

# WELL HOUSE 13 HMO ROOM BUILD-OUT PLANS

FOR  
**CITY OF ROCKFORD**  
**DEPARTMENT OF PUBLIC WORKS**  
**ROCKFORD, ILLINOIS**



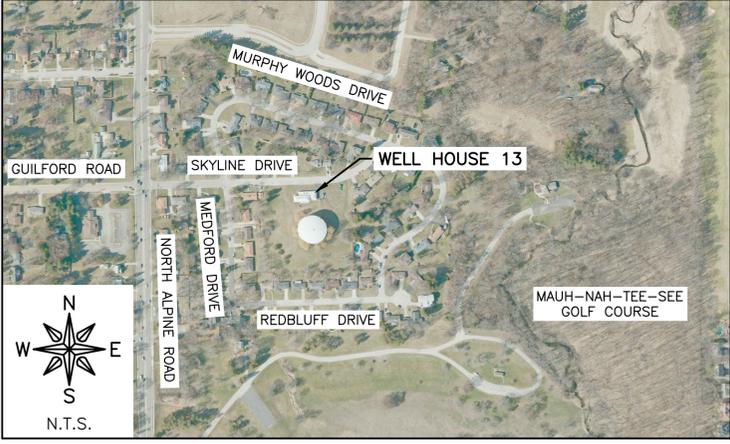
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PROPOSED BUILD-OUT PLANS

WINNEBAGO COUNTY  
JULY 2020

UTILITIES	
UTILITY TYPE	COMMON NAME
SEWER	ROCK RIVER WATER RECLAMATION DISTRICT
ELECTRIC	COMED
TELEPHONE	AT&T, COMCAST, FRONTIER
GAS	NICOR
CABLE	COMCAST

(CONTRACTOR TO BE RESPONSIBLE FOR ANY ADJUSTMENTS TO BE MADE.)



LOCATION MAP



SIGNATURE DATE

OUT TO BID



ILLINOIS                      IOWA                      WISCONSIN

ILLINOIS PROFESSIONAL DESIGN FIRM NUMBER: 184003525

ORIGINAL SET FOR PROJECT: 19-200PH29		DATE CREATED: 7/30/20
REVISIONS		
REV. NO.	DESCRIPTION	DATE



**ABBREVIATIONS**

<	ANGLE
ABC	AGGREGATE BASE COURSE
ACI	ACRE(S)
ACI	AMERICAN CONCRETE INSTITUTE
AGGR	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ARCH	ARCHITECT
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
B	BALL VALVE
BFP	BACKFLOW PREVENTER
BIT	BITUMINOUS
BLDG	BUILDING
BLK	BLOCKING
BM	BENCHMARK
BOT	BOTTOM
BSMT	BASEMENT
BV	BUTTERFLY VALVE
B-B	BACK-TO-BACK OF CURB DIMENSION
CL or C	CENTERLINE
C to C	CENTER TO CENTER
C & G	CURB AND GUTTER
CF	CUBIC FEET
CHD	CHORD LENGTH
CI	CAST IRON PIPE
CHK	CHECK VALVE
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CTY	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
C-B	CENTERLINE TO BACK OF CURB DIMENSION
COORD	COORDINATE
CU	COPPER PIPING
CTRS	CENTERS
CY	CUBIC YARDS
CS	CORPORATION STOP
D	DEGREE OF CURVE
DEP	DEPRESSED
DET	DETAIL
DIAG	DIAGONAL
DIM	DIMENSION
DI	DUCTILE IRON PIPE
DN	DOWN
DNSTR	DOWNSTREAM
DP	DRAINAGE PIPE/STORM PIPE
DWG	DRAWING
E	EAST
EJ	EXPANSION JOINT
EL, ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
EW	EACH WAY
EXP	EXPANSION
EX, EXIST	EXISTING
EXT	EXTERIOR
E =	EXTERNAL DISTANCE
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIELD ENTRANCE
FF	FINISH FLOOR
FIL	FILLET
FIN	FINISH
FL	FLOW LINE
FLR	FLOOR
FM	FORCE MAIN
FND	FOUND
FRMG	FRAMING
FTG	FOOTING
F-F	FACE TO FACE
GA	GAUGE
GI	GALVANIZED IRON PIPE
GRD	GRADE
GRS	GRATING SUPPORT
GRT	GROUT
GV	GAS VALVE
GYP	GYPSUM
HSE	HOUSE
HC	HORIZONTAL CURVE
HMA	HOT MIX ASPHALT
HNGR	HANGER
HORIZ	HORIZONTAL
H.P.	HIGH POINT
HW	HOT WATER
HWH	HOT WATER HEATER
Δ =	CENTRAL ANGLE
I	MOMENT OF INERTIA
ID	INSIDE DIAMETER
INT	INTERIOR
INV	INVERT ELEVATION; BASED ON BENCH MARK DATUM
IP	IRON PIPE
JOIST	JOIST
L	LENGTH OF CURVE
LAT	LATERAL
LAV	LAVATORY
LF	LINEAL FEET
L.P.	LOW POINT
LT	LEFT OF SURVEY BASE LINE
MAX	MAXIMUM
ME	MATCH EXISTING
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MTL	METAL
N	NORTH
No. or #	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OO	OUTSIDE TO OUTSIDE
OPNG	OPENING
OPP	OPPOSITE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PCF	POUNDS PER CUBIC FOOT
PDP	PERFORATED DRAIN PIPE

PE	POLYETHYLENE PIPE
PI	POINT OF INTERSECTION
PL	PLATE
PLG	PLUG VALVE
PLP	POLYPROPYLENE PIPE
PLYWD	PLYWOOD
PM	PRINCIPAL MERIDIAN
PR	PRESSURE REGULATORS
PRC	POINT OF REVERSE CURVATURE
PRESS	PRESSURE
PR, PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PIPE SLEEVE
PT	POINT OF TANGENCY
PLG	PLUG VALVE
PVC	POLYVINYL CHLORIDE (PLASTIC) PIPE
R	RADIUS
RDCR	REDUCER
RCCP	REINFORCED CONCRETE CYLINDER PIPE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REINF	REINFORCING
REQD	REQUIRED
ROW	RIGHT OF WAY
RFTD	RAFTER
RND	ROUND
RNR	RAILROAD
RRSP	RAILROAD SPIKE
RT	RIGHT
R&R	REMOVE AND REPLACE
S	SOUTH
SB	STREAM BED
SCHED	SCHEDULE
SEC	SECTION
SF	SQUARE FEET
SHR	SHOWER
SHT	SHEET
SHTG	SHEATHING
SP	SANITARY PIPE
SPA	SPACING OR SPACES
SPEC	SPECIFICATION
SQ	SQUARE
SS	SANITARY SERVICE
STA	STATION
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SW	SIDEWALK
SY	SQUARE YARDS
SYM	SYMMETRICAL
TAN	TANGENT LENGTH
TBC	TOP BACK OF CURB
TBM	TEMPORARY BENCH MARK; BASED ON BENCHMARK DATUM
TD	TILE DRAIN
THK	THICK
TR	TREAD
TY	TYPE
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
UP	UTILITY POLE
UPSTR	UPSTREAM
UR	URINAL
USGS	US GEOLOGICAL SURVEY
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VOL	VOLUME
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPRC	VERTICAL POINT OF REVERSE CURVATURE
VPT	VERTICAL POINT OF TANGENCY
W	WEST
WC	WATER CLOSET
WF	WIDE FLANGE
WM	WATER MAIN
WMQ	WATER MAIN QUALITY
WV	WATER VALVE
WGT	WEIGHT
WP	WEATHER PROOF
WS	WATER SERVICE
WWF	WELDED WIRE FABRIC
W	WITH
W/O	WITHOUT
XP	EXPLOSION PROOF

**HATCH PATTERNS**

	EARTH - FILL		BRICK
	EARTH - UNDISTURBED		STEEL
	ROCK (GEOLOGICAL)		INSULATION (LOOSE/ BATT)
	STONE OR RIP RAP		INSULATION (RIGID)
	GRAVEL		WOOD (ROUGH)
	CONCRETE		WOOD (BLOCKING)
	CONCRETE BLOCK		WOOD (FINISH)
	CMU		DETECTABLE WARNING
	ASPHALT PAVEMENT		

**SYMBOLS**

CIVIL		WATER		UTILITY	
EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED
		<b>STORM SEWER</b>	<b>PROPOSED</b>		
				<b>TRAFFIC RELATED</b>	<b>PROPOSED</b>
		<b>EROSION CONTROL</b>	<b>PROPOSED</b>		

EXISTING	MISC	PROPOSED
	SOIL BORING LOCATION AND NUMBER	
	MONITORING WELL	
	REVISION NUMBER	
	OUTLINE OF DETAILED AREA	
	SECTION NUMBER - SHEET WHERE SHOWN	

EXISTING	SANITARY SEWER	PROPOSED
	SANITARY SEWER	
	SANITARY SEWER SERVICE	
	SANITARY SEWER FORCE MAIN	
	SANITARY CLEANOUT	
	SANITARY MANHOLE	
	WYE FITTING	

**FEHR GRAHAM**  
ENGINEERING & ENVIRONMENTAL  
ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS  
IOWA  
WISCONSIN

OWNER/DEVELOPER:  
CITY OF ROCKFORD  
DEPARTMENT OF PUBLIC WORKS  
425 EAST STATE STREET  
ROCKFORD, IL 61104

PROJECT AND LOCATION:  
WELL HOUSE 13  
HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 7/30/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:  
**LEGEND**

SET TYPE: **OUT TO BID**  
G:\30\19-200 Well 13\Plans\19-200 PH29 Plans.dwg, Legend

JOB NUMBER:  
19-200PH29

SHEET NUMBER:  
2 of 28

**GENERAL NOTES**

- THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MUNICIPAL CODE, CITY OF ROCKFORD, ILLINOIS, CURRENT EDITION, THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", CURRENT EDITION, "SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS," CURRENT EDITION, SPECIAL PROVISIONS AND THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", CURRENT EDITION. SIGN CONSTRUCTION AND PAVEMENT MARKINGS SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", CURRENT EDITION.
- IN THESE CONTRACT DOCUMENTS MENTION IS MADE OF THE "ENGINEER", WHICH SHALL MEAN FEHR GRAHAM OR THEIR DULY AUTHORIZED AGENT. IN THESE CONTRACT DOCUMENTS MENTION IS MADE OF THE "OWNER", WHICH SHALL MEAN CITY OF ROCKFORD, OR THEIR DULY AWARDED AGENT.
- AS PART OF THE BIDDING PROCEDURE, THE CONTRACTOR SHALL VERIFY THAT THE QUANTITIES FOR PAY ITEMS, AS PRESENTED IN THESE PLAN DOCUMENTS, ARE SUBSTANTIALLY CORRECT. IF DISCREPANCIES ARE DETECTED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF THE DISCREPANCY PRIOR TO THE BID DATE.
- QUANTITIES SHOWN ARE ESTIMATES FOR INFORMATION ONLY. PAYMENT WILL BE BASED ON ACTUAL QUANTITIES MEASURED IN THE FIELD OR ON PAYMENT LIMIT DETAILS.
- THE CONTRACTOR SHALL BE PAID FOR MATERIALS AND EQUIPMENT SUCCESSFULLY INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AS MEASURED OR VERIFIED IN PLACE BY THE ENGINEER OR HIS AGENT.
- IN CASE OF CONFLICT BETWEEN THE ABOVE MENTIONED SPECIFICATIONS, THE ENGINEER SHALL DETERMINE WHICH OF THE SPECIFICATIONS SHALL GOVERN. THE ENGINEER'S DECISION SHALL BE FINAL AND NO ADDITIONAL COMPENSATION SHALL BE AWARDED UNLESS APPROVED BY THE ENGINEER.
- THE PROPOSED IMPROVEMENTS MUST BE CONSTRUCTED IN ACCORDANCE WITH THE ENGINEERING PLANS AS APPROVED BY THE OWNER. IMPROVEMENT REPRESENTATIONS AS SHOWN ON THESE PLANS, ARE AS ACCURATE AS POSSIBLE FROM THE INFORMATION AVAILABLE. HOWEVER SOME FIELD REVISIONS MAY BE REQUIRED TO ACCOMMODATE UNFORESEEN CIRCUMSTANCES - THE ENGINEER SHALL BE ADVISED OF ANY NECESSARY REVISIONS WITH SUFFICIENT LEAD TIME ALLOWED TO PROPERLY CONSIDER AND ACT UPON SAID REQUESTS. PROPER CONSTRUCTION TECHNIQUES MUST BE FOLLOWED IN CONSTRUCTING THOSE IMPROVEMENTS AS DETAILED IN THIS ENGINEERING PLAN.
- THE ENGINEER SHALL HAVE THE AUTHORITY TO INSPECT, APPROVE OR REJECT THE WORKMANSHIP AND/OR MATERIALS WHICH GO TO MAKE UP IMPROVEMENTS AS DETAILED IN THESE PLANS AND SPECIFICATIONS.
- GENERAL SAFETY PROVISION: TO PROVIDE DRIVERS WITH SAFE TRAVEL CONDITIONS DURING THE CONSTRUCTION PROJECT, AND TO PROVIDE SAFE WORKING CONDITIONS FOR ALL EMPLOYEES, THE RULES, REGULATIONS, AND CONDITIONS STATED BELOW WILL PREVAIL FOR THE DURATION OF THIS CONTRACT. ANY EMPLOYEE OF THE CONTRACTOR OR HIS SUBCONTRACTORS WHO REFUSES TO COMPLY WITH THESE GENERAL SAFETY PROVISIONS SHALL BE REMOVED FROM THE JOB SITE IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS. THE CONTRACTOR AND ANY SUBCONTRACTORS RETAINED BY HIM SHALL COMPLY WITH THE STATE AND FEDERAL REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (OSHA), JULY 1, 1987 AS IT RELATES TO CONTRACTOR'S OPERATIONS.
- THE CONTRACTOR SHALL COMPLY WITH ALL STATE REGULATIONS REGARDING AIR, WATER, AND NOISE POLLUTION. THE CONTRACTOR WILL NOT BE ALLOWED TO BUILD FIRES ON THE SITE.
- THE SCALE SHOWN ON THE DRAWINGS APPLIES ONLY TO THE FULL SIZE PLANS NOT THE REDUCED SIZE PLANS.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN DRAINAGE FLOWS AT ALL TIMES DURING THE PERFORMANCE OF THE WORK. METHODS USED BY THE CONTRACTOR SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. COST OF MAINTAINING DRAINAGE FLOWS SHALL BE INCIDENTAL TO THE CONTRACT.
- WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED OR DISTURBED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS, MONUMENTS AND RIGHT-OF-WAY PINS UNTIL THE OWNER, AND AUTHORIZED SURVEYOR, OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING AN AUTHORIZED SURVEYOR RE-ESTABLISH ANY SECTION OR SUBSECTION MONUMENTS DESTROYED BY HIS OPERATIONS. REPLACEMENT OF MONUMENTS WILL BE DETERMINED BY THE ENGINEER.
- THE CONTRACTOR SHALL REMOVE, STORE, AND RELOCATE TO THE SATISFACTION OF THE ENGINEER ALL EXISTING SIGNAGE IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS, AND CONSIDER THIS AS INCIDENTAL TO THE CONTRACT.
- OUTSIDE THE EXISTING RIGHT-OF-WAY, THE CONTRACTOR SHALL USE CARE IN GRADING OR EXCAVATION NEAR ANY AND ALL EXISTING SIGNS OUTSIDE THE RIGHT-OF-WAY. ANY SIGNS REMOVED FOR CONSTRUCTION PURPOSES SHALL BE CAREFULLY REMOVED AND RE-ERECTED BY THE CONTRACTOR AT A LOCATION NEAREST TO THE ORIGINAL LOCATION, OR AT A LOCATION DETERMINED BY THE ENGINEER IN THE FIELD. REMOVAL AND RE-ERECTED SIGNS AND ANY DAMAGE DONE TO EXISTING SIGNS BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.
- ALL ITEMS SHALL INCLUDE ALL THE NECESSARY MATERIALS AND LABOR TO COMPLETE THE ITEM IN PLACE. MATERIALS AND LABOR NOT SPECIFICALLY IDENTIFIED SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- AT THE END OF EACH DAY, THE CONTRACTOR SHALL SECURE THE CONSTRUCTION WORK ZONE FROM POTENTIAL INTRUDERS.
- THE CONTRACTOR SHALL FIELD VERIFY THE ELEVATIONS OF THE BENCHMARKS PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL ALSO FIELD VERIFY LOCATION, ELEVATION AND SIZE OF EXISTING UTILITIES, AND VERIFY PAVEMENT ELEVATIONS WHERE MATCHING INTO EXISTING WORK. THE CONTRACTOR SHALL FIELD VERIFY HORIZONTAL CONTROL BY REFERENCING SHOWN COORDINATES TO KNOWN PROPERTY LINES. NOTIFY ENGINEER OF DISCREPANCIES IN EITHER VERTICAL OR HORIZONTAL CONTROL PRIOR TO PROCEEDING WITH WORK.
- THE CONTRACTOR SHALL CONTACT THE ENGINEER OF ANY ERRORS OR DISCREPANCIES WHICH MAY BE SUSPECTED IN LINES AND GRADES, AND SHALL NOT PROCEED WITH THE WORK UNTIL ALL LINES AND GRADES WHICH ARE BELIEVED TO BE IN ERROR HAVE BEEN VERIFIED OR CORRECTED BY THE ENGINEER OR HIS REPRESENTATIVE.
- THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCE OR PROCEDURES, TIME OF PERFORMANCE, PROGRAMS OR ANY SAFETY PRECAUTIONS USED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF THEIR WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.
- ALL ITEMS TO BE REMOVED AND NOT DEFINED AS A PAY ITEM SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- ALL EXCESS EARTH EXCAVATION, EXCESS MATERIALS, OR OTHER REMOVED ITEMS SHALL BE HAULED OFF-SITE AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE APPROVED BY THE OWNER.
- THIS WORK SHALL BE IN ACCORDANCE WITH SECTION 201 OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", CURRENT EDITION. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL OBSTRUCTIONS, TREES, DEBRIS AND BRUSH AS DESIGNATED BY THE OWNER AND AS INDICATED ON THE PLANS. ALL MATERIALS SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DURING CONSTRUCTION, CARE SHALL BE TAKEN TO MINIMIZE DAMAGE TO THE EXISTING TREES AND LANDSCAPING. ONLY THOSE ITEMS DESIGNATED BY THE OWNER SHALL BE REMOVED.
- ALL ROADWAY REMOVAL ITEMS SHALL CONFORM TO THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", CURRENT EDITION. ALL JOINTS BETWEEN THE PORTION REMOVED AND THAT LEFT IN PLACE SHALL BE SAWED TO SUCH A DEPTH THAT A CLEAN, NEAT EDGE WILL RESULT WITH NO SPALLING TO THE REMAINING PORTION. THE COST OF SAWING SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. ADDITIONAL SAWING OR RE-SAWING MAY BE REQUIRED AS DIRECTED BY THE ENGINEER WITH NO ADDITIONAL COMPENSATION BEING ALLOWED. THE COST OF SAWCUTTING THE EXISTING PAVEMENT SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

**GENERAL NOTES**

- WHEN ARTIFICIAL LIGHTING IS UTILIZED DURING NIGHT OPERATIONS, THE CONTRACTOR SHALL EXERCISE UTMOST PRECAUTIONS IN PREVENTING ADVERSE VISIBILITY TO THE MOTORING PUBLIC, AS WELL AS ADJOINING RESIDENTIAL AREAS.
- THE CONTRACTOR IS REQUIRED TO STAY WITHIN THE NOTED PROPERTY BOUNDARIES RIGHT-OF-WAY AND EASEMENTS AS SHOWN IN THE PLANS. ANY ADDITIONAL EASEMENTS SHALL BE SECURED BY THE CONTRACTOR AT NO EXTRA COST.
- ANY AREAS DAMAGED OR DISTURBED DURING THE PROJECT AS A DIRECT OR INDIRECT RESULT OF CONTRACTOR OPERATIONS, SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE ORIGINAL CONDITION. THE COST OF SAID RESTORATION OR REPAIR SHALL BE BORNE TOTALLY BY THE CONTRACTOR, WITH NO EXTRA COMPENSATION BEING AWARDED UNDER THIS CONTRACT. THE RESPONSIBILITY FOR THE REPAIR OR REPLACEMENT OF ANY UTILITY, STRUCTURE, LANDSCAPING, ETC., DAMAGED OR DESTROYED BY THE CONTRACTOR DURING MOBILIZATION OR CONSTRUCTION SHALL BE BORNE SOLELY BY THE CONTRACTOR, WITH NO EXPENSE BEING CHARGED TO THE ENGINEER OR OWNER. PRIOR TO ACCEPTANCE OF THIS REPAIR OR REPLACEMENT, THE CONTRACTOR SHALL PRESENT THE OWNER WITH A "SIGNOFF LETTER", SIGNED BY A RESPONSIBLE OFFICIAL OF THE OWNER OF THE DAMAGED UTILITY STATING THAT THE REPAIR OR REPLACEMENT IS ACCEPTABLE.
- ALL INTERIOR PLUMBING WORK MUST BE PERFORMED IN ACCORDANCE WITH THE ILLINOIS PLUMBING CODE.

**UTILITIES**

- UTILITIES SHOWN ON THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY AND NO GUARANTEE OF THEIR ACCURACY IS MADE OR INFERRED. THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THE DRAWINGS REPRESENT DATA RECEIVED FROM VARIOUS SOURCES. IT IS NOT GUARANTEED TO BE CORRECT OR ALL-INCLUSIVE. THE CONTRACTOR SHALL CONDUCT HIS OWN INVESTIGATION INTO THE LOCATION, SIZE, DEPTH AND NATURE OF ANY AND ALL EXISTING UTILITIES THAT MAY INTERFERE WITH THE WORK UNDER THIS CONTRACT. ANY EXISTING UTILITIES THAT ARE TO REMAIN IN SERVICE SHALL BE FULLY PROTECTED BY THE CONTRACTOR AND ANY DAMAGE CAUSED BY THE CONSTRUCTION OPERATIONS SHALL BE IMMEDIATELY REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER OR THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ANY AND ALL UTILITY COMPANIES REGARDING ADJUSTMENTS NECESSARY. THIS WORK SHALL BE AT THE CONTRACTOR'S EXPENSE AND CONSIDERED INCIDENTAL TO THE PROJECT COST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UNDERGROUND, OVERHEAD, OR SURFACE UTILITIES EVEN THOUGH THEY MAY NOT BE SHOWN ON THE PLANS. ANY UTILITY THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER OR THE OWNER OR REPLACED. THIS WORK SHALL BE AT THE CONTRACTOR'S EXPENSE.
- THE UTILITY LOCATIONS, DEPTHS, ETC. SHOWN ON THESE PLANS ARE APPROXIMATE ONLY, AND SHALL BE VERIFIED BY THE CONTRACTOR WITH ALL AFFECTED UTILITY COMPANIES PRIOR TO INITIATING CONSTRUCTION OPERATIONS; THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY FOR THE ADEQUACY, SUFFICIENCY OR EXACTNESS OF THESE UTILITY REPRESENTATIONS.
- THE CONTRACTOR SHALL CONTACT THE NECESSARY UTILITY COMPANIES FOR ANY UTILITY RELOCATIONS. THE CONTRACTOR SHALL PAY FOR ALL COSTS ASSOCIATED WITH RELOCATION OF UTILITIES ON OR ADJACENT TO THE SUBJECT PROPERTY OR WITHIN THE ROAD RIGHT-OF-WAY.

**WATER**

- SITE CONTRACTOR TO COORDINATE WATER SERVICE TAP AND WATER MAIN ADJUSTMENTS WITH THE OWNER.
- LEAKAGE TESTING OF THE WATER SERVICE SHALL BE REQUIRED AS PER THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", CURRENT EDITION. ANY DEFECTS FOUND IN THE NEW WATER MAIN WILL BE CORRECTED BY THE CONTRACTOR AT HIS EXPENSE.
- DISINFECTION OF THE WATER SERVICE SHALL BE REQUIRED AS PER THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", CURRENT EDITION. IN ACCORDANCE WITH THE REQUIREMENTS OF AWWA, THE ILLINOIS EPA, AND THE OWNER.
- CONTRACTOR SHALL MAINTAIN A MINIMUM EIGHTEEN INCH VERTICAL SEPARATION WITH WATER MAIN/WATER MAIN SERVICES AND SANITARY OR STORM SEWER AND MAINTAIN A MINIMUM TEN FEET HORIZONTAL SEPARATION BETWEEN ANY WATER MAIN/WATER MAIN SERVICES ENCOUNTERED AND THE SANITARY SEWER/SANITARY SEWER SERVICES AND STORM SEWER. ANY CHANGES TO THIS REQUIREMENT SHALL BE DONE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", LATEST EDITION.
- EXISTING WATER MAIN AND SERVICE LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. THIS WILL BE INCIDENTAL TO THE CONTRACT.
- ALL WATER SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", CURRENT EDITION, AS WELL AS THE OWNER'S ADOPTED STANDARD WATER MAIN SPECIFICATIONS, CURRENT EDITION, ON FILE WITH THE ILLINOIS EPA DIVISION OF PUBLIC WATER SUPPLIES.
- THE CONTRACTOR SHALL CONTACT THE OWNER AT LEAST 48 HOURS PRIOR TO BEGINNING WORK ON THE WATER MAIN AND/OR SERVICE INSTALLATIONS AND SHOULD MAKE THE SITE AVAILABLE FOR INSPECTION AT REGULAR INTERVALS DURING CONSTRUCTION.
- WORK SHALL BE COORDINATED WITH THE PUBLIC WORKS PERSONNEL. WATER SHUT DOWNS AND SHUT DOWN NOTIFICATIONS SHALL BE COMPLETED BY CITY PUBLIC WORKS PERSONNEL. CONTRACTOR SHALL NOTIFY CITY PUBLIC WORKS PERSONNEL A MINIMUM OF 48 HOURS PRIOR TO REQUESTED SHUT DOWN.
- ALL WATER SERVICE INSTALLATIONS SHALL BE COMPLETED IN COMPLIANCE WITH THE STANDARDS AND REQUIREMENTS SET FORTH IN THE ILLINOIS PLUMBING CODE.

**WELL 13 HMO DESIGN CRITERIA**

PLANT DESIGN FLOW RATE	1325 GPM/1.91MGD	
USE	TREATMENT OF Fe, Mn AND Ra	
TYPE	CARUS 10% HMO	
DOSE (1% SOLUTION)	mg/L AS MN	1.0
CHEMICAL USE (10% SOLUTION)	GAL/DAY	30.2
CHEMICAL USE (1% SOLUTION)	GAL/DAY	302.0
SUPPLY	BULK, MIXED	
BULK STORAGE TANK NUMBER	2	
VOLUME EACH	GALLONS	515
DAY TANKS NUMBER	1	
VOLUME EACH	GALLONS	710



ILLINOIS  
IOWA  
WISCONSIN

ILLINOIS DESIGN FIRM NO. 184-003525

OWNER/DEVELOPER:

CITY OF ROCKFORD  
DEPARTMENT OF PUBLIC WORKS  
425 EAST STATE STREET  
ROCKFORD, IL 61104

PROJECT AND LOCATION:

WELL HOUSE 13  
HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 7/30/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:

GENERAL NOTES

SET TYPE: OUT TO BID

G:\C30\19-200 Well 13\Plans\19-200 PH29 Plans.dwg, GNotes

JOB NUMBER:

19-200PH29

SHEET NUMBER:

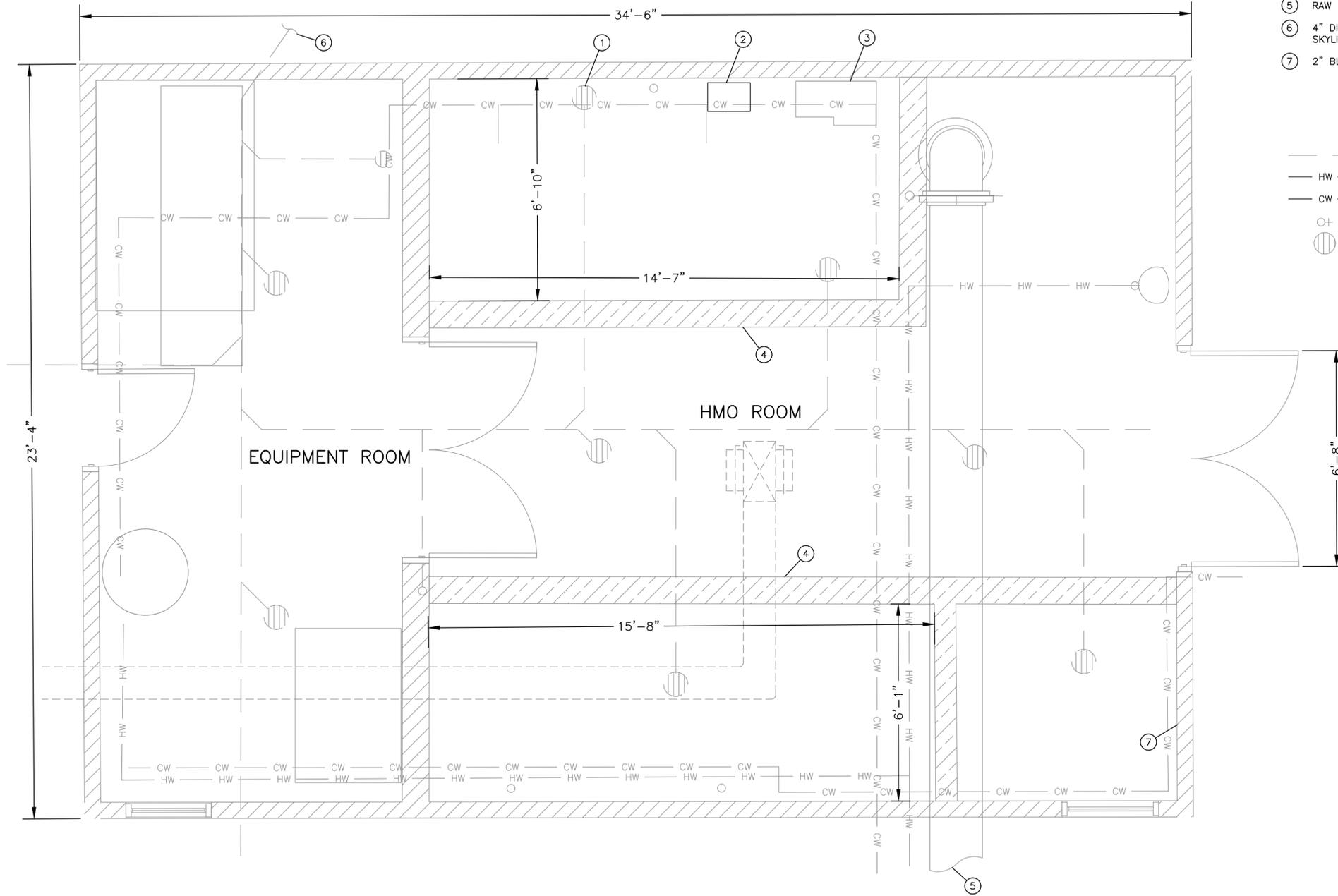
3 of 28

**KEY NOTES:**

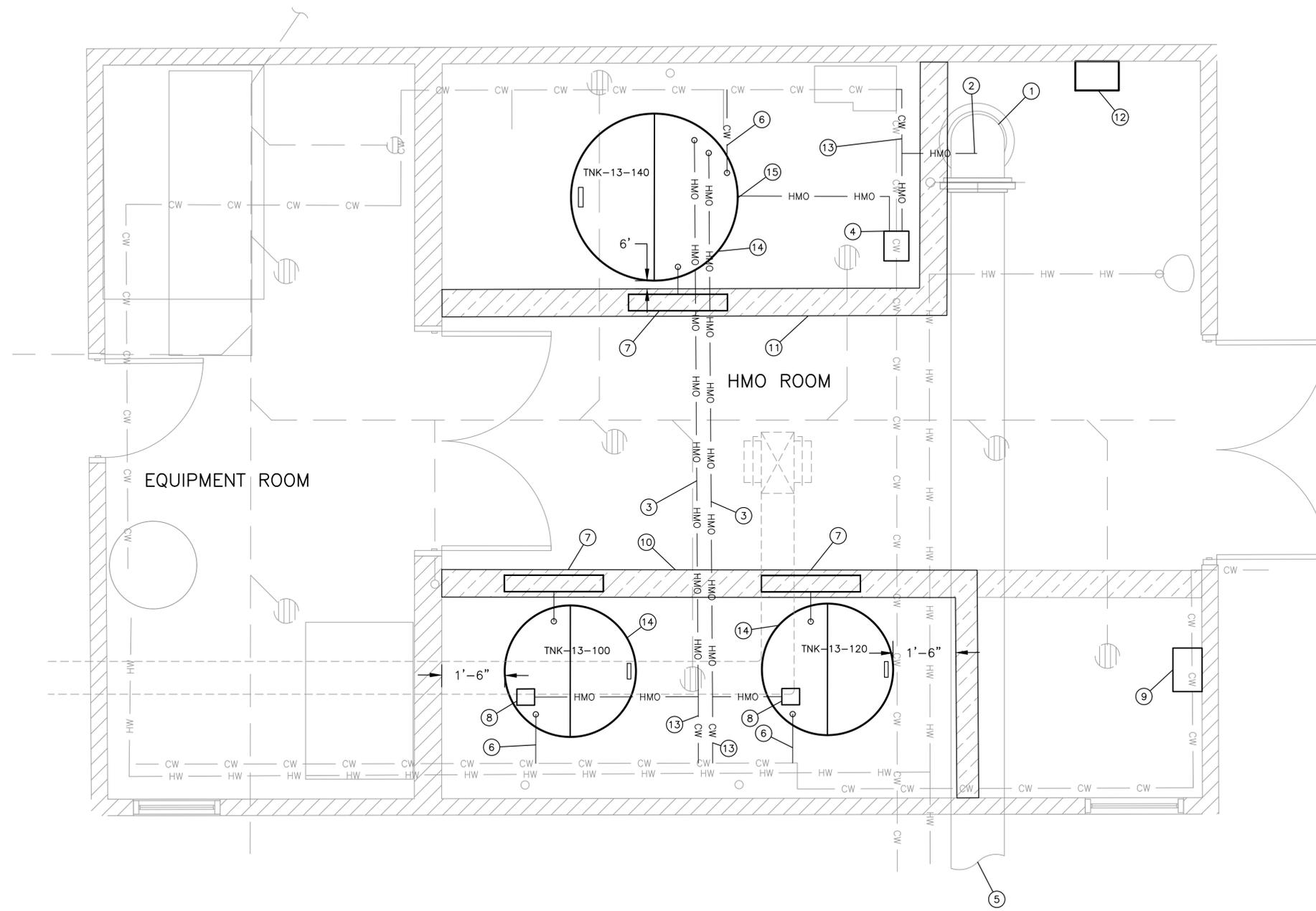
- ① CUT EXISTING 4" DIA. SANITARY STUB FLUSH WITH THE FLOOR AND REINSTALL EXISTING CAP
- ② COMPRESSED AIR HOSE RACK TO BE RELOCATED
- ③ HVAC FAN
- ④ MASONRY CONTAINMENT WALL 8" HIGH
- ⑤ RAW WATER TO TREATMENT
- ⑥ 4" DIA. SANITARY SERVICE AT INVERT 844.0 TO SANITARY MAIN ON SKYLINE DRIVE.
- ⑦ 2" BLACK CHEMICAL PIPING AND VALVES TO BE REMOVED.

**LEGEND:**

- SANITARY DRAIN LINE
- HW — WATER SERVICE (HOT)
- CW — WATER SERVICE (COLD)
- ♀ HOSE BIB
- ♂ FLOOR DRAIN



REVISIONS		
REV. NO.	DESCRIPTION	DATE



**KEY NOTES:**

- ① EXISTING WELL AND WELL PUMP
- ② 3/4" HMO INJECTION TAP TO EXISTING RAW WATER PIPE
- ③ 3/4" HMO PIPING, SCHEDULE 80 PVC, MOUNTED TO CEILING
- ④ HMO METERING PUMP DISCHARGE TO 3/4" HMO PIPING
- ⑤ HMO INJECTED WATER TO TREATMENT ROOM FOR FILTRATION
- ⑥ CONNECT TO EXISTING WATER SERVICE STUB WITH 1" FEED LINE TO HMO TANKS. REMOVAL OF EXISTING TEES MAY BE REQUIRED.
- ⑦ MIXER SUPPORT
- ⑧ HMO TRANSFER PUMP - MODEL B36-SC MOTOR AND 41-P-SS/HC PUMP TO BE BY LUTZ OR APPROVED EQUAL
- ⑨ RELOCATED COMPRESSED AIR HOSE RACK. LOCATION TO BE VERIFIED BY OWNER.
- ⑩ INSTALL ADDITIONAL MASONRY BLOCK COURSE. NEW WALL HEIGHT = 16". CHEMICAL RESISTANT LINING SYSTEM TO BE INSTALLED IN NEW BLOCK COURSE
- ⑪ INSTALL ADDITIONAL MASONRY BLOCK COURSES. NEW WALL HEIGHT = 16". CHEMICAL RESISTANT LINING SYSTEM TO BE INSTALLED ON THE INSIDE OF THE INSIDE OF THE NEW BLOCK COURSE.
- ⑫ HMO ELECTRICAL CONTROL PANEL. SEE ELECTRICAL SHEETS.
- ⑬ SERVICE CARRIER WATER TO HMO PIPING.
- ⑭ SEE SHEET 6 FOR LID PENETRATION DETAILS.
- ⑮ DAY TANK DISCHARGE FROM BOTTOM OF TANK TO METERING PUMP.

**LEGEND:**

- SANITARY DRAIN LINE
- HW — WATER SERVICE (HOT)
- CW — WATER SERVICE (COLD)
- ⊕ HOSE BIB
- ⊕ FLOOR DRAIN

**CONTAINMENT AREAS:**

BULK TANK: 698 GALLONS  
 DAY TANK: 790 GALLONS

**GENERAL NOTES:**

- 1. PRIOR TO INSTALLATION, CONTRACTOR SHALL FIELD MEASURE AND CONFIRM LOCATION OF HMO EQUIPMENT, PIPING, VALVES, AND APPURTENANCES.



**FEHR GRAHAM**  
 ENGINEERING & ENVIRONMENTAL  
 ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS  
 IOWA  
 WISCONSIN

OWNER/DEVELOPER:  
 CITY OF ROCKFORD  
 DEPARTMENT OF PUBLIC WORKS  
 425 EAST STATE STREET  
 ROCKFORD, IL 61104

PROJECT AND LOCATION:  
 WELL HOUSE 13  
 HMO ROOM BUILD-OUT PLANS  
 ROCKFORD, ILLINOIS

DRAWN BY: JMP  
 APPROVED BY: SWG  
 DATE: 7/30/20  
 SCALE: AS NOTED

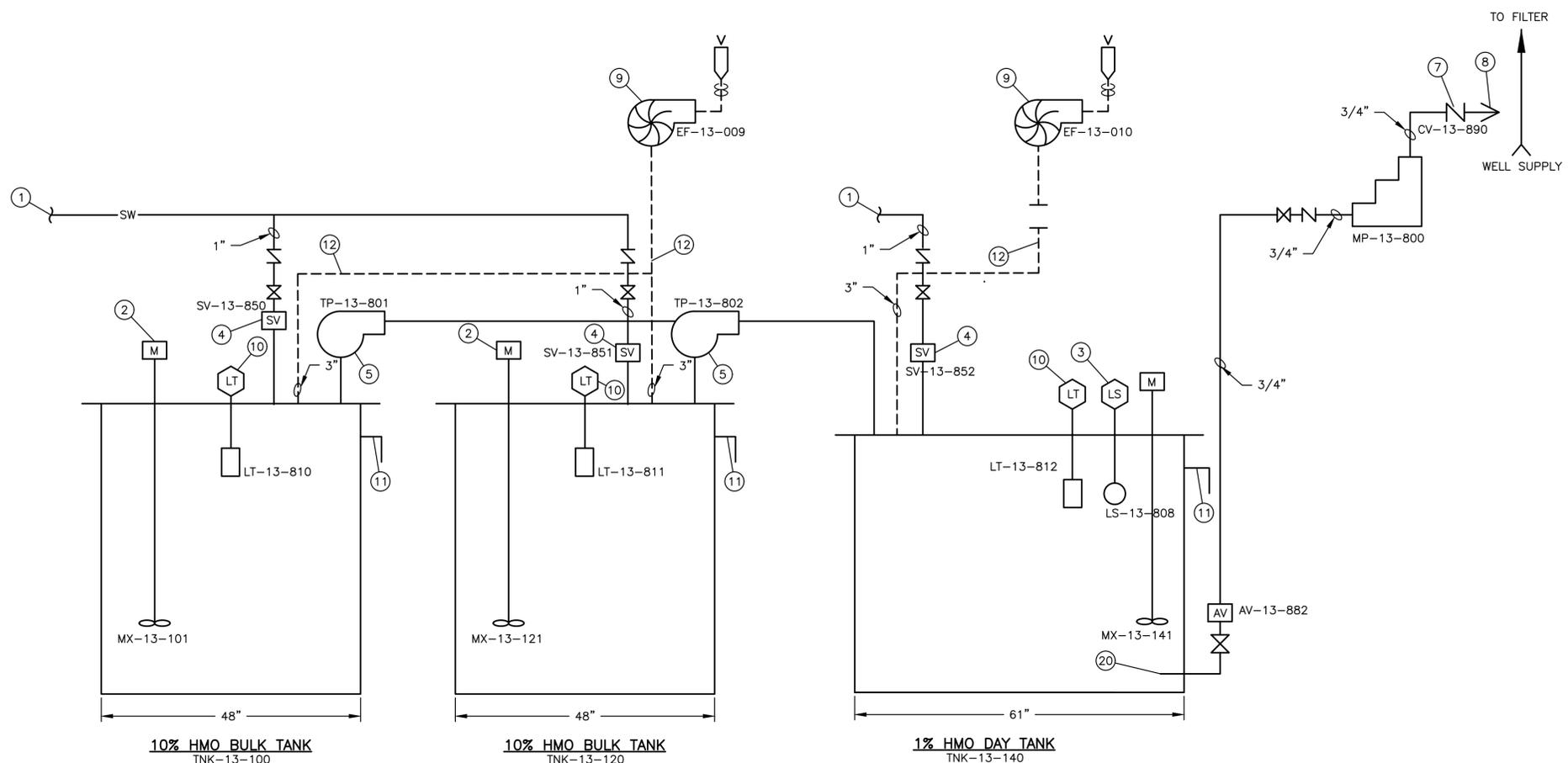
REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:  
**PROPOSED HMO PLAN**

SET TYPE: **OUT TO BID**  
G:\C30\19-200 Well 13\19-200 PH29 Design.dwg, HMO

JOB NUMBER:  
**19-200PH29**

SHEET NUMBER:  
**5 of 28**



- LEGEND**
- AV ACTUATED VALVE
  - BV BALL VALVE (MANUAL)
  - SV SOLENOID VALVE
  - ZV CHECK VALVE

- GENERAL NOTES:**
1. ALL PIPING SHALL BE THREADED SCHEDULE 80 PVC.
  2. PROVIDE THREADED COUPLING EITHER UPSTREAM OR DOWNSTREAM OF ALL FITTINGS, VALVES, AND PUMPS.
  3. CONTRACTOR SHALL INSTALL MIXERS AND IMPELLERS AT HEIGHTS AND ANGLES ACCORDING TO MANUFACTURER RECOMMENDATIONS.
  4. ALL EQUIPMENT, SUPPORTS, AND ACCESSORIES SHALL BE CHEMICALLY AND PHYSICALLY COMPATIBLE WITH A 10% HMO SOLUTION.
  5. TANK LID PENETRATIONS SHALL BE REVIEWED AND APPROVED BY OWNER PRIOR TO MANUFACTURING.
  6. SEE SHEET 7 FOR PLAN VIEW VALVE SCHEMATIC.
  7. PRIOR TO INSTALLATION, CONTRACTOR SHALL FIELD MEASURE AND CONFIRM LOCATION OF HMO EQUIPMENT, PIPING, VALVES, AND APPURTENANCES.

- KEY NOTES:**
- 1 1.5" PVC SERVICE WATER
  - 2 TANK MIXER, TYPICAL OF 4 - CHEMINEER AGITATOR 50-DTC - 0.75 HP
  - 3 FLOAT SWITCH
  - 4 1" FLUSHING OR FILL SOLENOID VALVE, TYPICAL
  - 5 TRANSFER PUMP - 0.85 HP LUTZ MODEL B36-SC MOTOR AND MODEL 41-P-SS/HC PUMP TUBE, 120V
  - 6 METERING PUMP VFD - ROTHO S10, 0.5 HP, 230/460V, 60Hz MOTOR WITH LENZE ESV371NOISXE, 0.5 HP, 120/240V SINGLE PHASE INPUT, 3 PHASE OUTPUT VFD
  - 7 3/4" CHECK VALVE
  - 8 3/4" CORPORATION COCK FOR INJECTION
  - 9 EXHAUST FAN
  - 10 LEVEL TRANSDUCER - FORCE FLOW ECHO -SCALE DR - 5080 WITH BUILT-IN STILLING WELL
  - 11 PROVIDE 1" OVERFLOW PIPE WITH SCREENED DOWN TURNED ELBOW ON TANK SIDEWALL, 3" BELOW TOP OF TANK
  - 12 PROVIDE REDUCERS AND FITTINGS AS NECESSARY TO CONNECT TO FAN
  - 13 HINGE WITH SUPPORT ANGLES ON BOTH SIDES
  - 14 MIXER PENETRATION MINIMUM 3" WITH RUBBER GASKET. PENETRATION SIZE AND LOCATION SHALL BE AS RECOMMENDED BY MIXER MANUFACTURER
  - 15 PROVIDE 3" PENETRATION WITH BULKHEAD FITTING FOR CONNECTION TO HMO DUCTWORK
  - 16 PROVIDE SUPPORT BRACING
  - 17 PROVIDE PENETRATIONS AND FITTINGS FOR FLOAT SWITCHES AND LEVEL TRANSDUCERS. PENETRATION SIZE AND FITTING TYPE AS RECOMMENDED BY MANUFACTURER.
  - 18 PROVIDE 1" PENETRATION WITH BULKHEAD FITTING FOR CONNECTION TO SERVICE WATER
  - 19 PROVIDE 3/4" PENETRATION AND FITTING FOR TRANSFER PUMP SUCTION AND DISCHARGE.
  - 20 PROVIDE 3/4" PENETRATION AND FITTING FOR METERING PUMP SUCTION. PLACE SUCTION PENETRATION APPROXIMATELY 4" FROM BASE OF TANK OR PER MANUFACTURER RECOMMENDATION.

**HMO PUMPS**

EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE	CAPACITY
MP-13-800	DAY TANK METERING PUMP	43 GPH AT 90 PSI
TP-13-801	TRANSFER PUMP	24 GPM
TP-13-802	TRANSFER PUMP	24 GPM

**HMO MIXERS**

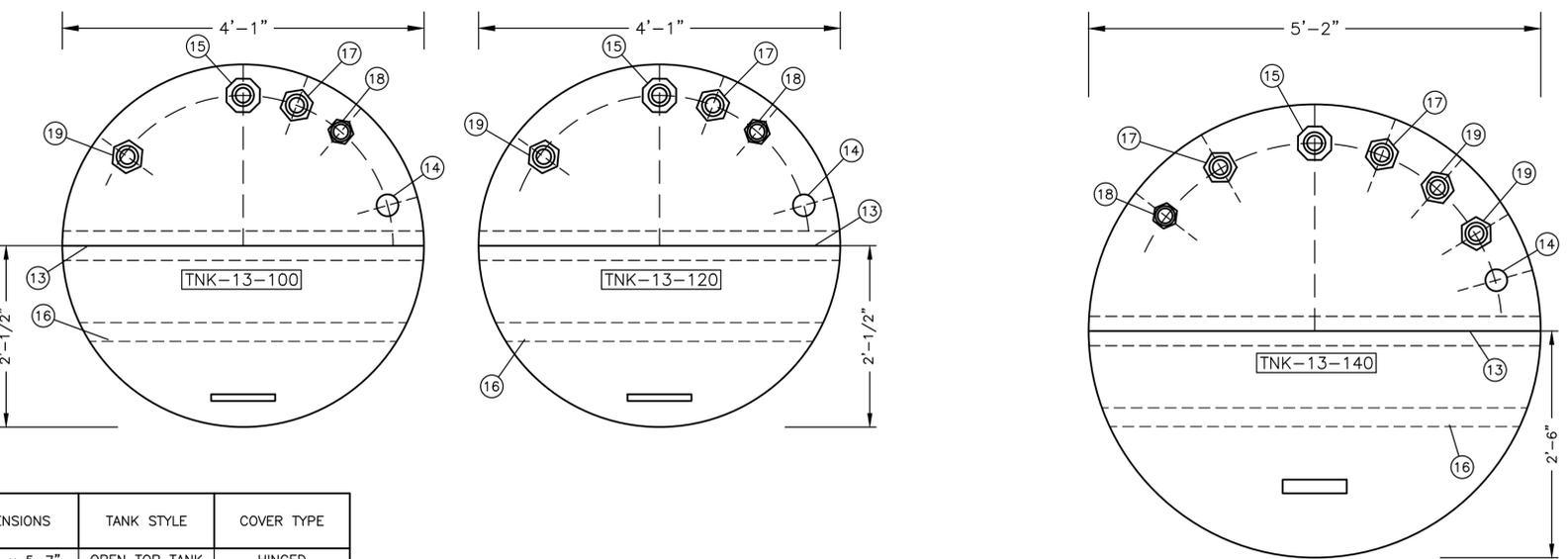
EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE
MX-13-101	BULK TANK MIXER
MX-13-121	BULK TANK MIXER
MX-13-141	DAY TANK MIXER

**HMO TRANSDUCERS AND FLOATS**

EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE
LS-13-808	DAY TANK FLOAT SWITCH
LT-13-810	BULK TANK TRANSDUCER
LT-13-811	BULK TANK TRANSDUCER
LT-13-812	DAY TANK TRANSDUCER

**HMO TANKS**

EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE	CAPACITY (GALLONS)	DIMENSIONS	TANK STYLE	COVER TYPE
TNK-13-100	HMO BULK TANK	515	4'-0" x 5'-7"	OPEN TOP TANK	HINGED
TNK-13-120	HMO BULK TANK	515	4'-0" x 5'-7"	OPEN TOP TANK	HINGED
TNK-13-140	HMO DAY TANK	710	5'-1" x 4'-9"	OPEN TOP TANK	HINGED



**HMO PID**  
NO SCALE

**HMO COVER**  
NO SCALE

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ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS  
IOWA  
WISCONSIN

OWNER/DEVELOPER:  
CITY OF ROCKFORD  
DEPARTMENT OF PUBLIC WORKS  
425 EAST STATE STREET  
ROCKFORD, IL 61104

PROJECT AND LOCATION:  
WELL HOUSE 13  
HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 7/30/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:  
HMO PID  
SET TYPE: **OUT TO BID**  
G:\C30\19-200 Well 13\Plans\19-200 PH29 Plans.dwg, HMO PID

JOB NUMBER:  
19-200PH29  
SHEET NUMBER:  
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**HMO SOLENOID VALVES**

EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE
SV-13-850	BULK TANK FILL
SV-13-851	BULK TANK FILL
SV-13-852	DAY TANK FILL
SV-13-854	METERING PUMP FLUSH
SV-13-855	METERING PUMP FLUSH
SV-13-856	HMO TRANSFER PIPING
SV-13-857	HMO TRANSFER PIPING

**HMO CHECK VALVES**

EIN	SERVICE
CV-13-891	BULK TANK FILL
CV-13-892	BULK TANK FILL
CV-13-893	METERING PUMP FLUSH
CV-13-894	METERING PUMP FLUSH
CV-13-895	TRANSFER PUMP FLUSH
CV-13-896	TRANSFER PUMP FLUSH

**HMO PRESSURE RELIEF VALVES**

EIN	SERVICE
PRV-13-870	METERING PUMP

**HMO ACTUATED VALVES**

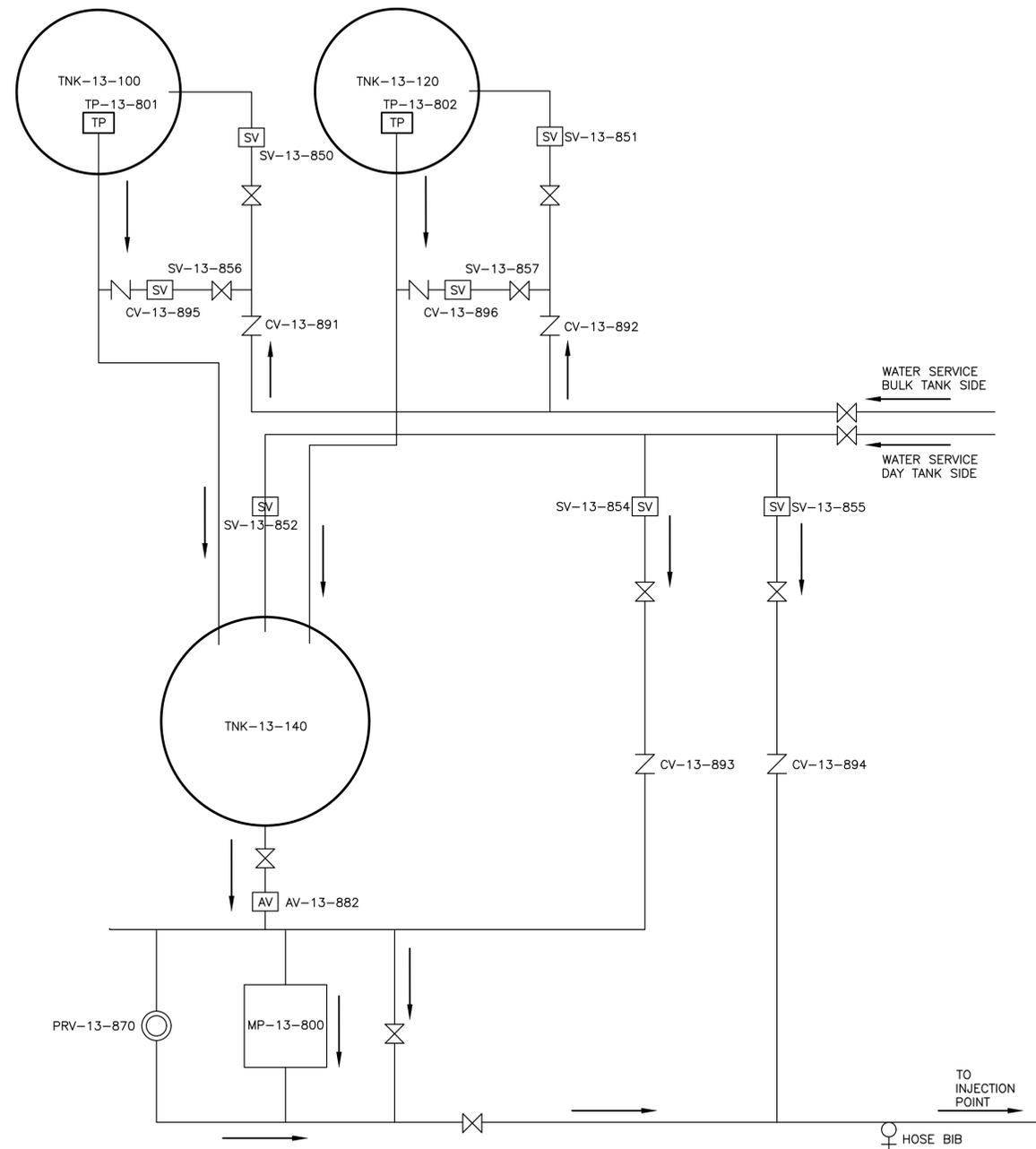
EIN	SERVICE
AV-13-882	DAY TANK DISCHARGE

**LEGEND**

-  ACTUATED VALVE
-  BALL VALVE (MANUAL)
-  SOLENOID VALVE
-  CHECK VALVE
-  DIRECTION OF FLOW
-  TRANSFER PUMP

**GENERAL NOTES:**

- PRIOR TO INSTALLATION, CONTRACTOR SHALL FIELD MEASURE AND CONFIRM LOCATION OF HMO EQUIPMENT, PIPING, AND APPURTENANCES.



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HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 7/30/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

**DRAWING:**

HMO VALVE SCHEMATIC

SET TYPE: OUT TO BID

G:\C30\19-200 Well 13\19-200 PH29 Design.dwg, HMO Valves

**JOB NUMBER:**

19-200PH29

**SHEET NUMBER:**

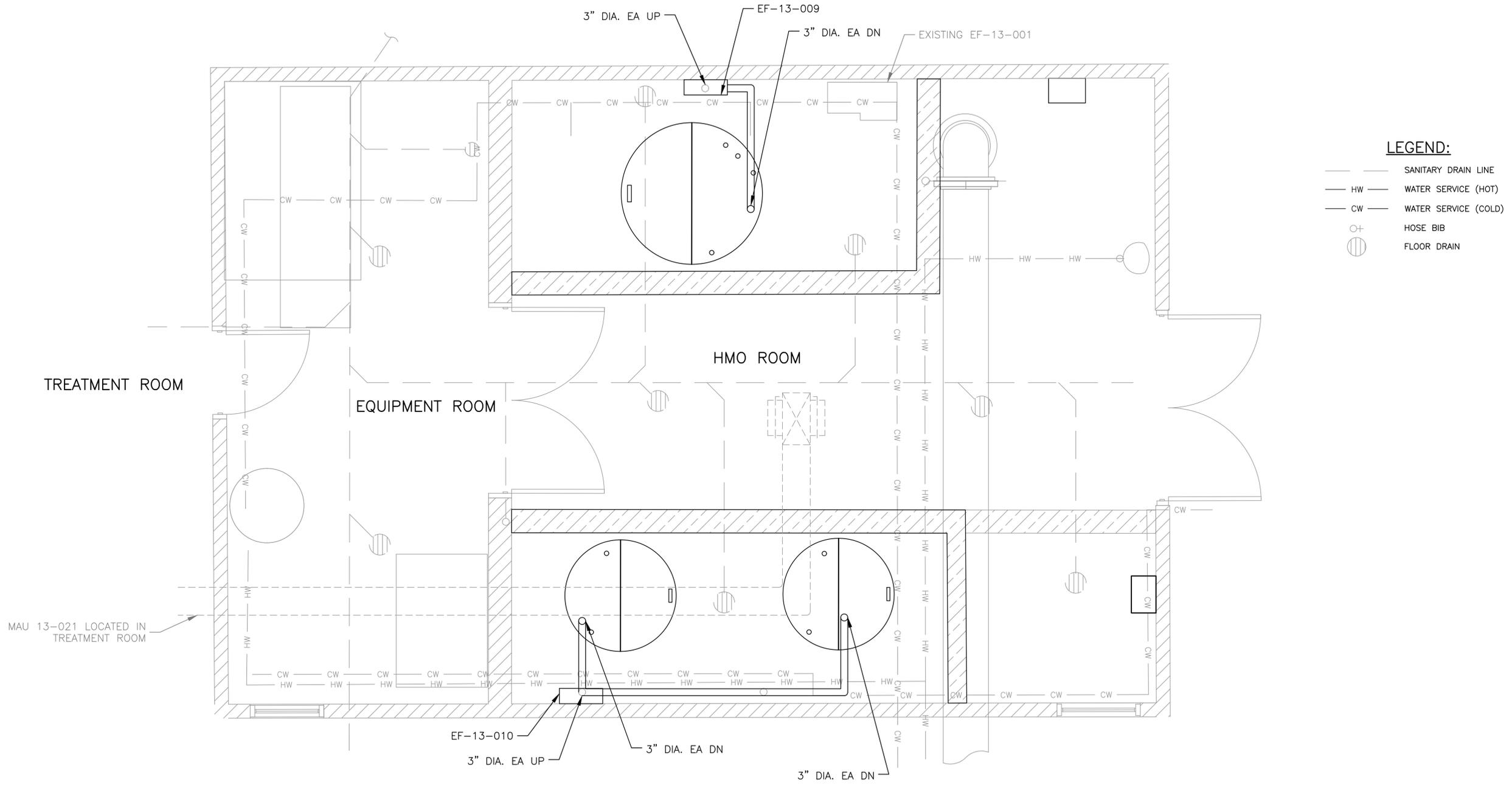
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EXISTING HVAC DESIGN CONDITIONS

APPLICABLE CODES: 10 STATES STANDARDS, 2003 INTERNATIONAL MECHANICAL CODE				
WINTER EXTERIOR: -4°F DB		SUMMER EXTERIOR: 88°F DB/73°F WB		
OCCUPANCY TYPE	VENTILATION	SUMMER INTERIOR (CB/WB)	WINTER INTERIOR (DB)	REMARKS
HMO ROOM	6 ACH, CONTINUOUS	---	60	

MAKE UP AIR UNIT SCHEDULE

UNIT NO. MAU--	SERVICE	GREENHECK MODEL NO.	AIRFLOW (CFM)	EXT. STATIC PRESSURE (IN. W.C.)	ELECTRIC HEATING SECTION				ELECTRICAL				OPERATING WEIGHT (Lb)
					OUTPUT (kw)	EAT (°F)	LAT (°F)	STAGES	MOTOR (HP)	VOLTAGE	PHASE	FLA	
13-021	HMO ROOM	MSX-108-H12	800	0.75	20.0	-4.0	60	FULL MOD	1/4	460	3	33	825



**LEGEND:**

- SANITARY DRAIN LINE
- HW — WATER SERVICE (HOT)
- CW — WATER SERVICE (COLD)
- ⊕ HOSE BIB
- ⊗ FLOOR DRAIN

FAN SCHEDULE

UNIT NO.	SERVICE	GREENHECK MODEL NO.	AIRFLOW (CFM)	EXT. S.PL (IN. W.C.)	MOTOR SIZE (HP)	FAN TYPE	MOTOR TYPE	DRIVE	ELECTRICAL	
									VOLTAGE	PHASE
13-001	HMO ROOM	BSQ-100	880	0.5	1/4	INLINE	TEFC	BELT	115	1
13-009	HMO BULK TANKS	P15-6	50	0.25	1/4	INLINE	TEFC	BELT	115	1
13-010	HMO DAY TANKS	P15-6	50	0.25	1/4	INLINE	TEFC	BELT	115	1



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ROCKFORD, IL 61104

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WELL HOUSE 13  
HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 7/30/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:  
HVAC PLAN

SET TYPE: OUT TO BID  
G:\C30\19-200 Well 13\19-200 PH29 Design.dwg, hvac

JOB NUMBER:  
19-200PH29

SHEET NUMBER:  
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13-MCC-3

CATEGORY	DESCRIPTION
SECTION DEPTH	FRONT MOUNTED, 20" DEEP
SECTION HEIGHT	90" HIGH
ENCLOSURE	HG - GENERAL PURPOSE, WITH GASKETED DOORS
DESIGNED FOR USE WITH	POWER SYSTEM TYPE: WYE, 3 PART, 3W, WITH SOLIDLY GROUNDED NEUTRAL
MCC CONNECTION TYPE	LINE LUGS
MAIN BUS RATING	800A
MAIN BUS MATERIAL	COPPER/TIN PLATED
MAIN BUS BRACING	654A (RIMS SYMMETRICAL)
INTERRUPTING RATING	85 KAIC
HORIZONTAL GROUND BUS	1/4" x 1", BOTTOM UNPLATED COPPER
VERTICAL GROUND BUS	PLUG-IN ZINC PLATED STEEL
STAB OPENING PROTECTION	AUTOMATIC SHUTTERS
MCC NAME	13-MCC-3
LINE VOLTAGE/FREQUENCY	480V/50HTZ
CLASS 1 WIRING TYPE	B-T CONTROL AND PWER TERMINAL BLOCKS
WASTER NAMEPLATE	13-MCC-3 480V, 3-PH FED FROM: 13-SWBD-1

	FDS TX-B	FDS TX-C
MAIN LUGS	FDS AC1	FDS SPARE
FUTURE MIXER	FDS TVSS	FDS MAU
MX-13-101	AIR BLOWER	
MX-13-121	EXHAUST FAN	
MX-13-141	DOOR	
DOOR	DOOR	

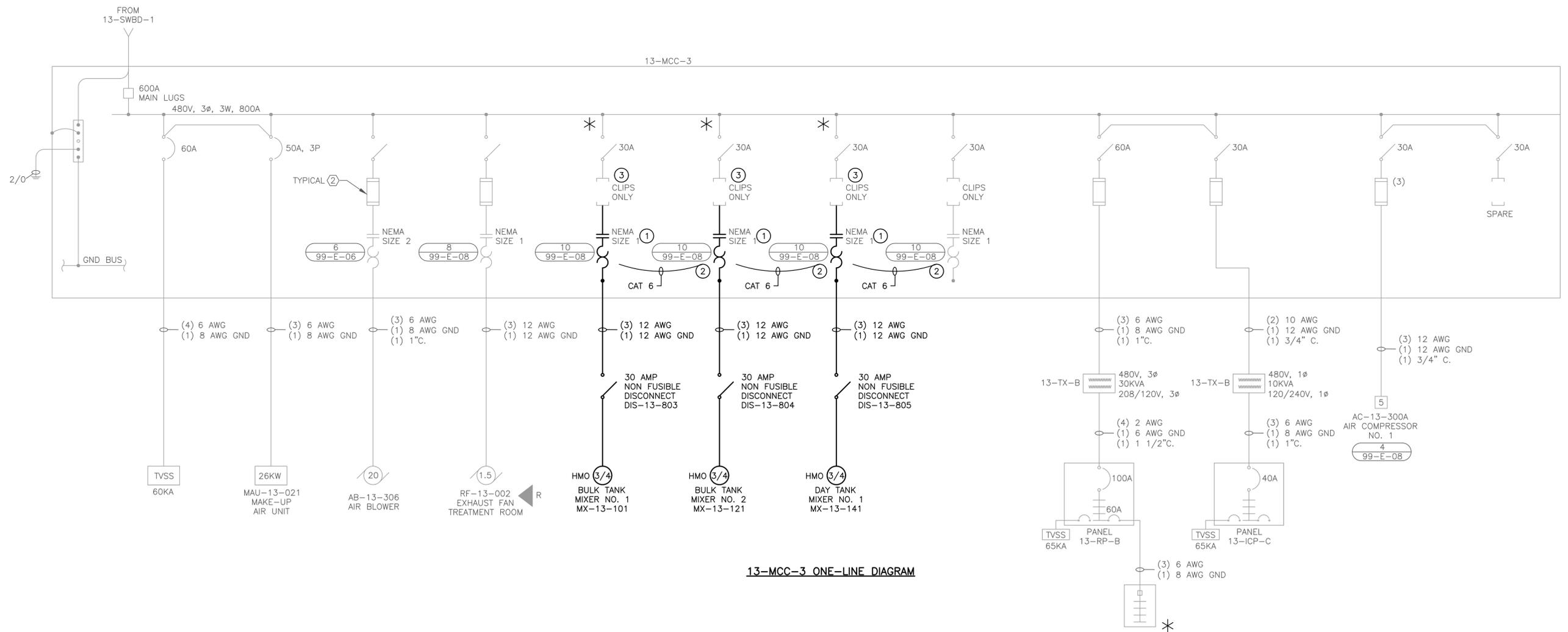
13-MCC-3 FRONT ELEVATION

KEY NOTES

- EXISTING MOTOR STARTERS AND OVERLOADS SHALL BE REPLACED BY CONTRACTOR WITH PART NUMBERS OF ALLEN BRADLEY
  - A. #193-ESM-VIG-30A-C23 SENSING MODULE
  - B. #193-E10-42-120 CONTROL MODULE (4 INPUTS/20OUTPUTS)
  - C. #193-ECM-ETR COMMUNICATION MODULE
  - D. #100-C09D10 CONTACTOR
- CONTRACTOR SHALL SUPPLY 4 CAT 6 COMMUNICATION CABLE TO CONNECT TO THE SYSTEMS CONTROL PANEL (13-SCP-1).
- CONTRACTOR SHALL PROVIDE FUSES THAT ARE CORRECTLY SIZED FOR FUSE HOLDER AND LOAD SIZE.

GENERAL NOTES

- CONTRACTOR SHALL PROVIDE 4, 30mm LEGEND PLATES FOR THREE POSITION SELECTOR SWITCH. HAND, OFF, REMOTE.



13-MCC-3 ONE-LINE DIAGRAM

**FEHR GRAHAM**

ENGINEERING & ENVIRONMENTAL

ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS  
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OWNER/DEVELOPER:  
CITY OF ROCKFORD  
DEPARTMENT OF PUBLIC WORKS  
425 EAST STATE STREET  
ROCKFORD, IL 61104

PROJECT AND LOCATION:  
WELL HOUSE 13  
HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 7/30/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

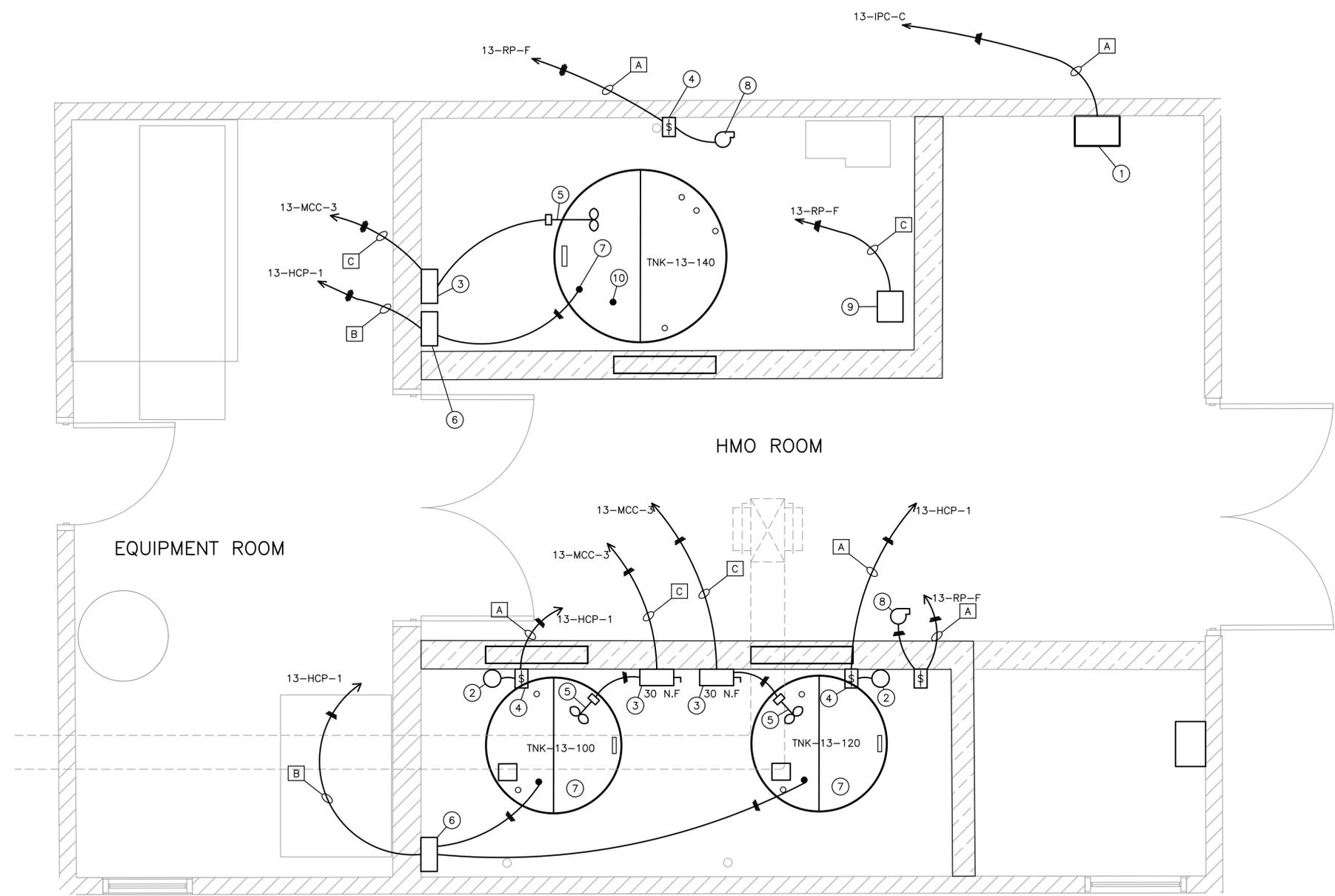
DRAWING:  
ELECTRICAL ONE-LINE

SET TYPE: OUT TO BID

G:\C30\19-200 Well 13\Plans\19-200 PH29 Plans.dwg, Electric diagram

JOB NUMBER:  
19-200PH29

SHEET NUMBER:  
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**KEY NOTES:**

- ① HMO CONTROL PANEL – 13-HCP-1 NEMA 4X STAINLESS STEEL ENCLOSURE, SEE SPECIFICATIONS.
- ② HMO TRANSFER PUMPS, SEE SPECIFICATIONS.
- ③ 30 AMP 480 3φ NON-FUSED DISCONNECTS STAINLESS STEEL ENCLOSURE NEMA 4X.
- ④ SINGLE POLE 20 AMP SWITCHES, WEATHERPROOF BOX, AND LOCKOUT COVER.
- ⑤ MIXER MOTORS, SEE SHEET 6.
- ⑥ SOLO LEVEL CONTROLLER. SEE SHEET 6.
- ⑦ TANK LEVEL TRANSDUCERS, SEE SHEET 6.
- ⑧ BULK TANK EXHAUST FAN, SEE SHEET 6.
- ⑨ HMO METERING PUMP, SEE SHEET 6.
- ⑩ HIGH LEVEL FLOATS, DAY TANKS.

**CONDUIT/CABLE WIRE LEGEND**

- A** 2 – #12 THNN  
1 – #12 GRN  
1 – 3/4 GRC
- B** 2 – #14 THNN  
1 – #14 GRN  
1 – 3/4 GRC
- C** 3 – #12 THNN  
1 – #12 GRN  
1 – 3/4 GRC

**GENERAL NOTES:**

- 1. CONTRACTOR SHALL INSTALL ALL GALVANIZED RIGID STEEL CONDUIT AND HARDWARE.
- 2. ALL LOCAL DISCONNECTS SHALL BE NEMA 4X STAINLESS STEEL
- 3. ALL SWITCHES SHALL BE INSTALLED INTO WATER TIGHT BOXES AND COVERS. COVERS SHALL BE LOCKABLE FOR LOCK OUT TAG OUT.
- 4. ALL CONDUIT CONNECTIONS TO CONTROL PANELS SHALL BE THREADED OR USE OF MEYER HUBS FOR CONNECTIONS.
- 5. ALL SEAL TIGHT SHALL BE LIQUID TIGHT METALLIC.
- 6. CONTRACTOR SHALL SUPPLY ALL BREAKER, MOTOR STARTERS, OVERLOADS, CONDUIT, CONNECTORS, WIRES, AND ALL HARDWARE NEEDED FOR THE INSTALLATION.
- 7. ALL ELECTRICAL WALL MOUNTED ITEMS SHALL BE COORDINATED WITH OWNER BEFORE INSTALLATION.
- 8. INSTALLATION SHALL MEET NEC ELECTRICAL CODE.



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ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 7/30/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:  
ELECTRICAL POWER  
SET TYPE: OUT TO BID  
G:\C30\19-200 Well 13\19-200 PH29 Design.dwg, HMO Elec

JOB NUMBER:  
19-200PH29  
SHEET NUMBER:  
10 of 28

**HMO SOLENOID VALVES**

EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE
SV-13-850	BULK TANK FILL
SV-13-851	BULK TANK FILL
SV-13-852	DAY TANK FILL
SV-13-854	METERING PUMP FLUSH
SV-13-855	METERING PUMP FLUSH
SV-13-856	HMO TRANSFER PIPING
SV-13-857	HMO TRANSFER PIPING

**HMO CHECK VALVES**

EIN	SERVICE
CV-13-891	BULK TANK FILL
CV-13-892	BULK TANK FILL
CV-13-893	METERING PUMP FLUSH
CV-13-894	METERING PUMP FLUSH

**HMO PRESSURE RELIEF VALVES**

EIN	SERVICE
PRV-13-870	METERING PUMP

**HMO ACTUATED VALVES**

EIN	SERVICE
AV-13-882	DAY TANK DISCHARGE

**MIXER MOTOR**

EIN	SERVICE
MX-13-100	BULK TANK
MX-13-121	BULK TANK
MX-13-141	BULK TANK

**TRANSDUCER CONTROLLERS**

EIN	SERVICE
LTC-13-800	BULK TANK LEVEL
LTC-13-801	DAY TANK LEVEL

**FLOAT**

EIN	SERVICE
LS-13-808	DAY TANK

**TRANSFER PUMPS**

EIN	SERVICE
TP-13-801	BULK TANK
TP-13-802	BULK TANK

**FILTER CONTROL CABINET**

EIN	SERVICE
13-FCP-1	FILTER CONTROL

**ELECTRICAL MCC**

EIN	SERVICE
13-MCC-3	MIXER MOTORS

**HMO CONTROL CABINET**

EIN	SERVICE
13-HCP-1	HMO SYSTEM CONTROL

**SYSTEM CONTROL CABINET**

EIN	SERVICE
13-SCP-1	WELL CONTROLS

**METERING HMO PUMP**

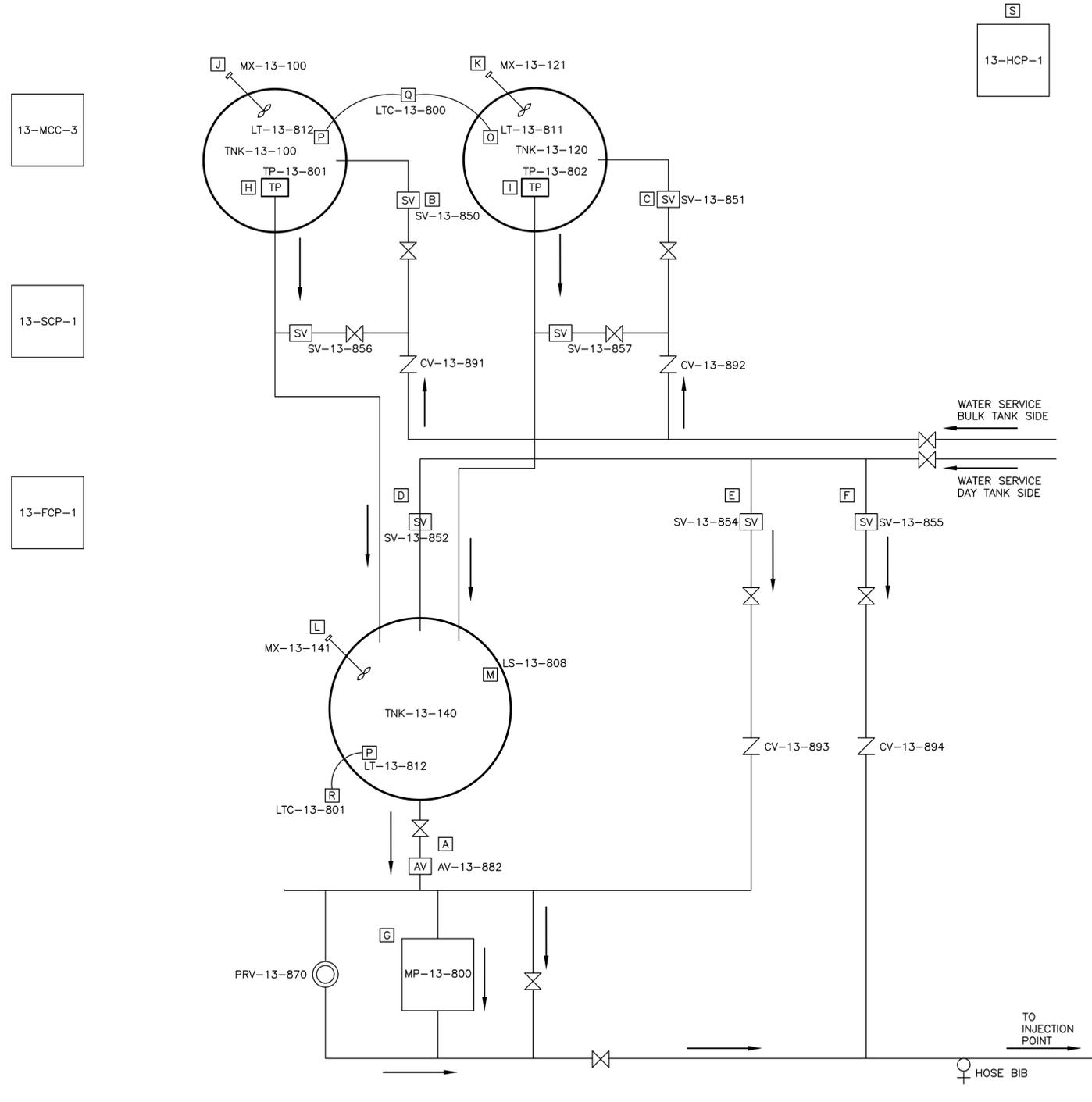
EIN	SERVICE
MP-13-800	HMO FEED

**LEGEND**

-  ACTUATED VALVE
-  BALL VALVE (MANUAL)
-  SOLENOID VALVE
-  CHECK VALVE
-  DIRECTION OF FLOW
-  TRANSFER PUMP

**GENERAL NOTES:**

- PRIOR TO INSTALLATION, CONTRACTOR SHALL FIELD MEASURE AND CONFIRM LOCATION OF HMO EQUIPMENT, PIPING, VALVES, AND APPURTENANCES.



REV. NO.	DESCRIPTION	DATE

ELECTRICAL CONTROL SCHEDULE TO HMO CONTROL PANEL

SYMBOL	EQUIPMENT ID NUMBER	VOLTAGE		CONTACT CLOSURE	CONTACT CLOSURE WIRE	4-20MA	CAT #6	TO/FROM	SEE SHEET	NOTES
		120V	WIRE							
A	AV-13-882	X	3 - #14	-	2 - #16	-	-	HMO CONTROL 13-HCP-1	7	5 - WIRES
B	SV-13-850	X	3 - #14	-	2 - #16	-	-	HMO CONTROL 13-HCP-1	7	5 - WIRES
C	SV-13-851	X	3 - #14	-	2 - #16	-	-	HMO CONTROL 13-HCP-1	7	5 - WIRES
D	SV-13-852	X	3 - #14	-	2 - #16	-	-	HMO CONTROL 13-HCP-1	7	5 - WIRES
E	SV-13-854	X	3 - #14	-	2 - #16	-	-	HMO CONTROL 13-HCP-1	7	5 - WIRES
F	SV-13-855	X	3 - #14	-	2 - #16	-	-	HMO CONTROL 13-HCP-1	7	5 - WIRES
G	MP-13-800	-	-	X	2 - #16	-	-	HMO CONTROL 13-HCP-1	6, 7	START SIGNAL REMOTE FROM 13-HCP-1 TO VFD CONTROL
H	TP-13-801	-	-	-	-	-	-	HMO CONTROL 13-HCP-1	6	CONTROLS IN 13-HCP-1
I	TP-13-802	-	-	-	-	-	-	HMO CONTROL 13-HCP-1	6	CONTROLS IN 13-HCP-1
J	MX-13-101	-	-	-	-	-	X	SYSTEM CONTROL 13-SCP-1	9	CAT 6 CABLE 13-MCC-1 TO 13-SCP-1
K	MX-13-121	-	-	-	-	-	X	SYSTEM CONTROL 13-SCP-1	9	CAT 6 CABLE 13-MCC-1 TO 13-SCP-1
L	MX-13-141	-	-	-	-	-	X	SYSTEM CONTROL 13-SCP-1	9	CAT 6 CABLE 13-MCC-1 TO 13-SCP-1
M	LS-13-808	-	-	X	2 - #16	-	-	HMO CONTROL 13-HCP-1	6	2 - WIRE CONTACT CLOSURE FLOAT
N	LT-13-810	-	-	-	-	X	-	LEVEL CONTROLLER LTC-13-800	6	CABLE TNK-100 TO LTC-13-800
O	LT-13-811	-	-	-	-	X	-	LEVEL CONTROLLER LTC-13-800	6	CABLE TNK-120 TO LTC-13-800
P	LT-13-812	-	-	-	-	X	-	LEVEL CONTROLLER LTC-13-801	6	CABLE TNK-140 TO LTC-13-801
Q	LTC-13-800	-	-	-	-	X	-	HMO CONTROL 13-HCP-1	6	2 - 4-20MA CABLES TO 13-HCP-1
R	LTC-13-801	-	-	-	-	X	-	HMO CONTROL 13-HCP-1	6	2 - 4-20MA CABLE TO 13-HCP-1
S	13-HCP-1	-	-	-	-	-	X	FILTER CONTROL 13-FCP-1	5, 6, 7	CAT 6 CABLE 13-HCP-1 TO 13-FCP-1

**FEHR GRAHAM**

ENGINEERING & ENVIRONMENTAL

ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS  
IOWA  
WISCONSIN

OWNER/DEVELOPER:

CITY OF ROCKFORD  
DEPARTMENT OF PUBLIC WORKS  
425 EAST STATE STREET  
ROCKFORD, IL 61104

PROJECT AND LOCATION:

WELL HOUSE 13  
HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 7/30/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:

VALVE CONTROL SCHEDULE

SET TYPE: OUT TO BID

G:\C30\19-200 Well 13\Plans\19-200 PH29 Plans.dwg, Elec. Cont. Sch

JOB NUMBER:

19-200PH29

SHEET NUMBER:

12 of 28

MOTOR AND MOTOR CONTROL CENTER SCHEDULE

EQUIPMENT AND NAMEPLATE TITLES			EQUIPMENT LOCATION	PANEL MCC	MOTOR INFORMATION				MOTOR STARTER INFORMATION				CONTROL & INTERLOCKS		REMARKS***	
EQUIPMENT NUMBERS	FIRST LINE SECOND LINE WHEN EQUIPMENT NUMBER IS INDICATED	SECOND LINE THIRD LINE WHEN EQUIPMENT NUMBER IS INDICATED			HP/KW	VOLTS	F.L.A. IN AMPS	RPM	SIZE	TYPE	BREAKER		CONTROL DEVICE (SEE INFO)	DESCRIPTION		CONDUIT AND WIRE** 1ST ROW=CONTROL* 2ND ROW=POWER
										BREAKER TYPE	I IN AMPS					
MX-13-100	HMO BULK TANK MIXER		HMO ROOM	13-MCC-3	3/4	460	3.4		1	FVNR	M		H-O-R		4~#12 3/4"C	SEE NOTE 1
MX-13-120	HMO BULK TANK MIXER		HMO ROOM	13-MCC-3	3/4	460	3.4		1	FVNR	M		H-O-R		4~#12 3/4"C	SEE NOTE 1
MX-13-140	HMO DAY TANK MIXER		HMO ROOM	13-MCC-3	3/4	460	3.4		1	FVNR	M		H-O-R		4~#12 3/4"C	SEE NOTE 1
MP-13-800	HMO METER PUMP		HMO ROOM	13-RP-F	1/2	120	0.6	-	-	-	A	15	VFD		3~#12 3/4"C	SEE NOTE 2, 3

NOTES

- CONTRACTOR SHALL REPLACE EXISTING STARTER AND OVERLOAD WITH ALLEN BRADLEY. CONTRACTOR SHALL REPLACE EXISTING STARTER OVERLOADS WITH ALLEN BRADLEY PART NUMBERS  
 A. 193 ESM-VIG-30A-C23 SENSING MODULE  
 B. 193 E10-42-120 CONTROL MODULE  
 C. 193 ECM-ETR COMMUNICATION MODULE  
 D. 100-C09D10 CONTACTOR  
 CONTRACTOR SHALL ALSO REPLACE 3-POSITION SELECTOR SWITCH WITH HAND, OFF, AUTO 30 mm TAG FOR SWITCH. SEE SHEETS 26 & 27 FOR DETAILS.
- CONTRACTOR SHALL SUPPLY METERING PUMP VFD, SEE SPECIFICATIONS
- CONTRACTOR SHALL SUPPLY 30 AMP, 600 VAC, 3φ, NON-FUSABLE DISCONNECT FOR LOCKOUT MEANS. ENCLOSURE SHALL BE NEMA 4X STAINLESS STEEL ENCLOSURE. LOCATED BY EQUIPMENT.

- \* IF APPLICABLE
- \*\* PROVIDE GROUND WIRE FOR EACH PIECE OF EQUIPMENT SIZED PER THE NEC
- \*\*\* SEE SPECIFICATIONS SECTION 16940-CONTROLS AND INSTRUMENTATION, PART 3 FOR NOTES REFERENCED

CONTROL DEVICES (OIL TIGHT, HEAVY DUTY)

PUSHBUTTONS		INDICATING LIGHTS (PUSH TO TEST)
1 START	7 FAST	R RED (FAIL)
2 STOP	8 SLOW	G GREEN (RUN)
3 LOCK OUT STOP	9 JOG FORWARD	A AMBER
4 RESET	0 JOG REVERSE	B BLUE
5 FORWARD	Z SPECIAL	W WHITE
6 REVERSE	M MAINT. CONT.	C CLEAR

SELECTOR SWITCHES AND AUXILIARY DEVICES				BREAKER TYPE, CODE	MOTOR STARTER INFORMATION
H-O-R	HAND-OFF-REMOTE	F-R	FORWARD-REVERSE	A AMB. COMP.	FVNR FULL VOLTAGE NON REVERSING
H-L-O-A	HIGH-LOW-OFF-AUTO	O-O	ON-OFF	M MAG. ONLY	FVR FULL VOLTAGE REVERSING
H-O-A-L	HAND-OFF-AUTO-LOCAL	R3	LOCKOUT STOP AT MOTOR		TS2WR TWO SPEED TWO WINDING REVERSING
H-O-A	HAND-OFF-AUTO	L-R	LOCAL REMOTE		RVSS REDUCED VOLTAGE SOLID STATE
F-O-R	FORWARD-OFF-REVERSE				VFD VARIABLE FREQUENCY DRIVE
ETM	ELAPSED TIME METER				ND NORMAL DUTY
					HD HEAVY DUTY

**FEHR GRAHAM**  
 ENGINEERING & ENVIRONMENTAL  
 ILLINOIS DESIGN FIRM NO. 184-003525  
 ILLINOIS IOWA WISCONSIN

OWNER/DEVELOPER:  
 CITY OF ROCKFORD  
 DEPARTMENT OF PUBLIC WORKS  
 425 EAST STATE STREET  
 ROCKFORD, IL 61104

PROJECT AND LOCATION:  
 WELL HOUSE 13  
 HMO ROOM BUILD-OUT PLANS  
 ROCKFORD, ILLINOIS

DRAWN BY: JMP  
 APPROVED BY: SWG  
 DATE: 7/30/20  
 SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:  
 MCC SCHEDULE  
 SET TYPE: OUT TO BID  
 G:\C30\19-200 Well 13\Plans\19-200 PH29 Plans.dwg, MCC

JOB NUMBER:  
 19-200PH29  
 SHEET NUMBER:  
 13 of 28

PANEL SCHEDULE

PANEL ID: 13-RP-F		VOLTS/PH/W: 208Y/120V, 3-PH, 4W		BUS: 100A, COPPER		CONSTRUCTION TYPE: PANELBOARD				
LOCATION: U13 EQUIPMENT RM.		MAIN: LUGS		AIC RATING: 10,000		ENCLOSURE/MOUNT: NEMA 1, SURFACE				
LOAD TYPE: 120/208V POWER		MAIN AMPS: 100A		OTHER:		DOOR: DOOR-IN-DOOR TRIM				
		BRANCHES: BOLT-ON C/B'S		OTHER:		OTHER:				
LOAD/CIRCUIT DESCRIPTION	LOAD KVA	CKT BKR	P	CIR #	P	CIR #	P	CKT BKR	LOAD KVA	LOAD/CIRCUIT DESCRIPTION
LIGHTS - HMO ROOM	0.60	20	1	1	A	2	1	15	0.50	EF-13-001 EXH. FAN HMO ROOM
LIGHTS-EQUIPMENT ROOM	0.50	20	1	3	B	4	1	15	0.50	EF-13-003 EXH. FAN EQUIPMENT ROOM
LIGHTS - CHEM ROOMS	0.30	20	1	5	C	6	1	15	0.50	EF-13-004, -008 EXH. FANS FLUORIDE ROOM
LIGHTS - OUTSIDE	1.00	20	1	7	A	8	1	20	1.4	IWP-13-461 INJECTOR WATER SUPPLY PUMPING UNIT
CONV. RECEP'T'S - HMO & EQUIPMENT ROOMS	1.00	20	1	9	B	10	1	15	0.4	TP-13-510 POLYPHOSPHATE BULK TANK TRANSF PUMP
CONV. RECEP'T'S - CHEM ROOMS		15	1	11	C	12	1	20	0.1	MP-13-605 FLUORIDE FEED PUMP
RECEP'T - EQUIP. RM. AIR DRYER & DRAIN CONTROL	0.50	20	1	13	A	14	1	20	0.5	- SUMP PUMP
<b>HMO BULK TANK EXHAUST FAN EF-13-009</b>	<b>0.50</b>	15	1	15	B	16	1	15	0.5	- AIR RELEASE MANHOLE SUMP PUMP
<b>HMO DAY TANK EXHAUST FAN EF-13-010</b>	<b>0.50</b>	15	1	17	C	18	1	15	0.1	MP-13-529 POLYPHOSPHATE FEED PUMP
		15	1	19	A	20	1	15	0.50	CHOLORINE EMERGENCY VALVE CONTROLLER
		15	1	21	B	22	1	15	0.50	AIR BLOWER AUX. FAN
		15	1	23	C	24	1	15	0.10	CHEM FILL WARNING LIGHTS
		15	1	25	A	26	1	15		
		15	1	27	B	28	1	15		
		15	1	29	C	30	1	20		FUT. DEHUMIDIFIER (FUTURE)
		15	1	31	A	32	1	15		FUT. SODIUM PERMANGANATE TRANSFER PUMP
		15	1	33	B	34	1	15		FUT. MANGANESE SULFATE TRANSFER PUMP
		15	1	35	C	36	1	15		FUT. SODIUM HYDROXIDE TRANSFER PUMP
		15	1	37	A	38	1	20		FUT. SODIUM PERMANGANATE METERING PUMP
WATER HEATER - 6 KW	6.00	40	2	39	B	40	1	20	0.3	120 VAC 1φ MP-13-800 HMO METERING PUMP
		15			C	42	1	20		FUT. HMO METERING PUMP PUMP
TOTAL LOAD: 16.80		kVA		10.9				5.9		

PANEL SCHEDULE

PANEL ID: 13-ICP-C		VOLTS/PH/W: 208Y/120V, 3-PH, 3-W		BUS: 100A, COPPER		CONSTRUCTION TYPE: LOAD CENTER				
LOCATION: U13 TREATMENT ROOM		MAIN: BREAKER		AIC RATING: 10,000		ENCLOSURE/MOUNT: NEMA 1, SURFACE				
LOAD TYPE: INSTRUMENT & CONTROL POWER		MAIN AMPS: 60A		OTHER:		DOOR: DOOR-IN-DOOR TRIM				
		BRANCHES: BOLT-ON C/B'S		OTHER:		OTHER:				
LOAD/CIRCUIT DESCRIPTION	LOAD KVA	CKT BKR	P	CIR #	P	CIR #	P	CKT BKR	LOAD KVA	LOAD/CIRCUIT DESCRIPTION
FILTER CONTROL PANEL 13-FCP-1	0.50	20	1	1	A	2	1	15	0.20	FM-13-391 FILTER UNTREATED FLOW
SYSTEM CONTROL PANEL 13-SCP-1	0.50	20	1	3	B	4	1	15	0.20	FM-13-392 FILTER TREATED FLOW
(FUTUER) SOD. PERMANG. LEVEL AND WIGHT INST'S	0.20	15	1	5	A	6	1	15	0.20	FM-13-745 FINISHED WATER FLOW
(FUTUER) MANG. SULFATE LEVEL AND WIGHT INST'S	0.20	15	1	7	B	8	1	15	0.20	LT-13-754 RESERVOIR LEVEL
(FUTUER) SOD. HYDROX. LEVEL AND WIGHT INST'S	0.20	15	1	9	A	10	1	15	0.20	LT-13-824 BACKWASH HOLDING TANK
<b>HMO CONTROL PANEL 13-HCP-1</b>	<b>0.20</b>	<b>30</b>	1	11	B	12	1	15		SPARE
(FUTUER) HMO DAY TANK 2 LEVEL, WEIGHT, PH INST'S	0.20	15	1	13	A	14	1	15		SPARE
CHLORINATION WEIGHT INDICATORS	0.20	15	1	15	B	16	1	15		SPARE
FLUORIDATION WEIGHT INDICATOR	0.20	15	1	17	A	18	1	15		SPARE
POLYPHOS. WEIGHT INDICATORS	0.20	15	1	19	B	20	1	15		SPARE
FIC-13-013, RESERVOIR REFILL VALVE CONTROLLER	0.50	15	1	21	A	22	1	15		SPARE
SPARE		15	1	23	B	24	1	15		SPARE
SPARE		15	1	25	A	26	1	15		SPARE
ACCESS CONTROL PANEL		15	1	27	B	28	2	30	0.00	SURGE SUPPRESSION DEVICE
GENERATOR - REMOTE ANNNCIATOR	0.50	15	1	29	A	30				
TOTAL LOAD: 4.60		kVA		3.6				1.00		



ILLINOIS  
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ROCKFORD, IL 61104

PROJECT AND LOCATION:  
WELL HOUSE 13  
HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 7/30/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:  
PANEL SCHEDULES

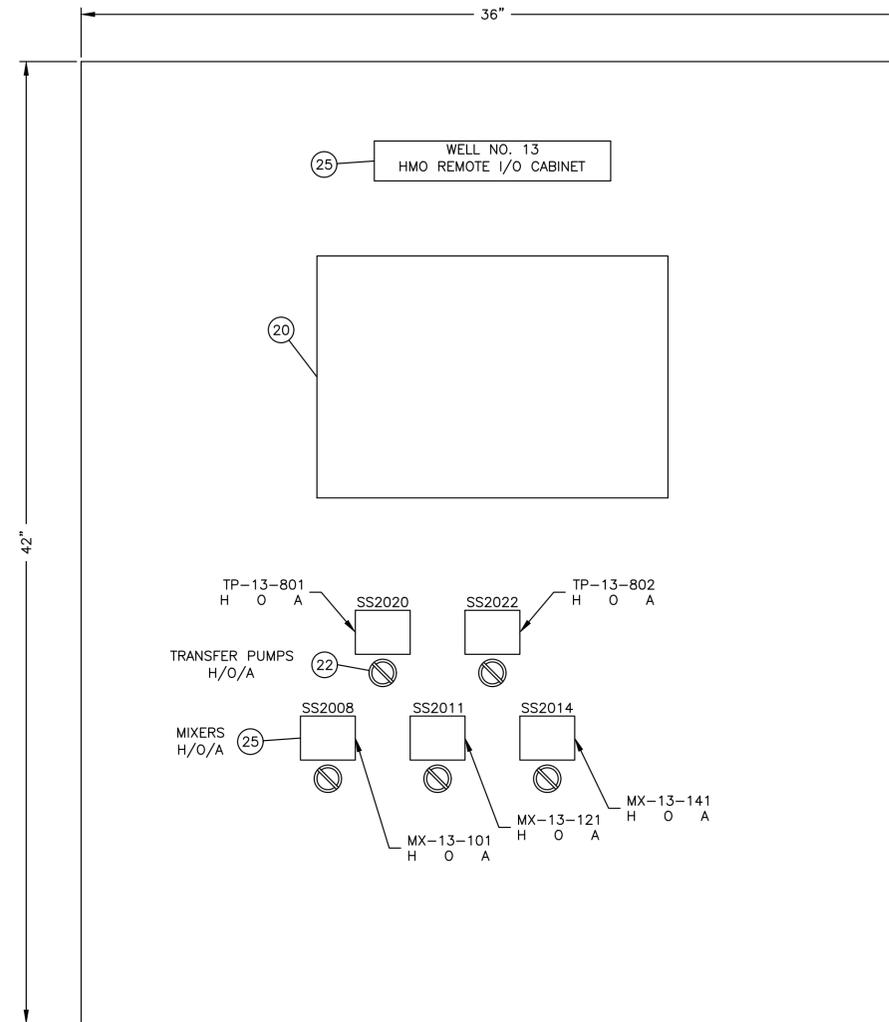
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JOB NUMBER:  
19-200PH29

SHEET NUMBER:  
14 of 28

**BILL OF MATERIALS**

ITEM NO.	CATALOG NUMBER	QTY	DESCRIPTION	MANUFACTURER
1	SCE-42H3608SSLP	1	42 X 36 X 08 (HxWxD) NEMA 4X SINGLE DOOR WALL MOUNT ENCLOSURE	SAGINAW
2	SCE-42P36	1	SUBPANEL, 39 X 33	SAGINAW
3	1794-PS13	1	AC TO DC MODULE, 24 VDC	ALLEN BRADLEY
4	1794-AENT	1	COMMUNICATION ADAPTER, FLEX I/O	ALLEN BRADLEY
5	1794-OA16	1	120 VAC ISOLATED RELAY OUTPUT MODULE, 16 PTS	ALLEN BRADLEY
6	1794-IE8	1	ANALOG INPUT MODULE, 8 CH.	ALLEN BRADLEY
7	1794-TB2	4	TERMINAL BASE UNIT	ALLEN BRADLEY
8	DN-F6L110	11	FUSE TERMINAL BLOCK, 120 VAC	AUTOMATION DIRECT
9	DN-F6L24	4	FUSE TERMINAL BLOCK, 24 VDC	BUSSMAN
10	AGC-2	4	FAST-ACTING FUSE GLASS BODY, 2 AMP	AUTOMATION DIRECT
11	DN-T12	100	TERMINAL BLOCK 12AWG 20A 600V GREY	AUTOMATION DIRECT
12	DN-G10	32	GROUND TERMINAL 10 AWG 30 AMP	AUTOMATION DIRECT
13	DN-EB35	7	END BRACKET FOR 35MM RAIL	AUTOMATION DIRECT
14	DN-R35HS1	A/R	DIN RAIL 35 mm X15 mm SLOTTED - 1 METER	AUTOMATION DIRECT
15	781-1C-120A	16	SINGLE POLE RELAY, SPDT, 15 A, 120 VAC COIL	AUTOMATION DIRECT
16	781-1C-SKT	16	5 PIN SOCKET, FINGER SAFE, DIN/PNL MOUNT	AUTOMATION DIRECT
17	SD1-032-RR	1	NON-FUSED DISCONNECT, 32 A, 600 VAC, RED HANDLE	AUTOMATION DIRECT
18	SD1-GP	1	GROUND POLE, SD1 NON-FUSED DISCONNECT SWITCH	AUTOMATION DIRECT
19	SD1-NP	1	NEUTRAL POLE, SD1 NON-FUSED DISCONNECT SWITCH	AUTOMATION DIRECT
20	2711P-T10C4A1	1	PANELVIEW PLUS 1000 COLOR TOUCH SCREEN, 10.4"	ALLEN BRADLEY
21	PSM24-090S	1	DC POWER SUPPLY, 3.75A 24 VDC	AUTOMATION DIRECT
22	HT8JBH1DAA5	5	3 POS. 30 mm SELECTOR 2 N.O. MAINT	AUTOMATION DIRECT
23	AGC-5	8	FAST-ACTING FUSE GLASS BODY, 5 AMP	BUSSMAN
24	T1-2240	A/R	WIRE DUCT SLOTTED GREY, 2"W x 4"H	IBOCO
25	701640A631	1	NAMEPLATES, ENGRAVED PER DRAWING	LASERWORKS
26	TCSESU053FNO	1	ETHERNET SWITCH	SQUARE D
27	1794-IA16	1	120VAC INPUT MODULE, 16 PTS	ALLEN BRADLEY
28	1794-OF4I	1	ANALOG OUTPUT MODULE	ALLEN BRADLEY
29	AGC-2	1	FAST ACTING FUSE GLASS BODY, 2 AMP	BUSSMAN



**FEHR GRAHAM**

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DEPARTMENT OF PUBLIC WORKS  
425 EAST STATE STREET  
ROCKFORD, IL 61104

**PROJECT AND LOCATION:**

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HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
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DATE: 7/30/20  
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**DRAWING:**

REMOTE I\_O PANEL LAYOUT

SET TYPE: OUT TO BID

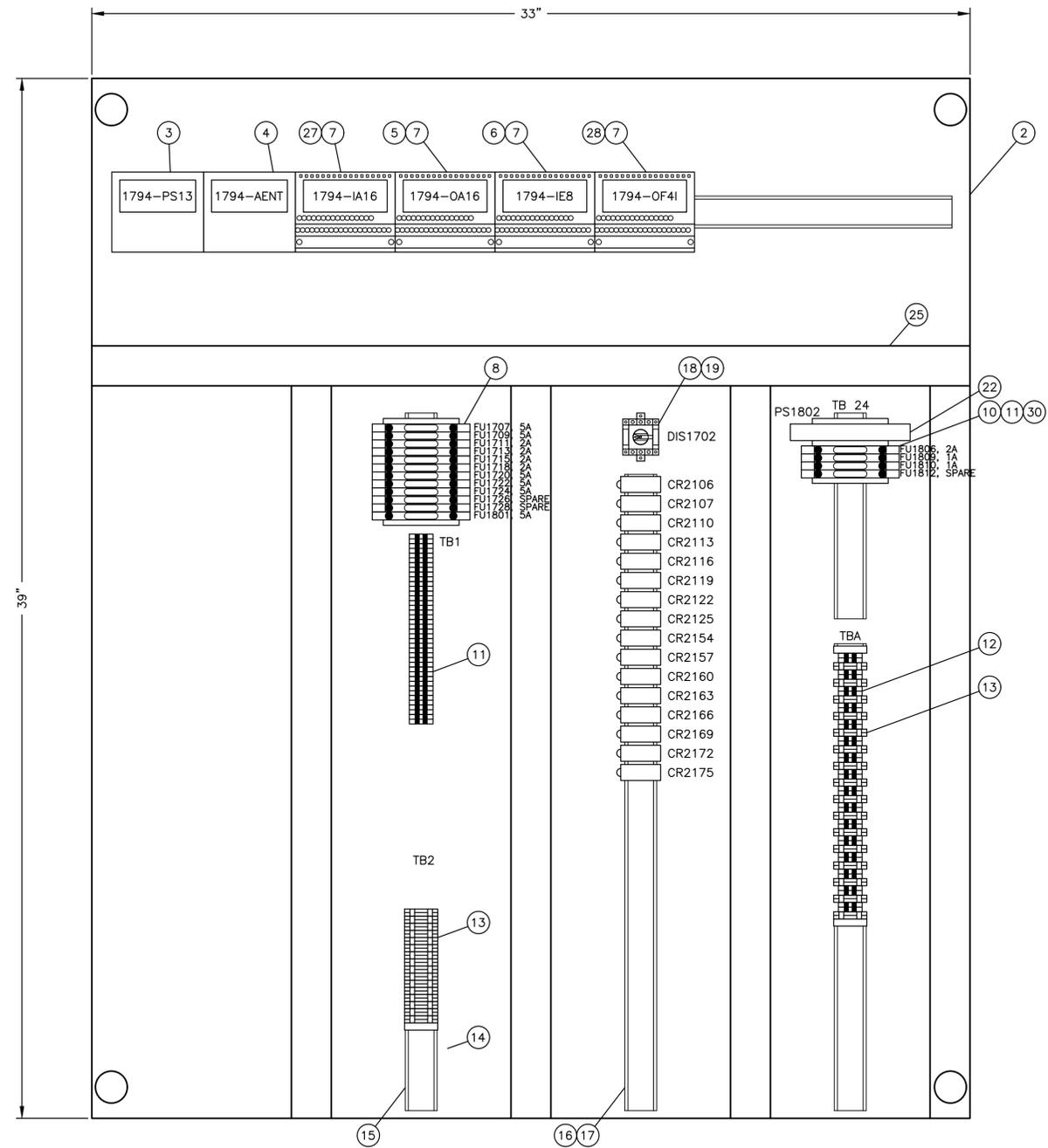
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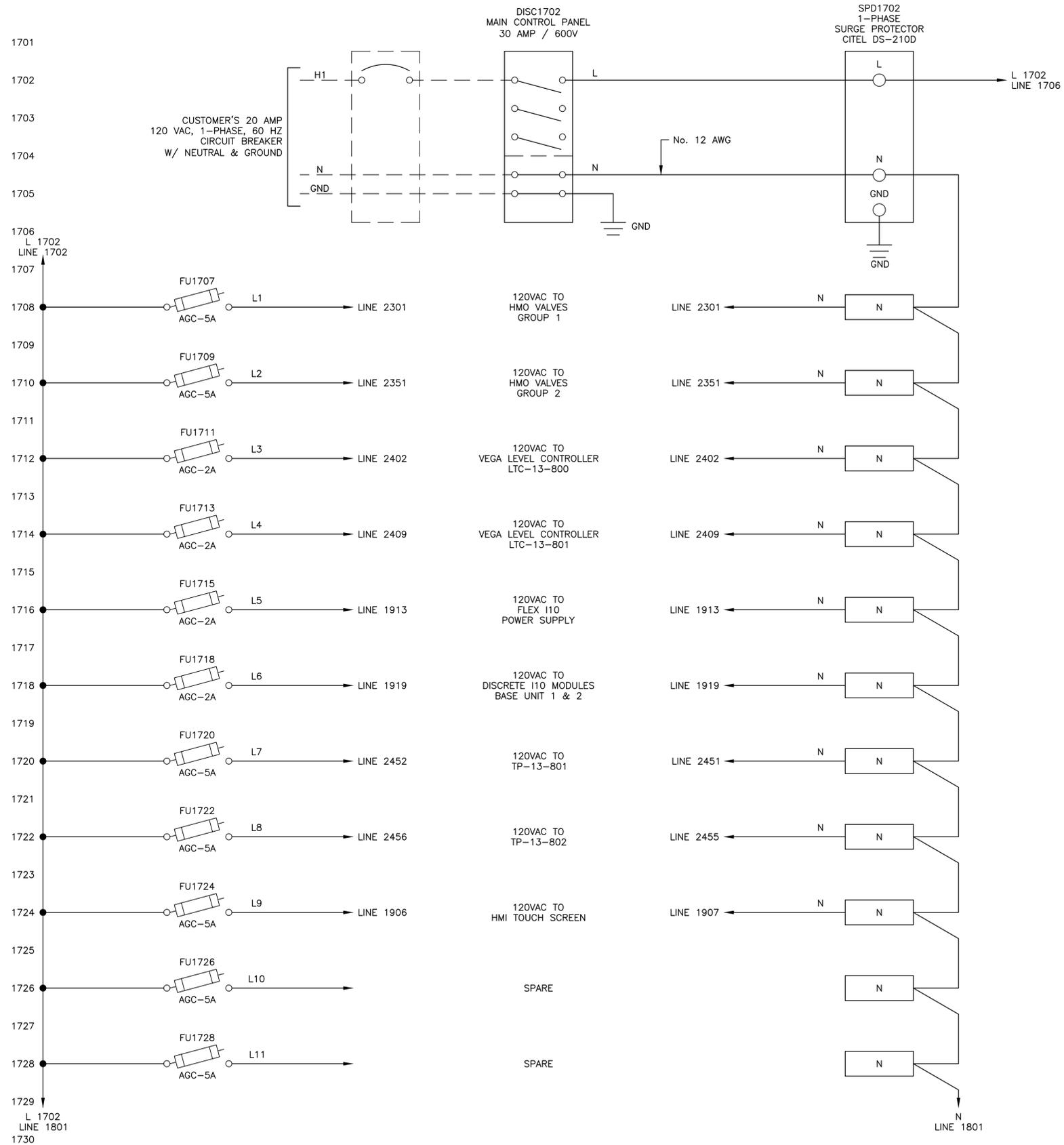
19-200PH29

**SHEET NUMBER:**

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REVISIONS		
REV. NO.	DESCRIPTION	DATE



**FEHR GRAHAM**

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DRAWING:

CONTROL CABINET FUSING

SET TYPE: OUT TO BID

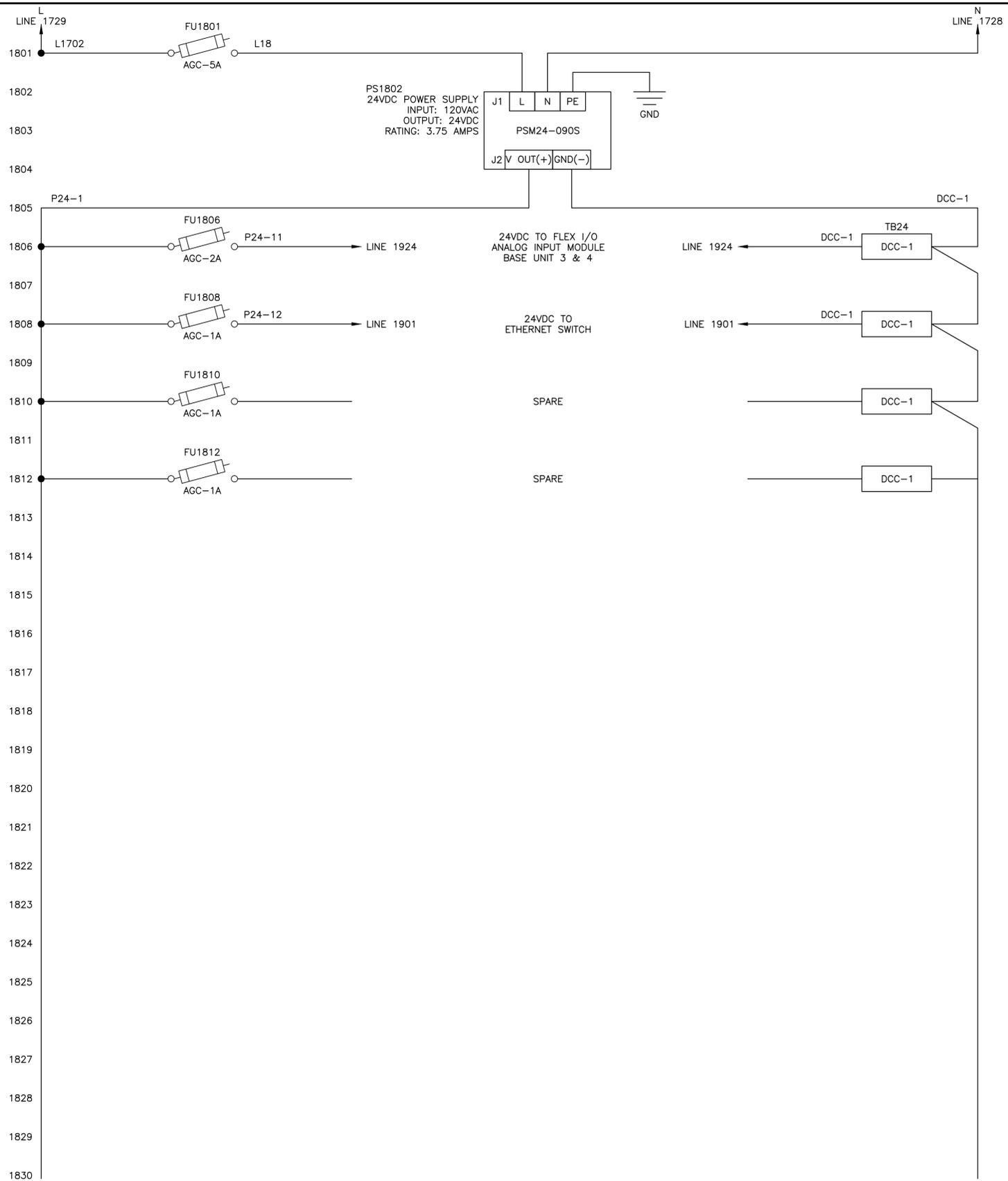
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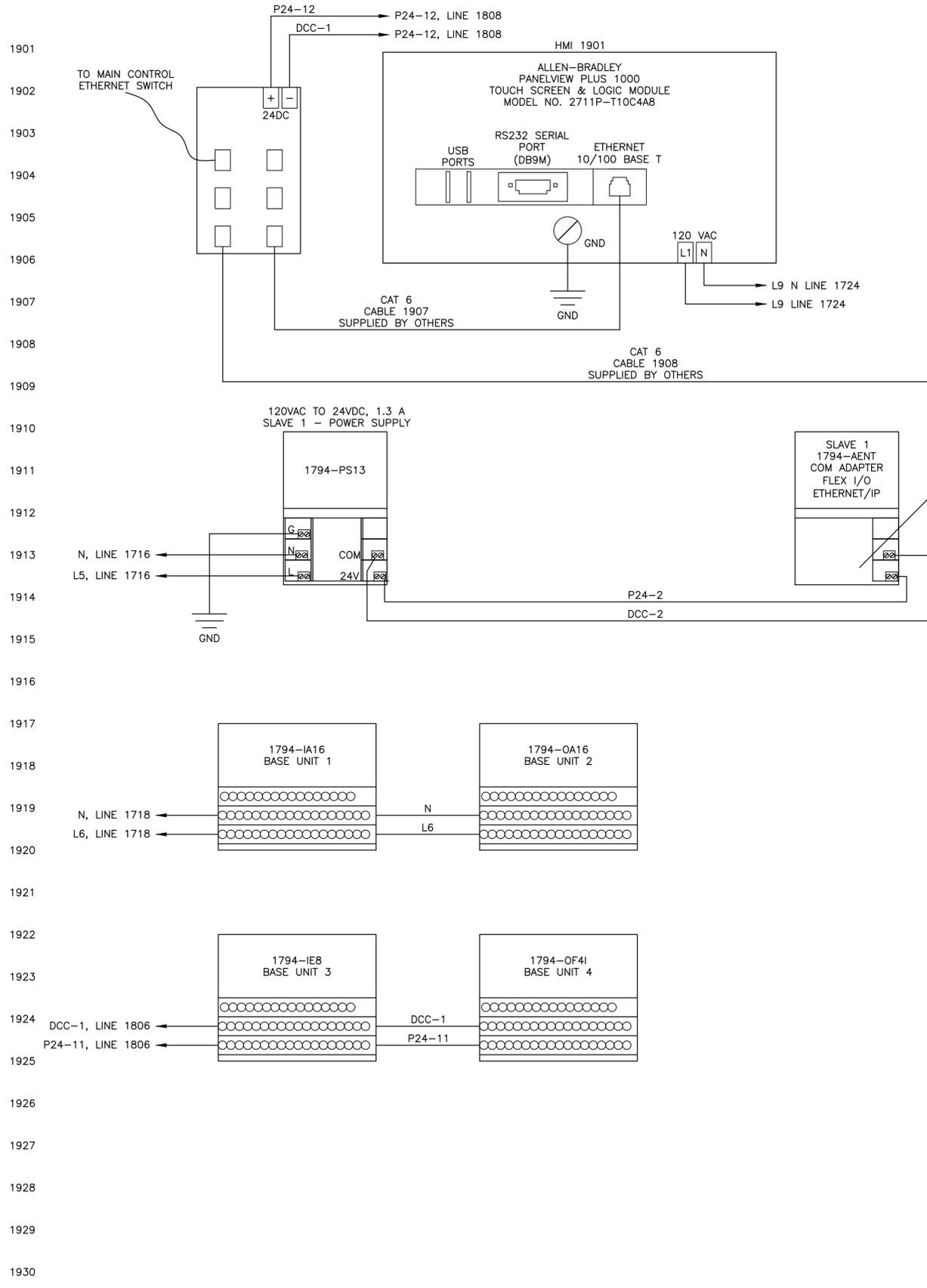
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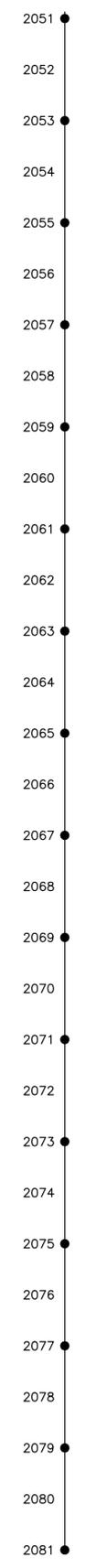
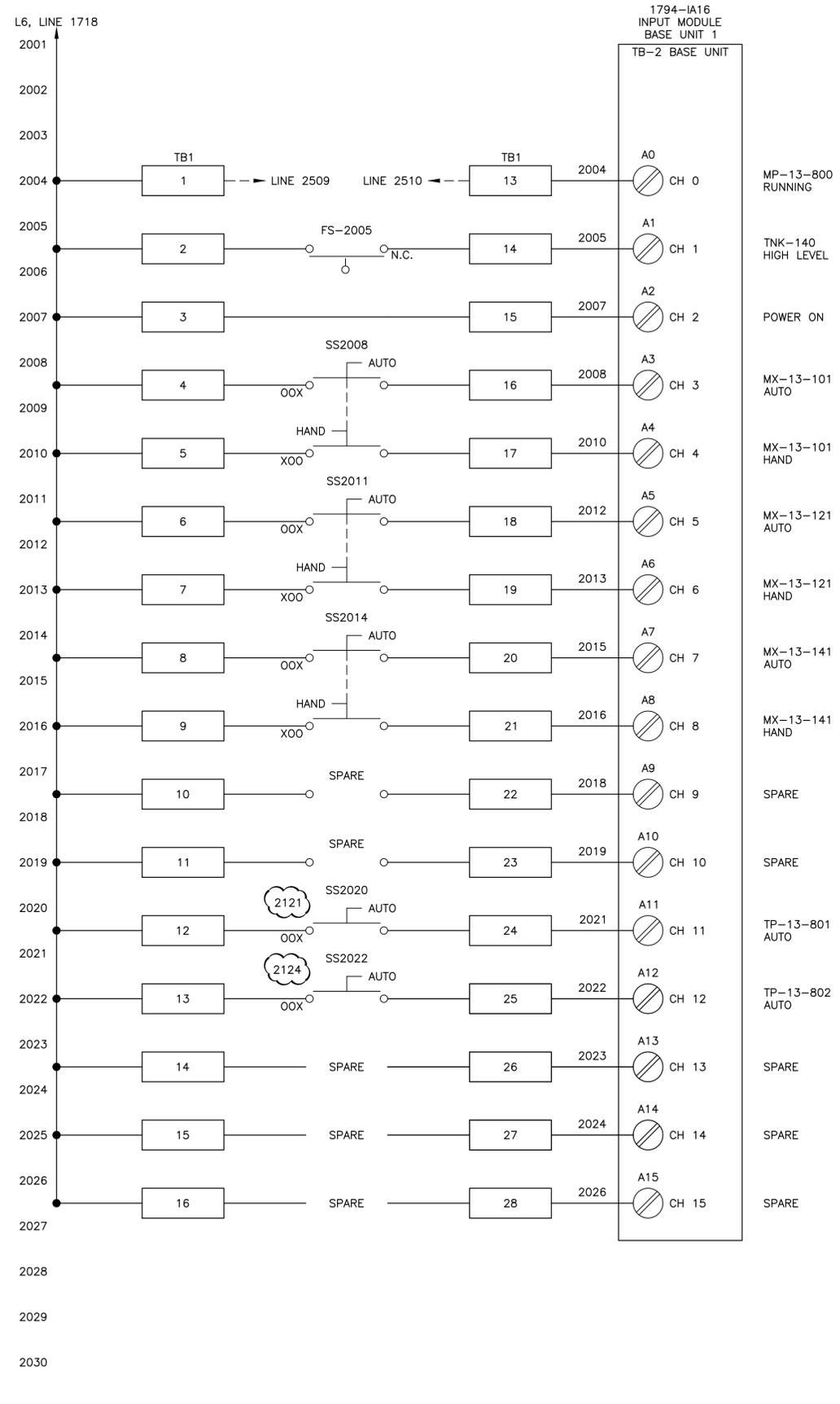
17 of 28



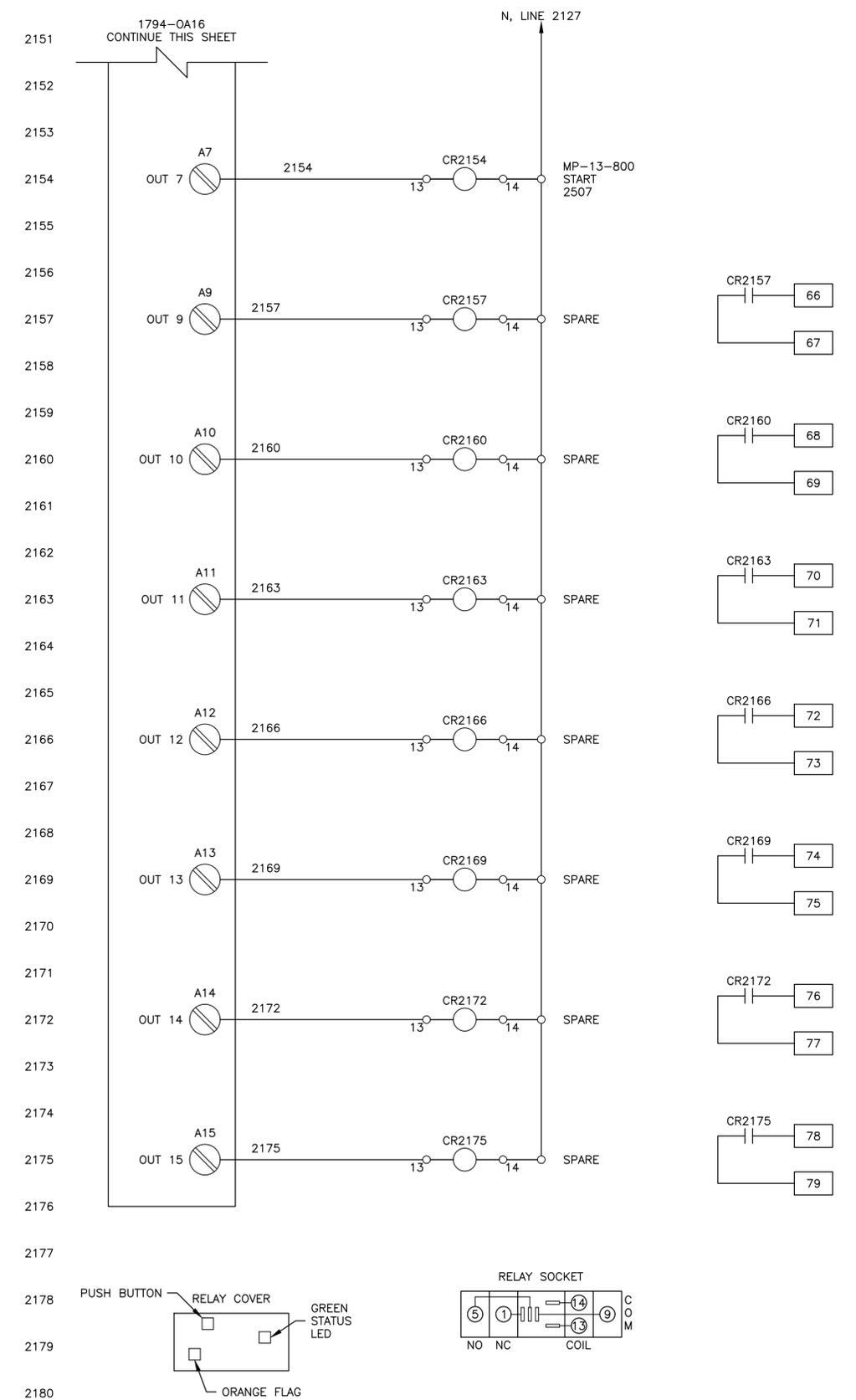
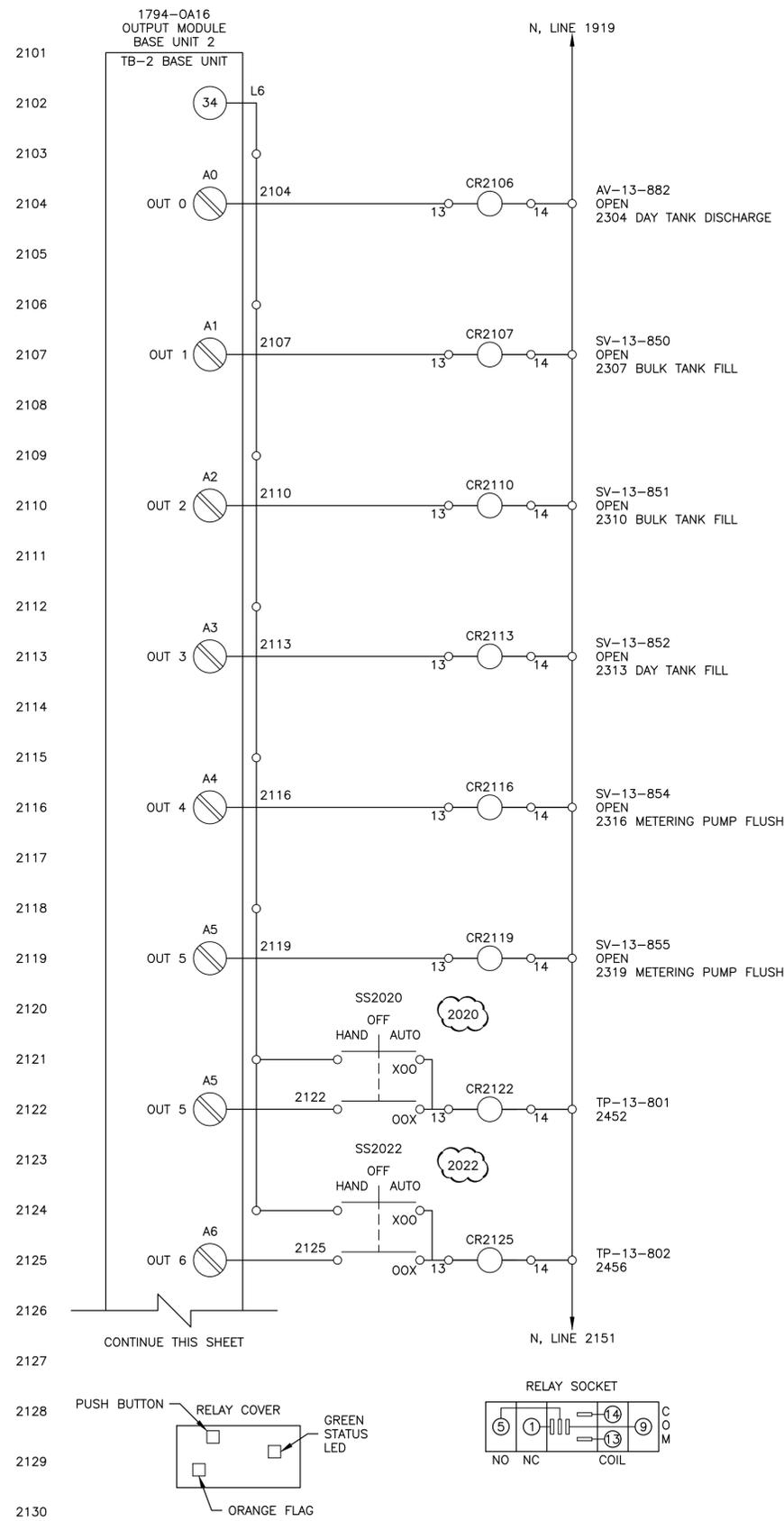
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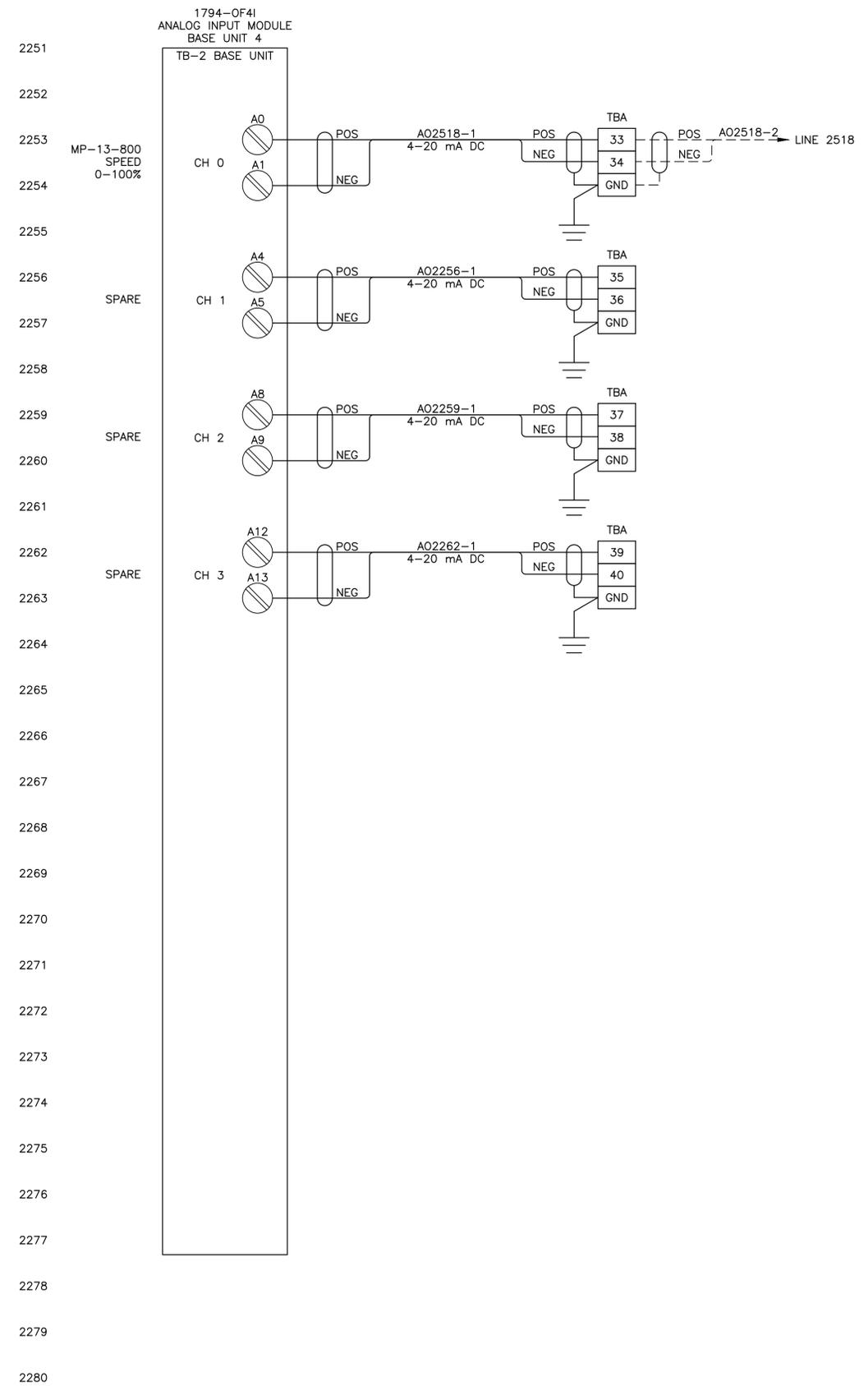
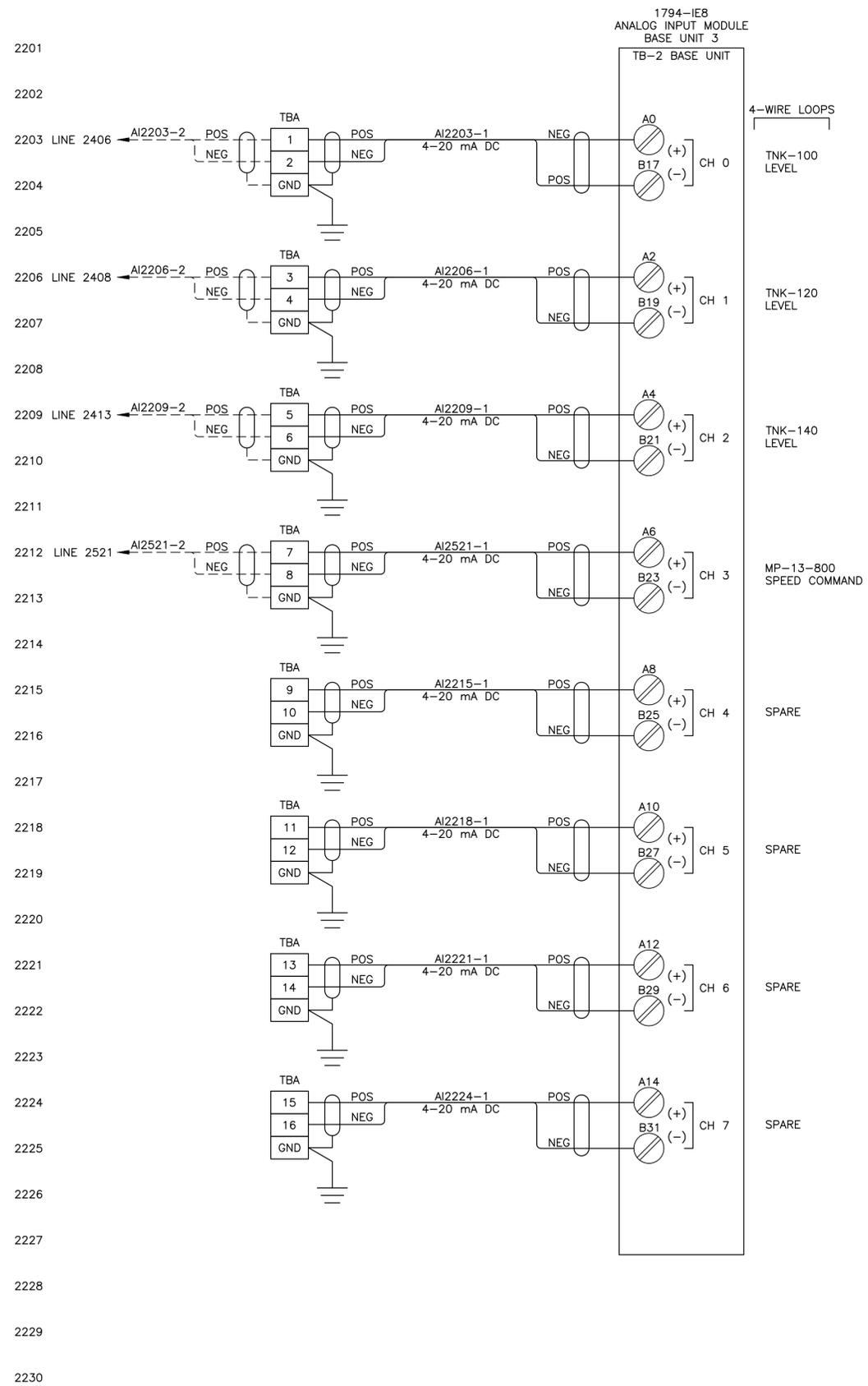
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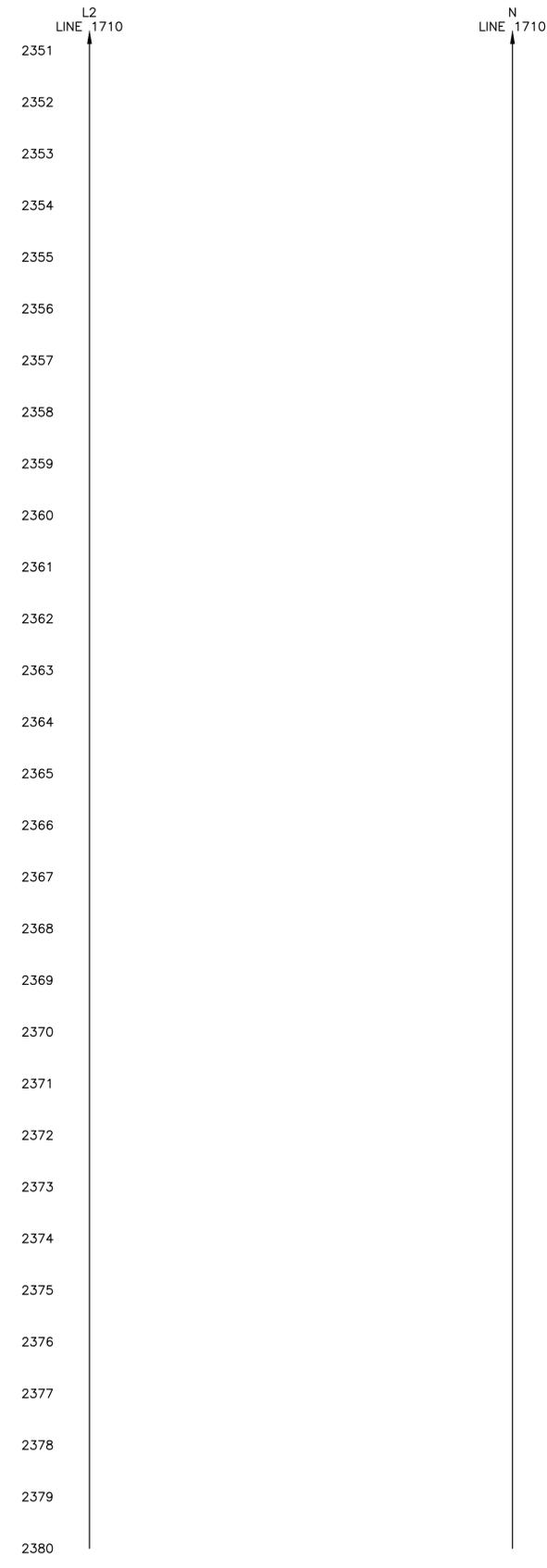
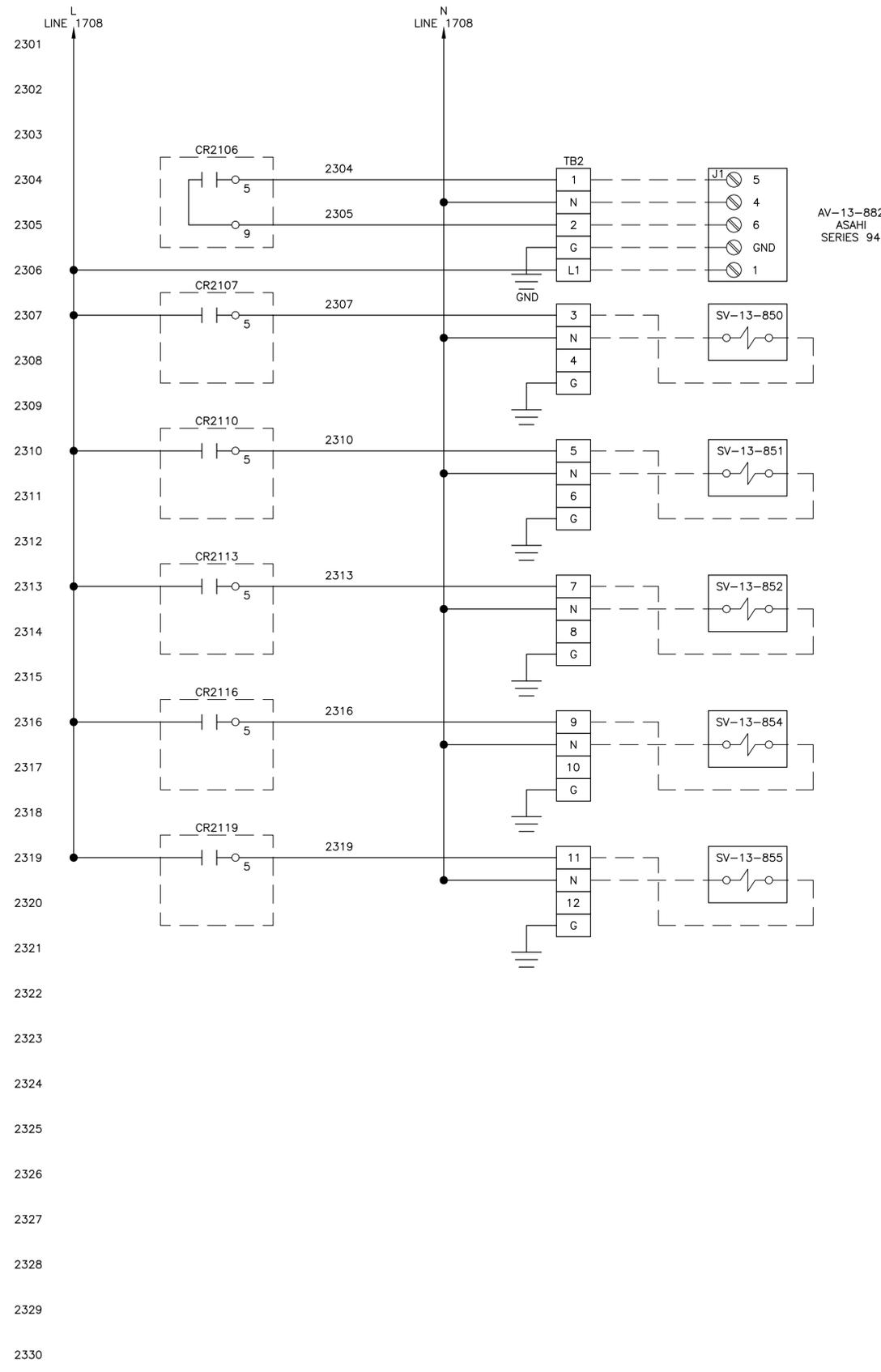
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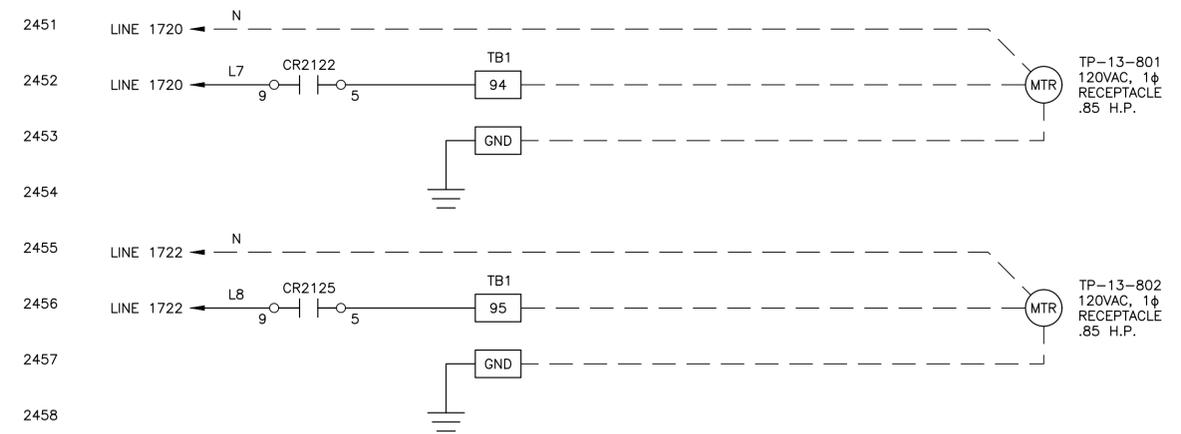
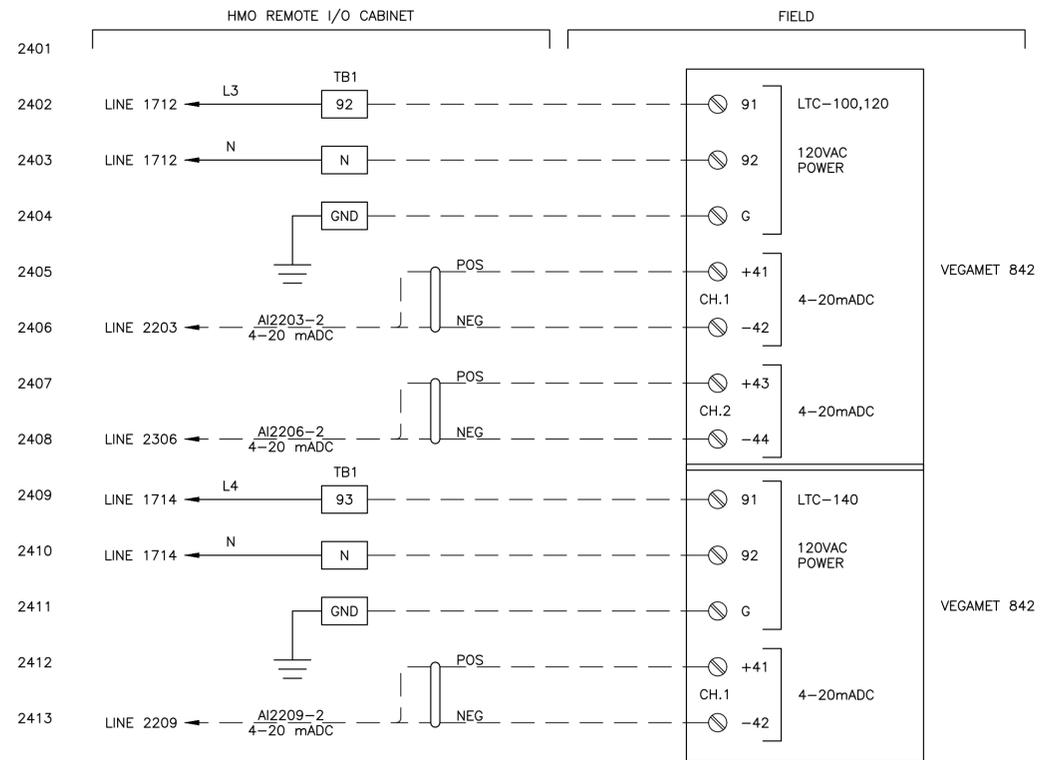
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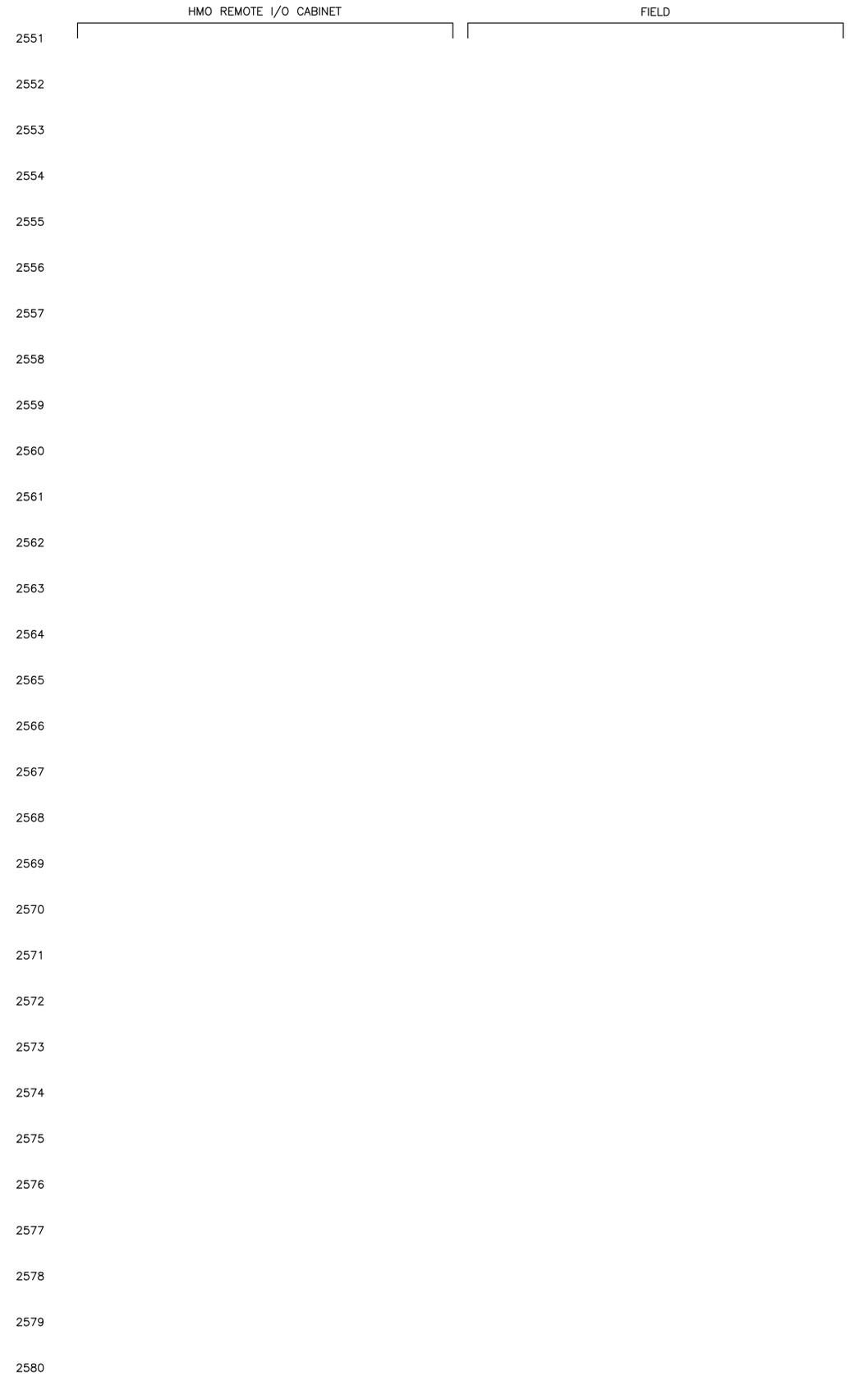
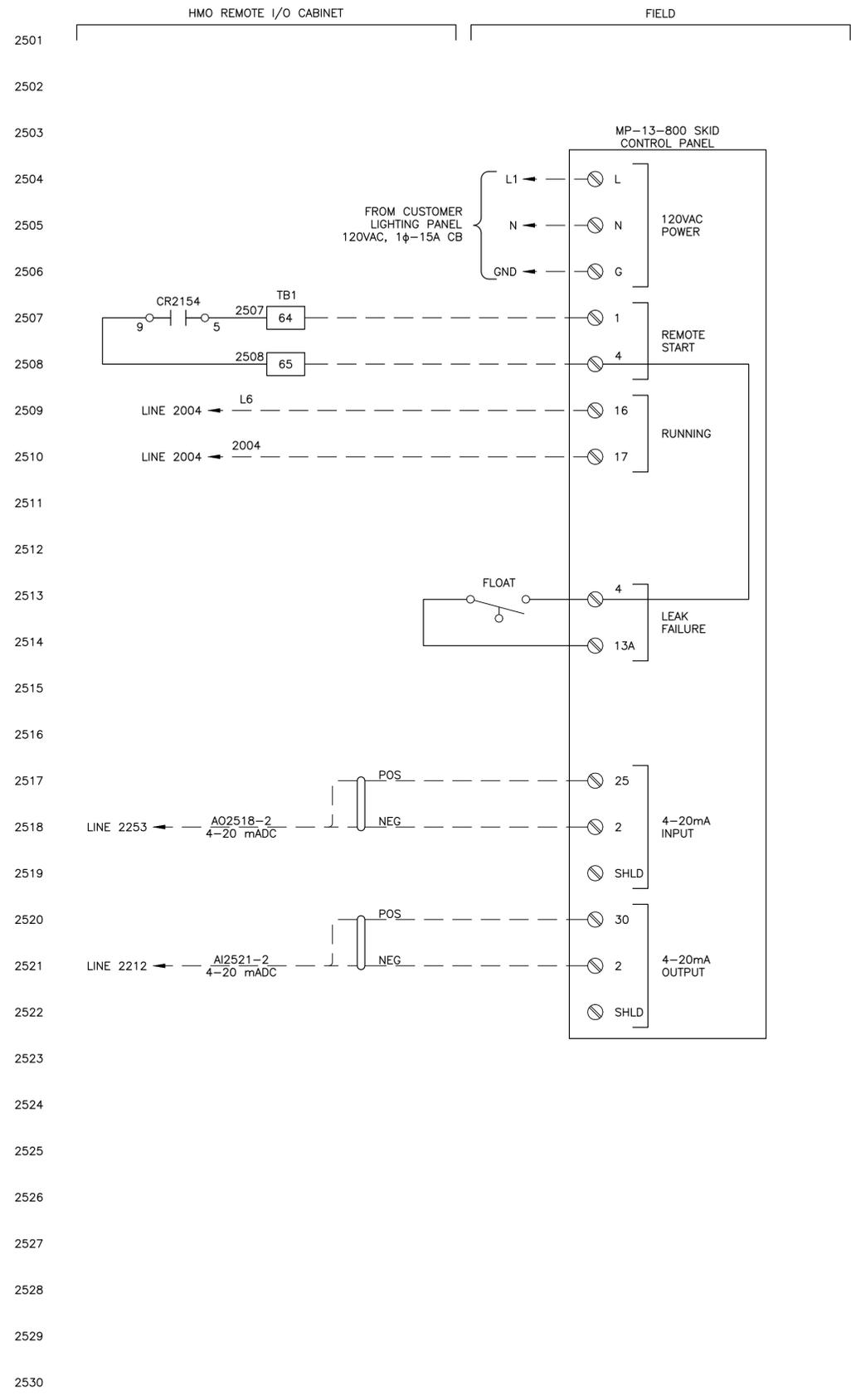
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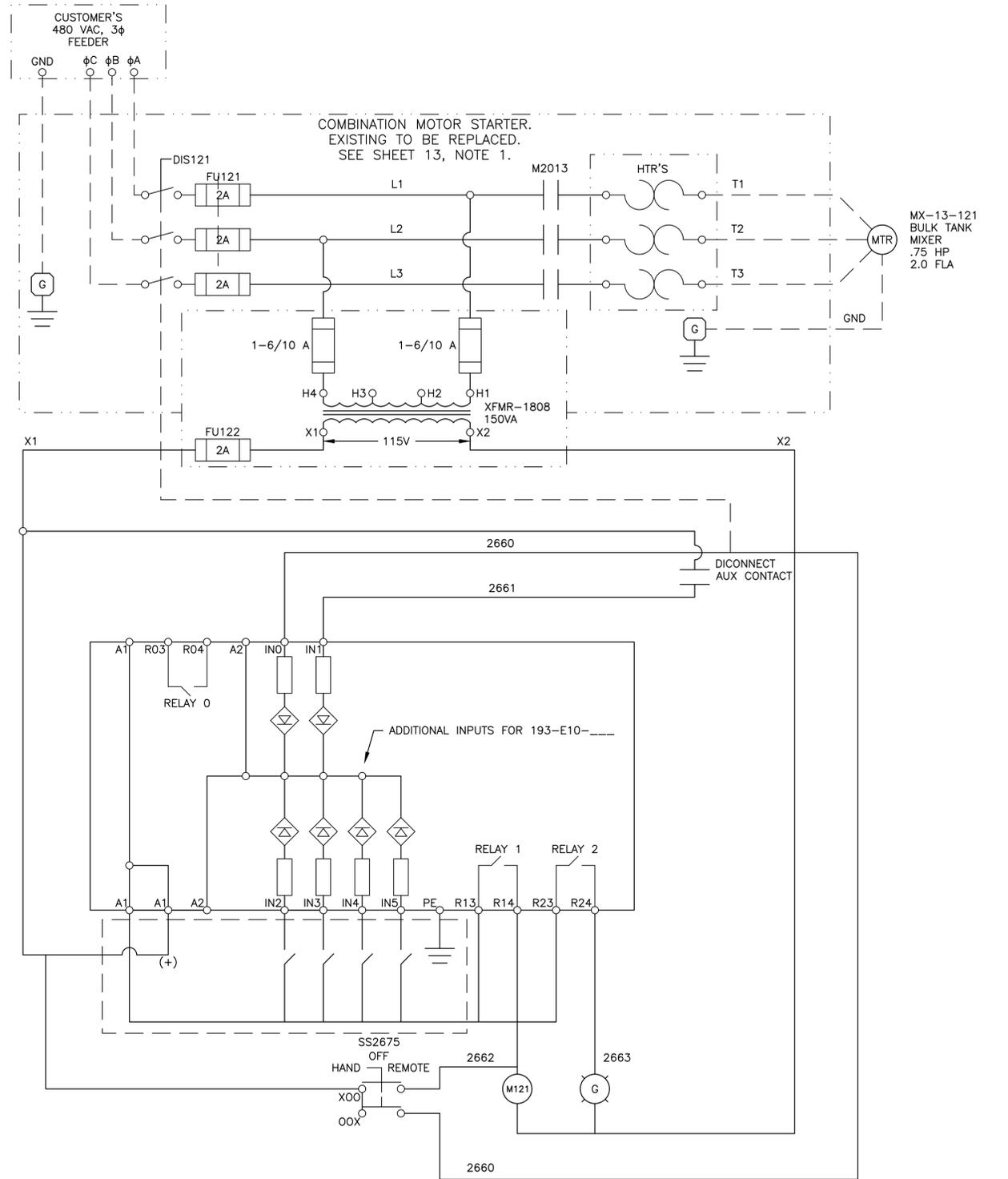
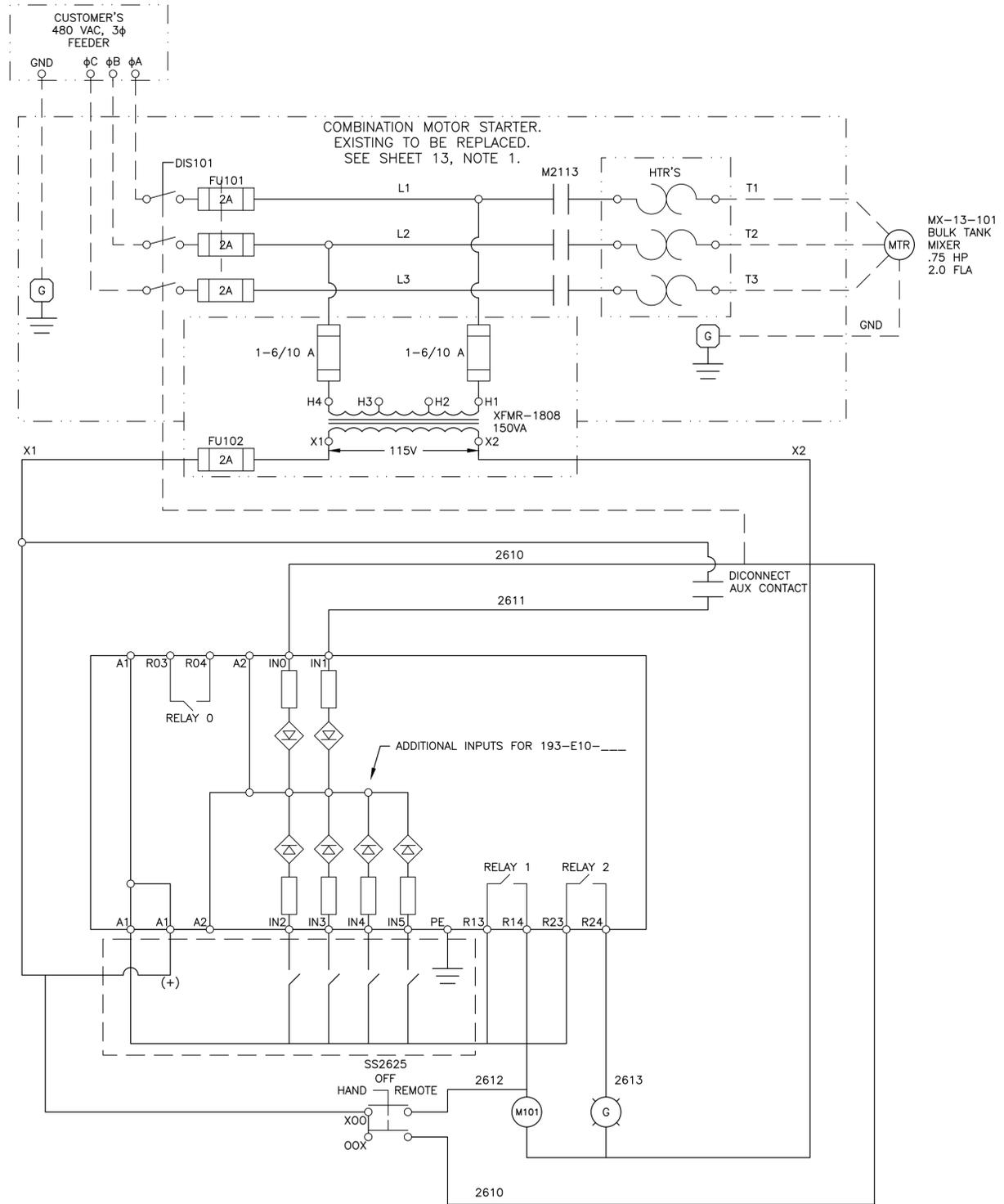
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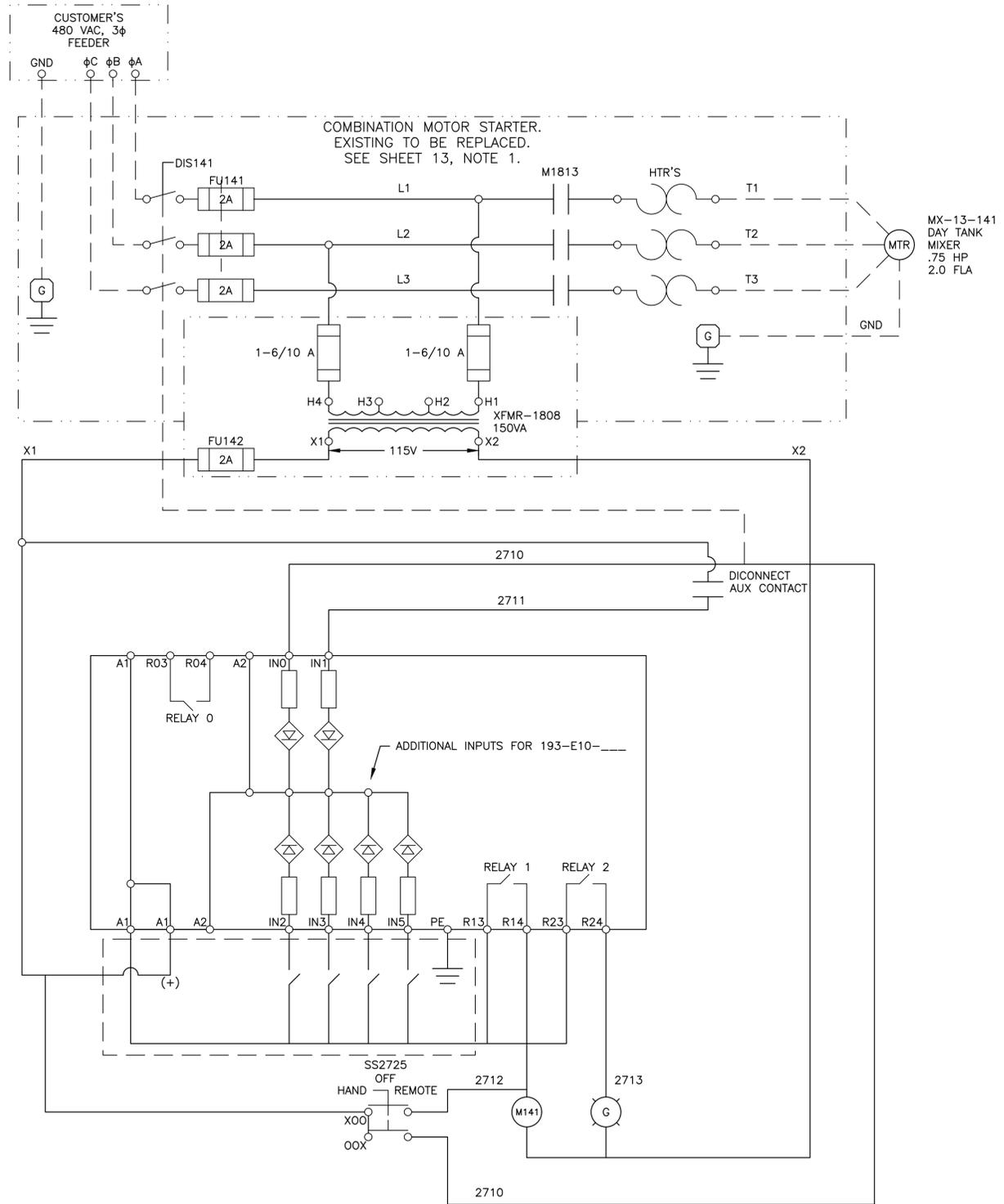
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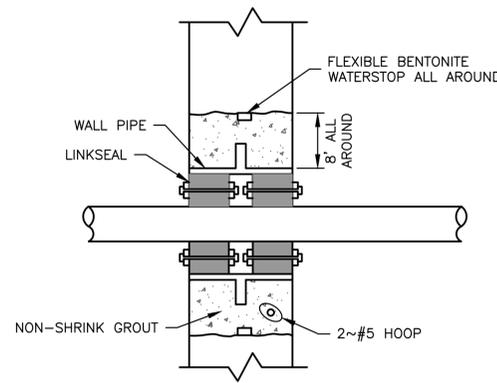
REVISIONS		
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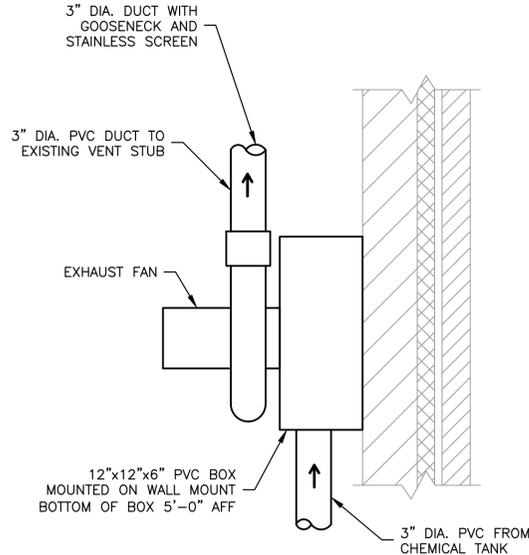


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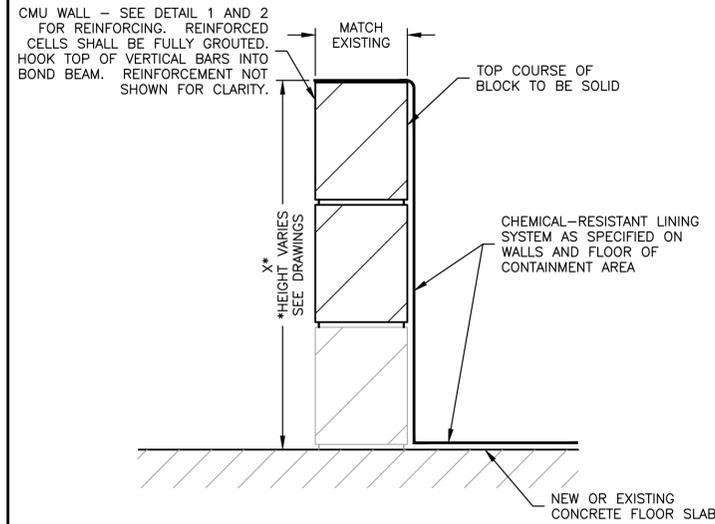


- NOTES:**
- FOR 4-INCH AND LARGER PIPE THROUGH WATER TIGHT CONCRETE MEMBERS ONLY.
  - REMOVE CONCRETE FROM EXISTING REINFORCEMENT. BEND EXISTING REINF. AROUND NEW WALL PIPE IF POSSIBLE IF BARS MUST BE CUT, CUT ONLY AT CENTER AND BEND.

**EXISTING WALL PIPE PENETRATION**  
N.T.S.

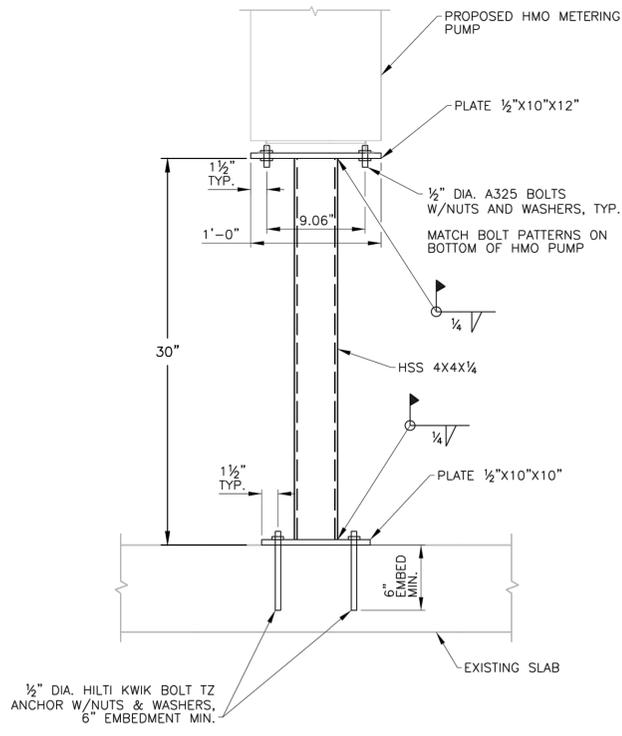


**CHEMICAL TANK EXHAUST FAN**  
N.T.S.

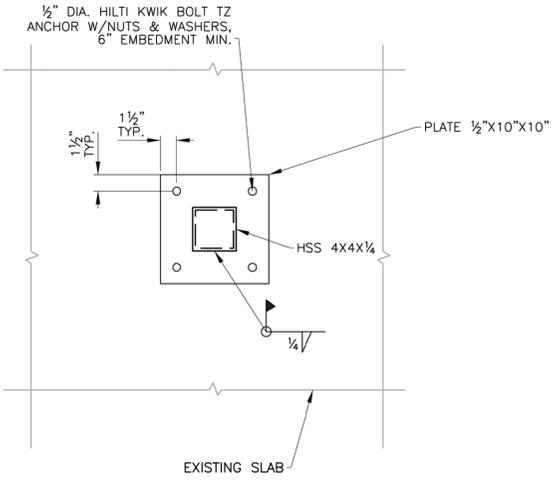


**MASONRY CONTAINMENT WALL**  
N.T.S.

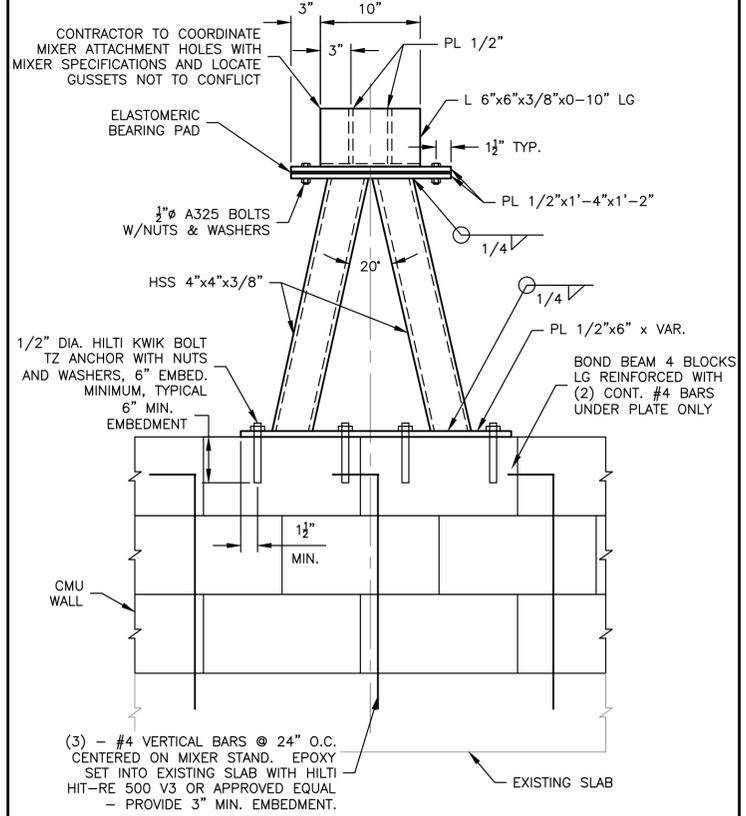
**MIXER STAND NOTE:**  
CONTRACTOR SHALL FURNISH SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO STEEL FABRICATION.



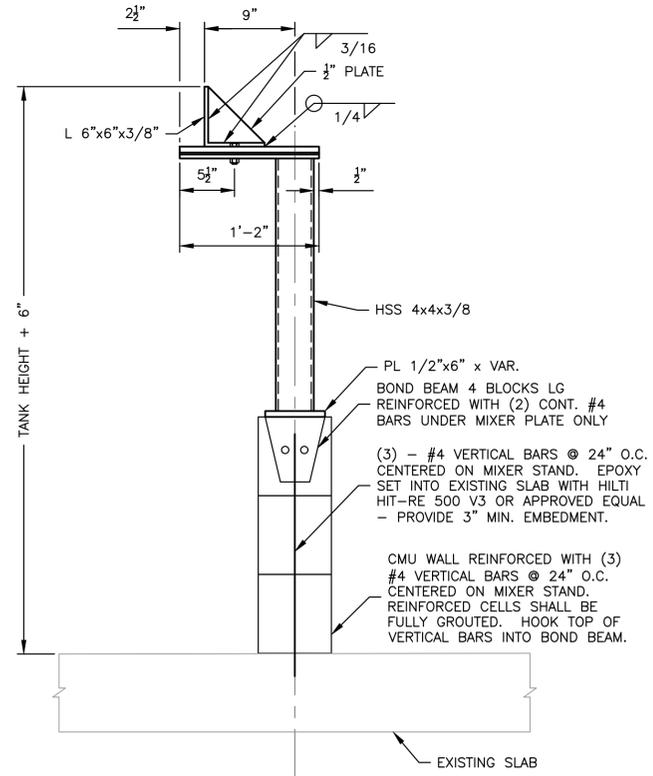
**HMO METERING PUMP STAND DETAIL**  
N.T.S.



**BASE PLATE (HMO METERING PUMP) CONNECTION DETAIL**  
N.T.S.



**MIXER MOTOR SUPPORT STAND DETAIL 1**  
N.T.S.



**MIXER MOTOR SUPPORT STAND DETAIL 2**  
N.T.S.

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING: DETAILS	SET TYPE: OUT TO BID
G:\C30\19-200 Well 13\Plans\19-200 PH29 Plans.dwg, Details	

# WELL HOUSE 31 HMO ROOM BUILD-OUT PLANS

FOR  
**CITY OF ROCKFORD**  
**DEPARTMENT OF PUBLIC WORKS**  
**ROCKFORD, ILLINOIS**



Sheet List Table

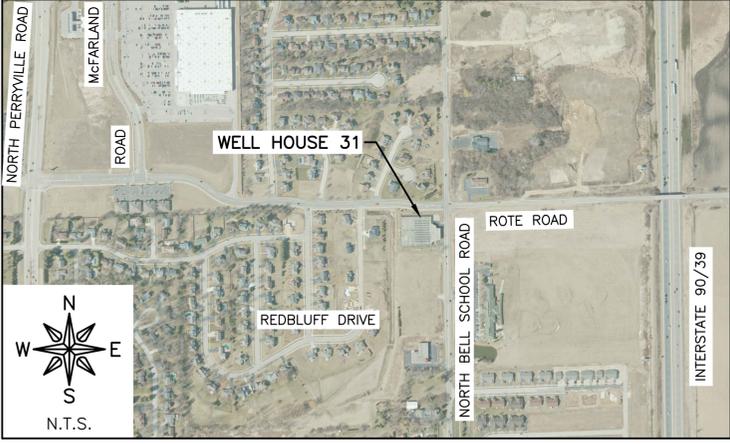
Sheet Number	Sheet Title
1	COVER
2	LEGEND
3	GENERAL NOTES
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5	PROPOSED HMO PLAN
6	PLUMBING PLAN
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8	HMO VALVE SCHEMATIC
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21	REMOTE I/O PANEL SCHEMATIC - BASE UNIT 1 - 2
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23	REMOTE I/O PANEL SCHEMATIC - BASE UNIT 5 - 6
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26	METER PUMP CONTROLS
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28	REMOTE MIXER PANEL CONTROLS
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PROPOSED BUILD-OUT PLANS

WINNEBAGO COUNTY  
JULY 2020

UTILITIES	
UTILITY TYPE	COMMON NAME
SEWER	ROCK RIVER WATER RECLAMATION DISTRICT
ELECTRIC	COMED
TELEPHONE	AT&T, COMCAST, FRONTIER
GAS	NICOR
CABLE	COMCAST

(CONTRACTOR TO BE RESPONSIBLE FOR ANY ADJUSTMENTS TO BE MADE.)



LOCATION MAP



SIGNATURE DATE

OUT TO BID



ILLINOIS                      IOWA                      WISCONSIN

ILLINOIS PROFESSIONAL DESIGN FIRM NUMBER: 184003525

ORIGINAL SET FOR PROJECT: 19-200PH30		DATE CREATED: 9/3/20
REVISIONS		
REV. NO.	DESCRIPTION	DATE



**ABBREVIATIONS**

<	ANGLE
ABC	AGGREGATE BASE COURSE
ACI	ACRE(S)
ACI	AMERICAN CONCRETE INSTITUTE
AGGR	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ARCH	ARCHITECT
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
B	BALL VALVE
BFP	BACKFLOW PREVENTER
BIT	BITUMINOUS
BLDG	BUILDING
BLK	BLOCKING
BM	BENCHMARK
BOT	BOTTOM
BSMT	BASEMENT
BV	BUTTERFLY VALVE
B-B	BACK-TO-BACK OF CURB DIMENSION
CL or C	CENTERLINE
C to C	CENTER TO CENTER
C & G	CURB AND GUTTER
CF	CUBIC FEET
CHD	CHORD LENGTH
CI	CAST IRON PIPE
CHK	CHECK VALVE
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CTY	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
C-B	CENTERLINE TO BACK OF CURB DIMENSION
COORD	COORDINATE
CU	COPPER PIPING
CTRS	CENTERS
CY	CUBIC YARDS
CS	CORPORATION STOP
D	DEGREE OF CURVE
DEP	DEPRESSED
DET	DETAIL
DIAG	DIAGONAL
DIM	DIMENSION
DI	DUCTILE IRON PIPE
DN	DOWN
DNSTR	DOWNSTREAM
DP	DRAINAGE PIPE/STORM PIPE
DWG	DRAWING
E	EAST
EJ	EXPANSION JOINT
EL, ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
EW	EACH WAY
EXP	EXPANSION
EX, EXIST	EXISTING
EXT	EXTERIOR
E =	EXTERNAL DISTANCE
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIELD ENTRANCE
FF	FINISH FLOOR
FIL	FILLET
FIN	FINISH
FL	FLOW LINE
FLR	FLOOR
FM	FORCE MAIN
FND	FOUND
FRMG	FRAMING
FTG	FOOTING
F-F	FACE TO FACE
GA	GAUGE
GI	GALVANIZED IRON PIPE
GRD	GRADE
GRS	GRATING SUPPORT
GRT	GROUT
GV	GAS VALVE
GYP	GYPSUM
HSE	HOUSE
HC	HORIZONTAL CURVE
HMA	HOT MIX ASPHALT
HNGR	HANGER
HORIZ	HORIZONTAL
H.P.	HIGH POINT
HW	HOT WATER
HWH	HOT WATER HEATER
Δ =	CENTRAL ANGLE
I	MOMENT OF INERTIA
ID	INSIDE DIAMETER
INT	INTERIOR
INV	INVERT ELEVATION; BASED ON BENCH MARK DATUM
IP	IRON PIPE
JOIST	JOIST
L	LENGTH OF CURVE
LAT	LATERAL
LAV	LAVATORY
LF	LINEAL FEET
L.P.	LOW POINT
LT	LEFT OF SURVEY BASE LINE
MAX	MAXIMUM
ME	MATCH EXISTING
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MTL	METAL
N	NORTH
No. or #	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OO	OUTSIDE TO OUTSIDE
OPNG	OPENING
OPP	OPPOSITE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PCF	POUNDS PER CUBIC FOOT
PDP	PERFORATED DRAIN PIPE

PE	POLYETHYLENE PIPE
PI	POINT OF INTERSECTION
PL	PLATE
PLG	PLUG VALVE
PLP	POLYPROPYLENE PIPE
PLYWD	PLYWOOD
PM	PRINCIPAL MERIDIAN
PR	PRESSURE REGULATORS
PRC	POINT OF REVERSE CURVATURE
PRESS	PRESSURE
PR, PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PIPE SLEEVE
PT	POINT OF TANGENCY
PLG	PLUG VALVE
PVC	POLYVINYL CHLORIDE (PLASTIC) PIPE
R	RADIUS
RDCR	REDUCER
RCCP	REINFORCED CONCRETE CYLINDER PIPE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REINF	REINFORCING
REQD	REQUIRED
ROW	RIGHT OF WAY
RFTD	RAFTER
RND	ROUND
RNR	RAILROAD
RRSP	RAILROAD SPIKE
RT	RIGHT
R&R	REMOVE AND REPLACE
S	SOUTH
SB	STREAM BED
SCHED	SCHEDULE
SEC	SECTION
SF	SQUARE FEET
SHR	SHOWER
SHT	SHEET
SHTG	SHEATHING
SP	SANITARY PIPE
SPA	SPACING OR SPACES
SPEC	SPECIFICATION
SQ	SQUARE
SS	SANITARY SERVICE
STA	STATION
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SW	SIDEWALK
SY	SQUARE YARDS
SYM	SYMMETRICAL
TAN	TANGENT LENGTH
TBC	TOP BACK OF CURB
TBM	TEMPORARY BENCH MARK; BASED ON BENCHMARK DATUM
TD	TILE DRAIN
THK	THICK
TR	TREAD
TY	TYPE
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
UP	UTILITY POLE
UPSTR	UPSTREAM
UR	URINAL
USGS	US GEOLOGICAL SURVEY
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VOL	VOLUME
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPRC	VERTICAL POINT OF REVERSE CURVATURE
VPT	VERTICAL POINT OF TANGENCY
W	WEST
WC	WATER CLOSET
WF	WIDE FLANGE
WM	WATER MAIN
WMQ	WATER MAIN QUALITY
WV	WATER VALVE
WGT	WEIGHT
WP	WEATHER PROOF
WS	WATER SERVICE
WWF	WELDED WIRE FABRIC
W	WITH
W/O	WITHOUT
XP	EXPLOSION PROOF

**HATCH PATTERNS**

	EARTH - FILL		BRICK
	EARTH - UNDISTURBED		STEEL
	ROCK (GEOLOGICAL)		INSULATION (LOOSE/ BATT)
	STONE OR RIP RAP		INSULATION (RIGID)
	GRAVEL		WOOD (ROUGH)
	CONCRETE		WOOD (BLOCKING)
	CONCRETE BLOCK		WOOD (FINISH)
	CMU		DETECTABLE WARNING
	ASPHALT PAVEMENT		

**SYMBOLS**

CIVIL		WATER		UTILITY	
EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED
		<b>STORM SEWER</b>			
				<b>TRAFFIC RELATED</b>	
		<b>EROSION CONTROL</b>			

**FEHR GRAHAM**  
ENGINEERING & ENVIRONMENTAL  
ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS  
IOWA  
WISCONSIN

OWNER/DEVELOPER:  
CITY OF ROCKFORD  
DEPARTMENT OF PUBLIC WORKS  
425 EAST STATE STREET  
ROCKFORD, IL 61104

PROJECT AND LOCATION:  
WELL HOUSE 31  
HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 9/3/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:  
**LEGEND**  
SET TYPE: **OUT TO BID**  
G:\320\19-200 Well 31\Plans\19-200 PH30 Plans.dwg, Legend

JOB NUMBER:  
**19-200PH30**  
SHEET NUMBER:  
**2 of 29**

**GENERAL NOTES**

- THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MUNICIPAL CODE, CITY OF ROCKFORD, ILLINOIS, CURRENT EDITION, THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", CURRENT EDITION, "SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS," CURRENT EDITION, SPECIAL PROVISIONS AND THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", CURRENT EDITION. SIGN CONSTRUCTION AND PAVEMENT MARKINGS SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", CURRENT EDITION.
- IN THESE CONTRACT DOCUMENTS MENTION IS MADE OF THE "ENGINEER", WHICH SHALL MEAN FEHR GRAHAM OR THEIR DULY AUTHORIZED AGENT. IN THESE CONTRACT DOCUMENTS MENTION IS MADE OF THE "OWNER", WHICH SHALL MEAN CITY OF ROCKFORD, OR THEIR DULY AWARDED AGENT.
- AS PART OF THE BIDDING PROCEDURE, THE CONTRACTOR SHALL VERIFY THAT THE QUANTITIES FOR PAY ITEMS, AS PRESENTED IN THESE PLAN DOCUMENTS, ARE SUBSTANTIALLY CORRECT. IF DISCREPANCIES ARE DETECTED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF THE DISCREPANCY PRIOR TO THE BID DATE.
- QUANTITIES SHOWN ARE ESTIMATES FOR INFORMATION ONLY. PAYMENT WILL BE BASED ON ACTUAL QUANTITIES MEASURED IN THE FIELD OR ON PAYMENT LIMIT DETAILS.
- THE CONTRACTOR SHALL BE PAID FOR MATERIALS AND EQUIPMENT SUCCESSFULLY INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AS MEASURED OR VERIFIED IN PLACE BY THE ENGINEER OR HIS AGENT.
- IN CASE OF CONFLICT BETWEEN THE ABOVE MENTIONED SPECIFICATIONS, THE ENGINEER SHALL DETERMINE WHICH OF THE SPECIFICATIONS SHALL GOVERN. THE ENGINEER'S DECISION SHALL BE FINAL AND NO ADDITIONAL COMPENSATION SHALL BE AWARDED UNLESS APPROVED BY THE ENGINEER.
- THE PROPOSED IMPROVEMENTS MUST BE CONSTRUCTED IN ACCORDANCE WITH THE ENGINEERING PLANS AS APPROVED BY THE OWNER. IMPROVEMENT REPRESENTATIONS AS SHOWN ON THESE PLANS, ARE AS ACCURATE AS POSSIBLE FROM THE INFORMATION AVAILABLE. HOWEVER SOME FIELD REVISIONS MAY BE REQUIRED TO ACCOMMODATE UNFORESEEN CIRCUMSTANCES - THE ENGINEER SHALL BE ADVISED OF ANY NECESSARY REVISIONS WITH SUFFICIENT LEAD TIME ALLOWED TO PROPERLY CONSIDER AND ACT UPON SAID REQUESTS. PROPER CONSTRUCTION TECHNIQUES MUST BE FOLLOWED IN CONSTRUCTING THOSE IMPROVEMENTS AS DETAILED IN THIS ENGINEERING PLAN.
- THE ENGINEER SHALL HAVE THE AUTHORITY TO INSPECT, APPROVE OR REJECT THE WORKMANSHIP AND/OR MATERIALS WHICH GO TO MAKE UP IMPROVEMENTS AS DETAILED IN THESE PLANS AND SPECIFICATIONS.
- GENERAL SAFETY PROVISION: TO PROVIDE DRIVERS WITH SAFE TRAVEL CONDITIONS DURING THE CONSTRUCTION PROJECT, AND TO PROVIDE SAFE WORKING CONDITIONS FOR ALL EMPLOYEES, THE RULES, REGULATIONS, AND CONDITIONS STATED BELOW WILL PREVAIL FOR THE DURATION OF THIS CONTRACT. ANY EMPLOYEE OF THE CONTRACTOR OR HIS SUBCONTRACTORS WHO REFUSES TO COMPLY WITH THESE GENERAL SAFETY PROVISIONS SHALL BE REMOVED FROM THE JOB SITE IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS. THE CONTRACTOR AND ANY SUBCONTRACTORS RETAINED BY HIM SHALL COMPLY WITH THE STATE AND FEDERAL REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (OSHA), JULY 1, 1987 AS IT RELATES TO CONTRACTOR'S OPERATIONS.
- THE CONTRACTOR SHALL COMPLY WITH ALL STATE REGULATIONS REGARDING AIR, WATER, AND NOISE POLLUTION. THE CONTRACTOR WILL NOT BE ALLOWED TO BUILD FIRES ON THE SITE.
- THE SCALE SHOWN ON THE DRAWINGS APPLIES ONLY TO THE FULL SIZE PLANS NOT THE REDUCED SIZE PLANS.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN DRAINAGE FLOWS AT ALL TIMES DURING THE PERFORMANCE OF THE WORK. METHODS USED BY THE CONTRACTOR SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. COST OF MAINTAINING DRAINAGE FLOWS SHALL BE INCIDENTAL TO THE CONTRACT.
- WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED OR DISTURBED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS, MONUMENTS AND RIGHT-OF-WAY PINS UNTIL THE OWNER, AND AUTHORIZED SURVEYOR, OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING AN AUTHORIZED SURVEYOR RE-ESTABLISH ANY SECTION OR SUBSECTION MONUMENTS DESTROYED BY HIS OPERATIONS. REPLACEMENT OF MONUMENTS WILL BE DETERMINED BY THE ENGINEER.
- THE CONTRACTOR SHALL REMOVE, STORE, AND RELOCATE TO THE SATISFACTION OF THE ENGINEER ALL EXISTING SIGNAGE IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS, AND CONSIDER THIS AS INCIDENTAL TO THE CONTRACT.
- OUTSIDE THE EXISTING RIGHT-OF-WAY, THE CONTRACTOR SHALL USE CARE IN GRADING OR EXCAVATION NEAR ANY AND ALL EXISTING SIGNS OUTSIDE THE RIGHT-OF-WAY. ANY SIGNS REMOVED FOR CONSTRUCTION PURPOSES SHALL BE CAREFULLY REMOVED AND RE-ERECTED BY THE CONTRACTOR AT A LOCATION NEAREST TO THE ORIGINAL LOCATION, OR AT A LOCATION DETERMINED BY THE ENGINEER IN THE FIELD. REMOVAL AND RE-ERECTED SIGNS AND ANY DAMAGE DONE TO EXISTING SIGNS BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.
- ALL ITEMS SHALL INCLUDE ALL THE NECESSARY MATERIALS AND LABOR TO COMPLETE THE ITEM IN PLACE. MATERIALS AND LABOR NOT SPECIFICALLY IDENTIFIED SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- AT THE END OF EACH DAY, THE CONTRACTOR SHALL SECURE THE CONSTRUCTION WORK ZONE FROM POTENTIAL INTRUDERS.
- THE CONTRACTOR SHALL FIELD VERIFY THE ELEVATIONS OF THE BENCHMARKS PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL ALSO FIELD VERIFY LOCATION, ELEVATION AND SIZE OF EXISTING UTILITIES, AND VERIFY PAVEMENT ELEVATIONS WHERE MATCHING INTO EXISTING WORK. THE CONTRACTOR SHALL FIELD VERIFY HORIZONTAL CONTROL BY REFERENCING SHOWN COORDINATES TO KNOWN PROPERTY LINES. NOTIFY ENGINEER OF DISCREPANCIES IN EITHER VERTICAL OR HORIZONTAL CONTROL PRIOR TO PROCEEDING WITH WORK.
- THE CONTRACTOR SHALL CONTACT THE ENGINEER OF ANY ERRORS OR DISCREPANCIES WHICH MAY BE SUSPECTED IN LINES AND GRADES, AND SHALL NOT PROCEED WITH THE WORK UNTIL ALL LINES AND GRADES WHICH ARE BELIEVED TO BE IN ERROR HAVE BEEN VERIFIED OR CORRECTED BY THE ENGINEER OR HIS REPRESENTATIVE.
- THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCE OR PROCEDURES, TIME OF PERFORMANCE, PROGRAMS OR ANY SAFETY PRECAUTIONS USED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF THEIR WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.
- ALL ITEMS TO BE REMOVED AND NOT DEFINED AS A PAY ITEM SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- ALL EXCESS EARTH EXCAVATION, EXCESS MATERIALS, OR OTHER REMOVED ITEMS SHALL BE HAULED OFF-SITE AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE APPROVED BY THE OWNER.
- THIS WORK SHALL BE IN ACCORDANCE WITH SECTION 201 OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", CURRENT EDITION. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL OBSTRUCTIONS, TREES, DEBRIS AND BRUSH AS DESIGNATED BY THE OWNER AND AS INDICATED ON THE PLANS. ALL MATERIALS SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DURING CONSTRUCTION, CARE SHALL BE TAKEN TO MINIMIZE DAMAGE TO THE EXISTING TREES AND LANDSCAPING. ONLY THOSE ITEMS DESIGNATED BY THE OWNER SHALL BE REMOVED.
- ALL ROADWAY REMOVAL ITEMS SHALL CONFORM TO THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", CURRENT EDITION. ALL JOINTS BETWEEN THE PORTION REMOVED AND THAT LEFT IN PLACE SHALL BE SAWED TO SUCH A DEPTH THAT A CLEAN, NEAT EDGE WILL RESULT WITH NO SPALLING TO THE REMAINING PORTION. THE COST OF SAWING SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. ADDITIONAL SAWING OR RE-SAWING MAY BE REQUIRED AS DIRECTED BY THE ENGINEER WITH NO ADDITIONAL COMPENSATION BEING ALLOWED. THE COST OF SAWCUTTING THE EXISTING PAVEMENT SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

**GENERAL NOTES**

- WHEN ARTIFICIAL LIGHTING IS UTILIZED DURING NIGHT OPERATIONS, THE CONTRACTOR SHALL EXERCISE UTMOST PRECAUTIONS IN PREVENTING ADVERSE VISIBILITY TO THE MOTORING PUBLIC, AS WELL AS ADJOINING RESIDENTIAL AREAS.
- THE CONTRACTOR IS REQUIRED TO STAY WITHIN THE NOTED PROPERTY BOUNDARIES RIGHT-OF-WAY AND EASEMENTS AS SHOWN IN THE PLANS. ANY ADDITIONAL EASEMENTS SHALL BE SECURED BY THE CONTRACTOR AT NO EXTRA COST.
- ANY AREAS DAMAGED OR DISTURBED DURING THE PROJECT AS A DIRECT OR INDIRECT RESULT OF CONTRACTOR OPERATIONS, SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE ORIGINAL CONDITION. THE COST OF SAID RESTORATION OR REPAIR SHALL BE BORNE TOTALLY BY THE CONTRACTOR, WITH NO EXTRA COMPENSATION BEING AWARDED UNDER THIS CONTRACT. THE RESPONSIBILITY FOR THE REPAIR OR REPLACEMENT OF ANY UTILITY, STRUCTURE, LANDSCAPING, ETC., DAMAGED OR DESTROYED BY THE CONTRACTOR DURING MOBILIZATION OR CONSTRUCTION SHALL BE BORNE SOLELY BY THE CONTRACTOR, WITH NO EXPENSE BEING CHARGED TO THE ENGINEER OR OWNER. PRIOR TO ACCEPTANCE OF THIS REPAIR OR REPLACEMENT, THE CONTRACTOR SHALL PRESENT THE OWNER WITH A "SIGNOFF LETTER", SIGNED BY A RESPONSIBLE OFFICIAL OF THE OWNER OF THE DAMAGED UTILITY STATING THAT THE REPAIR OR REPLACEMENT IS ACCEPTABLE.
- ALL INTERIOR PLUMBING WORK MUST BE PERFORMED IN ACCORDANCE WITH THE ILLINOIS PLUMBING CODE.

**UTILITIES**

- UTILITIES SHOWN ON THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY AND NO GUARANTEE OF THEIR ACCURACY IS MADE OR INFERRED. THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THE DRAWINGS REPRESENT DATA RECEIVED FROM VARIOUS SOURCES. IT IS NOT GUARANTEED TO BE CORRECT OR ALL-INCLUSIVE. THE CONTRACTOR SHALL CONDUCT HIS OWN INVESTIGATION INTO THE LOCATION, SIZE, DEPTH AND NATURE OF ANY AND ALL EXISTING UTILITIES THAT MAY INTERFERE WITH THE WORK UNDER THIS CONTRACT. ANY EXISTING UTILITIES THAT ARE TO REMAIN IN SERVICE SHALL BE FULLY PROTECTED BY THE CONTRACTOR AND ANY DAMAGE CAUSED BY THE CONSTRUCTION OPERATIONS SHALL BE IMMEDIATELY REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER OR THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ANY AND ALL UTILITY COMPANIES REGARDING ADJUSTMENTS NECESSARY. THIS WORK SHALL BE AT THE CONTRACTOR'S EXPENSE AND CONSIDERED INCIDENTAL TO THE PROJECT COST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UNDERGROUND, OVERHEAD, OR SURFACE UTILITIES EVEN THOUGH THEY MAY NOT BE SHOWN ON THE PLANS. ANY UTILITY THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER OR THE OWNER OR REPLACED. THIS WORK SHALL BE AT THE CONTRACTOR'S EXPENSE.
- THE UTILITY LOCATIONS, DEPTHS, ETC. SHOWN ON THESE PLANS ARE APPROXIMATE ONLY, AND SHALL BE VERIFIED BY THE CONTRACTOR WITH ALL AFFECTED UTILITY COMPANIES PRIOR TO INITIATING CONSTRUCTION OPERATIONS; THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY FOR THE ADEQUACY, SUFFICIENCY OR EXACTNESS OF THESE UTILITY REPRESENTATIONS.
- THE CONTRACTOR SHALL CONTACT THE NECESSARY UTILITY COMPANIES FOR ANY UTILITY RELOCATIONS. THE CONTRACTOR SHALL PAY FOR ALL COSTS ASSOCIATED WITH RELOCATION OF UTILITIES ON OR ADJACENT TO THE SUBJECT PROPERTY OR WITHIN THE ROAD RIGHT-OF-WAY.

**WATER**

- SITE CONTRACTOR TO COORDINATE WATER SERVICE TAP AND WATER MAIN ADJUSTMENTS WITH THE OWNER.
- LEAKAGE TESTING OF THE WATER SERVICE SHALL BE REQUIRED AS PER THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", CURRENT EDITION. ANY DEFECTS FOUND IN THE NEW WATER MAIN WILL BE CORRECTED BY THE CONTRACTOR AT HIS EXPENSE.
- DISINFECTION OF THE WATER SERVICE SHALL BE REQUIRED AS PER THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", CURRENT EDITION. IN ACCORDANCE WITH THE REQUIREMENTS OF AWWA, THE ILLINOIS EPA, AND THE OWNER.
- CONTRACTOR SHALL MAINTAIN A MINIMUM EIGHTEEN INCH VERTICAL SEPARATION WITH WATER MAIN/WATER MAIN SERVICES AND SANITARY OR STORM SEWER AND MAINTAIN A MINIMUM TEN FEET HORIZONTAL SEPARATION BETWEEN ANY WATER MAIN/WATER MAIN SERVICES ENCOUNTERED AND THE SANITARY SEWER/SANITARY SEWER SERVICES AND STORM SEWER. ANY CHANGES TO THIS REQUIREMENT SHALL BE DONE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", LATEST EDITION.
- EXISTING WATER MAIN AND SERVICE LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. THIS WILL BE INCIDENTAL TO THE CONTRACT.
- ALL WATER SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", CURRENT EDITION, AS WELL AS THE OWNER'S ADOPTED STANDARD WATER MAIN SPECIFICATIONS, CURRENT EDITION, ON FILE WITH THE ILLINOIS EPA DIVISION OF PUBLIC WATER SUPPLIES.
- THE CONTRACTOR SHALL CONTACT THE OWNER AT LEAST 48 HOURS PRIOR TO BEGINNING WORK ON THE WATER MAIN AND/OR SERVICE INSTALLATIONS AND SHOULD MAKE THE SITE AVAILABLE FOR INSPECTION AT REGULAR INTERVALS DURING CONSTRUCTION.
- WORK SHALL BE COORDINATED WITH THE PUBLIC WORKS PERSONNEL. WATER SHUT DOWNS AND SHUT DOWN NOTIFICATIONS SHALL BE COMPLETED BY CITY PUBLIC WORKS PERSONNEL. CONTRACTOR SHALL NOTIFY CITY PUBLIC WORKS PERSONNEL A MINIMUM OF 48 HOURS PRIOR TO REQUESTED SHUT DOWN.
- ALL WATER SERVICE INSTALLATIONS SHALL BE COMPLETED IN COMPLIANCE WITH THE STANDARDS AND REQUIREMENTS SET FORTH IN THE ILLINOIS PLUMBING CODE.

**WELL 31 HMO DESIGN CRITERIA**

PLANT DESIGN FLOW RATE		1850 GPM/2.66 MGD
USE		TREATMENT OF Fe, Mn AND Ra
TYPE		CARUS 10% HMO
DOSE (1% SOLUTION)	mg/L AS Mn	1.0
CHEMICAL USE (10% SOLUTION)	GAL/DAY	42.0
CHEMICAL USE (1% SOLUTION)	GAL/DAY	420
SUPPLY		BULK, MIXED
BULK STORAGE TANK NUMBER		2
VOLUME EACH	GALLONS	515
DAY TANKS NUMBER		2
VOLUME EACH	GALLONS	515



ILLINOIS  
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OWNER/DEVELOPER:  
CITY OF ROCKFORD  
DEPARTMENT OF PUBLIC WORKS  
425 EAST STATE STREET  
ROCKFORD, IL 61104

PROJECT AND LOCATION:  
WELL HOUSE 31  
HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 9/3/20  
SCALE: AS NOTED

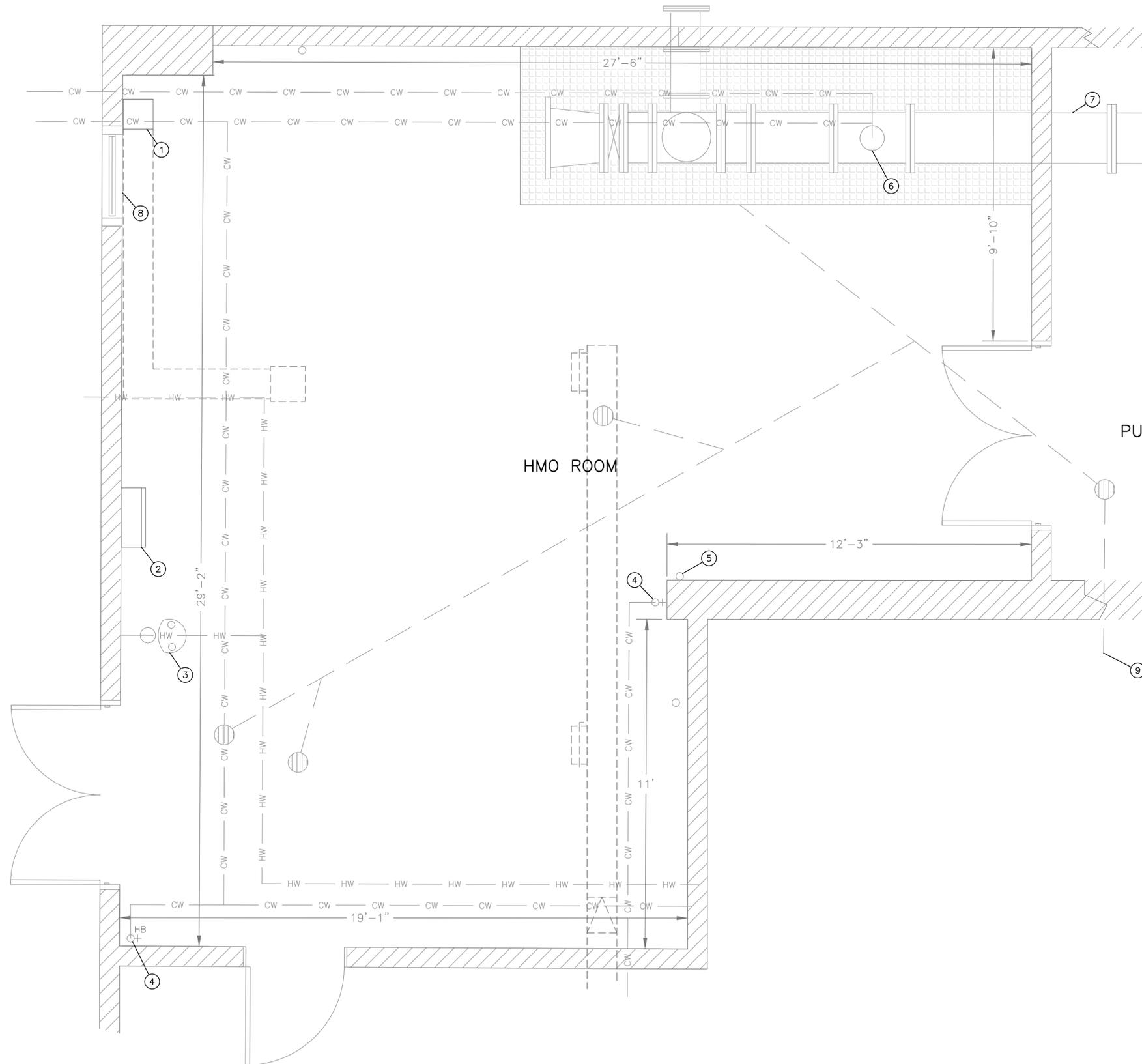
REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:  
GENERAL NOTES

SET TYPE: OUT TO BID  
G:\C30\19-200 Well 31\Plans\19-200 PH30 Plans.dwg, GNotes 1

JOB NUMBER:  
19-200PH30

SHEET NUMBER:  
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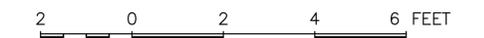


**KEY NOTES:**

- ① HVAC VENT. VERTICAL 12"x12" VENT TO 12" ABOVE FLOOR
- ② WALL MOUNTED LADDER FROM FLOOR TO CEILING
- ③ EMERGENCY EYE WASH & SHOWER STATION
- ④ 3/4" HOSE BIB
- ⑤ 1 1/2" VERTICAL VENT PIPE
- ⑥ EXISTING WATER SERVICE TAP AND PIPING TO BUILDING
- ⑦ TREATED WATER FROM PUMP ROOM
- ⑧ OBSERVATION WINDOW
- ⑨ SANITARY SERVICE THROUGH BUILDING. SERVICE DISCHARGES TO RRWRD SANITARY SEWER.

**LEGEND:**

- SANITARY DRAIN LINE
- HW — WATER SERVICE (HOT)
- CW — WATER SERVICE (COLD)
- ⊕ HOSE BIB
- ⊕ FLOOR DRAIN



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ROCKFORD, ILLINOIS

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DATE: 9/3/20  
SCALE: AS NOTED

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REV. NO.	DESCRIPTION	DATE

**DRAWING:**

EXISTING HMO PLAN & REMOVALS

SET TYPE: OUT TO BID

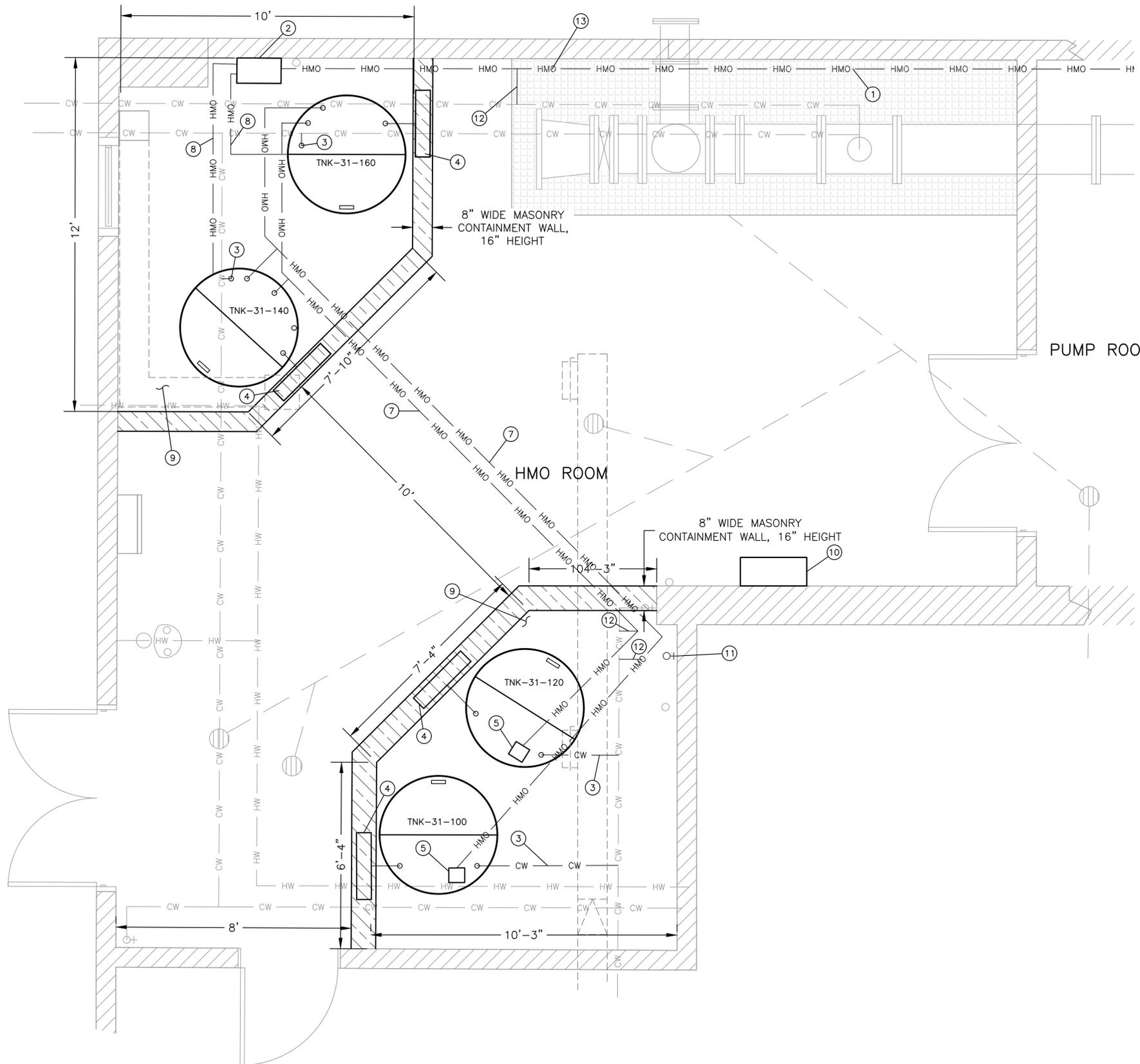
G:\C30\19-200 Well 31\19-200 PH30 Design.dwg, Exist

**JOB NUMBER:**

19-200PH30

**SHEET NUMBER:**

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**KEY NOTES:**

- ① 3/4" HMO PIPING, SCHEDULE 80 PVC, MOUNTED TO WALL. ELEVATION TO BE COORDINATED WITH OWNER AND ENGINEER.
- ② HMO METERING PUMP DISCHARGE TO 3/4" HMO PIPING
- ③ TAP EXISTING WATER SERVICE WITH 1" FEED LINE TO HMO TANKS. VERTICAL PIPING TANK SHALL BE 1" POLYETHYLENE PIPE
- ④ MIXER SUPPORT
- ⑤ HMO TRANSFER PUMP -- MODEL B36-SC MOTOR AND 41-R SS/HC PUMP TUBE BY LUTZ OR APPROVED EQUAL
- ⑦ 3/4" PIPING -- TRANSFER PUMP TO HMO DAY TANK
- ⑧ 3/4" PIPING -- HMO DAY TANKS TO METERING PUMP
- ⑨ CHEMICAL RESISTANT LINING SYSTEM ON WALLS AND FLOOR OF CONTAINMENT AREA
- ⑩ HMO ELECTRICAL CONTROL PANEL. SEE ELECTRICAL SHEETS.
- ⑪ RELOCATE EXISTING HOSE BIB TO ADJACENT WALL.
- ⑫ SERVICE CARRIER WATER TO HMO PIPING.
- ⑬ 3/4" HMO PIPING BENDS TO TRANSITION WALL MOUNTED.

**LEGEND**

- SANITARY DRAIN LINE
- HW — WATER SERVICE (HOT)
- CW — WATER SERVICE (COLD)
- HMO — HMO
- ⊕ HOSE BIB
- ⊙ FLOOR DRAIN

**CONTAINMENT AREAS:**

BULK TANK: 788 GALLONS  
 DAY TANK: 728 GALLONS

**GENERAL NOTES:**

- 1. PRIOR TO INSTALLATION, CONTRACTOR SHALL FIELD MEASURE AND CONFIRM LOCATION OF HMO EQUIPMENT, PIPING, VALVES, AND APPURTENANCES.



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 ROCKFORD, ILLINOIS

DRAWN BY: JMP  
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REV. NO.	DESCRIPTION	DATE

DRAWING:  
 PROPOSED HMO PLAN

SET TYPE: OUT TO BID  
G:\C30\19-200 Well 31\19-200 PH30 Design.dwg, HMO

JOB NUMBER:  
 19-200PH30

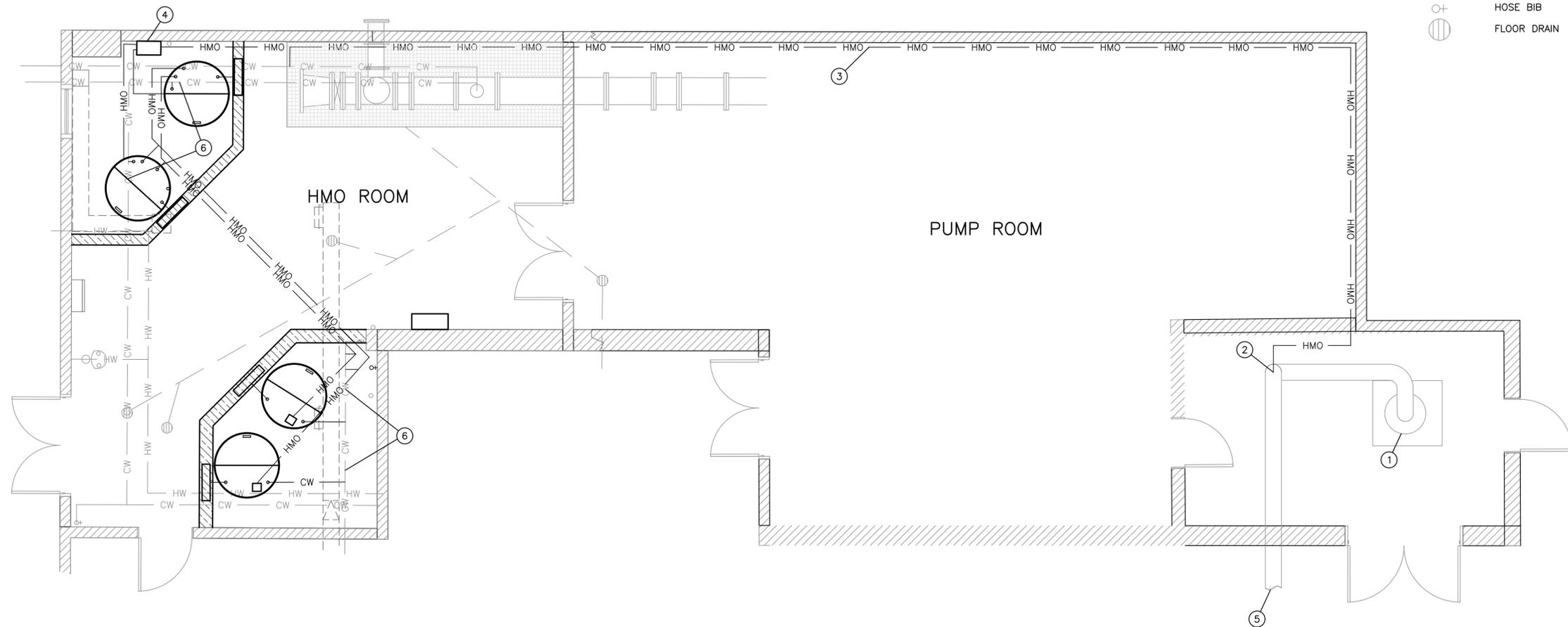
SHEET NUMBER:  
 5 of 29

**KEY NOTES:**

- ① EXISTING WELL AND WELL PUMP
- ② 3/4" HMO INJECTION TAP TO EXISTING RAW WATER PIPE
- ③ 3/4" HMO PIPING, SCHEDULE 80 PVC, MOUNTED TO WALL. ELEVATION TO BE COORDINATED WITH OWNER AND ENGINEER.
- ④ HMO METERING PUMP DISCHARGE TO 3/4" HMO PIPING
- ⑤ HMO INJECTED WATER TO TREATMENT ROOM FOR FILTRATION
- ⑥ TAP EXISTING WATER SERVICE WITH 1" FEED LINE TO HMO TANKS

**LEGEND**

- SANITARY DRAIN LINE
- HW — WATER SERVICE (HOT)
- CW — WATER SERVICE (COLD)
- HMO — HMO
- ⊕ HOSE BIB
- ⊖ FLOOR DRAIN



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**DRAWING:**

PLUMBING PLAN

SET TYPE: OUT TO BID

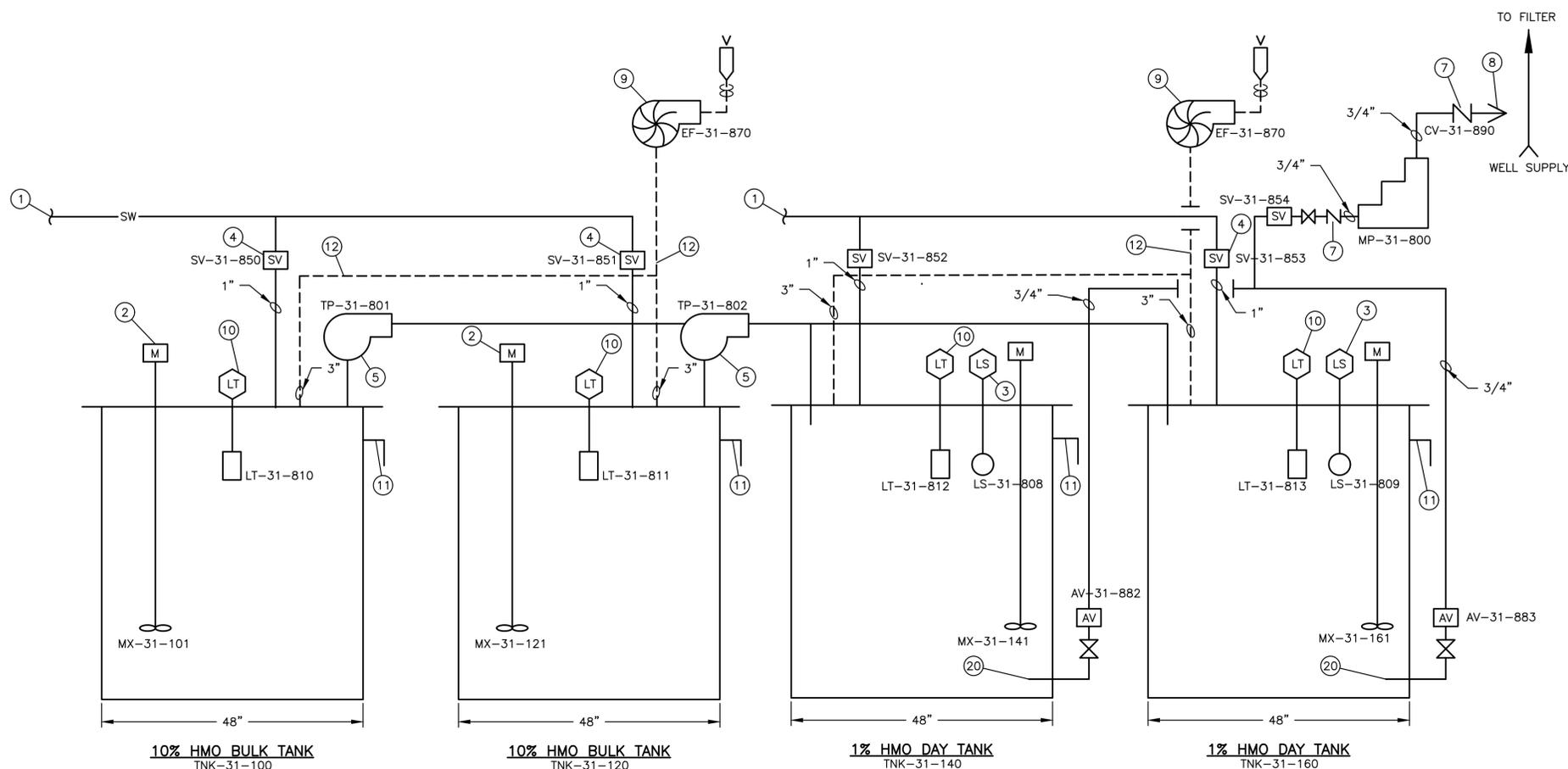
G:\C30\19-200 Well 31\19-200 PH30 Design.dwg, plumbing

**JOB NUMBER:**

19-200PH30

**SHEET NUMBER:**

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**LEGEND**

	ACTUATED VALVE
	BALL VALVE (MANUAL)
	SOLENOID VALVE
	CHECK VALVE

**GENERAL NOTES:**

- ALL PIPING SHALL BE THREADED SCHEDULE 80 PVC.
- PROVIDE THREADED COUPLING EITHER UPSTREAM OR DOWNSTREAM OF ALL FITTINGS, VALVES, AND PUMPS.
- CONTRACTOR SHALL INSTALL MIXERS AND IMPELLERS AT HEIGHTS AND ANGLES ACCORDING TO MANUFACTURER RECOMMENDATIONS.
- ALL EQUIPMENT, SUPPORTS, AND ACCESSORIES SHALL BE CHEMICALLY AND PHYSICALLY COMPATIBLE WITH A 10% HMO SOLUTION.
- TANK LID PENETRATIONS SHALL BE REVIEWED AND APPROVED BY OWNER PRIOR TO MANUFACTURING.
- SEE SHEET 8 FOR PLAN VIEW VALVE SCHEMATIC.
- PRIOR TO INSTALLATION, CONTRACTOR SHALL FIELD MEASURE AND CONFIRM LOCATION OF HMO EQUIPMENT, PIPING, VALVES, AND

**KEY NOTES:**

- 1.5" PVC SERVICE WATER
- TANK MIXER, TYPICAL OF 4 - CHEMINEER AGITATOR 50-DTC - 0.75 HP
- FLOAT SWITCH, TYPICAL OF 2
- 1" FLUSHING OR FILL SOLENOID VALVE, TYPICAL
- TRANSFER PUMP - 0.2 HP BALDOR 33-1339-1329, 115/230V
- METERING PUMP VFD - ROTHO S10, 0.5 HP, 230/460V, 60Hz MOTOR WITH LENZE ESV371NOISXE, 0.5 HP, 120/240V SINGLE PHASE INPUT, 3 PHASE OUTPUT VFD
- 3/4" CHECK VALVE
- 3/4" CORPORATION COCK FOR INJECTION
- EXHAUST FAN
- LEVEL TRANSDUCER - FORCE FLOW ECHO -SCALE DR - 5080 WITH BUILD IN STILLING WELL
- PROVIDE 1" OVERFLOW PIPE WITH SCREENED DOWN TURNED ELBOW ON TANK SIDEWALL, 3" BELOW TOP OF TANK
- PROVIDE REDUCERS AND FITTINGS AS NECESSARY TO CONNECT TO FAN
- HINGE WITH SUPPORT ANGLES ON BOTH SIDES
- MIXER PENETRATION MINIMUM 3" WITH RUBBER GASKET. PENETRATION SIZE AND LOCATION SHALL BE AS RECOMMENDED BY MIXER MANUFACTURER
- PROVIDE 3" PENETRATION WITH BULKHEAD FITTING FOR CONNECTION TO HMO DUCTWORK
- PROVIDE SUPPORT BRACING
- PROVIDE PENETRATIONS AND FITTINGS FOR FLOAT SWITCHES AND LEVEL TRANSDUCERS. PENETRATION SIZE AND FITTING TYPE AS RECOMMENDED BY MANUFACTURER.
- PROVIDE 1" PENETRATION WITH BULKHEAD FITTING FOR CONNECTION TO SERVICE WATER
- PROVIDE 3/4" PENETRATION AND FITTING FOR TRANSFER PUMP SUCTION AND DISCHARGE.
- PROVIDE 3/4" PENETRATION AND FITTING FOR METERING PUMP SUCTION. PLACE SUCTION PENETRATION APPROXIMATELY 4" FROM BASE OF TANK OR PER MANUFACTURER RECOMMENDATION.

**HMO PUMPS**

EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE	CAPACITY
MP-31-800	DAY TANK METERING PUMP	4.3 GPH AT 90 PSI
TP-31-801	TRANSFER PUMP	24 GPM
TP-31-802	TRANSFER PUMP	24 GPM

**HMO MIXERS**

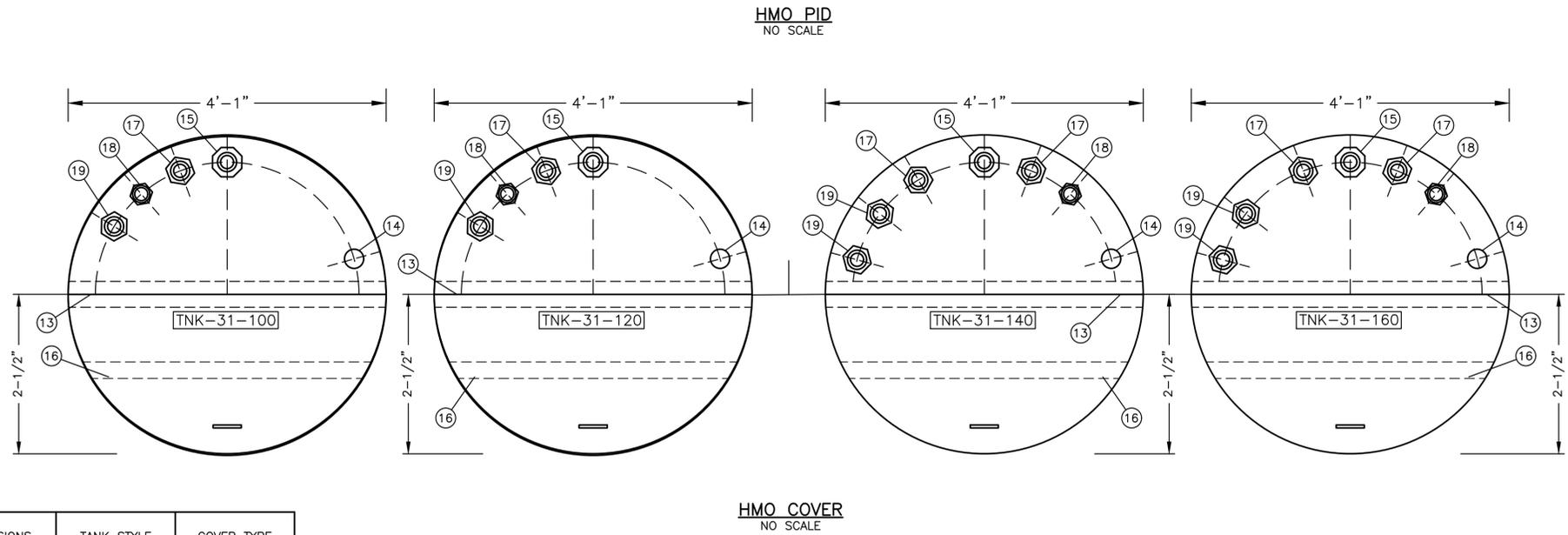
EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE
MX-31-101	BULK TANK MIXER
MX-31-121	BULK TANK MIXER
MX-31-141	DAY TANK MIXER
MX-31-161	DAY TANK MIXER

**HMO TRANSDUCERS AND FLOATS**

EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE
LS-31-808	DAY TANK FLOAT SWITCH
LS-31-809	DAY TANK FLOAT SWITCH
LT-31-810	BULK TANK TRANSDUCER
LT-31-811	BULK TANK TRANSDUCER
LT-31-812	DAY TANK TRANSDUCER
LT-31-813	DAY TANK TRANSDUCER

**HMO TANKS**

EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE	CAPACITY (GALLONS)	DIMENSIONS	TANK STYLE	COVER TYPE
TNK-31-814	HMO BULK TANK	515	4'-0" x 5'-7"	OPEN TOP TANK	HINGED
TNK-31-815	HMO BULK TANK	515	4'-0" x 5'-7"	OPEN TOP TANK	HINGED
TNK-31-816	HMO DAY TANK	515	4'-0" x 5'-7"	OPEN TOP TANK	HINGED
TNK-31-817	HMO DAY TANK	515	4'-0" x 5'-7"	OPEN TOP TANK	HINGED



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CITY OF ROCKFORD  
DEPARTMENT OF PUBLIC WORKS  
425 EAST STATE STREET  
ROCKFORD, IL 61104

PROJECT AND LOCATION:  
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HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 9/3/20  
SCALE: AS NOTED

**REVISIONS**

REV. NO.	DESCRIPTION	DATE

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HMO PID  
SET TYPE: OUT TO BID  
G:\C30\19-200 Well 31\Plans\19-200 PH30 Plans.dwg, HMO PID

JOB NUMBER:  
19-200PH30  
SHEET NUMBER:  
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**GENERAL NOTES:**

1. PRIOR TO INSTALLATION, CONTRACTOR SHALL FIELD MEASURE AND CONFIRM LOCATION OF HMO EQUIPMENT, PIPING, VALVES, AND APPURTENANCES.

**HMO SOLENOID VALVES**

EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE
SV-31-850	BULK TANK FILL
SV-31-851	BULK TANK FILL
SV-31-852	DAY TANK FILL
SV-31-853	DAY TANK FILL
SV-31-854	METERING PUMP FLUSH
SV-31-855	METERING PUMP FLUSH
SV-31-856	HMO TRANSFER PIPING
SV-31-857	HMO TRANSFER PIPING

**HMO ACTUATED VALVES**

EIN	SERVICE
AV-31-882	DAY TANK DISCHARGE
AV-31-883	DAY TANK DISCHARGE
AV-31-884	BULK TANK DISCHARGE
AV-31-885	BULK TANK DISCHARGE
AV-31-886	BULK TANK DISCHARGE
AV-31-887	BULK TANK DISCHARGE

**HMO CHECK VALVES**

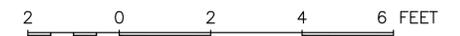
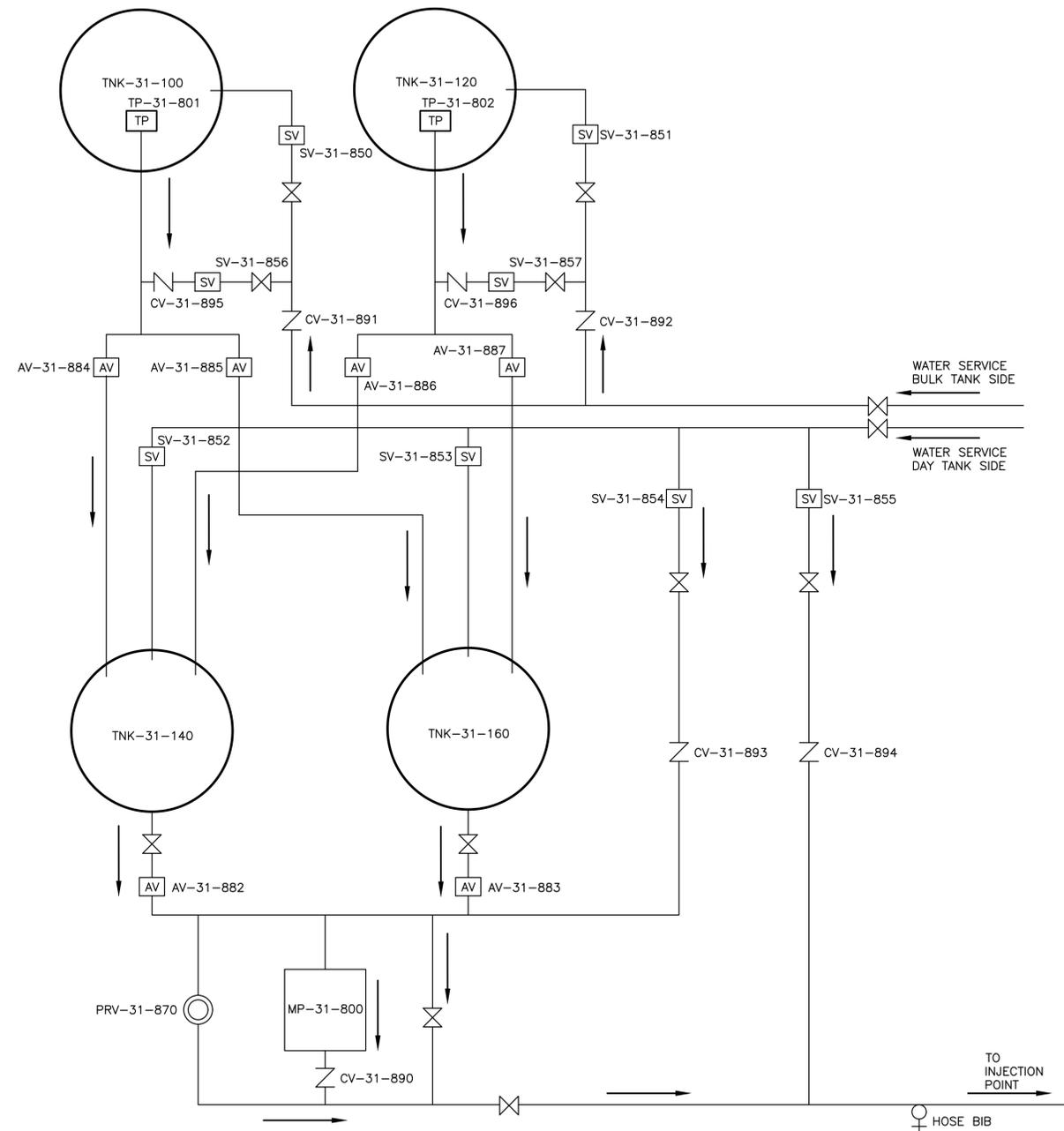
EIN	SERVICE
CV-31-891	BULK TANK FILL
CV-31-892	BULK TANK FILL
CV-31-893	METERING PUMP FLUSH
CV-31-894	METERING PUMP FLUSH
CV-31-895	TRANSFER PUMP FLUSH
CV-31-896	TRANSFER PUMP FLUSH

**HMO PRESSURE RELIEF VALVES**

EIN	SERVICE
PRV-31-870	METERING PUMP

**LEGEND**

-  ACTUATED VALVE
-  BALL VALVE (MANUAL)
-  SOLENOID VALVE
-  CHECK VALVE
-  TRANSFER PUMP
-  DIRECTION OF FLOW



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ROCKFORD, ILLINOIS

DRAWN BY: JMP  
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DATE: 9/3/20  
SCALE: AS NOTED

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REV. NO.	DESCRIPTION	DATE

**DRAWING:**

HMO VALVE SCHEMATIC

SET TYPE: OUT TO BID

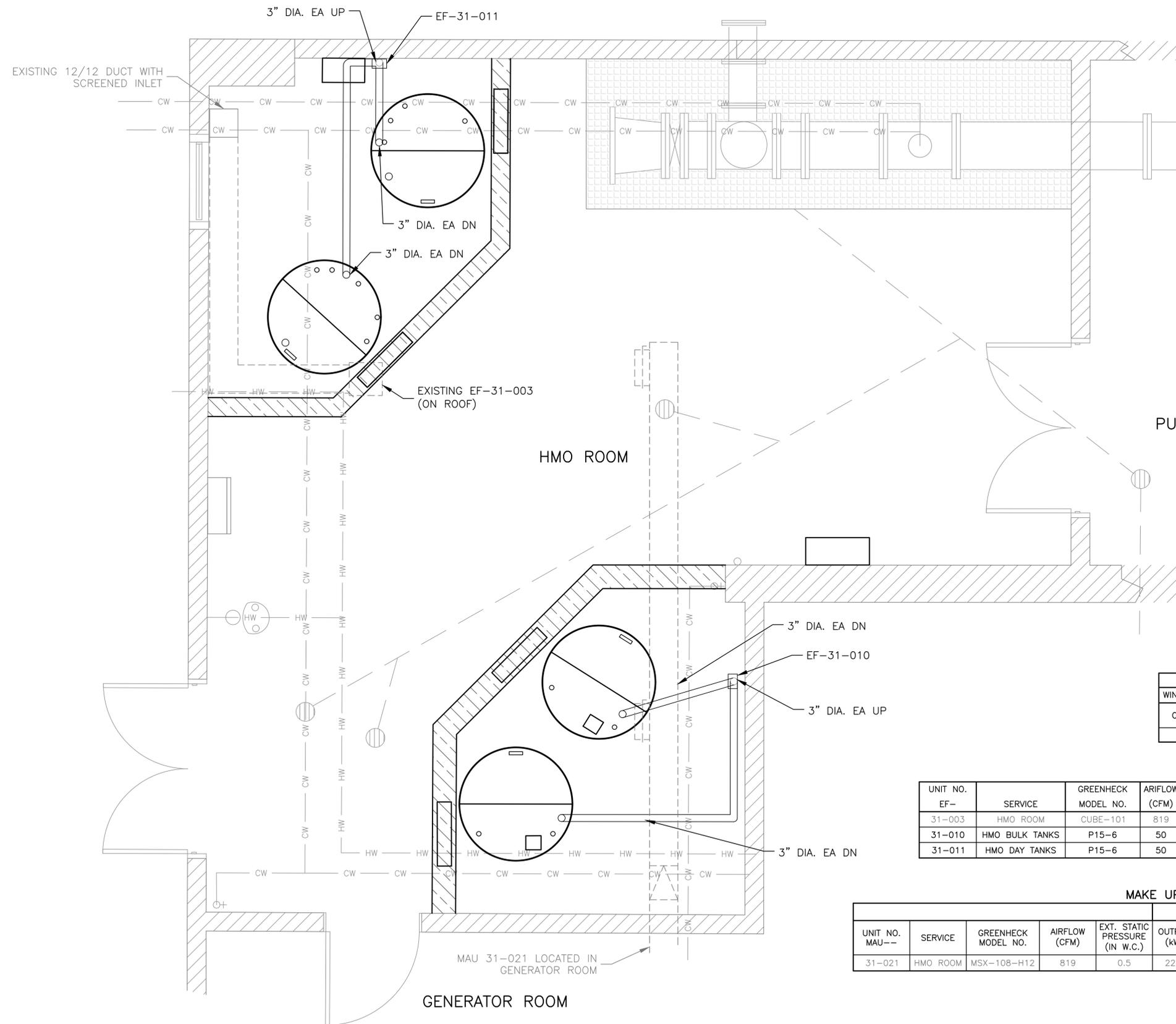
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**JOB NUMBER:**

19-200PH30

**SHEET NUMBER:**

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**LEGEND:**

- SANITARY DRAIN LINE
- HW — WATER SERVICE (HOT)
- CW — WATER SERVICE (COLD)
- HMO — HMO
- ⊕ HOSE BIB
- ⊖ FLOOR DRAIN

**EXISTING HVAC DESIGN CONDITIONS**

APPLICABLE CODES: 10 STATES STANDARDS, 2003 INTERNATIONAL MECHANICAL CODE

WINTER EXTERIOR: -4°F DB      SUMMER EXTERIOR: 88°F DB/73°F WB

OCCUPANCY TYPE	VENTILATION	SUMMER INTERIOR (CB/WB)	WINTER INTERIOR (DB)	REMARKS
HMO ROOM	6 ACH	---	60	

**FAN SCHEDULE**

UNIT NO.	SERVICE	GREENHECK MODEL NO.	AIRFLOW (CFM)	EXT. S.PL (IN. W.C.)	MOTOR SIZE (HP)	FAN TYPE	MOTOR TYPE	DRIVE	ELECTRICAL	
EF-									VOLTAGE	PHASE
31-003	HMO ROOM	CUBE-101	819	0.50	1/4	UPBLAST	TEFC	BELT	115	1
31-010	HMO BULK TANKS	P15-6	50	0.25	1/4	INLINE	TEFC	BELT	115	1
31-011	HMO DAY TANKS	P15-6	50	0.25	1/4	INLINE	TEFC	BELT	115	1

**MAKE UP AIR UNIT SCHEDULE**

UNIT NO. MAU--	SERVICE	GREENHECK MODEL NO.	AIRFLOW (CFM)	EXT. STATIC PRESSURE (IN W.C.)	ELECTRIC HEATING SECTION					ELECTRICAL				
					OUTPUT (kW)	AMPS (A)	EAT (°F)	LAT (°F)	STAGES	MOTOR (HP)	VOLTAGE	PHASE	FLA	OPERATING WEIGHT (Lb)
31-021	HMO ROOM	MSX-108-H12	819	0.5	22.0	31.4	-4.0	72	1	1/4	460	3	41	825



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**REVISIONS**

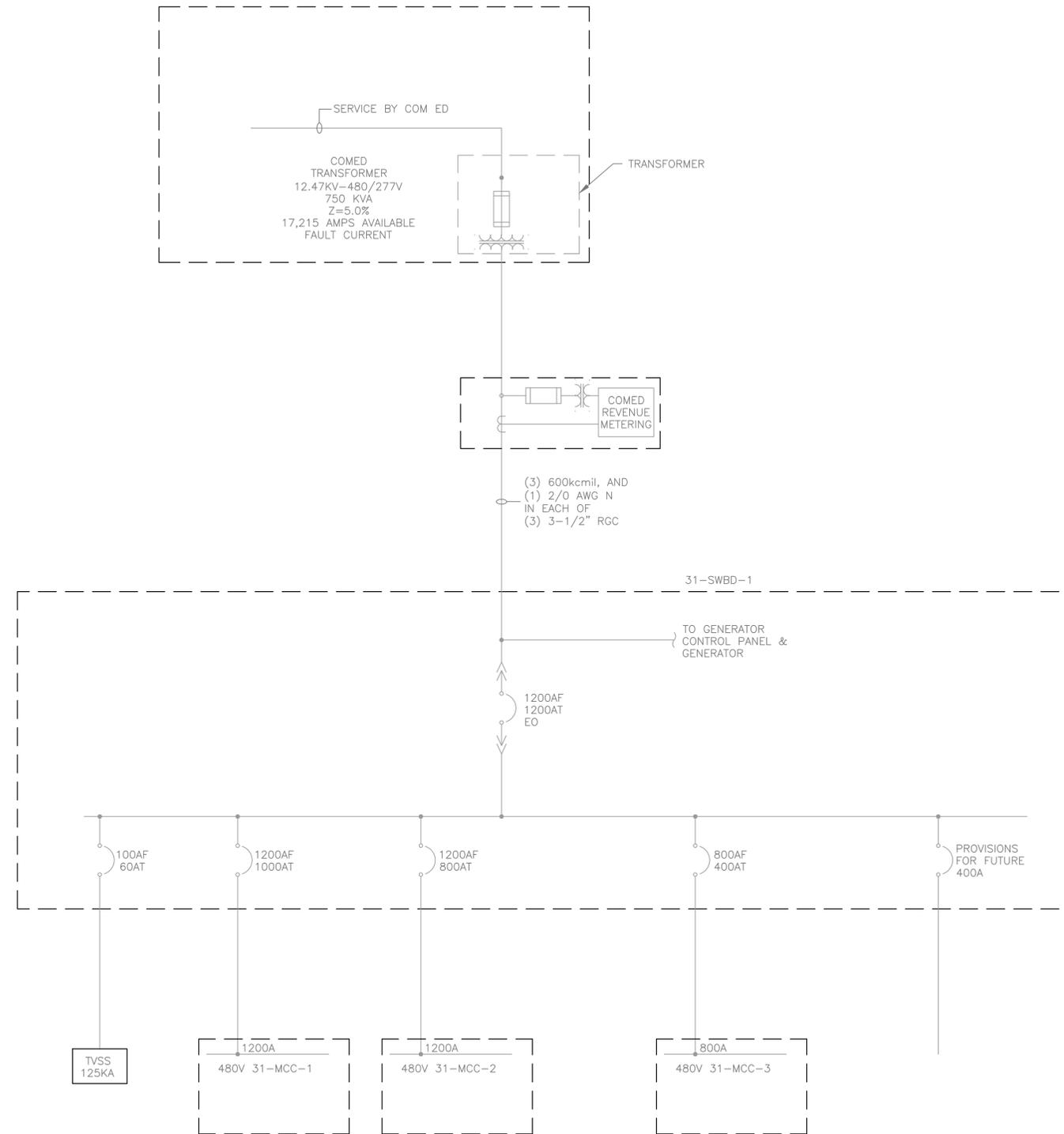
REV. NO.	DESCRIPTION	DATE

DRAWING:  
HVAC PLAN  
SET TYPE: OUT TO BID  
G:\30\19-200 Well 31\19-200 PH30 Design.dwg, hvac

JOB NUMBER:  
19-200PH30  
SHEET NUMBER:  
9 of 29

**NOTES:**

EXISTING ELECTRICAL DIAGRAM BASED OFF OF 2008 WATER TREATMENT IMPROVEMENTS - GROUP 1B ENGINEERING PLANS BY McMAHON ASSOCIATES. FOR DETAILED INFORMATION, SEE PLANS BY McMAHON ASSOCIATES.



**ONE-LINE DIAGRAM**

**FEHR GRAHAM**

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REV. NO.	DESCRIPTION	DATE

**DRAWING:**

ELECTRICAL DIAGRAM

SET TYPE: OUT TO BID

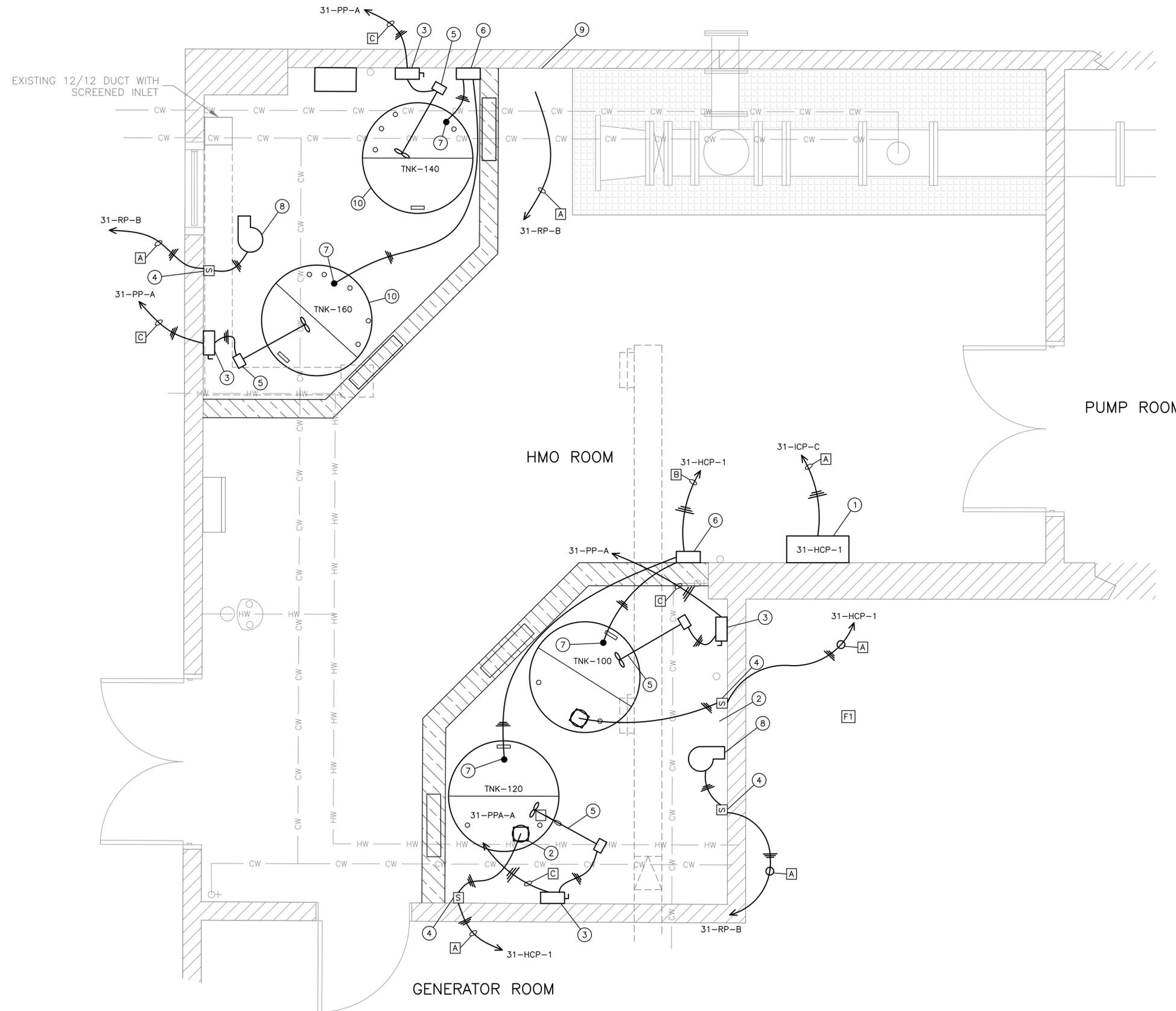
G:\C30\19-200 Well 31\Plans\19-200 PH30 Plans.dwg, electric diagram

**JOB NUMBER:**

19-200PH30

**SHEET NUMBER:**

10 of 29



**KEY NOTES:**

- 1 HMO CONTROL PANEL (31-HCP-1) NEMA 4X STAINLESS STEEL ENCLOSURE, SEE SPECIFICATIONS.
- 2 HMO TRANSFER PUMPS, SEE SPECIFICATIONS
- 3 30 AMP 48 DVAC 3 COMBINATION DISCONNECT WITH STARTER, OVERLOADS AND HAND OFF, REMOTE 3 POSITION SWITCH WITH GREEN RUN LIGHT.
- 4 SINGLE POLE 20 AMP SWITCH, WEATHERPROOF BOX AND LOCKOUT COVER
- 5 MIXER MOTORS, SEE SHEET 6
- 6 SOLO LEVEL CONTROLLER, SEE SHEET 6
- 7 TANK LEVEL TRANSDUCERS, SEE SHEET 6
- 8 BULK TANK EXHAUST FANS, SEE SHEET 6
- 9 HMO METERING PUMP, SEE SHEET 6
- 10 HIGH LEVEL FLOATS, DAY TANKS

**CONDUIT/CABLE WIRING LEGEND**

- |     |   |
|-----|---|
| [A] | 2 - #12 THHN<br>1 - #12 GRN<br>1 - 3/4 GRC  |
| [B] | 2 - #14 THHN<br>1 - #14 GRN<br>1 - 3/4 GRC  |
| [C] | 3 - #12 THHN<br>1 - #12 CORD<br>1 - 3/4 GRC |

**NOTE:**

CONTRACTOR SHALL COORDINATE WITH OWNER FOR LOCATIONS OF CONTROLS AND POWER ITEMS ON WALLS

**GENERAL NOTES:**

1. CONTRACTOR SHALL INSTALL GALVANIZED RIGID CONDUIT AND HARDWARE.
2. ALL LOCAL DISCONNECTS SHALL BE NEMA 4X STAINLESS STEEL
3. ALL SWITCHES SHALL BE INSTALLED INTO WATER TIGHT BOXES AND COVERS. COVERS SHALL BE LOCKABLE FOR LOCKOUT, TAG OUT
4. ALL CONDUIT CONNECTIONS TO CONTROL PANELS SHALL BE THREADED OR SUE MAYER HUBS FOR CONNECTIONS
5. ALL SEAL TIGHT SHALL BE LIQUID METALLIC
6. CONTRACTOR SHALL SUPPLY ALL BREAKERS, MOTOR STARTERS, OVERLOADS, CONDUITS, RFD'S CONNECTORS, WIRE AND ALL HARDWARE NEEDED FOR INSTALLATIONS
7. ALL ELECTRICAL WALL MOUNTED ITEMS SHALL BE COORDINATED WITH OWNER BEFORE INSTALLATION
8. INSTALLATION SHALL MEET NEC ELECTRICAL CODES



**FEHR GRAHAM**

ENGINEERING & ENVIRONMENTAL

ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS  
IOWA  
WISCONSIN

**OWNER/DEVELOPER:**

CITY OF ROCKFORD  
DEPARTMENT OF PUBLIC WORKS  
425 EAST STATE STREET  
ROCKFORD, IL 61104

**PROJECT AND LOCATION:**

WELL HOUSE 31  
HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 9/3/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

**DRAWING:**

ELECTRIC POWER

SET TYPE: OUT TO BID

G:\C30\19-200 Well 31\19-200 PH30 Design.dwg, electric

**JOB NUMBER:**

19-200PH30

**SHEET NUMBER:**

11 of 29

**HMO SOLENOID VALVES**

EQUIPMENT IDENTIFICATION NUMBER (EIN)	SERVICE
SV-31-850	BULK TANK FILL
SV-31-851	BULK TANK FILL
SV-31-852	DAY TANK FILL
SV-31-853	DAY TANK FILL
SV-31-854	METERING PUMP FLUSH
SV-31-855	METERING PUMP FLUSH
SV-31-856	HMO TRANSFER PIPING
SV-31-857	HMO TRANSFER PIPING

**HMO ACTUATED VALVES**

EIN	SERVICE
AV-31-882	DAY TANK DISCHARGE
AV-31-883	DAY TANK DISCHARGE
AV-31-884	BULK TANK DISCHARGE
AV-31-885	BULK TANK DISCHARGE
AV-31-886	BULK TANK DISCHARGE
AV-31-887	BULK TANK DISCHARGE

**MIXER MOTOR CONTROLS**

EIN	SERVICE
MX-31-101	BULK TANK LEVEL
MX-31-121	BULK TANK LEVEL
MX-31-141	DAY TANK LEVEL
MX-31-161	DAY TANK LEVEL

**TRANSDUCER LEVEL**

EIN	SERVICE
LT-31-810	BULK TANK LEVEL
LT-31-811	BULK TANK LEVEL
LT-31-812	DAY TANK LEVEL
LT-31-813	DAY TANK LEVEL

**TRANSDUCER CONTROLLER**

EIN	SERVICE
LTC-31-800	BULK TANK LEVELS
LTC-31-801	DAY TANK LEVEL

**FLOATS**

EIN	SERVICE
LS-31-808	DAY TANK HIGH LEVEL
LS-31-809	DAY TANK HIGH LEVEL

**HMO CONTROL CABINET**

EIN	SERVICE
31-HCP-1	HMO SYSTEM CONTROLS

**ELECTRICAL PANEL**

EIN	SERVICE
31-PP-A	MIXER MOTORS

**FILTER CONTROL CABINET**

EIN	SERVICE
31-FCP-1	FILTER CONTROL

**SYSTEM CONTROL PANEL**

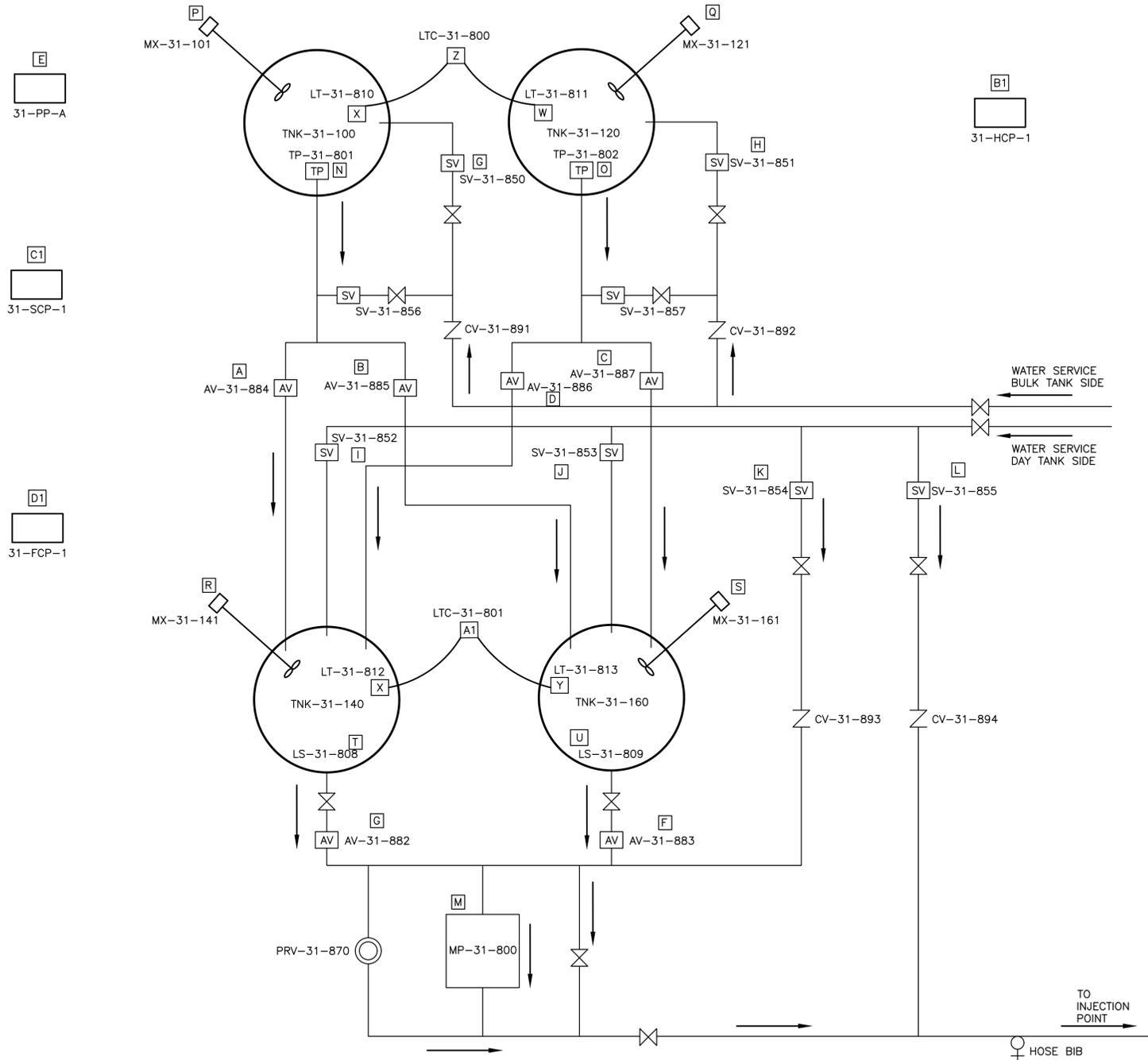
EIN	SERVICE
31-SCP-1	WELL CONTROL

**LEGEND**

-  ACTUATED VALVE
-  BALL VALVE (MANUAL)
-  SOLENOID VALVE
-  CHECK VALVE
-  DIRECTION OF FLOW

**GENERAL NOTES:**

- PRIOR TO INSTALLATION, CONTRACTOR SHALL FIELD MEASURE AND CONFIRM LOCATION OF HMO EQUIPMENT, PIPING, VALVES, AND APPURTENANCES.



REVISIONS		
REV. NO.	DESCRIPTION	DATE

ELECTRICAL CONTROL SCHEDULE TO HMO CONTROL PANEL										
SYMBOL	EQUIPMENT ID NUMBER	VOLTAGE		CONTACT CLOSURE	CONTACT CLOSURE WIRE	4-20 MA	CAT #6	TO / FROM	SEE SHEET	NOTES
		120 V	WIRE							
A	AV-31-884	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
B	AV-31-885	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
C	AV-31-877	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
D	AV-31-886	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
E	AV-31-882	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
F	AV-31-883	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
G	SV-31-850	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
H	SV-31-851	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
I	SV-31-852	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
J	SV-31-853	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
K	SV-31-854	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
L	SV-31-855	X	3-#14	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 7	5-WIRES
M	MP-31-860	-	-	-	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 6, 7	START SIGNAL REMOTE FROM 31-HCP-1 TO VFD CONTROLS
N	TP-31-861	-	-	-	-	-	-	HMO CONTROL 31-HCP-1	SHEET 6	CONTROLS IN 31-HCP-1
O	TP-31-802	-	-	-	-	-	-	HMO CONTROL 31-HCP-1	SHEET 6	CONTROLS IN 31-HCP-1
P	MX-101	-	-	-	-	-	X	HMO CONTROL 31-HCP-1	SHEET 9	MX-101 COMBINATION STARTER TO 31-HCP-1
Q	MX-121	-	-	-	-	-	X	HMO CONTROL 31-HCP-1	SHEET 9	MX-121 COMBINATION STARTER TO 31-HCP-1
R	MX-141	-	-	-	-	-	X	HMO CONTROL 31-HCP-1	SHEET 9	MX-141 COMBINATION STARTER TO 31-HCP-1
S	MX-161	-	-	-	-	-	X	HMO CONTROL 31-HCP-1	SHEET 9	MX-161 COMBINATION STARTER TO 31-HCP-1
T	LS-31-808	-	-	X	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 6	2-WIRE CONTACT CLOSURE
U	LS-31-809	-	-	X	2-#16	-	-	HMO CONTROL 31-HCP-1	SHEET 6	2-WIRE CONTACT CLOSURE
V	LT-31-810	-	-	-	-	X	-	LEVEL CONTROLLER LTC-31-800	SHEET 6	CABLE TNK-100 TO LTC-31-800
W	LT-31-811	-	-	-	-	X	-	LEVEL CONTROLLER LTC-31-800	SHEET 6	CABLE TNK-120 TO LTC-31-800
X	LT-31-812	-	-	-	-	X	-	LEVEL CONTROLLER LTC-31-801	SHEET 6	CABLE TNK-140 TO LTC-31-801
Y	LT-31-813	-	-	-	-	X	-	LEVEL CONTROLLER LTC-31-802	SHEET 6	CABLE TNK-160 TO LTC-31-802
Z	LTC-31-800	-	-	-	-	X	-	HMO CONTROL 31-HCP-1	SHEET 6	2- 4-20 MA CABLES TO 31-31 HCP-1
A1	LTC-31-801	-	-	-	-	X	-	HMO CONTROL 31-HCP-1	SHEET 6	2- 4-20 MA CABLES TO 31-31 HCP-1
B1	31-HCP-1	-	-	-	-	-	X	SYSTEM CONTROL 31-SCP-1	SHEET 5, 6, 7	CAT 6 Cable 31-HCP-1 to 31-SCP-1

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HMO ROOM BUILD-OUT PLANS  
ROCKFORD, ILLINOIS

DRAWN BY: JMP  
APPROVED BY: SWG  
DATE: 9/3/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:

VALVE CONTROL SCHEDULE

SET TYPE: OUT TO BID

G:\C30\19-200 Well 31\Plans\19-200 PH30 Plans.dwg, electric controls

JOB NUMBER:

19-200PH30

SHEET NUMBER:

13 of 29

**EQUIPMENT SCHEDULE 31-PP-A CENTER**

EQUIPMENT AND NAMEPLATE TITLES			EQUIPMENT LOCATION	PANEL	MOTOR INFORMATION				MOTOR STARTER INFORMATION				CONTROL & INTERLOCKS		REMARKS***	
EQUIPMENT NUMBERS	FIRST LINE SECOND LINE WHEN EQUIPMENT NUMBER IS INDICATED	SECOND LINE THIRD LINE WHEN EQUIPMENT NUMBER IS INDICATED			HP/KW	VOLTS	F.L.A. IN AMPS	RPM	SIZE	TYPE	BREAKER		CONTROL DEVICE (SEE INFO)	DESCRIPTION		CONDUIT AND WIRE** 1ST ROW=CONTROL* 2ND ROW=POWER
											BREAKER TYPE	I IN AMPS				
MX-31-101	HMO BULK TANK MIXER 1		HMO ROOM	31-PP-A	3/4	460	3.4		1	FVNR	M		H-O-R		4~#12 3/4"C	SEE NOTE 1
MX-31-121	HMO BULK TANK MIXER 2		HMO ROOM	31-PP-A	3/4	460	3.4		1	FVNR	M		H-O-R		4~#12 3/4"C	SEE NOTE 1
MX-31-141	HMO DAY TANK MIXER 1		HMO ROOM	31-PP-A	3/4	460	3.4		1	FVNR	M		H-O-R		4~#12 3/4"C	SEE NOTE 1
MX-31-161	HMO DAY TANK MIXER 2		HMO ROOM	31-PP-A	3/4	460	3.4		1	FVNR	M		H-O-R		4~#12 3/4"C	SEE NOTE 1
MP-31-800	HMO METER PUMP		HMO ROOM	31-RP-B	1/2	120V	0.6	-	-	-	A	15	VFD		3~#12 3/4"C	SEE NOTE 2

\* IF APPLICABLE  
 \*\* PROVIDE GROUND WIRE FOR EACH PIECE OF EQUIPMENT SIZED PER THE NEC  
 \*\*\* SEE SPECIFICATIONS SECTION 16940-CONTROLS AND INSTRUMENTATION, PART 3 FOR NOTES REFERENCED

NOTE:

- SERVICE DISCONNECT SHALL BE SUPPLIED BY ALLEN BRADLEY. NEMA 4X, STAINLESS STEEL, 600 VAC, 30 AMP, 3Ø, FUSIBLE COMBINATION DISCONNECT AND STARTER ENCLOSURE. ENCLOSURE SHALL HAVE 3 POSITION SELECTOR SWITCH WITH GREEN RUN LIGHT, TAG ON SWITCH SHALL BE MANUAL, OFF, REMOTE. MOTOR STARTER, OVERLOADS SHALL BE  
 PART#  
 A. 193-ESM-VIG-30A-C23 SENSING MODULE  
 B. 193-EIO-42-12 CONTROL MODULE C4 INPUT & 2 OUTPUTS  
 C. 193-ECM-ETR COMMUNICATION MODULE  
 D. 100-C09D10 CONTACTOR
- CONTRACTOR SHALL SUPPLY METERING PUMP VFD, SEE SPECIFICATIONS.

**CONTROL DEVICES (OIL TIGHT, HEAVY DUTY)**

PUSHBUTTONS		INDICATING LIGHTS (PUSH TO TEST)
1 START	7 FAST	R RED (FAIL)
2 STOP	8 SLOW	G GREEN (RUN)
3 LOCK OUT STOP	9 JOG FORWARD	A AMBER
4 RESET	0 JOG REVERSE	B BLUE
5 FORWARD	Z SPECIAL	W WHITE
6 REVERSE	M MAINT. CONT.	C CLEAR

SELECTOR SWITCHES AND AUXILIARY DEVICES				BREAKER TYPE, CODE	MOTOR STARTER INFORMATION
H-O-R	HAND-OFF-REMOTE	F-R	FORWARD-REVERSE	A AMB. COMP.	FVNR FULL VOLTAGE NON REVERSING
H-L-O-A	HIGH-LOW-OFF-AUTO	O-O	ON-OFF	M MAG. ONLY	FVR FULL VOLTAGE REVERSING
H-O-A-L	HAND-OFF-AUTO-LOCAL	R3	LOCKOUT STOP AT MOTOR		TS2WR TWO SPEED TWO WINDING REVERSING
H-O-A	HAND-OFF-AUTO	L-R	LOCAL REMOTE		RVSS REDUCED VOLTAGE SOLID STATE
F-O-R	FORWARD-OFF-REVERSE				VFD VARIABLE FREQUENCY DRIVE
ETM	ELAPSED TIME METER				ND NORMAL DUTY
					HD HEAVY DUTY



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 425 EAST STATE STREET  
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PROJECT AND LOCATION:  
 WELL HOUSE 31  
 HMO ROOM BUILD-OUT PLANS  
 ROCKFORD, ILLINOIS

DRAWN BY: JMP  
 APPROVED BY: SWG  
 DATE: 9/3/20  
 SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:  
 MCC SCHEDULE

SET TYPE: OUT TO BID  
 G:\C30\19-200 Well 31\Plans\19-200 PH30 Plans.dwg, MCC

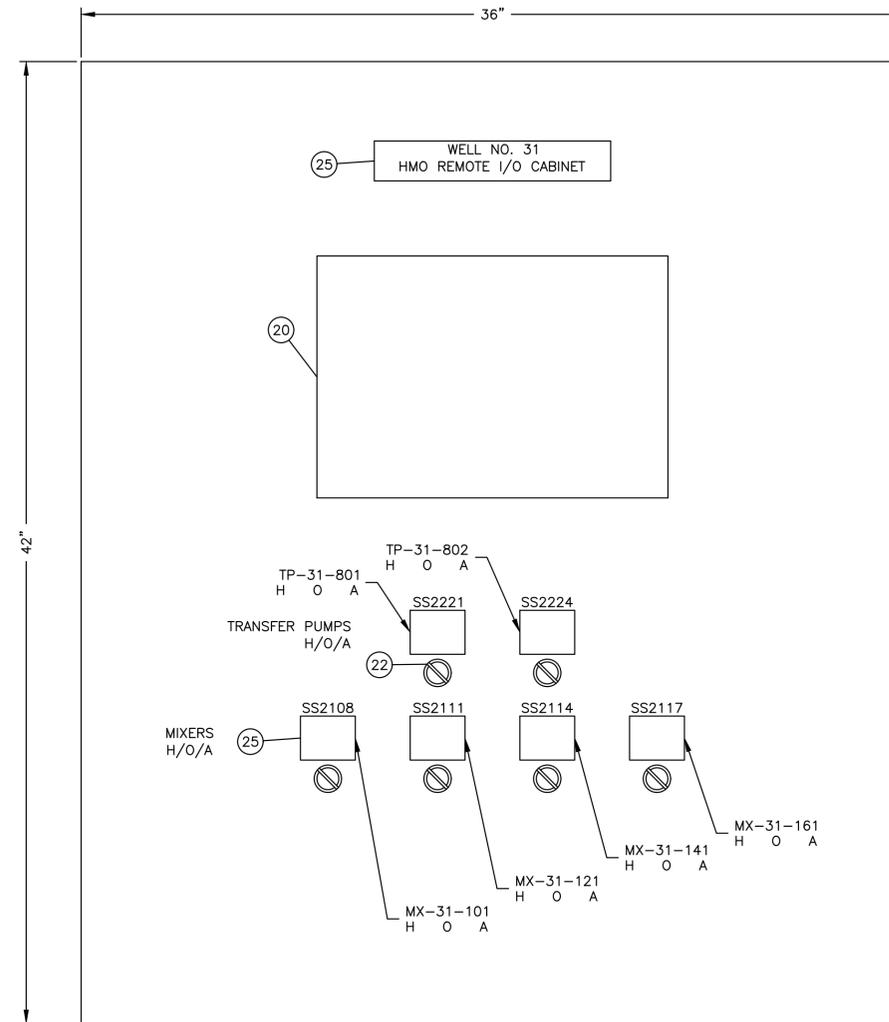
JOB NUMBER:  
 19-200PH30

SHEET NUMBER:  
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**BILL OF MATERIALS**

ITEM NO.	CATALOG NUMBER	QTY	DESCRIPTION	MANUFACTURER
1	SCE-42H3608SSLP	1	42 X 36 X 08 (HxWxD) NEMA 4X SINGLE DOOR WALL MOUNT ENCLOSURE	SAGINAW
2	SCE-42P36	1	SUBPANEL, 39 X 33	SAGINAW
3	1794-PS13	1	AC TO DC MODULE, 24 VDC	ALLEN BRADLEY
4	1794-AENT	1	COMMUNICATION ADAPTER, FLEX I/O	ALLEN BRADLEY
5	1794-OA16	1	120 VAC ISOLATED RELAY OUTPUT MODULE, 16 PTS	ALLEN BRADLEY
6	1794-IE8	1	ANALOG INPUT MODULE, 8 CH.	ALLEN BRADLEY
7	1794-TB2	4	TERMINAL BASE UNIT	ALLEN BRADLEY
8	DN-F6L110	11	FUSE TERMINAL BLOCK, 120 VAC	AUTOMATION DIRECT
9	DN-F6L24	4	FUSE TERMINAL BLOCK, 24 VDC	BUSSMAN
10	AGC-2	4	FAST-ACTING FUSE GLASS BODY, 2 AMP	BUSSMAN
11	DN-T12	100	TERMINAL BLOCK 12AWG 20A 600V GREY	AUTOMATION DIRECT
12	DN-G10	32	GROUND TERMINAL 10 AWG 30 AMP	AUTOMATION DIRECT
13	DN-EB35	7	END BRACKET FOR 35MM RAIL	AUTOMATION DIRECT
14	DN-R35HS1	A/R	DIN RAIL 35 mm X15 mm SLOTTED - 1 METER	AUTOMATION DIRECT
15	781-1C-120A	16	SINGLE POLE RELAY, SPDT, 15 A, 120 VAC COIL	AUTOMATION DIRECT
16	781-1C-SKT	16	5 PIN SOCKET, FINGER SAFE, DIN/PNL MOUNT	AUTOMATION DIRECT
17	SD1-032-RR	1	NON-FUSED DISCONNECT, 32 A, 600 VAC, RED HANDLE	AUTOMATION DIRECT
18	SD1-GP	1	GROUND POLE, SD1 NON-FUSED DISCONNECT SWITCH	AUTOMATION DIRECT
19	SD1-NP	1	NEUTRAL POLE, SD1 NON-FUSED DISCONNECT SWITCH	AUTOMATION DIRECT
20	2711P-T10C4A1	1	PANELVIEW PLUS 1000 COLOR TOUCH SCREEN, 10.4"	ALLEN BRADLEY
21	PSM24-090S	1	DC POWER SUPPLY, 3.75A 24 VDC	AUTOMATION DIRECT
22	HT&JBH1DAA5	6	3 POS. 30 mm SELECTOR 2 N.O. MAINT	AUTOMATION DIRECT
23	AGC-5	8	FAST-ACTING FUSE GLASS BODY, 5 AMP	BUSSMAN
24	T1-2240	A/R	WIRE DUCT SLOTTED GREY, 2"W x 4"H	IBOCO
25	701640A631	1	NAMEPLATES, ENGRAVED PER DRAWING	LASERWORKS
26	TCSEU053FNO	1	ETHERNET SWITCH	SQUARE D
27	1794-IA16	1	120VAC INPUT MODULE, 16 PTS	ALLEN BRADLEY
28	1794-OF4I	1	ANALOG OUTPUT MODULE	ALLEN BRADLEY
29	AGC-2	1	FAST ACTING FUSE GLASS BODY, 2 AMP	BUSSMAN



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ROCKFORD, ILLINOIS

DRAWN BY: JMP  
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DATE: 9/3/20  
SCALE: AS NOTED

REVISIONS		
REV. NO.	DESCRIPTION	DATE

DRAWING:

REMOTE I\_O PANEL LAYOUT

SET TYPE: OUT TO BID

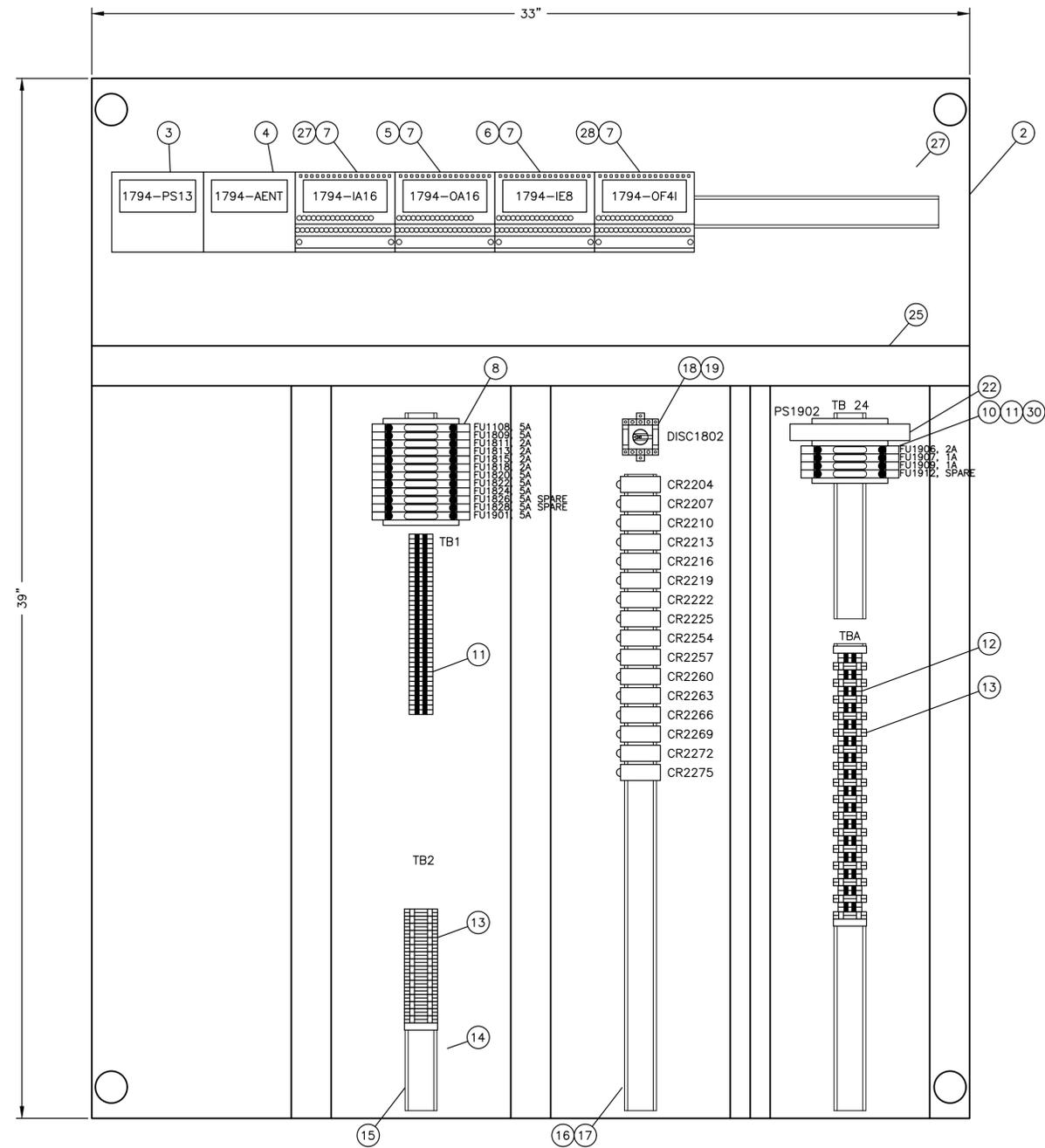
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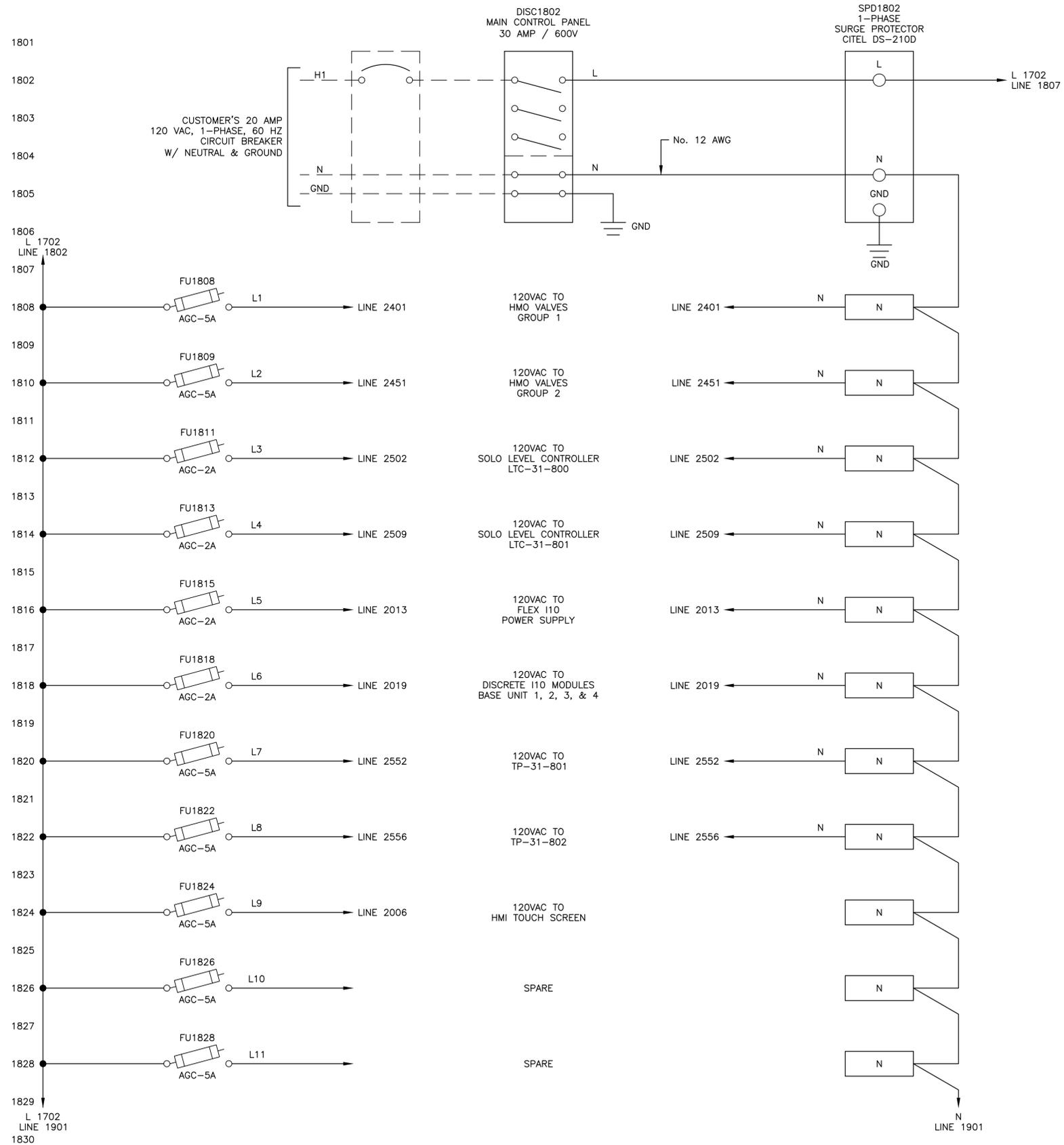
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DRAWING:

CONTROL CABINET FUSING

SET TYPE: OUT TO BID

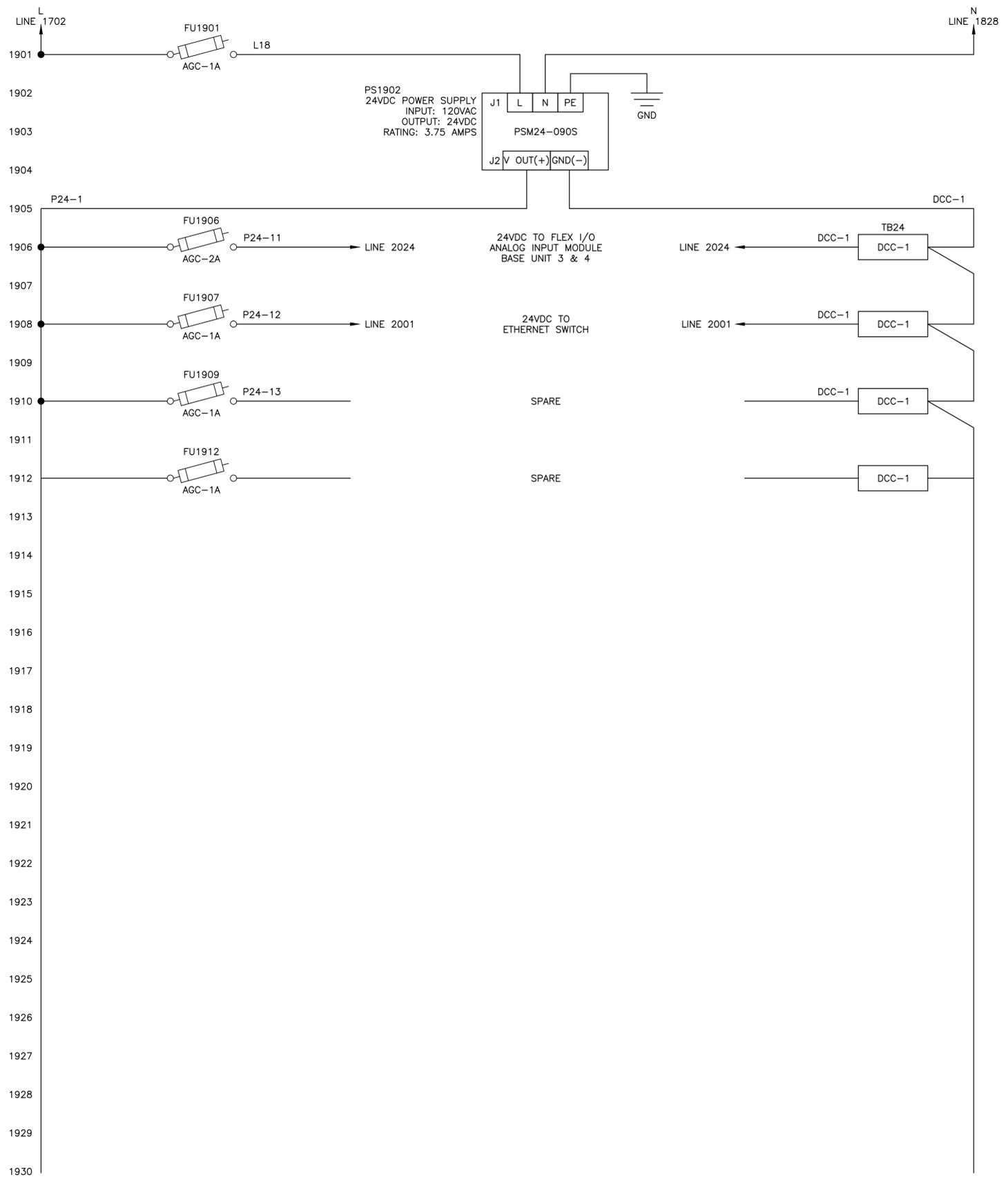
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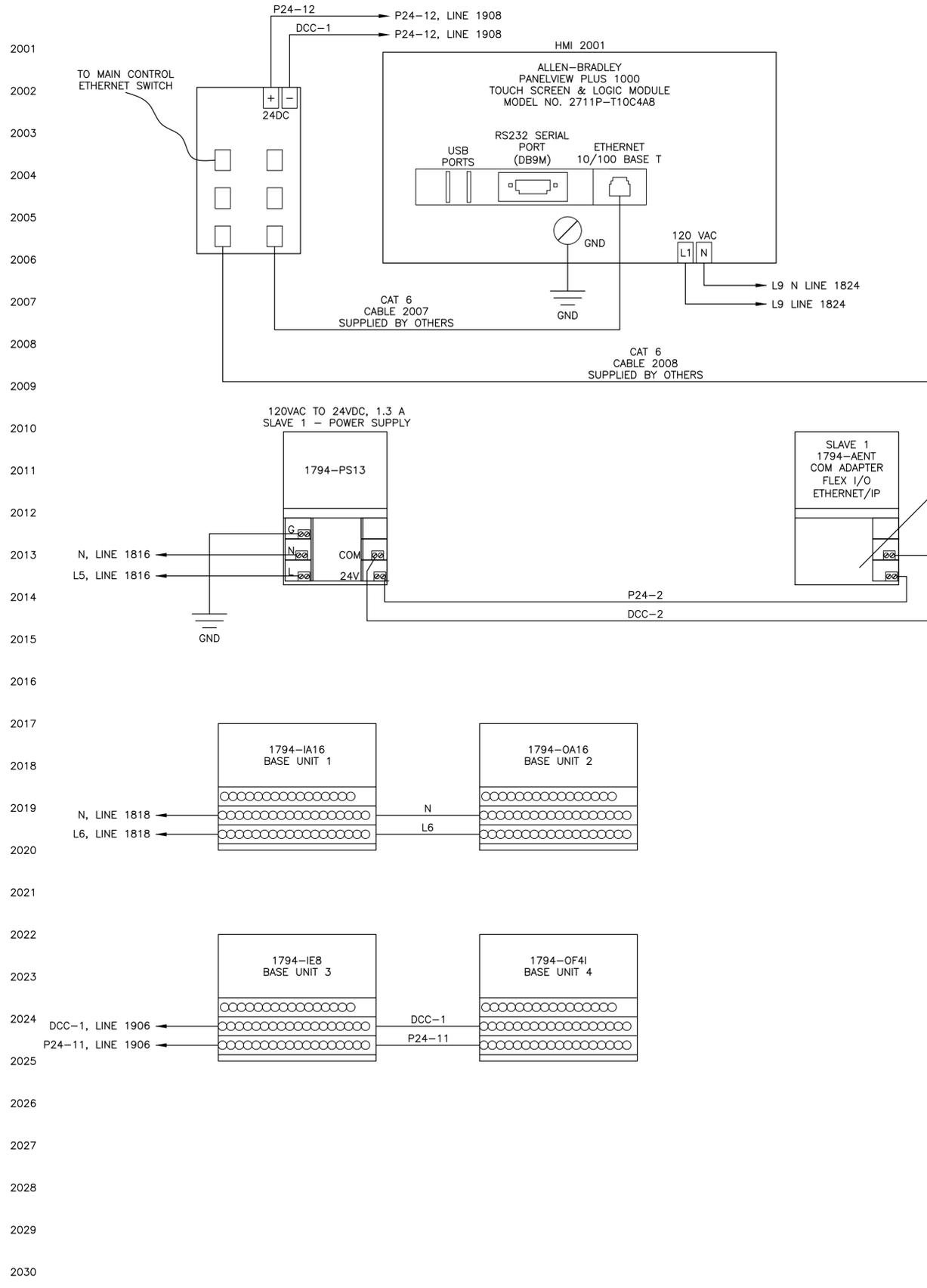
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DRAWING:

REMOTE I\_O PANEL - ONE-LINE

SET TYPE: OUT TO BID

G:\C30\19-200 Well 31\Plans\19-200 PH30 Plans.dwg, Remote IO

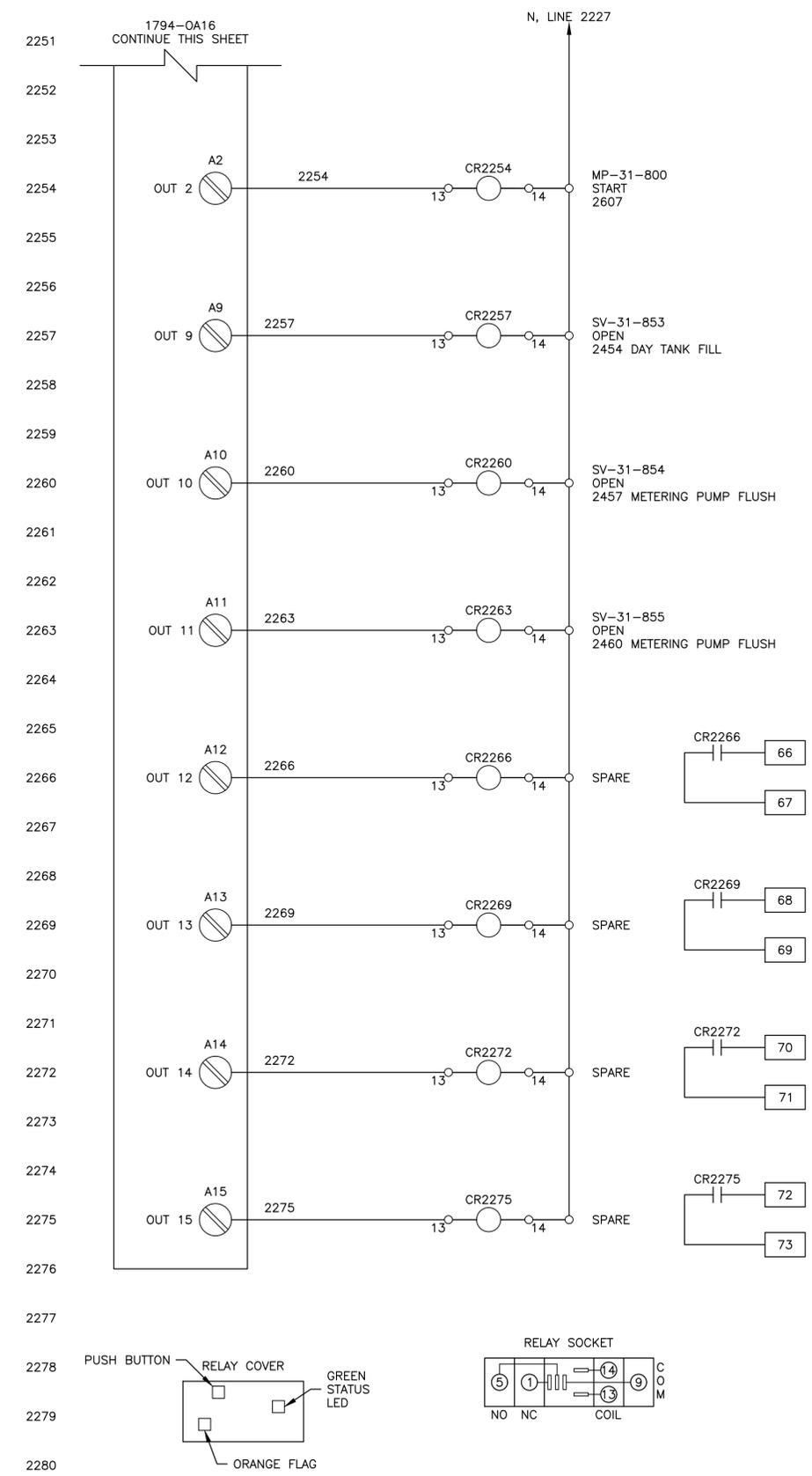
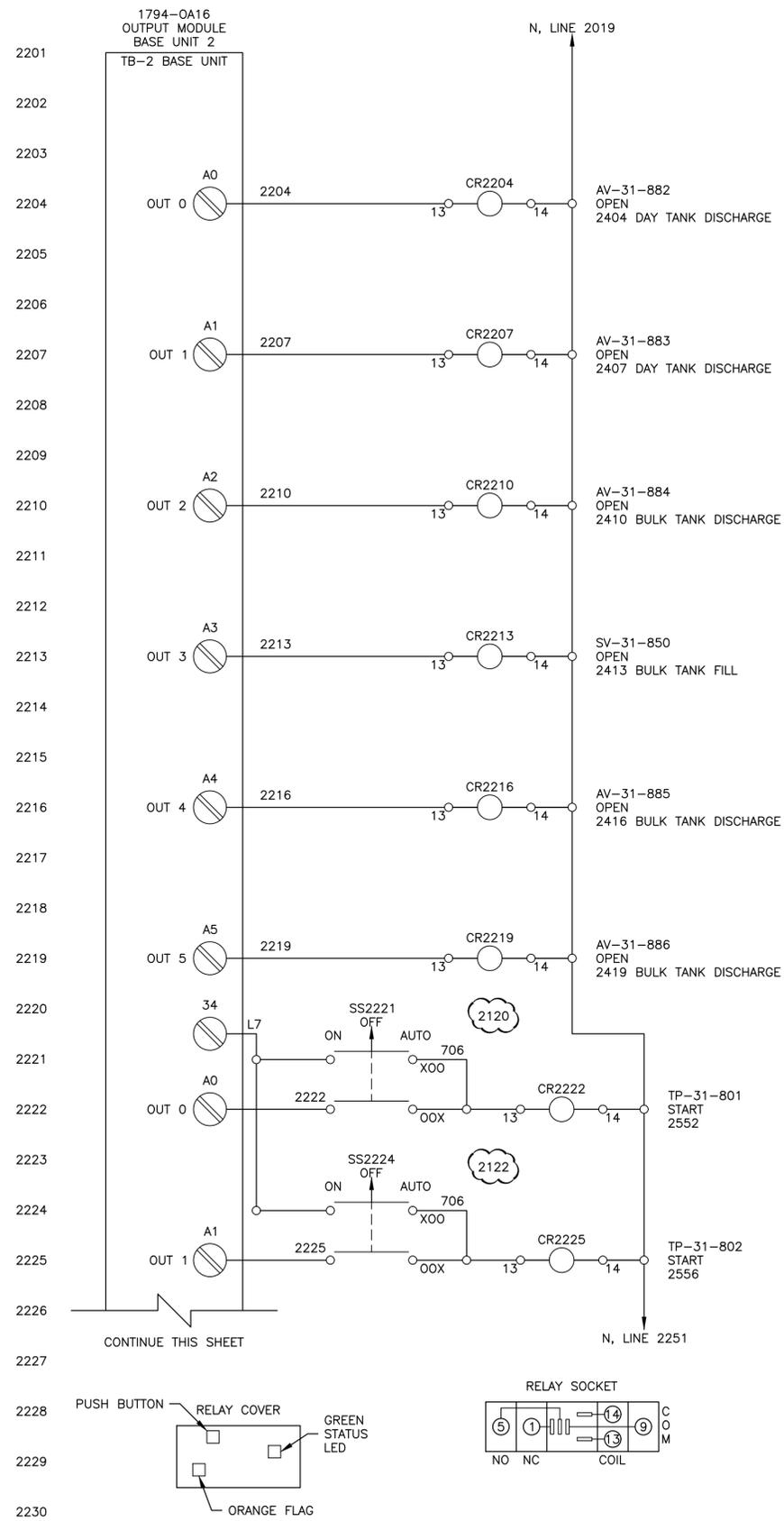
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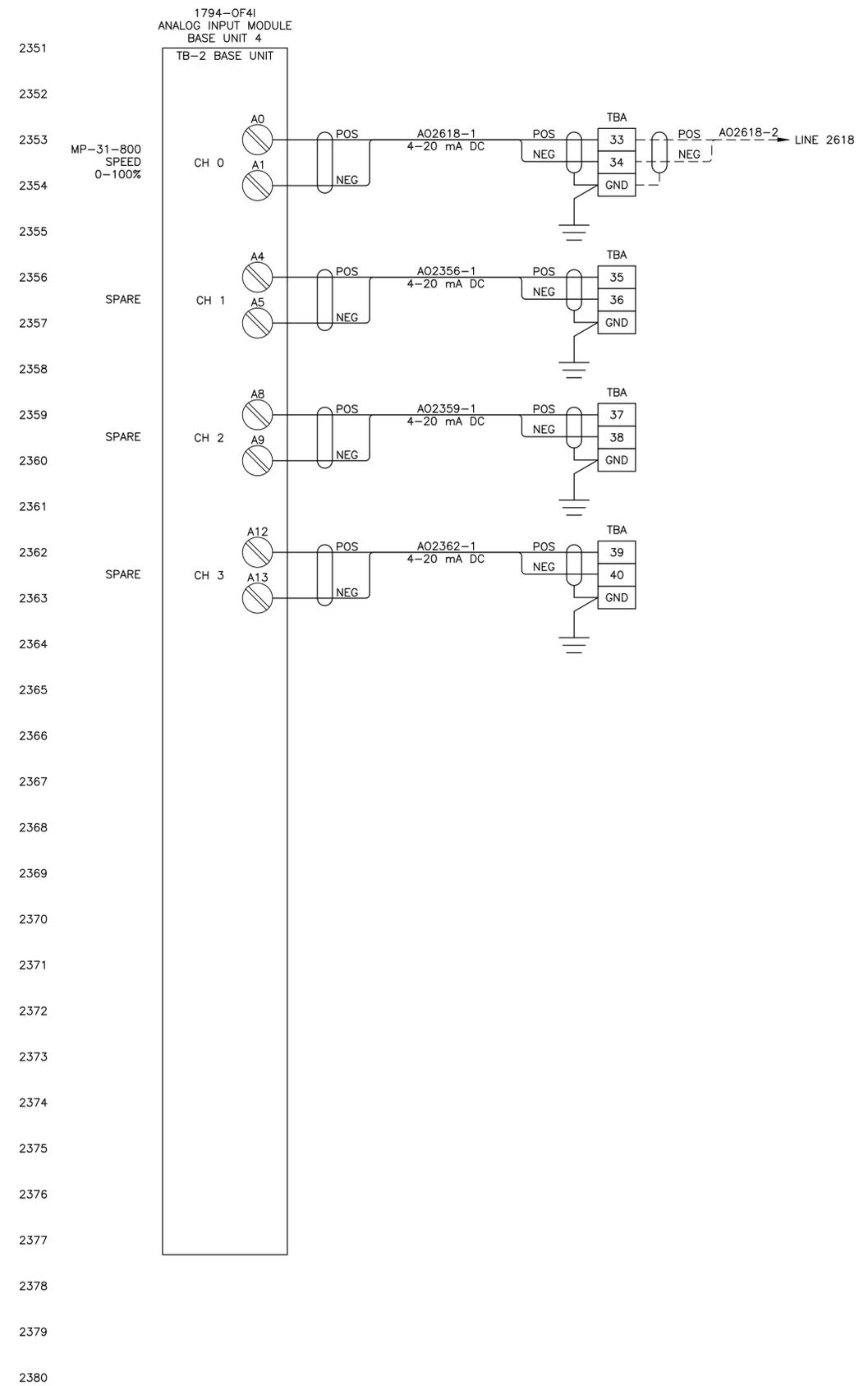
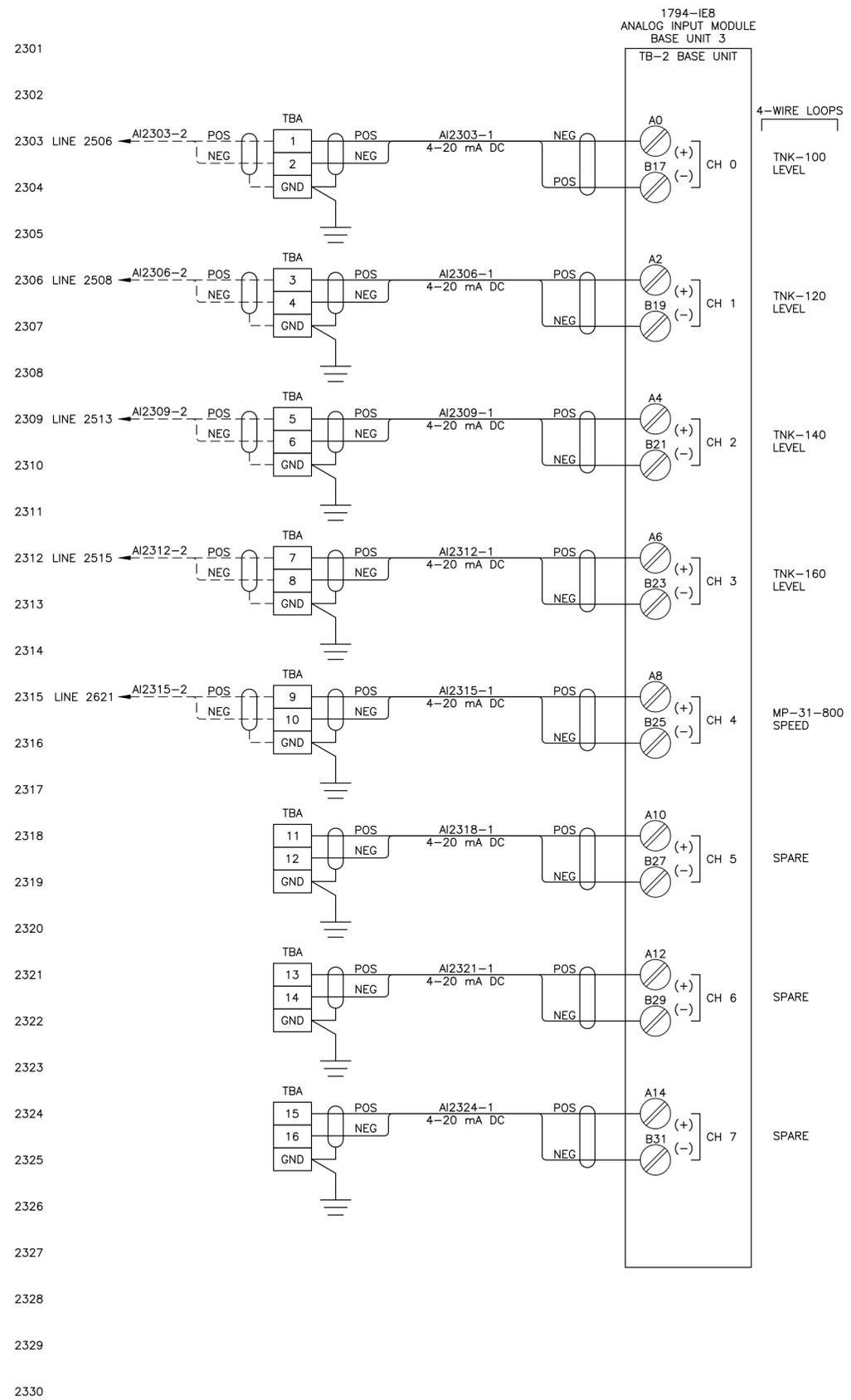
SHEET NUMBER:

20 of 29

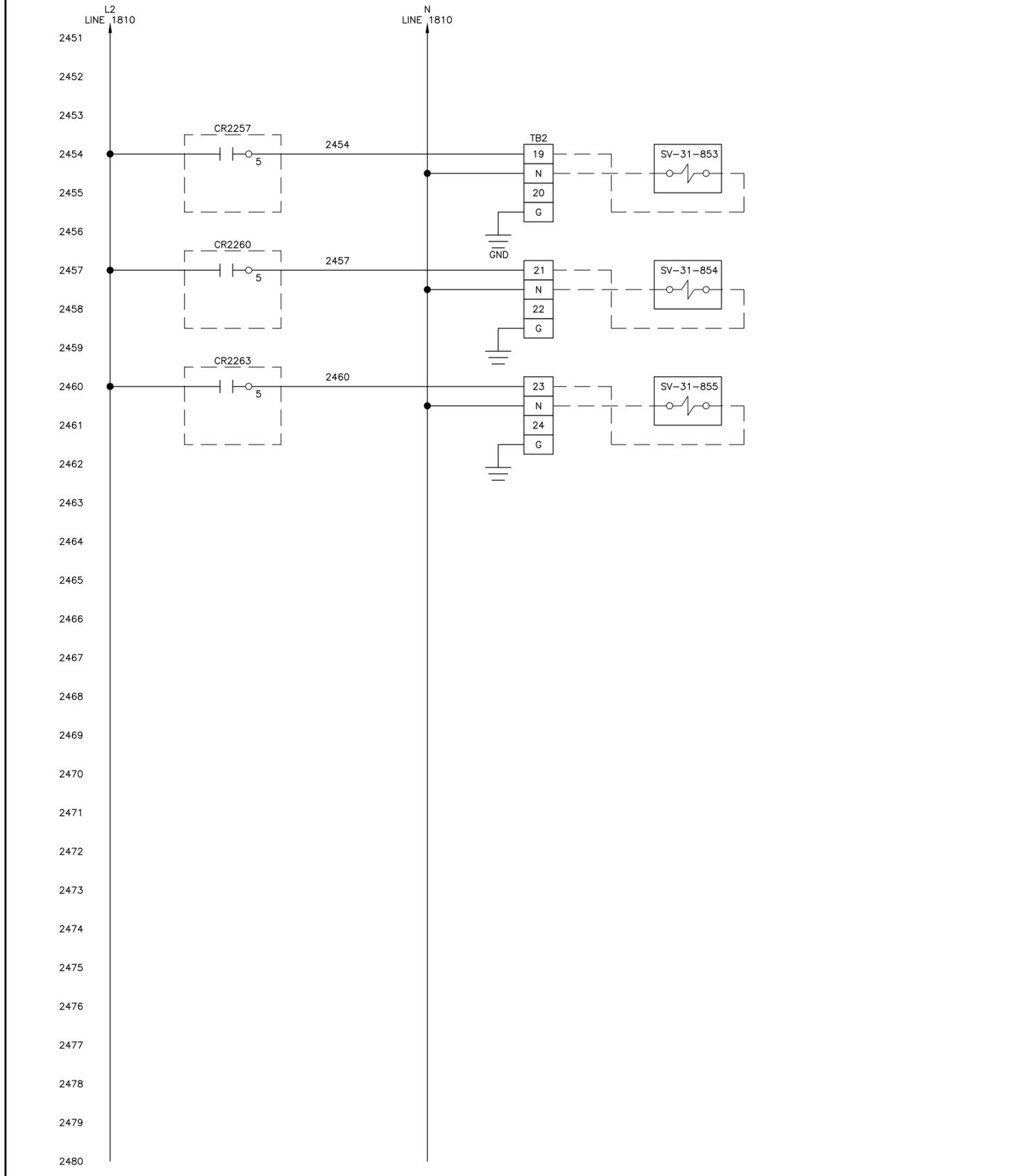
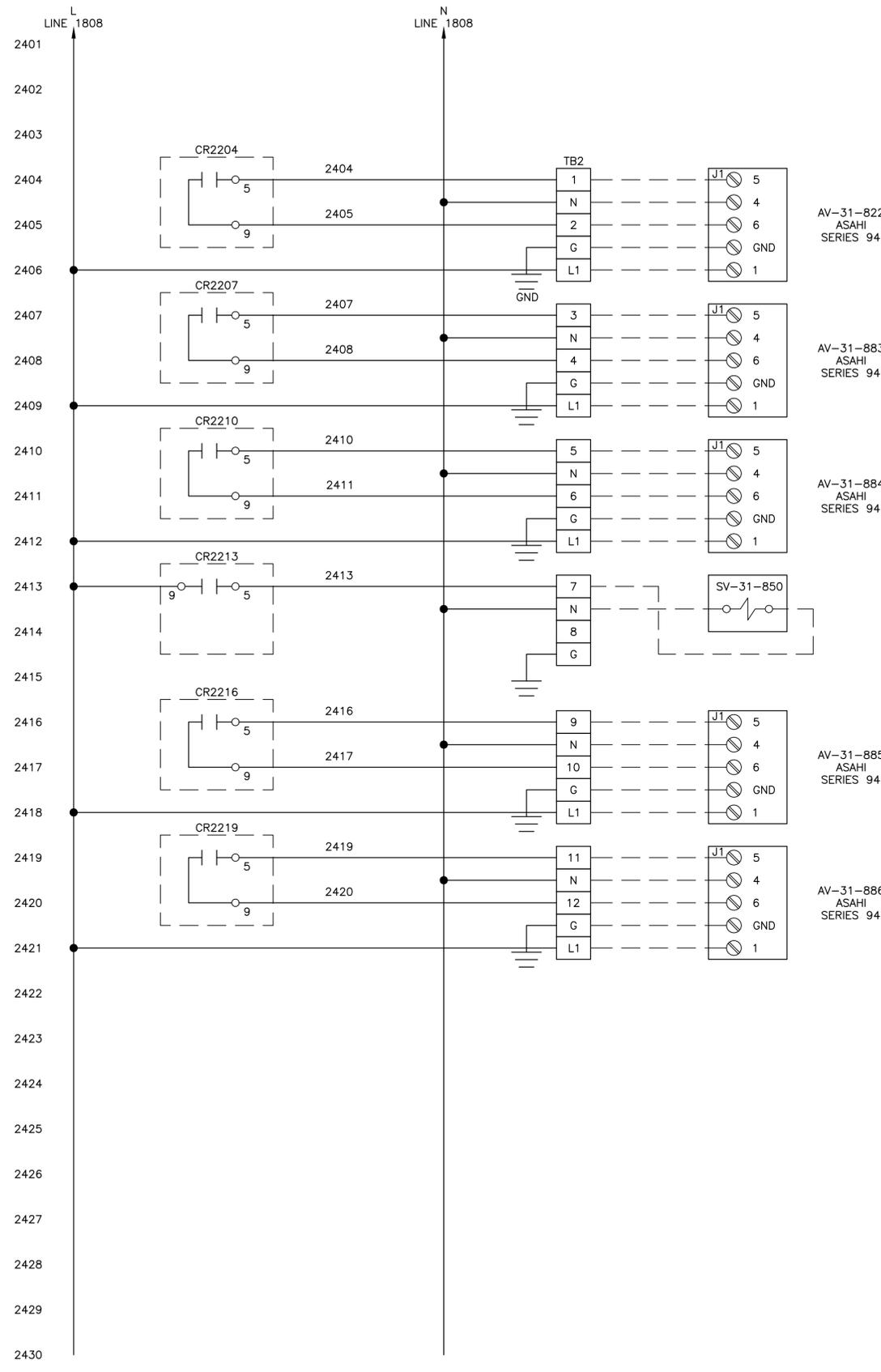




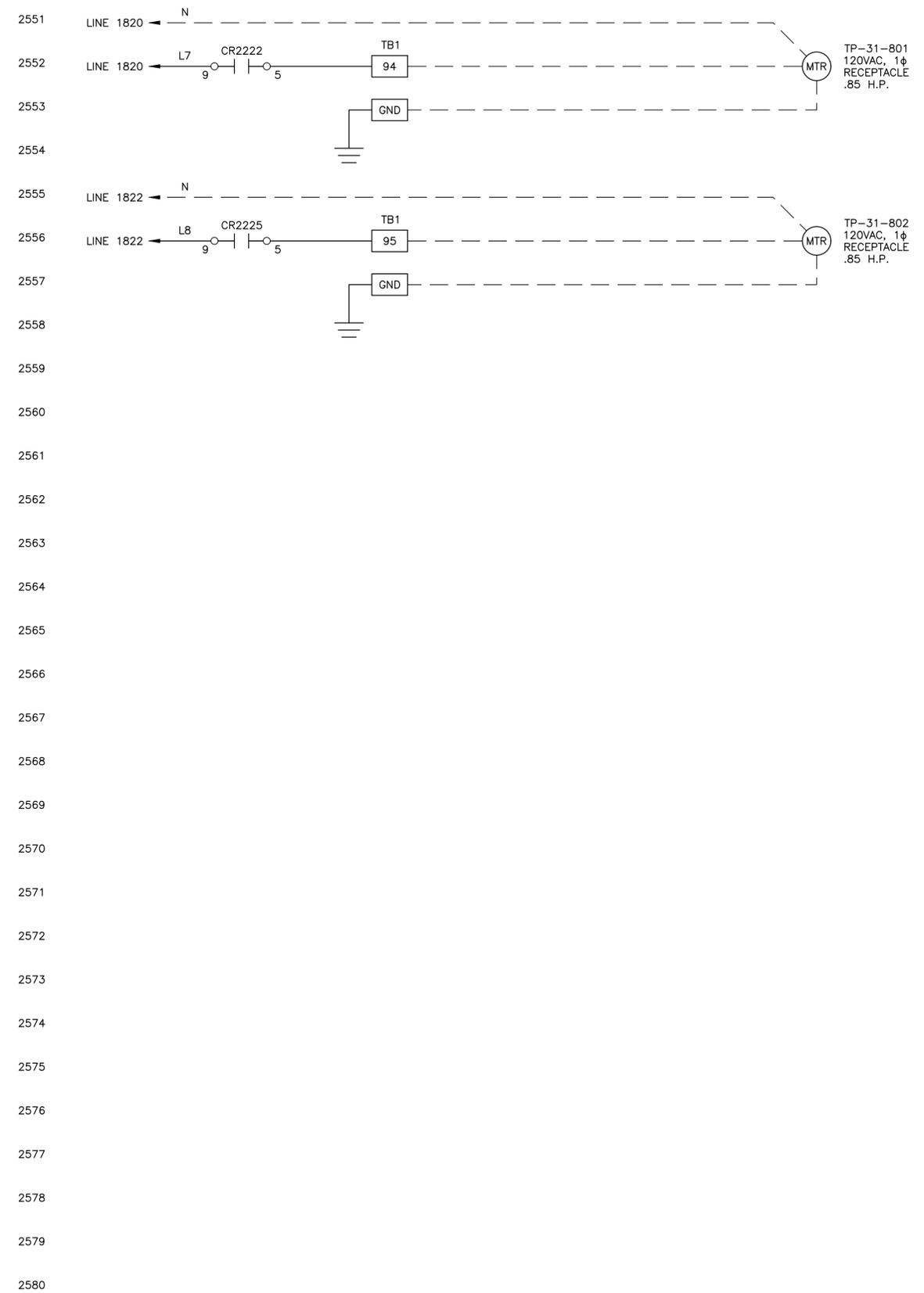
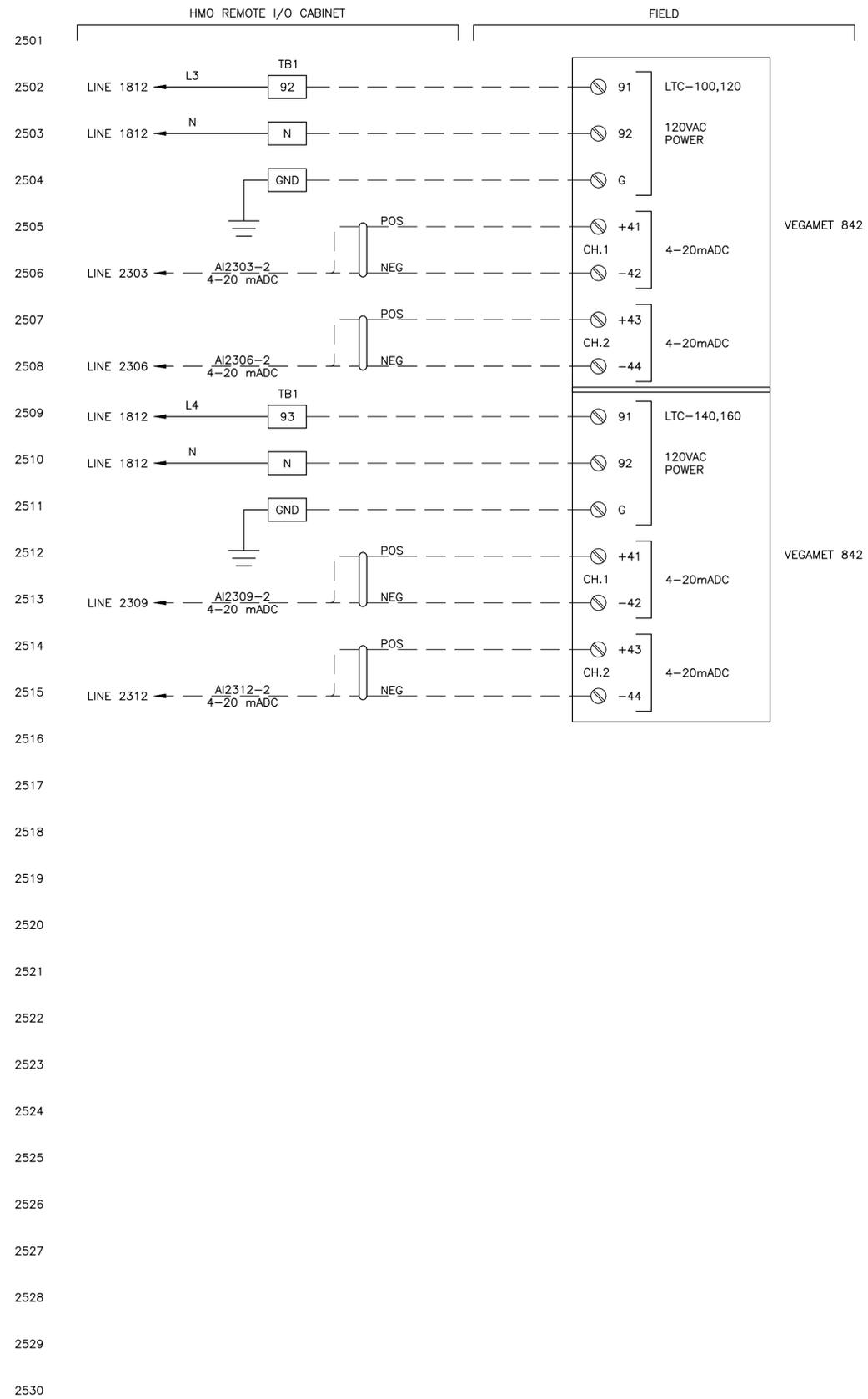
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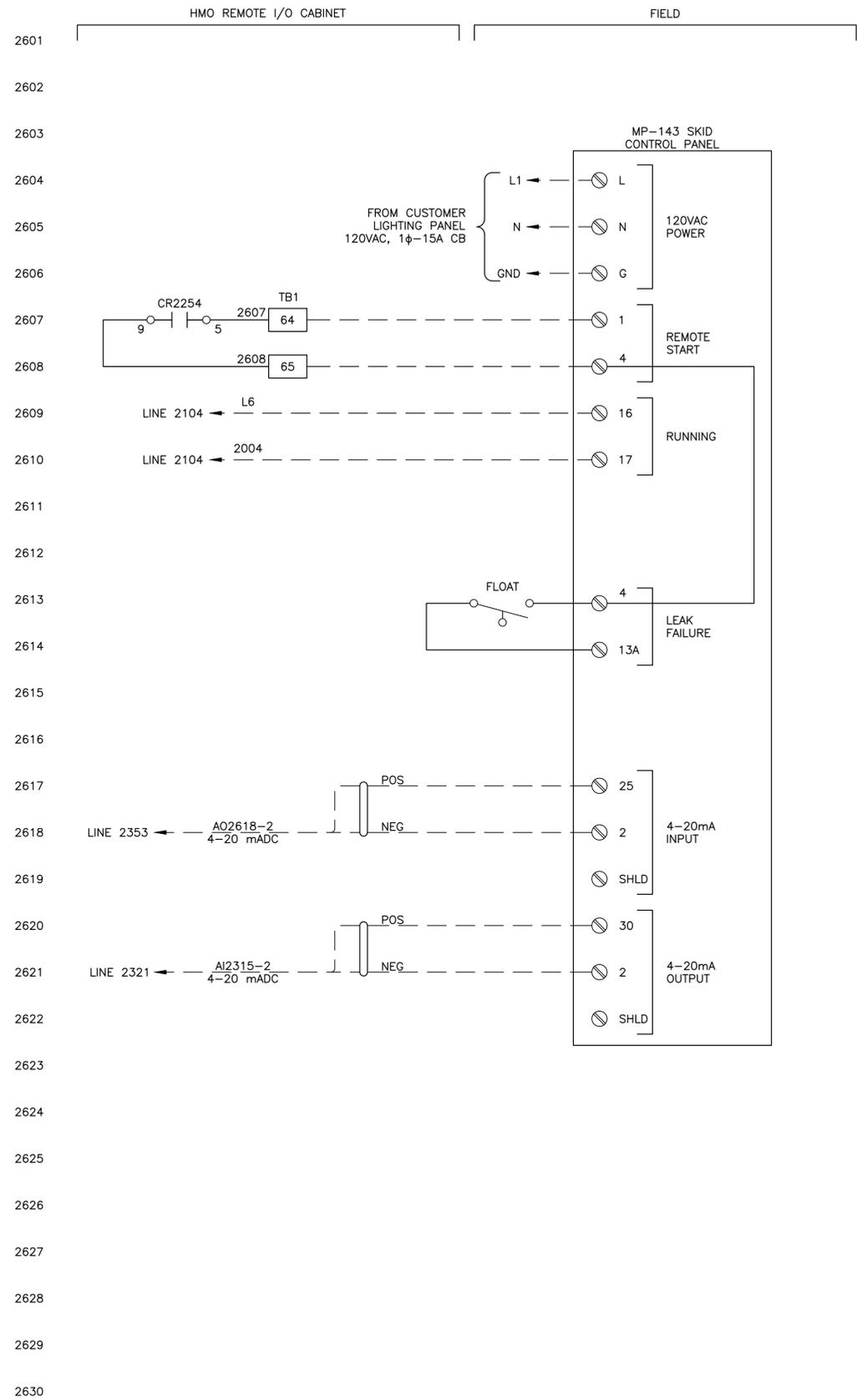
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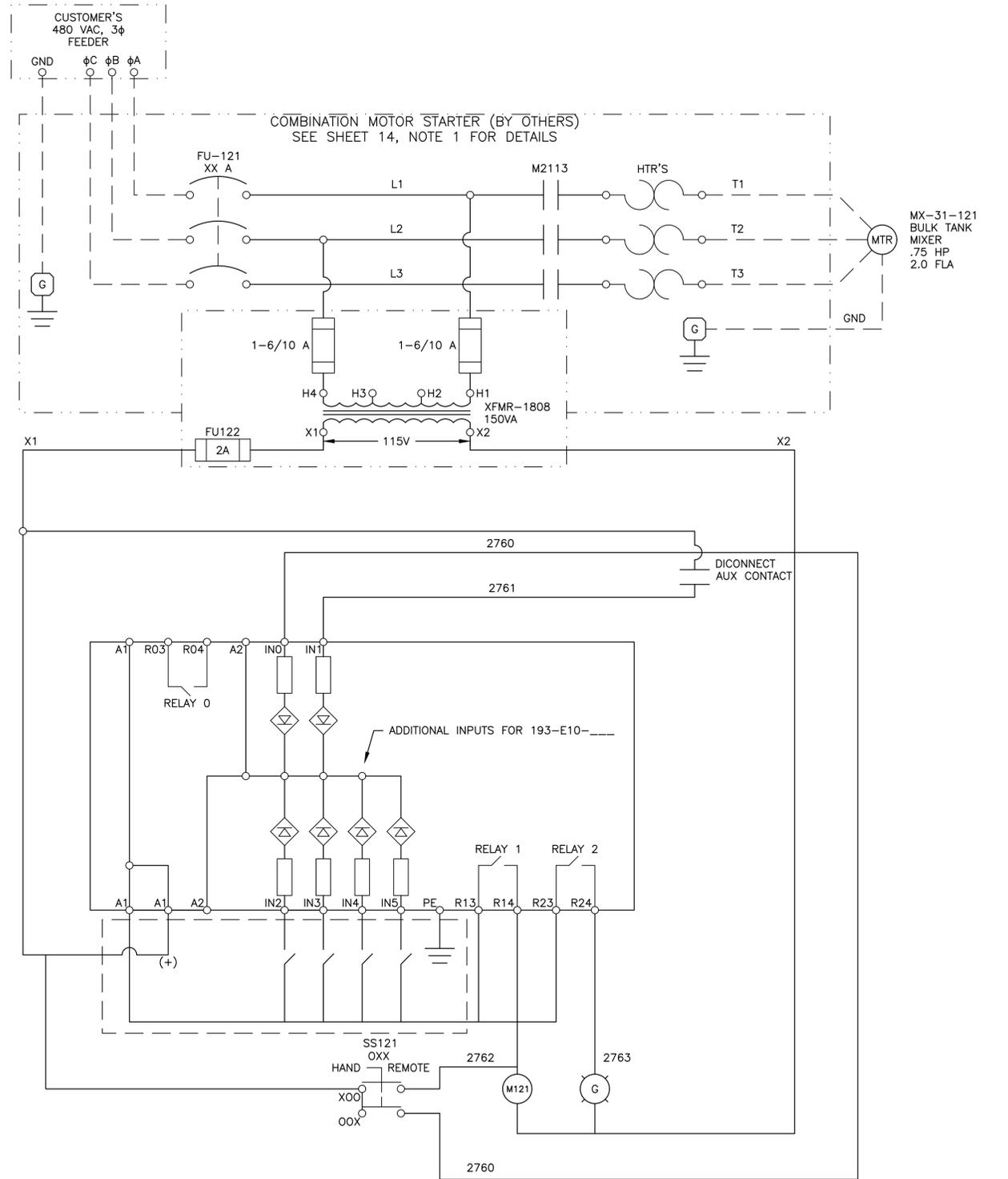
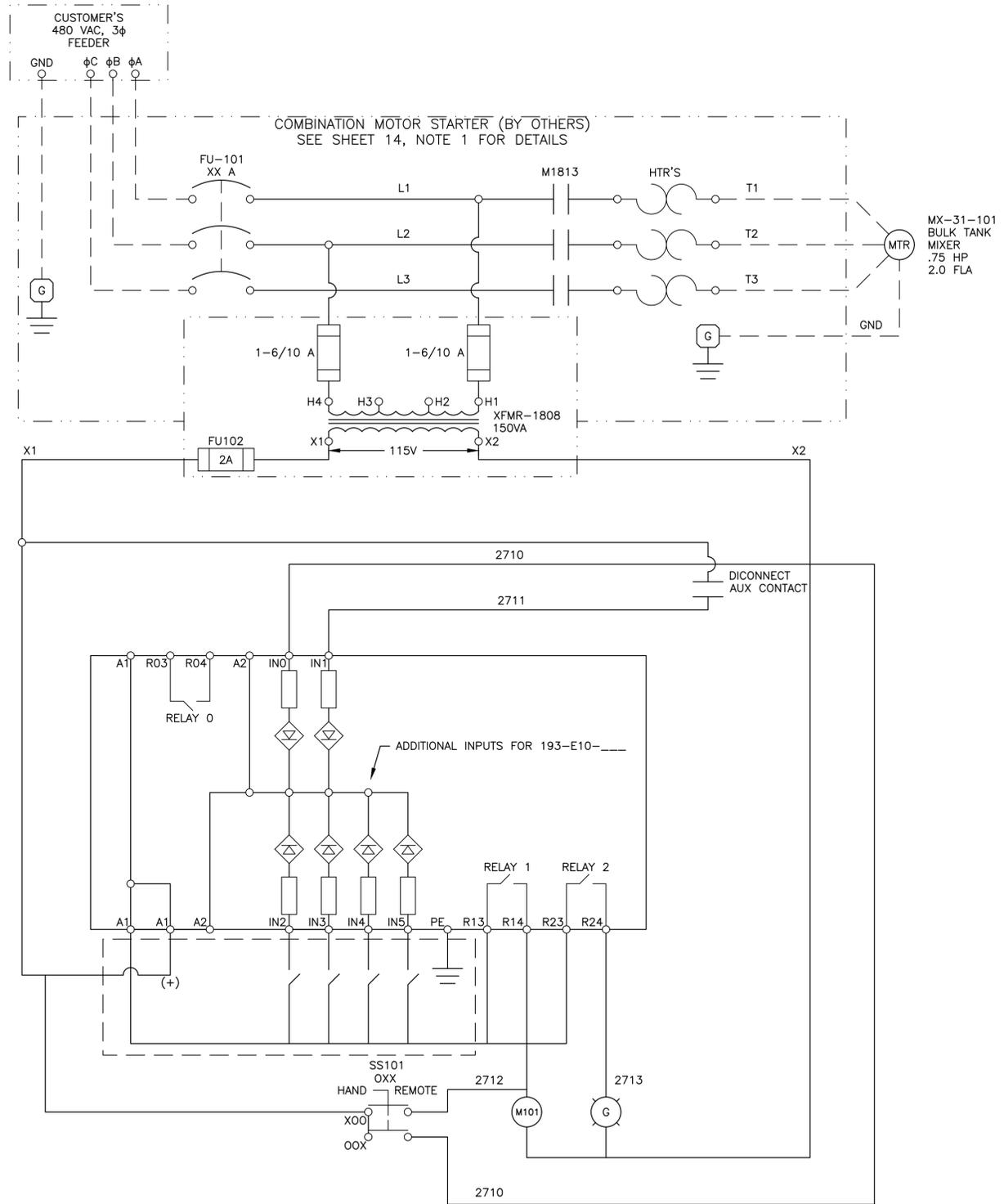
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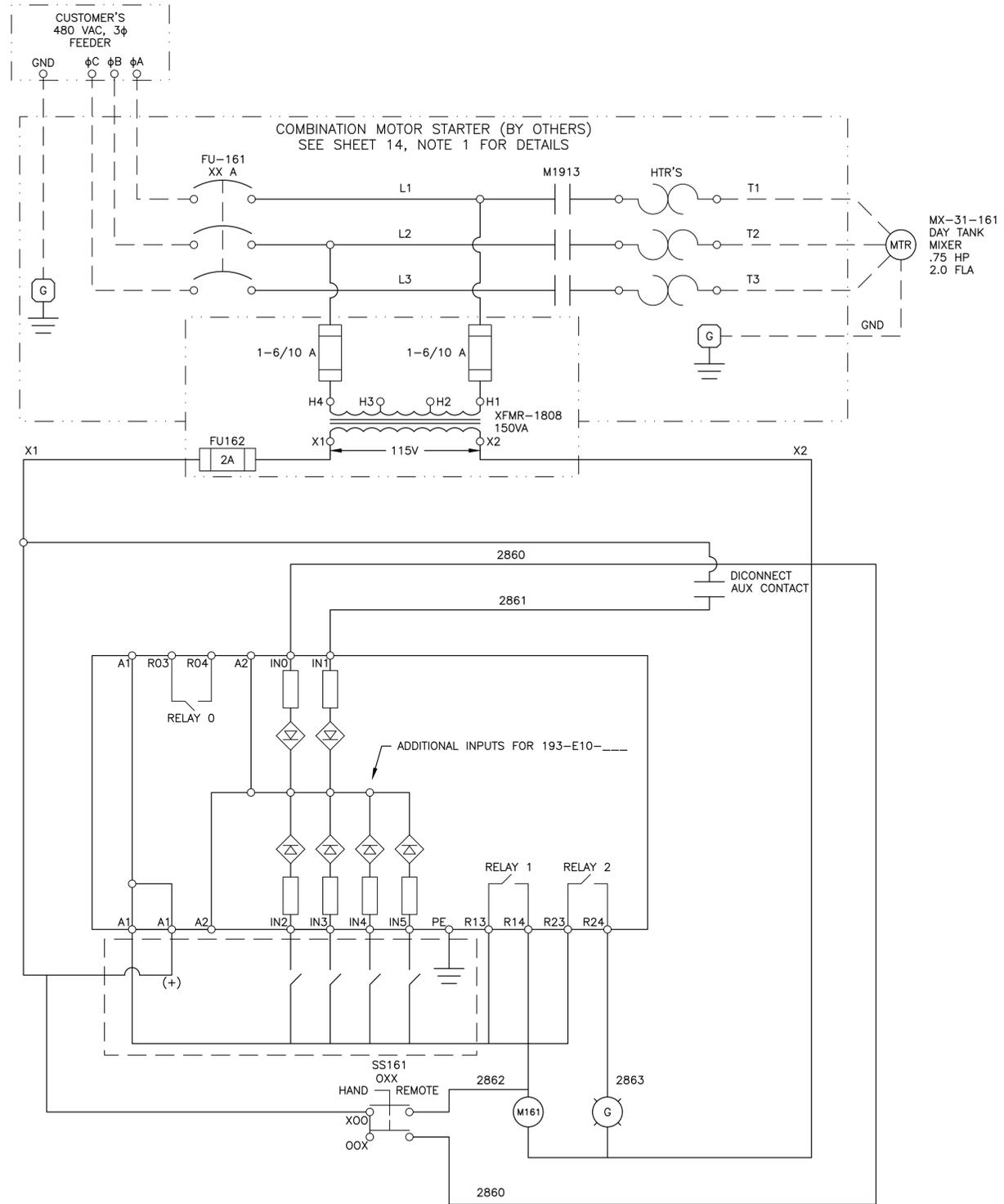
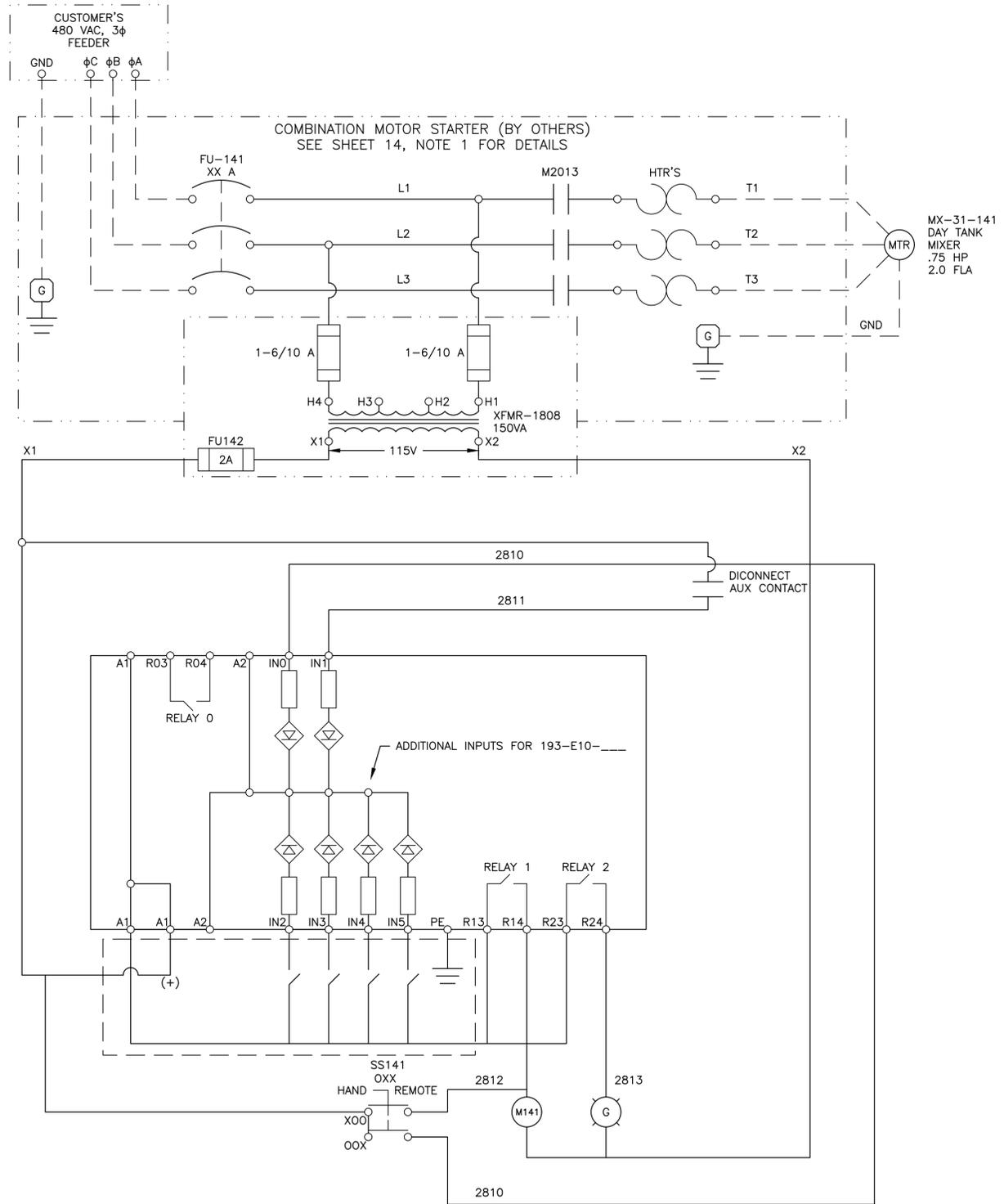
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