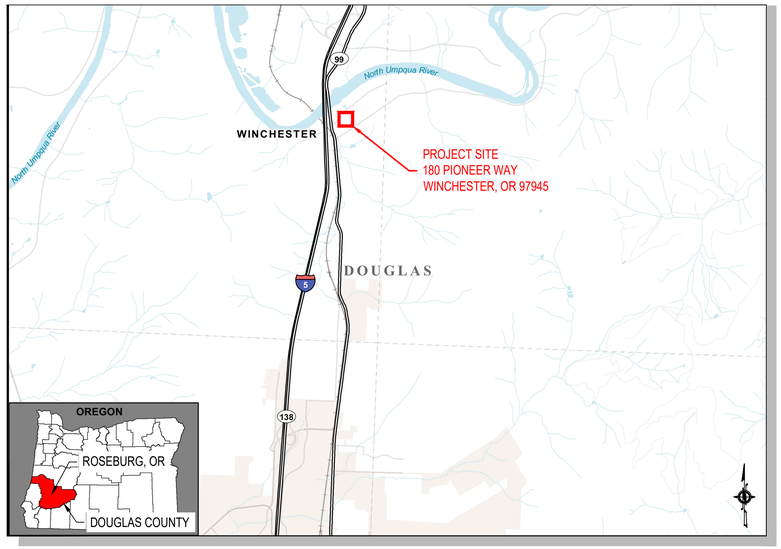
WATER TREATMENT PLANT

CHLORINATION SYSTEM IMPROVEMENTS

ISSUED FOR BIDDING

FALL 2019

PROJECT VICINITY MAP



CONTACT PERSONNEL

CONTACT	AGENCY	TITLE	PHONE
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CHRIS ROBERTS, P.E.	RH2 ENGINEERING	ELECTRICAL ENGINEER	425-951-5358

SECTION AND DETAIL REFERENCES

THE FOLLOWING CONVENTIONS HAVE BEEN USED WITHIN THESE DRAWINGS TO REFER THE READER BETWEEN THE SECTION/DETAIL AND THE PLAN FROM WHICH IT IS REFERENCED.

REFERENCE BUBBLES

X / X000 — PLAN REFERENCE BUBBLE - REFERS READER BACK TO THE PLAN FROM WHICH THE DETAIL OR SECTION ORIGINATED.

X / X000 — DETAIL/SECTION REFERENCE BUBBLE - REFERS READER TO THE DRAWING ON WHICH THE DETAIL OR SECTION IS LOCATED.

WHERE, ID = SECTION/DETAIL REFERENCE NUMBER
= DRAWING NUMBER ON WHICH DETAIL ORIGINATED OR RESIDES.

SECTION/DETAIL REFERENCE NUMBER CONVENTIONS:
SECTIONS OR ELEVATIONS SHOULD HAVE A LETTER REFERENCE NUMBER (A THROUGH ZZ).

GENERAL CONSTRUCTION NOTES

ADDRESSES

WATER TREATMENT PLANT PROJECT SITE:
180 PIONEER WAY, WINCHESTER, OR 97495
OWNER: CITY OF ROSEBURG – PUBLIC WORKS DEPARTMENT
900 SE DOUGLAS AVENUE, ROSEBURG, OR 97470

CRITERIA

1) CONSTRUCTION OF SITE, ROAD, AND UTILITY IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, LATEST EDITION, AS ISSUED BY THE OR. STATE DEPT. OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOC. AND CURRENT AWWA SPECIFICATIONS.
2) ALL BUILDING MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (2015).
3) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS,THE CITY OF ROSEBURG PUBLIC WORKS STANDARDS AND THE PERMITTING CONDITIONS OF APPROVAL.
4) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COMPLYING WITH THE PROVISIONS OF THE BUILDING PERMIT AS ISSUED BY DOUGLAS COUNTY FOR THIS PROJECT.

MECHANICAL NOTES

SEE DRAWING NO. M06.

GENERAL CONSTRUCTION

1) A COPY OF THE APPROVED PLANS AND SPECIFICATIONS MUST BE ON–SITE WHENEVER CONSTRUCTION IS IN PROGRESS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.
2) IN THE EVENT THAT STANDARD CONSTRUCTION NOTES ARE FOUND TO BE IN CONFLICT WITH PROJECT SPECIFIC NOTES, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. WHERE CONFLICTS ARISE, THE CONTRACTOR SHALL ASSUME THAT THE THE MORE RESTRICTIVE CONDITION SHALL APPLY.

GENERAL NOTES

1) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR.
2) A PRE–CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE 48 HOUR ADVANCE NOTIFICATION TO THE OWNER, ENGINEER AND ALL AFFECTED UTILITY COMPANIES PRIOR TO ACTUAL START OF WORK.
3) CONTRACTOR SHALL HAVE A PROFESSIONAL LAND SURVEYOR PROVIDE STAKING OF CONSTRUCTION FOR OWNER INSPECTION A MINIMUM OF 72 HRS. PRIOR TO CONSTRUCTION. CONTRACTOR TO FURNISH ALL MATERIALS.
4) THIS PROJECT INVOLVES IMPROVEMENTS TO EXISTING FACILITIES CURRENTLY IN OPERATION. CONTRACTOR SHALL COORDINATE ALL WORK WITH OPERATIONS STAFF AND MAKE ADJUSTMENTS AS NECESSARY TO MAINTAIN PROPER PLANT OPERATION AND ACCESS FOR CITY PERSONNEL.
5) THE LOCATION OF PROPOSED EQUIPMENT AND ROUTING OF PROPOSED PIPE AND CONDUITS SHOWN HEREIN IS APPROXIMATE AND INTENDED TO DESCRIBE THE GENERAL ARRANGEMENT AND CONFIGURATION OF THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL CONFIRM ALL DIMENSIONS AND MAKE FIELD ADJUSTMENTS AS NECESSARY TO CONSTRUCT THE PROPOSED IMPROVEMENTS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND FIELD CONDITIONS. FIELD ADJUSTMENT SHALL BE CONSIDERED INCIDENTAL TO THE BID.

DEFINITIONS OF "REMOVE" AND "REPLACE"

"REMOVE" USED IN THE PLANS INDICATES CONTRACTOR RESPONSIBILITY TO REMOVE AND DISPOSE OFF–SITE AT A PROPER DISPOSAL FACILITY. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF ALL EXISTING INFRASTRUCTURE REMOVED, AND NOT RETURNED TO THE OWNER OR REUSED, AND ALL CONSTRUCTION WASTE MATERIALS."REPLACE" USED IN THE PLANS INDICATES PROPOSED INFRASTRUCTURE TO BE INSTALLED IN PLACE OF EXISTING INFRASTRUCTURE THAT WAS REMOVED AND DISPOSED.

SITE

1) STORAGE OF ALL MATERIALS AND EQUIPMENT IS TO BE CONFINED TO WITHIN THE CONSTRUCTION LIMITS AS DIRECTED BY THE OWNER. IF STORAGE IS NEEDED OUTSIDE THE DEFINED CONSTRUCTION LIMITS THE CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM THE OWNER AND ADJACENT PROPERTY OWNERS.

SITE (CONTINUED)

2) DO NOT DISTURB OUTSIDE OF CONSTRUCTION LIMITS. MAINTAIN INTEGRITY AND SECURITY OF EXISTING SITE FENCE TO DISCOURAGE SITE ACCESS BY UNAUTHORIZED PERSONNEL.

3) CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO EXISTING OR BETTER CONDITION UNLESS OTHERWISE STATED ON THE PLANS.

4) ALL VEHICLES ARE TO BE CLEANED OF ALL EXCESS CONCRETE AND DIRT PRIOR TO LEAVING THE SITE. PROTECT THE WTP ACCESS ROAD FROM DAMAGE OR SEDIMENT TRANSPORT DURING CONSTRUCTION. ANY DAMAGE OR CLEANUP SHALL BE SOLELY AT THE CONTRACTOR'S EXPENSE AND BE COMPLETED TO THE SATISFACTION OF THE CITY OF ROSEBURG.

5) THE CONTRACTOR SHALL CLEANUP ALL AREAS AFFECTED BY HIS ACTIVITIES TO THE SATISFACTION OF THE OWNER BY THE END OF EACH WORKING DAY OR MORE FREQUENTLY IF REQUIRED BY THE OWNER. THIS INCLUDES REMOVAL OF ALL DUST, MUD, ROCKS, ASPHALT DEBRIS, AND REFUSE FROM STREETS, SIDEWALKS, DRIVEWAYS, AND ANY OTHER AREAS AFFECTED BY THE CONSTRUCTION ACTIVITIES. FAILURE TO CLEANUP TO THE SATISFACTION OF THE OWNER WILL NECESSITATE A SHUTDOWN OF THE PROJECT UNTIL CLEANUP IS PROPERLY PERFORMED. DAILY CLEANUP IS AN INTEGRAL PART OF EROSION AND POLLUTION CONTROL.

6) CONTRACTOR IS RESPONSIBLE FOR MEETING ALL REQUIREMENTS FOR OFF SITE DISPOSAL INCLUDING ONLY DISPOSING OF WASTE MATERIAL AT SITES APPROVED BY THE CITY OF ROSEBURG.

7) AT THE END OF EACH WORKING WEEK, THE OWNER WILL INSPECT ALL TEMPORARY RESTORATION. IF THE TEMPORARY RESTORATION DOES NOT PROVIDE AN ADEQUATE DRIVING SURFACE, AS DETERMINED BY THE OWNER, THEN THE CONTRACTOR SHALL IMMEDIATELY PROCEED WITH THE PERMANENT RESTORATION AS DESCRIBED IN THE SPECIFICATIONS.

UTILITIES

1) UTILITY LOCATIONS SHOWN HEREON ARE BASED UPON ASBUILT FIELD LOCATION OF EXISTING STRUCTURES, FIELD LOCATION OF UTILITIES BASED ON LOCATOR PAINT MARKINGS AND LOCATIONS BASED ON UTILITY LOCATION MAPS FROM THE UTILITY PURVEYORS. OTHER UTILITIES OR DEVIATIONS FROM THESE PLANS MAY EXIST. NO SUB–SURFACE EXPLORATION WAS MADE TO VERIFY UTILITY ROUTINGS AND THE ROUTING OF ALL BURIED UTILITIES SHOULD BE CONFIRMED WITH THE UTILITY PURVEYOR AND EXPOSED IN AREAS CRITICAL TO CONSTRUCTION FOR VERIFICATION. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, ELEVATION AND SIZE OF EXISTING UTILITIES PRIOR TO CONSTRUCTION OF ANY BURIED PROPOSED UTILITIES. CALL 1–800–332–2344 48 HOURS BEFORE CONSTRUCTION FOR UTILITY LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING PIPE TYPES AND SIZES AS NECESSARY FOR PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND THE UTILITY COMPANY WHEN A CONFLICT OCCURS OR WHEN A CONFLICT IS ANTICIPATED.
2) ALL UTILITY CONSTRUCTION SHALL COMPLY WITH THE CITY OF ROSEBURG AND UTILITY FRANCHISE STANDARDS.
3) CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING UTILITIES AND STRUCTURES AND SHALL PROVIDE SHORING AND SUPPORT AS NECESSARY.
4) A. EXISTING INFRASTRUCTURE AND LOCATIONS SHOWN IN THESE PLANS ARE BASED ON EXISTING WTP CONSTRUCTION RECORD DRAWINGS AND FIELD MEASUREMENTS. CONTRACTOR IS RESPONSIBLE FOR PERFORMING THEIR OWN FIELD VERIFICATION AND MEASUREMENTS OF EXISTING INFRASTRUCTURE TO CONSTRUCT THE PROPOSED IMPROVEMENTS.
B. CONTRACTOR SHALL USE CAUTION DURING CONSTRUCTION TO PREVENT DAMAGE TO EXISTING INFRASTRUCTURE UNLESS NOTED TO BE REMOVED OR MODIFIED. EXISTING CONSTRUCTION RECORD DRAWINGS WILL BE AVAILABLE FOR THE CONTRACTOR TO REFER TO DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE OWNER IF CONFLICTS BETWEEN THE CONSTRUCTION RECORD DRAWINGS AND FIELD CONDITIONS ARE DISCOVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING OR REPAIRING ANY EXISTING INFRASTRUCTURE DAMAGED DURING CONSTRUCTION THAT IS INTENDED TO BE UNDISTURBED.
C. IMPROVEMENT CONFLICTS: THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONFLICTS WITH THE PROPOSED IMPROVEMENTS AND EXISTING INFRASTRUCTURE.
5) THE CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO PERFORMING DEMOLITION WORK ON EXISTING EQUIPMENT OR PIPING AND PRIOR TO CONNECTING PROPOSED PIPING TO EXISTING PIPING TO ENSURE VALVES ARE CLOSED TO PREVENT LEAKS OR SPILLS AND ACTIVE PROCESSES ARE NOT INTERRUPTED.
6) EXISTING PROCESSES AND POWER MAY NOT BE SHUT DOWN FOR ANY PERIOD WITHOUT PRIOR APPROVAL FROM THE OWNER. SEE DWG NO. M02 FOR PHASING REQUIREMENTS. THE CONTRACTOR SHALL NOT OPERATE EXISTING PROCESS OR POWER SYSTEM EQUIPMENT (VALVES, SWITCHES, ETC.).

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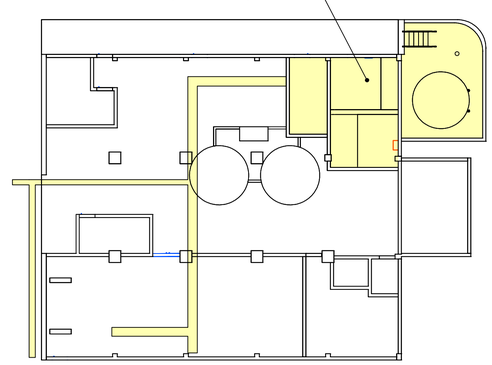
ROOMS HATCHED YELLOW TO BE IMPACTED BY IMPROVEMENTS



WATER TREATMENT PLANT FIRST FLOOR PLAN

1/16" = 1'–0"

ABBREVIATIONS

ABBREVIATION	FULL DESCRIPTION	ABBREVIATION	FULL DESCRIPTION
APPROX	APPROXIMATELY	MIN	MINIMUM
CDF	CONTROLLED DENSITY FILLED	MIOX	MIXED OXIDANT SOLUTION
CL	CENTERLINE	NO	NUMBER
CONC	CONCRETE	NTS	NOT TO SCALE
CPVC	CHLORINATED POLYVINYL CHLORIDE	PROP	PROPOSED
ø	DIAMETER	PSI	POUNDS PER SQUARE INCH
DWG	DRAWING	PVC	POLYVINYL CHLORIDE
EX	EXISTING	SCH	SCHEDULE
HDPE	HIGH DENSITY POLYETHYLENE	STD	STANDARD
HYPO	BULK SODIUM HYPOCHLORITE	TYP	TYPICAL
LF	LINEAL FEET		

CALL 48 HOURS BEFORE YOU DIG
ONE CALL 1-800-332-2344

ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER AT 503-232-1978.

RH2

REGISTERED PROFESSIONAL ENGINEER 86798 OREGON JUNE 13, 2019 DAN J. MAHLUM
EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

COVER AND GENERAL NOTES

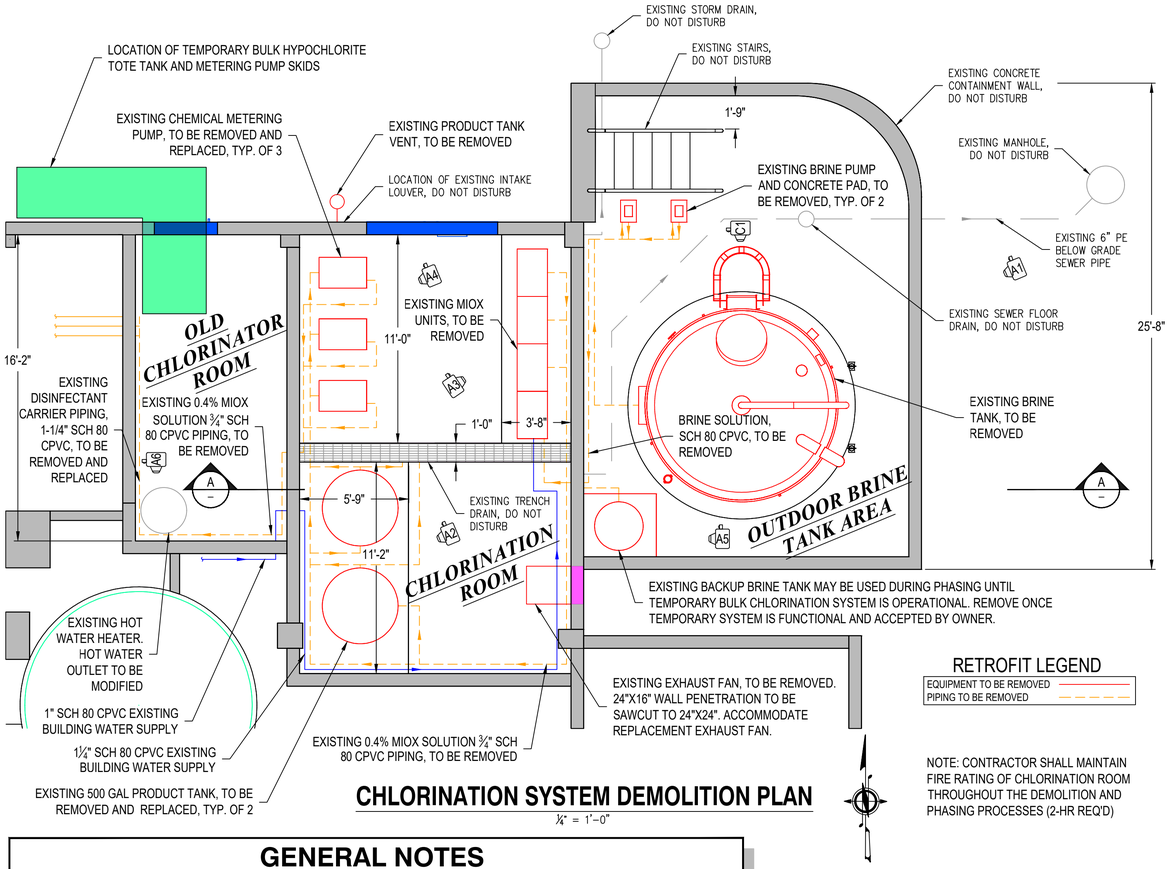
ENGINEER: RJD | SAVE DATE: Aug 21, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO.: 1018-190
REVIEWED: BMS | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-DCOV.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: G01
SHEET NO.: 1 / 24



CHLORINATION SYSTEM DEMOLITION PLAN

¼" = 1'-0"

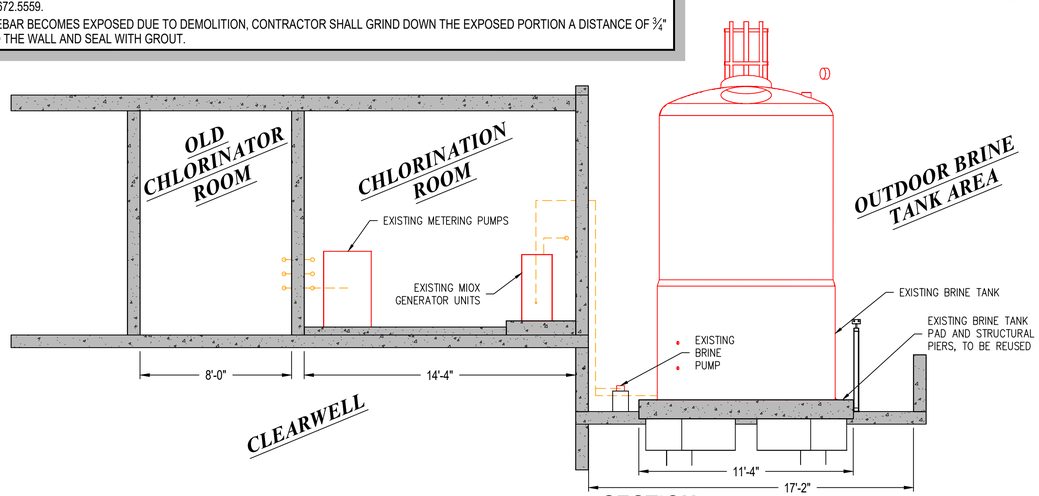
RETROFIT LEGEND

EQUIPMENT TO BE REMOVED
PIPING TO BE REMOVED

NOTE: CONTRACTOR SHALL MAINTAIN FIRE RATING OF CHLORINATION ROOM THROUGHOUT THE DEMOLITION AND PHASING PROCESSES (2-HR REQ'D)

GENERAL NOTES

1. DEMOLITION OF ALL EQUIPMENT, PIPE AND APPURTENANCES IS SHOWN HERE. CONTRACTOR SHALL PERFORM DEMOLITION IN ACCORDANCE WITH THE CHLORINATION IMPROVEMENTS PHASING PLAN. SCHEDULING AND PHASING REQUIREMENTS ARE IN THE SPECIFICATIONS. A CHLORINATION SYSTEM (EXISTING, TEMPORARY, OR PROPOSED) SHALL BE OPERATION AT ALL TIMES.
2. SOME EXISTING EQUIPMENT AND PIPING NOT SHOWN ON THIS DRAWING FOR CLARITY.
3. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO COMPLETING THE WORK.
4. CONTRACTOR SHALL COMPLETELY DISPOSE OF ALL ITEMS, EQUIPMENT, PIPE AND APPURTENANCES THAT ARE SHOWN AS BEING REMOVED/REPLACED IN EACH AREA UNLESS DIRECTED BY THE OWNER OTHERWISE. CONTRACTOR SHALL COORDINATE WITH CITY ON REMOVAL AND HANDLING OF EXISTING MIOX EQUIPMENT, WHICH SHALL BE SALVAGED AND DELIVERED TO UMPQUA BASIN WATER ASSOCIATION, INC. 4972 GARDEN VALLEY ROAD, ROSEBURG OR, 97471. CONTACT BRAD JOHNSON, GENERAL MANAGER, AT 541.672.5559.
5. IF REBAR BECOMES EXPOSED DUE TO DEMOLITION, CONTRACTOR SHALL GRIND DOWN THE EXPOSED PORTION A DISTANCE OF ¾" INTO THE WALL AND SEAL WITH GROUT.



SECTION

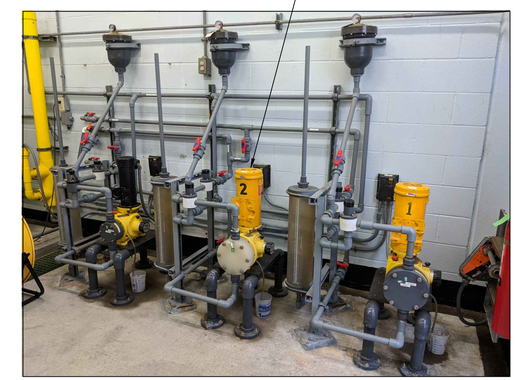
A

¼" = 1'-0"

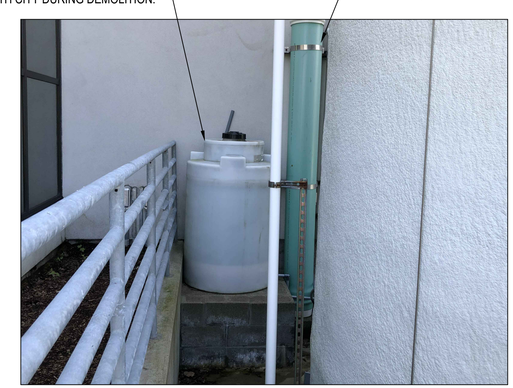
A1 **BRINE TANK**

A2 **MIOX PRODUCT TANKS**

A3 **MIOX GENERATOR UNITS**



A4 **METERING PUMPS**



A5 **BACKUP BRINE TANK**

A6 **HOT WATER TANK**

RH2

REGISTERED PROFESSIONAL ENGINEER 86798 OREGON JUNE 13, 2019 DAN J. MAHLUM

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

EXISTING MECHANICAL AND DEMOLITION PLAN AND PROFILES

ENGINEER: RJD
REVIEWED: BMS
SAVE DATE: Aug 22, 2019
PLOT DATE: Aug 22, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-DM01.DWG
JOB NO.: 1018-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

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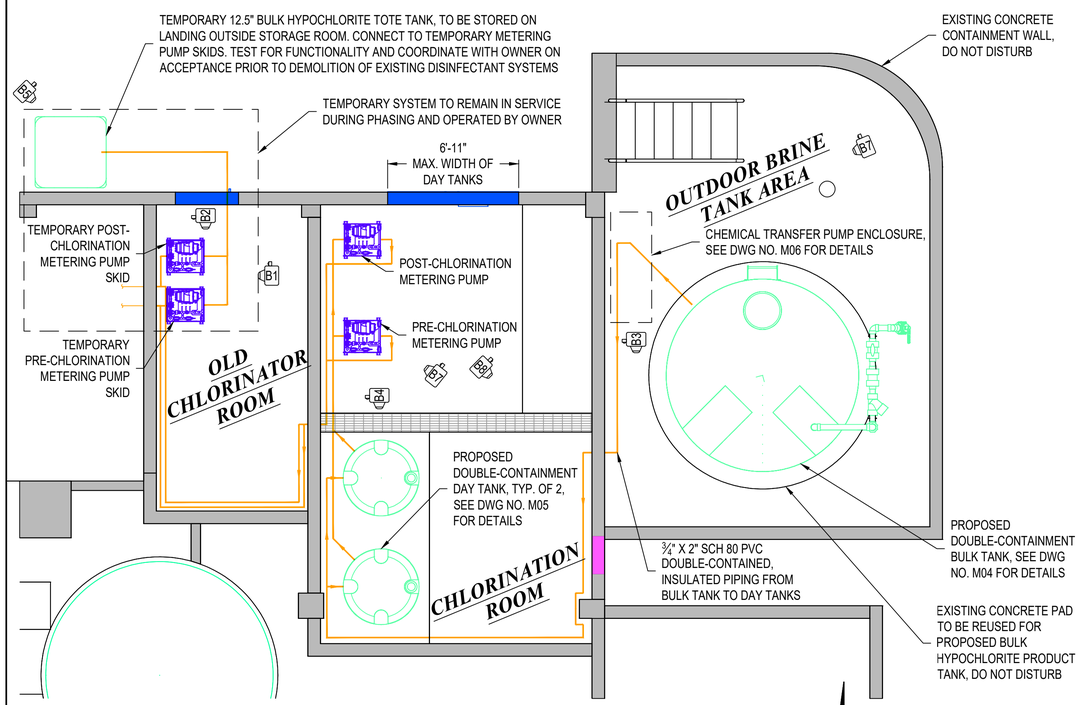
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M01
SHEET NO.: 2 / 24

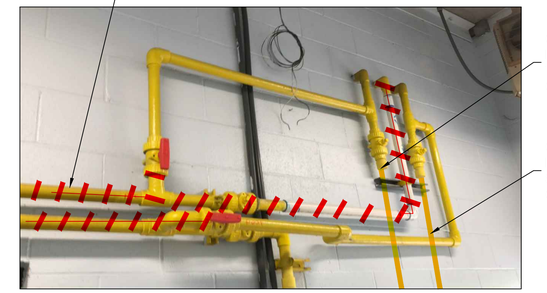


CHLORINATION SYSTEM PHASING PLAN

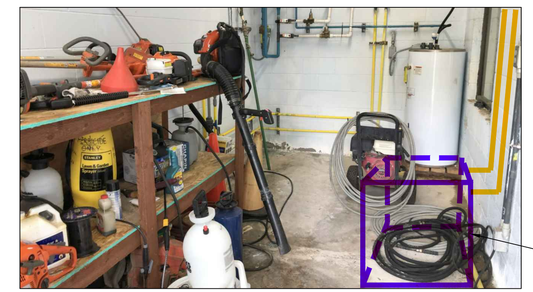
¼" = 1'-0"

PHASING/GENERAL NOTES

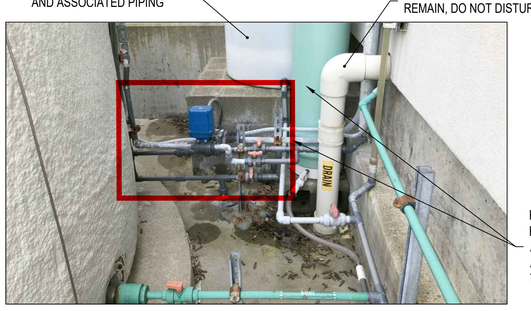
1. INSTALL TEMPORARY BULK HYPO FEED SYSTEM CONSISTING OF TOTE TANK, PRE- AND POST-CHLORINE METERING PUMPS, ASSOCIATED PIPING, ELECTRICAL WIRING AND APPURTENANCES, TEST FOR FUNCTIONALITY AND COORDINATE WITH OWNER FOR ACCEPTANCE.
2. SHUT DOWN EXISTING MIOX GENERATION SYSTEM AND BEGIN DEMOLITION OF ALL SYSTEM COMPONENTS.
3. INSTALL PROPOSED BULK HYPO TANK, DAY TANKS, SECOND SET OF PRE- AND POST-METERING PUMPS, CARRIER WATER LINES, ASSOCIATED PIPING, ELECTRICAL CONDUIT AND WIRING, AND APPURTENANCES. TEST FOR FUNCTIONALITY AND COORDINATE WITH OWNER FOR ACCEPTANCE.
4. REMOVE TEMPORARY BULK HYPO FEED SYSTEM AND RELOCATE PRE- AND POST-CHLORINE METERING PUMPS TO CHLORINATION ROOM TO SERVE AS REDUNDANT PUMPS.
5. ALL ANCHOR BOLTS AND OTHER FASTENERS LEFT FROM REMOVED ITEMS AND EMBEDDED IN EXISTING CONC. OR CMU SHALL BE CUT FLUSH WITH WALL AND GROUND SMOOTH.
6. ALL FITTINGS AND VALVES TO BE RATED FOR 150 PSI SERVICE. ALL VALVES AND FITTINGS SHALL BE SOCKET WELDED. FLANGED FITTINGS ARE ACCEPTABLE IF SOCKET CONNECTIONS ARE NOT AVAILABLE.
7. ALL PLASTIC PIPE AND FITTINGS TO BE SCH 80 CPVC SOLVENT WELD. INSTALLATION SHALL FOLLOW MANUFACTURER'S RECOMMENDATIONS AND SHALL INCLUDE PRIMER AND SOLVENT CEMENT.
8. CONTRACTOR SHALL PROVIDE FITTINGS NECESSARY TO TRANSITION BETWEEN DIFFERENT PIPE MATERIALS AND SIZES.
9. LABEL ALL PIPE WITH FLOW DIRECTION AND FLUID TYPE.
10. THE CONTRACTOR SHALL PROVIDE ALL FITTINGS NECESSARY TO TRANSITION AND CONNECT EQUIPMENT AND PIPE, AND SHALL ROUTE PIPE IN A NEAT MANNER SUCH THAT THEY ARE PARALLEL AND PERPENDICULAR TO THE WALLS, FLOOR, AND CEILING.
11. NO ELECTRICAL CONDUIT, J-BOXES, OR WATER SUPPLY LINES SHALL BE LOCATED BELOW THE VALVE BOARDS.
12. CONTRACTOR SHALL PROVIDE ALL NECESSARY SUPPORTS TO INSTALL PROCESS PIPING IN A RIGID, NON-SAGGING MANNER. ALL SUPPORTS SHALL NOT HAVE METAL PIECES IN CONTACT WITH PROCESS PIPING.



B1 TEMPORARY HYPO CONNECTION TO EXISTING CHLORINE FEED SYSTEM



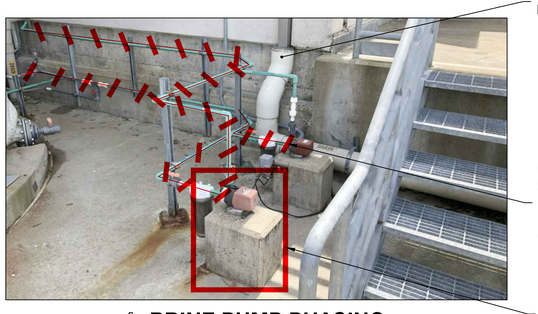
B2 TEMPORARY HYPO FEED SYSTEM METERING PUMP LOCATION



B3 BRINE TANK PHASING LOCATION

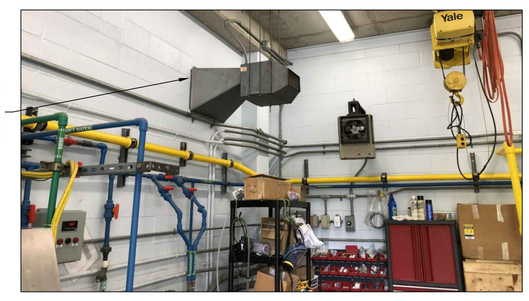
B4 MIOX PRODUCT TANK PHASING LOCATION

B5 TEMPORARY HYPO FEED SYSTEM TOTE TANK LOCATION



B6 BRINE PUMP PHASING LOCATION

B7 EXISTING METERING PUMP PHASING LOCATION



B8 EXISTING CHLORINATION ROOM EXHAUST FAN

RH2

REGISTERED PROFESSIONAL ENGINEER 86798 OREGON JUNE 13, 2012 DAN J. MAHLUM

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

PHASING PLAN

ENGINEER: RJD | SAVE DATE: Aug 21, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO.: 1018-190
REVIEWED: BMS | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-D-M02.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

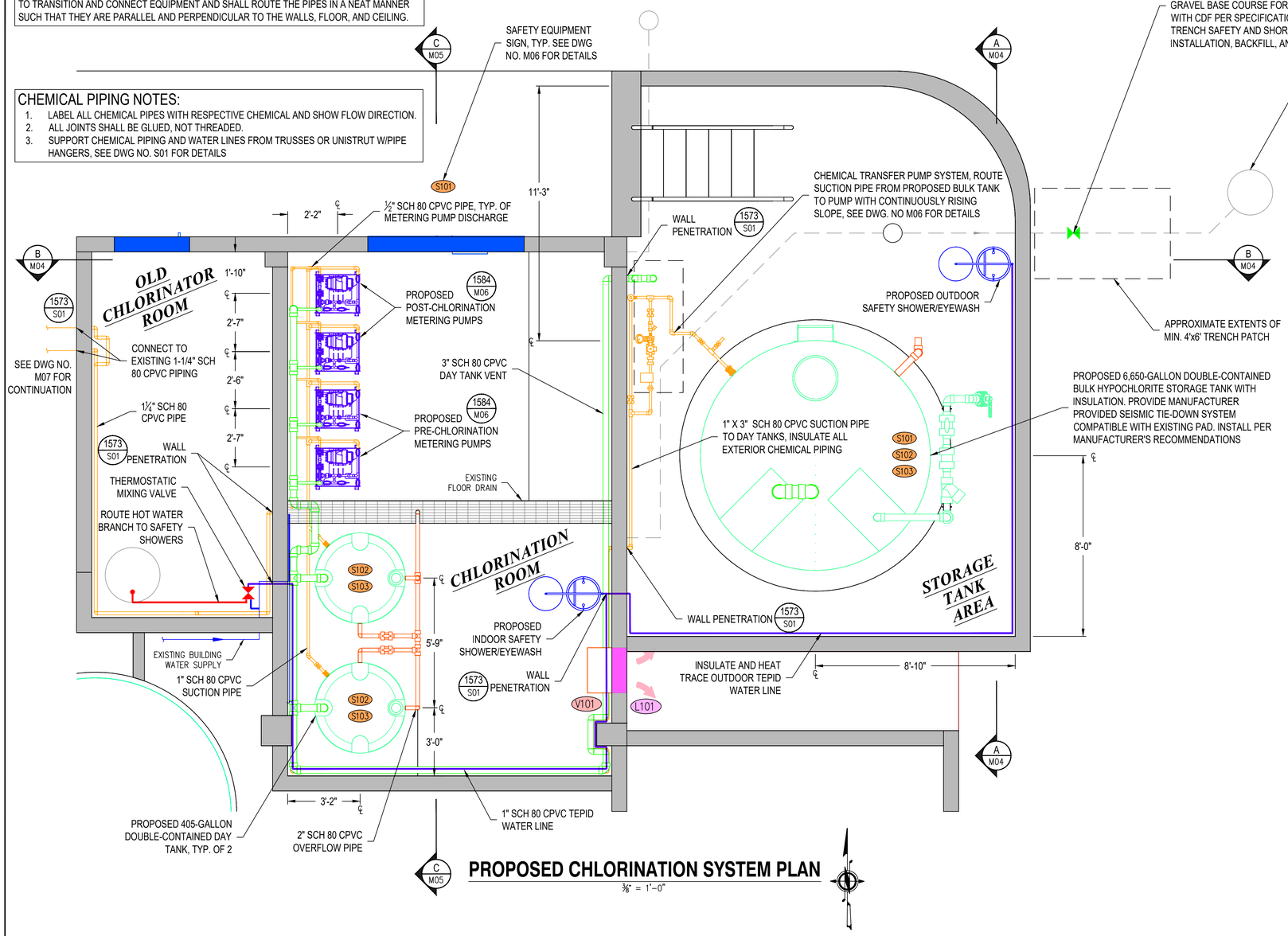
DWG NO.: M02 | SHEET NO.: 3 / 24

GENERAL NOTES:

THIS DRAWING IS SCHEMATIC. THE CONTRACTOR SHALL PROVIDE ALL FITTINGS NECESSARY TO TRANSITION AND CONNECT EQUIPMENT AND SHALL ROUTE THE PIPES IN A NEAT MANNER SUCH THAT THEY ARE PARALLEL AND PERPENDICULAR TO THE WALLS, FLOOR, AND CEILING.

CHEMICAL PIPING NOTES:

1. LABEL ALL CHEMICAL PIPES WITH RESPECTIVE CHEMICAL AND SHOW FLOW DIRECTION.
2. ALL JOINTS SHALL BE GLUED, NOT THREADED.
3. SUPPORT CHEMICAL PIPING AND WATER LINES FROM TRUSSES OR UNISTRUT W/PIPE HANGERS, SEE DWG NO. S01 FOR DETAILS

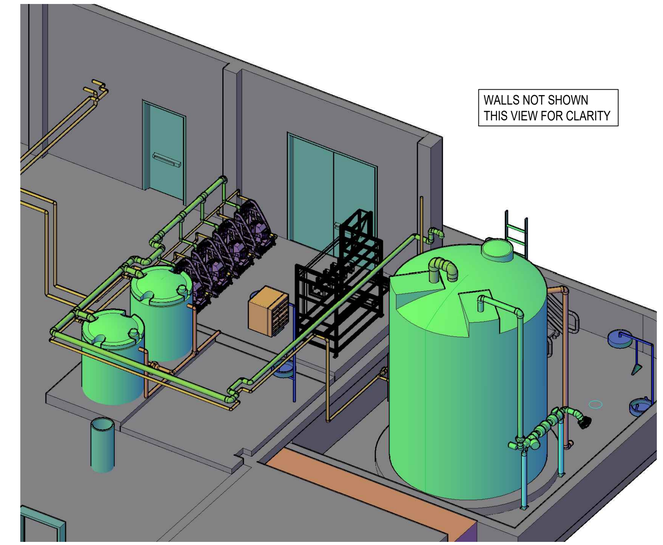


PROPOSED CHLORINATION SYSTEM PLAN

⅜" = 1'-0"

INSTALL 6" DI RESILIENT WEDGE GATE VALVE WITH MANUALLY OPERABLE NUT OPERATOR AND CAST IRON VALVE BOX. VALVE TO REMAIN OPEN UNDER NORMAL CONDITIONS. CUT EXISTING 6" PE PIPE AND INSTALL UNIONS AND ADAPTERS AS NECESSARY FOR A COMPLETE AND FUNCTIONAL SYSTEM. SAWCUT EXISTING 4" DEPTH OF ASPHALT CONCRETE PAVEMENT AND EXCAVATE APPROXIMATELY 8-FEET DEEP FOR PROPOSED PIPE MODIFICATIONS. PROVIDE GRAVEL BASE COURSE FOR FOUNDATION MATERIAL COMPACTED TO FIRM AND UNYIELDING CONDITION. PROVIDE PIPE BEDDING AND TRENCH BACKFILL WITH CDF PER SPECIFICATIONS. PROVIDE ASPHALT TRENCH PATCH TO RESTORE AREA TO EXISTING OR BETTER CONDITIONS. CONTRACTOR TO PROVIDE TRENCH SAFETY AND SHORING AS REQUIRED FOR SAFETY AND TO PROTECT ADJACENT STRUCTURES. CONTRACTOR SHALL COMPLETE EXCAVATION, INSTALLATION, BACKFILL, AND PAVEMENT RESTORATION PROCESS WITHIN TWO WORKING DAYS.

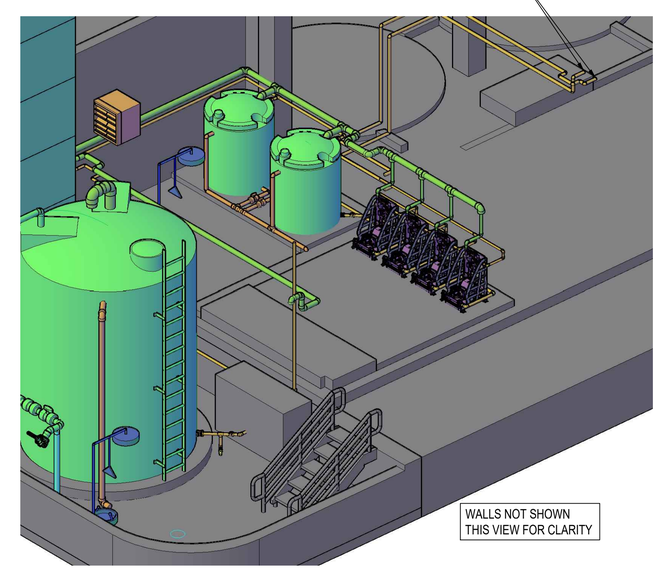
EXISTING MANHOLE, APPROX. DEPTH 8'-6". APPROX. DEPTH 7'-6" TO INVERT FROM PIPE IN BULK CONTAINMENT AREA. CONTRACTOR SHALL POTHOLE TO VERIFY DEPTH OF PIPE WHEN INSTALLING MANUALLY OPERABLE VALVE



PROPOSED BULK HYPO FEED SYSTEM NW OBLIQUE

NOT TO SCALE

CONNECT TO CARRIER WATER PIPING, SEE DWG. NO. M07 FOR CONTINUATION



PROPOSED BULK HYPO FEED SYSTEM SW OBLIQUE

NOT TO SCALE

VENTILATOR SCHEDULE

No.	Description	Air Direction	Fan Type	Airflow (CFM)	SP (Inch WG)	Manufacturer	Model Number	Motor HP	Enclosure	Voltage	Notes
V101	CHLORINATION ROOM	EXHAUST	WALL	798	0.25	GREENHECK	SE1-12-432-G	1/12	TEFC	120V, 1 PHASE	PROVIDE CORROSION RESISTANT FAN WITH MOTOR-SIDE GUARD

LOUVER AND DAMPER SCHEDULE

No.	Description	Air Direction	Manufacturer	Louver Model No.	Size	Damper Model No.	Notes
L101	CHLORINATION ROOM	EXHAUST	POTTORFF	EFD-445	24"x24"	CD52	PROVIDE LOUVER WITH 18" LONG SLEEVE TO ACCOMMODATE DAMPERS, PROVIDE FIRE DAMPER

HVAC NOTE: CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ASBUILTS AND FIELD CONDITIONS, AND DEVELOPING SHOP DRAWINGS AS NECESSARY TO INSTALL THE PROPOSED WALL VENTILATOR.

RH2

REGISTERED PROFESSIONAL ENGINEER 86798 OREGON JUNE 13, 2019 DAN J. MAHLUM

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

PROPOSED MECHANICAL PLAN AND PROFILES

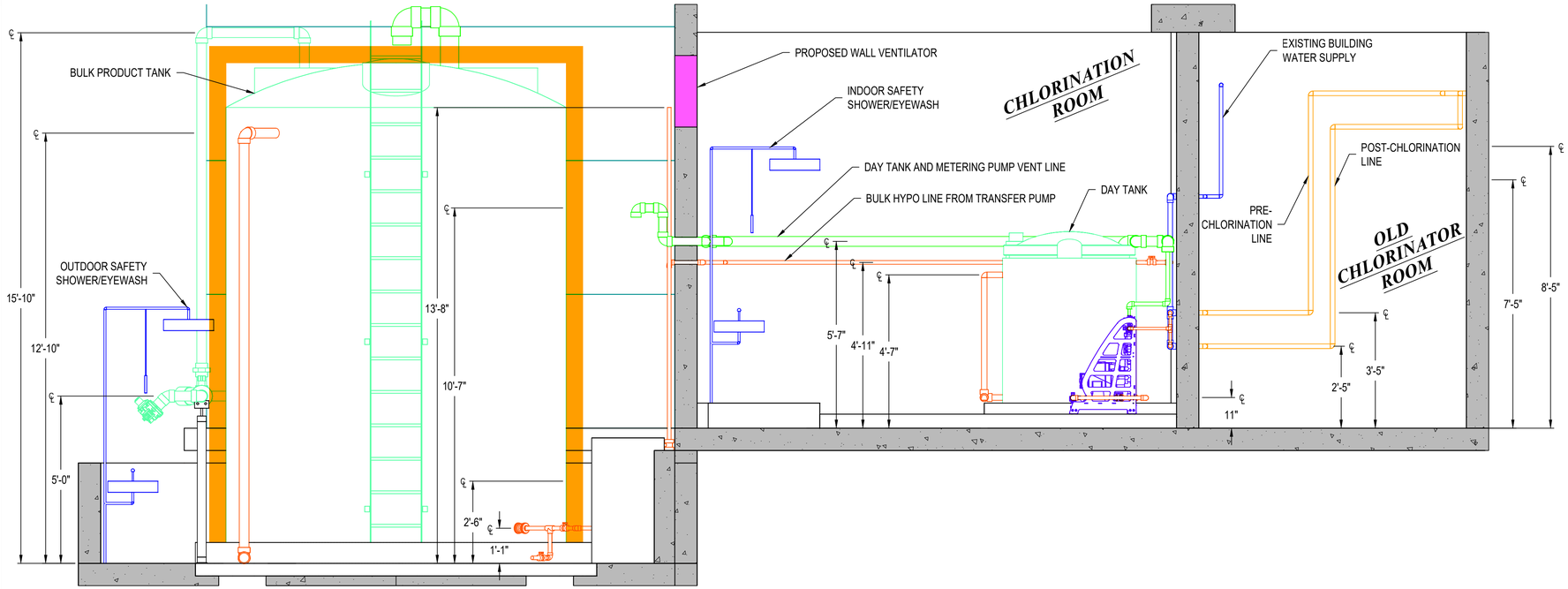
ENGINEER: RJD | SAVE DATE: Aug 21, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO.: 1018-190
REVIEWED: BMS | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-D-M03.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

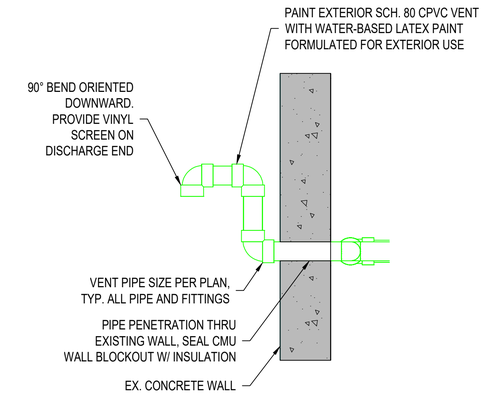
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M03
SHEET NO.: 4 / 24

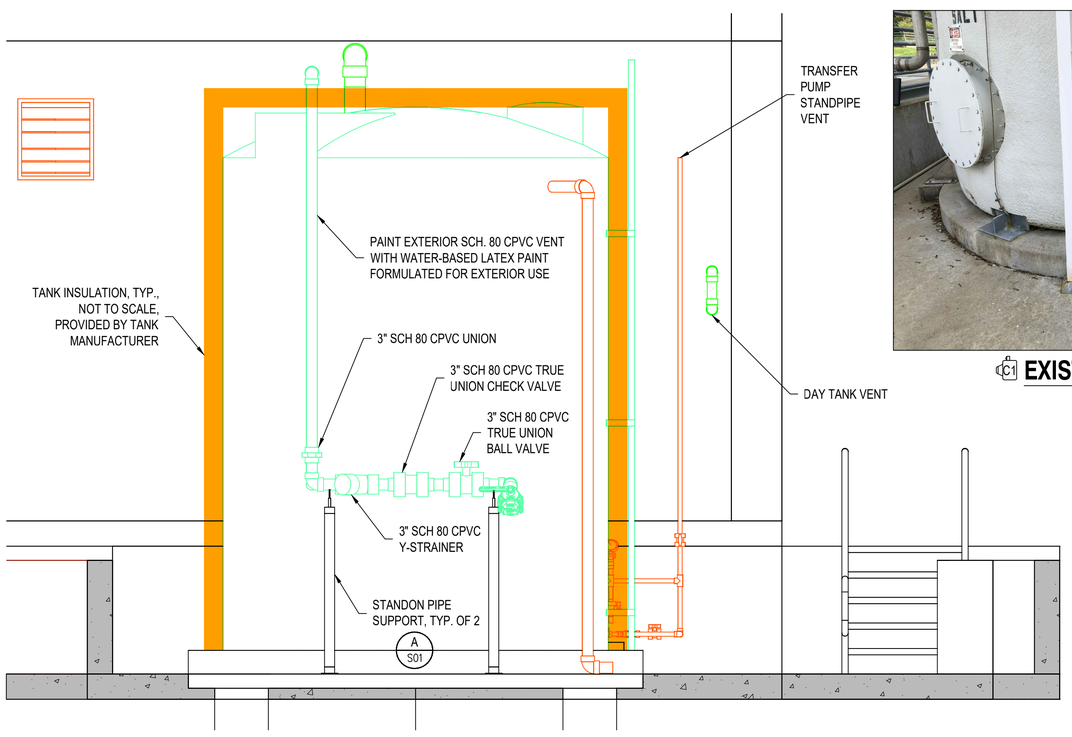


B M04 **BULK AND DAY TANK SECTION**
½" = 1'-0"

GENERAL NOTE: COAT ALL EXTERIOR PIPE SUPPORTS WITH SYSTEM COMPATIBLE WITH 12.5% SODIUM HYPOCHLORITE



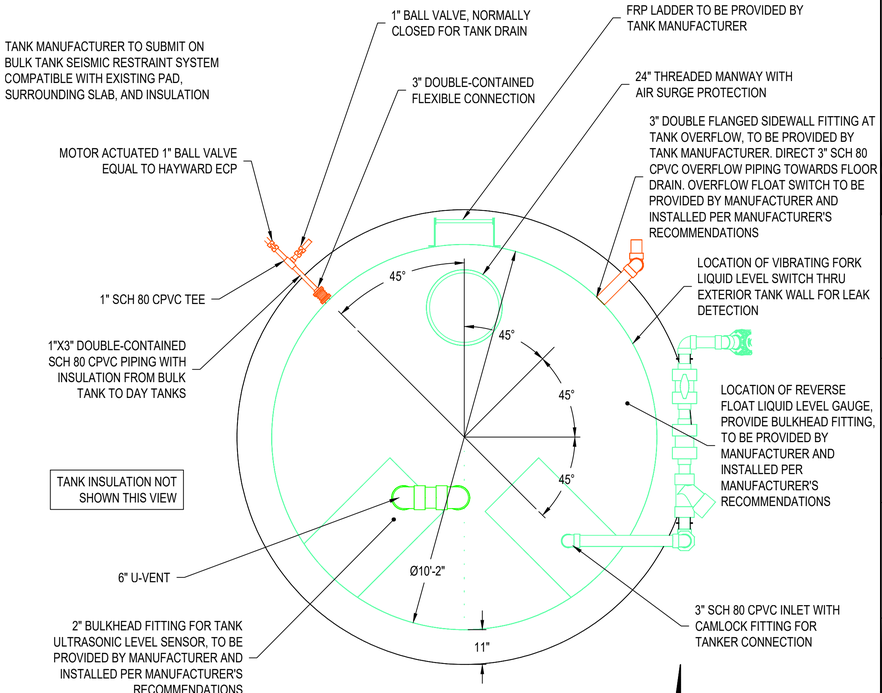
DAY TANK VENT DISCHARGE DETAIL
1" = 1'-0"



A M04 **BULK TANK SECTION**
½" = 1'-0"

C1 **EXISTING TANK PAD**

TANK MANUFACTURER TO SUBMIT ON BULK TANK SEISMIC RESTRAINT SYSTEM COMPATIBLE WITH EXISTING PAD, SURROUNDING SLAB, AND INSULATION



BULK HYPOCHLORITE STORAGE TANK PLAN
½" = 1'-0"

RH2

REGISTERED PROFESSIONAL ENGINEER 86798 OREGON JUNE 13, 2019 DAN J. MAHLUM
EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

BULK TANK PLAN AND DETAILS

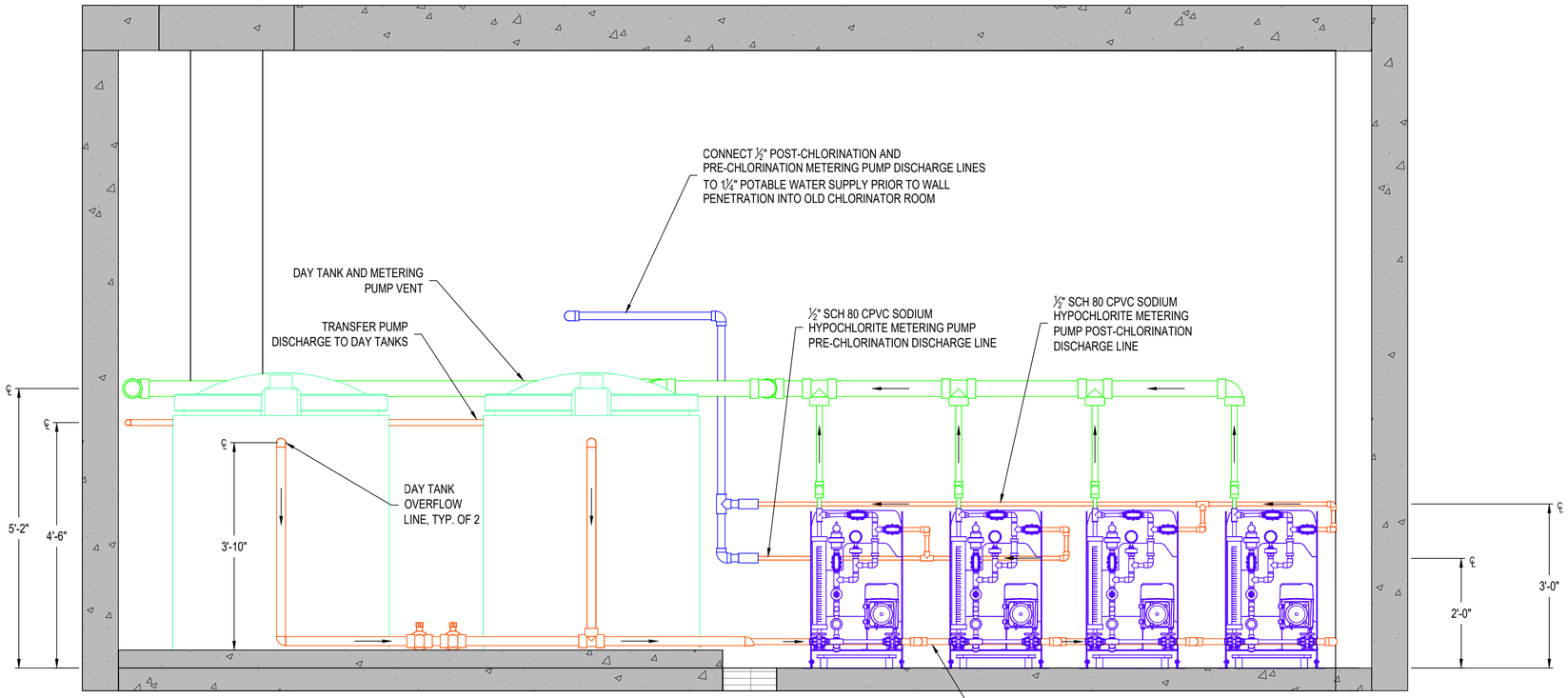
ENGINEER: RJD | SAVE DATE: Aug 21, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO.: 1018-190
REVIEWER: BMS | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-D-M05.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

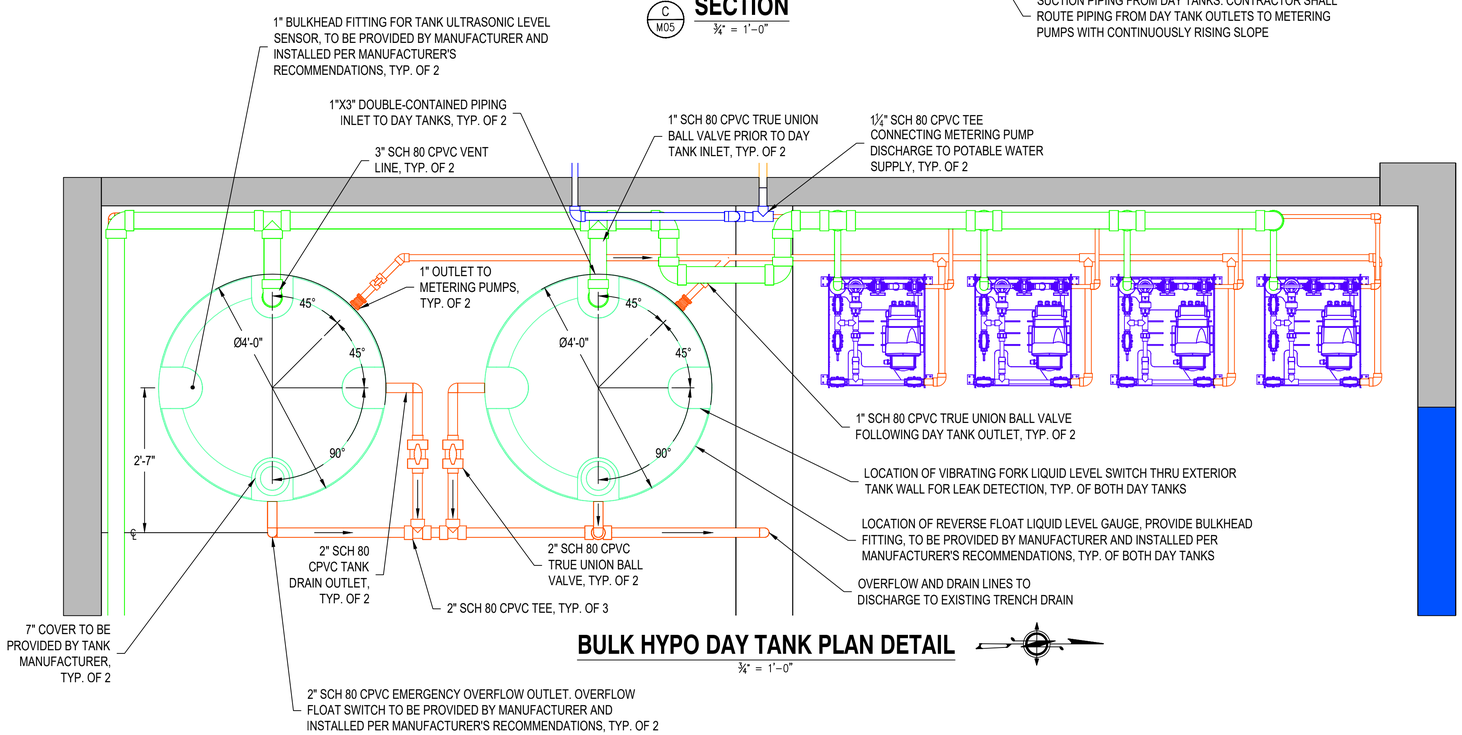
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M04
SHEET NO.: 5 / 24



SUCTION PIPING FROM DAY TANKS. CONTRACTOR SHALL ROUTE PIPING FROM DAY TANK OUTLETS TO METERING PUMPS WITH CONTINUOUSLY RISING SLOPE

C / M05 **SECTION**
¾" = 1'-0"



BULK HYPO DAY TANK PLAN DETAIL
¾" = 1'-0"

RH2

REGISTERED PROFESSIONAL ENGINEER 86798 OREGON JUNE 13, 2012 DAN J. MAHLUM
EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

DAY TANKS PLAN AND DETAILS

ENGINEER: RJD | SAVE DATE: Aug 19, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO.: 1018-180
REVIEWED: BMS | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-DM06.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M05
SHEET NO.: 6 / 24

GENERAL MECHANICAL NOTES

1. CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT, MATERIALS, LABOR, AND EXPERTISE TO CONSTRUCT MAJOR AND MINOR PIPING SYSTEMS ACCORDING TO APPLICABLE CODES, STANDARDS, AND MANUFACTURER'S RECOMMENDATIONS.
2. CONTRACTOR SHALL CONFORM TO PIPE ROUTING AND ARRANGEMENT AS CLOSELY AS POSSIBLE. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL PIPING DIMENSIONS. CONTRACTOR SHALL PREPARE AND SUBMIT DETAILED DIMENSIONAL DRAWINGS BASED ON APPROVED EQUIPMENT AND PIPING SYSTEMS.
3. FITTINGS AND/OR PIPING THAT MAY BE REQUIRED IN ORDER TO OPERATE SOME MINOR MECHANICAL SYSTEMS, INSTRUMENTATION, AND EQUIPMENT MAY NOT BE SHOWN IN THE PLANS. THE CONTRACTOR SHALL PROVIDE FITTINGS AND PIPING AS NECESSARY TO HAVE A COMPLETE AND FUNCTIONAL SYSTEM.
4. CONTRACTOR SHALL CONNECT EQUIPMENT, VALVES, METERS, AND OTHER SIMILAR FITTINGS TO PIPING SYSTEM SUCH THAT IT CAN BE READILY DISASSEMBLED FOR MAINTENANCE OF THE EQUIPMENT. THIS MAY REQUIRE PROVIDING ADDITIONAL FITTINGS OR SUPPORTS NOT SHOWN IN THE PLANS.
5. NOT ALL PIPE SUPPORTS ARE SHOWN IN THE PLANS. CONTRACTOR SHALL PROVIDE AND INSTALL PIPE SUPPORTS AS NECESSARY TO PROVIDE A RIGID, SECURE, NON-SAGGING SYSTEM. ALL PIPE SUPPORTS SHALL BE STAINLESS STEEL, SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
6. ALL PVC FITTINGS SHALL BE SOCKET END-TYPE FITTINGS UNLESS OTHERWISE NOTED.
7. ALL VALVES SHALL BE REMOVABLE WITHOUT HAVING TO CUT PIPE (I.E. FLANGED OR TRUE UNION)
8. CONTRACTOR SHALL INSTALL AND MOUNT ALL EQUIPMENT AND TANKS PER MANUFACTURER'S RECOMMENDATIONS, THE REQUIREMENTS IN THE SPECIFICATIONS FOR SEISMIC RESTRAINT, AND THE FOLLOWING REQUIREMENTS. EQUIPMENT AND TANKS MOUNTED ON FLOORS THAT SLOPE SHALL BE LEVELED WITH STEEL SHIMS AND SHALL BE FINISHED GROUTED TO FILL ALL VOIDS CAUSED BY THE FLOOR SLOPE.
9. ALL FITTINGS SHALL BE SOCKET WELDED. FLANGED FITTINGS ARE ACCEPTABLE IF SOCKET CONNECTIONS ARE NOT AVAILABLE.
10. ALL SOCKET STYLE PVC PIPE AND FITTINGS TO BE SOLVENT WELD. INSTALLATION SHALL FOLLOW MANUFACTURER'S RECOMMENDATIONS AND SHALL INCLUDE PRIMER AND SOLVENT CEMENT EQUAL TO IPS WELD-ON P-70 AND 724 RESPECTIVELY.
11. CONTRACTOR SHALL PROVIDE FITTINGS NECESSARY TO TRANSITION BETWEEN DIFFERENT PIPE MATERIALS AND SIZES.
12. LABEL ALL VALVES, CONTROLS AND MONITORING EQUIPMENT WITH ACRYLIC MARKERS. LABEL ALL PIPE WITH PIPER MARKERS PER 1501/M06
13. THE CONTRACTOR SHALL PROVIDE ALL FITTINGS NECESSARY TO TRANSITION AND CONNECT EQUIPMENT AND PIPE, AND SHALL ROUTE PIPE IN A NEAT MANNER SUCH THAT THEY ARE PARALLEL AND PERPENDICULAR TO THE WALLS, FLOOR, AND CEILING.
14. NO ELECTRICAL CONDUIT, J-BOXES, OR WATER SUPPLY LINES SHALL BE LOCATED BELOW THE VALVE BOARD.
15. CONTRACTOR SHALL PROVIDE ALL NECESSARY SUPPORTS TO INSTALL PROCESS PIPING IN A RIGID, NON-SAGGING MANNER. NO SUPPORTS SHALL HAVE METAL PIECES IN CONTACT WITH PROCESS PIPING.
16. ALL VALVES, METERS, HYDRANTS, SPECIALTIES, APPURTENANCES, AND OTHER SUCH MECHANICAL AND PLUMBING COMPONENTS THAT ARE OF SIMILAR PURPOSE SHALL BE OF A SINGLE MANUFACTURER AND MODEL LINE. DO NOT "MIX AND MATCH" UNLESS SPECIFICALLY STATED OTHERWISE OR ALLOWED BY THE ENGINEER. THE INTENTION OF THIS REQUIREMENT IS TO MAINTAIN CONSISTENCY ACROSS ALL COMPONENTS INSTALLED ON THE PROJECT FOR FUNCTION, MAINTENANCE, AESTHETICS, AND DETAILS OF INSTALLATION.

CHEMICAL DANGER SIGNS SCHEDULE

NO.	CHEMICAL	SIGN TYPE	MANUF. - MODEL	DIMENSIONS	REMARKS
S101	SODIUM HYPOCHLORITE	NFPA 704	SETON – STYLE NO. M8845	15" X 15"	SIGN TO BE CORROSION AND UV RESISTANT. BUILDING INTERIOR AND EXTERIOR INSTALLATION.
S102	SODIUM HYPOCHLORITE	CHEMICAL IDENTIFICATION SIGN	SETON – STYLE NO. M3596	7"W X 10"H	SIGN TO BE CORROSION RESISTANT. BUILDING INTERIOR AND EXTERIOR INSTALLATION.
S103	SODIUM HYPOCHLORITE	DANGER HAZARDOUS CHEMICAL	SETON – STYLE NO. M2367	10"W X 7"H	SIGN TO BE CORROSION RESISTANT. BUILDING INTERIOR AND EXTERIOR INSTALLATION.

NFPA 704 SIGN

S101

CHEMICAL IDENTIFICATION SIGN

S102

S103

CHEMICAL PIPE MARKERS

FLUID TYPE	MANUF. - MODEL	REMARKS
SODIUM HYPOCHLORITE	SETON – STYLE NO. M0275	FLOW ARROW TO BE INCLUDED
VENT	SETON – STYLE NO. M0287	FLOW ARROW TO BE INCLUDED

*ADDITIONAL PIPE MARKERS SHALL BE PROVIDED FOR DWV AND PLUMBING AND WHERE REQUIRED BY CODE.

PIPE MARKERS AND DANGER SIGNS (1501 TYP.)

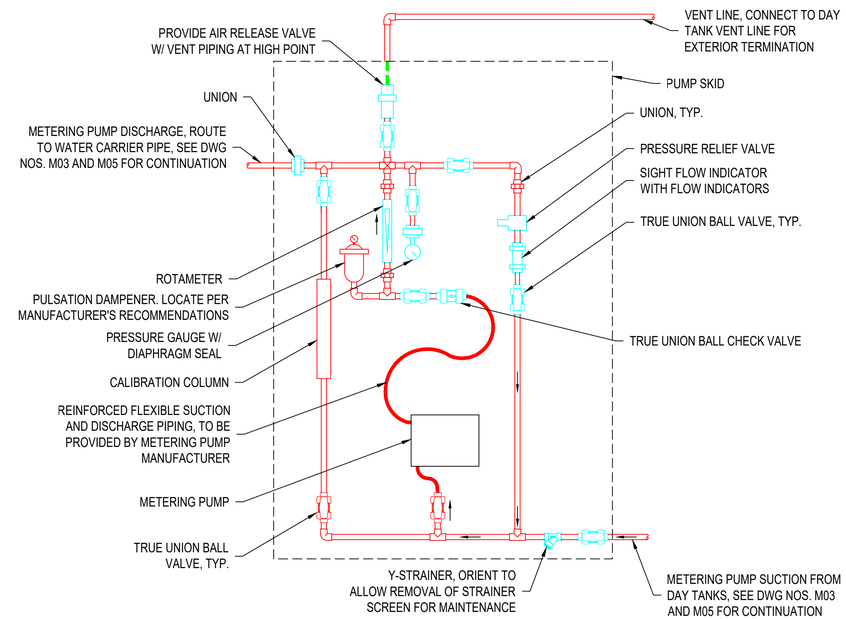
NOT TO SCALE

VALVE BOARD NOTES:

1.) CONSTRUCT EACH VALVE BOARD ACCORDING TO THE FOLLOWING REQUIREMENTS:

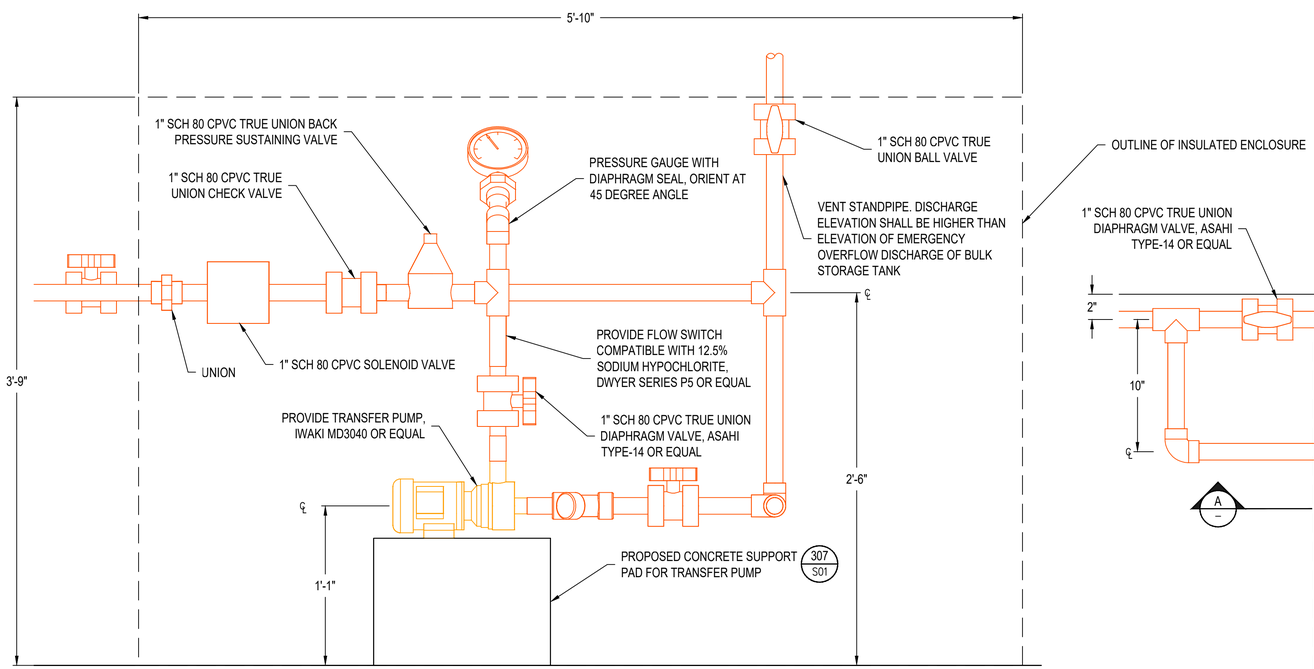
FEED SYSTEM	PIPE/FITTING DIAMETER	MATERIALS	PRESSURE RATING	FLUSHING CONNECTION	Y-STRAINER	PULSATION DAMPENER	CALIBRATION COLUMN SIZE
A. SODIUM HYPOCHLORITE	½"	SCH 80 CPVC	150 PSI	NO	YES	10 CUBIC INCH	1,000 ML

2.) METERING PUMP SHALL BE ORIENTED SO THAT PUMP HEAD IS EASILY ACCESSIBLE AND CONTROLS ARE FACING OUT TOWARD THE OPERATOR.
3.) METERING PUMP AND ASSOCIATED VALVES, PIPING AND ACCESSORIES SHALL BE INSTALLED WITHIN AN ENCLOSURE TO CONTAIN ALL POTENTIAL LEAKS. ENCLOSURE SHALL BE POLYPROPYLENE OR OTHER ENGINEER APPROVED MATERIAL. ALL HARDWARE SHALL BE SST. ENCLOSURE SHALL HAVE A MAXIMUM DEPTH OF 20". ENCLOSURES WITH SLIMMER PROFILES MINIMIZING DEPTH ARE PREFERRED.
4.) SEE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.
5.) POLYPROPYLENE TRAY SHALL BE LOCATED UNDERNEATH THE HEAD OF EACH METERING PUMP TO CONTAIN LEAKS
6.) DETAIL AS SHOWN IS SCHEMATIC. CONTRACTOR SHALL PROVIDE DETAILED SUBMITTAL INFORMATION SHOWING CHEMICAL COMPATIBILITY, SERVICE RATING, AND INCLUDE ALL NECESSARY TRANSITION FITTINGS AS NEEDED. SEE SPECIFICATIONS FOR ADDITIONAL CHEMICAL SYSTEM REQUIREMENTS



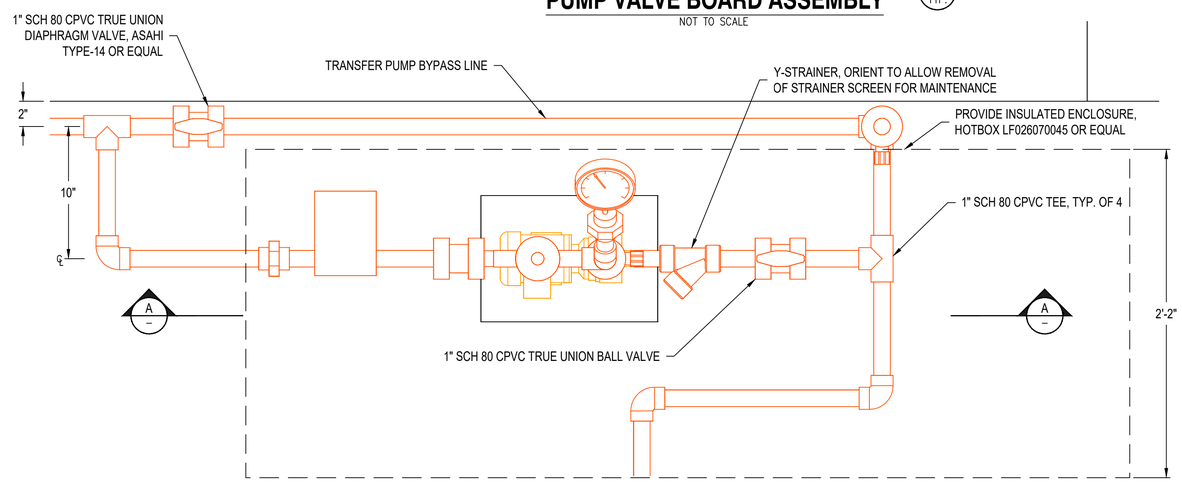
SODIUM HYPOCHLORIDE METERING PUMP VALVE BOARD ASSEMBLY (1584 TYP.)

NOT TO SCALE



(A) TRANSFER PUMP MECHANICAL PROFILE

1" = 6"



TRANSFER PUMP MECHANICAL PLAN

1" = 6"

RH2

REGISTERED PROFESSIONAL ENGINEER 86798 OREGON JUNE 13, 2012 DAN J. MAHLUM

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

MECHANICAL SECTIONS AND DETAILS

ENGINEER: RJD
REVIEWED: BMS
SAVE DATE: Aug 21, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-O-M07.DWG
JOB NO.: 1018-190

REVISIONS

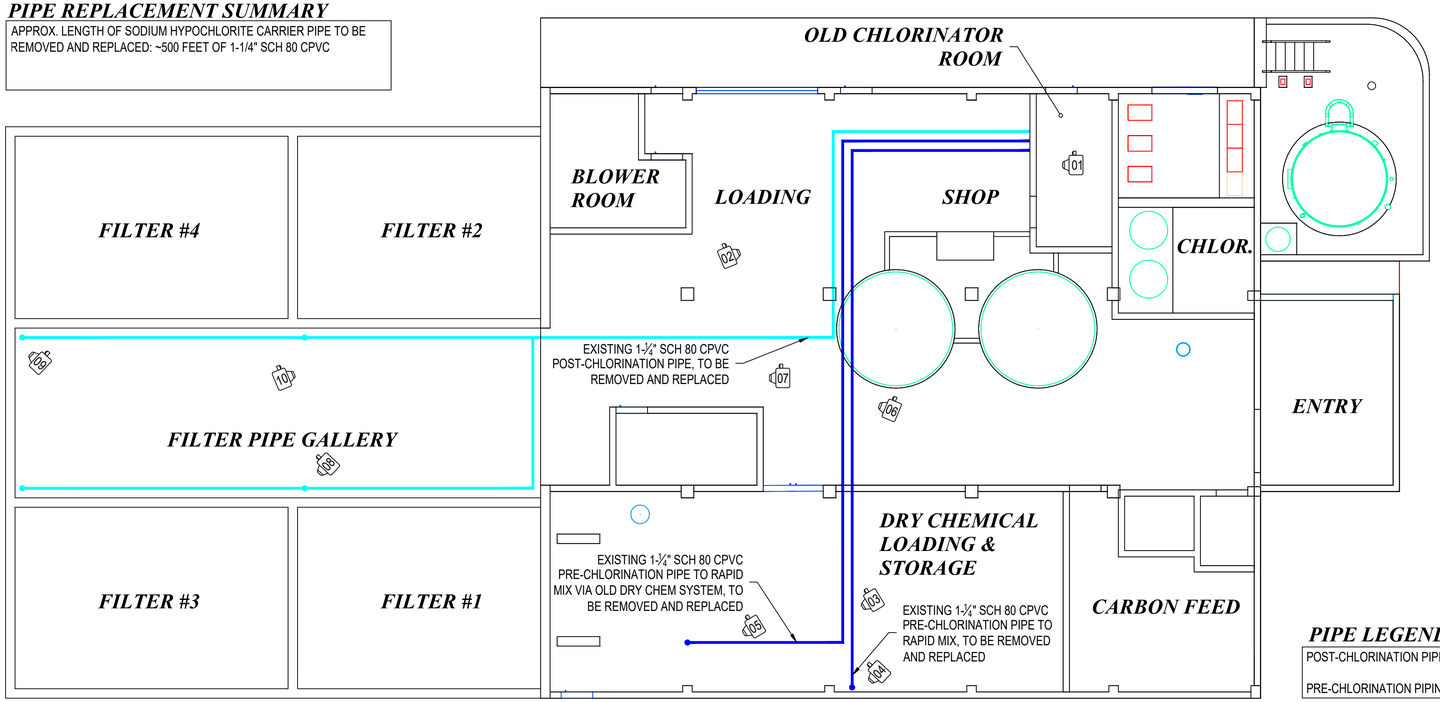
NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M06
SHEET NO.: 7 / 24

PIPE REPLACEMENT SUMMARY

APPROX. LENGTH OF SODIUM HYPOCHLORITE CARRIER PIPE TO BE REMOVED AND REPLACED: ~500 FEET OF 1-1/4" SCH 80 CPVC

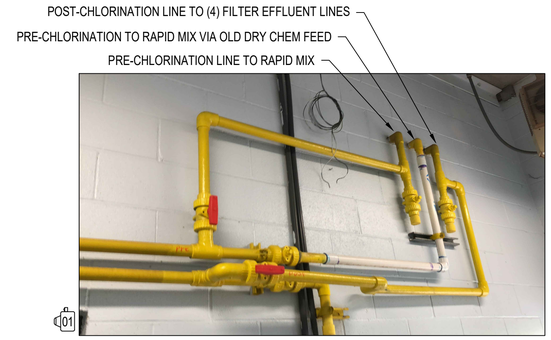


PIPE LEGEND

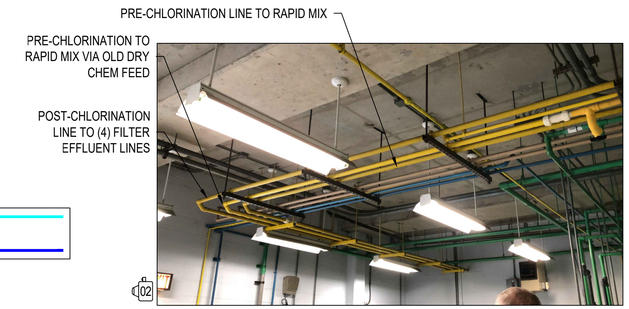
- POST-CHLORINATION PIPING
- PRE-CHLORINATION PIPING

CARRIER PIPE REPLACEMENT PLAN
WTP FIRST FLOOR

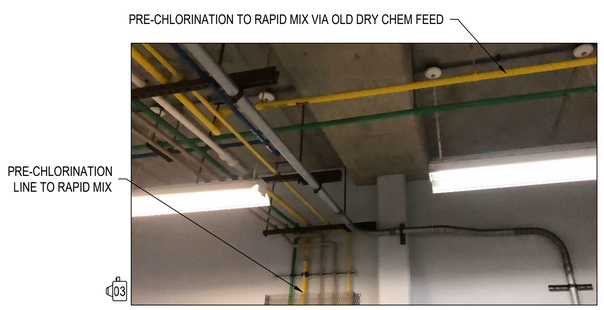
⅛" = 1'-0"



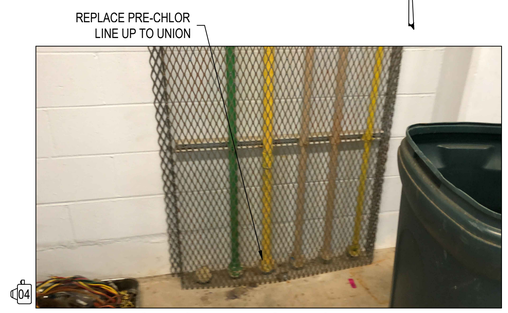
CARRIER WATER PIPE WALL PENETRATION WITHIN CHLORINATOR ROOM



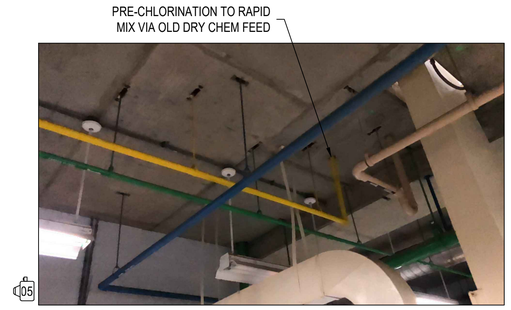
CARRIER WATER PIPE IN SHOP FROM OLD CHLORINATOR ROOM



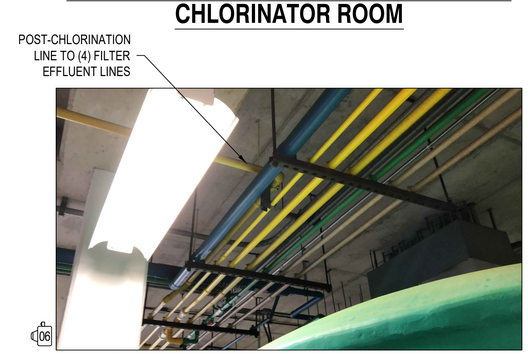
PRE-CHLORINATION TO RAPID MIX VIA OLD DRY CHEM FEED SYSTEM



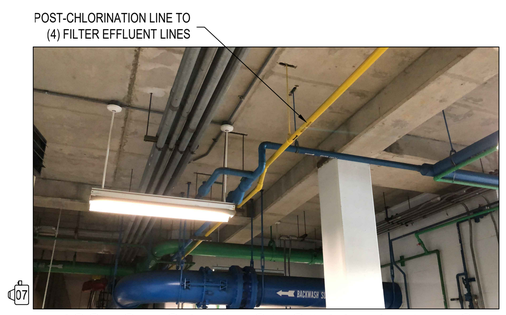
PRE-CHLORINATION TO RAPID MIX



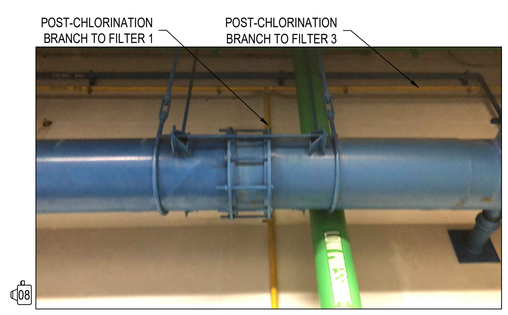
PRE-CHLORINATION TO RAPID MIX VIA OLD DRY CHEM FEED SYSTEM



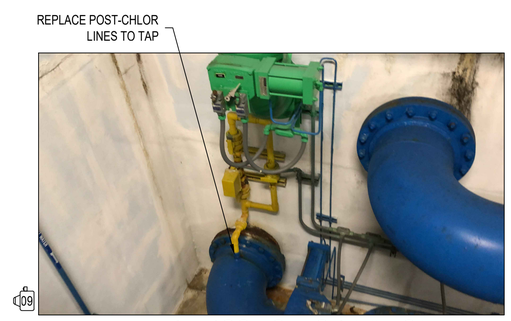
POST-CHLORINATION CARRIER LINE TO FILTER EFFLUENT PIPES



POST-CHLORINATION CARRIER LINE TO SPLIT INTO (4) EFFLUENT INJECTION LINES



POST-CHLORINATION BRANCH TO FILTERS 1 AND 3



FILTER 4 POST-CHLORINATION INJECTION

FILTER 2 POST-CHLORINATION INJECTION

RH2

REGISTERED PROFESSIONAL ENGINEER 86798 OREGON JUNE 13, 2012 DAN J. MAHLUM

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

CARRIER PIPE PHASING PLAN

ENGINEER: RJD | SAVE DATE: Aug 19, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO.: 1018-190
REVIEWED: BMS | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-D-M10.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

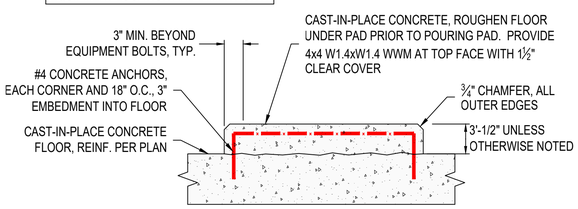
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M07 | SHEET NO.: 8 / 24

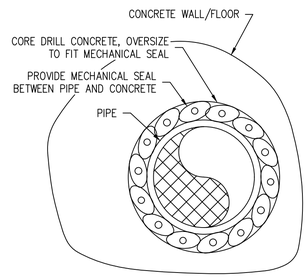
NOTE: SEE MECHANICAL DRAWINGS FOR EQUIPMENT LOCATION AND DIMENSIONS.



EQUIPMENT PAD (307 / S01)

1" = 1'-0"

TYPICAL USAGE: WALL PENETRATIONS LOCATED AT NON-WATER BEARING STRUCTURES AND VAULTS. FLOOR PENETRATION AS SPECIFIED OR WITH ENGINEER APPROVAL.



TYPE 1

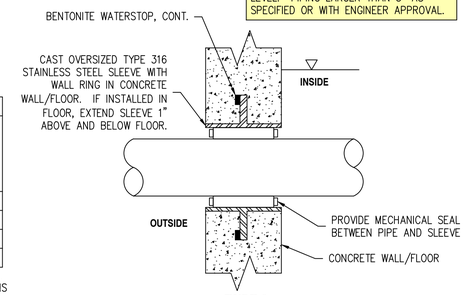
LINKSEAL MODEL	APPLICATION: DIRECT BURY	WATER	WASTE WATER	CHEMICAL	AIR
MODEL "C"	X	X			
MODEL "L"	X	X			
MODEL "S-316"			X	X	
MODEL "T"					X

* CONTRACTOR SHALL VERIFY LINKSEAL SUITABILITY FOR CHEMICAL APPLICATIONS WITH MANUFACTURER.

MECHANICAL SEALS SHALL BE LINKSEAL OR APPROVED EQUAL. MECHANICAL SEALS SHALL BE SELECTED BASED ON THE APPLICATION.

APPLICATION MATRIX

TYPICAL USAGE: WALL PENETRATIONS ABOVE THE NORMAL WATER LEVEL AT WATER BEARING STRUCTURES. MAY ALSO BE USED FOR PIPE PENETRATIONS 3" AND SMALLER BELOW THE NORMAL WATER LEVEL. PIPING LARGER THAN 3" AS SPECIFIED OR WITH ENGINEER APPROVAL.

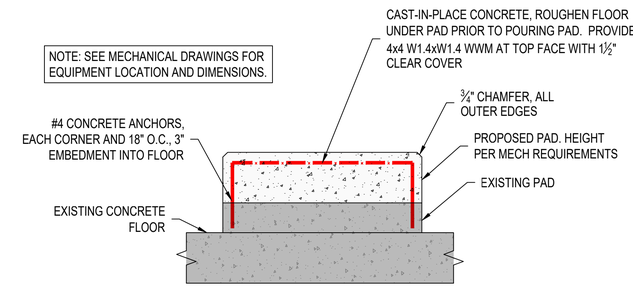


TYPE 2

PIPE PENETRATION, TYPE 2 - MECHANICAL SEAL (1572 / TYP.)

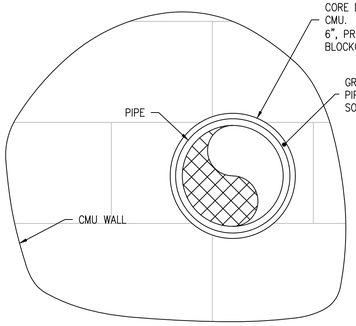
NOT TO SCALE

NOTE: SEE MECHANICAL DRAWINGS FOR EQUIPMENT LOCATION AND DIMENSIONS.



METERING PUMP SUPPORT PAD (305 / S01)

1" = 1'-0"

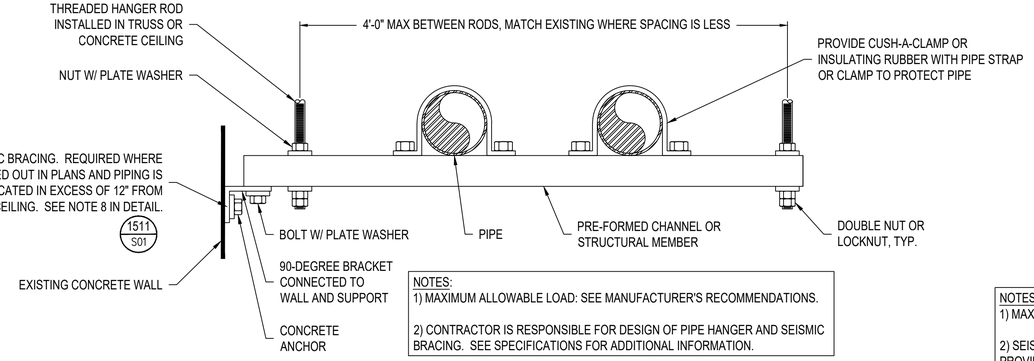


TYPE A
CMU WALL

TYPICAL USAGE: CMU WALL PIPE PENETRATION. MAY ALSO BE USED ON ABOVE GRADE PENETRATIONS IN CONCRETE WALLS (NON-WATER BEARING STRUCTURES ONLY) WITH ENGINEER APPROVAL.

PIPE PENETRATION, TYPE 3 - CMU WALL (1573 / TYP.)

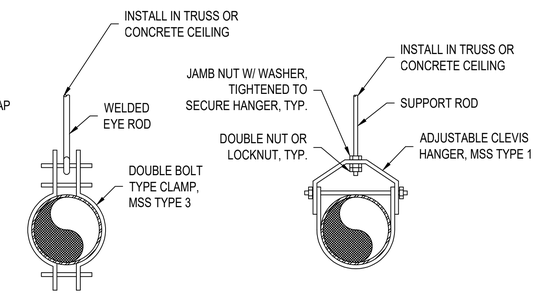
NOT TO SCALE



NOTES:
1) MAXIMUM ALLOWABLE LOAD: SEE MANUFACTURER'S RECOMMENDATIONS.

2) CONTRACTOR IS RESPONSIBLE FOR DESIGN OF PIPE HANGER AND SEISMIC BRACING. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

HANGER TYPE



NOTES:
1) MAXIMUM ALLOWABLE LOAD: SEE MANUFACTURER'S RECOMMENDATIONS.

2) SEISMIC BRACING NOT SHOWN. WHERE CALLED OUT IN PLANS, CONTRACTOR SHALL PROVIDE SEISMIC BRACING FOR PIPING LOCATED IN EXCESS OF 12" FROM CEILING.

CLAMP TYPE

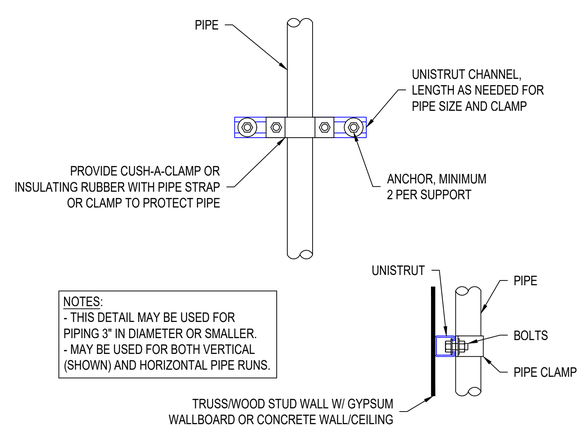
PIPE HANGER AND CLAMP SUPPORTS (1514)

NOT TO SCALE

1. MAXIMUM SPACING OF PIPE SUPPORTS SHALL BE 5 FT., UNLESS OTHERWISE STATED IN THESE PLANS OR APPROVED BY ENGINEER.
2. PIPE SUPPORT ROD SIZE SHALL BE MINIMUM ½", UNLESS OTHERWISE APPROVED BY ENGINEER.
3. PLASTIC PIPE SUPPORT SPACING BASED ON SCH 80 PVC PIPE AT 100 DEG F.
4. PROVIDE TURNBUCKLE WITH SUPPORT ROD FOR PIPES SUBJECT TO HORIZONTAL MOVEMENT.
5. ALL CONNECTIONS TO CONCRETE AND CMU SHALL BE CONCRETE OR CMU ANCHORS PER SPECIFICATIONS AND PLAN DETAILS, UNLESS OTHERWISE APPROVED BY ENGINEER.
6. ALL SUPPORT MATERIALS SHALL BE PER THE SPECIFICATIONS.
7. CONTRACTOR SHALL PROVIDE ADDITIONAL SUPPORTS AS NEEDED TO SECURE PIPING SYSTEM IN TEST OPERATING CONDITIONS.
8. WHERE SEISMIC BRACING IS CALLED OUT ON THE PLANS FOR EXISTING AND PROPOSED PIPE HANGER SUPPORTS, INSTALL THE BRACING A MINIMUM OF EVERY 20 FEET. CONTRACTOR IS RESPONSIBLE FOR DESIGN OF SEISMIC BRACING. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
9. CONTRACTOR SHALL SELECT HANGER OR CLAMP STYLE AS CALLED OUT IN THE PLANS OR AS APPROPRIATE FOR SUPPORT CONDITION. PROVIDE CUSH-A-CLAMP OR INSULATING RUBBER WITH PIPE STRAP OR CLAMP TO PROTECT PIPE. ADDITIONAL HANGER OR CLAMP TYPES BEYOND THOSE SHOWN MAY BE USED UPON ENGINEER REVIEW AND APPROVAL.

GENERAL PIPE SUPPORT NOTES (1511)

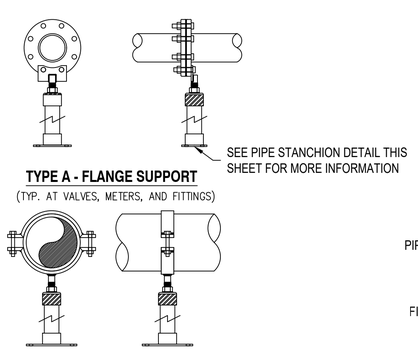
NOT TO SCALE



NOTES:
- THIS DETAIL MAY BE USED FOR PIPING 3" IN DIAMETER OR SMALLER.
- MAY BE USED FOR BOTH VERTICAL (SHOWN) AND HORIZONTAL PIPE RUNS.

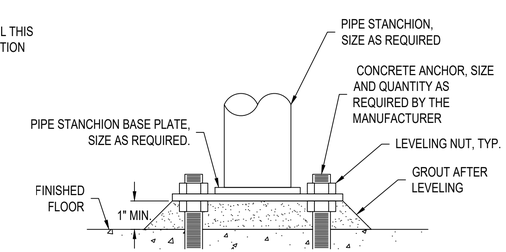
WALL AND CEILING SUPPORTED PIPE SUPPORTS (1513)

NOT TO SCALE



PIPE SUPPORT DETAIL (A / S01)

NOT TO SCALE



PIPE STANCHION DETAIL (B / S01)

NOT TO SCALE

RH2

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 87075 OREGON MAY 13, 2015 JON MARSHALL COMER

EXPIRES: 12/31/2019
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

STRUCTURAL DETAILS

ENGINEER: RJD | DATE: Aug 19, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO.: 1018-190
REVIEWED: BMS | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-D-STR01.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S01 | SHEET NO.: 9 / 24

LADDER LOGIC SYMBOL LEGEND

INDICATOR LIGHT	INDICATOR LIGHT A – AMBER G – GREEN B – BLUE R – RED C – CLEAR
LIMIT SWITCH	LIMIT SWITCH, NORMALLY OPEN
LIMIT SWITCH	LIMIT SWITCH, NORMALLY CLOSED
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY OPEN, TIME TO CLOSE
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY CLOSED, TIME TO OPEN
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY OPEN, TIME TO OPEN
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY CLOSED, TIME TO CLOSE
RELAY CONTACT, NO / RELAY CONTACT, NC	RELAY CONTACT, INSTANTANEOUS CHANGE
PRESSURE SWITCH	PRESSURE SWITCH, NORMALLY OPEN
PRESSURE SWITCH	PRESSURE SWITCH, NORMALLY CLOSED
RTM	RUN TIME METER
OC	OPERATIONS COUNTER
RELAY (XYZ 123)	RELAY TR – Timed relay CR – Control relay
FLOAT SWITCH	FLOAT SWITCH, NORMALLY OPEN
FLOAT SWITCH	FLOAT SWITCH, NORMALLY CLOSED
PUSHBUTTON	PUSHBUTTON, NORMALLY CLOSED
PUSHBUTTON	PUSHBUTTON, NORMALLY OPEN
THERMOSTAT	THERMO SWITCH, NORMALLY OPEN
THERMOSTAT	THERMO SWITCH, NORMALLY CLOSED
FLOW SWITCH	FLOW SWITCH, NORMALLY OPEN
FLOW SWITCH	FLOW SWITCH, NORMALLY CLOSED
	2 POLE SWITCH
O H A	3 POLE SWITCH

VALVE SYMBOLS

THREE WAY VALVE
FOUR WAY VALVE
ANGLE VALVE
BALL VALVE
BUTTERFLY VALVE
CHECK VALVE
CHOKE VALVE
COCK VALVE
DIAPHRAGM VALVE
FLOAT VALVE
GATE VALVE
GLOBE VALVE
HAND VALVE
NEEDLE VALVE
PINCH VALVE
PLUG VALVE
QUICK OPEN GATE
QUICK OPEN GLOBE
RUPTURE VALVE
SAMPLE VALVE
STAR VALVE
NORMALLY CLOSED BALL VALVE

VALVE ACTUATORS

CYLINDER/POSITIVE/SINGLE
CYLINDER/SINGLE ACTION
DIAPHRAGM
DIAPHRAGM/POSITIVE/SOLENOID
DIAPHRAGM/SOLENOID
AIR ACTUATED VALVE (AIR LINES AND SOLENOID NOT ALWAYS SHOWN)
DIFFERENTIAL PRESSURE REGULATOR
ELECTRO/HYDRAULIC
MOTOR
PRESSURE RELIEF
PRESSURE REDUCING VALVE
BACK PRESSURE SUSTAINING VALVE
SOLENOID
VACUUM RELIEF

FLOW ELEMENTS

FLUME
MAGNETIC
ORIFICE
STRAIGHTENING VANE
TURBINE
VENTURI
WEIR

EQUIPMENT SYMBOLS

ROTARY BLOWER
CENTRIFUGAL BLOWER
CENTRIFUGAL/HORIZONTAL PUMP
CENTRIFUGAL/VERTICAL PUMP
WELL PUMP
VERTICAL PUMP
SUBMERSIBLE PUMP
METERING PUMP
INLINE PUMP
Y STRAINER
Y STRAINER W/ VALVE
REDUCER
STATIC MIXER
GAS TANK
DRAIN
PRESSURE GAUGE
ULTRASONIC LEVEL SENSOR
GRADUATED CALIBRATION COLUMN

ISA STANDARDS FOR P&ID

	1st LETTER (MEASURED OR INITIATING VARIABLE)	2nd LETTER (READOUT OR FUNCTION)	3rd LETTER (MODIFIER)
A	ANALYSIS (ANALOG)	ALARM	
B	BURNER, COMBUSTION	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY	CONTROLLER	CLOSED
D	DENSITY (DISCRETE)		
E	VOLTAGE	ELEMENT	EXCESSIVE
F	FLOW RATE	RATIO	FAIL
G	DIMENSION (GAS)		
H	HAND		HIGH
I	CURRENT (ELECTRICAL)	INDICATOR (INPUT)	
J	USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
K	TIME		CONTROL STATION
L	LEVEL	LIGHT	LOW
M	HUMIDITY		MIDDLE
N	POWER	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE	OUTPUT	OPEN
P	PRESSURE	POINT (TEST) CONNECTION	
Q	QUANTITY	TOTALIZER	
R	RADIOACTIVITY	RECORDER	
S	SPEED, FREQUENCY	SWITCH (SENSOR)	
T	TEMPERATURE	TRANSMITTER	
U	MULTIVARIABLE	MULTIFUNCTION	
V	VIBRATION (VISCOSITY)	VALVE	
W	WEIGHT, FORCE		
X	UNCLASSIFIED	SOLENOID	
Y	EVENT, STATE, PRESENCE	CALCULATION	
Z	POSITION		

P&ID BUBBLE IDENTIFICATION CHART

GENERAL INSTRUMENT OR FUNCTION SYMBOLS	FIELD MOUNTED	PRIMARY LOCATION, ACCESSIBLE TO OPERATOR	AUXILIARY LOCATION, ACCESSIBLE TO OPERATOR	NORMALLY INACCESSIBLE OR BEHIND THE PANEL
DISCRETE INSTRUMENTS				
DISCRETE INSTRUMENTS SHARED DISPLAY				
COMPUTER FUNCTION				
PROGRAMMABLE LOGIC CONTROL				

PID FORMAT

INSTRUMENT BUBBLE (XYZ ABC) SUPERSCRIPT ###

X=MEASURED OR INITIATING VARIABLE
Y=READOUT OR FUNCTION
Z=MODIFIER
ABC=LOOP NUMBER

LOOP NUMBER

A=LOCATION IDENTIFICATION 0 = EXISTING FACILITY
1 = CHEMICAL FEED SYSTEM

LINE TYPES

MAIN PROCESS FLOW (WITH TYPICAL DIRECTION OF FLOW SHOWN)
INSTRUMENT SUPPLY, PROCESS TAPS, NON PROCESS FLOW
ELECTRIC SIGNAL (ANALOG)
ELECTRIC SIGNAL (DISCRETE)
SOFTWARE OR DATA LINK
ES — ELECTRIC POWER SUPPLY 120VAC, 60HZ U.N.O.
SA — SERVICE AIR SUPPLY

MECHANICAL | ELECTRICAL
CONNECTED
NOT CONNECTED
OR | OR
SPECIFICALLY NOTED

ABBREVIATIONS

EQUIPMENT		VALVES		MISCELLANEOUS	
A	MOTORIZED ACTUATOR	BPSV	BACK PRESSURE SELF-CONTAINED VALVE	NC	NORMALLY CLOSED
B	BLOWER	FCV	FLOW CONTROL VALVE	NO	NORMALLY OPEN
C	COMPRESSOR	FSV	FAIL SAFE VALVE		
CL2	CHLORINE RESIDUAL METER	ZV	AIR ACTUATED VALVE		
Cp	CONTROL PANEL	PCV	PUMP CONTROL VALVE		
E	ENGINE GENERATOR	PRV	PRESSURE RELIEF VALVE		
F	FAN	XV	SOLENOID VALVE		
Fs	FLOW SWITCH				
Ft	FLOW TRANSMITTER				
Gd	COMBUSTIBLE GAS DETECTOR				
Gt	GAS TRANSMITTER				
Ht	THERMOSTAT				
It	INTENSITY TRANSMITTER				
Ls	LEVEL SWITCH				
Lt	LEVEL TRANSMITTER				
M	MIXER				
MS	MOTOR STARTER				
NTU	TURBIDITY METER				
P	PUMP				
pH	pH METER				
Ps	PRESSURE SWITCH				
Pt	PRESSURE TRANSMITTER				
S	SCREEN				
Sd	SMOKE DETECTOR				
Ts	TEMPERATURE SWITCH				
Tt	TEMPERATURE TRANSMITTER				
Us	TORQUE SWITCH				

NOTES:
1. THIS IS A STANDARD LEGEND. NOT ALL OF THE INFORMATION SHOWN ON THIS PAGE WILL APPEAR IN THIS SET OF PLANS.

2. SEE SPECIFICATIONS FOR INFORMATION ON SYSTEMS BY OTHERS.

3. THE PROCESS INFORMATION SHOWN ON THE P&ID'S IS SCHEMATIC IN NATURE. SEE THE MECHANICAL PLANS FOR A FULL REPRESENTATION OF ALL PIPING AND VALVES.

LEGEND

WATER LINE
SODIUM HYPOCHLORITE SOLUTION LINE
SALT/BRINE SOLUTION
VENT LINE
VENT TO ATMOSPHERE
SLOPE TO DRAIN
CHEMICAL LEVEL INDICATOR

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS
EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM LEGEND

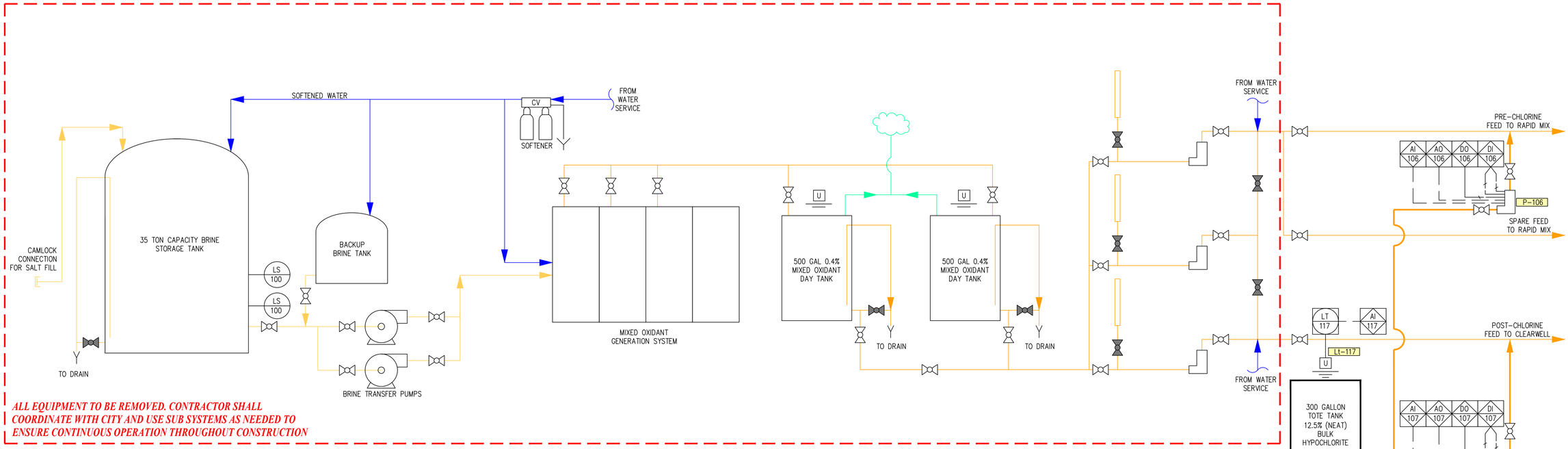
ENGINEER: RJD
REVIEWED: BMS
SAVE DATE: Aug 19, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-D-ELEC02.DWG
JOB NO.: 1018-180

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

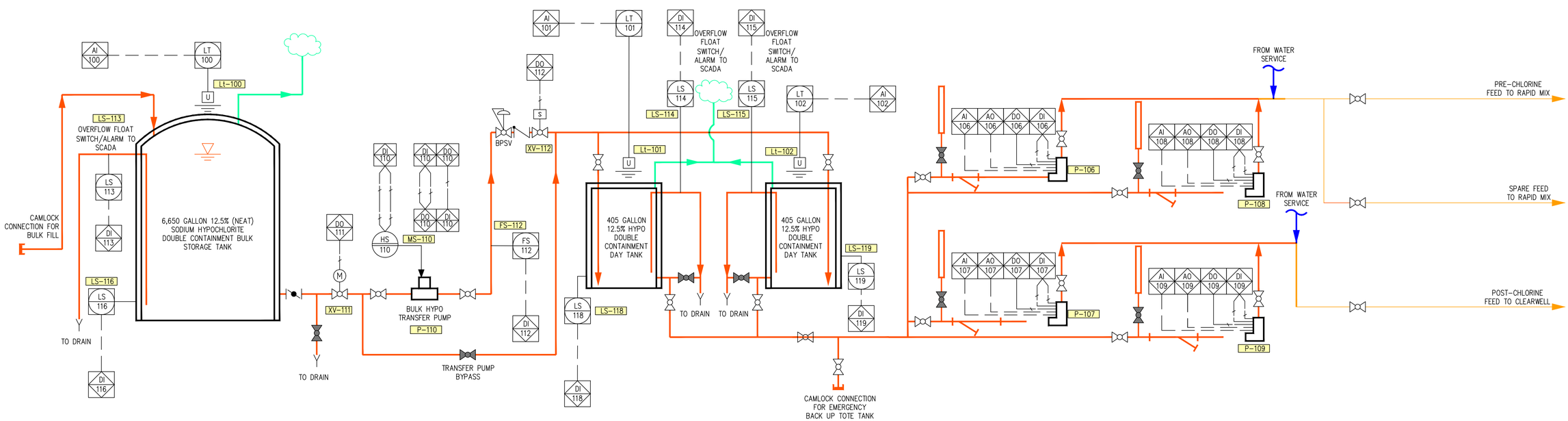
DWG NO.: E01
SHEET NO.: 10 / 24



ALL EQUIPMENT TO BE REMOVED. CONTRACTOR SHALL COORDINATE WITH CITY AND USE SUB SYSTEMS AS NEEDED TO ENSURE CONTINUOUS OPERATION THROUGHOUT CONSTRUCTION

EXISTING AND TEMPORARY CONSTRUCTION CHEMICAL FEED P&ID

NOT TO SCALE



PROPOSED CHEMICAL FEED P&ID

NOT TO SCALE

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM

ENGINEER: RJD
REVIEWED: BMS
SAVE DATE: Aug 19, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-D-ELEC03.DWG
JOB NO.: 1018-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E02

SHEET NO.: 11 / 24

ONE-LINE DIAGRAM SYMBOLS

- CIRCUIT BREAKER
  - XXX/YY – CB SIZE & NO. OF POLES
  - ET – ELECTRONIC TRIP
  - TM – THERMAL MAGNETIC BREAKER
  - MCP – MOTOR CIRCUIT PROTECTOR
  - SE – SERVICE ENTRANCE
  - GFI – GROUND FAULT INTERRUPTER
- FUSE
- FUSED DISCONNECT SWITCH
- PLUG–IN CONNECTION
- RTM – RUN TIME METER
- OC – MOTOR OPERATION COUNTER
- SSRVS – SOLID STATE REDUCED VOLTAGE STARTER
- VARIABLE FREQUENCY DRIVE
- MOTOR STARTER
- MOTOR STARTER W/ OPERATOR DEVICES (A B / C D)
  - A – HAND–OFF–AUTO
  - B – OPERATIONAL COUNTER
  - C – RUN TIME METER
  - D – RUN LIGHT
  - E – FAIL LIGHT
  - F – EMERGENCY STOP
- K – KIRK KEY INTERLOCK
- POWER TRANSFORMER
- CONTROL POWER TRANSFORMER
- TRANSFORMER
- CURRENT TRANSFORMER
- VOLTAGE TRANSFORMER
- CONTACTOR
- CAPACITOR
- ENGINE GENERATOR
- GENERATOR CONNECTION RECEPTACLE
- S/N – SOLID NEUTRAL
- TB – TERMINAL BLOCK
- SURGE PROTECTION DEVICE
- SPD – SURGE PROTECTION DEVICE (ALTERNATIVE)

GROUNDING SYSTEM SYMBOLS

- GROUND
- METAL PIPE GROUND
- CONNECTION POINT, EXOTHERMIC WELD. CADWELD OR APPROVED EQUAL.
- GROUND ROD SIZED PER N.E.C. USE EXOTHERMIC WELD CONNECTION AT THE GROUND ROD.
- PIGTAIL, BARE COPPER, LENGTH AS REQUIRED, 8' MINIMUM.
- CONNECTION POINT, MECHANICAL, COMPRESSION TYPE.

ELECTRICAL SITE PLAN SYMBOLS

- UTILITY POLE AND GUY WIRE
- HH – MANHOLE OR HANDHOLE
- P – BURIED POWER VAULT OR MANHOLE
- T – TELEPHONE VAULT OR PEDESTAL
- F – FIBER OPTICS VAULT OR PEDESTAL
- LUMINAIRE
- PAD–MOUNT TRANSFORMER

PANELBOARDS, SWITCHES, AND EQUIPMENT

- SERVICE ENTRANCE, SWITCHGEAR, MOTOR CONTROL CENTER, OR PANELBOARD
- SURFACE MOUNTED PANELBOARD
- FLUSHED MOUNTED PANELBOARD
- NXX – FIELD CONTROL STATION WITH NEMA REQUIREMENTS.
  - N1 – NEMA 1
  - N3R – NEMA 3R
  - N4 – NEMA 4
  - N4SS – NEMA 4 STAINLESS STEEL
  - N4F – NEMA 4 FIBERGLASS
  - N6 – NEMA 6
  - N12 – NEMA 12 GASKETED
- EQUIPMENT MOUNTING STAND
- T – HEATER, WATTAGE NOTED
- EQUIPMENT CONNECTION
- M – SINGLE PHASE MOTOR. HORSEPOWER AS NOTED
- HP – THREE PHASE MOTOR. HORSEPOWER AS NOTED
- HP – SINGLE PHASE MOTOR. HORSEPOWER AS NOTED
- ELECTRICAL PLUG
- DISCONNECT SWITCH
- F – FUSED DISCONNECT SWITCH
- COMBINATION MOTOR STARTER AND DISCONNECT SWITCH

RECEPTACLES AND JUNCTION BOX SYMBOLS

- J – CEILING JUNCTION BOX
- J – WALL JUNCTION BOX
- J – FLOOR JUNCTION BOX
- DUPLEX WALL RECEPTACLE , 120V
  - WP = WEATHERPROOF
  - G = GROUNDED
  - IG = ISOLATED GROUND
  - GFI = GROUND FAULT INTERRUPTER
- DOUBLE DUPLEX
- SINGLE RECEPTACLE, 120V
- SINGLE RECEPTACLE, 208V
- DUPLEX FLOOR RECEPTACLE, 120V
- SPECIAL PURPOSE WALL RECEPTACLE, RATING AS NOTED
- CLOCK
- TV – TELEVISION
- TELEPHONE
- TELEPHONE/DATA WITH CABLE
- TELEPHONE/DATA WITHOUT CABLE

SWITCH OUTLETS

- S – STANDARD SWITCH, 120VAC, 20 AMP
- S_3 – 3WAY – 3–WAY SWITCH, 120VAC, 20 AMP
- S_{HOA} – HOA – 3–POSITION SWITCH, 120VAC, 20 AMP, LABEL SWITCH POSITION HAND–OFF–MOTION OR PHOTO

S_{DEE}	SINGLE–POLE	S_P	PILOT–LIGHTED
S_2	DOUBLE–POLE	S_K	KEY–OPERATED
S_3	THREE WAY	S_{LV}	LOW VOLTAGE
S_4	FOUR WAY	S_M	MASTER
S_D	DIMMER		PUSHBUTTON
S_{OS}	OCCUPANCY SENSOR		

LIGHTING FIXTURES/DEVICES

- FLUORESCENT FIXTURE
- WALL/CEILING MOUNTED FIXTURE
- EMERGENCY LIGHT WITH SELF CONTAINED BATTERY
- SURFACE OR PENDANT MOUNTED FIXTURE
- RECESSED FIXTURE
- MD – MOTION DETECTOR
- PC – PHOTO CONTROL CELL

FIRE SYSTEM SYMBOLS

- H – HEAT DETECTOR
- S – SMOKE DETECTOR
- D – FIRE ALARM DISPATCH STROBE ALARM
- A – FIRE ALARM AUDIBLE/VISUAL ALARM
- F – FIRE ALARM MANUAL PULL STATION

ADDITIONAL SYMBOLS

- S – SOUND SYSTEM SPEAKER
- V – SOUND SYSTEM VOLUME CONTROL
- B – DOORBELL

VALVE SYMBOLS

- PILOT VALVE SOLENOID
- VALVE
- CHECK VALVE
- CONTROL VALVE

PID FORMAT

- SUPERSCRIPT
- XYZ / ABC – INSTRUMENT BUBBLE
- X=MEASURED OR INITIATING VARIABLE
- Y=READOUT OR FUNCTION
- Z=MODIFIER
- ABC=LOOP NUMBER

ISA STANDARDS FOR P&ID

	1st LETTER (MEASURED OR INITIATING VARIABLE)	2nd LETTER (READOUT OR FUNCTION)	3rd LETTER (MODIFIER)
A	ANALYSIS	ALARM	
B	BURNER (BATTERY)		
C	COMMUNICATION	CONTROL (DELAY)	(BACK) CLOSED
D	DENSITY		
E	VOLTAGE		
F	FLOW		FAIL (FLOW) GREEN BULB
G	GAS		
H	HAND	MANUAL INDICATE	HIGH
I	CURRENT (INTRUSION)		
J	POWER (EQUIPMENT)		
K	TIME	CONTROL STATION LIGHT	
L	LEVEL		LOW
M	MOTION		MIDDLE
N	USERS CHOICE		
O	USERS CHOICE		OPEN
P	PRESSURE	(PUMP)	(PRESSURE)
Q	QUANTITY (EVENT)	TOTALIZE	
R	RADIATION (REQ'D)	RECORD	RED BULB
S	SPEED (SMOKE)	SWITCH	SOLENOID
T	TEMPERATURE	TRANSMITTER	(TRANSMITTER)
U	MULTI VARIABLE	MULTI FUNCTION VALVE	
V	VISCOSITY (pH)		
W	WEIGHT		
X	UNCLASSIFIED		
Y	USERS CHOICE	RELAY (TRANSDUCER)	
Z	POSITION		

ABBREVIATIONS

- SPDT – SINGLE POLE, DOUBLE THROW
- SPST – SINGLE POLE, SINGLE THROW
- DPST – DOUBLE POLE, SINGLE THROW
- WP – WEATHER–PROOF
- GFI – GROUND FAULT INTERRUPT
- P – POWER
- C – CONTROL
- J – INSTRUMENTATION
- PC – POWER & CONTROL
- CJ – CONTROL & INSTRUMENTATION
- CKT. – CIRCUIT
- C.O. – CONDUIT ONLY
- N.L. – NIGHT LIGHT
- AL. – ALUMINUM
- CU. – COPPER

HOA	HAND–OFF–AUTO SWITCH
RTM	RUN TIME METER
OC	OPERATION COUNTER
MRIL	MOTOR RUN INDICATION LIGHT
SFIL	SEAL FAIL INDICATION LIGHT
SFTR	SEAL FAIL TRIP RESET
OTIL	OVER TEMPERATURE INDICATION LIGHT
MOIL	MOTOR OVERLOAD INDICATION LIGHT

INDICATE TYPE BY LETTER	INSTRUMENT METER	
V	A – AMMETER	VAR – VARMETER
AH	AH – AMPERE–HOUR	VARH – VARHOUR METER
	PF – POWER FACTOR	W – WATTMETER
	V – VOLTMETER	WH – WATTHOUR METER
	VA – VOLT AMMETER	

RACEWAY LEGEND

SITE PLAN LEGEND

- P – PROPOSED POWER
- TEL – PROPOSED TELEPHONE
- TELM – PROPOSED INSTRUMENTATION
- FO – PROPOSED FIBER OPTICS

BUILDING OR FACILITY PLAN LEGEND

- 480 VOLT EXPOSED RACEWAY
- 480 VOLT WIRING CONCEALED, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- 120/208/240 VOLT EXPOSED RACEWAY
- 120/208/240V WIRING CONCEALED, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- CONTROL OR INSTRUMENTATION EXPOSED RACEWAY
- CONTROL OR INSTRUMENTATION, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- HOME RUN TO PANELBOARD OR AS INDICATED
- CONDUIT RUN, BROKEN AND CONTINUED SAME SHEET OR AS NOTED
- FLEXIBLE CONDUIT
- CONDUIT RUN. HATCH MARKS INDICATE NUMBER OF CONDUCTORS
- ½" GRC, 2–#12 – CALLOUT INDICATING CONDUIT SIZE, NUMBER AND SIZE OF WIRE.
- XXX – CALLOUT INDICATING CONDUIT PER SCHEDULE
- CONDUIT BENT UP OR TOWARD
- CONDUIT BENT DOWN OR AWAY
- CAPPED CONDUIT

ONE-LINE DIAGRAM INFORMATION

- EXISTING EQUIPMENT AND CONDUIT
- PROPOSED EQUIPMENT AND CONDUIT
- GROUNDING EQUIPMENT AND CONDUCTORS
- CONDUIT, WIRING OR EQUIPMENT TO BE REMOVED

LADDER LOGIC SYMBOL LEGEND

INDICATOR LIGHT	INDICATOR LIGHT A – AMBER G – GREEN B – BLUE R – RED C – CLEAR W – WHITE
RELAY (XYZ 123)	RELAY TR – TIMED RELAY CR – CONTROL RELAY
LIMIT SWITCH	LIMIT SWITCH, NORMALLY OPEN
FLOAT SWITCH	FLOAT SWITCH, NORMALLY OPEN
LIMIT SWITCH	LIMIT SWITCH, NORMALLY CLOSED
FLOAT SWITCH	FLOAT SWITCH, NORMALLY CLOSED
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY OPEN, TIME TO CLOSE
PUSHBUTTON	PUSHBUTTON, NORMALLY CLOSED
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY CLOSED, TIME TO OPEN
PUSHBUTTON	PUSHBUTTON, NORMALLY OPEN
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY OPEN, TIME TO OPEN
THERMOSTAT	THERMO SWITCH, NORMALLY OPEN
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY CLOSED, TIME TO CLOSE
THERMOSTAT	THERMO SWITCH, NORMALLY CLOSED
RELAY CONTACT, NC RELAY CONTACT, NO	RELAY CONTACT, INSTANTANEOUS CHANGE
FLOWSWITCH	FLOWSWITCH, NORMALLY OPEN
PRESSURE SWITCH	PRESSURE SWITCH, NORMALLY OPEN
FLOWSWITCH	FLOWSWITCH, NORMALLY CLOSED
PRESSURE SWITCH	PRESSURE SWITCH, NORMALLY CLOSED
	2 POLE SWITCH
LADDER LOGIC LINETYPES COMPONENT INSTALLED INSIDE ENCLOSURE COMPONENT INSTALLED ON FRONT OF ENCLOSURE FIELD CONNECTED COMPONENT	3 POLE SWITCH

P&ID BUBBLE IDENTIFICATION CHART

EXISTING	FUNCTION
	INSTRUMENT IDENTIFICATION BUBBLE
	FIELD MOUNTED DEVICE OR INSTRUMENT
	FRONT PANEL MOUNTED INSTRUMENT OR DEVICE (LOCAL PANEL)
	BACK PANEL MOUNTED INSTRUMENT OR DEVICE (LOCAL PANEL)
	FRONT PANEL MOUNTED INSTRUMENT OR DEVICE (LAB ROOM PANEL)
	OPERATOR INTERFACE DISPLAY (LOCAL PANEL)
	OPERATOR INTERFACE DISPLAY (LAB ROOM PANEL)

GENERAL NOTES

1. THIS IS A STANDARD LEGEND. NOT ALL OF THE INFORMATION SHOWN ON THIS PAGE WILL APPEAR IN THIS SET OF PLANS.

2. THESE DRAWINGS ARE DIAGRAMMATIC ONLY; EXACT LOCATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR. THE INSTALLATION OF ALL EQUIPMENT SHOWN ON THESE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE LATEST EDITIONS OF ALL APPLICABLE CODES AND UTILITY COMPANY STANDARDS. CONTACT THE UTILITY COMPANY REPRESENTATIVES AND VERIFY THEIR REQUIREMENTS.

3. NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS IN EQUIPMENT LOCATIONS ARE DISCOVERED OR IF PROBLEMS ARISE DUE TO FIELD CONDITIONS, LACK OF INFORMATION OR ANY OTHER REASON. NO PAYMENT WILL BE MADE FOR CHANGES WHICH HAVE NOT BEEN REVIEWED BY THE ENGINEER.

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS
EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

ELECTRICAL LEGEND

ENGINEER: KES | DATE: Aug 19, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO.: 1018-190
REVIEWER: CMR | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-D-ELEC01.DWG

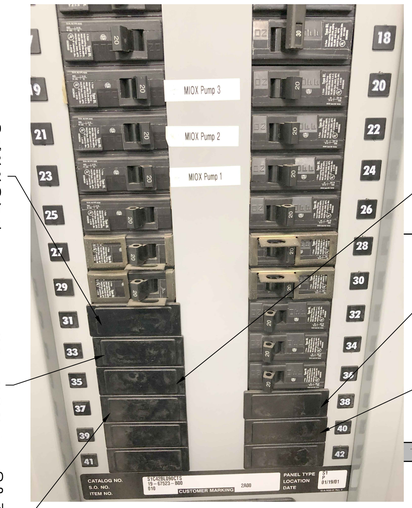
REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E03
SHEET NO.: 12 / 24

ELECTRICAL NOTES	
XX	1. SEE DWG NO. E07 FOR CONDUIT AND CONDUCTOR SCHEDULE.
X	2. SEE DWG NO. E07 FOR ELECTRICAL EQUIPMENT SCHEDULE.



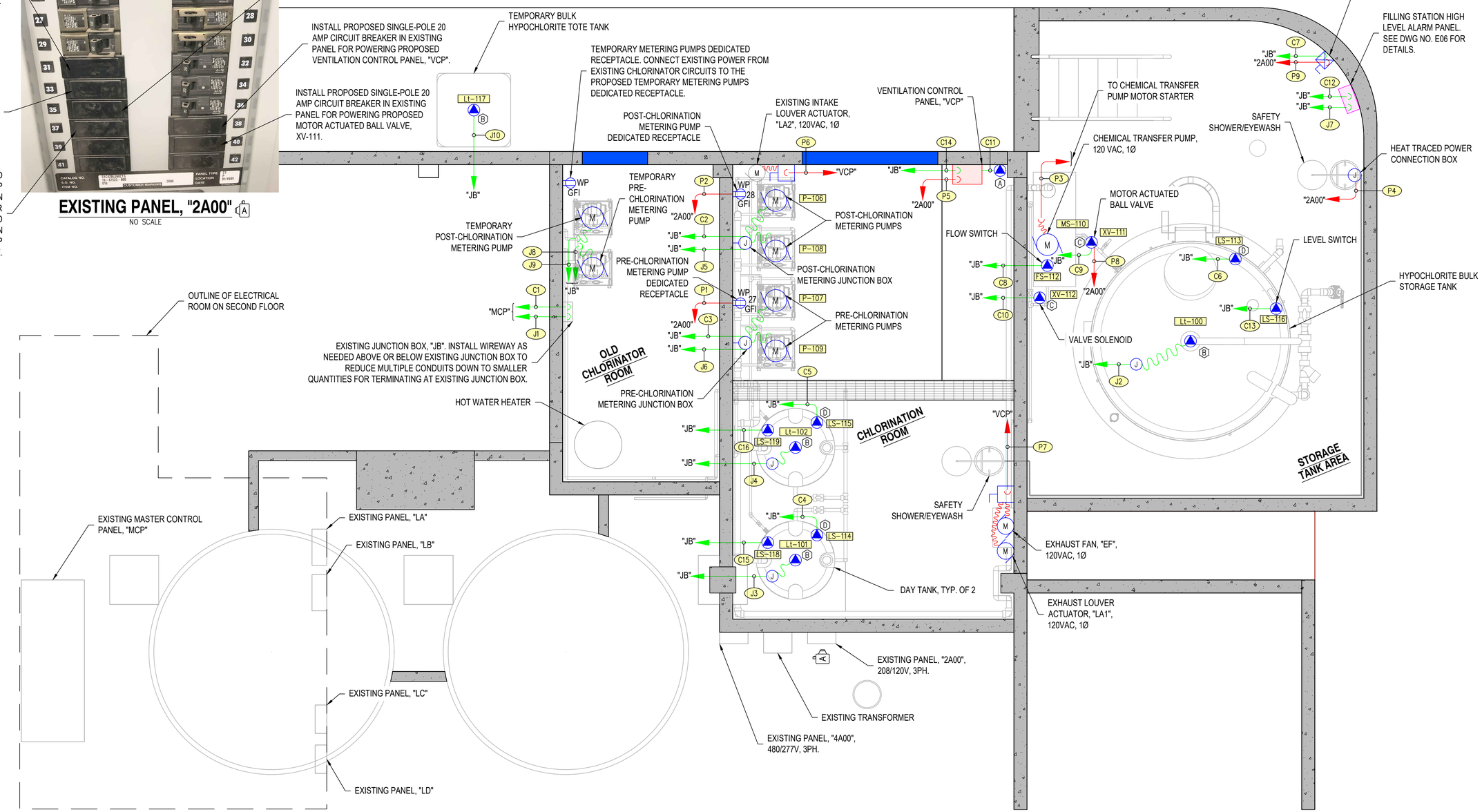
INSTALL PROPOSED SINGLE-POLE 20 AMP, GFCI, CIRCUIT BREAKER IN EXISTING PANEL FOR POWERING PROPOSED HEAT TRACE SAFETY SHOWER.

INSTALL PROPOSED SINGLE-POLE 20 AMP CIRCUIT BREAKER IN EXISTING PANEL FOR POWERING PROPOSED CHEMICAL TRANSFER PUMP.

INSTALL PROPOSED SINGLE-POLE 20 AMP CIRCUIT BREAKER IN EXISTING PANEL FOR POWERING PROPOSED POST-CHLORINATION METERING PUMP DEDICATED RECEPTACLE.

EXISTING PANEL, "2A00" (A)

NO SCALE



ELECTRICAL PLAN

3/8" = 1'-0"

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

ELECTRICAL PLAN

ENGINEER: KES | SAVE DATE: Aug 21, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO: 1018-190
REVIEWED: CMR | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-D-ELEC04.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E04 | SHEET NO.: 13 / 24

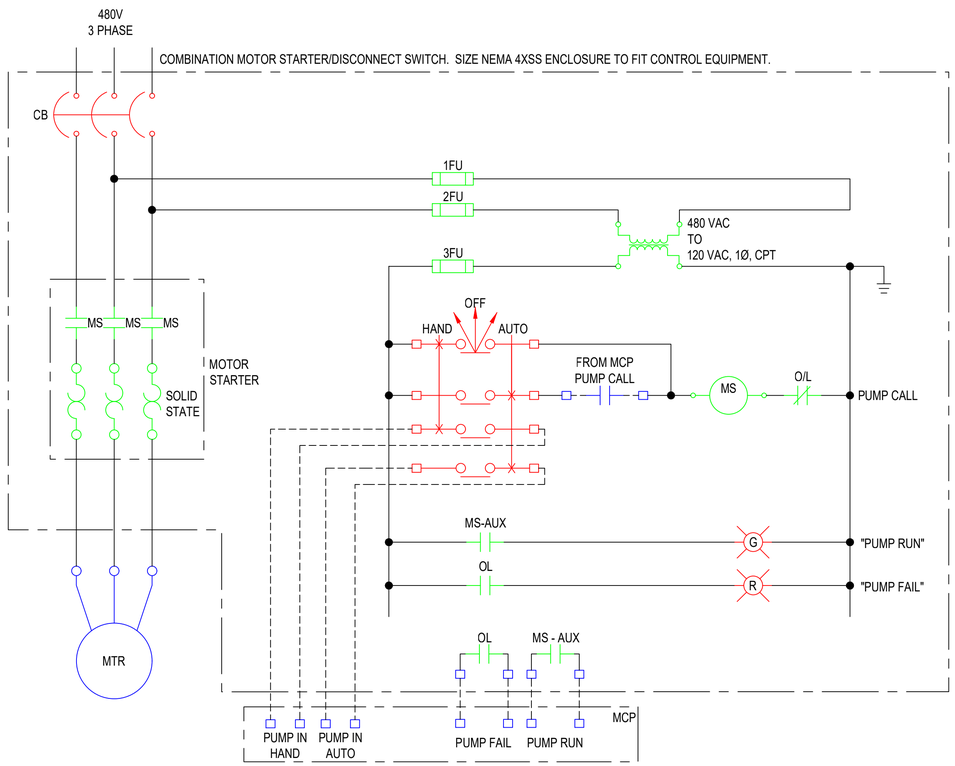


DIAGRAM 1: CHEMICAL TRANSFER PUMP

NO SCALE

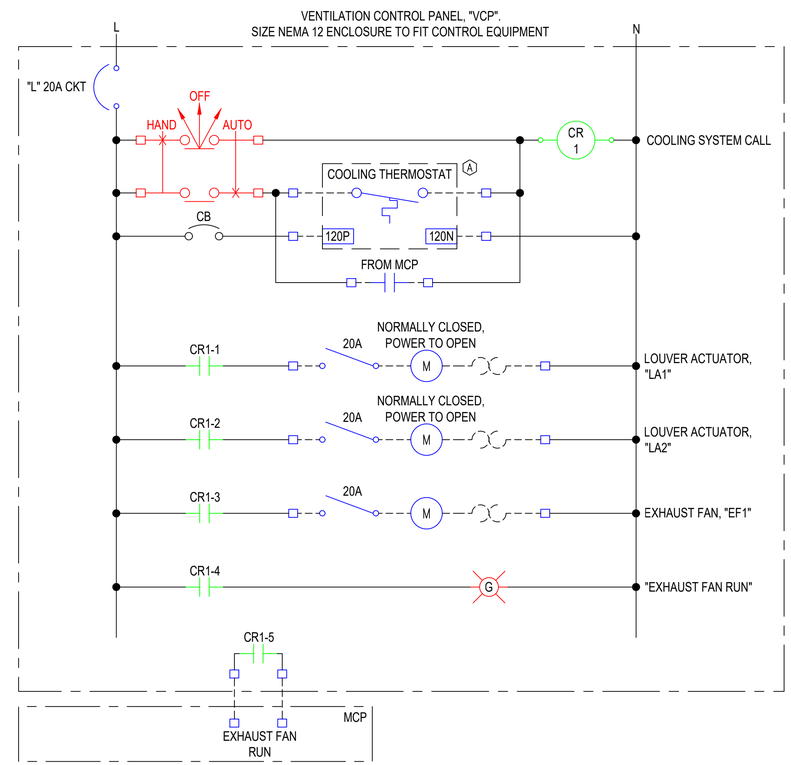


DIAGRAM 2: VENTILATION CONTROL PANEL, "VCP"

NO SCALE

RH2

REGISTERED PROFESSIONAL ENGINEER
86610
OREGON
MARCH 13, 2012
CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

CONTROL LOGIC DIAGRAMS

ENGINEER: KES
REVIEWED: CMR
SAVE DATE: Aug 19, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-D-ELEC05.DWG
JOB NO.: 1018-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

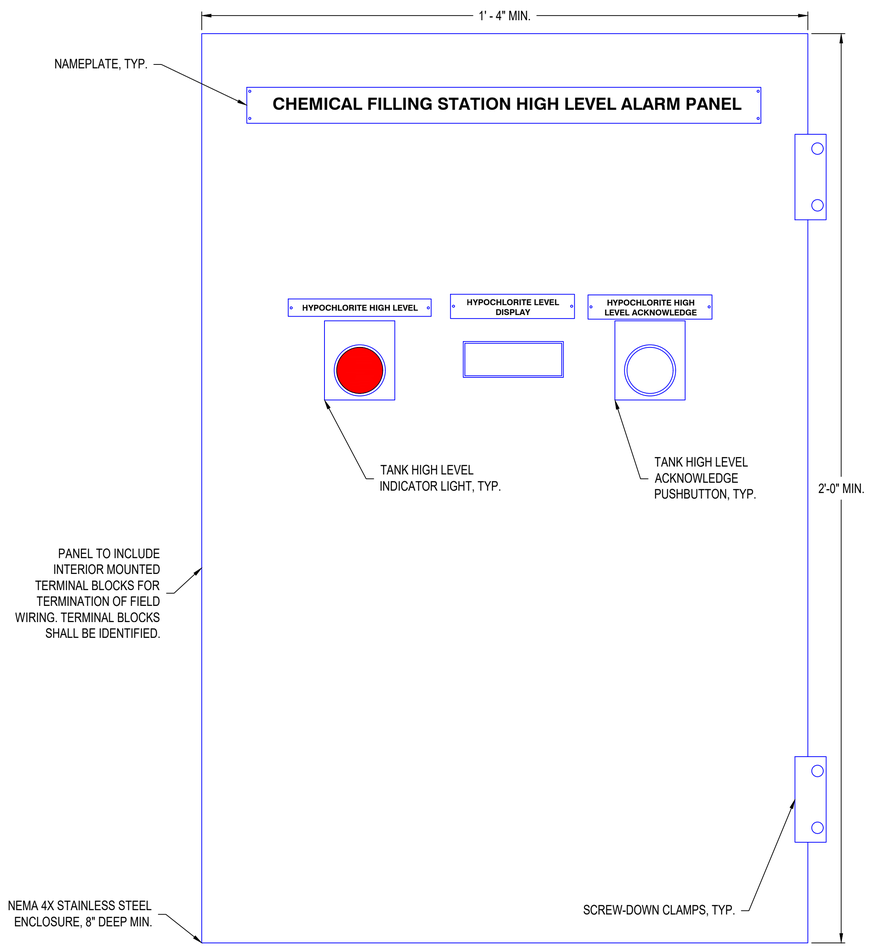
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

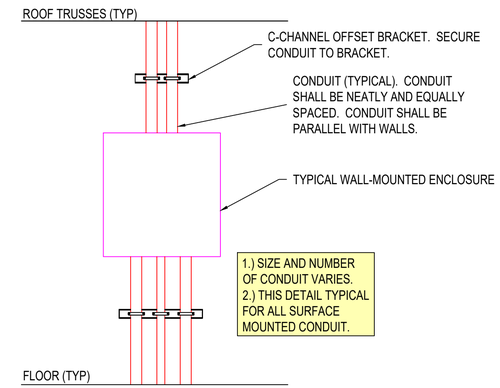
DWG NO.: E05

SHEET NO.: 14 / 24



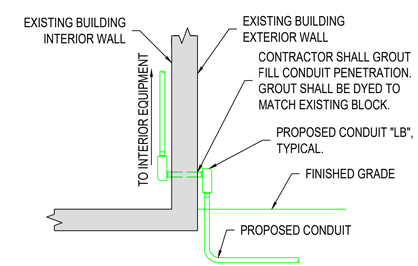
CHEMICAL FILLING STATION HIGH LEVEL ALARM PANEL EXTERIOR LAYOUT

NOT TO SCALE



SURFACE MOUNTED CONDUIT DETAIL

NOT TO SCALE



EXISTING BUILDING CONDUIT PENETRATION DETAIL

NOT TO SCALE

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

ELECTRICAL DETAILS

ENGINEER: KES | SAVE DATE: Aug 19, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO.: 1018-190
REVIEWED: CMR | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-D-ELEC06.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E06

SHEET NO.: 15 / 24

POWER CONDUIT AND CONDUCTOR SCHEDULE

CIRCUIT	SOURCE	DESTINATION	TRADE SIZE	(QUANTITY) CONDUCTORS	NOTES
P1	EXISTING PANEL, "2A00"	PRE-CHLORINATION METERING PUMP DEDICATED RECEPTACLE	3/4"	(2) – #12, (1) – #12 GRD	
P2	EXISTING PANEL, "2A00"	POST-CHLORINATION METERING PUMP DEDICATED RECEPTACLE	3/4"	(2) – #12, (1) – #12 GRD	
P3	CHEMICAL TRANSFER PUMP	CHEMICAL TRANSFER PUMP MOTOR STARTER	3/4"	(2) – #12, (1) – #12 GRD	
P4	EXISTING PANEL, "2A00"	HEAT TRACED POWER CONNECTION BOX	3/4"	(2) – #12, (1) – #12 GRD	
P5	EXISTING PANEL, "2A00"	VENTILATION CONTROL PANEL, "VCP"	3/4"	(2) – #12, (1) – #12 GRD	
P6	VENTILATION CONTROL PANEL, "VCP"	INTAKE LOUVER ACTUATOR, "LA1"	3/4"	(2) – #12, (1) – #12 GRD	
P7	VENTILATION CONTROL PANEL, "VCP"	EXHAUST FAN, "EF1" AND EXHAUST LOUVER ACTUATOR, "LA2"	3/4"	(2) – #12, (1) – #12 GRD	
P8	EXISTING PANEL, "2A00"	MOTOR ACTUATED BALL VALVE, XV-111	3/4"	(2) – #12, (1) – #12 GRD	
P9	EXISTING PANEL, "2A00"	CHEMICAL TRANSFER PUMP MOTOR STARTER	3/4"	(2) – #12, (1) – #12 GRD	

CONTROL CONDUIT AND CONDUCTOR SCHEDULE

CIRCUIT	SOURCE	DESTINATION	TRADE SIZE	(QUANTITY) CONDUCTORS	NOTES
C1	EXISTING MASTER CONTROL PANEL, "MCP"	EXISTING JUNCTION BOX, "JB"	2"	(86) – #14, (1) – #14 GRD	EXISTING CONDUIT, PROPOSED CONDUCTORS
C2	EXISTING JUNCTION BOX, "JB"	POST-CHLORINATION METERING PUMPS JUNCTION BOX	3/4"	(12) – #14, (1) – #14 GRD	
C3	EXISTING JUNCTION BOX, "JB"	PRE-CHLORINATION METERING PUMPS JUNCTION BOX	3/4"	(12) – #14, (1) – #14 GRD	
C4	EXISTING JUNCTION BOX, "JB"	DAY TANK FLOAT SWITCH, LS-114	3/4"	(2) – #14, (1) – #14 GRD	
C5	EXISTING JUNCTION BOX, "JB"	DAY TANK FLOAT SWITCH, LS-115	3/4"	(2) – #14, (1) – #14 GRD	
C6	EXISTING JUNCTION BOX, "JB"	HYPOCHLORITE BULK STORAGE TANK FLOAT SWITCH, LS-113	3/4"	(2) – #14, (1) – #14 GRD	
C7	EXISTING JUNCTION BOX, "JB"	CHEMICAL TRANSFER PUMP MOTOR STARTER	3/4"	(10) – #14, (1) – #14 GRD	
C8	EXISTING JUNCTION BOX, "JB"	FLOW SWITCH, FS-112	3/4"	(4) – #14, (1) – #14 GRD	
C9	EXISTING JUNCTION BOX, "JB"	MOTOR ACTUATED BALL VALVE, XV-111	3/4"	(8) – #14, (1) – #14 GRD	
C10	EXISTING JUNCTION BOX, "JB"	VALVE SOLENOID, XV-112	3/4"	(2) – #14, (1) – #14 GRD	
C11	VENTILATION CONTROL PANEL, "VCP"	COOLING THERMOSTAT	3/4"	(4) – #14, (1) – #14 GRD	
C12	EXISTING JUNCTION BOX, "JB"	FILLING STATION ALARM PANEL	3/4"	(4) – #14, (1) – #14 GRD	
C13	EXISTING JUNCTION BOX, "JB"	LEAK DETECTION LEVEL SWITCH, LS-116	3/4"	(4) – #14, (1) – #14 GRD	
C14	EXISTING JUNCTION BOX, "JB"	VENTILATION CONTROL PANEL, "VCP"	3/4"	(4) – #14, (1) – #14 GRD	
C15	EXISTING JUNCTION BOX, "JB"	DAY TANK LEAK DETECTION LEVEL SWITCH, LS-118	3/4"	(4) – #14, (1) – #14 GRD	
C16	EXISTING JUNCTION BOX, "JB"	DAY TANK LEAK DETECTION LEVEL SWITCH, LS-119	3/4"	(4) – #14, (1) – #14 GRD	

INSTRUMENTATION CONDUIT AND CONDUCTOR SCHEDULE

CIRCUIT	SOURCE	DESTINATION	TRADE SIZE	(QUANTITY) CONDUCTORS	NOTES
J1	EXISTING MASTER CONTROL PANEL, "MCP"	EXISTING JUNCTION BOX, "JB"	2"	(17) 2-CONDUCTOR SHIELDED CABLES	EXISTING CONDUIT, PROPOSED CONDUCTORS
J2	EXISTING JUNCTION BOX, "JB"	ULTRASONIC LEVEL TRANSMITTER, LT-100	3/4"	(1) 2-CONDUCTOR SHIELDED CABLE	
J3	EXISTING JUNCTION BOX, "JB"	ULTRASONIC LEVEL TRANSMITTER, LT-101	3/4"	(1) 2-CONDUCTOR SHIELDED CABLE	
J4	EXISTING JUNCTION BOX, "JB"	ULTRASONIC LEVEL TRANSMITTER, LT-102	3/4"	(1) 2-CONDUCTOR SHIELDED CABLE	
J5	EXISTING JUNCTION BOX, "JB"	POST-CHLORINATION METERING PUMPS JUNCTION BOX	1 1/4"	(4) 2-CONDUCTOR SHIELDED CABLES	
J6	EXISTING JUNCTION BOX, "JB"	PRE-CHLORINATION METERING PUMPS JUNCTION BOX	1 1/4"	(4) 2-CONDUCTOR SHIELDED CABLES	
J7	EXISTING JUNCTION BOX, "JB"	FILLING STATION ALARM PANEL	3/4"	(1) 2-CONDUCTOR SHIELDED CABLE	
J8A	EXISTING JUNCTION BOX, "JB"	TEMPORARY POST-CHLORINATION METERING PUMP	2"	(2) 2-CONDUCTOR SHIELDED CABLES	CIRCUITS, "J8A" AND "J8B" SHARE CONDUIT J8
J8B	EXISTING JUNCTION BOX, "JB"	TEMPORARY POST-CHLORINATION METERING PUMP	2"	(6) – #14, (1) – #14 GRD	CIRCUITS, "J8A" AND "J8B" SHARE CONDUIT J8
J9A	EXISTING JUNCTION BOX, "JB"	TEMPORARY PRE-CHLORINATION METERING PUMP	2"	(2) 2-CONDUCTOR SHIELDED CABLES	CIRCUITS, "J9A" AND "J9B" SHARE CONDUIT J9
J9B	EXISTING JUNCTION BOX, "JB"	TEMPORARY PRE-CHLORINATION METERING PUMP	2"	(6) – #14, (1) – #14 GRD	CIRCUITS, "J9A" AND "J9B" SHARE CONDUIT J9
J10	EXISTING JUNCTION BOX, "JB"	ULTRASONIC LEVEL TRANSMITTER, LT-117	3/4"	(1) 2-CONDUCTOR SHIELDED CABLE	

ELECTRICAL EQUIPMENT AND INSTRUMENTATION SCHEDULE

ITEM	DESCRIPTION	MANUFACTURER	MODEL NO.
A	WALL MOUNTED COOLING THERMOSTAT – SNAP ACTION, SPDT LINE VOLTAGE AIR SWITCH CONTROLLER. RANGE: -30° – 100°F, SET AT 75°F. MOUNT 4 FEET ABOVE FINISHED FLOOR.	HONEYWELL	T775A2009/U OR EQUAL
B	ULTRASONIC LEVEL TRANSMITTER	SEE SPECIFICATIONS	SEE SPECIFICATIONS
C	VALVE SOLENOID	SEE SPECIFICATIONS	SEE SPECIFICATIONS
D	FLOAT SWITCH	SEE SPECIFICATIONS	SEE SPECIFICATIONS

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

ELECTRICAL SCHEDULES

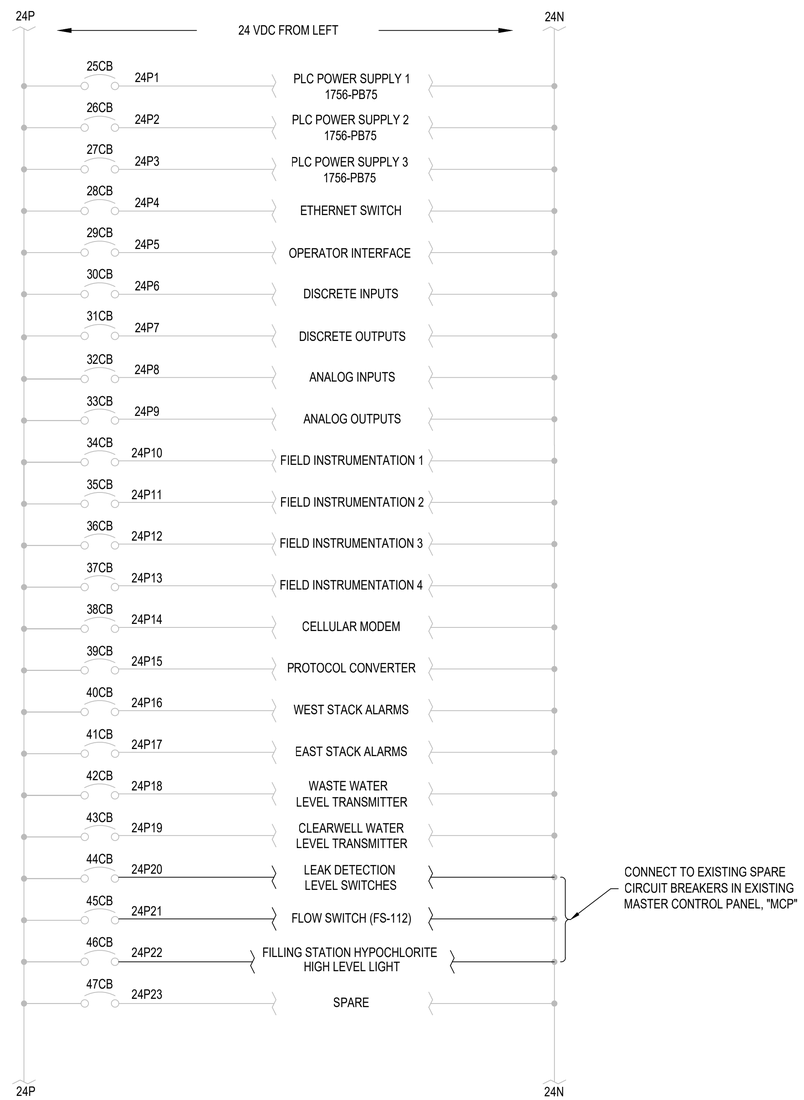
ENGINEER: KES
REVIEWED: CMR
SAVE DATE: Aug 21, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-D-ELEC07.DWG
JOB NO.: 1018-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E07
SHEET NO.: 16 / 24



POWER LAYOUT

NOT TO SCALE

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

MCP - POWER LAYOUT

ENGINEER: KES
REVIEWED: CMR
SAVE DATE: Aug 19, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-D-ELEC08.DWG
JOB NO.: 10187-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

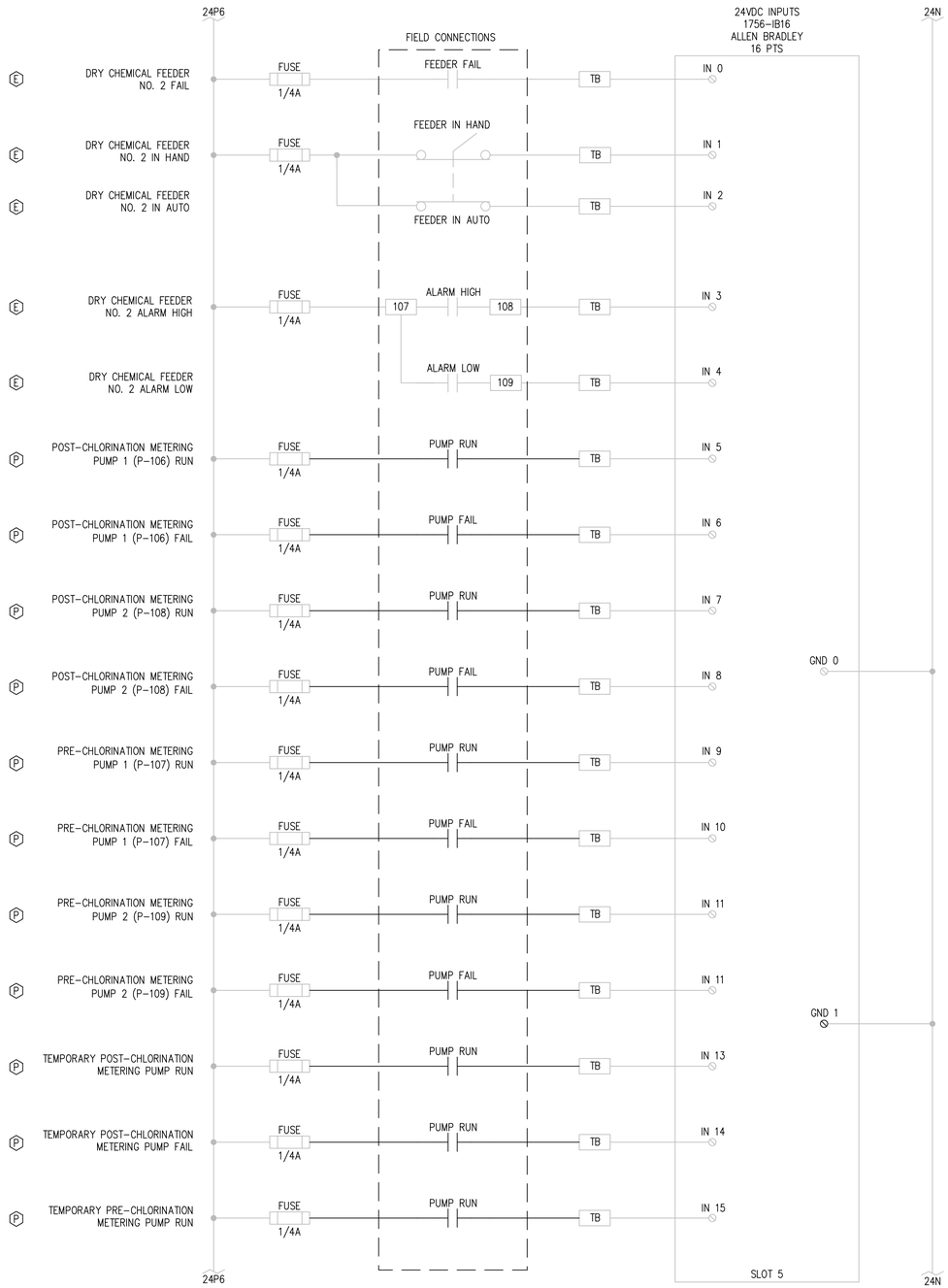
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

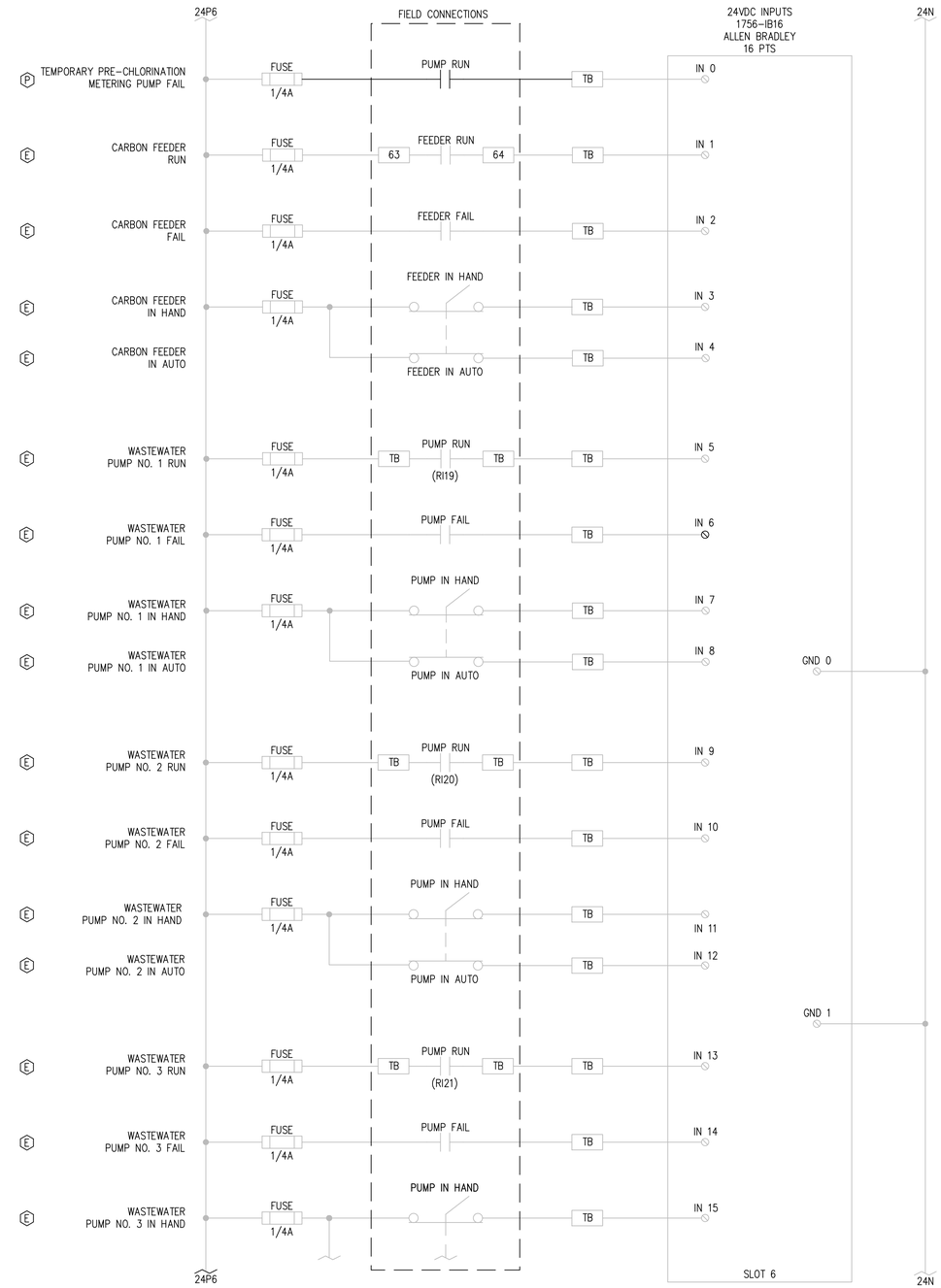
DWG NO.: E08

SHEET NO.: 17 / 24



DIGITAL INPUTS, SLOT 5

NOT TO SCALE



DIGITAL INPUTS, SLOT 6

NOT TO SCALE

ELECTRICAL NOTES	
E	1. EXISTING EQUIPMENT OR CONNECTION.
P	2. PROPOSED EQUIPMENT OR CONNECTION.

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

TELEMETRY PLANS I

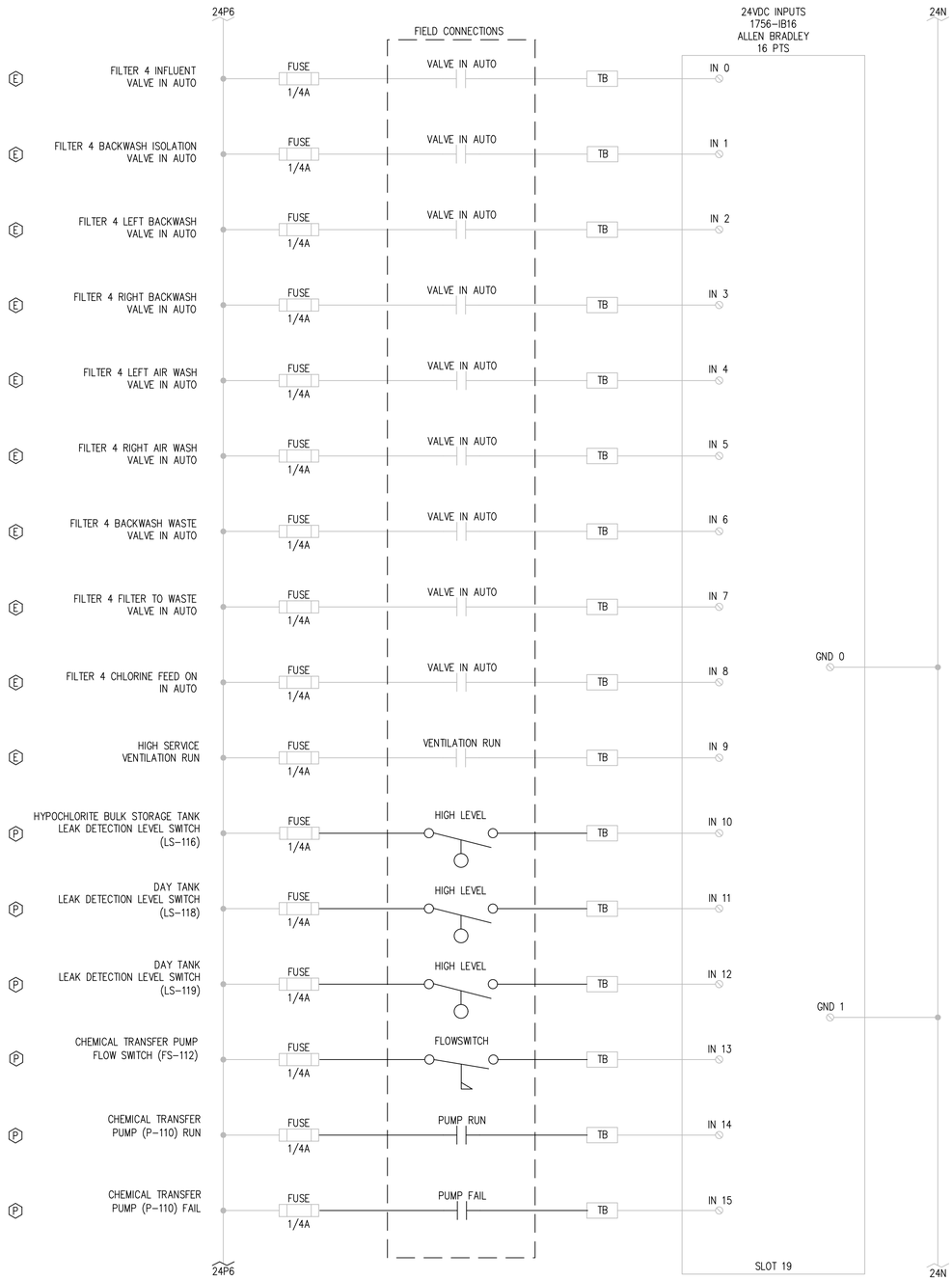
ENGINEER: KES
REVIEWED: CMR
SAVE DATE: Aug 19, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-D-ELEC08.DWG
JOB NO.: 1018-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

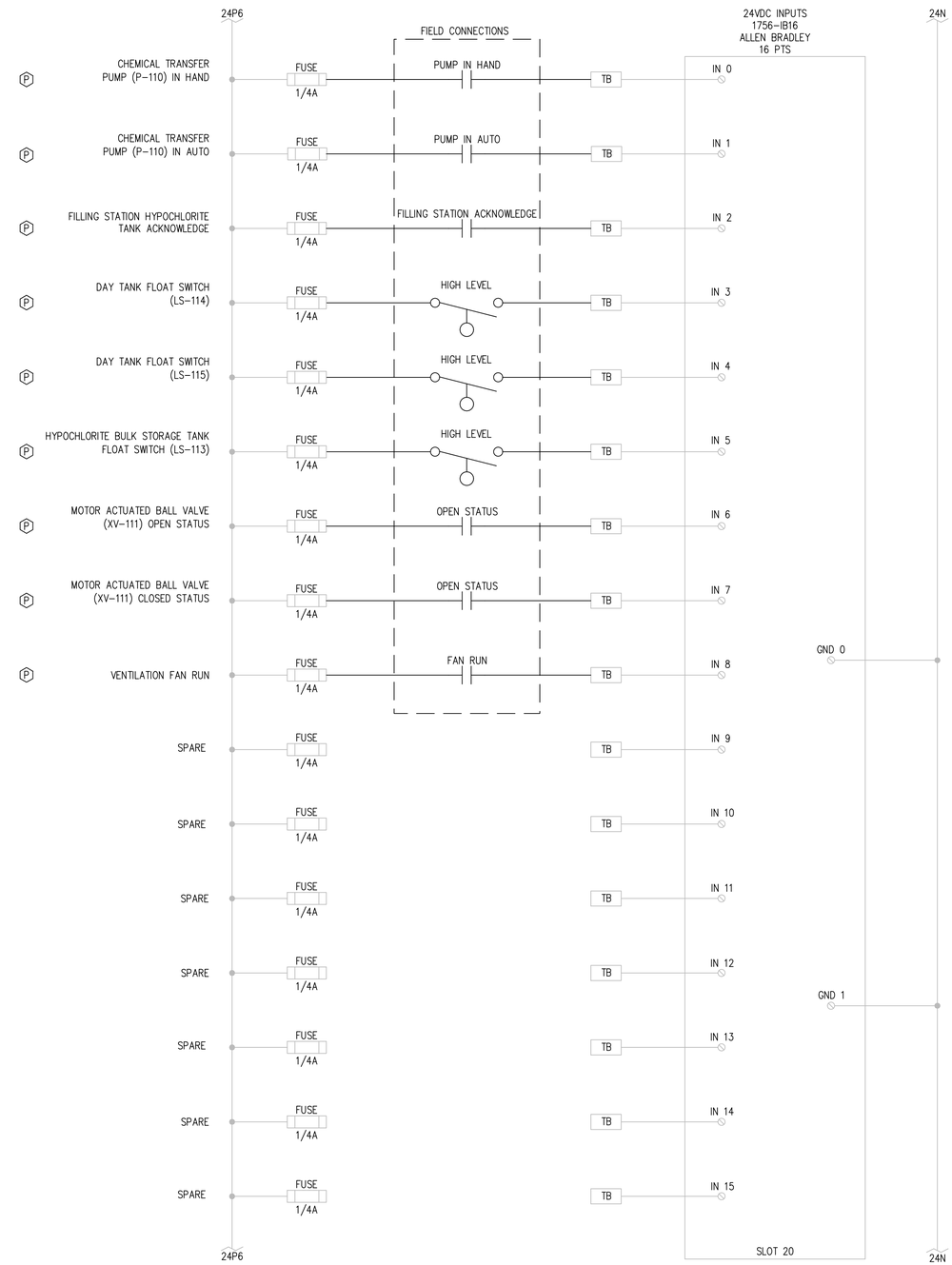
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E09
SHEET NO.: 18 / 24



DIGITAL INPUTS, EXISTING SLOT 19

NOT TO SCALE



DIGITAL INPUTS, EXISTING SLOT 20

NOT TO SCALE

ELECTRICAL NOTES	
E	1. EXISTING EQUIPMENT OR CONNECTION.
P	2. PROPOSED EQUIPMENT OR CONNECTION.

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

TELEMETRY PLANS II

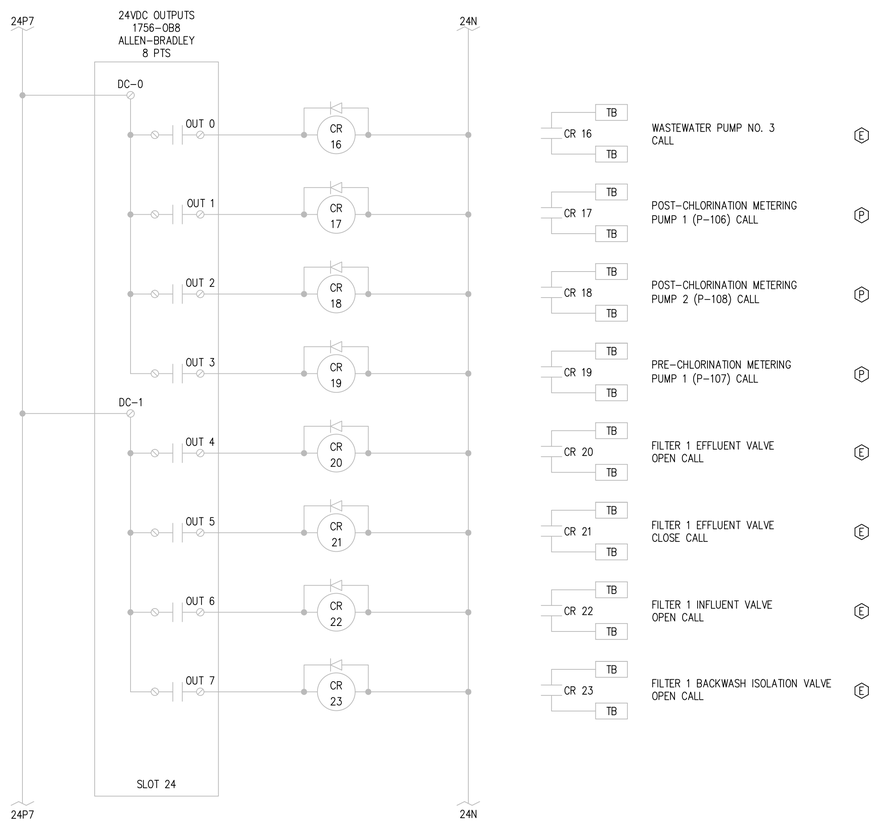
ENGINEER: KES
REVIEWED: CMR
SAVE DATE: Aug 19, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-D-ELEC08.DWG
JOB NO.: 1018-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

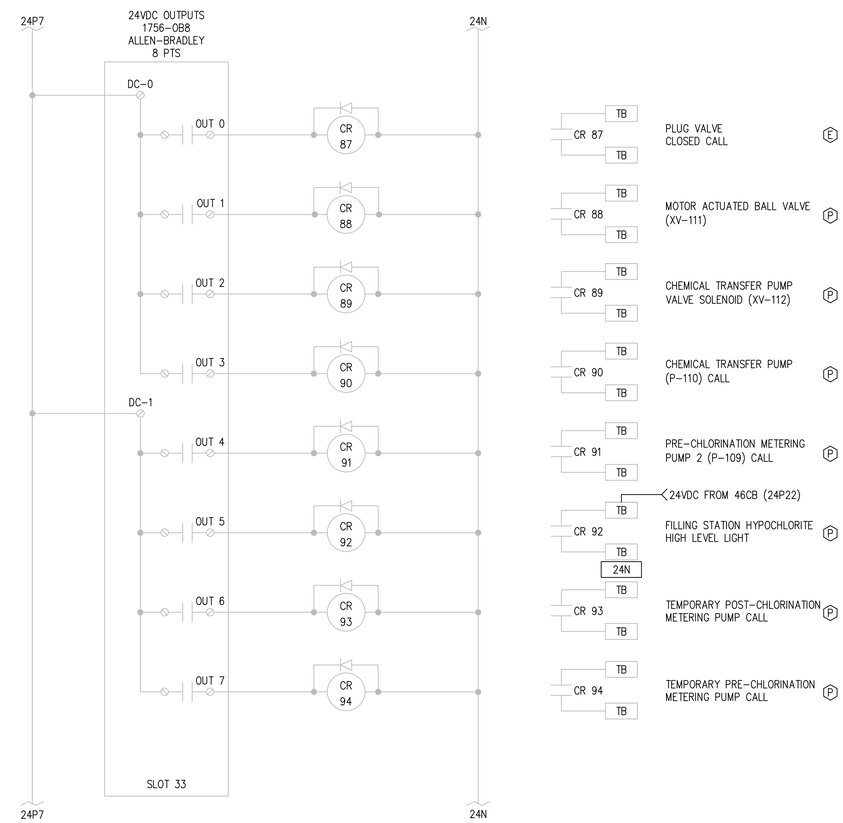
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E10
SHEET NO.: 19 / 24



DIGITAL OUTPUTS, EXISTING SLOT 24

NOT TO SCALE



DIGITAL OUTPUTS, EXISTING SLOT 33

NOT TO SCALE

ELECTRICAL NOTES	
E	1. EXISTING EQUIPMENT OR CONNECTION.
P	2. PROPOSED EQUIPMENT OR CONNECTION.

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

TELEMETRY PLANS III

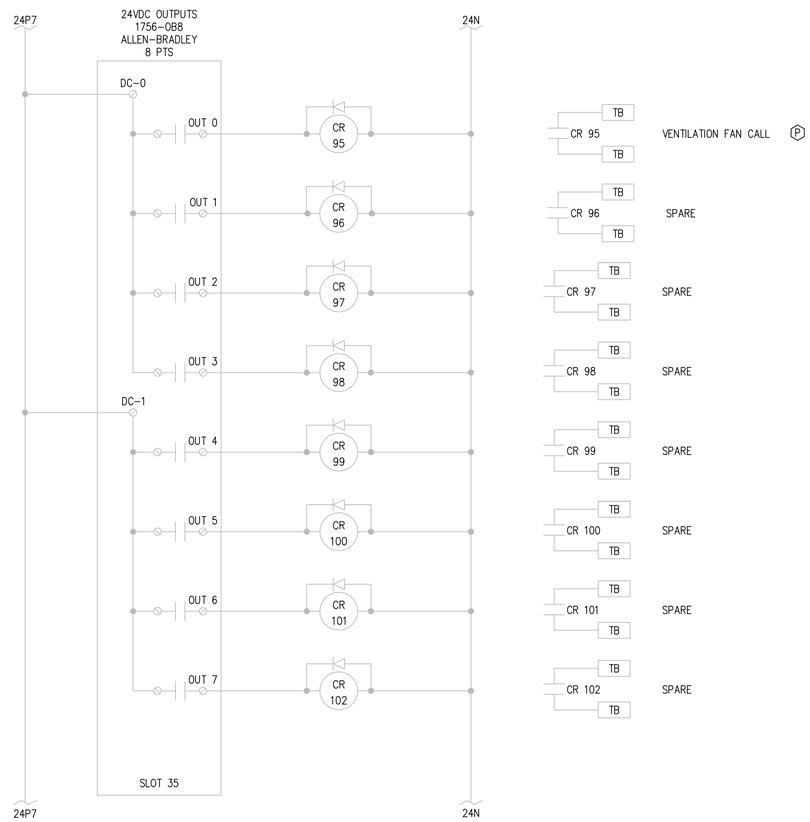
ENGINEER: KES
REVIEWED: CMR
SAVE DATE: Aug 19, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-DELEC08.DWG
JOB NO.: 1018-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

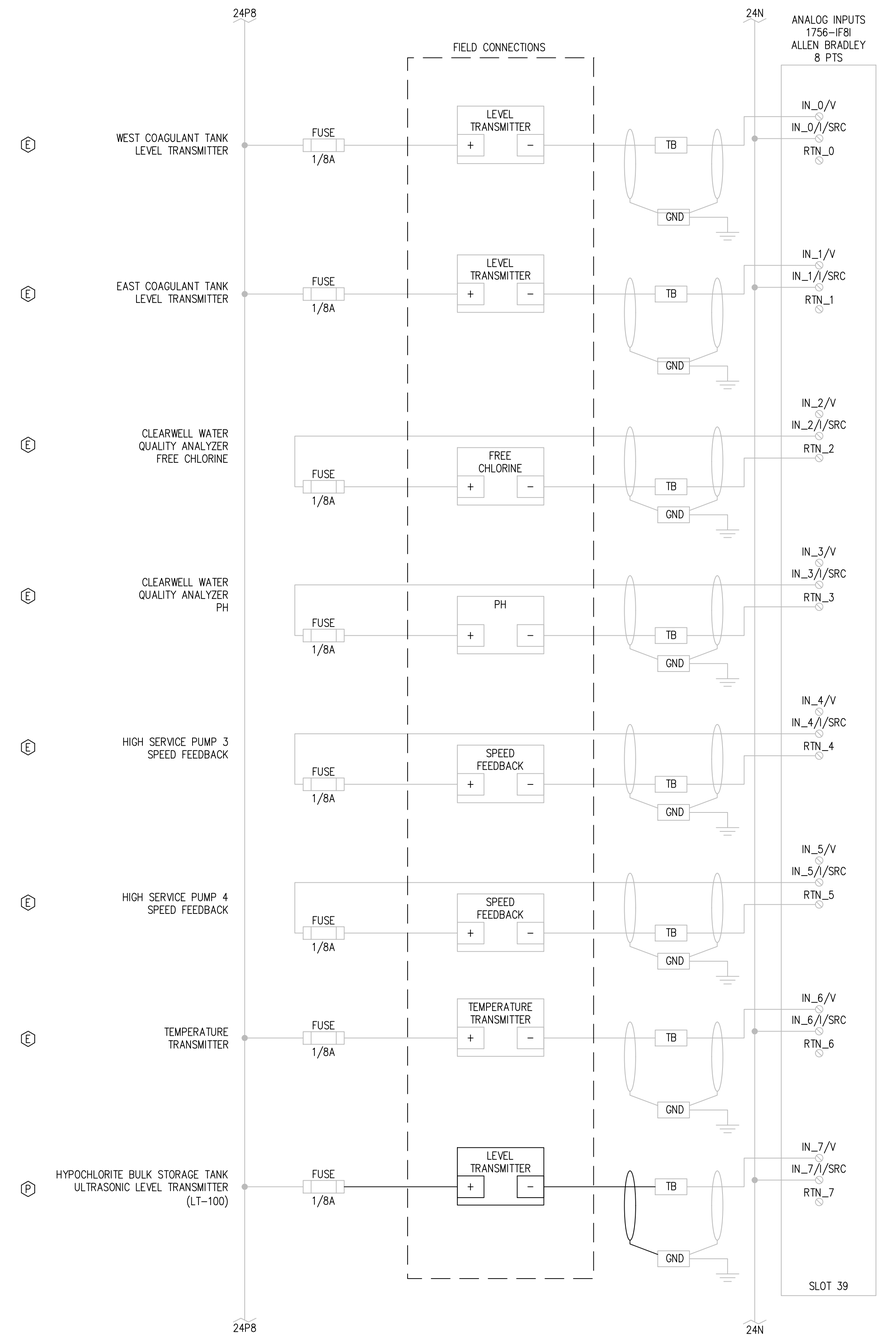
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E11
SHEET NO.: 20 / 24



DIGITAL OUTPUTS, EXISTING SLOT 35

NOT TO SCALE



ANALOG INPUTS, EXISTING SLOT 39

NOT TO SCALE

ELECTRICAL NOTES	
E	1. EXISTING EQUIPMENT OR CONNECTION.
P	2. PROPOSED EQUIPMENT OR CONNECTION.

RH2

REGISTERED PROFESSIONAL ENGINEER
86610
OREGON
MARCH 13, 2012
CHRISTOPHER M. ROBERTS
EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM
IMPROVEMENTS

TELEMETRY PLANS IV

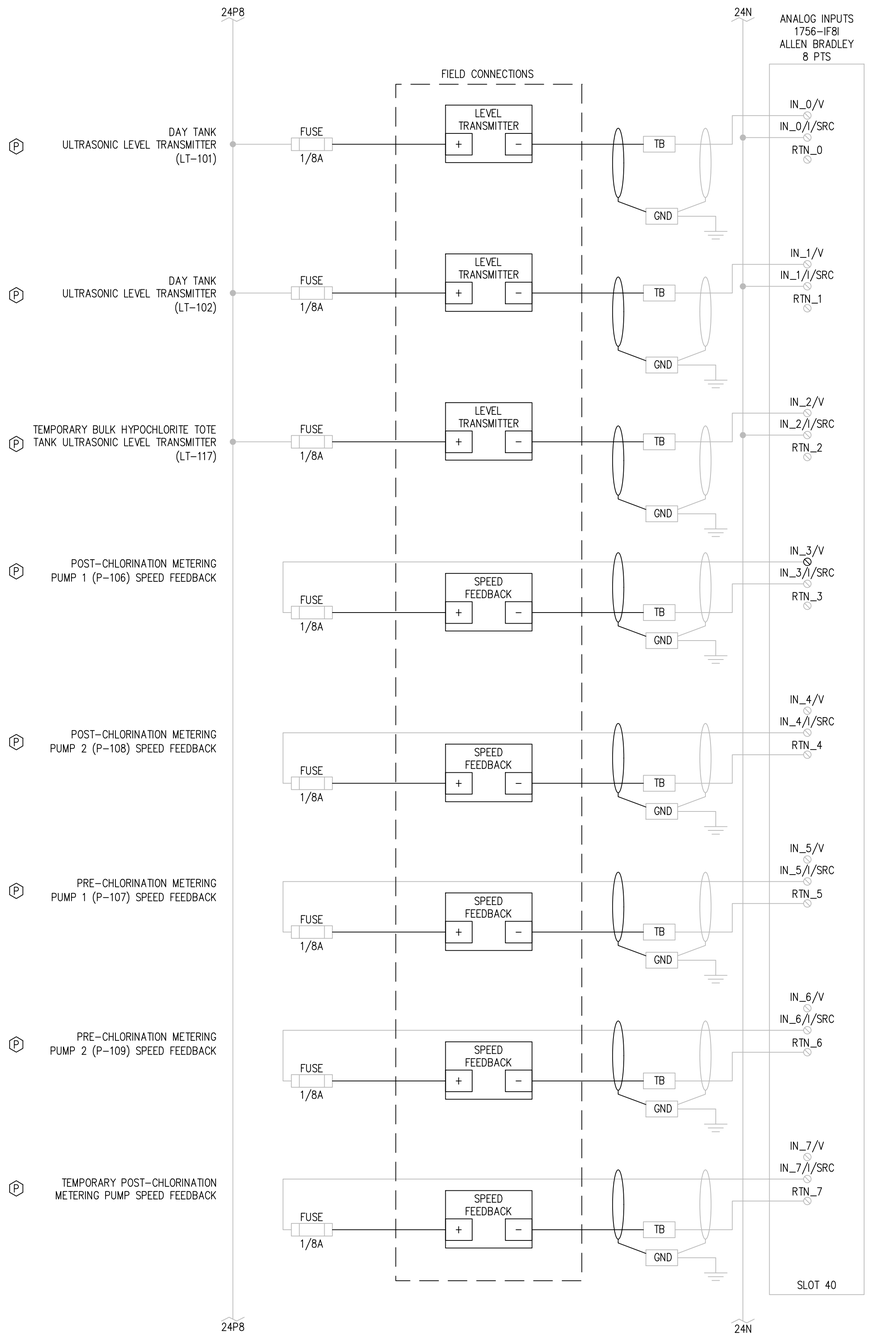
ENGINEER: KES
REVIEWED: CMR
SAVE DATE: Aug 19, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-D-ELEC08.DWG
JOB NO.: 1018-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

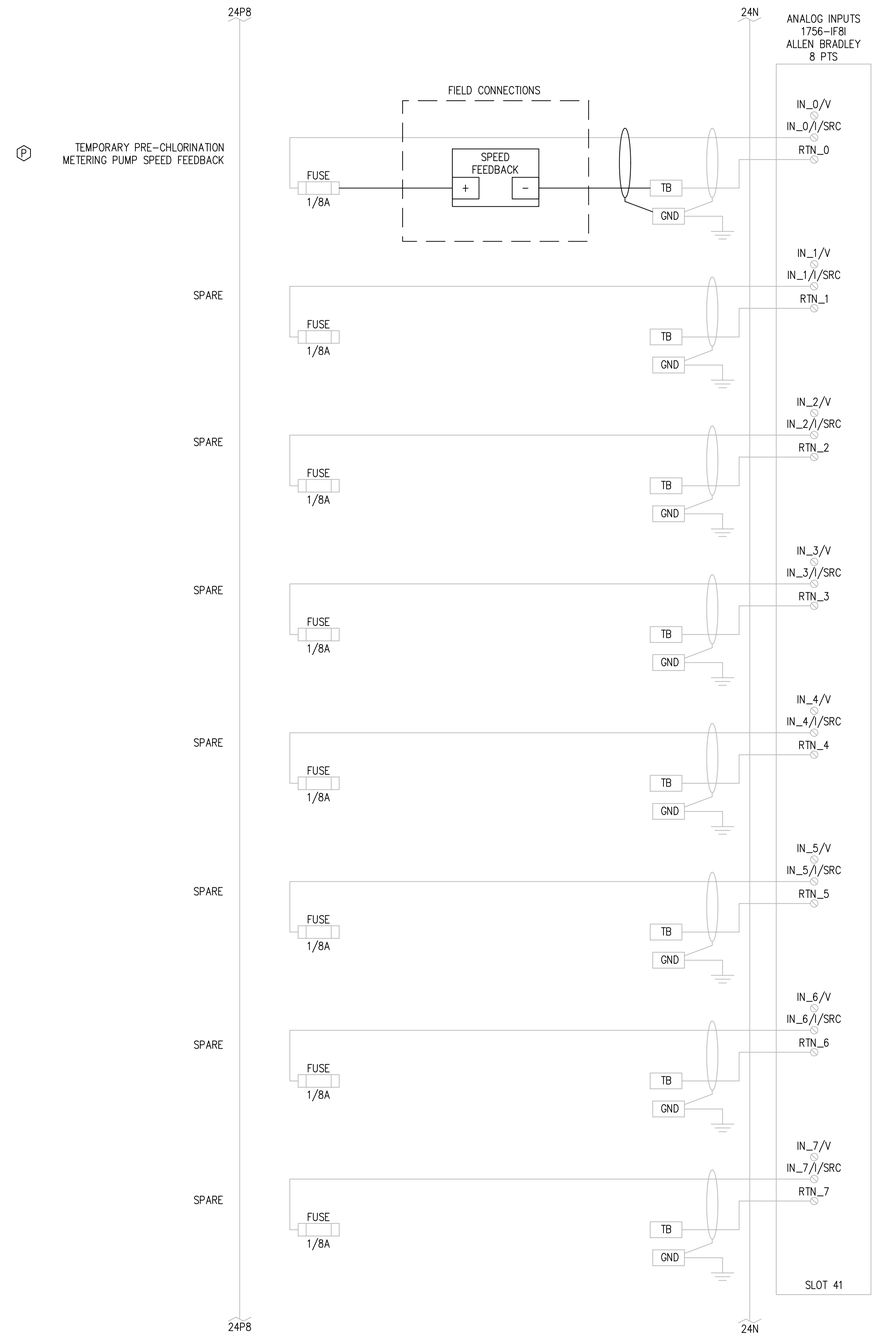
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E12
SHEET NO.: 21 / 24



ANALOG INPUTS, EXISTING SLOT 40

NOT TO SCALE



ANALOG INPUTS, EXISTING SLOT 41

NOT TO SCALE

ELECTRICAL NOTES	
E	1. EXISTING EQUIPMENT OR CONNECTION.
P	2. PROPOSED EQUIPMENT OR CONNECTION.

RH2

REGISTERED PROFESSIONAL ENGINEER
86610
OREGON
MARCH 13, 2012
CHRISTOPHER M. ROBERTS
EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

TELEMETRY PLANS V

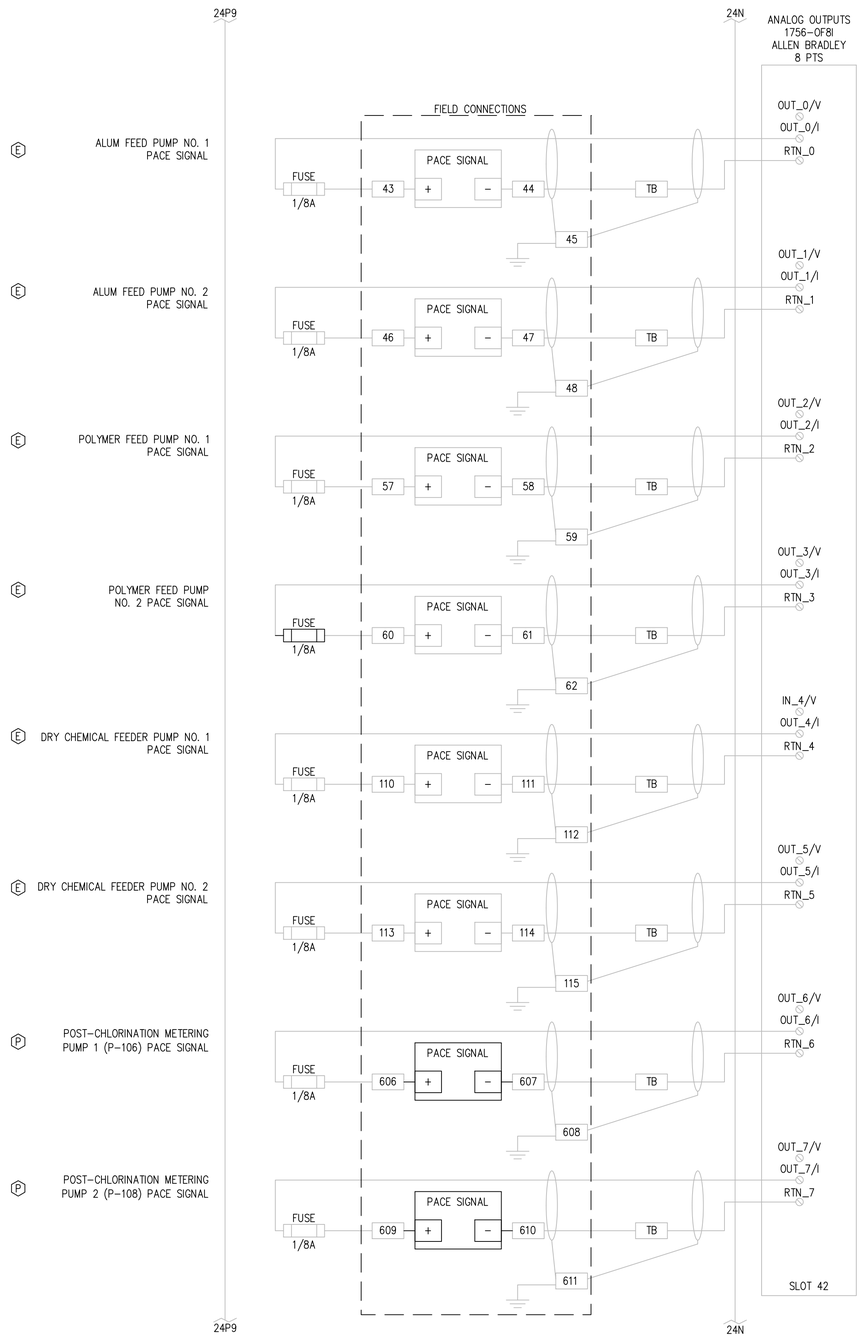
ENGINEER: KES | SAVE DATE: Aug 19, 2019 | CLIENT: CITY OF ROSEBURG | JOB NO.: 1018-190
REVIEWED: CMR | PLOT DATE: Aug 21, 2019 | FILENAME: ROSCL-D-ELEC08.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

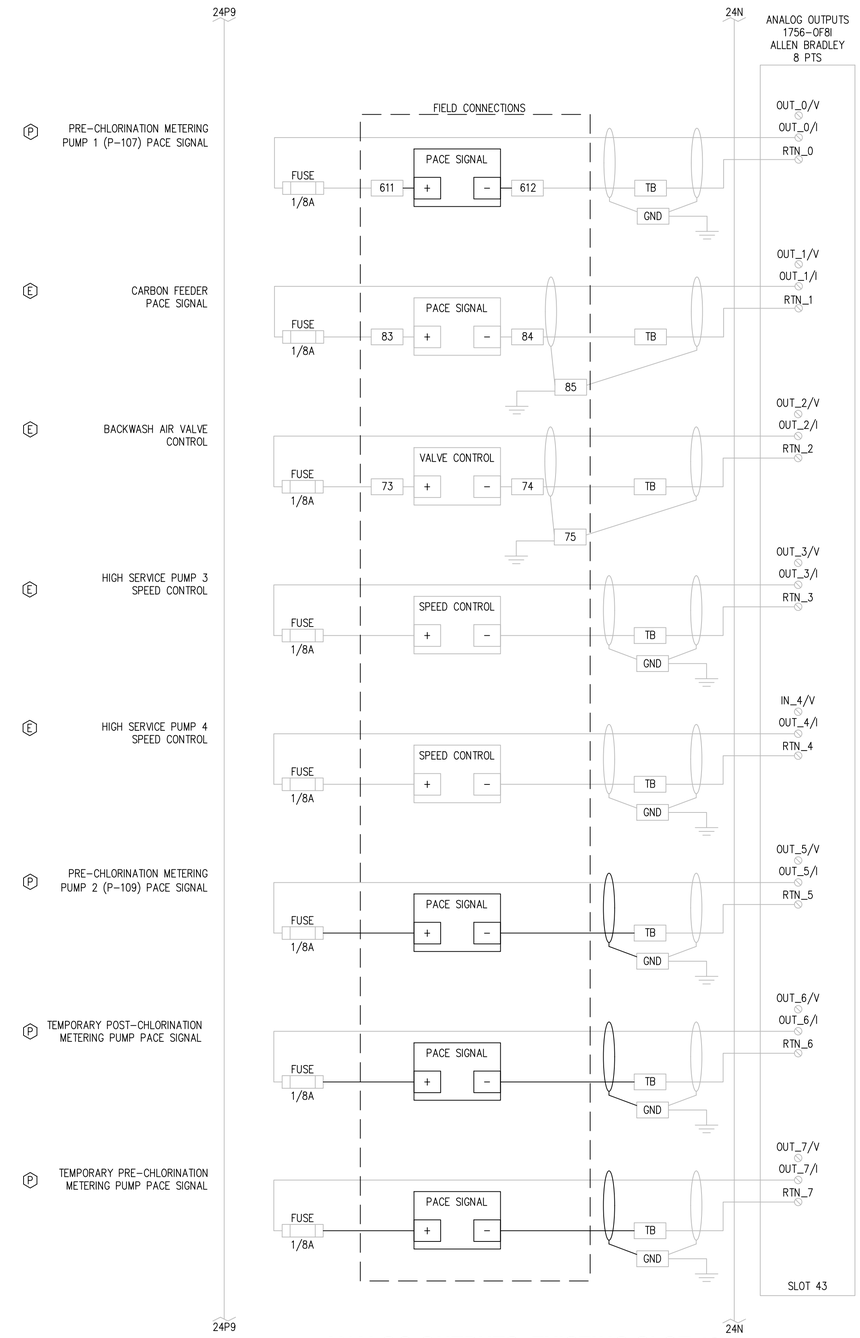
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E13
SHEET NO.: 22 / 24



ANALOG OUTPUTS, EXISTING SLOT 42

NOT TO SCALE



ANALOG OUTPUTS, EXISTING SLOT 43

NOT TO SCALE

ELECTRICAL NOTES	
E	1. EXISTING EQUIPMENT OR CONNECTION.
P	2. PROPOSED EQUIPMENT OR CONNECTION.

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

TELEMETRY PLANS VI

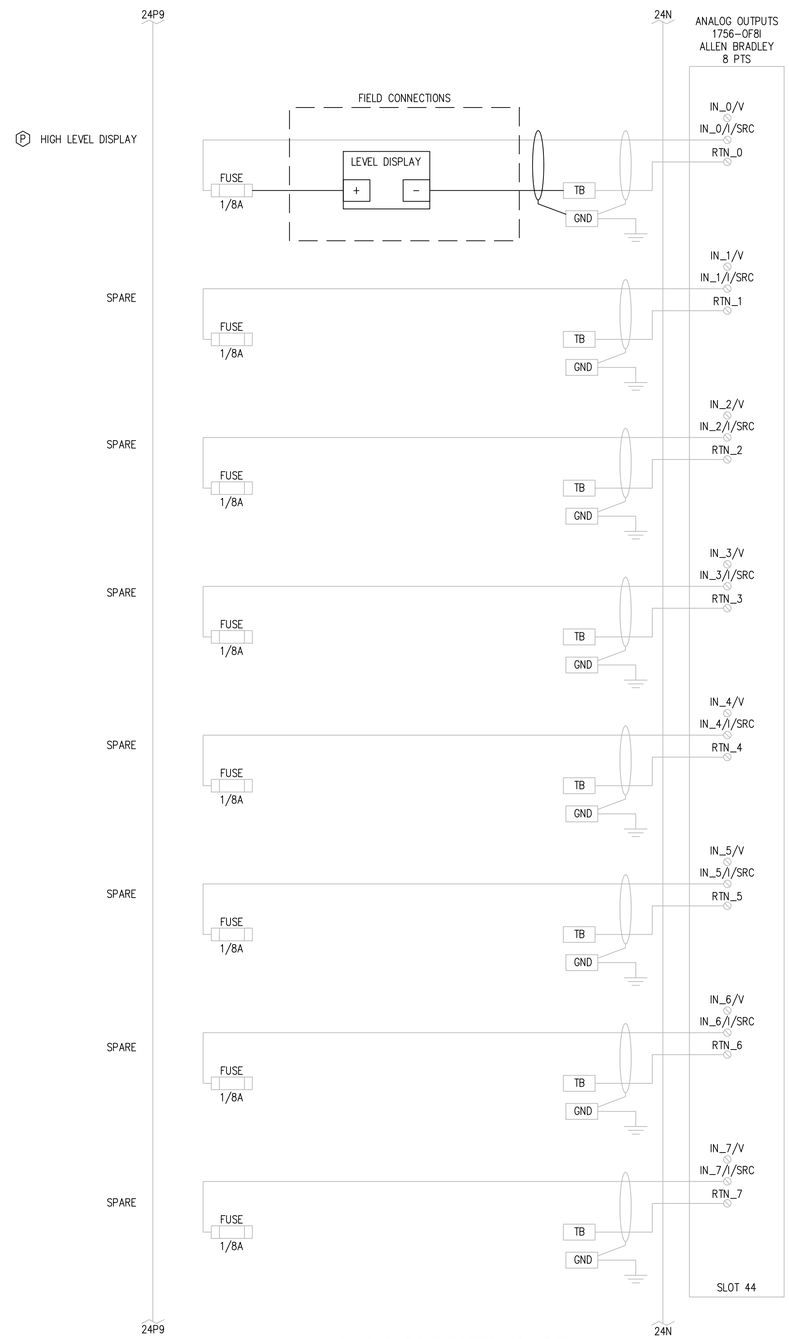
ENGINEER: KES
REVIEWED: CMR
SAVE DATE: Aug 19, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-D-ELEC08.DWG
JOB NO.: 1018-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E14
SHEET NO.: 23 / 24



ANALOG OUTPUTS, SLOT 44

NOT TO SCALE

ELECTRICAL NOTES	
E	1. EXISTING EQUIPMENT OR CONNECTION.
P	2. PROPOSED EQUIPMENT OR CONNECTION.

RH2

REGISTERED PROFESSIONAL ENGINEER 86610 OREGON MARCH 13, 2012 CHRISTOPHER M. ROBERTS

EXPIRES: 12/31/2020
SIGNED: 08/19/19

CITY OF ROSEBURG
CHLORINATION SYSTEM IMPROVEMENTS

TELEMETRY PLANS VII

ENGINEER: KES
REVIEWED: CMR
SAVE DATE: Aug 19, 2019
PLOT DATE: Aug 21, 2019
CLIENT: CITY OF ROSEBURG
FILENAME: ROSCL-D-ELEC08.DWG
JOB NO.: 1018-190

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E15

SHEET NO.: 24 / 24