON EAST WALL
N.T.S.



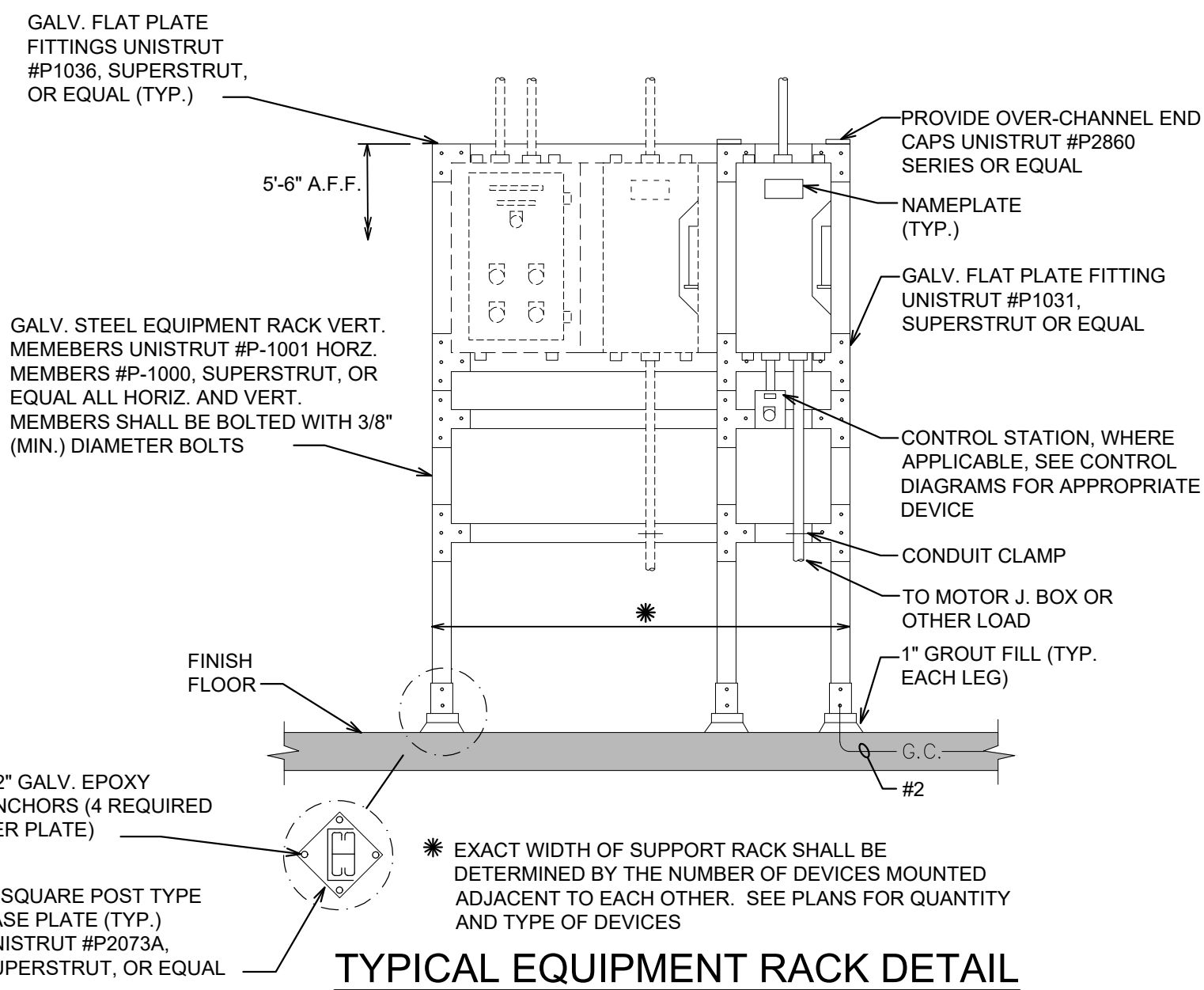
ELECTRICAL EQUIPMENT ON NORTH WALL
N.T.S.



ELECTRICAL EQUIPMENT ON EAST SIDE OF RACK
N.T.S.



ELECTRICAL EQUIPMENT ON WEST SIDE OF RACK
N.T.S.



TYPICAL EQUIPMENT RACK DETAIL
N.T.S.

CONNECT NEW DP-F TO BUCKET FEEDING MCC-E AFTER MCC-E IS REMOVED

REMOVE SPARE BREAKER, SET TO 600A TRIP. CHANGE CT SETTINGS AS REQUIRED. REINSTALL BREAKER AND FEED NEW DP-E

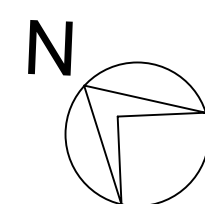


PHOTO-1

X
DENOTES GENERAL LOCATION OF PHOTO.

ELECTRICAL ROOM PLAN - EL. 758

SCALE: 3/8" = 1'-0"



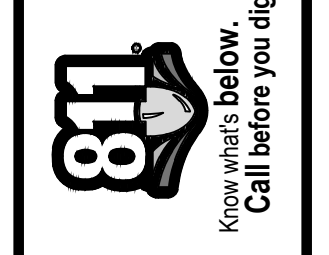
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
100% SET		5-10-2024	M.R.M.	M.J.R.
90% REVIEW		4-26-2024	M.R.M.	M.J.R.

CITY OF ANN ARBOR PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48107-8647
www.a2gov.org



WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
RETENTION BASIN BUILDING
ELECTRICAL ROOM PLAN

AS NOTED

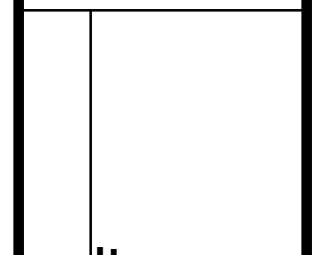


NEW DISTRIBUTION PANEL "DP-E" SCHEDULE									
480 V., 3PH., 3 WIRE, 600 AMP, M. L. O. AND GROUND BUS, FED FROM UNIT SUB 2B									
NAMEPLATE ENGRAVING				CONN. LOAD (H.P.)	CONN. AMPS	OVERCURRENT PROTECTION		WIRE AND CONDUIT	REMARKS
POS. No.	DESCRIPTION	DESIG.	BKR.			POLES			
E-1	FEEDER MCC-EE				150A	3	3-#1 + #6 GRD., 1 1/2"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-2	EQ. RTN. VALVE #1				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-3	EQ. RTN. VALVE #2				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-4	RB RTN. CONTROL VALVE				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-5	EQ. INFL. GATE #1				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-6	EQ. INFL. GATE #2				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-7	EQ. INFL. GATE #3				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-8	EQ. INFL. GATE #4				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-9	EQ. INFL. GATE #9				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-10	EQ. INFL. GATE #10				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-11	EQ. INFL. GATE #11				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-12	EQ. INFL. GATE #12				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-13	BASIN INFL. GATE #1				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-14	BASIN INFL. GATE #3				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-15	BASIN OUT GATE #1				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-16	BASIN OUT GATE #3				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-17	SECURITY GATE				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-18	EQR-EUH-1				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-19	EQR-EUH-2				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-20	(VERIFY LOAD IN FIELD)				30A	3	3-#10 + #10 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B. (VERIFY IN FIELD)	
E-21	WELDER OUTLETS				30A	3	3-#10 + #10 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-22	CHLORINE TAB MACHINE				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
E-23	RB DRAIN PUMP #2		40		80A	3	3-#4 + #8 GRD., 1 1/2"C.	TO NEW MOTOR STARTER	
E-24	RB DRAIN PUMP #4		40		80A	3	3-#4 + #8 GRD., 1 1/2"C.	TO NEW MOTOR STARTER	
E-25	MP PEW PUMP #1		60		125A	3	3-#2 + #6 GRD., 1 1/2"C.	TO NEW MOTOR STARTER	
E-26	HP PEW PUMP #1		100		175A	3	3-#2/0 + #6 GRD., 2"C.	TO NEW MOTOR STARTER	
E-27	SCREW PUMP #7		100		175A	3	3-#2/0 + #6 GRD., 2"C.	TO NEW SOFT STARTER	
E-28	SCREW PUMP #8		100		175A	3	3-#2/0 + #6 GRD., 2"C.	TO NEW SOFT STARTER	
E-29	SLUDGE PUMP #1		5		30A	3	3-#10 + #10 GRD., 3/4"C.	TO NEW MOTOR STARTER	
E-30	SLUDGE PUMP #2		5		30A	3	3-#10 + #10 GRD., 3/4"C.	TO NEW MOTOR STARTER	
E-31	SUMP PUMP #1		5		20A	3	3-#12 + #12 GRD., 3/4"C.	TO NEW MOTOR STARTER	
E-32	LIGHTING PANEL 'E' TRANSFORMER				50A	3	3-#6 + #10 GRD., 1"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	

NEW DISTRIBUTION PANEL "DP-F" SCHEDULE									
480 V., 3PH., 3 WIRE, 600 AMP, M. L. O. AND GROUND BUS, FED FROM UNIT SUB 2B									
NAMEPLATE ENGRAVING				CONN. LOAD	CONN. AMPS	OVERCURRENT PROTECTION		WIRE AND CONDUIT	REMARKS
POS. No.	DESCRIPTION	DESIG.	BKR.			POLES			
F-1	FEEDER MCC-'FF'				150A	3	3-#1 + #6 GRD., 1 1/2"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-2	EQ. RTN. VALVE				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-3	EQ. INFL. VALVE #3				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-4	EQ. INFL. GATE #5				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-5	EQ. INFL. GATE #6				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-6	EQ. INFL. GATE #7				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-7	EQ. INFL. GATE #8				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-8	BASIN INFL. GATE #2				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-9	BASIN OUT GATE #2				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-10	BY-PASS GATE #1				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-11	BY-PASS GATE #2				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-12	SLUICE GATE #1				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-13	SLUICE GATE #2				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-14	PUMP ROOM HOIST				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-15	EQUIP. ROOM HOIST				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-16	BASIN HOIST				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-17	WELDER OUTLET				30A	3	3-#10 + #10 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-18	TEMP BATTERY CHARGER				20A	3	3-#12 + #12 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-19	SEWAGE EJECTION PUMP				30A	3	3-#10 + #10 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-20	HP PEW PUMP #2			100	175A	3	3-#2/0 + #6 GRD., 2"C.	TO NEW MOTOR STARTER	
F-21	MP PEW PUMP #2			60	125A	3	3-#2 + #6 GRD., 1 1/2"C.	TO NEW MOTOR STARTER	
F-22	RB DRAIN PUMP #1			40	80A	3	3-#4 + #8 GRD., 1 1/2"C.	TO NEW MOTOR STARTER	
F-23	RB DRAIN PUMP #3			40	80A	3	3-#4 + #8 GRD., 1 1/2"C.	TO NEW MOTOR STARTER	
F-24	SUMP PUMP #2			5	20A	3	3-#12 + #12 GRD., 3/4"C.	TO NEW MOTOR STARTER	
F-25	SLUDGE PUMP #3			5	30A	3	3-#10 + #10 GRD., 3/4"C.	TO NEW MOTOR STARTER	
F-26	SCREW PUMP #6			100	175A	3	3-#2/0 + #6 GRD., 2"C.	TO NEW MOTOR STARTER	
F-27	ENERGY RECOVERY UNIT 'HR-2'				90A	3	3-#4 + #8 GRD., 1"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-28	EF-1				30A	3	3-#10 + #10 GRD., 3/4"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	
F-29	ROOF FAN 'RF-5'			1	20A	3	3-#12 + #12 GRD., 3/4"C.	TO NEW MOTOR STARTER	
F-30	ROOF FAN 'RF-6'			1/2	20A	3	3-#12 + #12 GRD., 3/4"C.	TO NEW MOTOR STARTER	
F-31	LIGHTING PANEL 'F' TRANSFORMER				50A	3	3-#6 + #10 GRD., 1"C.	EXTEND WIRE AND CONDUIT AS REQUIRED VIA J.B.	

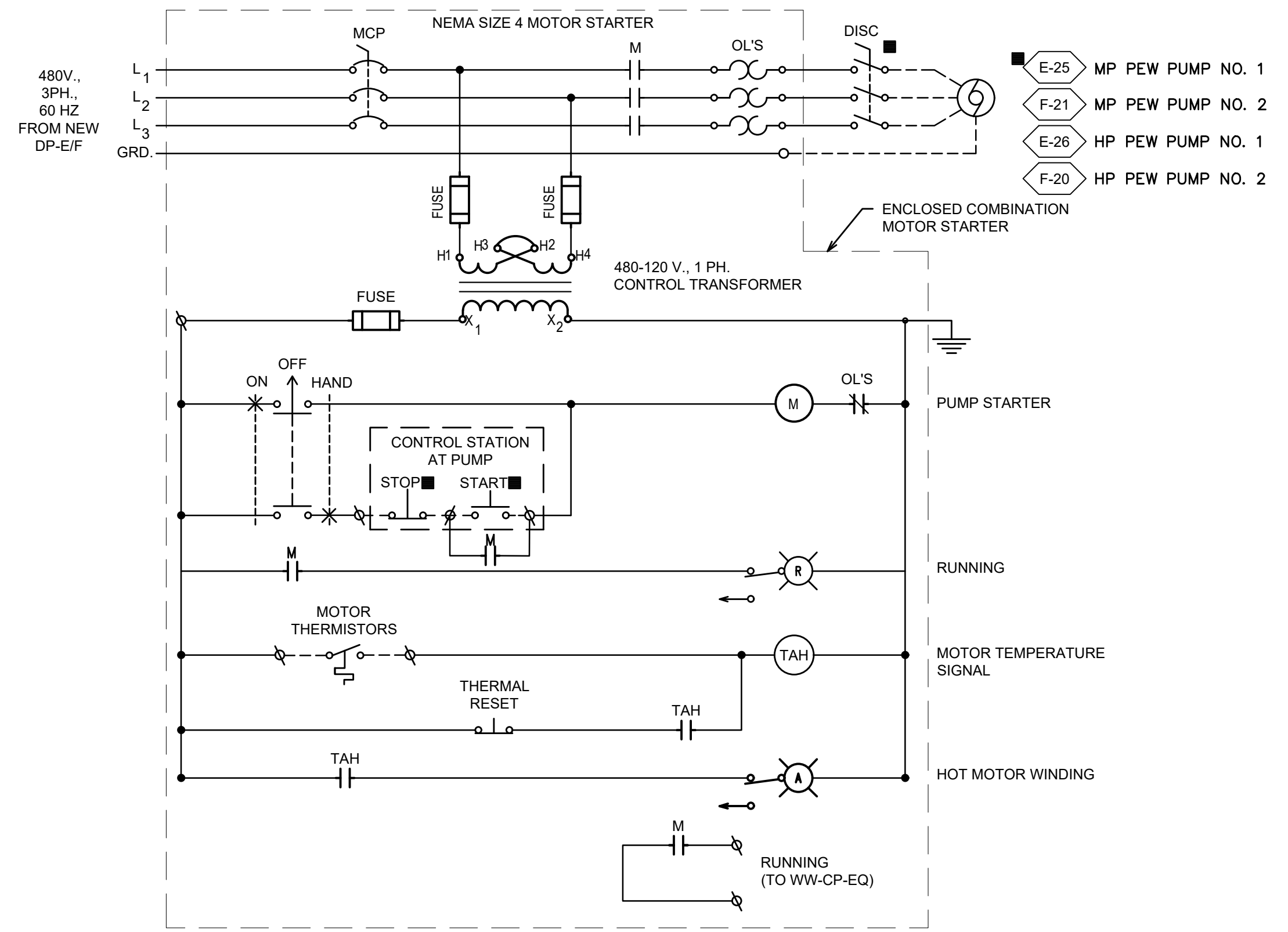
M.J.R.	M.J.R.	M.R.M.	M.R.M.
5-10-2024	4-26-2024		

100% SET	90% REVIEW	REV.	DESCRIPTION

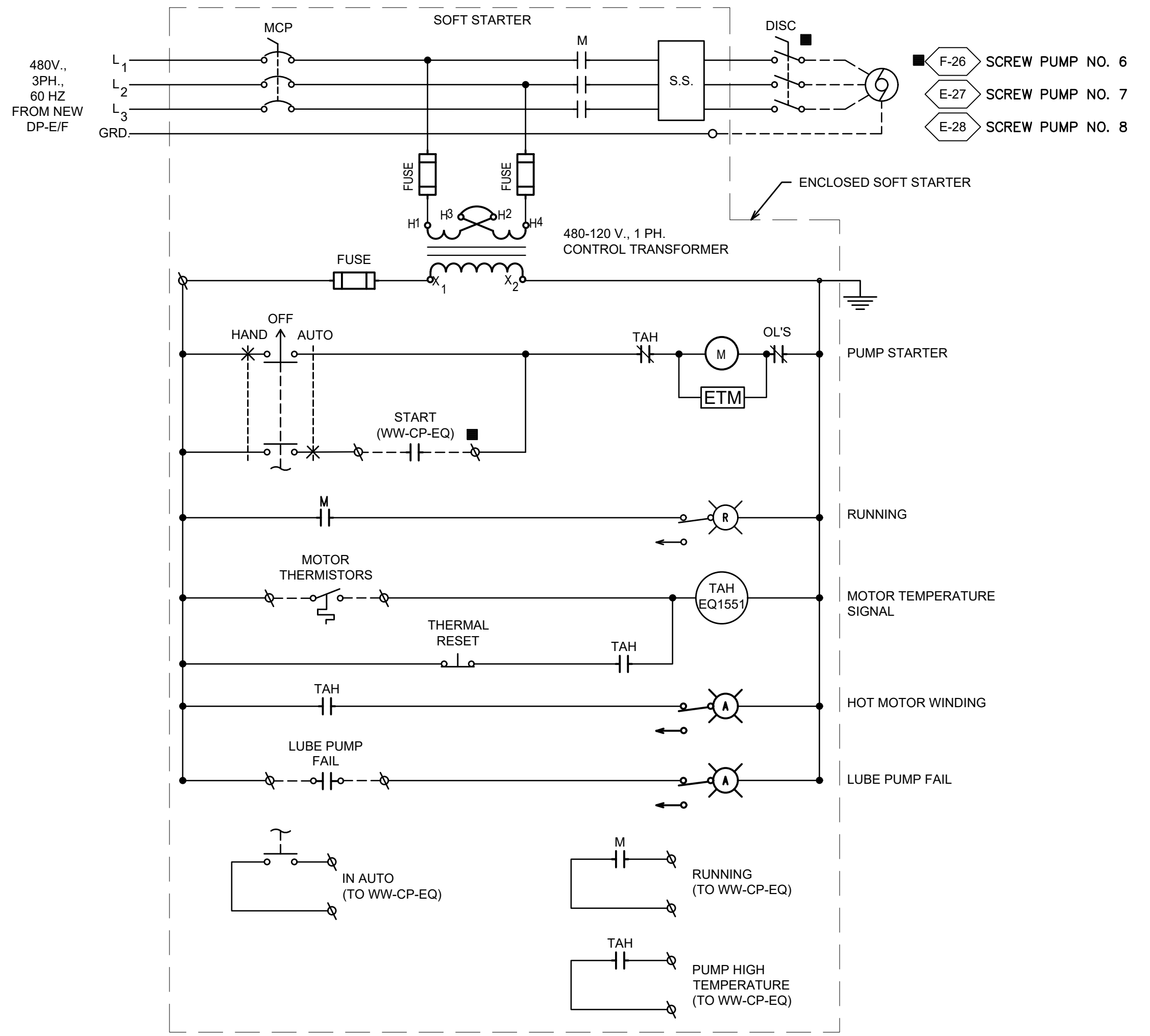


WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
 MOTOR CONTROL CENTERS E & F
 REPLACEMENT PROJECT
 DISTRIBUTION PANELS E & F
 SCHEDULES

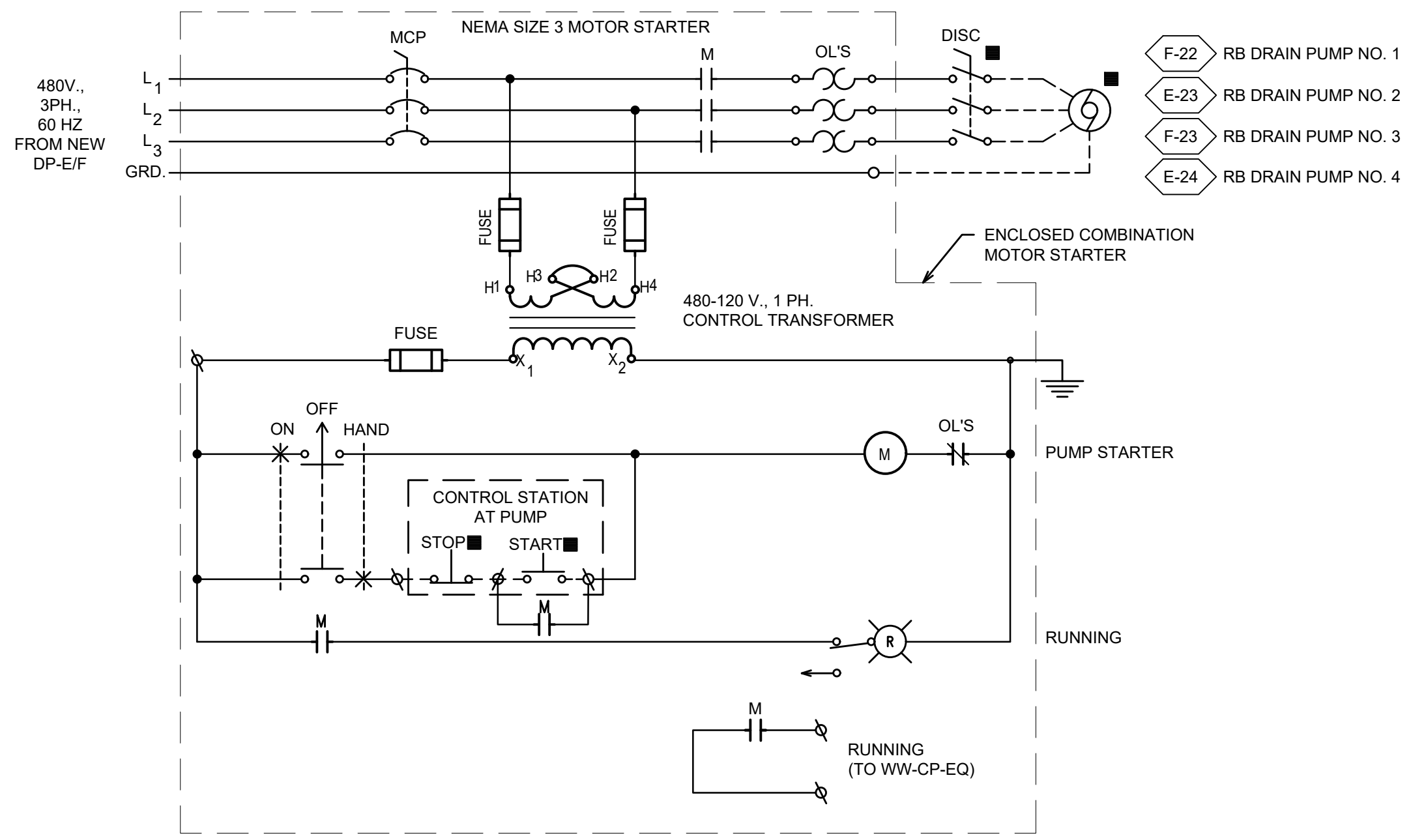
SCALE	SHEET No.
NO SCALE	E-03
DRAWING No.	



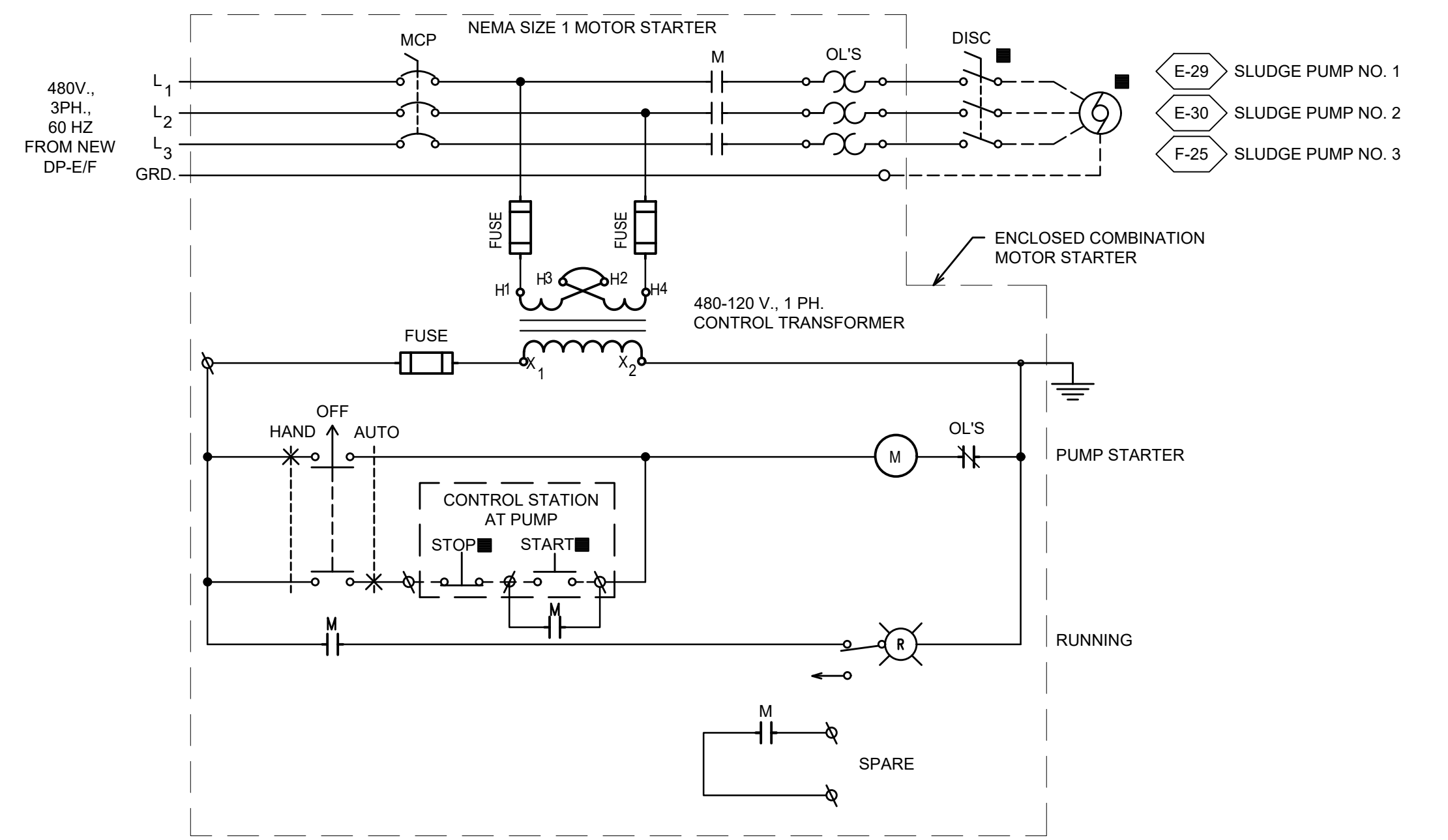
MP PEW PUMP NO. 1 WIRING DIAGRAM
 (MP PEW PUMP NO. 2, HP PEW PUMP NO. 1, HP PEW PUMP NO. 2 SIMILAR)
 WIRING DIAGRAM BASED ON REFERENCE DRAWINGS; VERIFY CONDITIONS IN FIELD
 ■ = DEVICE LOCATED REMOTELY




SCREW PUMP NO. 6 WIRING DIAGRAM
 (SCREW PUMP NO. 7, NO. 8 SIMILAR)
 WIRING DIAGRAM BASED ON REFERENCE DRAWINGS; VERIFY CONDITIONS IN FIELD
 ■ = DEVICE LOCATED REMOTELY



RB DRAIN PUMP NO. 1 WIRING DIAGRAM
 (RB DRAIN PUMP NO. 2, NO. 3, NO. 4 SIMILAR)
 WIRING DIAGRAM BASED ON REFERENCE DRAWINGS; VERIFY CONDITIONS IN FIELD
 ■ = DEVICE LOCATED REMOTELY




SLUDGE PUMP NO. 1 WIRING DIAGRAM
 (SLUDGE PUMP NO. 2 AND NO. 3 SIMILAR)
 WIRING DIAGRAM BASED ON REFERENCE DRAWINGS; VERIFY CONDITIONS IN FIELD
 ■ = DEVICE LOCATED REMOTELY



Know what's below.
Call before you dig.

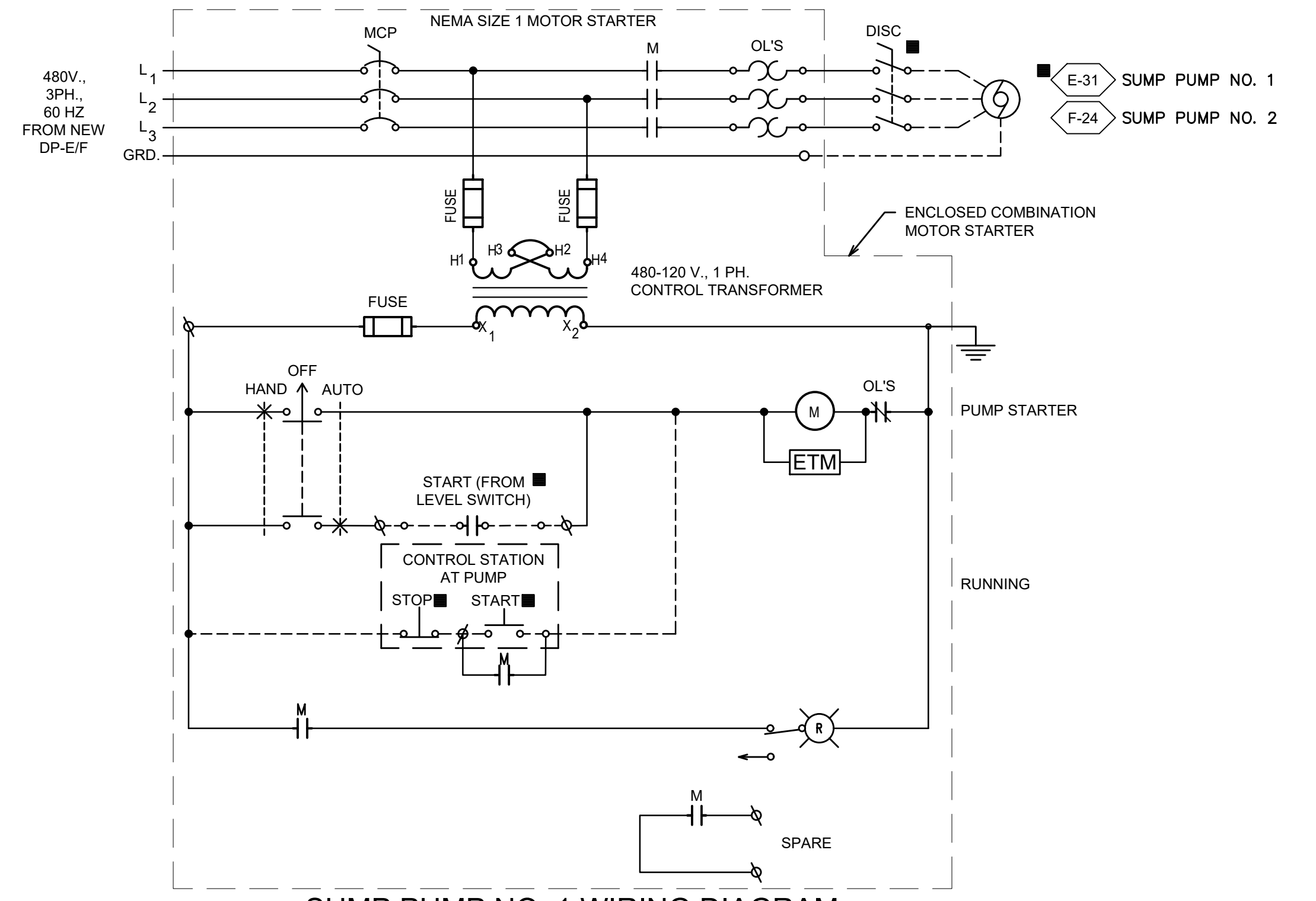
M.J.R.	M.J.R.	M.R.M.	M.R.M.	DATE	CHECKED
5-10-2024	4-26-2024	100% SET	90% REVIEW	DATE	DRAWN
100% SET	90% REVIEW	DATE	DRAWN	CHECKED	REV.
DESCRIPTION					
REV.					



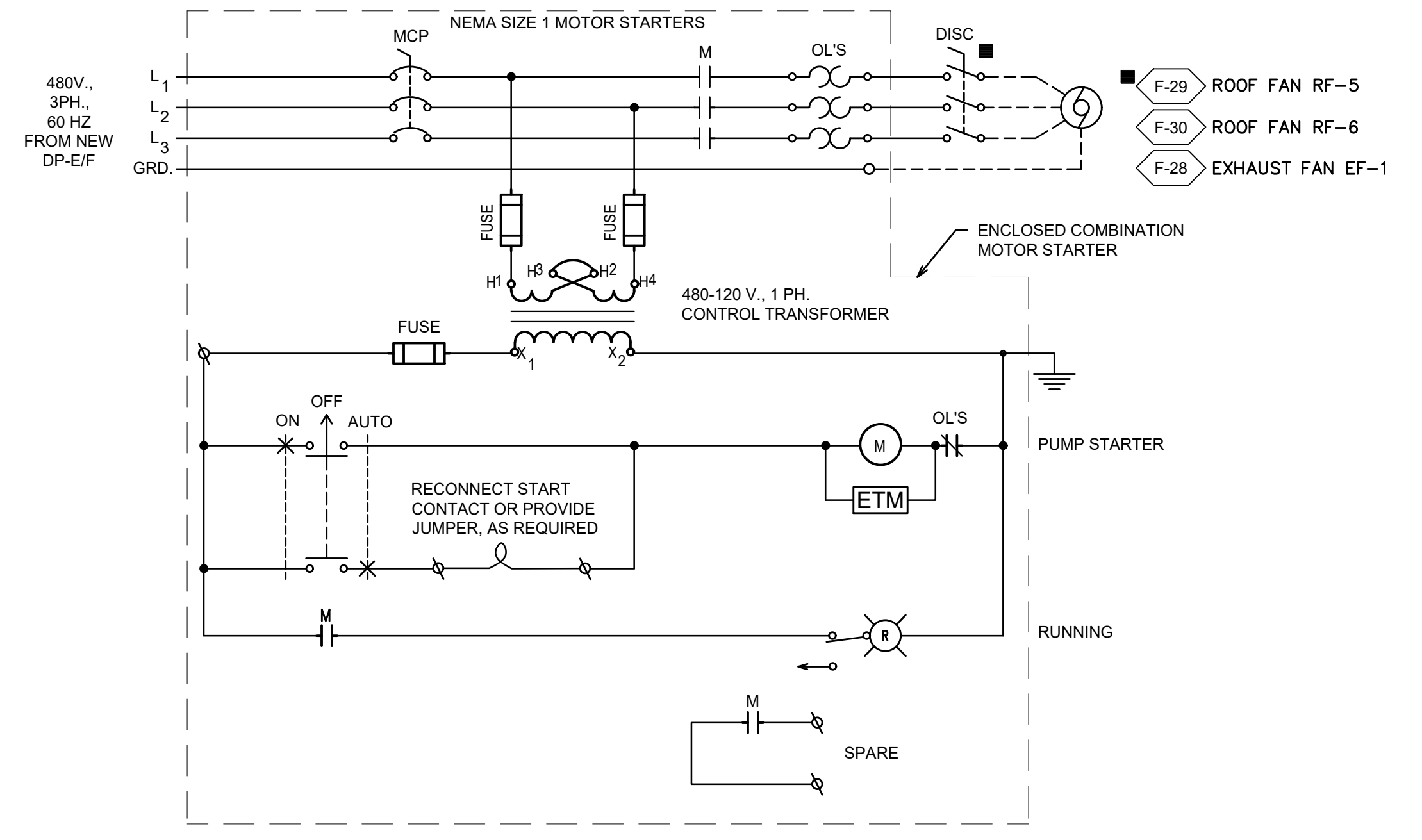
CITY OF ANN ARBOR
 PUBLIC SERVICES
 301 EAST HURON STREET
 P.O. BOX 864
 ANN ARBOR, MI 48107-0864
 ANN ARBOR 734-794-6410
 www.a2gov.org

WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
 PUMP WIRING DIAGRAMS

SCALE: **NO SCALE**
 SHEET No. **E-04**



SUMP PUMP NO. 1 WIRING DIAGRAM
 (SUMP PUMP NO. 2 SIMILAR)
 WIRING DIAGRAM BASED ON REFERENCE DRAWINGS, VERIFY IN FIELD
 ■ = DEVICE LOCATED REMOTELY

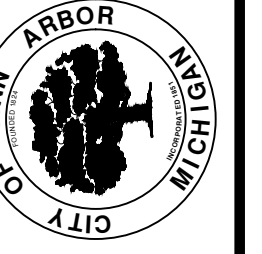


ROOF FAN RF-5 WIRING DIAGRAM
 (ROOF FAN RF-6, EXHAUST FAN EF-1 SIMILAR)
 WIRING DIAGRAM BASED ON REFERENCE DRAWINGS, VERIFY IN FIELD
 ■ = DEVICE LOCATED REMOTELY



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
100% SET		5-10-2024	M.R.M.	M.J.R.
90% REVIEW		4-26-2024	M.R.M.	M.J.R.

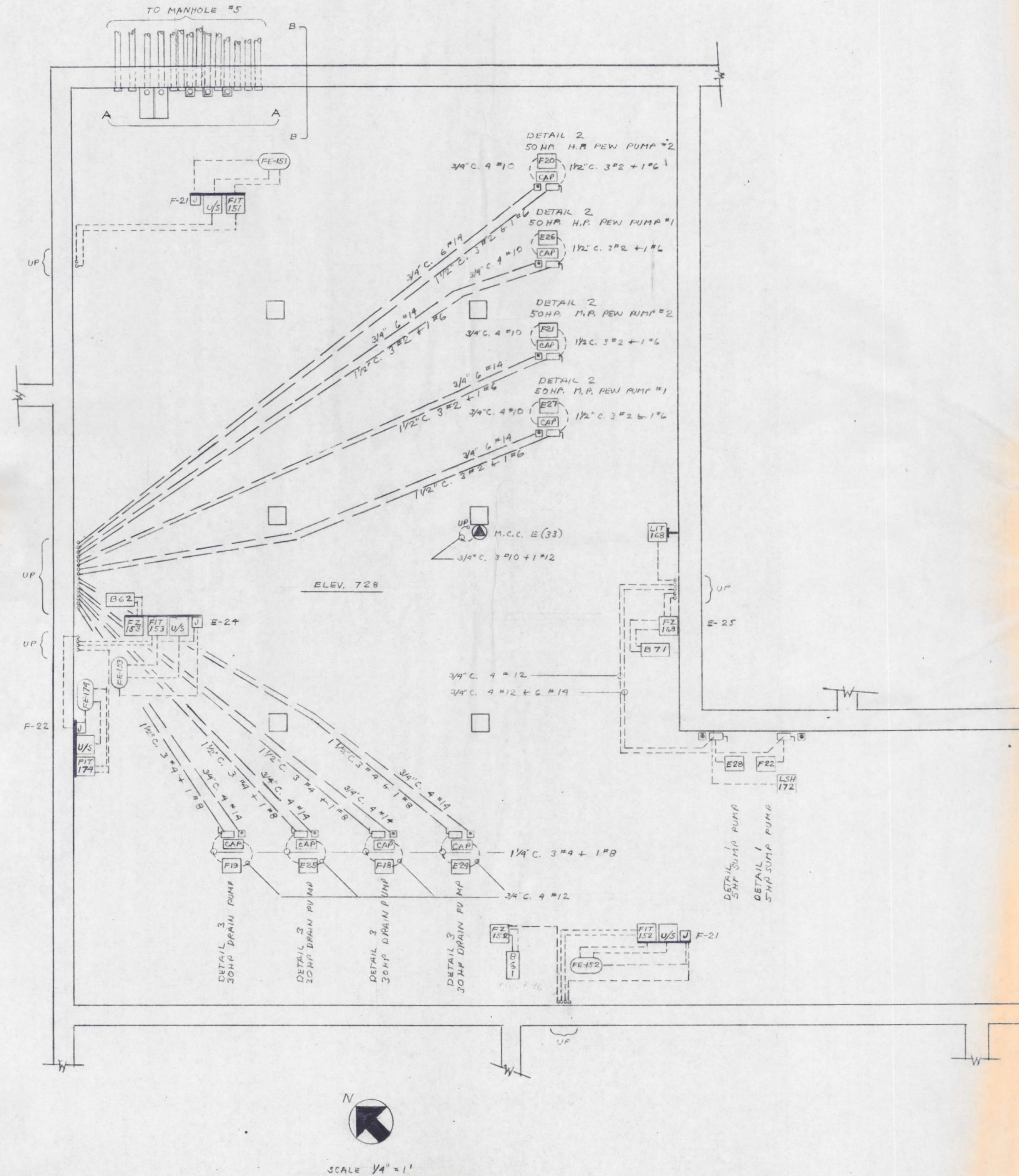
CITY OF ANN ARBOR
 PUBLIC SERVICES
 301 EAST HURON STREET
 ANN ARBOR, MI 48106-1067
 734.794.4410
 www.a2gov.org



WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
 PUMP WIRING DIAGRAMS
 AND ELECTRICAL DETAILS

SCALE: **NO SCALE**
 DRAWING No. _____
 SHEET No. **E-05**

THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE NOT TO SCALE, NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.



APPROVED NOT APPROVED
 APPROVED AS CORRECTED
 REVISE AND RESUBMIT
 Checking is only for conformance with the design concept of the project and does not constitute an endorsement of the Contractor. Contractor is responsible for dimensions to be confirmed and controlling at the job site for reference that pertains solely to the job under progress or to subsequent construction and for coordination of the work of all trades.
 BY: DCM
 DATE: 6.16.78
 M/NAMEE, PORTER & SEELEY

REVIEWED
 FOR SUBMISSION
 A. Z. SHIMINA & SONS CO.
 MAY 23 1978
 BY: [Signature]

STECZ ELECTRIC CO., INC.	
12115 CONANT	
POWER AND AUXILIARY SYSTEMS	
RETENTION BASIN BUILDING	ELEV. 728
CONTRACT 77-5-6 DIV. A	026 2533 04 SHEET R-E4



WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR

MOTOR CONTROL CENTERS E & F REPLACEMENT PROJECT

REFERENCE SHEET

811 Know what's below. Call before you dig.

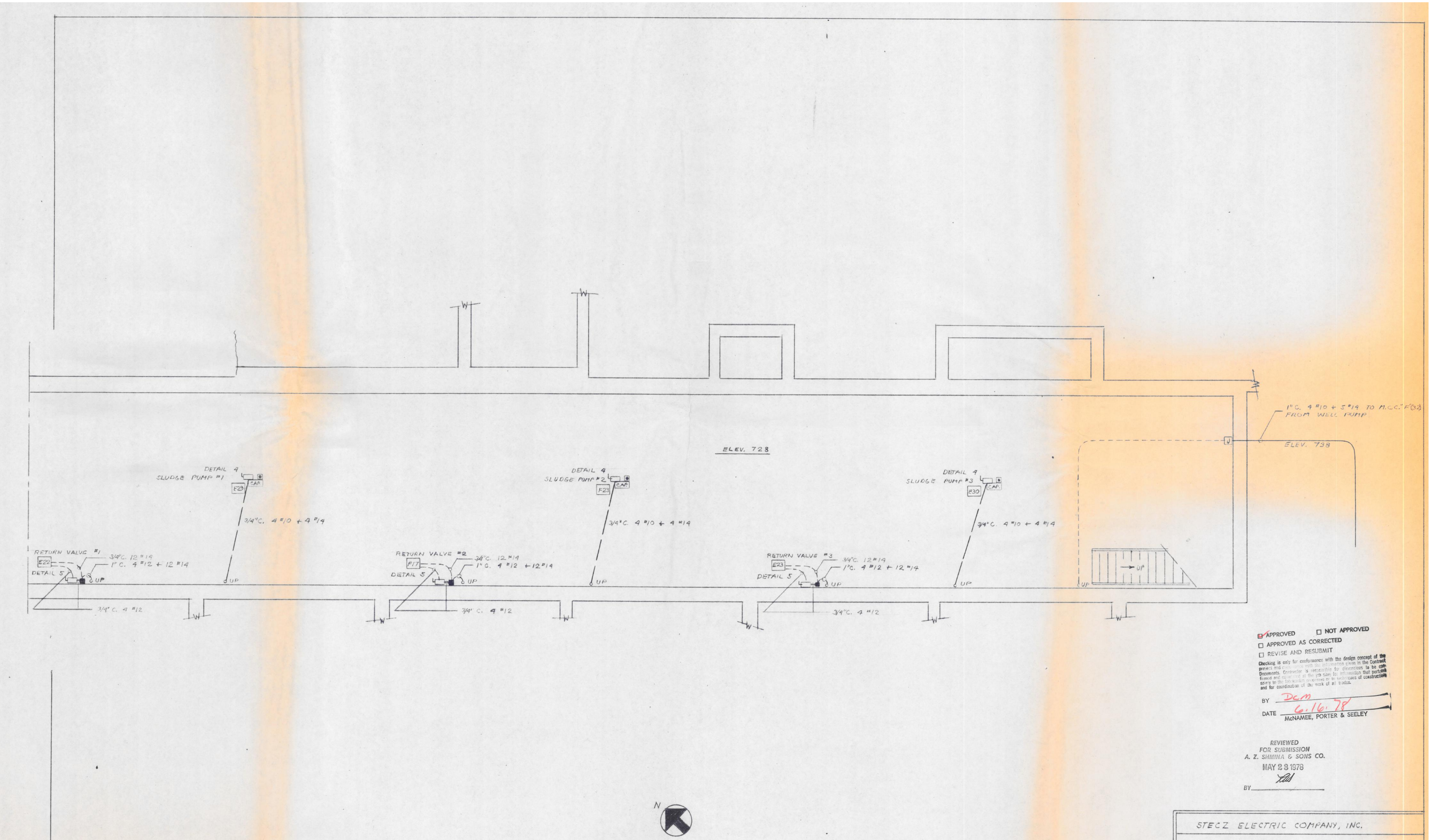
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
100% SET	90% REVIEW	5-10-2024	M.J.R.	M.J.R.
		4-26-2024	M.R.M.	M.R.M.

CITY OF ANN ARBOR
 PUBLIC SERVICES
 301 EAST HURON STREET
 ANN ARBOR, MI 48107-8647
 ANN ARBOR 734-794-4410
 www.aagov.org

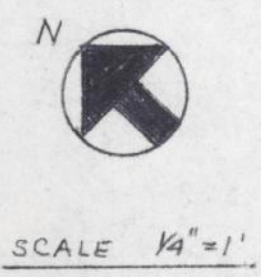
SCALE: N.T.S.

DRAWING No.

SHEET No. REF-1



THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE NOT TO SCALE, NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.



APPROVED NOT APPROVED
 APPROVED AS CORRECTED
 REVISE AND RESUBMIT
 Checking is only for conformance with the design concept of the project and does not constitute an endorsement of the Contractor. Contractor is responsible for dimensions to be cast, fixed and covered at the job site to information that pertains solely to the building structure or the work of construction and for coordination of the work of all trades.
 BY DCM
 DATE 6.16.78
 McNAMEE, PORTER & SEELEY

REVIEWED
 FOR SUBMISSION
 A. Z. SHMINA & SONS CO.
 MAY 23 1978
 BY [Signature]

STECZ ELECTRIC COMPANY, INC.	
12115 CONANT	
POWER AND AUXILIARY SYSTEMS	
RETENTION BASIN BUILDING	ELEV. 728
CONTRACT 77-S-6 DN. A.	C26 2539 09 SHEET R-E5

811
Know what's below.
Call before you dig.

REV.	DATE	DESCRIPTION
100% SET	5-10-2024	M.J.R.
90% REVIEW	4-26-2024	M.R.M.
		M.J.R.
		CHECKED

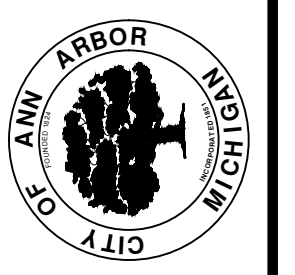
CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-8647
www.a2gov.org

WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
REFERENCE SHEET

SHEET No.
REF-2

REV.	DATE	DESCRIPTION
100% SET	5-10-2024	
90% REVIEW	4-26-2024	

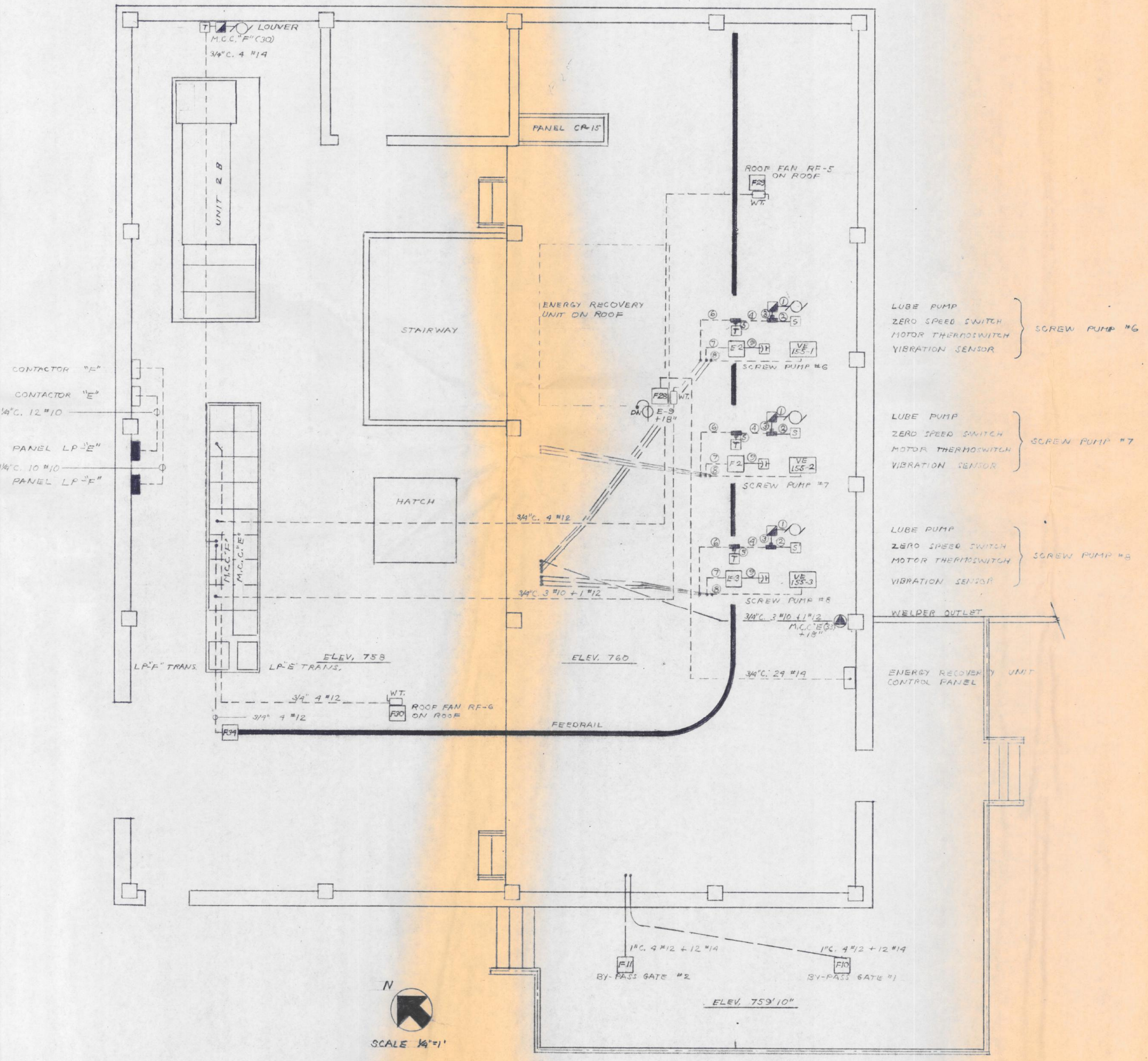
CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48107-8647
www.a2gov.org



WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
REFERENCE SHEET

SCALE
N.T.S.
DRAWING No.
SHEET No.
REF-3

THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE NOT TO SCALE, NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.



- ① 3/4" C. 2 #12
- ② 3/4" C. 2 #14
- ③ 3/4" C. 2 #12
- ④ 3/4" C. 2 #12 + 2 #14
- ⑤ 3/4" C. 2 #14
- ⑥ 3/4" C. 2 #12 + 4 #14
- ⑦ 2" C. 3 #10 & 1 #6
- ⑧ 3/4" C. 1 MFG'S CABLE
- ⑨ 1" C. 4 #8

APPROVED NOT APPROVED
 APPROVED AS CORRECTED
 REVISE AND RESUBMIT

Checking is only for conformance with the design concept of the project and does not constitute an endorsement of the Contractor. Contractor is responsible for dimensions to be confirmed and corrected at the job site for all conditions that pertain solely to the field construction or to the progress of construction and for coordination of the work of all trades.

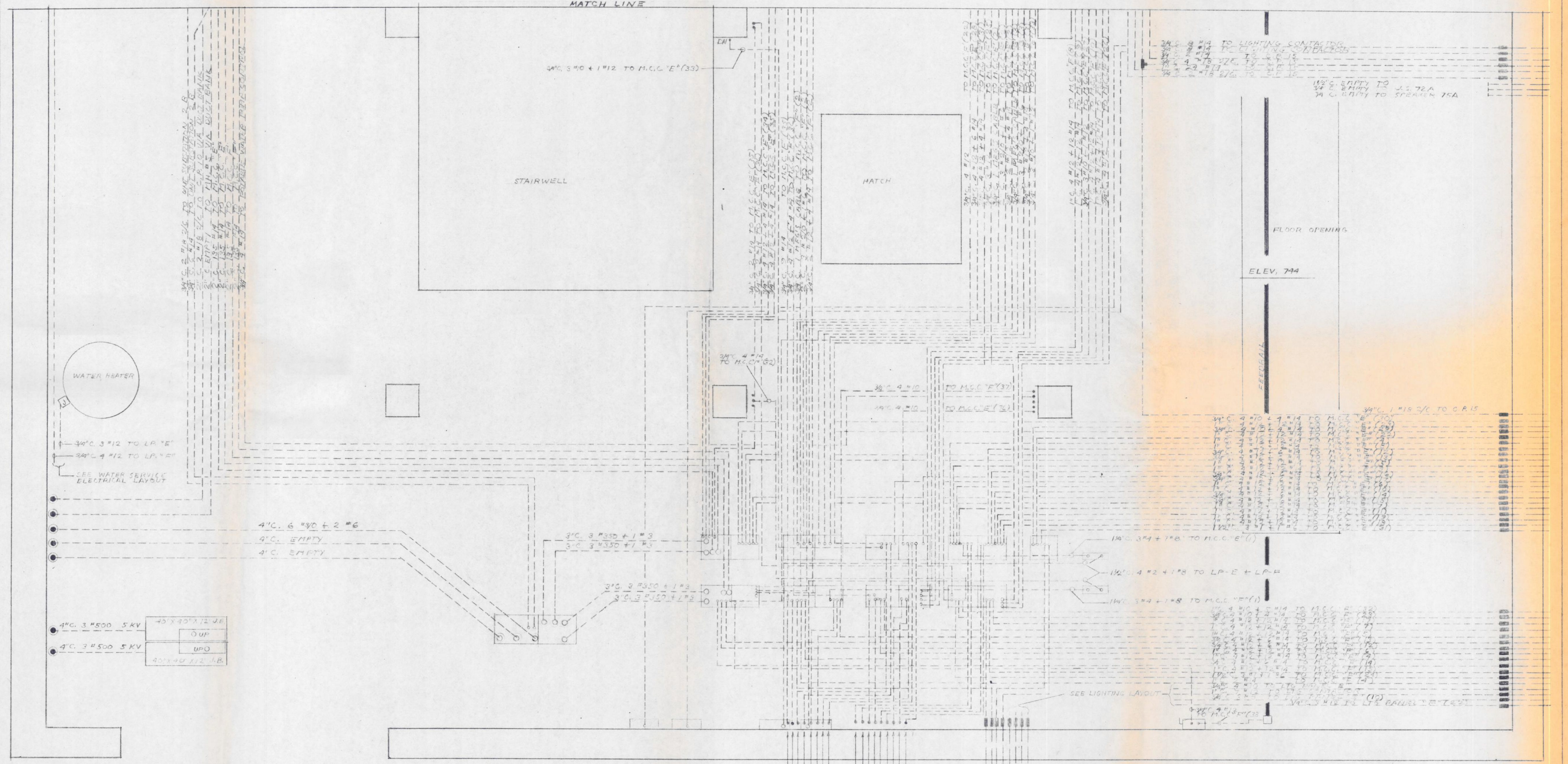
BY: DJP
DATE: 6/16/78
MCMAMEE, PORTER & SEELEY

REVIEWED FOR SUBMISSION
A. Z. SHAMMA & SONS CO.
MAY 23 1978

STELZ ELECTRIC COMPANY, INC.	
12115 CONANT	
FEEDERS, POWER AND AUXILIARY SYSTEMS	
RETENTION BASIN BUILDING	ELEV. 758 ELEV. 759'10" 760
CONTRACT 275-6 D.V. A	C26 2539 09 SHEET R-E29



THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE NOT TO SCALE, NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.



APPROVED NOT APPROVED
 APPROVED AS CORRECTED
 REVISE AND RESUBMIT
 Checking is only for conformance with the design concept of the project and conformance with the information given in the Contract Documents. Contractor is responsible for determining the completeness and accuracy of the work of all trades.
 BY: *DCM*
 DATE: *6.16.78*
 McNAMEE, PORTER & SEELEY



REVIEWED FOR SUBMISSION
 A. Z. SHIMINA & SONS CO.
 MAY 23 1978
 BY: *[Signature]*

STECZ ELECTRIC COMPANY, INC.	
12115 CONANT	
FEEDERS, POWER AND AUXILIARY SYSTEMS	
RETENTION BASIN BUILDING	ELEV. 744
CONTRACT 77-5-6	SHEET R-E12
DIV. A.	C26 2533 04

WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
 REFERENCE SHEET

NO SCALE
 DRAWING No.

CITY OF ANN ARBOR
 PUBLIC SERVICES
 301 EAST HURON STREET
 ANN ARBOR, MI 48106-6647
 www.a3gov.org

811
 Know what's below.
 Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
100% SET		5-10-2024	M.R.M.	M.J.R.
90% REVIEW		4-26-2024	M.R.M.	M.J.R.



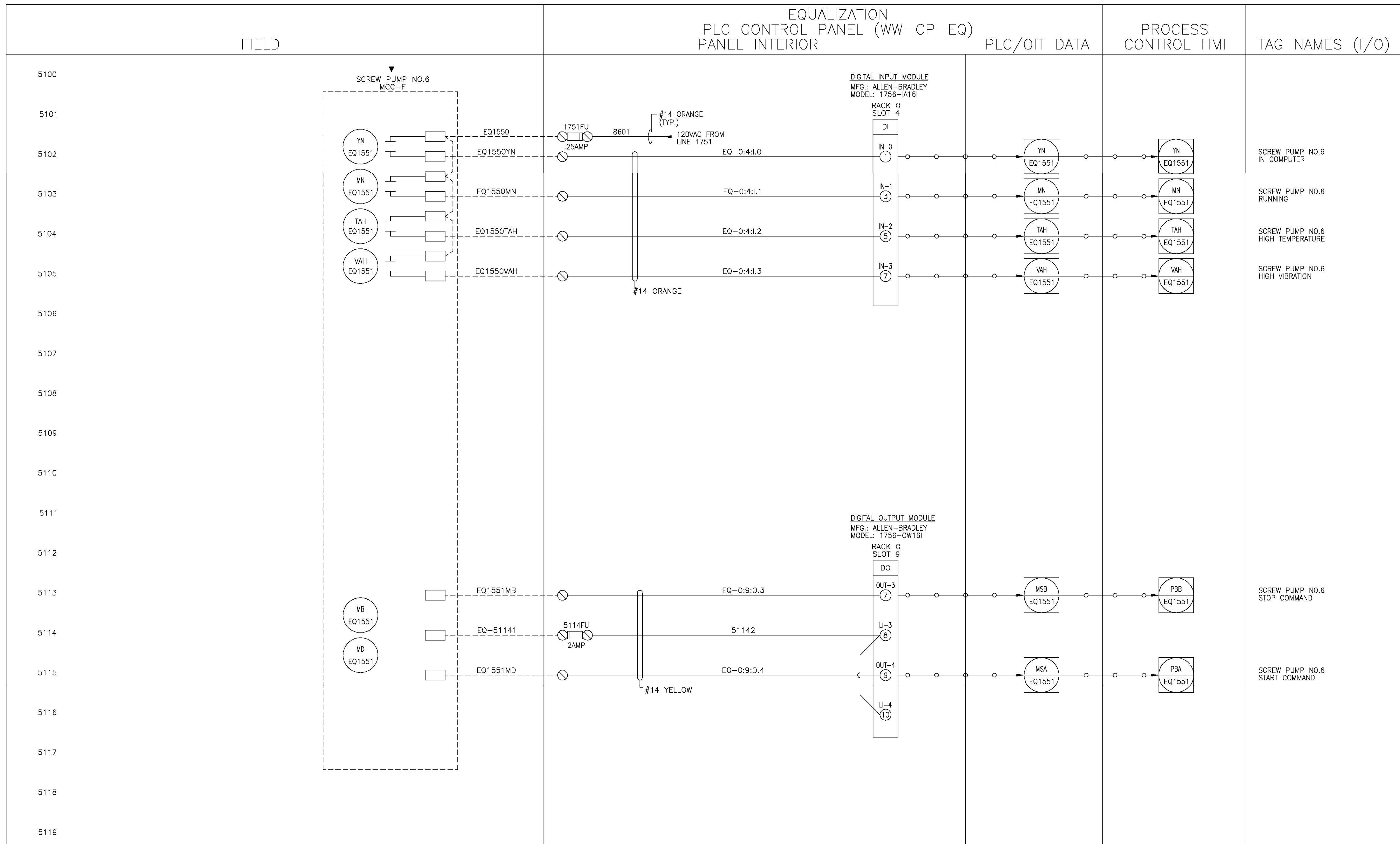
M.J.R.	M.J.R.	CHECKED
M.R.M.	M.R.M.	DRAWN
5-10-2024	4-26-2024	DATE
100% SET	90% REVIEW	DESCRIPTION
		REV.

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-8647
www.a2gov.org

WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
REFERENCE SHEET

SCALE
NO SCALE
DRAWING No.

SHEET No.
REF-5



LEGEND

- - DEVICE LOCATED IN FIELD, SUPPLIED BY CCI
- ▲ - SUPPLIED BY OTHERS
- ▽ - EXISTING DEVICE
- DENOTES FIELD WIRING

No.	Revision:	Revision By:	Date:	No.	Revision:	Revision By:	Date:
A	ORIGINAL	D.A.K.	02/13	5	AS BUILT	M.C.A.	7/17
B	ENGINEER REVIEW COMMENTS	M.C.A.	07/13				
1	AS FABRICATED	J.M.A.	8/14				
4	RFI 575 IN COMPUTER	M.C.A.	1/16				

CCI Commerce Controls Incorporated
Systems Integrators

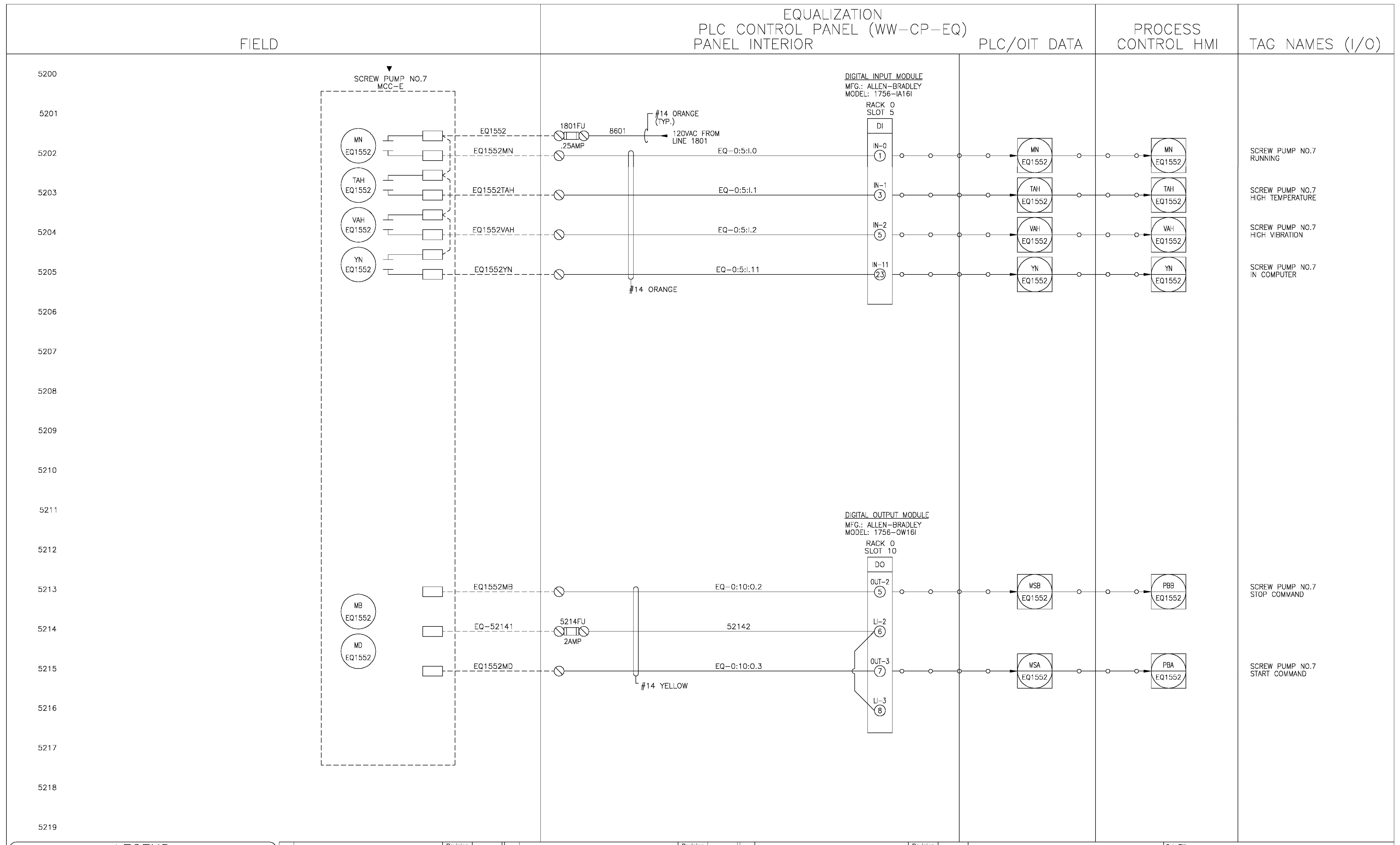
CITY OF ANN ARBOR, MICHIGAN
ANN ARBOR WASTEWATER TREATMENT PLANT FACILITIES RENOVATIONS

Sub Title: EQUALIZATION PLC PANEL (WW-CP-EQ)
SCREW PUMP No.6 LOOP DRAWING

Checked by: S.C.S. Designed by: C.S.G. Drawn By: D.A.K. Date: 02/13 Job No: 6217-02 Sheet No: 51

THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE NOT TO SCALE, NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.

621702051.dwg-07/27/17-10:59



LEGEND

- - DEVICE LOCATED IN FIELD, SUPPLIED BY CCI
- ▼ - SUPPLIED BY OTHERS
- ▽ - EXISTING DEVICE
- DENOTES FIELD WIRING

No.	Revision:	Revision By:	Date:	No.	Revision:	Revision By:	Date:
A	ORIGINAL	D.A.K.	02/13	5	AS BUILT	M.C.A.	7/17
B	ENGINEER REVIEW COMMENTS	M.C.A.	07/13				
1	AS FABRICATED	J.M.A.	8/14				
4	RFI 575 IN COMPUTER	M.C.A.	1/16				

CCI Commerce Controls Incorporated
Systems Integrators

CITY OF ANN ARBOR, MICHIGAN
ANN ARBOR WASTEWATER TREATMENT PLANT FACILITIES RENOVATIONS

Sub Title: EQUALIZATION PLC PANEL (WW-CP-EQ)
SCREW PUMP No.7
LOOP DRAWING

Checked by: S.C.S. Designed by: C.S.G. Drawn By: D.A.K. Date: 02/13 Job No: 6217-02 Sheet No: 52

621702052.dwg-07/27/17-11:00

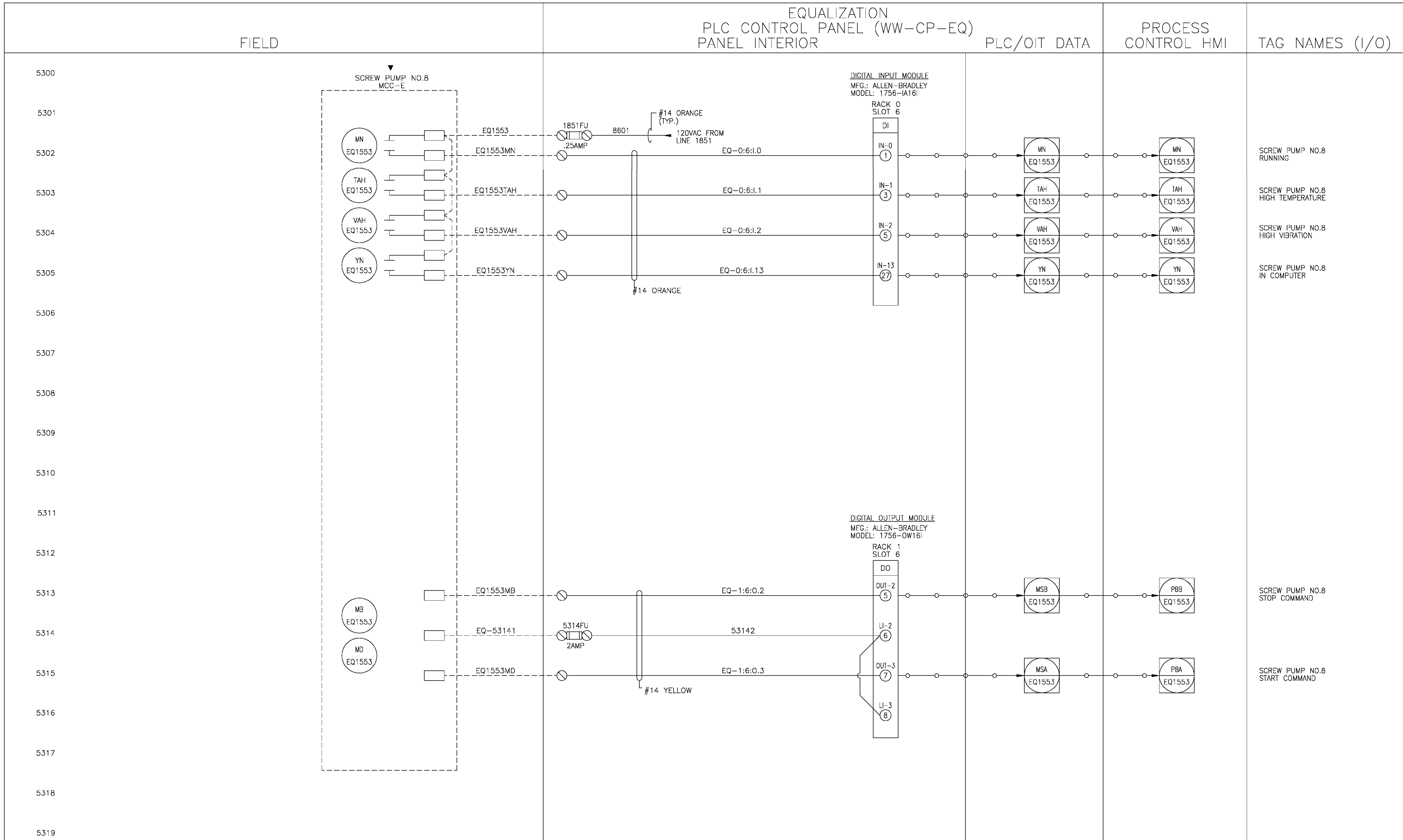
THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE NOT TO SCALE. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-8647
www.a2gov.org

WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
REFERENCE SHEET

SCALE: NO SCALE
DRAWING No.: REF-6
SHEET No.: 52

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
100% SET		5-10-2024	M.R.M.	M.J.R.
90% REVIEW		4-26-2024	M.R.M.	M.J.R.



LEGEND	
● - DEVICE LOCATED IN FIELD, SUPPLIED BY CCI	--- - DENOTES FIELD WIRING
▼ - SUPPLIED BY OTHERS	
▽ - EXISTING DEVICE	

No.	Revision:	Revision By:	Date:	No.	Revision:	Revision By:	Date:
A	ORIGINAL	D.A.K.	02/13	5	AS BUILT	M.C.A.	7/17
B	ENGINEER REVIEW COMMENTS	M.C.A.	07/13				
1	AS FABRICATED	J.M.A.	8/14				
4	RPI 575 IN COMPUTER	M.C.A.	1/16				

CCI Commerce Controls Incorporated
Systems Integrators

CITY OF ANN ARBOR, MICHIGAN
ANN ARBOR WASTEWATER TREATMENT PLANT FACILITIES RENOVATIONS

Sub Title: EQUALIZATION PLC PANEL (WW-CP-EQ)
SCREW PUMP No.8 LOOP DRAWING

Checked by: S.C.S. Designed by: C.S.G. Drawn By: D.A.K. Date: 02/13 Job No: 6217-02 Sheet No: 53

621702053.dwg-07/27/17-11:00

THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE NOT TO SCALE. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.

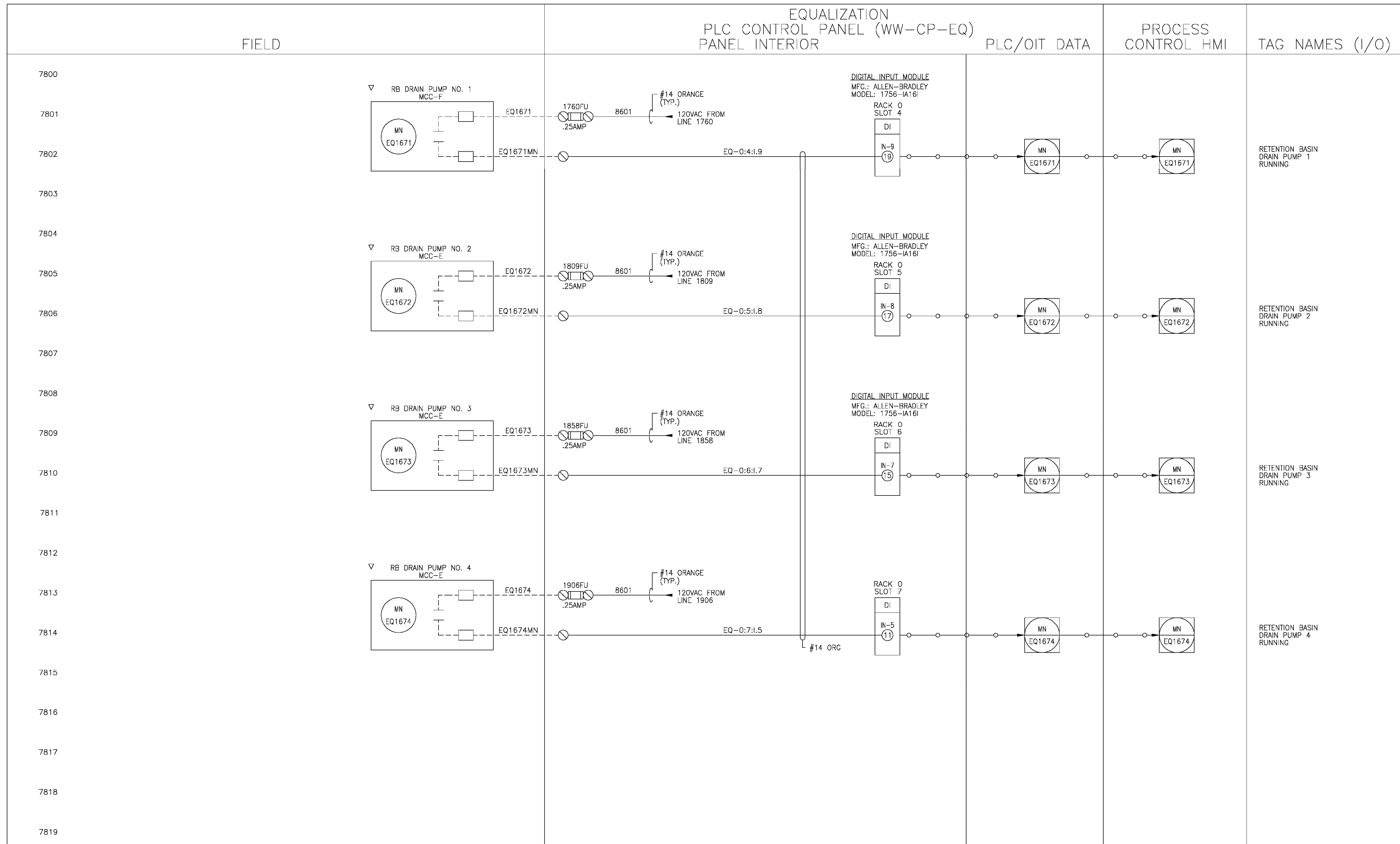
CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-8647
www.a2gov.org



WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
REFERENCE SHEET

SCALE: NO SCALE
DRAWING No.: REF-7
SHEET No.: 53

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
100% SET		5-10-2024	M.R.M.	M.J.R.
90% REVIEW		4-26-2024	M.R.M.	M.J.R.



LEGEND	
● - DEVICE LOCATED IN FIELD, SUPPLIED BY CCI	--- DENOTES FIELD WIRING
▼ - SUPPLIED BY OTHERS	
▽ - EXISTING DEVICE	

No.	Revision:	Revised By:	Date:	No.	Revision:	Revised By:	Date:	No.	Revision:	Revised By:	Date:
A	ORIGINAL	D.A.K.	02/13								
B	ENGINEER REVIEW COMMENTS	M.C.A.	07/13								
1	AS FABRICATED	J.M.A.	8/14								
5	AS BUILT	M.C.A.	7/17								

CCI Commerce Controls Incorporated
Systems Integrators

CITY OF ANN ARBOR, MICHIGAN
ANN ARBOR WASTEWATER TREATMENT PLANT FACILITIES RENOVATIONS

Sub Title: EQUALIZATION PLC PANEL (WW-CP-EQ)
RETENTION DRAIN PUMP STATUS LOOP DRAWING

Checked by: S.C.S. Designed by: C.S.G. Drawn By: D.A.K. Date: 02/13 Job No. 6217-02 Sheet No. 78

621702078.dwg-07/27/17-11:53

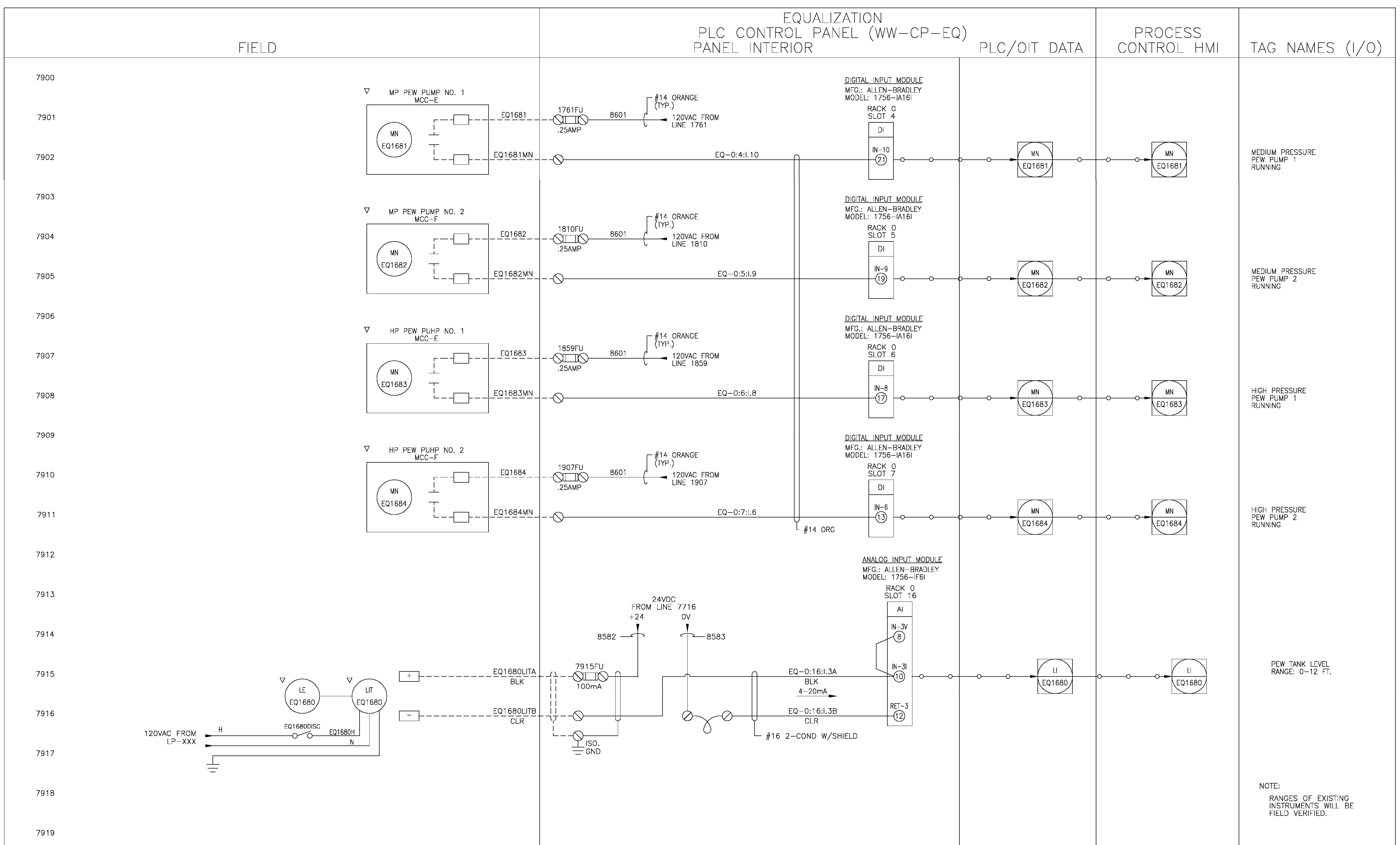
THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE NOT TO SCALE. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-8647
www.a2gov.org

WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT
REFERENCE SHEET

SCALE: NO SCALE
DRAWING No. REF-8

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
100% SET		5-10-2024	M.R.M.	M.J.R.
90% REVIEW		4-26-2024	M.R.M.	M.J.R.



LEGEND

- - DEVICE LOCATED IN FIELD, SUPPLIED BY CCI
- - SUPPLIED BY OTHERS
- ▽ - EXISTING DEVICE
- - DENOTES FIELD WIRING

No.	Revision:	Revision By:	Date:	No.	Revision:	Revision By:	Date:	No.	Revision:	Revision By:	Date:
A	ORIGINAL	D.A.K.	02/13								
B	ENGINEER REVIEW COMMENTS	M.C.A.	07/13								
1	AS FABRICATED	J.M.A.	8/14								
5	AS BUILT	M.C.A.	7/17								

Commerce Controls Incorporated
Systems Integrators

CITY OF ANN ARBOR, MICHIGAN
ANN ARBOR WASTEWATER TREATMENT PLANT FACILITIES RENOVATIONS

Checked by: S.C.S. Designed by: C.S.G. Drawn by: D.A.K. Date: 02/13 Job No. 6217-02 Sheet No. 79

EQUALIZATION PLC PANEL (WW-CP-EQ)
MEDIUM AND HIGH PRESSURE PEW LOOP DRAWING

621702079.dwg-07/27/17-11:53

THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. THIS DRAWING HAS BEEN REDUCED AND IS THEREFORE NOT TO SCALE. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.

CITY OF ANN ARBOR PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48107-8647
www.a2gov.org

100% SET
90% REVIEW

5-10-2024
4-26-2024

DATE

DESCRIPTION

REV.

WRRF - PUBLIC SERVICES - CITY OF ANN ARBOR
MOTOR CONTROL CENTERS E & F
REPLACEMENT PROJECT

REFERENCE SHEET

SCALE: NO SCALE

DRAWING No. REF-9

SHEET No.